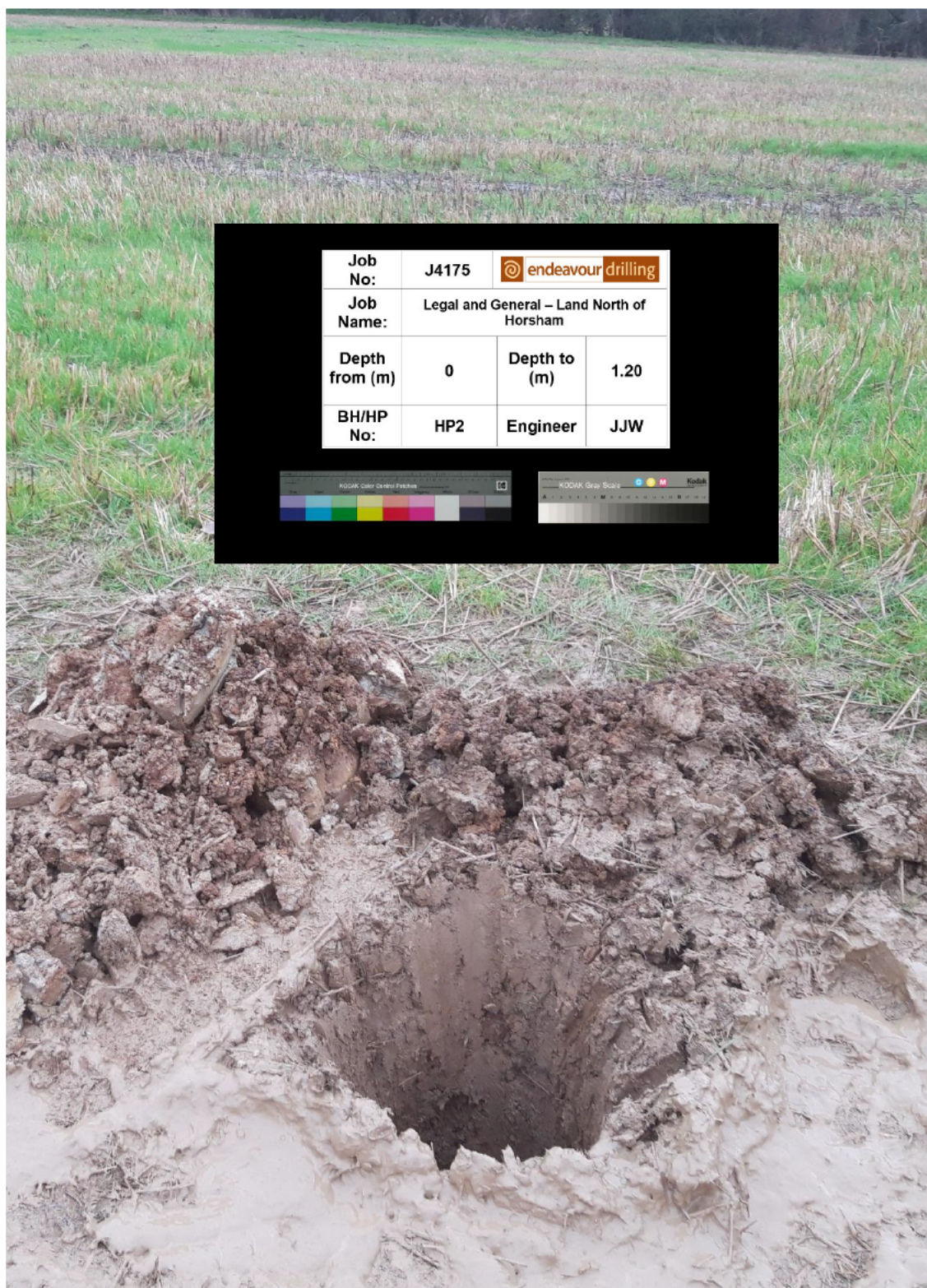




HP2 – 0.0mbgl – 1.20mbgl



HP2 – 0.0mbgl – 1.20mbgl

	Contract Name: Land North of Horsham						Client: Legal & General							Trial Pit ID:																					
								Contract Number: J4175		Date Started: 17/12/2019		Logged By: JJW		Checked By: MJS		Status: PRELIM		HP103																	
Trial Pit Log								Easting:		Northing:		Ground Level:		Plant Used: Hand Tools		Date Printed: 17/01/2020		Sheet 1 of 1 Scale: 1:30																	
Weather: Occasional showers								Termination: Reached target depth.							Stability: Good																				
Samples & In Situ Testing								Strata Details											Water	Backfill															
Depths		Sample ID		Test Result		Reduced Level	Depth (m) (Thickness)	Legend	Strata Description																										
0.10		ES1					(0.30)		TOP SOIL - Dark brown silty sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded of brick.																										
0.50		ES2					0.30		Stiff dark reddish brown mottled grey and orange slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular of extremely weak mudstone. (RESIDUAL WEALD CLAY FORMATION)																										
							(0.90)									1																			
							1.20		End of Trial Pit at 1.20m																										
																2																			
																3																			
																4																			
Dimensions:									General Remarks:																										
Final Depth: 1.20m									1. Inspection pit hand excavated to 1.20mbgl. 2. No groundwater encountered. 3. Backfilled with arisings on completion.																										
← Length (m) → 0.30m ↑ Width (m) 0.30m ↓ Orientation: ° ←									<table border="1" style="width: 100%;"><thead><tr><th colspan="6">Water Strikes</th></tr><tr><th>Strike (m)</th><th>Casing (m)</th><th>Sealed (m)</th><th>Time (mins)</th><th>Rose to (m)</th><th>Remarks</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>									Water Strikes						Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks						
Water Strikes																																			
Strike (m)	Casing (m)	Sealed (m)	Time (mins)	Rose to (m)	Remarks																														
Inclination: °									HBSI TP Template Issue Number: 1 Issue Date: 09/06/2015																										



HP1 – 0.0mbgl – 1.20mbgl



HP1 – 0.0mbgl – 1.20mbgl

APPENDIX I

Monitoring Records



Gas and Water Level Readings

Client: PBA / STANTEC
Site: HORSHAM

Date: 03/01/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	1	03/01/2020	6.00	6.00	0	3.1	11.4	1018	0	0	0	0.10	2.68	NO	0	GA2000	-
BH202	1	03/01/2020	7.00	7.00	0	0.1	19.9	1018	0	0	4	0.10	3.2	NO	0	GA2000	-
BH203	1	03/01/2020	6.00	5.50	0	1.0	10.7	1017	0	0	0	2.80	1.55	NO	0	GA2000	-
BH204	1	03/01/2020	6.00	3.40	0.0	0.8	17.2	1016	0	0	0	0	2	NO	0	GA2000	-
BH205	1	03/01/2020	6.00	5.93	0	1.8	15.4	1017	0	0	0	0	2.5	NO	0	GA2000	-
BH206	1	03/01/2020	6.00	6.00	0	0	20.3	1018	0	0	0	0	1.24	NO	0	GA2000	-
BH207	1	03/01/2020	7.00	5.20	0	0.2	20.4	1018	0	0	1	0	2.48	NO	0	GA2000	-
BH208	1	03/01/2020	6.00	5.87	0	0.6	19.2	1017	0	0	3	0.3	1.12	NO	0	GA2000	Fast Inflow
WS201	1	03/01/2020	2.00	1.90	0	5.9	13	1018	0	0	4	0.3	Ground Level	NO	0	GA2000	-
WS202A	1	03/01/2020	1.80	1.72	9	2.1	18.2	1008	0	0	6	-	0.73	NO	0	GA2000	No flow recorded
WS204A	1	03/01/2020	2.00	1.89	2	14.8	11.5	1018	0	3	48	-	0.9	NO	0.80	GA2000	No flow recorded
WS205A	1	03/01/2020	1.60	1.55	0.2	1.7	12.4	1018	0	4	1	0.2	0.59	NO	0	GA2000	Fast inflow
WS206	1	03/01/2020	2.00	1.95	0.5	20.4	13	1017	0	8	6	0.3	0.58	NO	12	GA2000	-
WS207A	1	03/01/2020	4.50	4.31	0	0.7	15.6	1008	0	0	0	0	1.76	NO	1	GA2000	-



Gas and Water Level Readings

Client: PBA / STANTEC
Site: HORSHAM

Date: 17/01/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	2	17.01.2020	6.00	6.00	0	3.0	0.9	1009	0	0	0	-0.20	2.61	NO	-	GA2000	-
BH202	2	17.01.2020	7.00	7.00	0	0.1	18.6	1008	0	0	6	0	3.1	NO	-	GA2000	-
BH203	2	17.01.2020	6.00	5.50	0	1.9	17.7	1009	0	0	0	-0.10	2.01	NO	-	GA2000	-
BH204	2	17.01.2020	6.00	3.40	0.0	1.1	15.3	1009	0	0	1	-1.50	1.56	NO	-	GA2000	-
BH205	2	17.01.2020	6.00	5.93	0	2.1	15.4	1009	0	0	0	1.1	0.94	NO	-	GA2000	-
BH206	2	17.01.2020	6.00	6.00	0	0	16.2	1007	0	0	1	1	0.43	NO	-	GA2000	-
BH207	2	17.01.2020	7.00	5.20	0	0.2	20.2	1008	0	0	0	0.3	2.40	NO	-	GA2000	-
BH208	2	17.01.2020	6.00	5.87	0	2.5	17	1007	0	0	3	-1.4	0.5	NO	-	GA2000	Fast Inflow
WS201	2	17.01.2020	2.00	1.90	0	0.3	3.3	1008	0	0	0	-	0.75	NO	-	GA2000	No flow recorded
WS202A	2	17.01.2020	1.80	1.72	0	3	15.2	1005	0	0	0	-	0.20	NO	-	GA2000	No flow recorded
WS204A	2	17.01.2020	2.00	1.89	0.1	16	4.2	1004	0	2	1	-	1.04	NO	-	GA2000	No flow recorded
WS205A	2	17.01.2020	1.60	1.55	0	6.5	16.1	1004	0	0	0	-	0.84	NO	-	GA2000	Fast inflow & No flow recorded
WS206	2	17.01.2020	2.00	1.95	0.3	13.6	14.5	1003	0	5	1	-	1.04	NO	-	GA2000	No flow recorded
WS207A	2	17.01.2020	4.50	4.31	0	1.1	14.1	1008	0	0	0	0	1.45	NO	-	GA2000	-



Gas and Water Level Readings

Client: PBA / STANTEC
Site: HORSHAM

Date: 29/01/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	3	29.01.2020	6.00	6.00	0.0	2.9	2.7	1007	0	0	0	0.0	2.45	NO	-	GA2000	
BH202	3	29.01.2020	7.00	7.00	0.0	0.2	18.5	1007	0	0	4	0.0	2.80	NO	-	GA2000	
BH203	3	29.01.2020	6.00	5.50	0.0	0.4	19.2	1006	0	0	0	-0.1	1.90	NO	-	GA2000	
BH204	3	29.01.2020	6.00	3.40	0.0	0.5	18	1006	0	0	0	0.0	2.11	NO	-	GA2000	
BH205	3	29.01.2020	6.00	5.93	0.0	1.2	18.2	1006	0	0	0	0	1.57	NO	-	GA2000	
BH206	3	29.01.2020	6.00	6.00	0.0	0.3	19.7	1007	0	0	0	0.8	1.07	NO	-	GA2000	
BH207	3	29.01.2020	7.00	5.20	0.0	6.2	20	1007	0	0	0	0	2.45	NO	-	GA2000	
BH208	3	29.01.2020	6.00	5.87	0.0	0.1	20.1	1007	0	0	0	0	1.06	NO	-	GA2000	
WS201	3	29.01.2020	2.00	1.90	0.0	3.4	16.9	1007	0	0	0	-	1.00	NO	-	GA2000	No flow recorded
WS202A	3	29.01.2020	1.80	1.72	0.0	2.8	19	1007	0	0	1	-	0.72	NO	-	GA2000	No flow recorded
WS204A	3	29.01.2020	2.00	1.89	0.0	6.5	14.6	1007	0	1	1	-0.3	0.78	NO	-	GA2000	
WS205A	3	29.01.2020	1.60	1.55	0.0	5	16.2	1006	0	0	6	0.6	0.55	NO	-	GA2000	
WS206	3	29.01.2020	2.00	1.95	0.0	14.9	12.6	1006	0	0	5	-1.3	0.94	NO	-	GA2000	
WS207A	3	29.01.2020	4.50	4.31	0.0	0.9	16.1	1007	0	0	0	0	1.68	NO	-	GA2000	



Gas and Water Level Readings

Client: PBA / STANTEC
Site: HORSHAM

Date: 13/02/20

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	4	13.02.2020	6.00	6.00	0.1	2.7	7.9	1004	0	1	0	0.0	1.80	NO	-	GA2000	
BH202	4	13.02.2020	7.00	7.00	0.0	0.3	18.9	1004	0	0	0	0.0	2.76	NO	-	GA2000	
BH203	4	13.02.2020	6.00	5.50	0.0	0.4	19.7	1014	0	0	0	0.0	1.92	NO	-	GA2000	
BH204	4	13.02.2020	6.00	3.40	0.0	0.7	17.6	1014	0	0	0	-4.0 / -3.0	2.28	NO	-	GA2000	
BH205	4	13.02.2020	6.00	5.93	0.0	1.1	17.9	1014	0	0	0	0.0	0.95	NO	-	GA2000	
BH206	4	13.02.2020	6.00	6.00	0.0	0.5	19.8	1016	0	0	0	0.0	0.57	NO	-	GA2000	
BH207	4	13.02.2020	7.00	5.20	0.0	0.3	18.4	1016	0	0	0	-0.1	2.30	NO	-	GA2000	
BH208	4	13.02.2020	6.00	5.87	0.0	1.9	18.8	989	0	0	0	0.0	0.79	NO	-	GA2000	
WS201	4	13.02.2020	2.00	1.90	0.0	4.4	15.1	1004	0	0	0	-	0.76	NO	-	GA2000	No flow recorded
WS202A	4	13.02.2020	1.80	1.72	0.0	3.5	17.9	991	0	0	0	-	0.64	NO	-	GA2000	No flow recorded
WS204A	4	13.02.2020	2.00	1.89	0.0	11.5	15	991	0	1	0	-	0.76	NO	-	GA2000	No flow recorded
WS205A	4	13.02.2020	1.60	1.55	0.0	2.9	17	991	0	0	2	-0.9	0.43	NO	-	GA2000	
WS206	4	13.02.2020	2.00	1.95	0.0	15.8	13	991	0	0	0	-3.0	0.82	NO	-	GA2000	
WS207A	4	13.02.2020	4.50	4.31	0.0	1.5	13.8	1016	0	0	0	-0.1	1.35	NO	-	GA2000	



Gas and Water Level Readings

Client: PBA / STANTEC
Site: HORSHAM

Date: 28/02/2020

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	5	28/02/2020	6.00	6.00	0	2.7	18	1005	0	0	0	0	1.40	NO	-	GA2000	
BH202	5	28/02/2020	7.00	7.00	0	0.3	18.7	1005	0	0	0	0.1	2.70	NO	-	GA2000	
BH203	5	28/02/2020	6.00	5.50	0	0.7	19.5	1004	0	0	0	0	4.50	NO	-	GA2000	
BH204	5	28/02/2020	6.00	3.40	0	0.8	13	1004	0	0	1	+0.8/+0.4	Dry?	NO	-	GA2000	
BH205	5	28/02/2020	6.00	5.93	0	0.1	20.9	1004	0	0	0	0	1.40	NO	-	GA2000	
BH206	5	28/02/2020	6.00	6.00	0	0.1	21.2	1004	0	0	0	0	0.55	NO	-	GA2000	
BH207	5	28/02/2020	7.00	5.20	0	0.2	20.2	1004	0	0	0	0	2.25	NO	-	GA2000	
BH208	5	28/02/2020	6.00	5.87	0	0.3	20.1	1005	0	0	0	+0.7/+0.1	0.9	NO	-	GA2000	
WS201	5	28/02/2020	2.00	1.90	0	3.2	16.8	1006	0	0	0	-	0.8	NO	-	GA2000	
WS202A	5	28/02/2020	1.80	1.72	0	2.7	19	1006	0	0	0	-	0.71	NO	-	GA2000	
WS204A	5	28/02/2020	2.00	1.89	0	11.5	14.8	1006	0	1	0	-0.1	0.79	NO	-	GA2000	
WS205A	5	28/02/2020	1.60	1.55	0	3	16.1	1006	0	0	0	+0.2	0.50	NO	-	GA2000	
WS206	5	28/02/2020	2.00	1.95	0	16	12.8	1006	0	0	0	+1.3	0.88	NO	-	GA2000	
WS207A	5	28/02/2020	4.50	4.31	0	0.9	14	1005	0	0	0	0	1.40	NO	-	GA2000	



Gas and Water Level Readings

Client: PBA / STANTEC
Site: HORSHAM

Date: 13/03/2020

Remarks:

It should be noted it was not possible to get a reliable flow reading within some window samples/boreholes due to the water level being above the responsive zone.

Window Sample No.	Round	Date monitored	Install depth (mbgl)	Depth dipped (mbgl)	CH4 % Peak/stable	CO2 % Peak/Stable	O2 %	mB	H2S ppm	LEL	CO ppm	Flow l/h peak/stable	Water Level (mbgl)	Water samples taken	PID Reading (ppm)	Gas Analyser	Any Colouration / Odour noted / Comments
BH201	6	13/03/2020	6.00	6.00	0.1	2.5	16.2	1016	0	1	0	0.0	1.32	NO	-	GA2000	
BH202	6	13/03/2020	7.00	7.00	0.0	0.7	20.8	1016	0	0	0	+0.1	2.85	NO	-	GA2000	
BH203	6	13/03/2020	6.00	5.50	0.0	0.8	19.9	1017	0	0	0	0.0	1.95	NO	-	GA2000	
BH204	6	13/03/2020	6.00	3.40	0.0	0.9	13.2	1017	0	0	0	0.0	2.25	NO	-	GA2000	
BH205	6	13/03/2020	6.00	5.93	0.0	1.3	16.4	1017	0	0	0	0.0	1.32	NO	-	GA2000	
BH206	6	13/03/2020	6.00	6.00	0.0	0.6	21.1	1017	0	0	0	0.0	1.23	NO	-	GA2000	
BH207	6	13/03/2020	7.00	5.20	0.0	0.1	21.1	1017	0	0	0	0.0	2.42	NO	-	GA2000	
BH208	6	13/03/2020	6.00	5.87	0.0	1.4	21.1	1017	0	0	0	0.0	1.10	NO	-	GA2000	
WS201	6	13/03/2020	2.00	1.90	0.0	4.6	16.3	1016	0	1	1	+12.0	0.62	NO	-	GA2000	
WS202A	6	13/03/2020	1.80	1.72	0.0	2.9	18.2	1015	0	0	4	+0.6	0.59	NO	-	GA2000	
WS204A	6	13/03/2020	2.00	1.89	0.0	15.5	6.7	1015	0	0	2	-3.0/-1.2	1.00	NO	-	GA2000	
WS205A	6	13/03/2020	1.60	1.55	0.0	7	16.2	1015	0	0	1	+1.5/1.0	0.50	NO	-	GA2000	
WS206	6	13/03/2020	2.00	1.95	0.0	14	11.6	1015	0	0	5	+0.6	0.65	NO	-	GA2000	
WS207A	6	13/03/2020	4.50	4.31	0.0	2	15.6	1017	0	0	0	-0.2/0.0	1.73	NO	-	GA2000	

APPENDIX J

Geotechnical Laboratory Results



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Contact: Oliver Wendland
Site Address: L & G - LNO Horsham

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

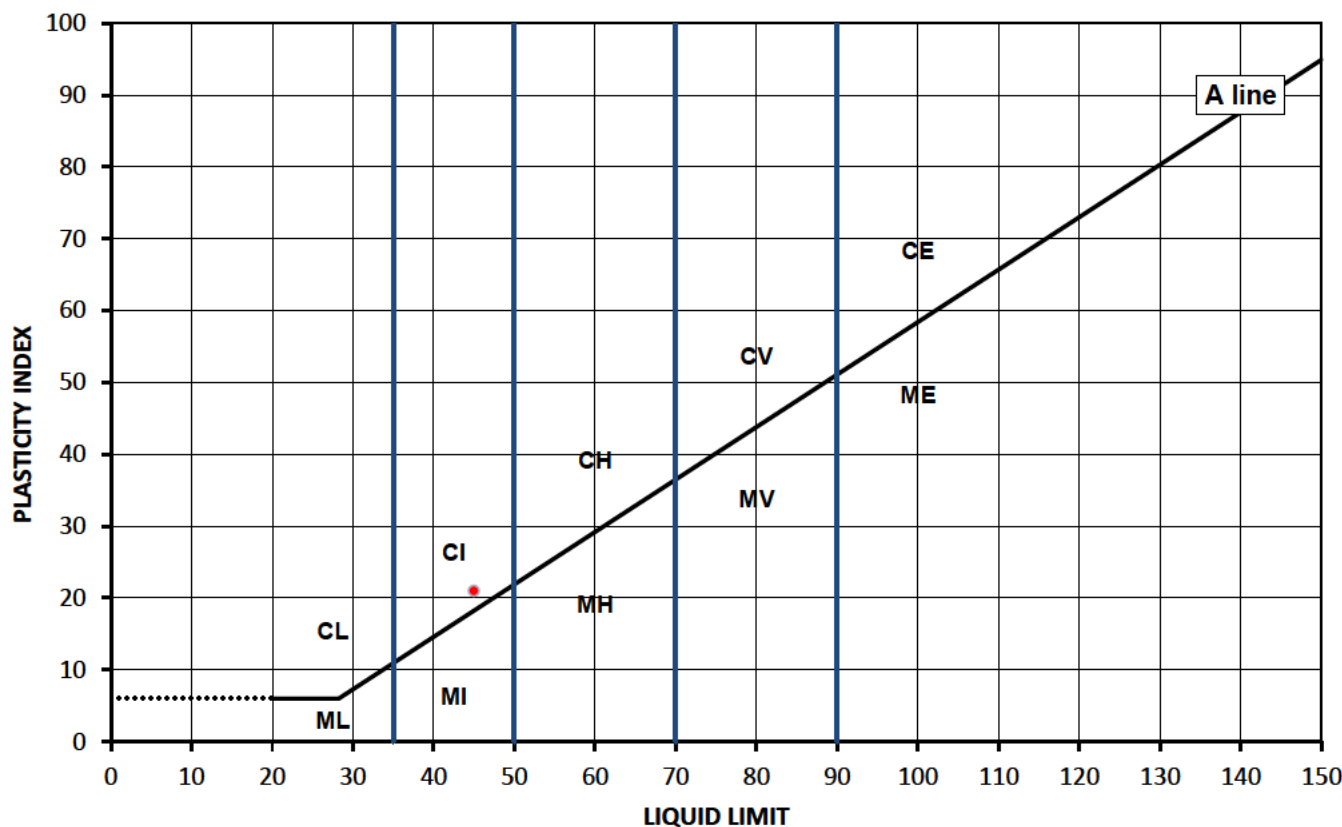
Test Results:

Laboratory Reference: 1403208
Hole No.: BH201
Sample Reference: Not Given
Soil Description: Brown to grey clayey SHALE

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: UT1

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
15	45	24	21	78



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

"Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report are representative of the samples submitted for analysis. Any assessment of compliance with specifications based on results in a report take into account 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."

Signed:

[Signature]

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with:

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L & G - LNO Horsham

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
Clause 8.2

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

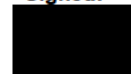
Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1403208	BH201	Not Given	2.00	2.45	UT1	Brown to grey clayey SHALE	Atterberg 4 Point	15		78	45	24	21						
1403222	BH206	Not Given	3.00	3.45	UT1	Brownish grey sandy CLAY	Atterberg 4 Point	20		100	36	19	17						

Note: # Non accredited; NP - Non plastic

Comments:

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Summary of Point Load Strength Index Tests Results

Tested in Accordance with: ISRM: 2007, pages 125-132

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P kN	Equivalent diameter, De mm	Point Load Strength Index	
		Reference	Depth Top m	Depth Base m	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm			Is MPa	Is(50) MPa
1403209	BH201	Not Given	3.10	3.42	C2	Mottled grey CLAY	w = 17.1%	1	A	U	YES	-	87.0	60.0	31.0	0.6	58.6	0.17	0.18
1403210	BH201	Not Given	6.40	6.75	C5	Grey SILTSTONE	w = 8.5%	1	A	U	YES	-	85.0	48.0	40.0	1.2	65.8	0.27	0.31
1403211	BH201	Not Given	10.68	11.10	C8	Grey SILTSTONE	w = 7.3%	1	A	U	YES	-	86.0	48.0	41.0	1.4	67.0	0.31	0.36
1403212	BH202	Not Given	2.40	2.49	C2	Light brown mottled light grey SILTSTONE	w = 11.5%, wet	1	A	P	YES	-	86.0	3.0	54.0	0.3	76.9	0.04	0.05
1403213	BH202	Not Given	8.40	8.74	C6	Grey SILTSTONE	w = 8.9%	1	A	U	YES	-	86.0	47.0	40.0	1.3	66.2	0.31	0.35
1403214	BH202	Not Given	11.00	11.43	C8	Grey SILTSTONE	w = 7.5%	1	A	U	YES	-	86.0	50.0	47.0	1.6	71.7	0.32	0.37
1403215	BH202	Not Given	14.67	14.93	C10	Grey SILTSTONE	w = 6.9%	1	A	U	YES	-	85.0	51.0	45.0	2.4	69.8	0.49	0.57
1403216	BH202	Not Given	16.74	17.04	C12	Grey SILTSTONE	w = 7.5%	1	A	U	YES	-	85.0	54.0	51.0	1.0	74.3	0.19	0.23
1403217	BH203	Not Given	4.70	4.76	C4	Mottled grey vey silty CLAY	w = 13.8%	1	A	P	YES	-	80.0	48.0	32.0	0.3	57.1	0.08	0.08
1403218	BH203	Not Given	8.72	9.00	C7	Grey SILTSTONE	w = 8.8%	1	A	U	YES	-	76.0	53.0	48.0	1.3	68.2	0.28	0.33

Note: # non accredited; Test Type: D - Diameter, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50) 0.45 for all tests

Comments:

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



SUMMARY REPORT

Summary of Point Load Strength Index Tests Results

Tested in Accordance with: ISRM: 2007, pages 125-132

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P kN	Equivalent diameter, De mm	Point Load Strength Index	
		Reference	Depth Top m	Depth Base m	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm			Is MPa	Is(50) MPa
1403219	BH204	Not Given	3.90	4.00	C3	Mottled brown SHALE	w = 10.5%, wet	1	D	L	YES	45.0	77.0	77.0	70.0	0.1	73.4	0.02	0.02
1403220	BH204	Not Given	4.50	4.58	C4	Brown mottled grey CLAY	w = 17.3%	1	D	U	YES	43.0	81.0	82.0	53.0	0.3	65.5	0.06	0.07
1403221	BH204	Not Given	7.20	7.29	C6	Grey SILTSTONE	w = 10.7%	1	D	U	YES	42.0	72.0	72.0	61.0	0.8	66.3	0.19	0.21
1403225	BH205	Not Given	5.67	5.79	C5	Grey mottled light brown very silty CLAY	w = 15.8%	1	D	L	YES	80.0	76.0	74.0	66.0	0.2	70.8	0.03	0.04
1403226	BH205	Not Given	7.81	7.90	C7	Grey SILTSTONE	w = 10.5%	1	D	U	YES	50.0	78.0	77.0	75.0	0.1	76.5	0.02	0.02
1403223	BH208	Not Given	4.70	4.79	C2	Grey SILTSTONE	w = 10.8%, wet	1	D	L	YES	60.0	79.0	79.0	72.0	0.3	75.4	0.05	0.06
1403224	BH208	Not Given	6.49	6.58	C4	Grey very silty CLAY	w = 11.5%	1	D	U	YES	80.0	84.0	83.0	73.0	0.5	78.3	0.08	0.09

Note: # non accredited; Test Type: D - Diameter, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)^0.45 for all tests

Comments:

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



4041

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L & G - LNO Horsham

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

Summary of Uniaxial Compression Test on Rock Test Results

Tested in Accordance with: ISRM, 2007, p153, part 1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client Reference: J4175

Job Number: 20-79307

Date Sampled: Not Given

Date Received: 23/12/2019

Date Tested: 09/01/2020

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Specimen Dimensions (2)				Bulk density (2) Mg/m3	Water Content (1) %	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample			Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
1403210	BH201	Not Given	6.40	6.75	C5	Grey SILTSTONE	Sample is below recommended length:diameter ratio. *	85.4	188.5	2.2	Vertical	2.38	8.5	as received	0.0350	S + AC	6.0
1403211	BH201	Not Given	10.68	11.10	C8	Grey SILTSTONE	Sample is below recommended length:diameter ratio.	84.3	162.9	1.9	Vertical	2.39	7.3	as received	0.0179	S + AC	5.8
1403213	BH202	Not Given	8.40	8.74	C6	Grey SILTSTONE	Sample is below recommended length:diameter ratio.	86.5	156.7	1.8	Vertical	2.41	8.9	as received	0.0170	S + AC	5.9
1403214	BH202	Not Given	11.00	11.43	C8	Grey SILTSTONE	Sample is below recommended length:diameter ratio.	86.6	155.8	1.8	Vertical	2.40	7.5	as received	0.0170	S + AC	7.8
1403215	BH202	Not Given	14.67	14.93	C10	Grey SILTSTONE	Sample is below recommended length:diameter ratio. *	86.3	161.1	1.9	Vertical	2.41	7.0	as received	0.0513	MS + AC	8.4
1403216	BH202	Not Given	16.74	17.04	C12	Grey SILTSTONE	Sample is below recommended length:diameter ratio.*	85.7	152.1	1.8	Vertical	2.37	7.5	as received	0.0173	MS + AC	12.5
1403218	BH203	Not Given	8.72	9.00	C7	Grey SILTSTONE	Sample is below recommended length:diameter ratio. *	78.7	174.4	2.2	Vertical	2.35	8.8	as received	0.0206	F	2.1

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 °C, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments: *Testing completed below time specified in ISRM method, 2007, p153, part1.

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Unconfined Compressive Strength of soil

Tested in Accordance with: BS 1377-7: 1990: Clause 7.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: J4175
Job Number: 20-79307
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

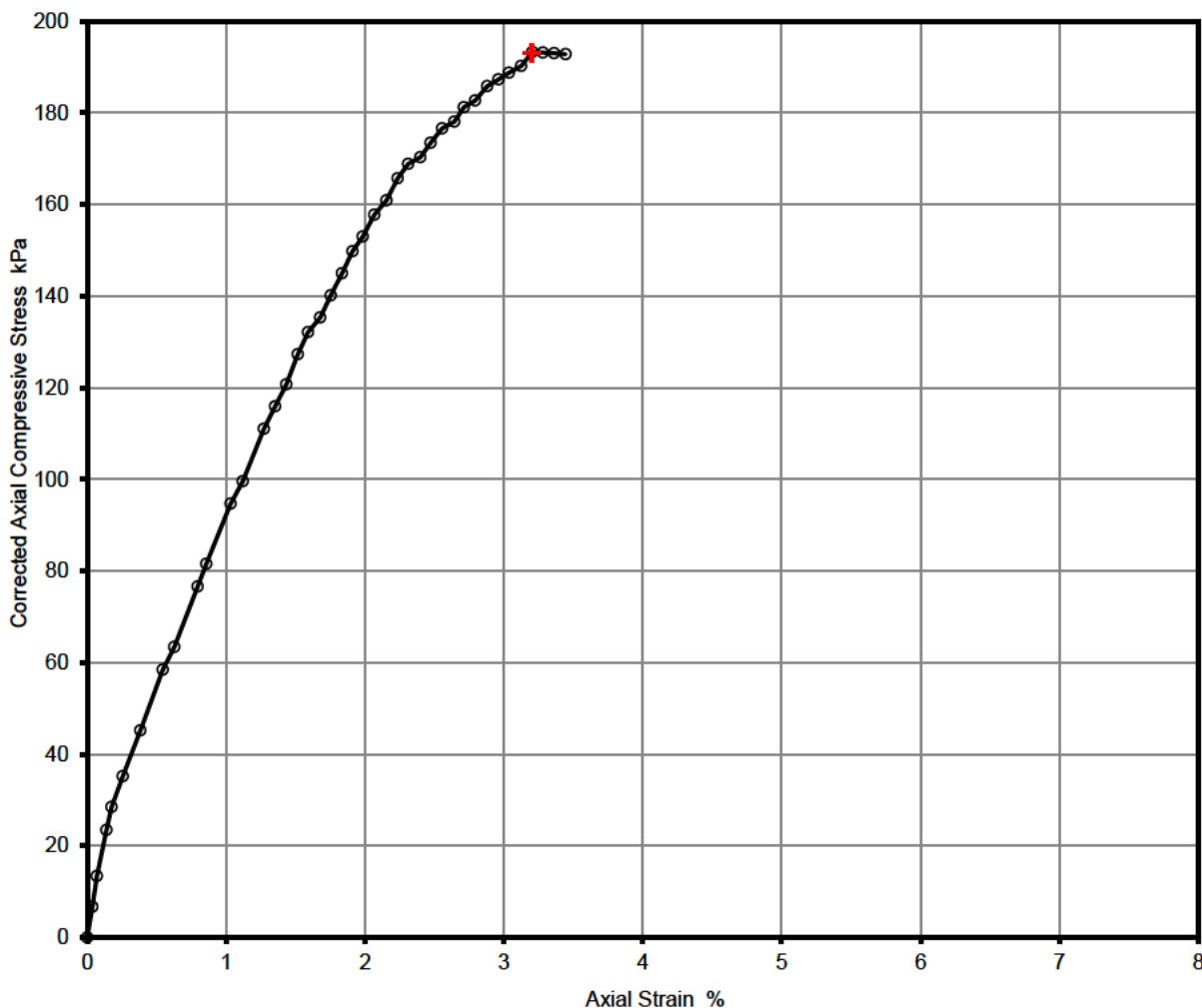
Test Results:

Laboratory Reference: 1403209
Hole No.: BH201
Sample Reference: Not Given
Sample Description: Mottled grey CLAY

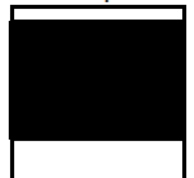
Depth Top [m]: 3.10
Depth Base [m]: 3.42
Sample Type: C2

Test Number	1	Rate of Strain	0.5	%/min
Length	159.7	At failure	3.2	%
Diameter	87.1	Axial Strain	193	kPa
Bulk Density	2.25	Unconfined Compressive Strength	Brittle	
Moisture Content	17.0	Mode of Failure		
Dry Density	1.92			

Axial Compressive Stress v Axial Strain



Position within sample



Note: Axial compressive stress corrected for area change, and membrane effects (if used)

Remarks: Sample is below recommended length:diameter ratio.

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 10/01/2020

GF 243.5



4041

TEST CERTIFICATE**Unconsolidated Undrained****Triaxial Compression**Tested in Accordance with:
BS 1377-7: 1990: Clause 8i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client: Endeavour Drilling

Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L & G - LNO Horsham

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: J4175

Job Number: 20-79307

Date Sampled: Not Given

Date Received: 23/12/2019

Date Tested: 08/01/2020

Sampled By: Not Given

Test Results:

Laboratory Reference: 1403222

Hole No.: BH206

Sample Reference: Not Given

Sample Description: Brownish grey sandy CLAY

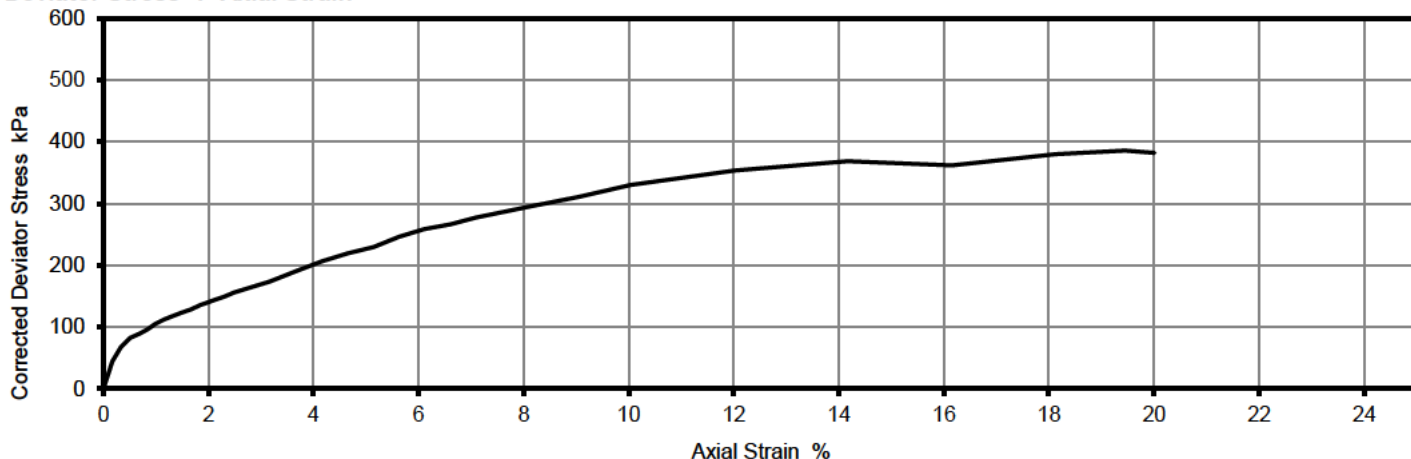
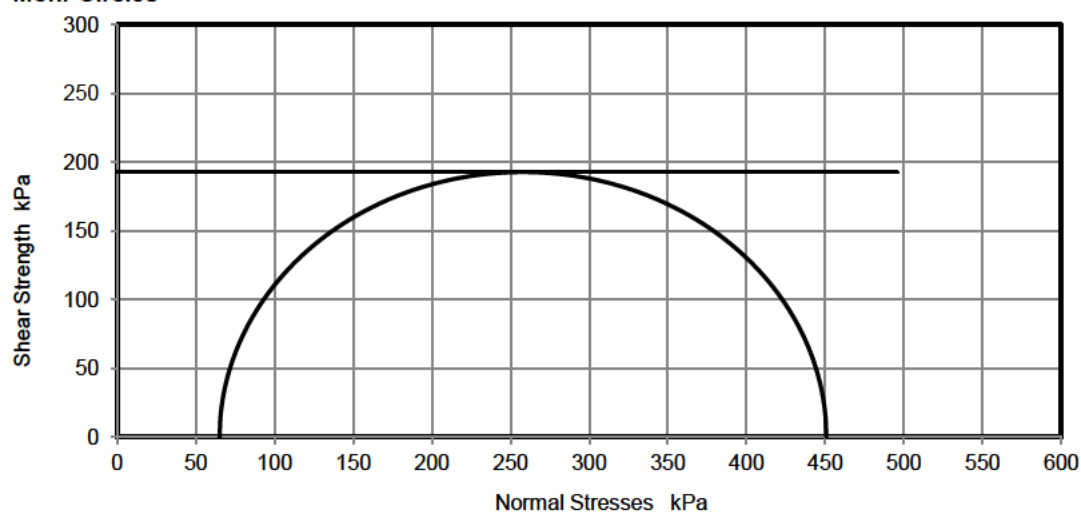
Depth Top [m]: 3.00

Depth Base [m]: 3.45

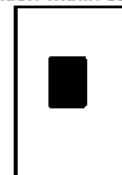
Sample Type: UT1

Test Number	1
Length	75.17 mm
Diameter	36.75 mm
Bulk Density	2.28 Mg/m ³
Moisture Content	21 %
Dry Density	1.89 Mg/m ³
Membrane Correction	2.25 kPa

Rate of Strain	2.00 %/min
Cell Pressure	65 kPa
Axial Strain at failure	19.4 %
Deviator Stress, ($\sigma_1 - \sigma_3$) _f	386 kPa
Undrained Shear Strength, c_u	193 kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Mode of Failure	Compound
Membrane thickness	0.22 mm

Deviator Stress v Axial Strain**Mohr Circles**

Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

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Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 10/01/2020

GF 184.8



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

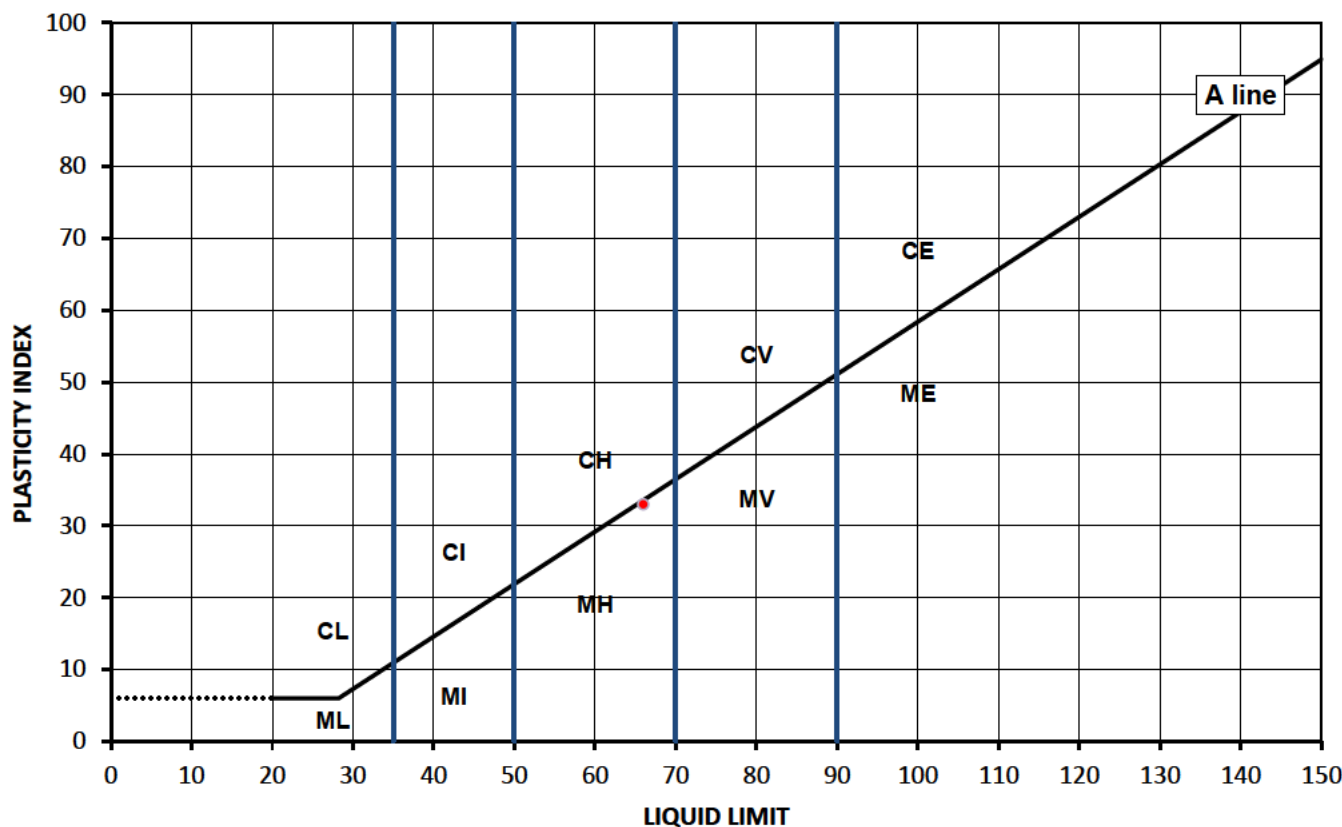
Test Results:

Laboratory Reference: 1403227
Hole No.: TP220
Sample Reference: 1
Soil Description: Orangish brown slightly gravelly very silty CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
31	66	33	33	99



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:

[Signature]

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

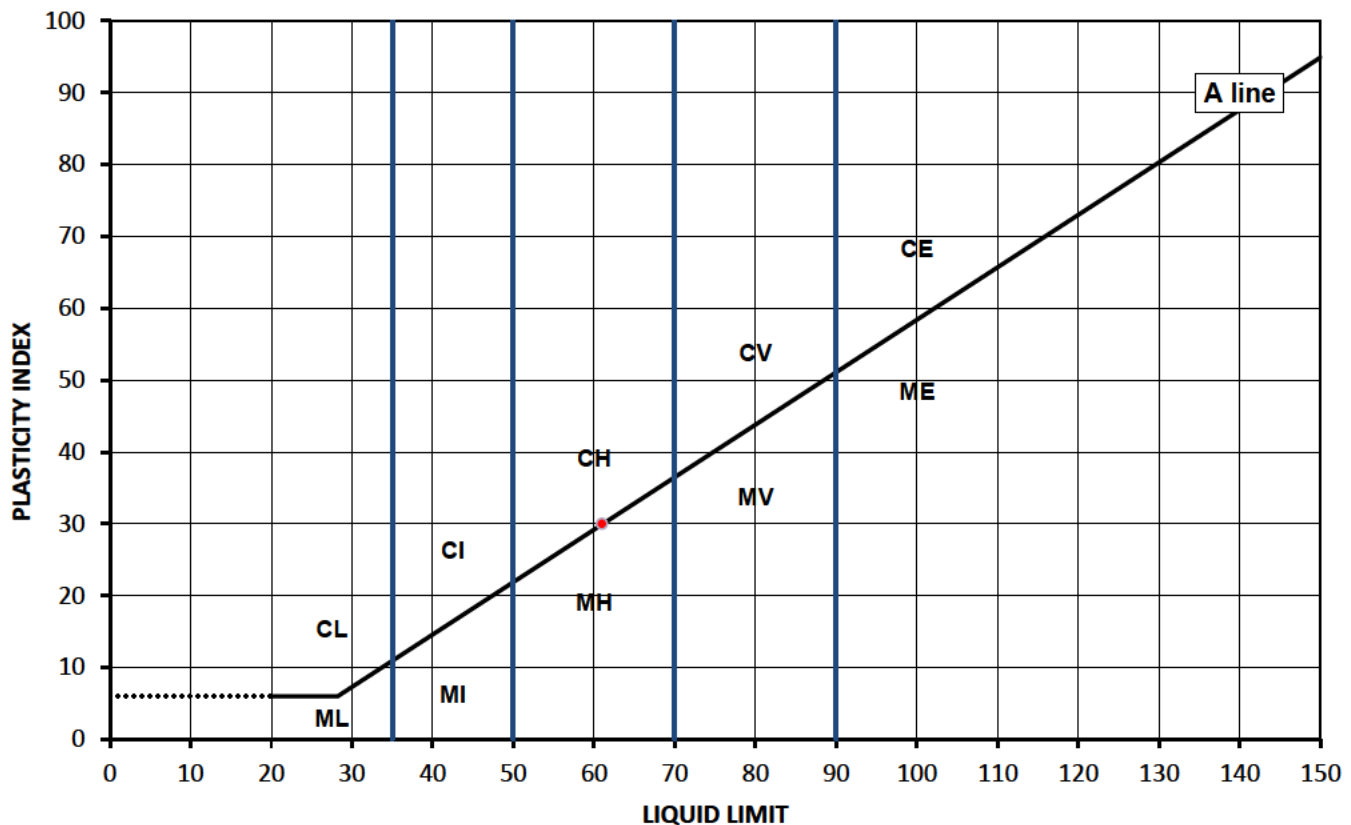
Test Results:

Laboratory Reference: 1403228
Hole No.: TP225
Sample Reference: 1
Soil Description: Brown slightly gravelly slightly sandy clayey SILT

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	61	31	30	89



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:

[Signature]

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

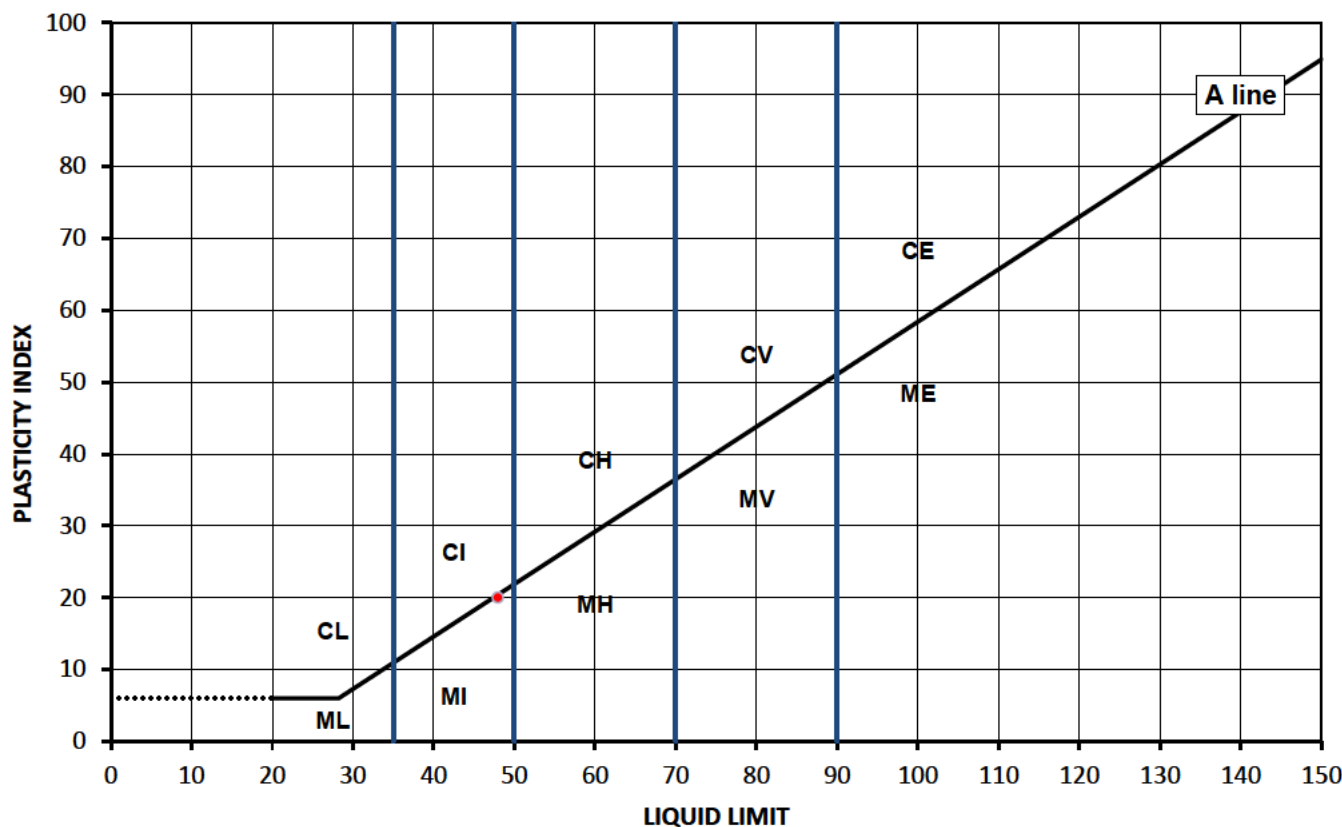
Test Results:

Laboratory Reference: 1403229
Hole No.: TP237
Sample Reference: 2
Soil Description: Brown slightly sandy very gravelly CLAY with mudstones

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	48	28	20	58



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:

[Signature]

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

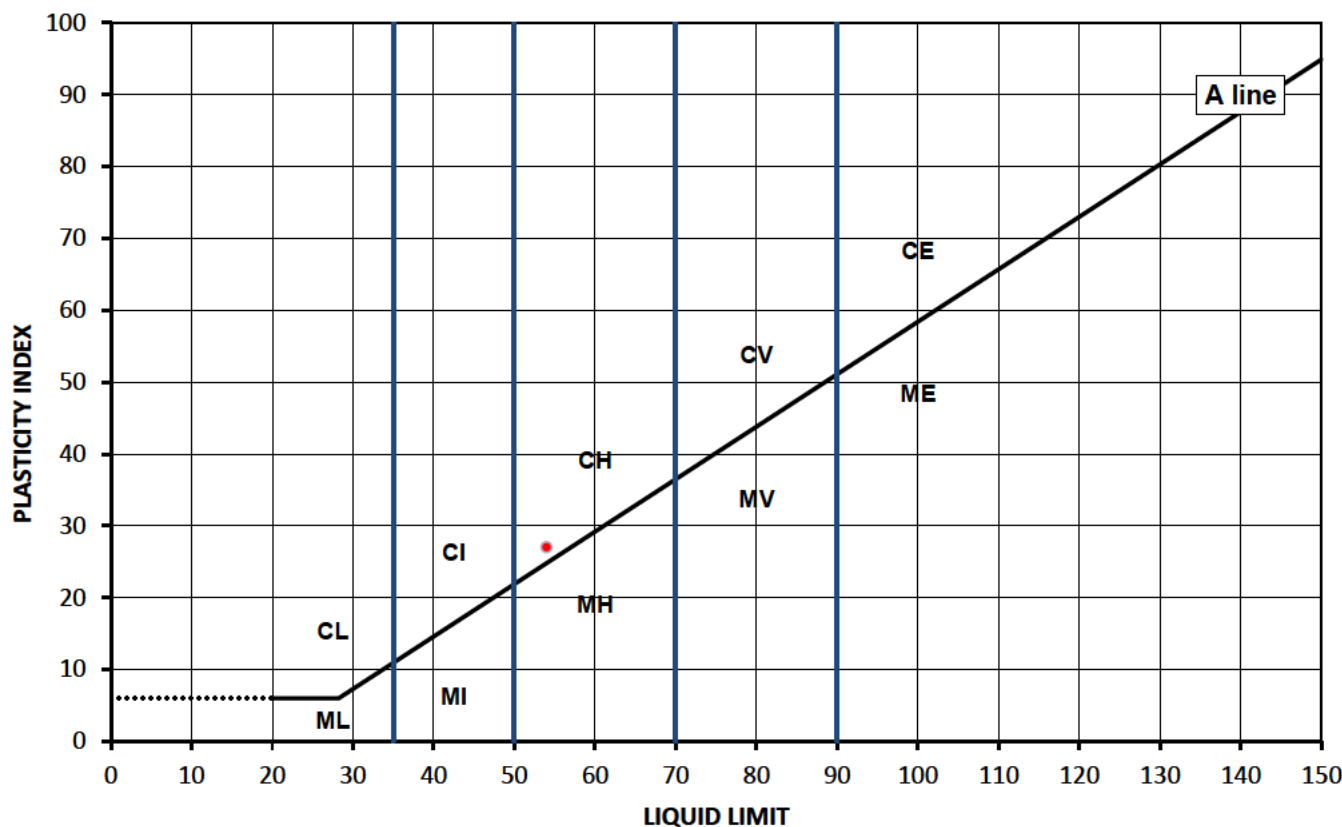
Test Results:

Laboratory Reference: 1403230
Hole No.: TP205
Sample Reference: 1
Soil Description: Brownish grey CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	54	27	27	100



Legend, based on BS 5930:2015 Code of practice for site investigations

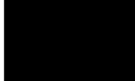
C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

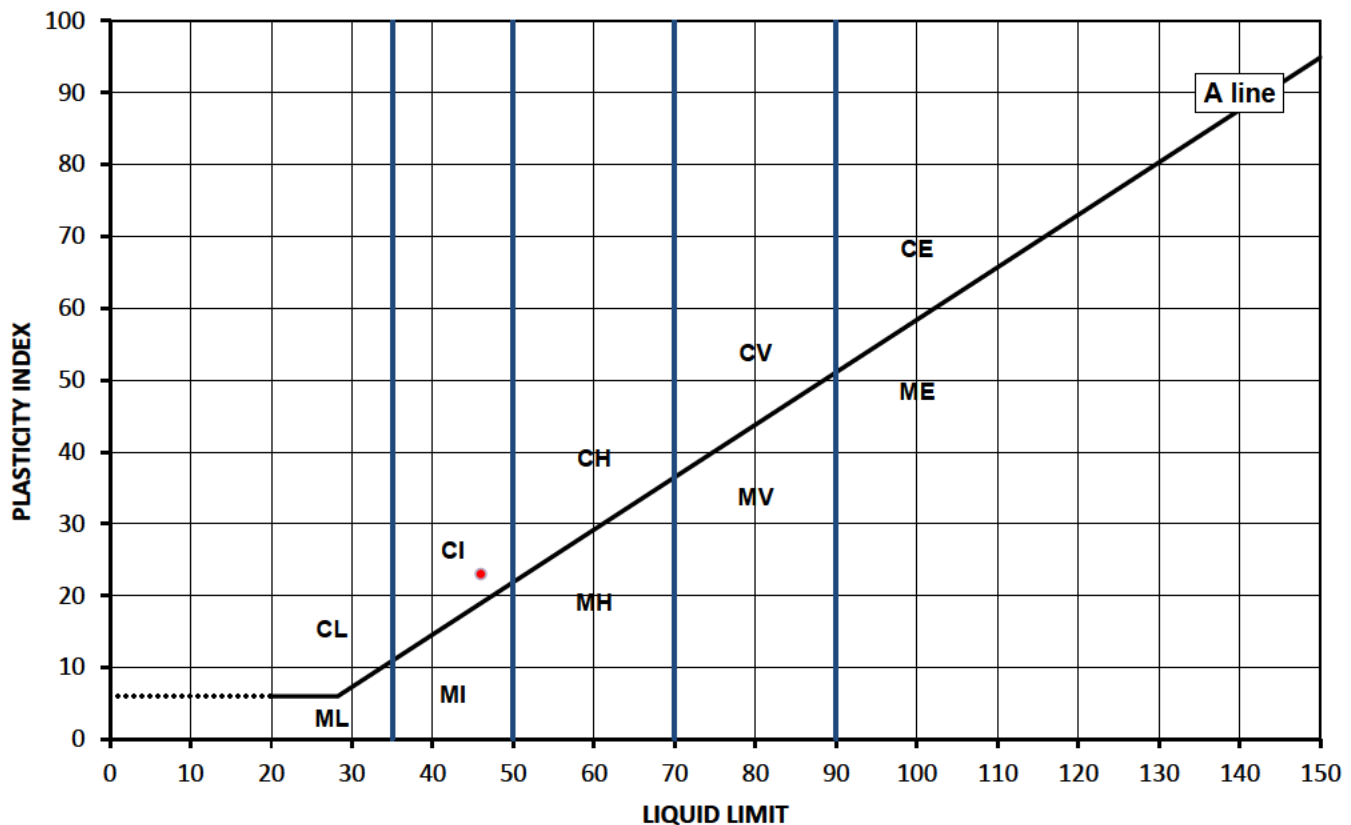
Test Results:

Laboratory Reference: 1403231
Hole No.: TP207
Sample Reference: 1
Soil Description: Brown to grey clayey SILT

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	46	23	23	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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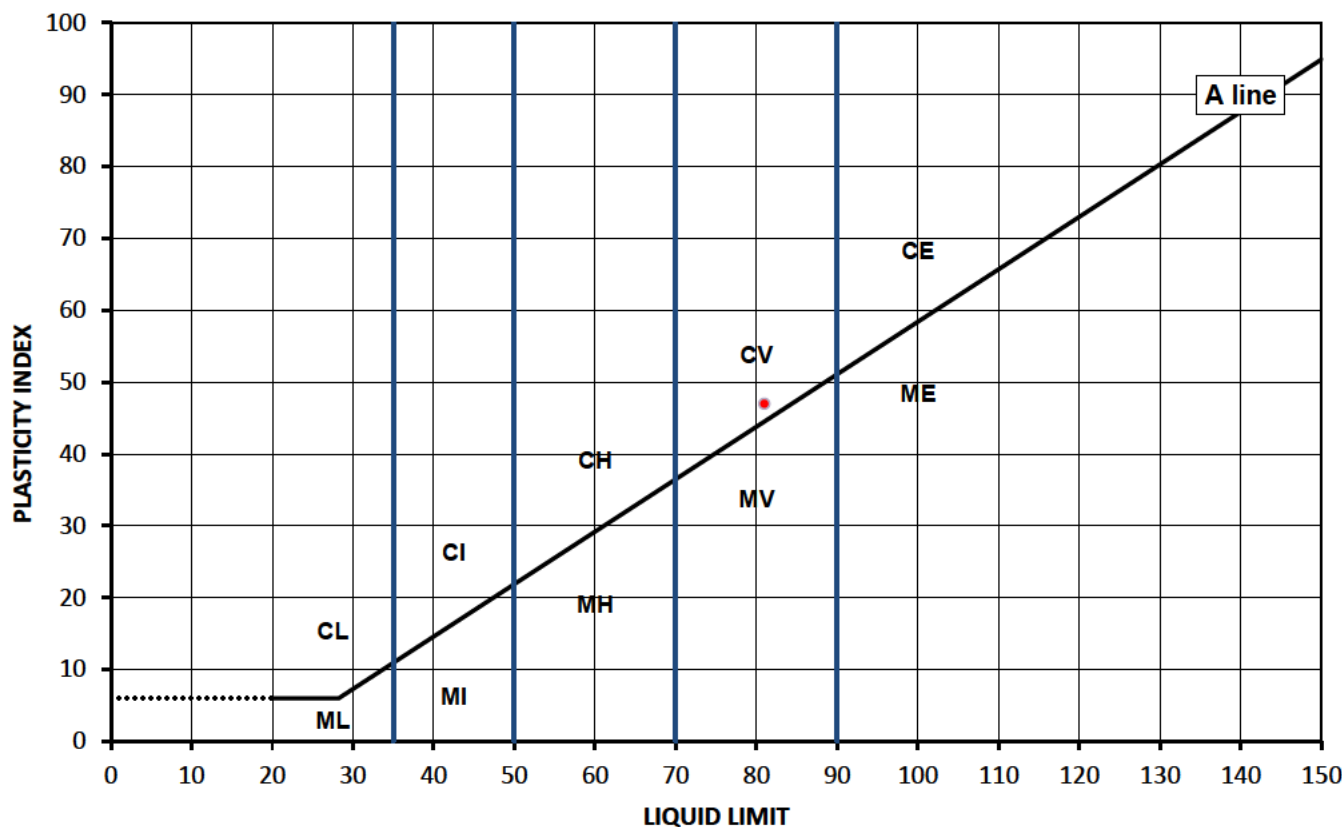
Test Results:

Laboratory Reference: 1403232
Hole No.: TP212
Sample Reference: 1
Soil Description: Light brown very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
40	81	34	47	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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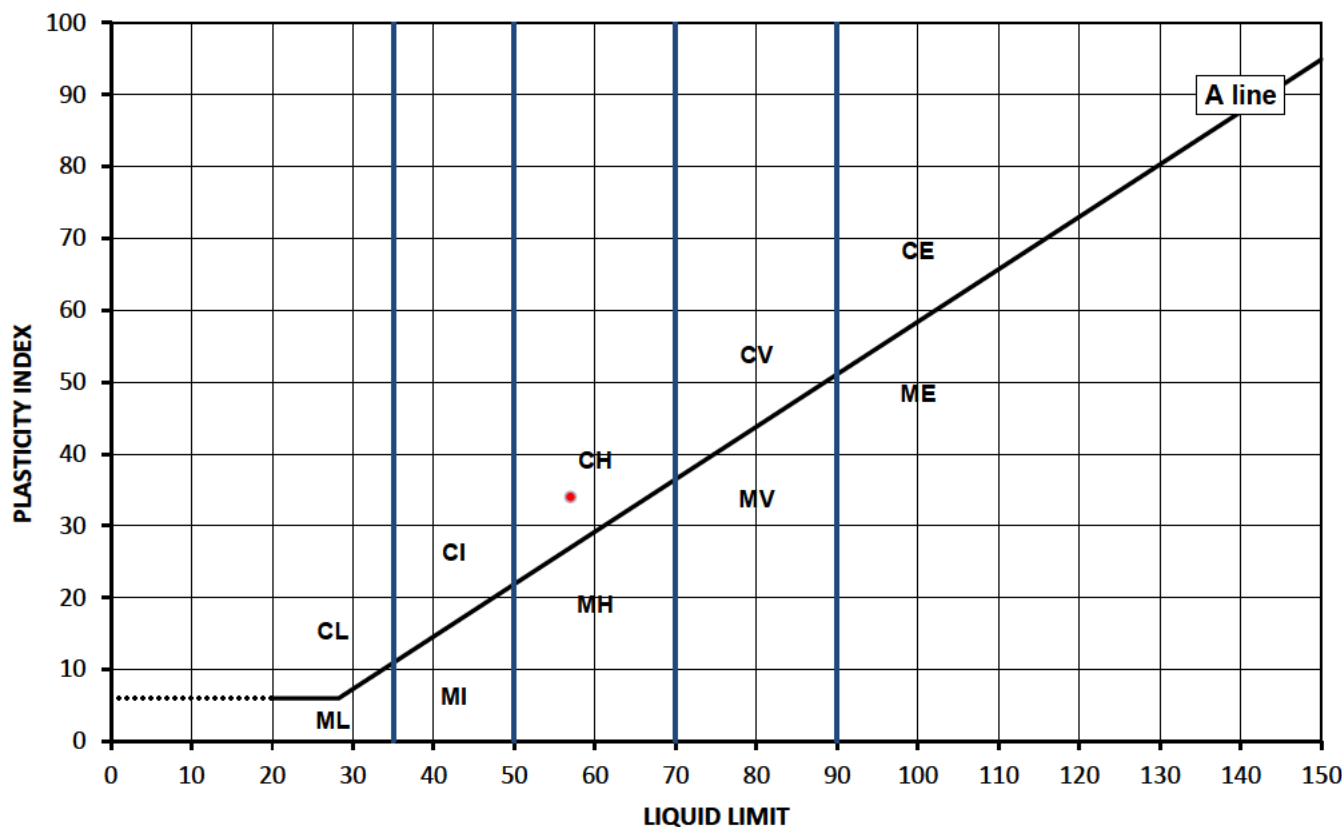
Test Results:

Laboratory Reference: 1403233
Hole No.: TP203
Sample Reference: 1
Soil Description: Brown slightly gravelly slightly sandy very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	57	23	34	95



Legend, based on BS 5930:2015 Code of practice for site investigations

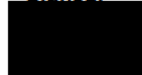
C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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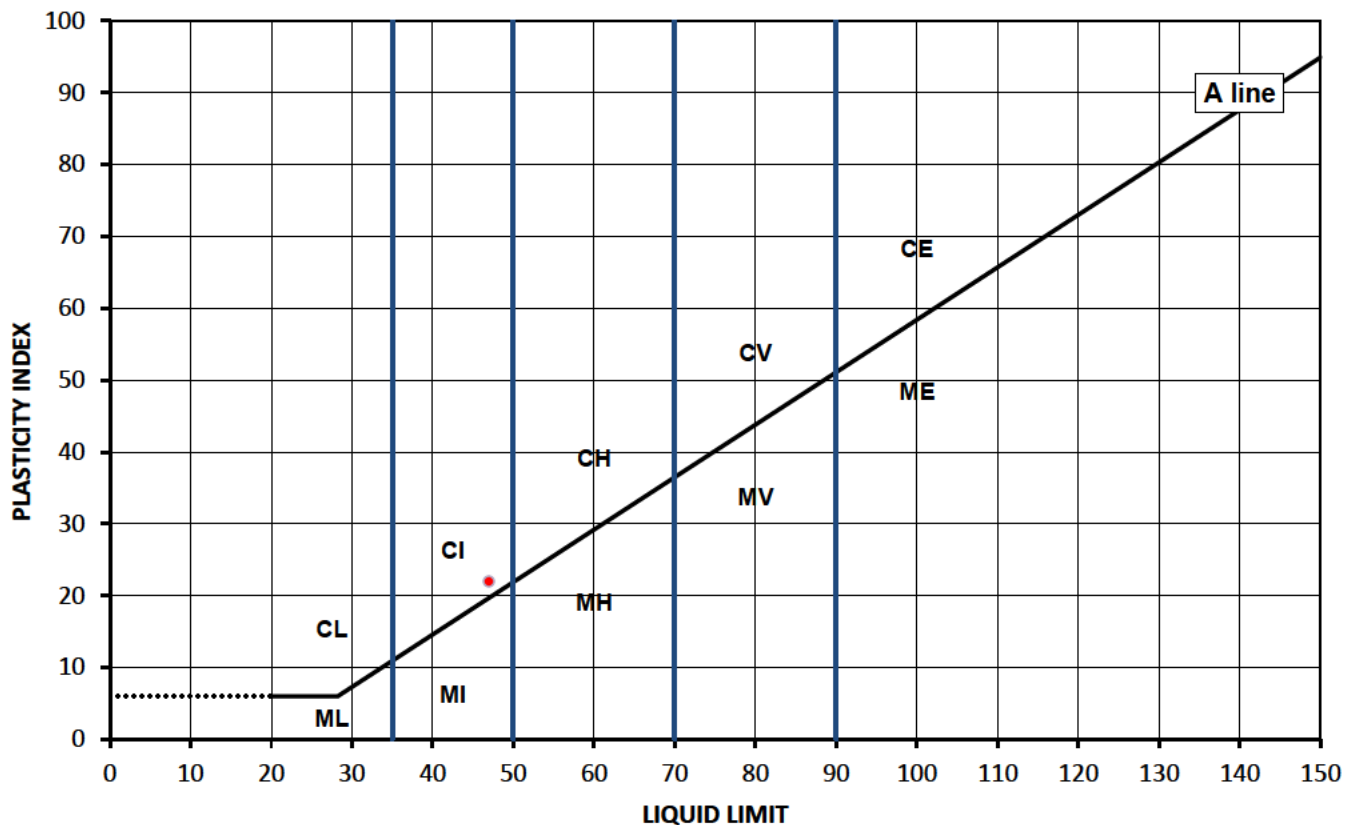
Test Results:

Laboratory Reference: 1403234
Hole No.: TP204
Sample Reference: 1
Soil Description: Brownish grey slightly sandy slightly gravelly clayey SILT

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	47	25	22	90



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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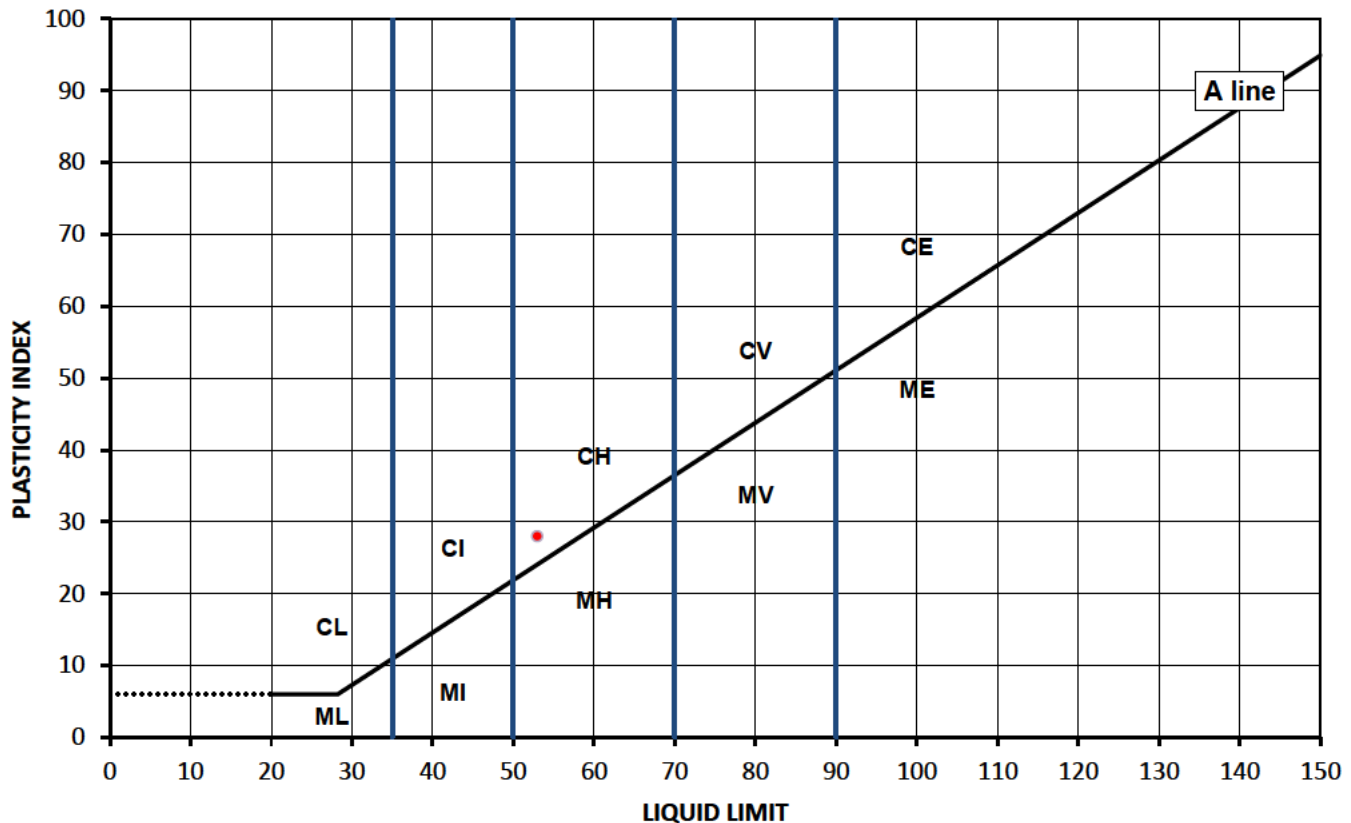
Test Results:

Laboratory Reference: 1403235
Hole No.: TP208
Sample Reference: 1
Soil Description: Brown CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	53	25	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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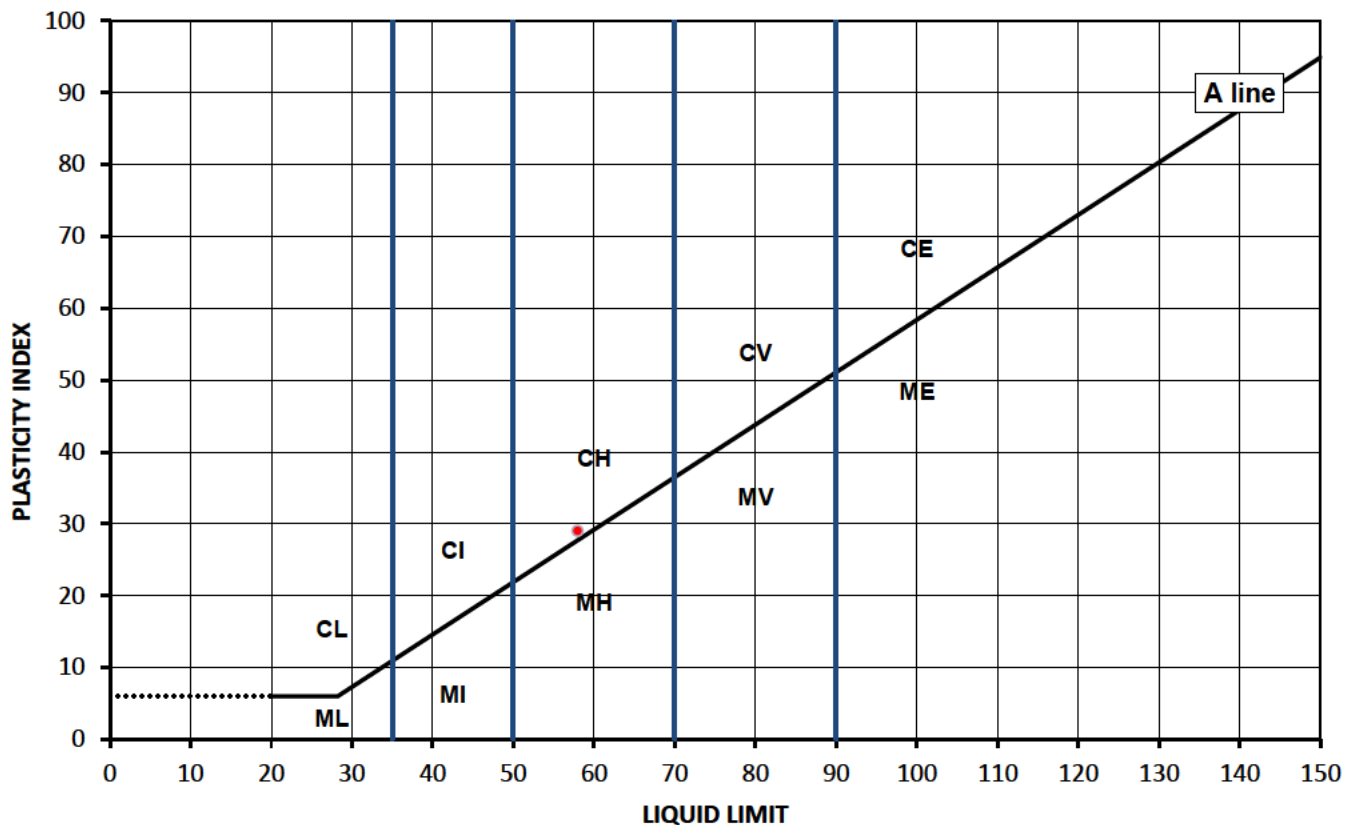
Test Results:

Laboratory Reference: 1403236
Hole No.: TP211
Sample Reference: 1
Soil Description: Brown to grey slightly sandy very clayey SILT

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
35	58	29	29	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Page 1 of 1

Date Reported: 17/01/2020

GF 236.6



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Sampled By: Not Given

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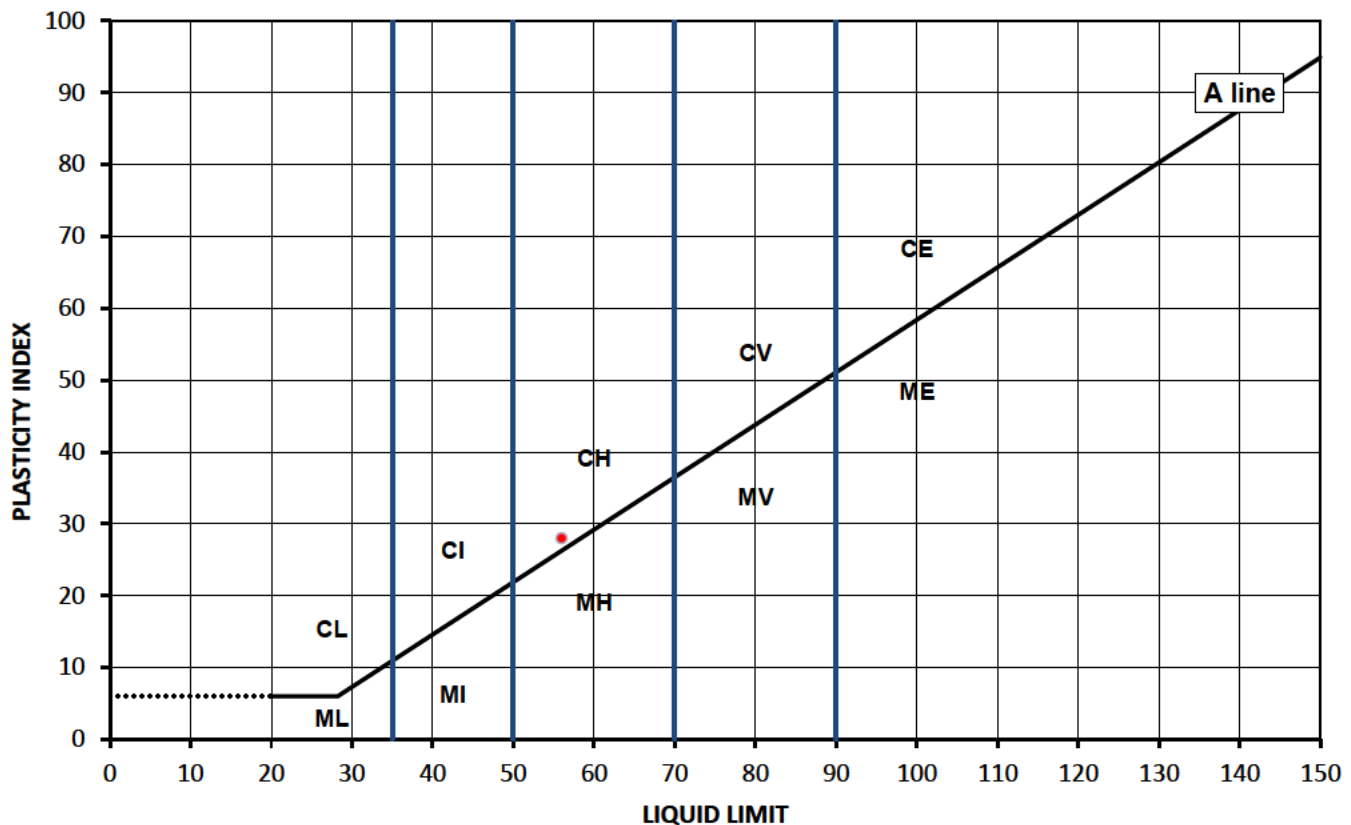
Test Results:

Laboratory Reference: 1403237
Hole No.: TP221
Sample Reference: 1
Soil Description: Light brown very clayey SILT

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	56	28	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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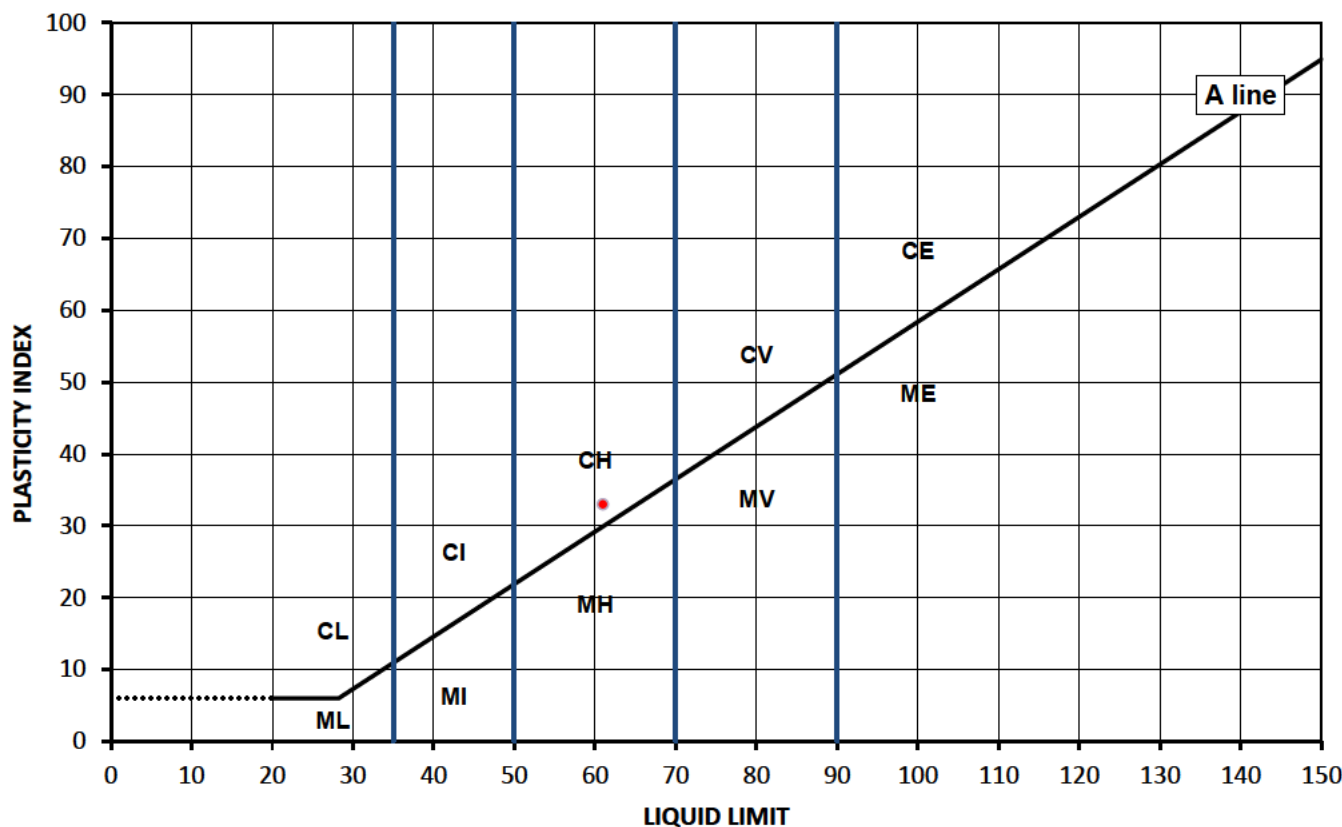
Test Results:

Laboratory Reference: 1403238
Hole No.: TP217
Sample Reference: 1
Soil Description: Brown SILT and CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	61	28	33	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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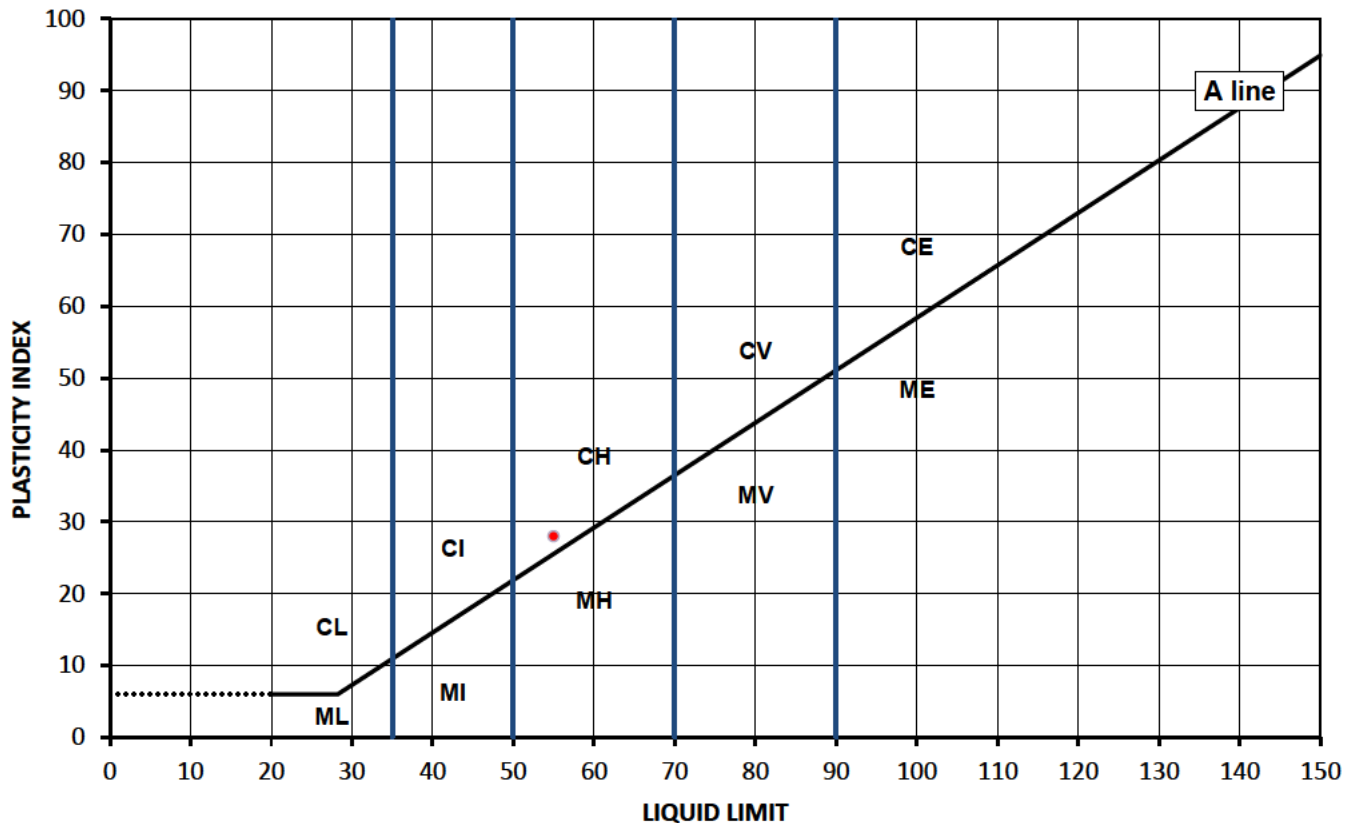
Test Results:

Laboratory Reference: 1403239
Hole No.: TP229
Sample Reference: 1
Soil Description: Brown to grey slightly sandy very clayey SILT

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	55	27	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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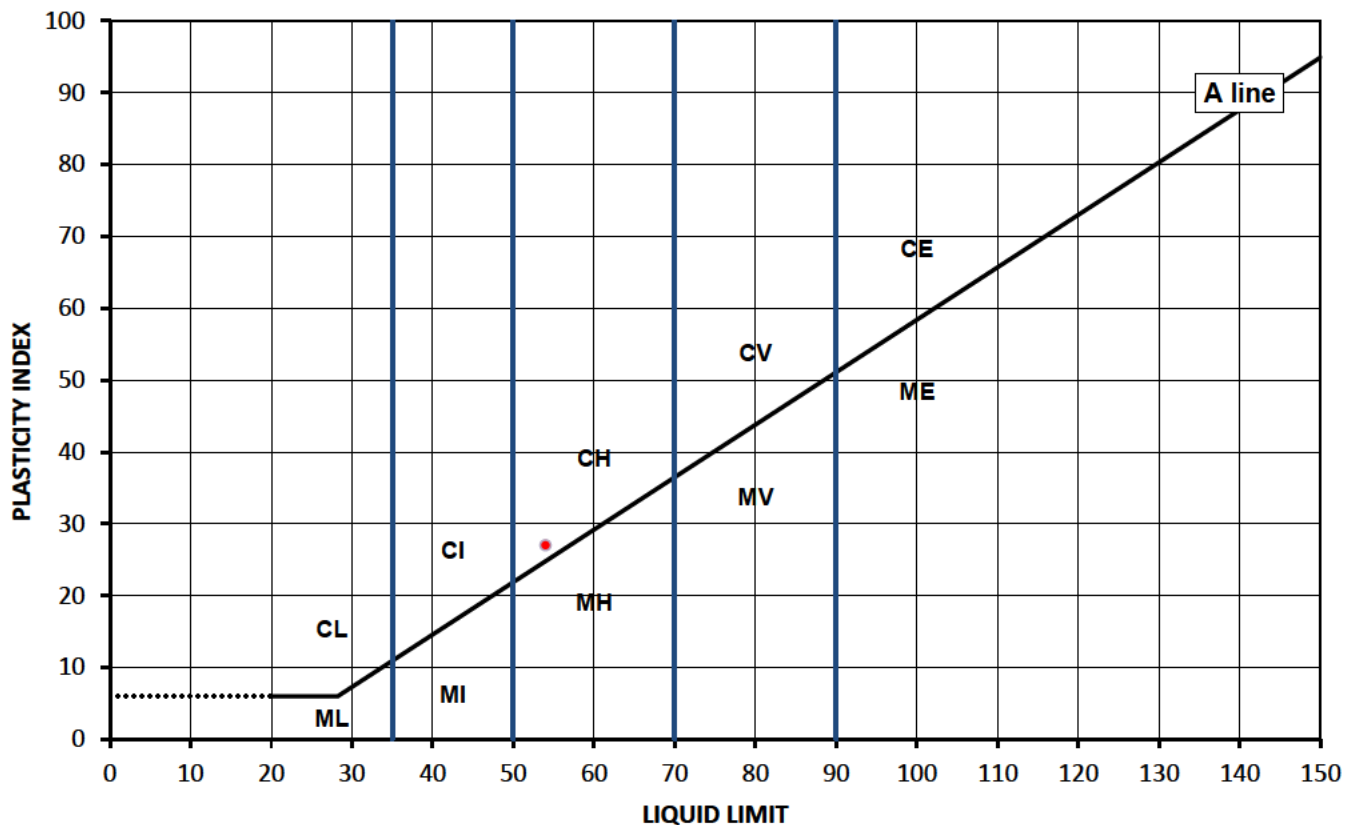
Test Results:

Laboratory Reference: 1403240
Hole No.: TP235
Sample Reference: 2
Soil Description: Orangish brown slightly gravelly slightly sandy clayey SILT

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	54	27	27	96



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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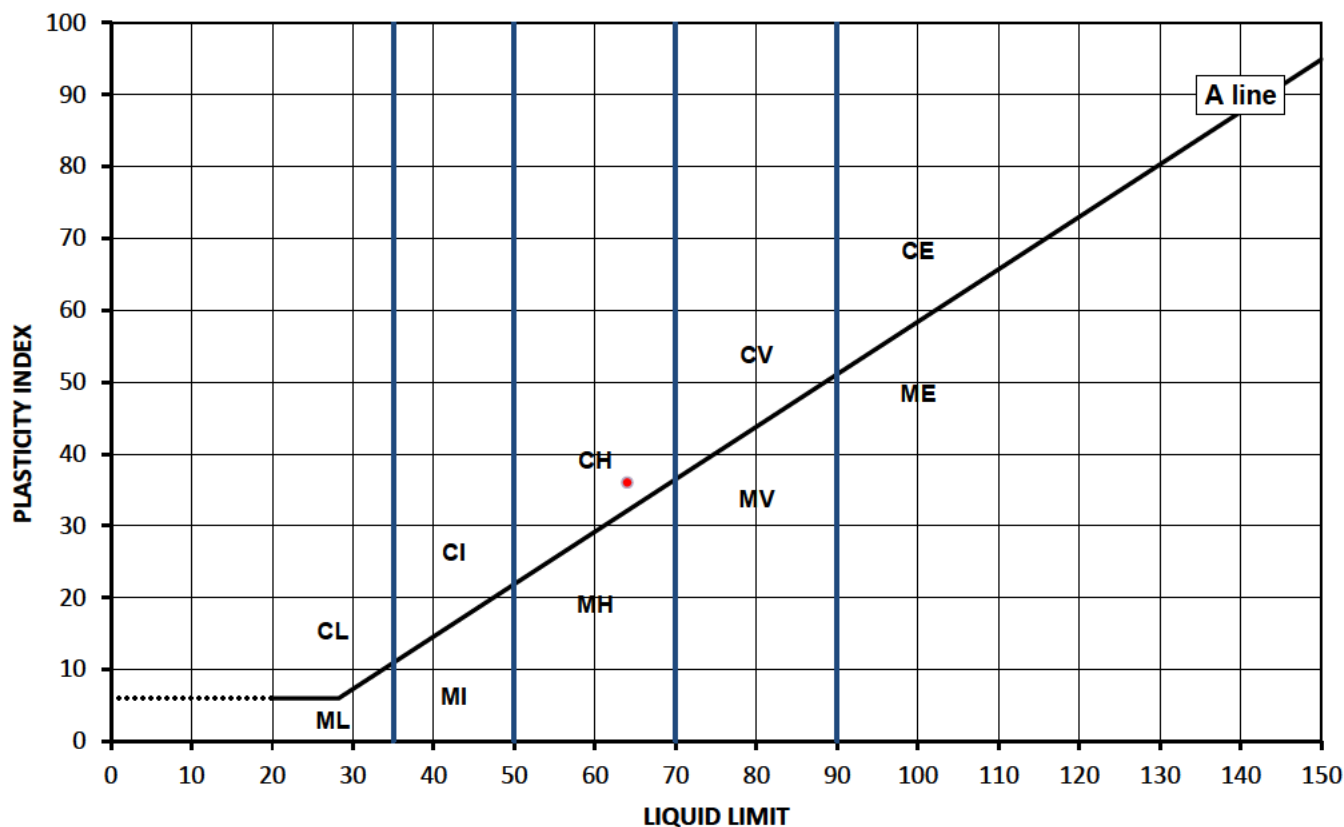
Test Results:

Laboratory Reference: 1403241
Hole No.: TP247
Sample Reference: 1
Soil Description: Light brown slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
32	64	28	36	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Date Reported: 17/01/2020

GF 236.6



TEST CERTIFICATE

Liquid and Plastic Limits

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

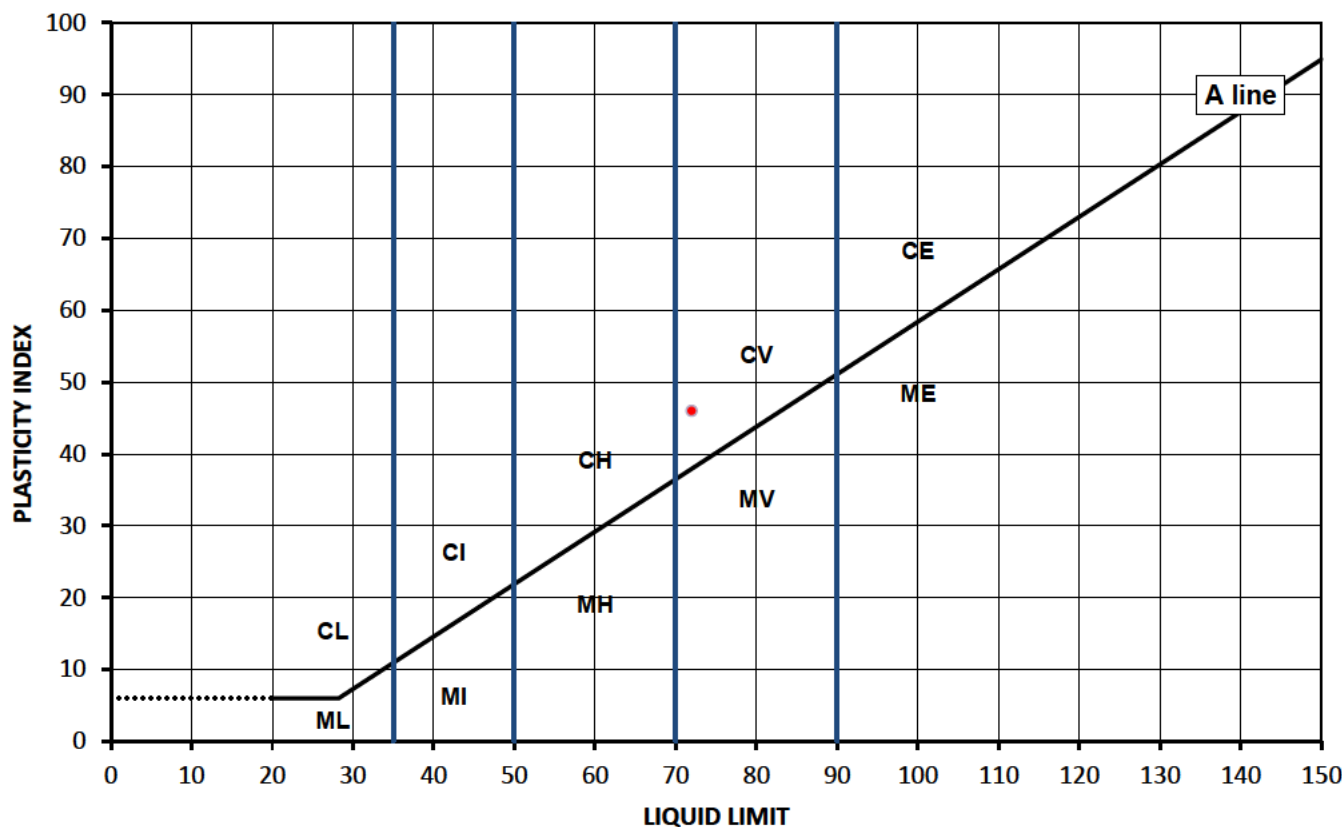
Test Results:

Laboratory Reference: 1403242
Hole No.: TP231
Sample Reference: 1
Soil Description: Light brown slightly sandy very silty CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
32	72	26	46	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Signed:

[Signature]

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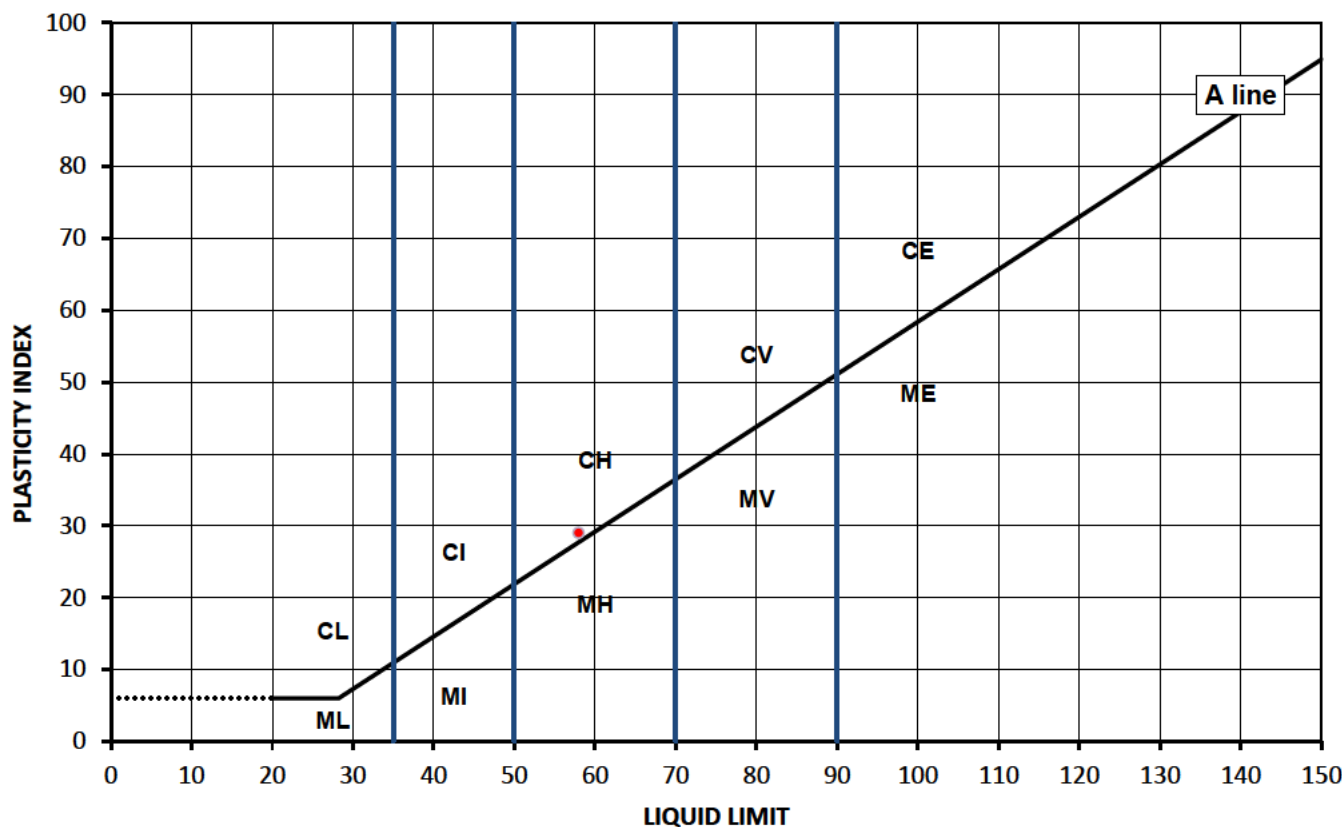
Test Results:

Laboratory Reference: 1403243
Hole No.: TP240
Sample Reference: 1
Soil Description: Yellowish brown slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 0.40
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	58	29	29	99



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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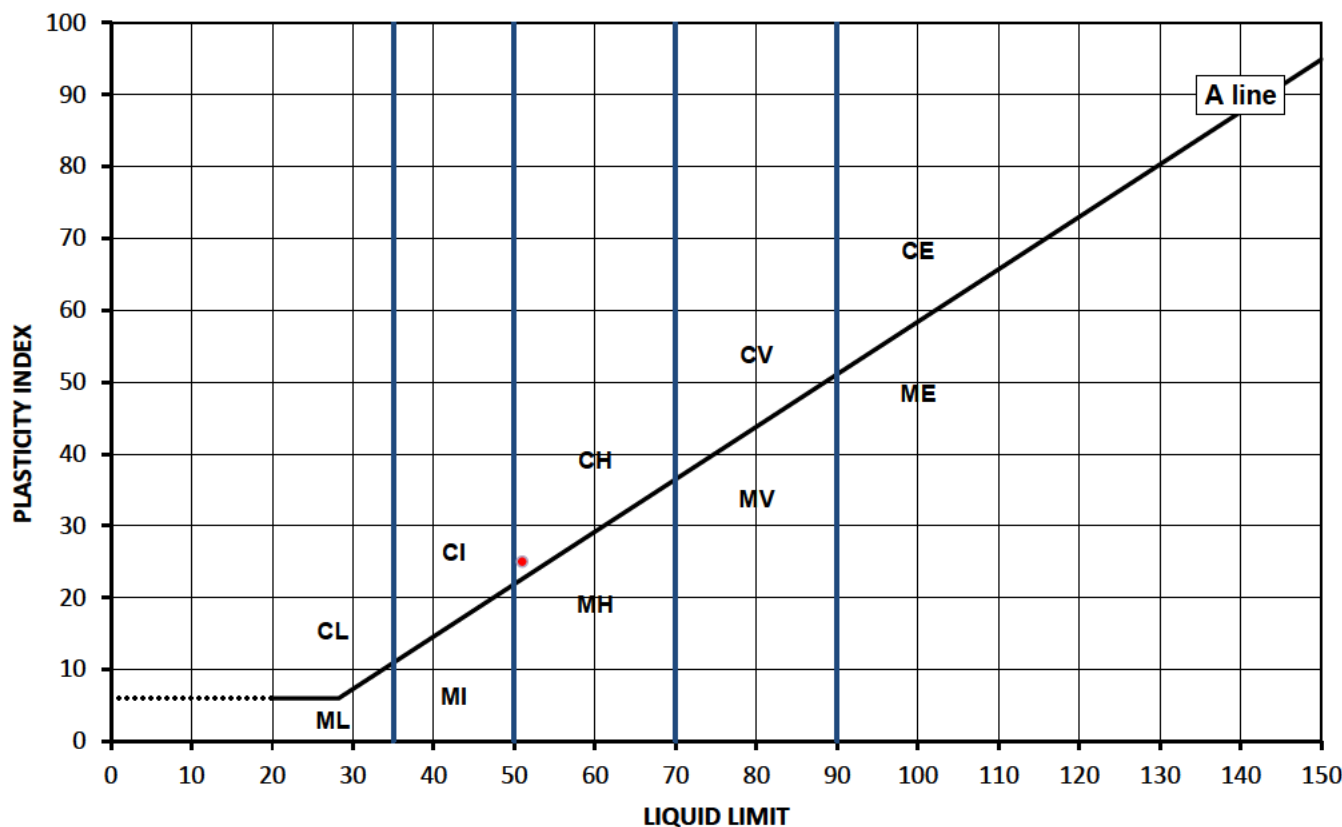
Test Results:

Laboratory Reference: 1403244
Hole No.: TP243
Sample Reference: 2
Soil Description: Brown to grey slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	51	26	25	96



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

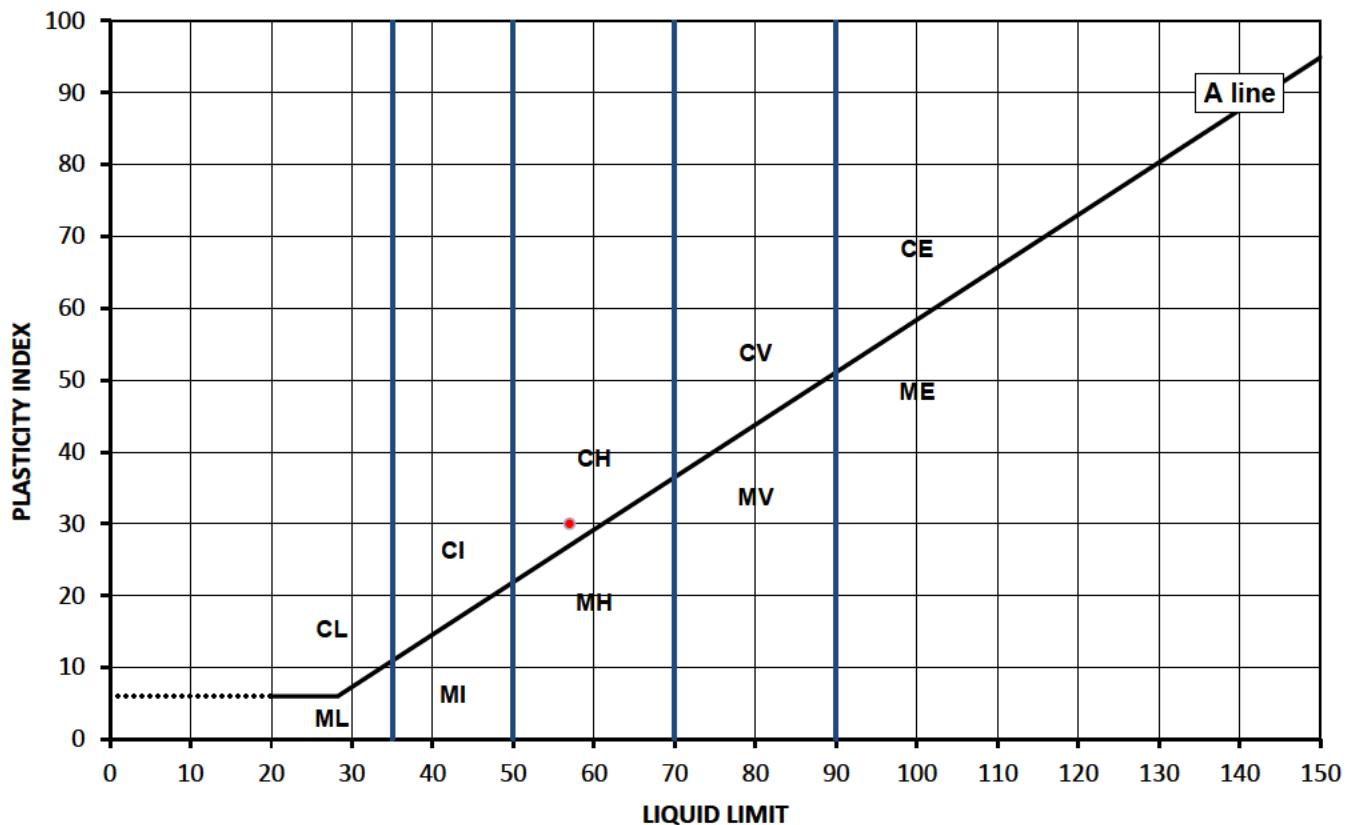
Test Results:

Laboratory Reference: 1403245
Hole No.: TP248
Sample Reference: 2
Soil Description: Light brown slightly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
37	57	27	30	100



Legend, based on BS 5930:2015 Code of practice for site investigations

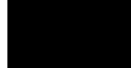
C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Date Sampled: Not Given
Date Received: 23/12/2019
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Sampled By: Not Given

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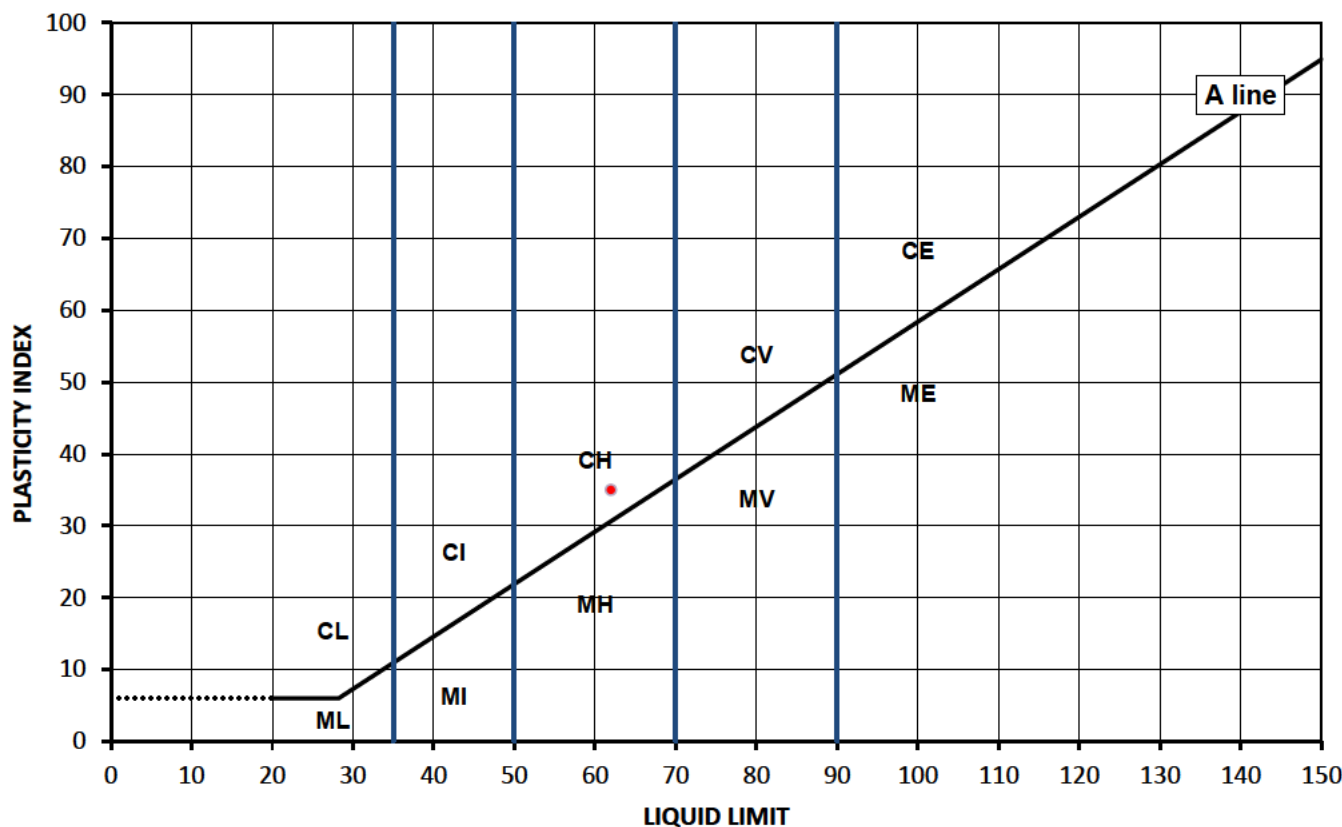
Test Results:

Laboratory Reference: 1403246
Hole No.: WS202A
Sample Reference: 3
Soil Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.25
Depth Base [m]: 1.70
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	62	27	35	89



Legend, based on BS 5930:2015 Code of practice for site investigations

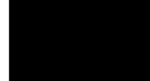
C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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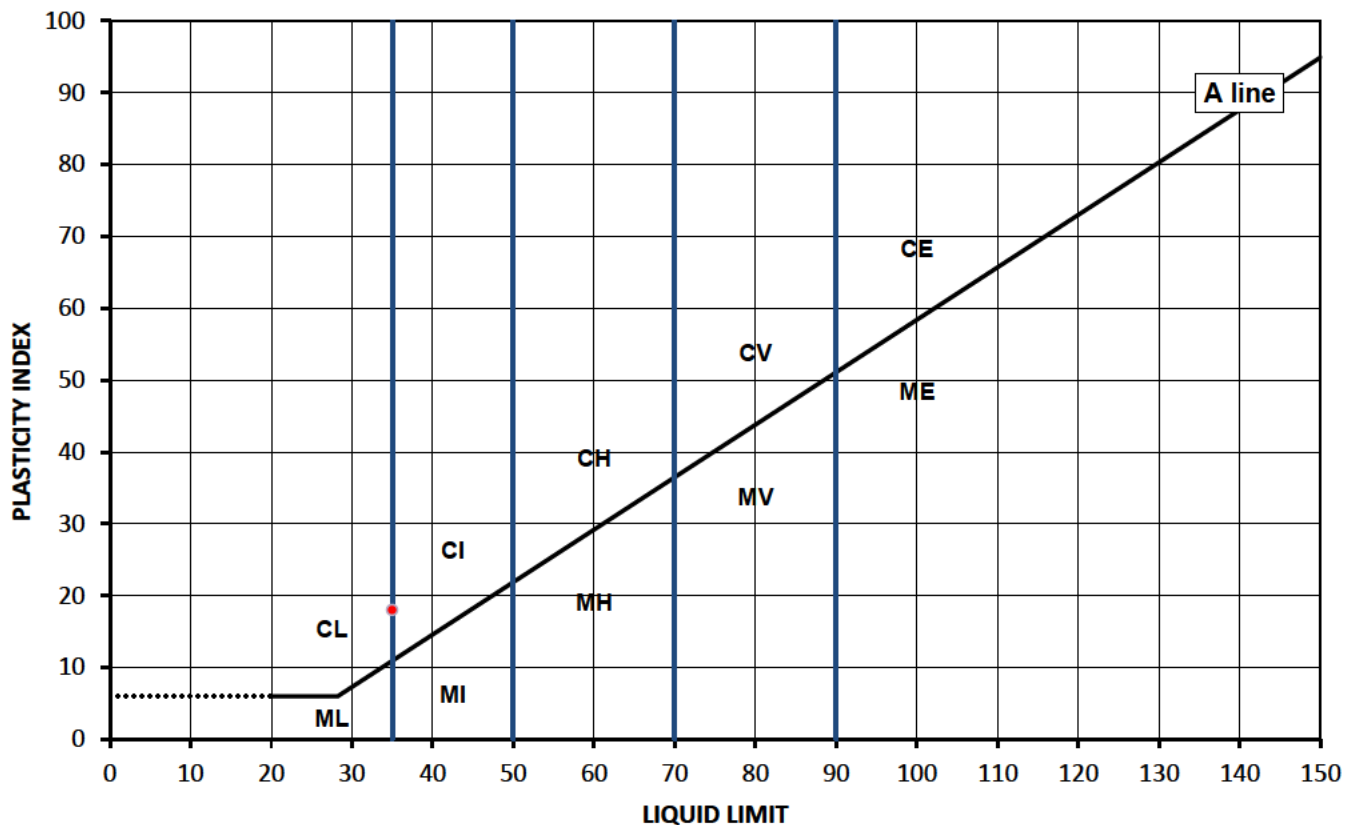
Test Results:

Laboratory Reference: 1403247
Hole No.: TP244
Sample Reference: 2
Soil Description: Light brown slightly sandy clayey gravelly SILT

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16	35	17	18	70



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Sampled By: Not Given

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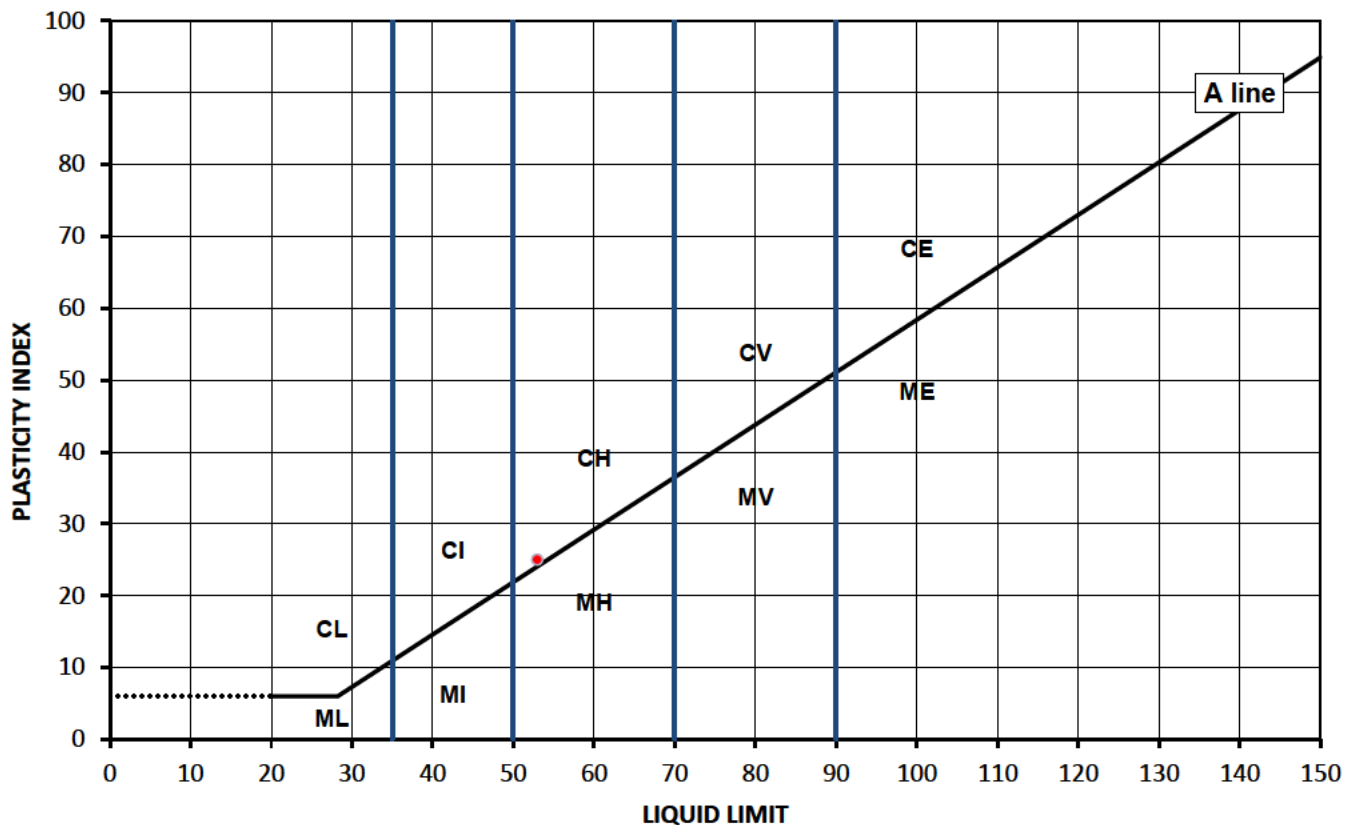
Test Results:

Laboratory Reference: 1403248
Hole No.: TP253
Sample Reference: 1
Soil Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
30	53	28	25	99



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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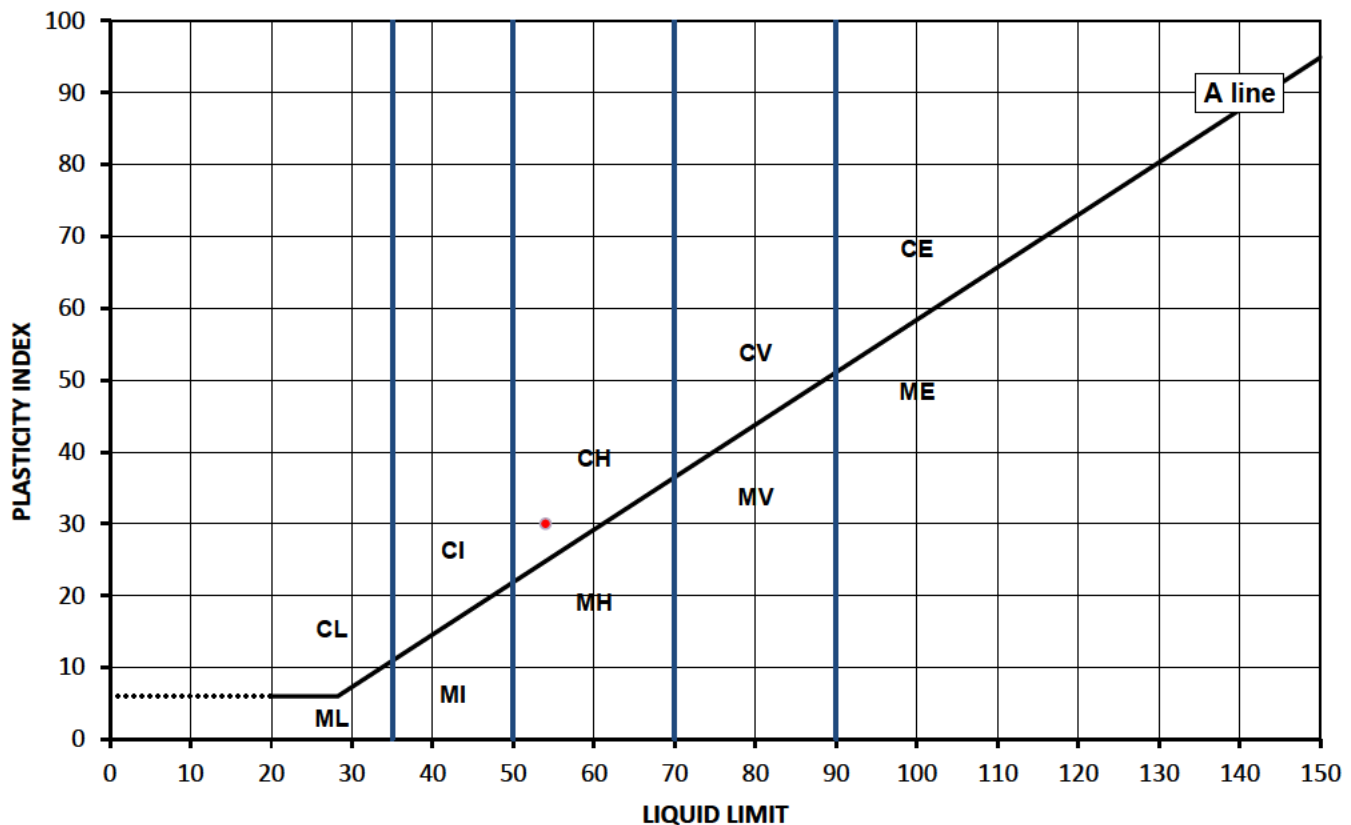
Test Results:

Laboratory Reference: 1403249
Hole No.: TP255
Sample Reference: 1
Soil Description: Brown very clayey SILT

Depth Top [m]: 0.40
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	54	24	30	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

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Page 1 of 1

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GF 236.6



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Sampled By: Not Given

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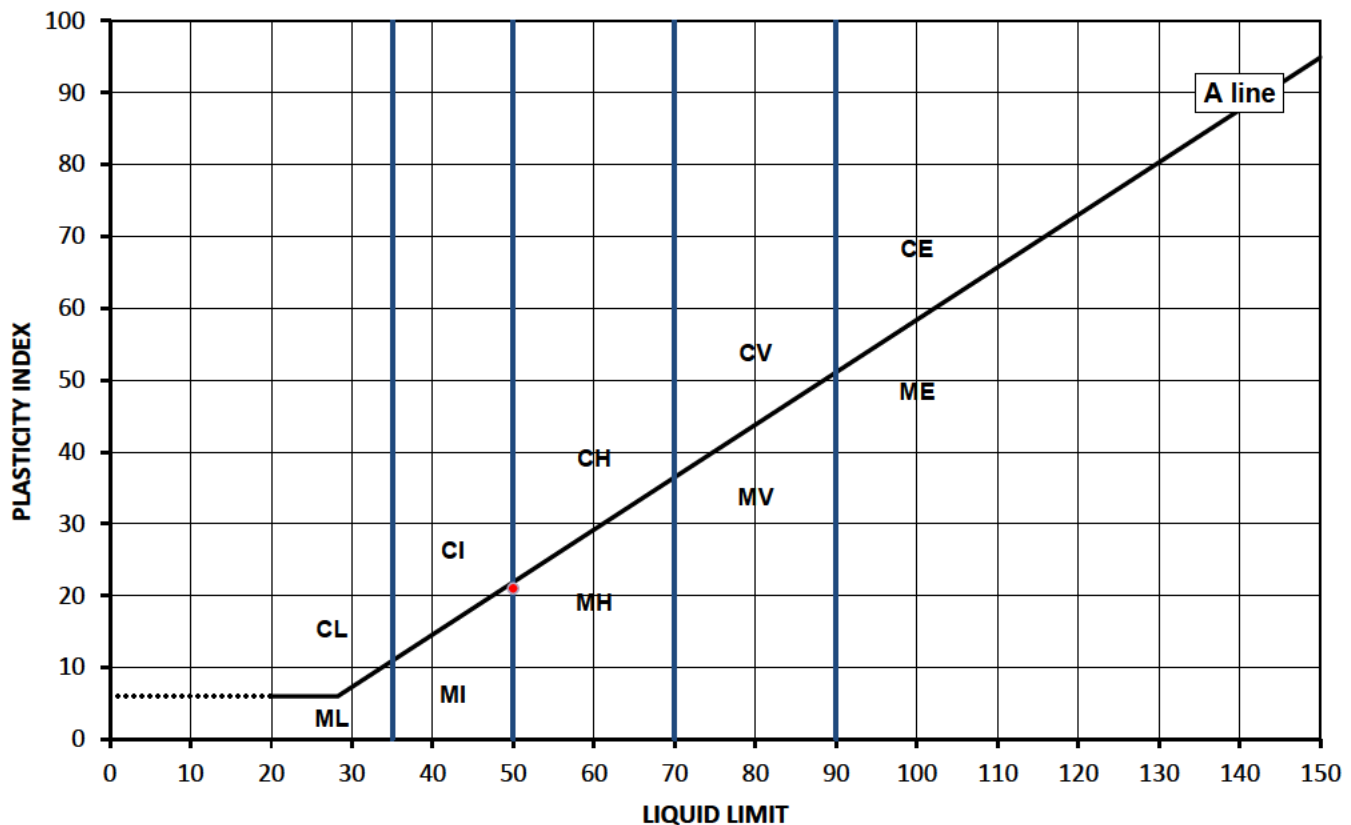
Test Results:

Laboratory Reference: 1403250
Hole No.: TP256
Sample Reference: 1
Soil Description: Light brown slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 0.30
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
31	50	29	21	94



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
			E	Extremely high		exceeding 90
	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

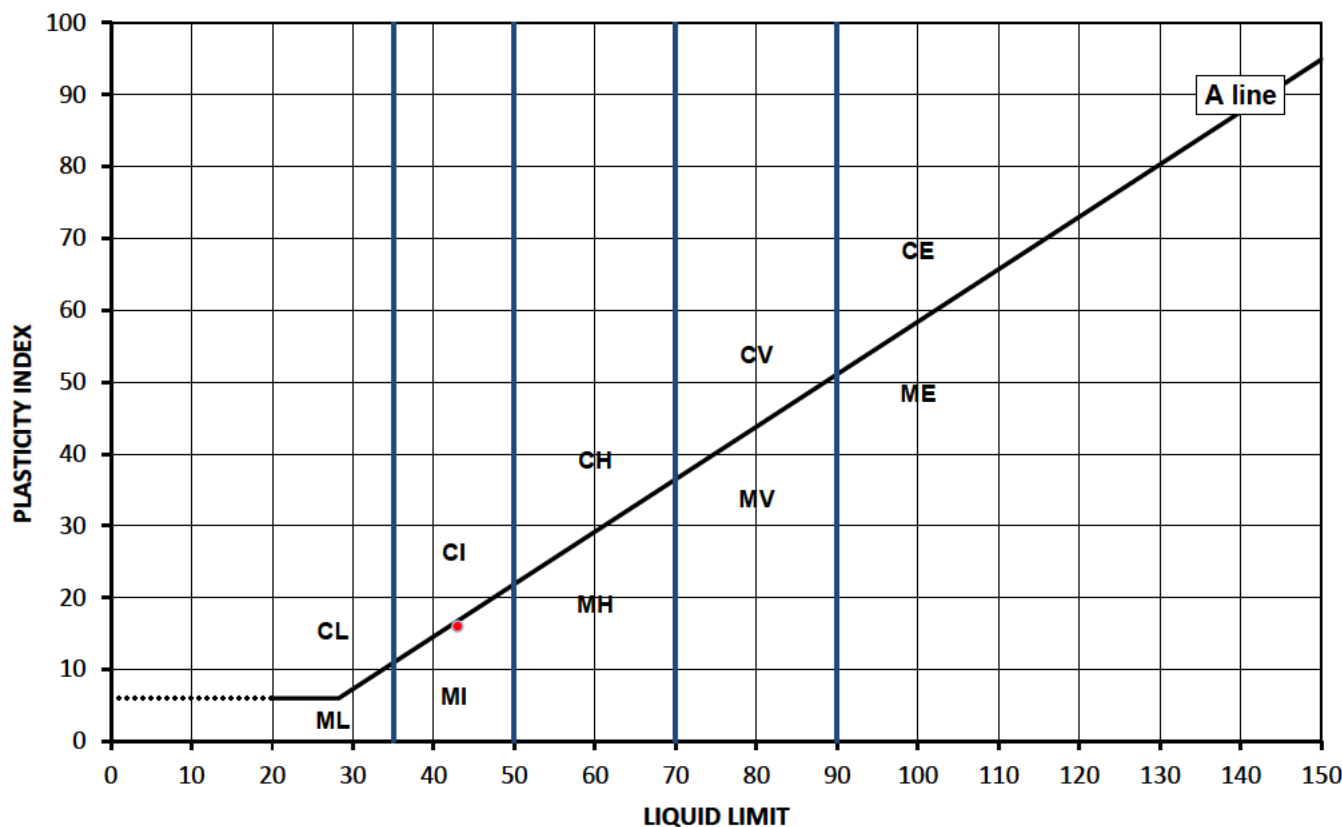
Test Results:

Laboratory Reference: 1403251
Hole No.: WS207A
Sample Reference: 1
Soil Description: Brown gravelly sandy clayey SILT

Depth Top [m]: 1.00
Depth Base [m]: 1.20
Sample Type: B

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	43	27	16	81



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	L	Low	Liquid Limit	below 35
M	Silt		I	Medium		35 to 50
			H	High		50 to 70
			V	Very high		70 to 90
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	Organic	O		append to classification for organic material (eg CHO)		

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

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SUMMARY REPORT

Summary of Classification Test Results

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with:

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
Clause 8.2

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

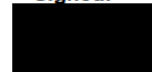
Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1403233	TP203	1	0.50	Not Given	B	Brown slightly gravelly slightly sandy very silty CLAY	Atterberg 4 Point	27		95	57	23	34						
1403234	TP204	1	0.60	Not Given	B	Brownish grey slightly sandy slightly gravelly clayey SILT	Atterberg 4 Point	26		90	47	25	22						
1403230	TP205	1	0.50	Not Given	B	Brownish grey CLAY	Atterberg 4 Point	29		100	54	27	27						
1403231	TP207	1	0.60	Not Given	B	Brown to grey clayey SILT	Atterberg 4 Point	27		100	46	23	23						
1403235	TP208	1	0.50	Not Given	B	Brown CLAY	Atterberg 4 Point	27		100	53	25	28						
1403236	TP211	1	0.50	Not Given	B	Brown to grey slightly sandy very clayey SILT	Atterberg 4 Point	35		100	58	29	29						
1403232	TP212	1	0.50	Not Given	B	Light brown very silty CLAY	Atterberg 4 Point	40		100	81	34	47						
1403238	TP217	1	0.60	Not Given	B	Brown slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	27		100	61	28	33						
1403227	TP220	1	0.60	Not Given	B	Orangish brown slightly gravelly very silty CLAY	Atterberg 4 Point	31		99	66	33	33						
1403237	TP221	1	0.50	Not Given	B	Light brown very clayey SILT	Atterberg 4 Point	30		100	56	28	28						

Note: # Non accredited; NP - Non plastic

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



4041

Client: Endeavour Drilling
 Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
 Chelmsford, CM3 6LD
 Contact: Oliver Wendland
 Site Address: L&G - LNO Horsham

Tested in Accordance with:
 MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
 by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
 Clause 8.2

Summary of Classification Test Results

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: J4175
 Job Number: 20-79308
 Date Sampled: Not Given
 Date Received: 23/12/2019
 Date Tested: 08/01/2020
 Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1403228	TP225	1	0.60	Not Given	B	Brown SILT and CLAY	Atterberg 4 Point	29		89	61	31	30						
1403239	TP229	1	0.50	Not Given	B	Brown to grey slightly sandy very clayey SILT	Atterberg 4 Point	29		100	55	27	28						
1403242	TP231	1	0.60	Not Given	B	Light brown slightly sandy very silty CLAY	Atterberg 4 Point	32		100	72	26	46						
1403240	TP235	2	0.80	Not Given	B	Orangish brown slightly gravelly slightly sandy clayey SILT	Atterberg 4 Point	29		96	54	27	27						
1403229	TP237	2	1.50	Not Given	B	Brown slightly sandy very gravelly CLAY with mudstones	Atterberg 4 Point	18		58	48	28	20						
1403243	TP240	1	0.40	Not Given	B	Yellowish brown slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	30		99	58	29	29						
1403244	TP243	2	1.50	Not Given	B	Brown to grey slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	26		96	51	26	25						
1403247	TP244	2	1.50	Not Given	B	Light brown slightly sandy clayey gravelly SILT	Atterberg 4 Point	16		70	35	17	18						
1403241	TP247	1	0.50	Not Given	B	Light brown slightly sandy CLAY	Atterberg 4 Point	32		100	64	28	36						
1403245	TP248	2	1.20	Not Given	B	Light brown slightly sandy CLAY	Atterberg 4 Point	37		100	57	27	30						

Note: # Non accredited; NP - Non plastic

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Dariusz Piotrowski
 PL Geotechnical Laboratory Manager
 for and on behalf of i2 Analytical Ltd



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 Chelmsford, CM3 6LD
 Contact: Oliver Wendland
 Site Address: L&G - LNO Horsham

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
 by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
 Clause 8.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: J4175

Job Number: 20-79308

Date Sampled: Not Given

Date Received: 23/12/2019

Date Tested: 08/01/2020

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1403248	TP253	1	0.50	Not Given	B	Brown slightly gravelly slightly sandy CLAY	Atterberg 4 Point	30		99	53	28	25						
1403249	TP255	1	0.40	Not Given	B	Brown very clayey SILT	Atterberg 4 Point	27		100	54	24	30						
1403250	TP256	1	0.30	Not Given	B	Light brown slightly gravelly slightly sandy very clayey SILT	Atterberg 4 Point	31		94	50	29	21						
1403246	WS202A	3	1.25	1.70	B	Brown slightly gravelly sandy CLAY	Atterberg 4 Point	16		89	62	27	35						
1403251	WS207A	1	1.00	1.20	B	Brown gravelly sandy clayey SILT	Atterberg 4 Point	22		81	43	27	16						

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Dariusz Piotrowski
 PL Geotechnical Laboratory Manager
 for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

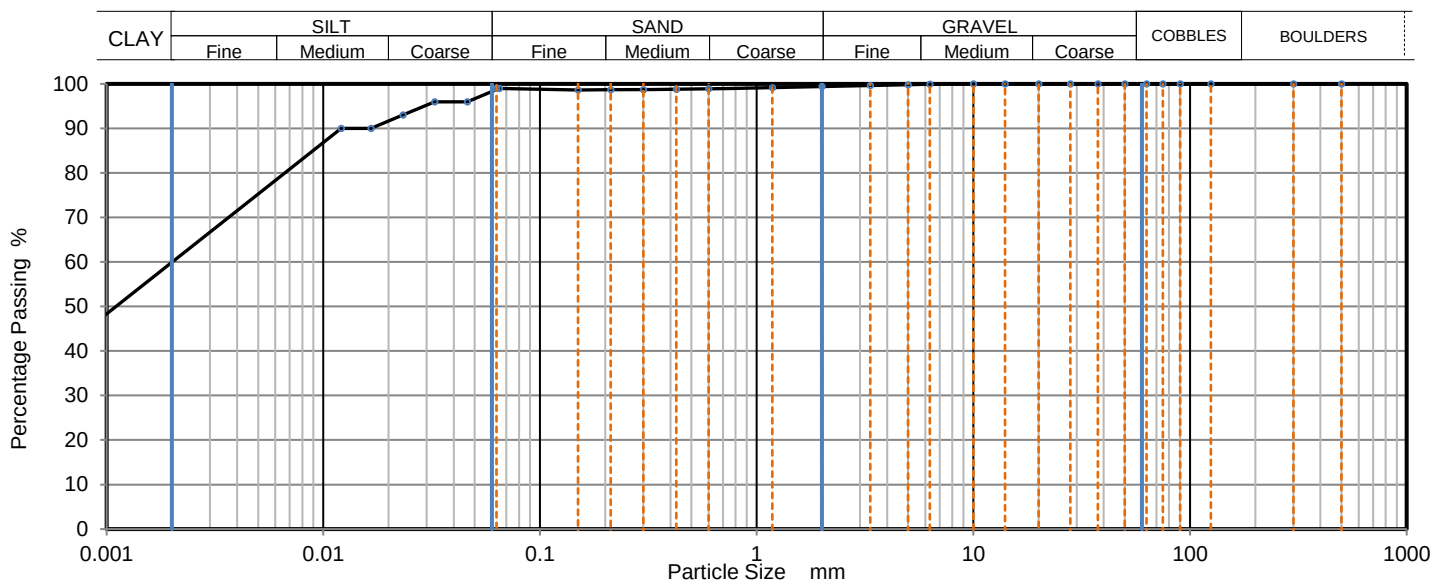
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403227
Hole No.: TP220
Sample Reference: 1
Sample Description: Orangish brown slightly gravelly very silty CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0648	99
300	100	0.0462	96
125	100	0.0327	96
90	100	0.0233	93
75	100	0.0166	90
63	100	0.0121	90
50	100	0.0088	45
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99	Particle density (assumed) 2.65 Mg/m3	
1.18	99		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.60
Sand	0.80
Silt	38.60
Clay	60.00

Grading Analysis	
D100	mm 10
D60	mm 0.002
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

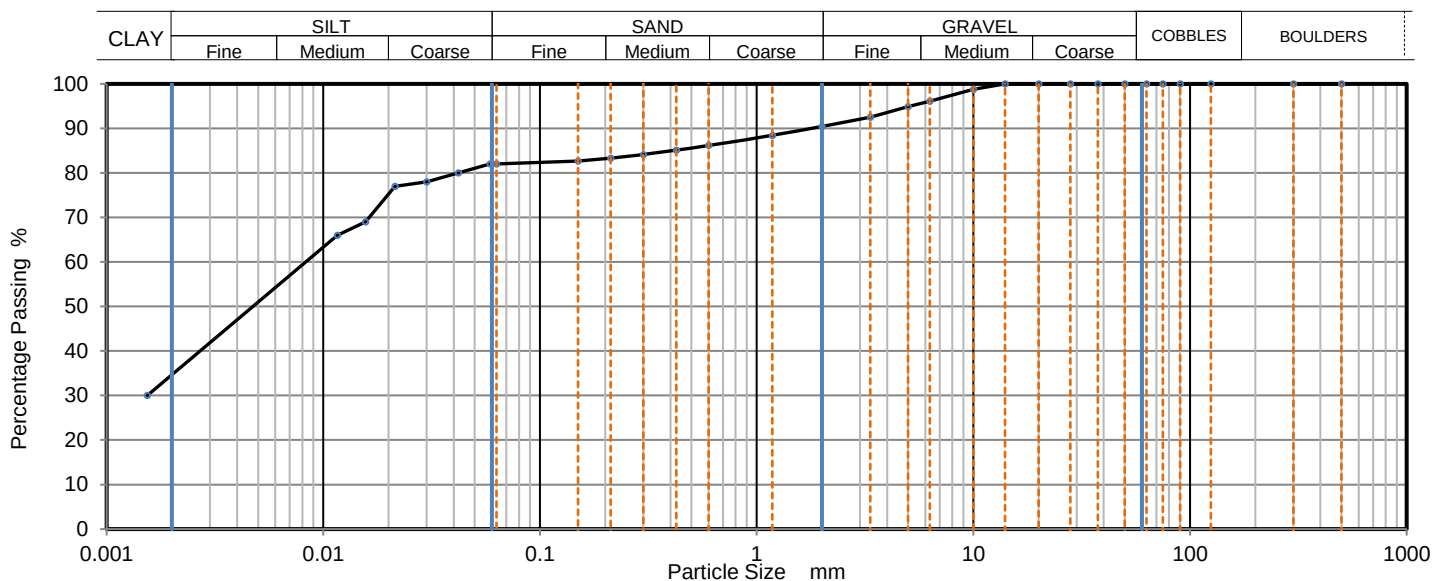
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403228
Hole No.: TP225
Sample Reference: 1
Sample Description: Brown slightly gravelly slightly sandy clayey SILT

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0588	82
300	100	0.0420	80
125	100	0.0300	78
90	100	0.0214	77
75	100	0.0156	69
63	100	0.0116	66
50	100	0.0075	30
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	96		
5	95		
3.35	93		
2	90		
1.18	88	Particle density (assumed) 2.65 Mg/m ³	
0.6	86		
0.425	85		
0.3	84		
0.212	83		
0.15	83		
0.063	82		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	9.60
Sand	8.50
Silt	47.00
Clay	34.90

Grading Analysis	
D100	mm 14
D60	mm 0.00831
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

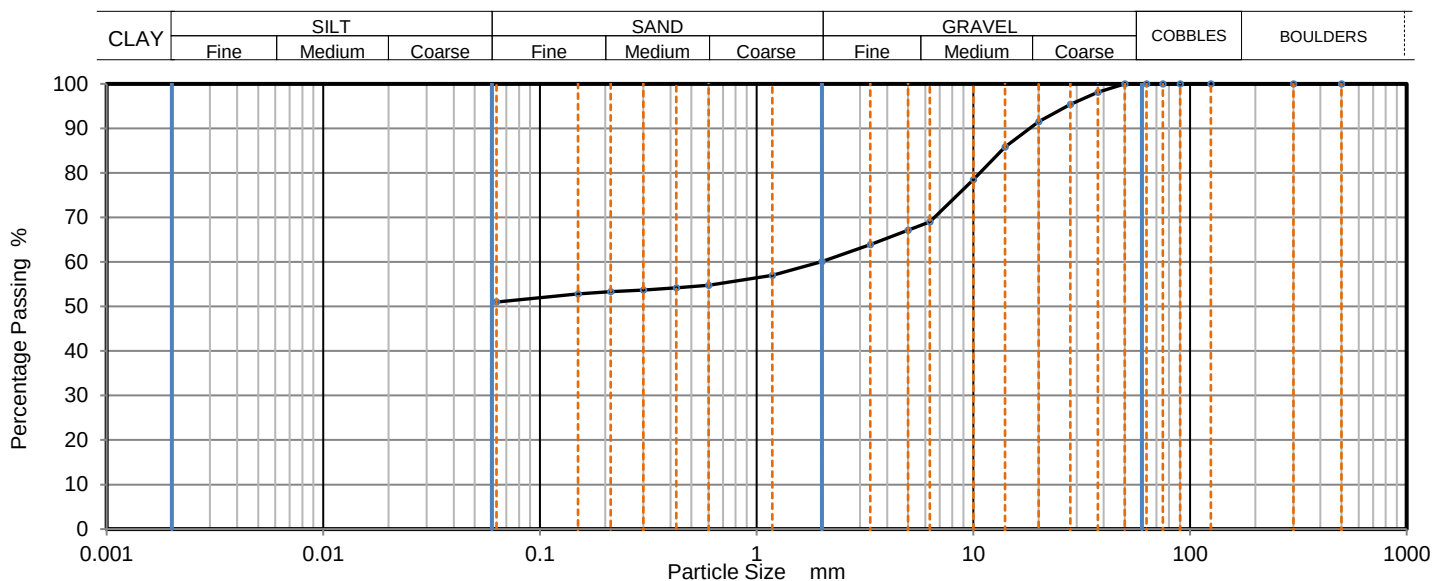
Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1403229
Hole No.: TP237
Sample Reference: 2
Sample Description: Brown slightly sandy very gravelly CLAY with mudstones

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	95		
20	92		
14	86		
10	79		
6.3	69		
5	67		
3.35	64		
2	60		
1.18	57		
0.6	55		
0.425	54		
0.3	54		
0.212	53		
0.15	53		
0.063	51		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	39.90
Sand	8.80
Fines <0.063mm	51.30

Grading Analysis	
D100	mm 50
D60	mm 1.97
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

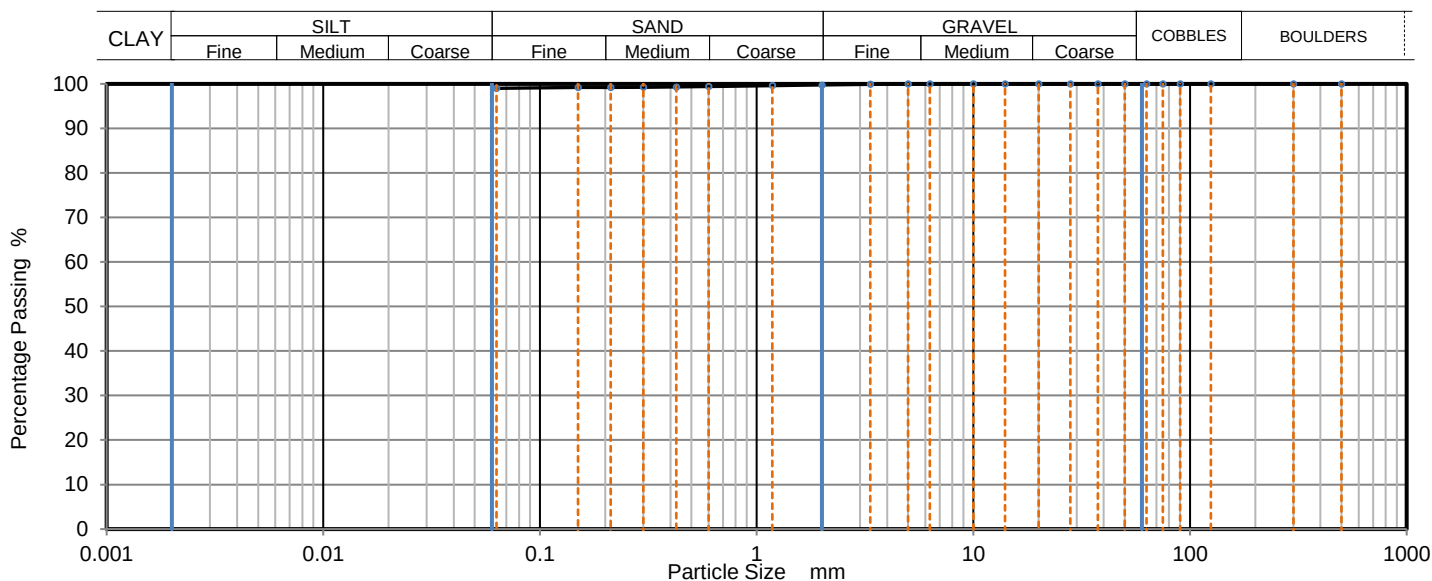
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403230
Hole No.: TP205
Sample Reference: 1
Sample Description: Brownish grey CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.30
Sand	0.70
Fines <0.063mm	99.10

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

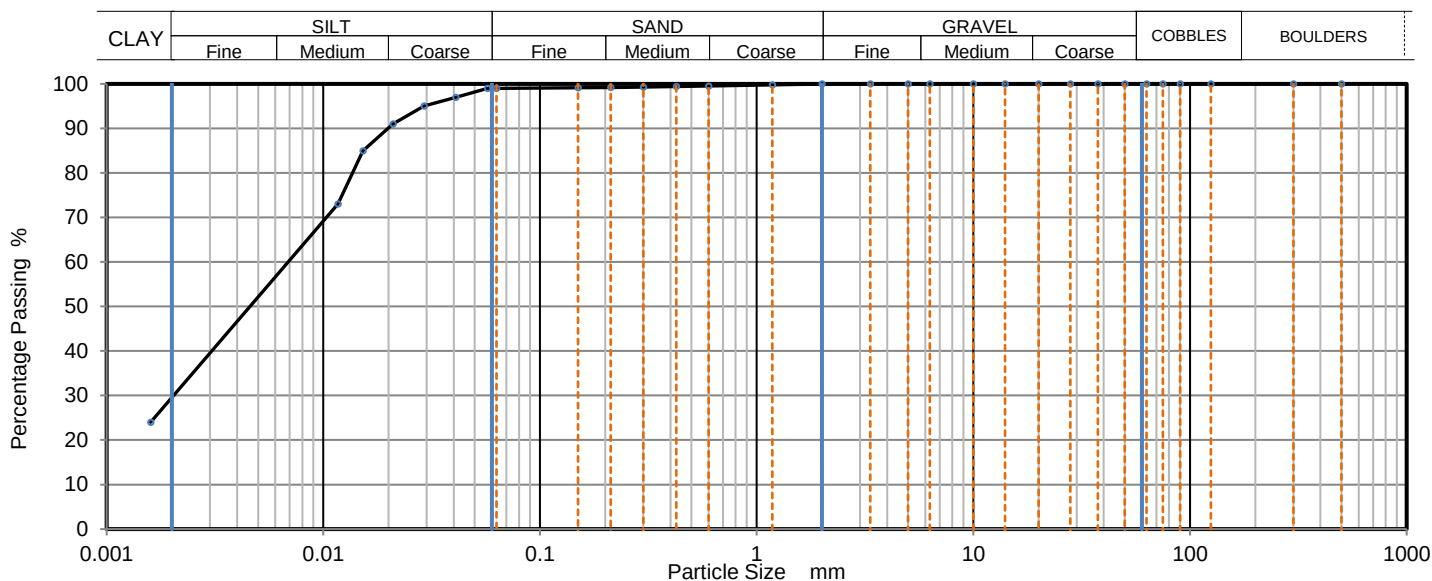
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403231
Hole No.: TP207
Sample Reference: 1
Sample Description: Brown to grey clayey SILT

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0572	99
300	100	0.0408	97
125	100	0.0291	95
90	100	0.0210	91
75	100	0.0152	85
63	100	0.0117	73
50	100	0.0016	24
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density (assumed) 2.65 Mg/m3	
1.18	100		
0.6	100		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	1.20
Silt	69.50
Clay	29.30

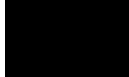
Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

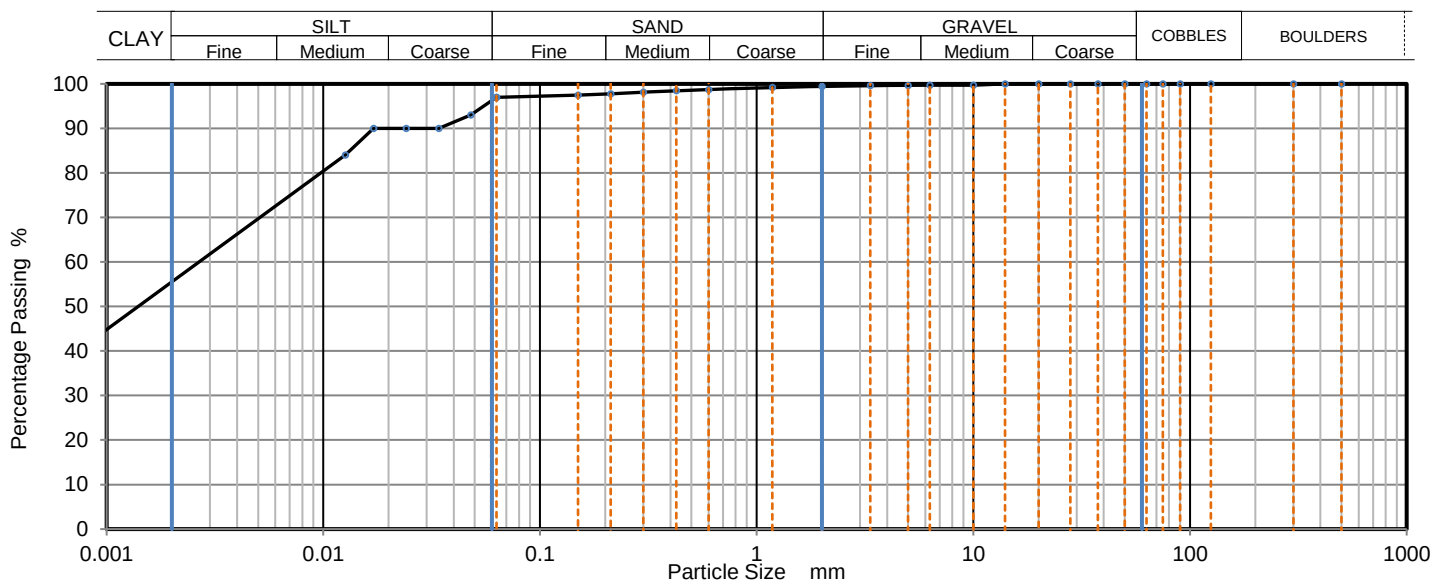
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403232
Hole No.: TP212
Sample Reference: 1
Sample Description: Light brown very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	97
300	100	0.0479	93
125	100	0.0341	90
90	100	0.0241	90
75	100	0.0170	90
63	100	0.0126	84
50	100	0.0088	42
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99	Particle density (assumed) 2.65 Mg/m3	
1.18	99		
0.6	99		
0.425	99		
0.3	98		
0.212	98		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.60
Sand	2.70
Silt	41.30
Clay	55.40

Grading Analysis	
D100	mm 14
D60	mm 0.00269
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

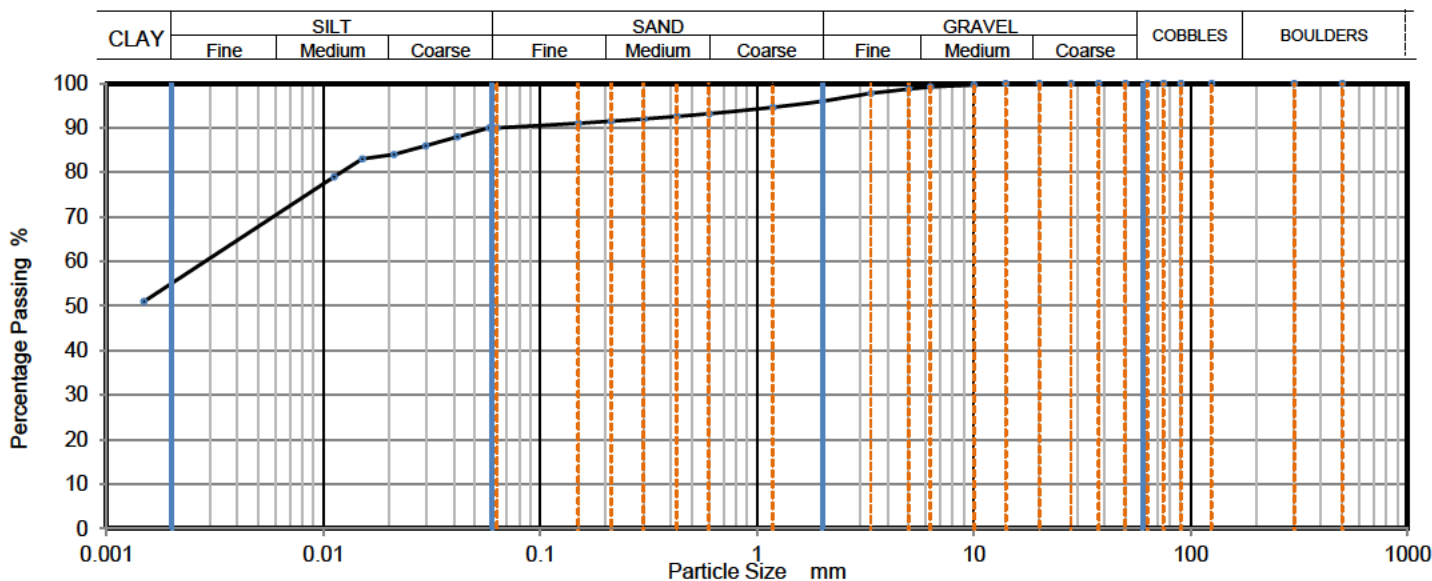
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403233
Hole No.: TP203
Sample Reference: 1
Sample Description: Brown slightly gravelly slightly sandy very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0581	90
300	100	0.0415	88
125	100	0.0296	86
90	100	0.0211	84
75	100	0.0151	83
63	100	0.0112	79
50	100	0.0075	51
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	96		
1.18	95	Particle density (assumed) 2.65 Mg/m ³	
0.6	93		
0.425	93		
0.3	92		
0.212	92		
0.15	91		
0.063	90		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	4.00
Sand	5.90
Silt	35.30
Clay	54.80

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

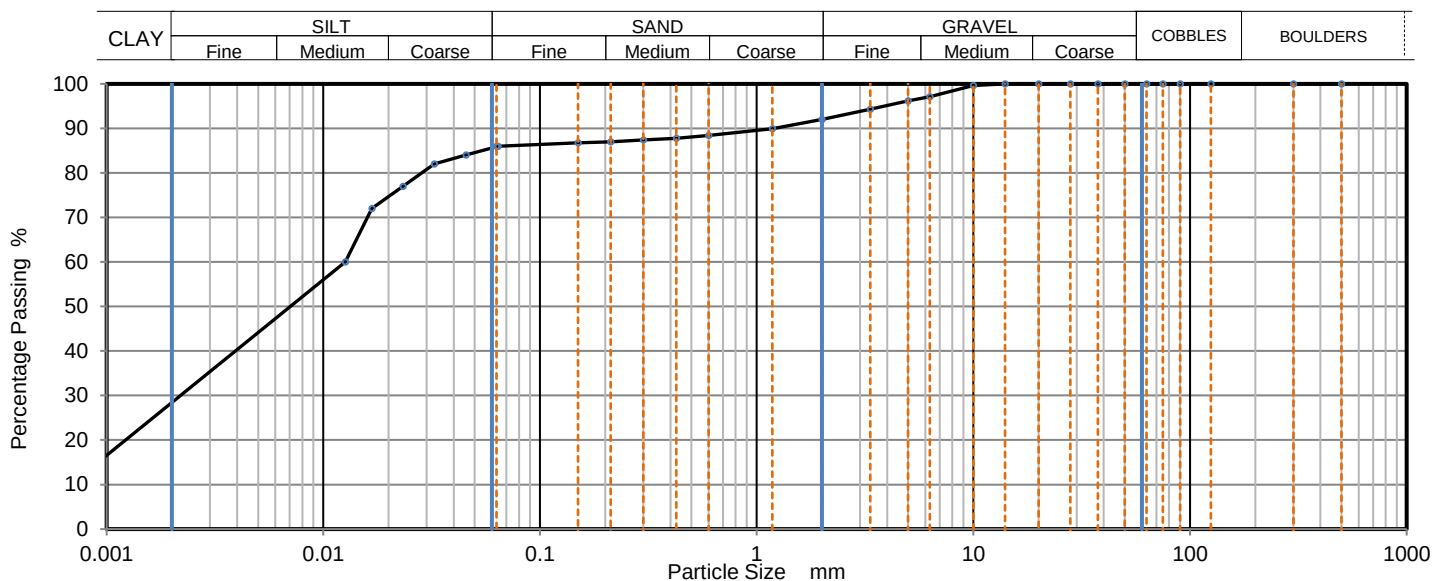
Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1403234
Hole No.: TP204
Sample Reference: 1
Sample Description: Brownish grey slightly sandy slightly gravelly clayey SILT

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0640	86
300	100	0.0456	84
125	100	0.0325	82
90	100	0.0233	77
75	100	0.0167	72
63	100	0.0126	60
50	100	0.009	14
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	97		
5	96		
3.35	94		
2	92	Particle density (assumed) 2.65 Mg/m3	
1.18	90		
0.6	88		
0.425	88		
0.3	87		
0.212	87		
0.15	87		
0.063	86		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	8.00
Sand	5.70
Silt	57.60
Clay	28.70

Grading Analysis	
D100	mm 14
D60	mm 0.0126
D30	mm 0.00216
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



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Particle Size Distribution

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

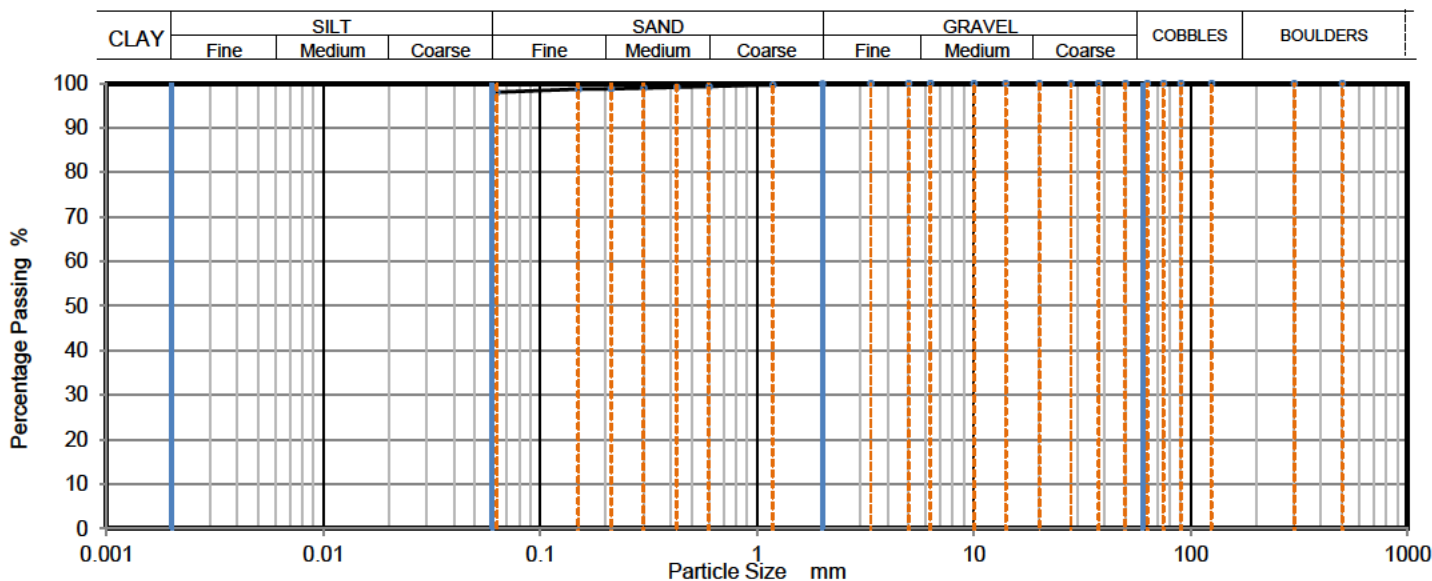
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403235
Hole No.: TP208
Sample Reference: 1
Sample Description: Brown CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	1.60
Fines <0.063mm	98.30

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Particle Size Distribution

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Brackmills Industrial Estate
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Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403236

Hole No.: TP211

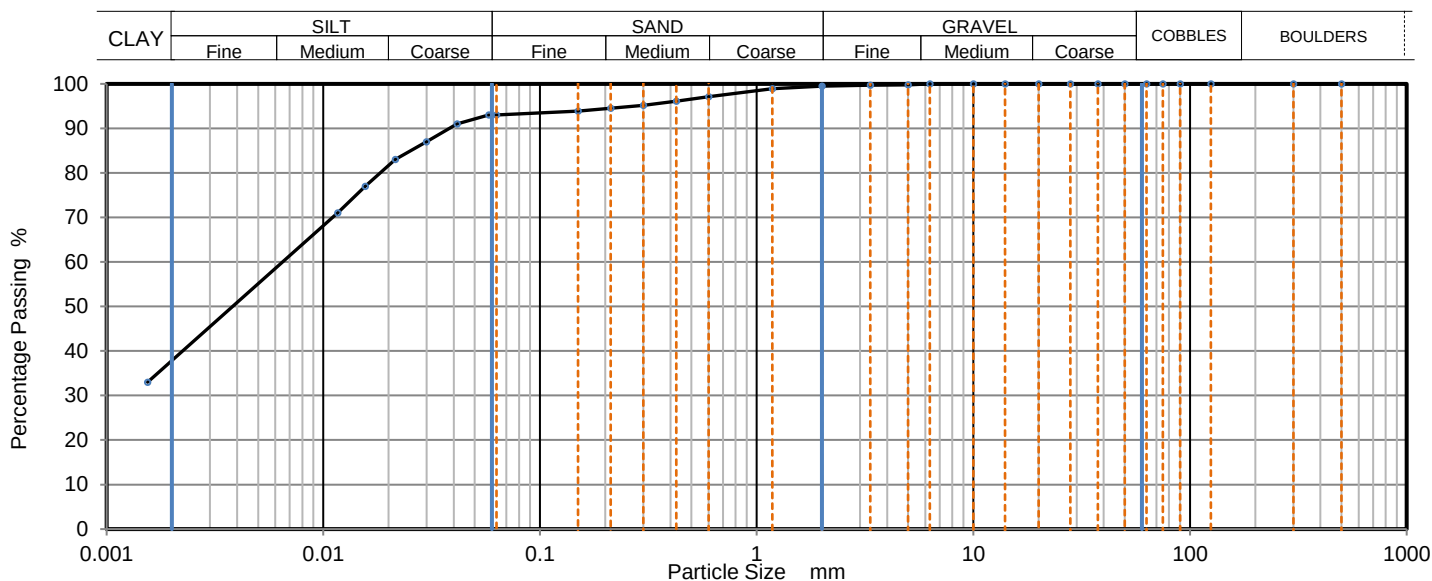
Sample Reference: 1

Sample Description: Brown to grey slightly sandy very clayey SILT

Depth Top [m]: 0.50

Depth Base [m]: Not Given

Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0581	93
300	100	0.0415	91
125	100	0.0299	87
90	100	0.0215	83
75	100	0.0156	77
63	100	0.0117	71
50	100	0.0075	33
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99	Particle density (assumed) 2.65 Mg/m3	
0.6	97		
0.425	96		
0.3	95		
0.212	95		
0.15	94		
0.063	93		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.50
Sand	6.80
Silt	55.00
Clay	37.70

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Particle Size Distribution

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

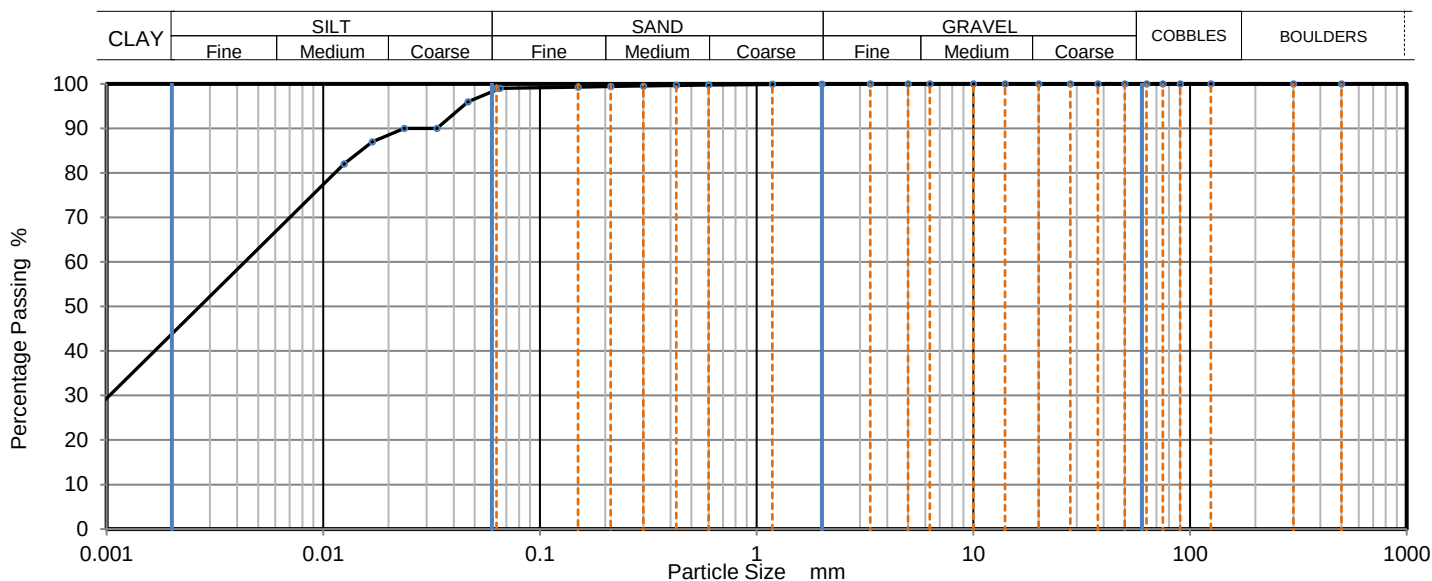
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403237
Hole No.: TP221
Sample Reference: 1
Sample Description: Light brown very clayey SILT

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0654	99
300	100	0.0466	96
125	100	0.0334	90
90	100	0.0236	90
75	100	0.0168	87
63	100	0.0125	82
50	100	0.009	26
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density (assumed) 2.65 Mg/m3	
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	0.80
Silt	55.20
Clay	43.90

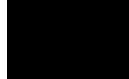
Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Brackmills Industrial Estate
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Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

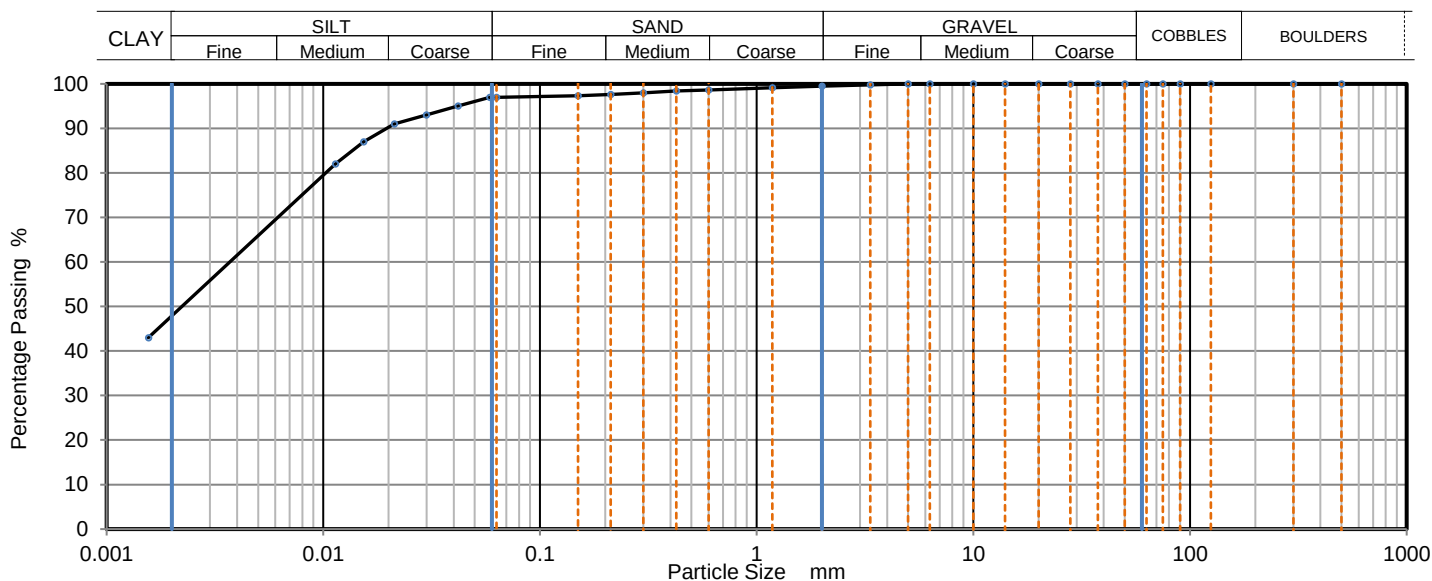
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403238
Hole No.: TP217
Sample Reference: 1
Sample Description: Brown SILT and CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0586	97
300	100	0.0418	95
125	100	0.0298	93
90	100	0.0213	91
75	100	0.0153	87
63	100	0.0114	82
50	100	0.0075	43
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99	Particle density (assumed) 2.65 Mg/m3	
0.6	99		
0.425	98		
0.3	98		
0.212	98		
0.15	97		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.50
Sand	2.60
Silt	48.70
Clay	48.20

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Particle Size Distribution

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



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Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

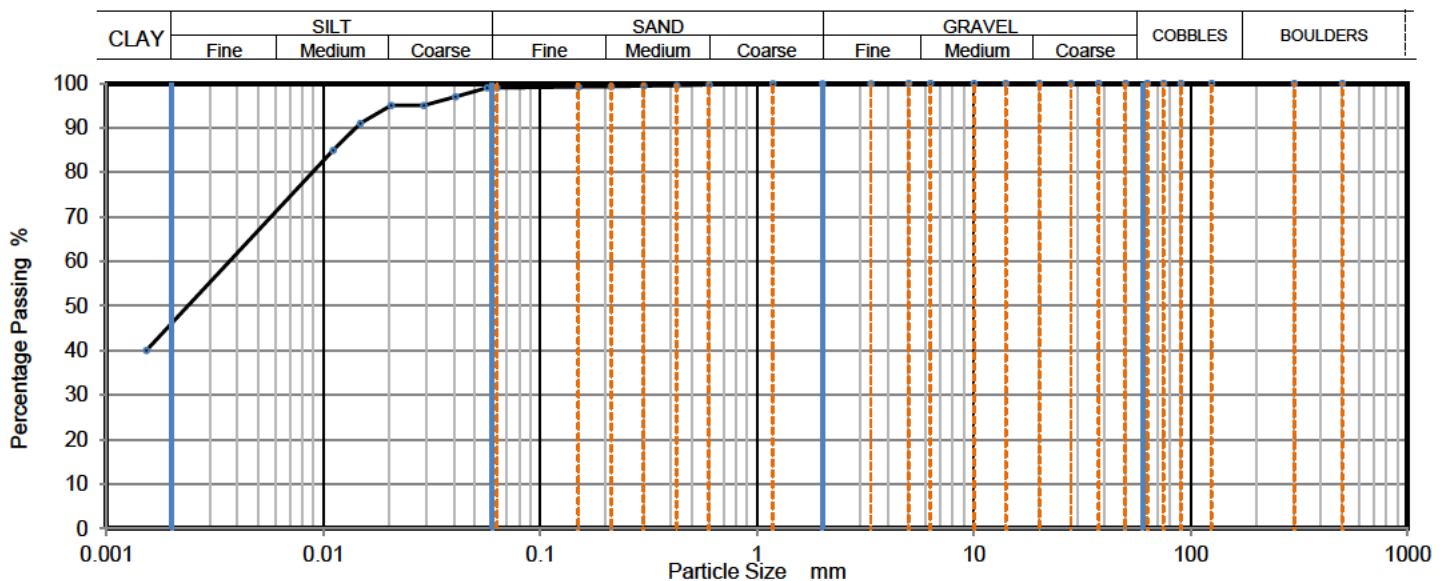
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403239
Hole No.: TP229
Sample Reference: 1
Sample Description: Brown to grey slightly sandy very clayey SILT

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0568	99
300	100	0.0405	97
125	100	0.0289	95
90	100	0.0205	95
75	100	0.0148	91
63	100	0.0111	85
50	100	0.0075	40
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density (assumed) 2.65 Mg/m ³	
0.6	100		
0.425	100		
0.3	99		
0.212	99		
0.15	99		
0.063	99		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	1.10
Silt	53.00
Clay	45.80

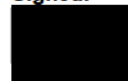
Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

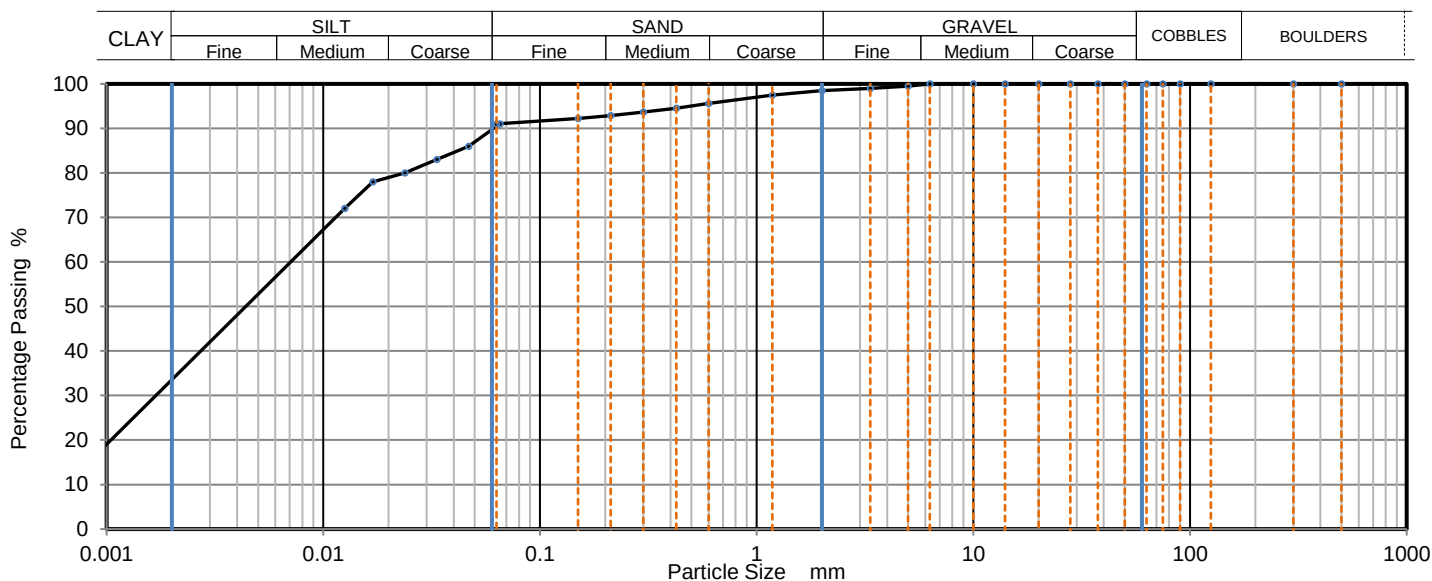
Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1403240
Hole No.: TP235
Sample Reference: 2
Sample Description: Orangish brown slightly gravelly slightly sandy clayey SILT

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0653	91
300	100	0.0469	86
125	100	0.0334	83
90	100	0.0238	80
75	100	0.0169	78
63	100	0.0125	72
50	100	0.009	16
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99	Particle density (assumed) 2.65 Mg/m3	
1.18	98		
0.6	96		
0.425	95		
0.3	94		
0.212	93		
0.15	92		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.50
Sand	7.50
Silt	57.30
Clay	33.70

Grading Analysis	
D100	mm 6.3
D60	mm 0.00699
D30	mm 0.00168
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

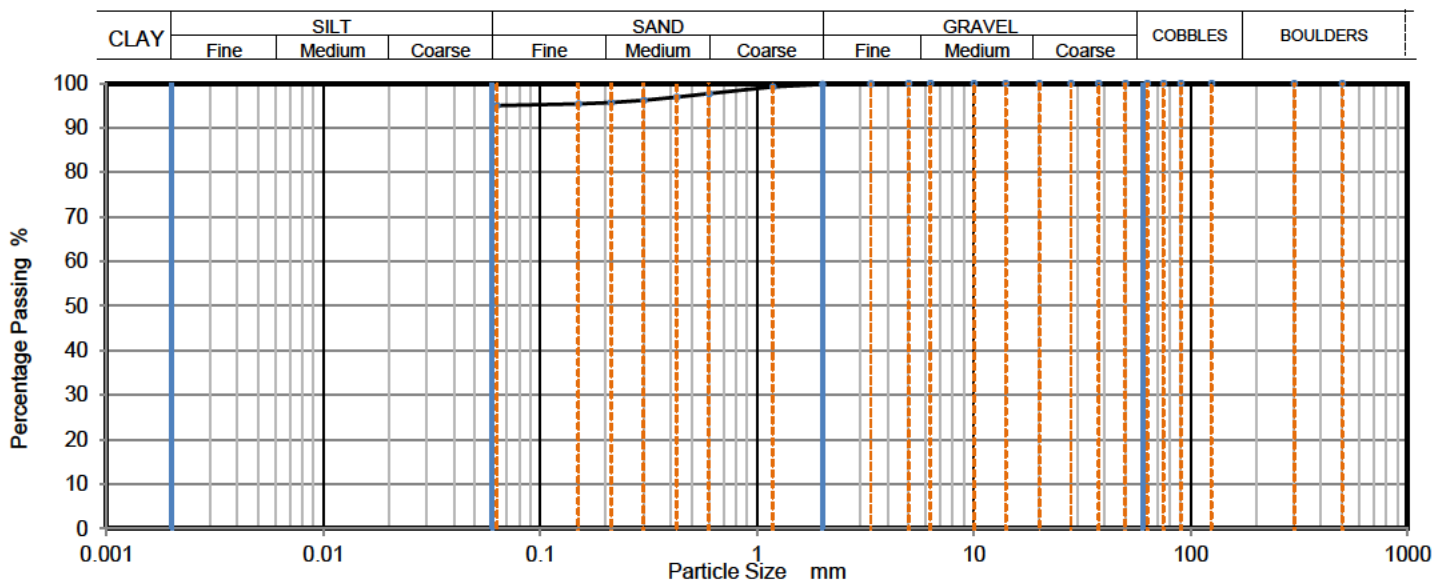
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403241
Hole No.: TP247
Sample Reference: 1
Sample Description: Light brown slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	99		
0.6	98		
0.425	97		
0.3	96		
0.212	96		
0.15	95		
0.063	95		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.20
Sand	4.70
Fines <0.063mm	95.00

Grading Analysis		
D100	mm	6.3
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

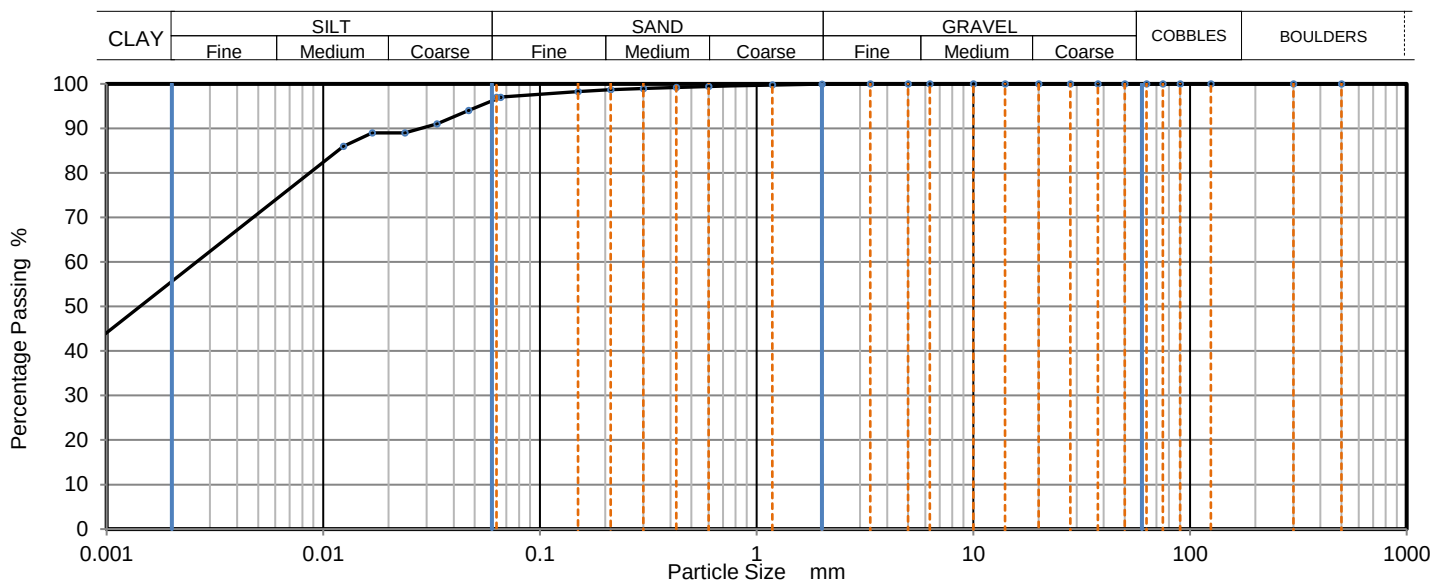
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403242
Hole No.: TP231
Sample Reference: 1
Sample Description: Light brown slightly sandy very silty CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0658	97
300	100	0.0469	94
125	100	0.0334	91
90	100	0.0238	89
75	100	0.0168	89
63	100	0.0124	86
50	100	0.0088	41
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density (assumed) 2.65 Mg/m3	
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	98		
0.063	97		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.10
Sand	2.60
Silt	41.60
Clay	55.70

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

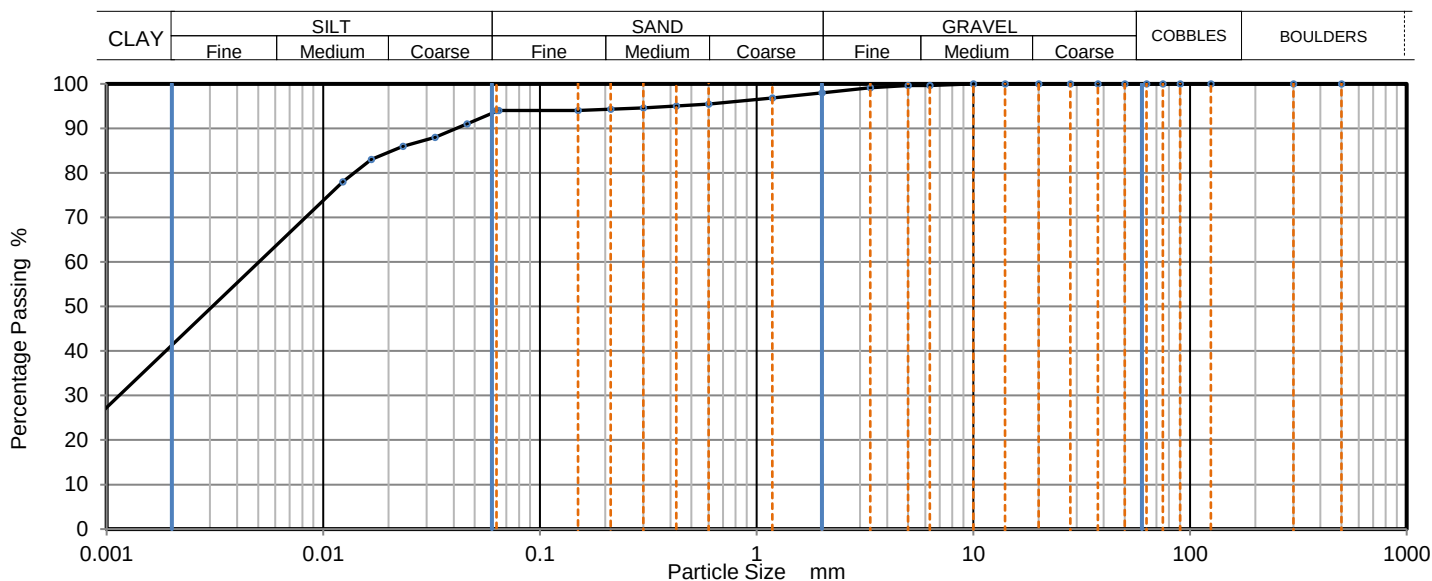
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403243
Hole No.: TP240
Sample Reference: 1
Sample Description: Yellowish brown slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 0.40
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0645	94
300	100	0.0460	91
125	100	0.0328	88
90	100	0.0233	86
75	100	0.0166	83
63	100	0.0123	78
50	100	0.0088	24
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98	Particle density (assumed) 2.65 Mg/m3	
1.18	97		
0.6	96		
0.425	95		
0.3	95		
0.212	94		
0.15	94		
0.063	94		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	2.00
Sand	4.40
Silt	52.40
Clay	41.20

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

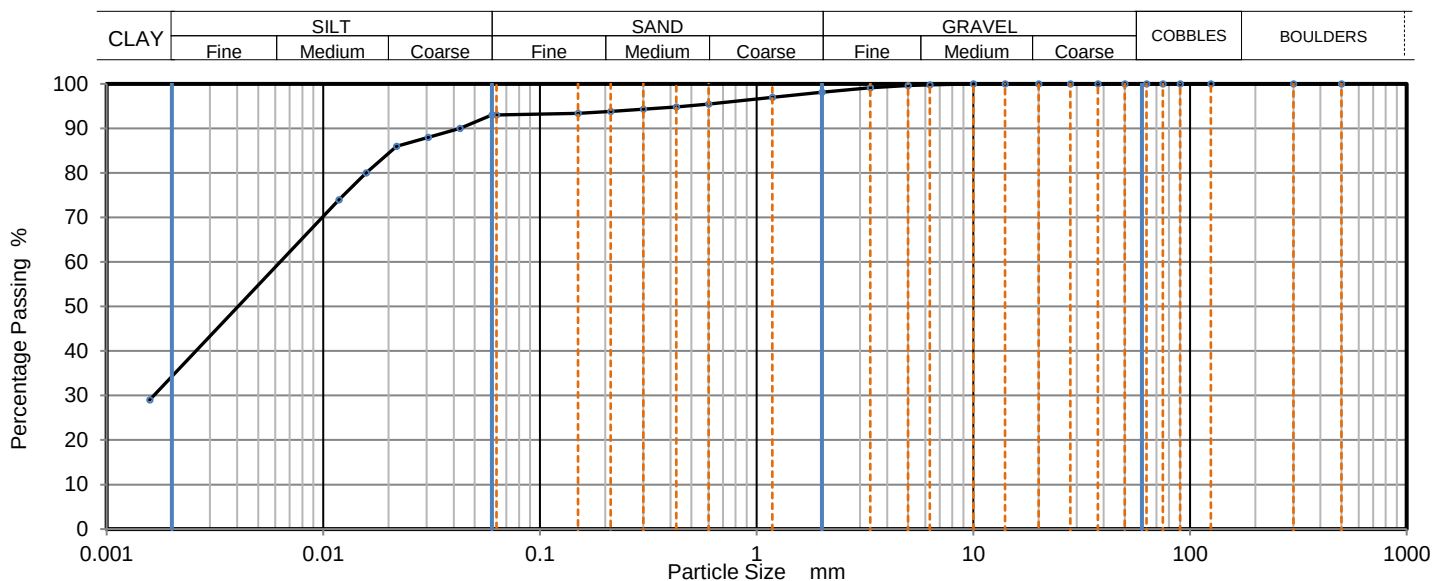
Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Test Results:

Laboratory Reference: 1403244
Hole No.: TP243
Sample Reference: 2
Sample Description: Brown to grey slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0600	93
300	100	0.0428	90
125	100	0.0305	88
90	100	0.0218	86
75	100	0.0158	80
63	100	0.0118	74
50	100	0.0016	29
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	98	Particle density (assumed) 2.65 Mg/m3	
1.18	97		
0.6	96		
0.425	95		
0.3	94		
0.212	94		
0.15	93		
0.063	93		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.90
Sand	5.60
Silt	58.40
Clay	34.10

Grading Analysis	
D100	mm 10
D60	mm 0.00633
D30	mm 0.00167
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



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Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

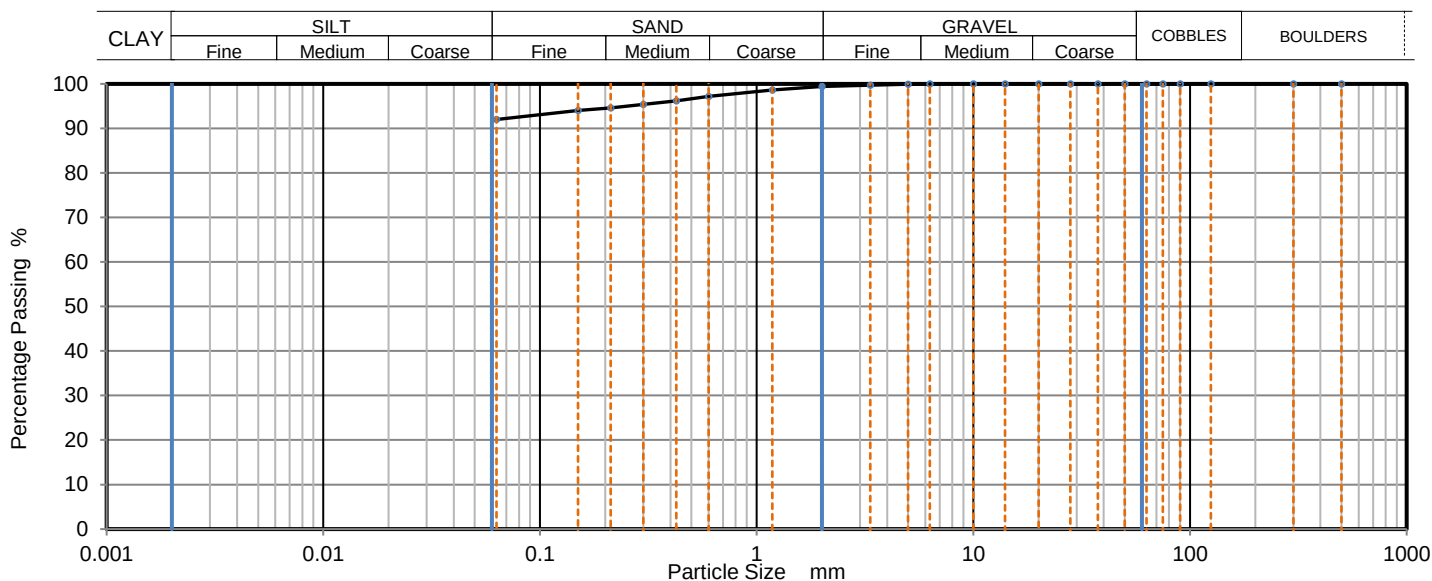
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403245
Hole No.: TP248
Sample Reference: 2
Sample Description: Light brown slightly sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	97		
0.425	96		
0.3	95		
0.212	95		
0.15	94		
0.063	93		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.60
Sand	6.50
Fines <0.063mm	92.90

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
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Chelmsford, CM3 6LD

Contact: Oliver Wendland
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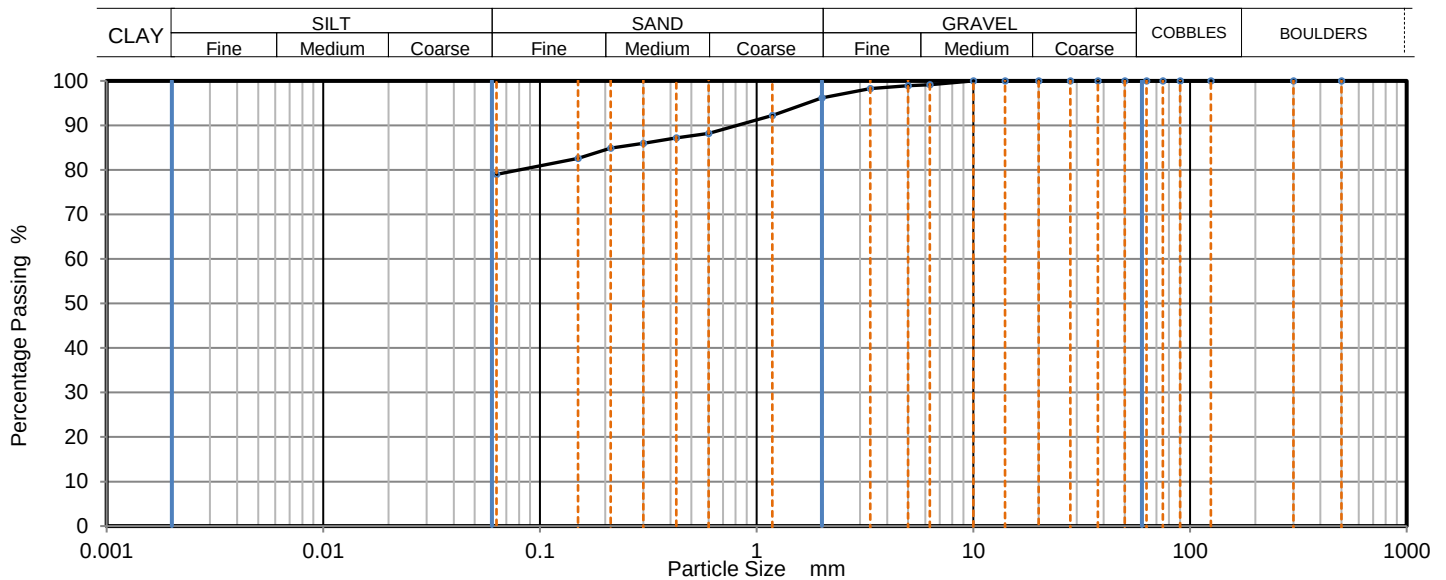
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403246
Hole No.: WS202A
Sample Reference: 3
Sample Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.25
Depth Base [m]: 1.70
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	96		
1.18	92		
0.6	88		
0.425	87		
0.3	86		
0.212	85		
0.15	83		
0.063	80		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	3.80
Sand	16.40
Fines <0.063mm	79.80

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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PL Geotechnical Laboratory Manager
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Particle Size Distribution

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Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
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Contact: Oliver Wendland
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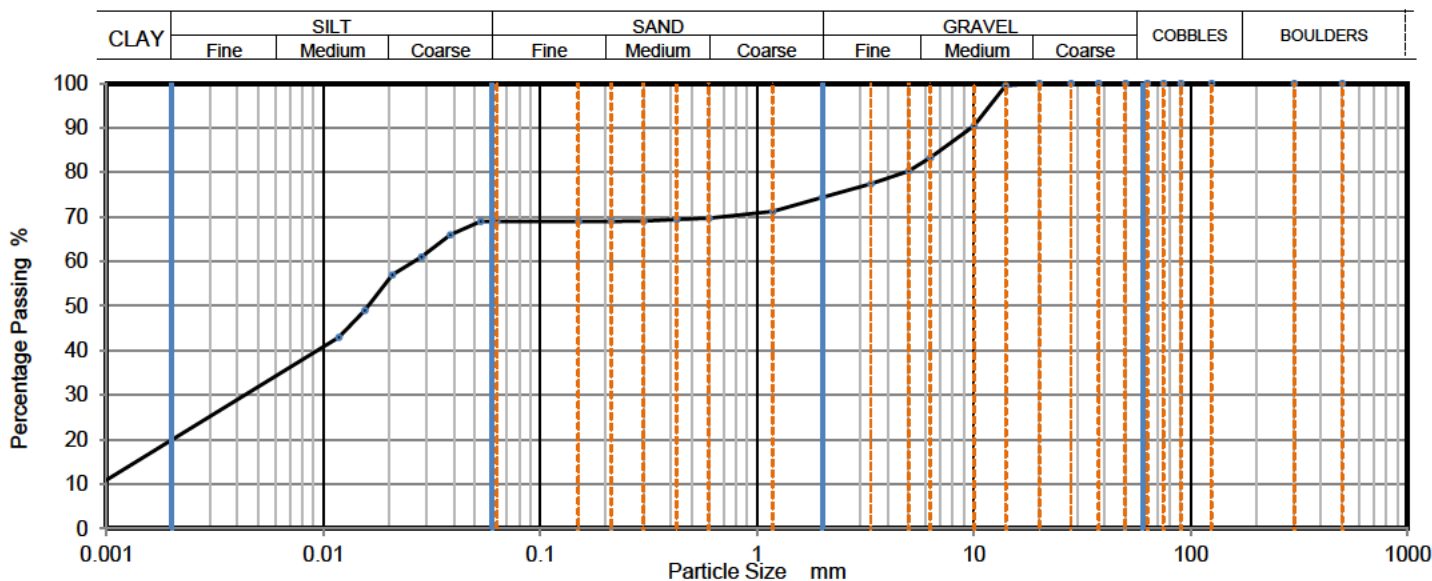
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403247
Hole No.: TP244
Sample Reference: 2
Sample Description: Light brown slightly sandy clayey gravelly SILT

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0531	69
300	100	0.0384	66
125	100	0.0283	61
90	100	0.0208	57
75	100	0.0155	49
63	100	0.0118	43
50	100	0.009	9
37.5	100		
28	100		
20	100		
14	100		
10	90		
6.3	83		
5	80		
3.35	77		
2	74		
1.18	71	Particle density (assumed) 2.65 Mg/m ³	
0.6	70		
0.425	69		
0.3	69		
0.212	69		
0.15	69		
0.063	69		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	25.60
Sand	5.60
Silt	49.10
Clay	19.70

Grading Analysis	
D100	mm 20
D60	mm 0.0259
D30	mm 0.00438
D10	mm 0.000956
Uniformity Coefficient	27
Curvature Coefficient	0.78

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

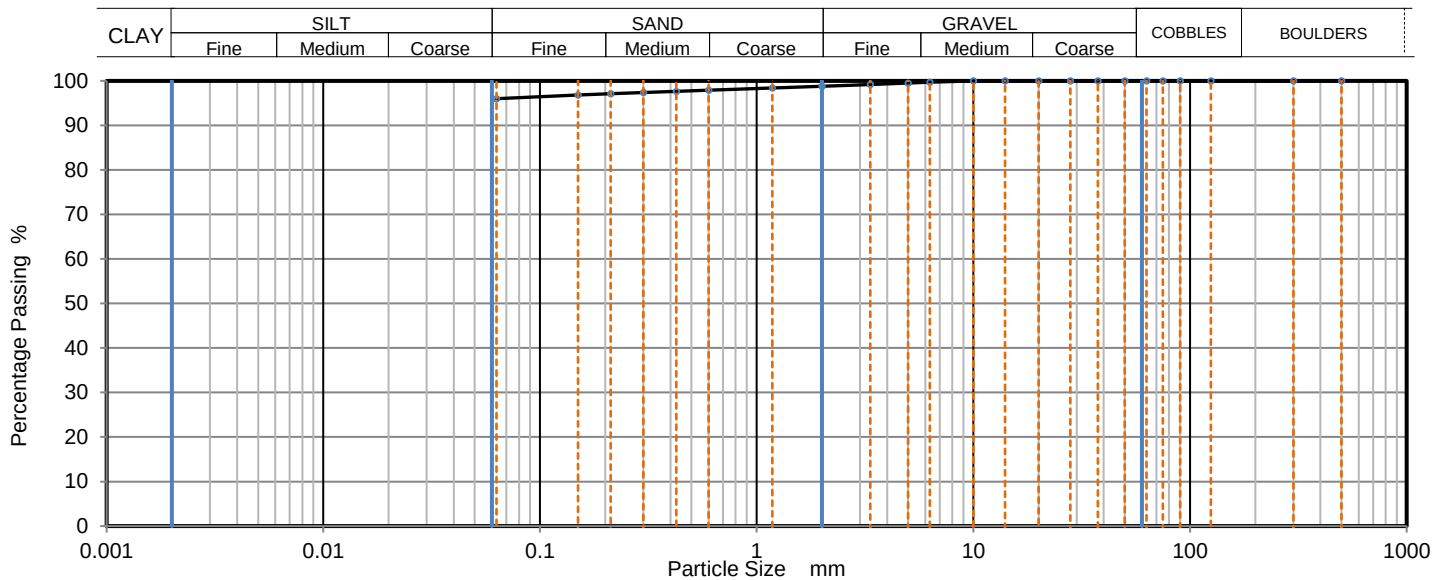
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403248
Hole No.: TP253
Sample Reference: 1
Sample Description: Brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	98		
0.425	98		
0.3	97		
0.212	97		
0.15	97		
0.063	96		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.20
Sand	2.40
Fines <0.063mm	96.40

Grading Analysis	
D100	mm 10
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

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Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



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Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

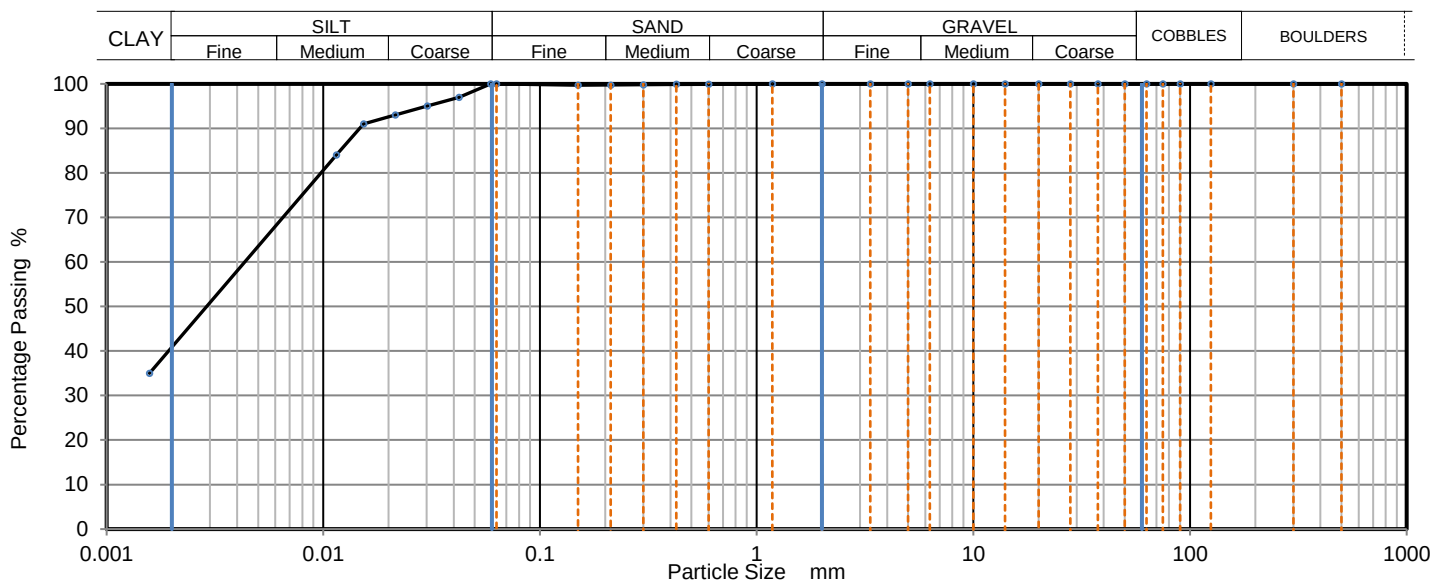
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403249
Hole No.: TP255
Sample Reference: 1
Sample Description: Brown very clayey SILT

Depth Top [m]: 0.40
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0592	100
300	100	0.0422	97
125	100	0.0301	95
90	100	0.0215	93
75	100	0.0153	91
63	100	0.0115	84
50	100	0.0075	35
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density (assumed) 2.65 Mg/m3	
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	100		
0.063	100		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.00
Sand	0.40
Silt	59.00
Clay	40.60

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Particle Size Distribution

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Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

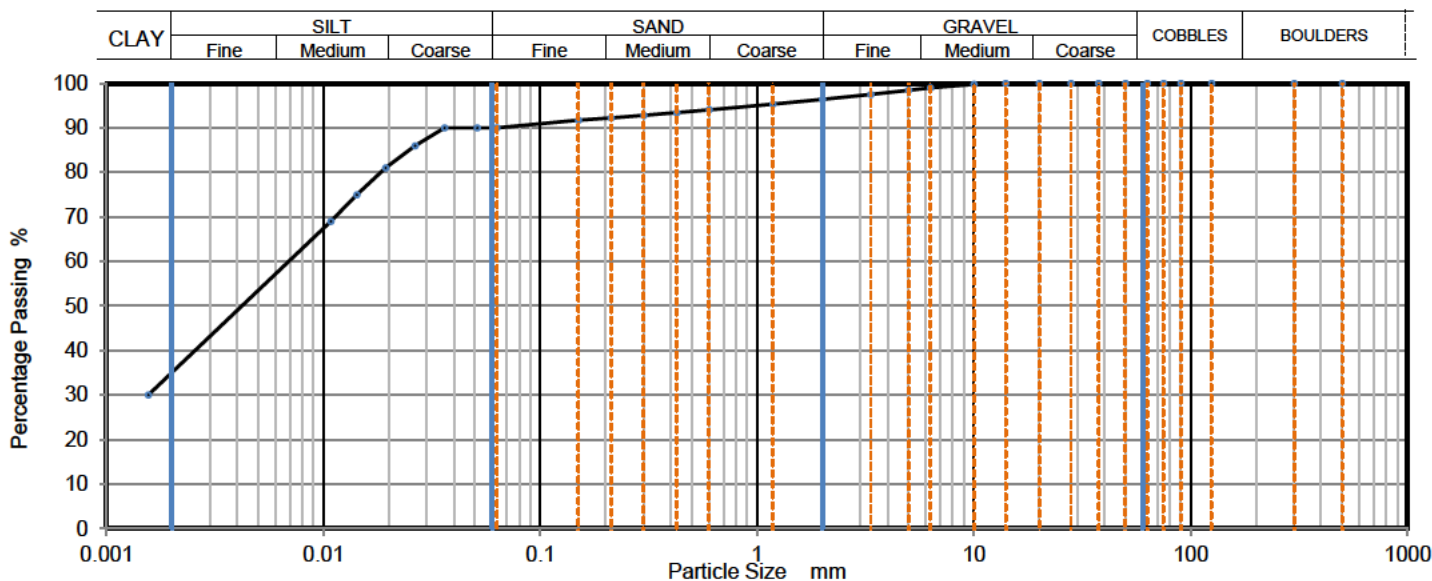
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403250
Hole No.: TP256
Sample Reference: 1
Sample Description: Light brown slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 0.30
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0511	90
300	100	0.0361	90
125	100	0.0265	86
90	100	0.0193	81
75	100	0.0142	75
63	100	0.0108	69
50	100	0.0075	30
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	98		
2	96	Particle density (assumed) 2.65 Mg/m3	
1.18	95		
0.6	94		
0.425	93		
0.3	93		
0.212	92		
0.15	92		
0.063	90		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	3.60
Sand	6.00
Silt	55.20
Clay	35.20

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Signed:

[Signature]

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



TEST CERTIFICATE

Particle Size Distribution

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Tested in Accordance with: BS 1377-2: 1990

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

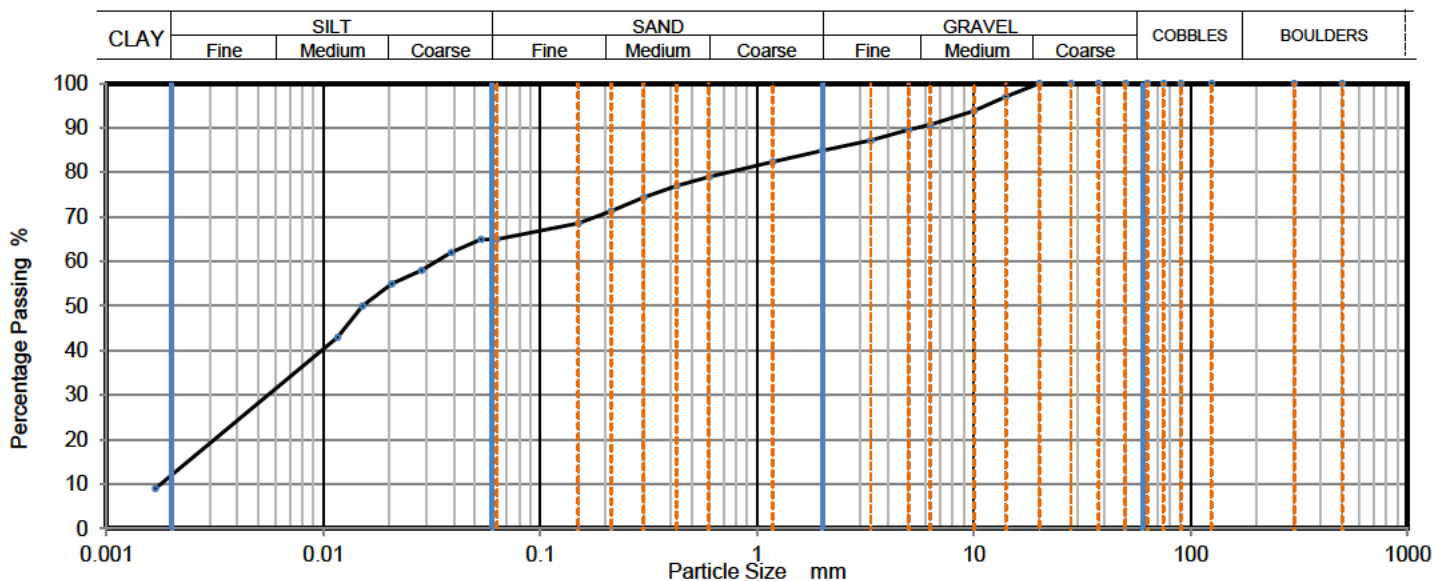
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 08/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403251
Hole No.: WS207A
Sample Reference: 1
Sample Description: Brown gravelly sandy clayey SILT

Depth Top [m]: 1.00
Depth Base [m]: 1.20
Sample Type: B





4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**

Tested in Accordance with:

BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

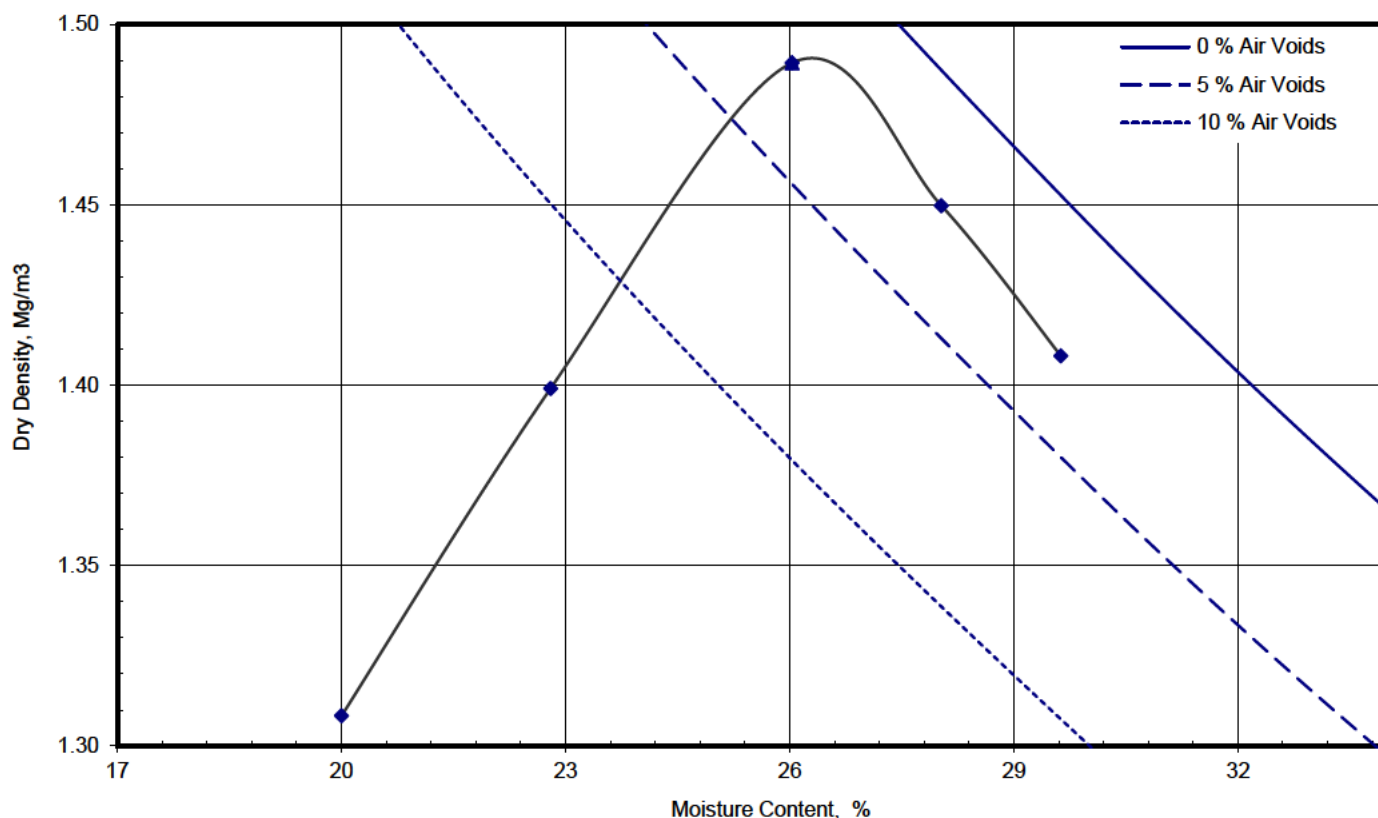
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403232
Hole No.: TP212
Sample Reference: 1
Sample Description: Light brown very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

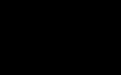


Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.55
As received Moisture Content	%	40
Maximum Dry Density	Mg/m³	1.49
Optimum Moisture Content	%	26

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 17/01/2020

GF 109.16



4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**

Tested in Accordance with:

BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

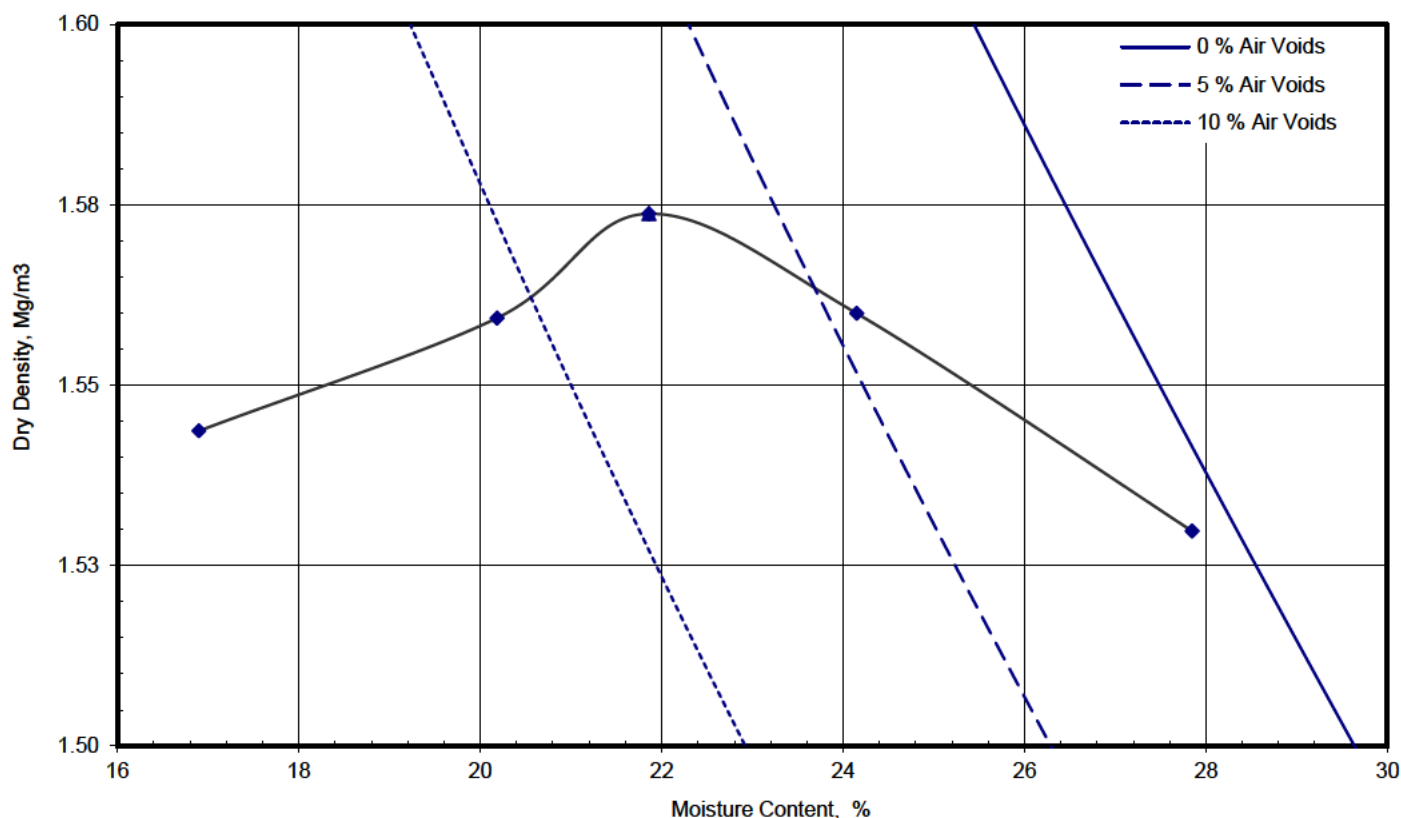
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403233
Hole No.: TP203
Sample Reference: 1
Sample Description: Brown slightly gravelly slightly sandy very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 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	2.70
As received Moisture Content	%	21
Maximum Dry Density	Mg/m³	1.57
Optimum Moisture Content	%	22

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**

Tested in Accordance with:

BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

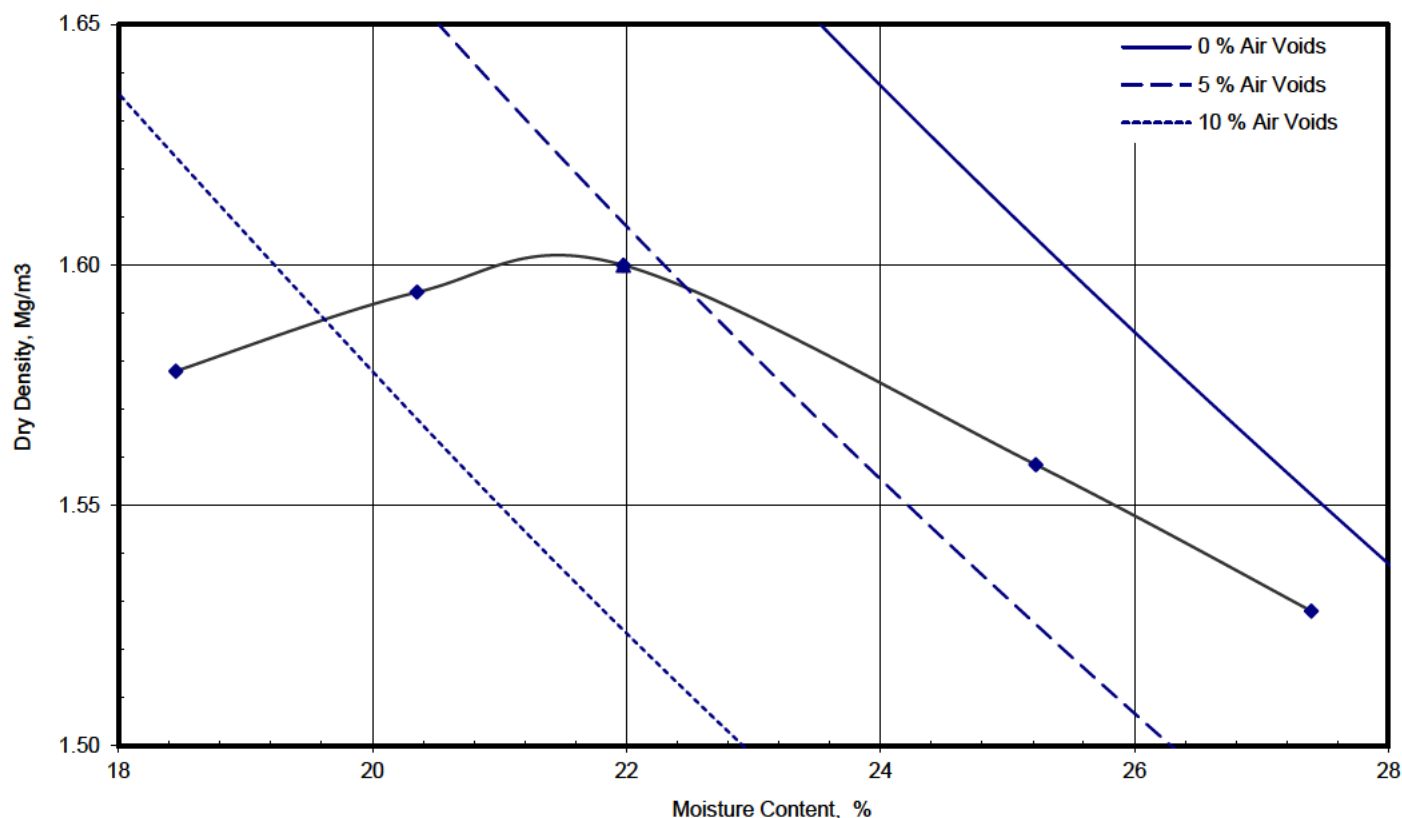
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403240
Hole No.: TP235
Sample Reference: 2
Sample Description: Orangish brown slightly gravelly slightly sandy clayey SILT

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: B

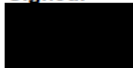


Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	29
Maximum Dry Density	Mg/m³	1.60
Optimum Moisture Content	%	22

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**

Tested in Accordance with:

BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

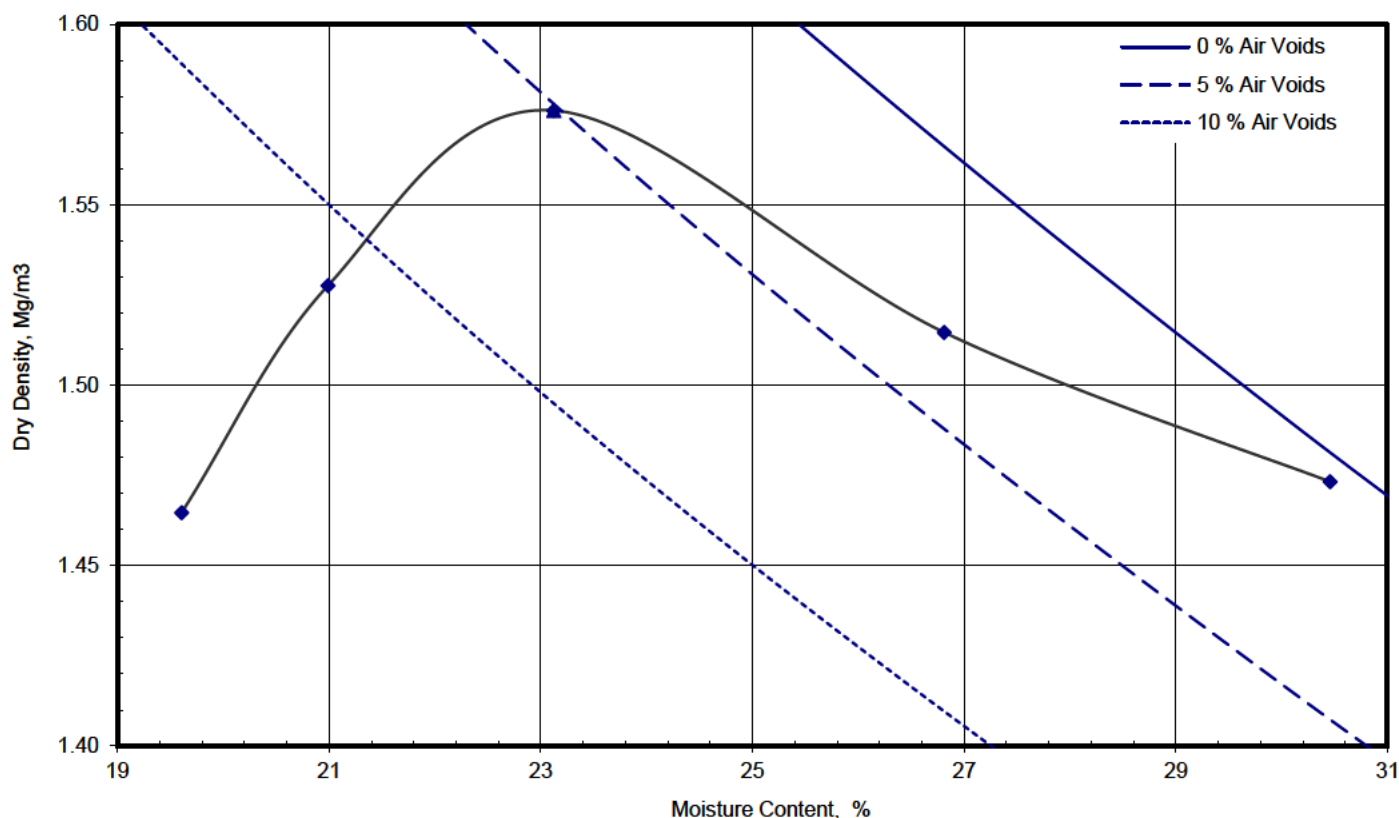
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403242
Hole No.: TP231
Sample Reference: 1
Sample Description: Light brown slightly sandy very silty CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

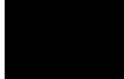


Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.70
As received Moisture Content	%	32
Maximum Dry Density	Mg/m³	1.58
Optimum Moisture Content	%	23

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 17/01/2020

GF 109.16



4041

TEST CERTIFICATE**Dry Density / Moisture Content****Relationship Light Compaction**

Tested in Accordance with:

BS 1377-4: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client: Endeavour Drilling
Client Address: Unit 7 Mapledene Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

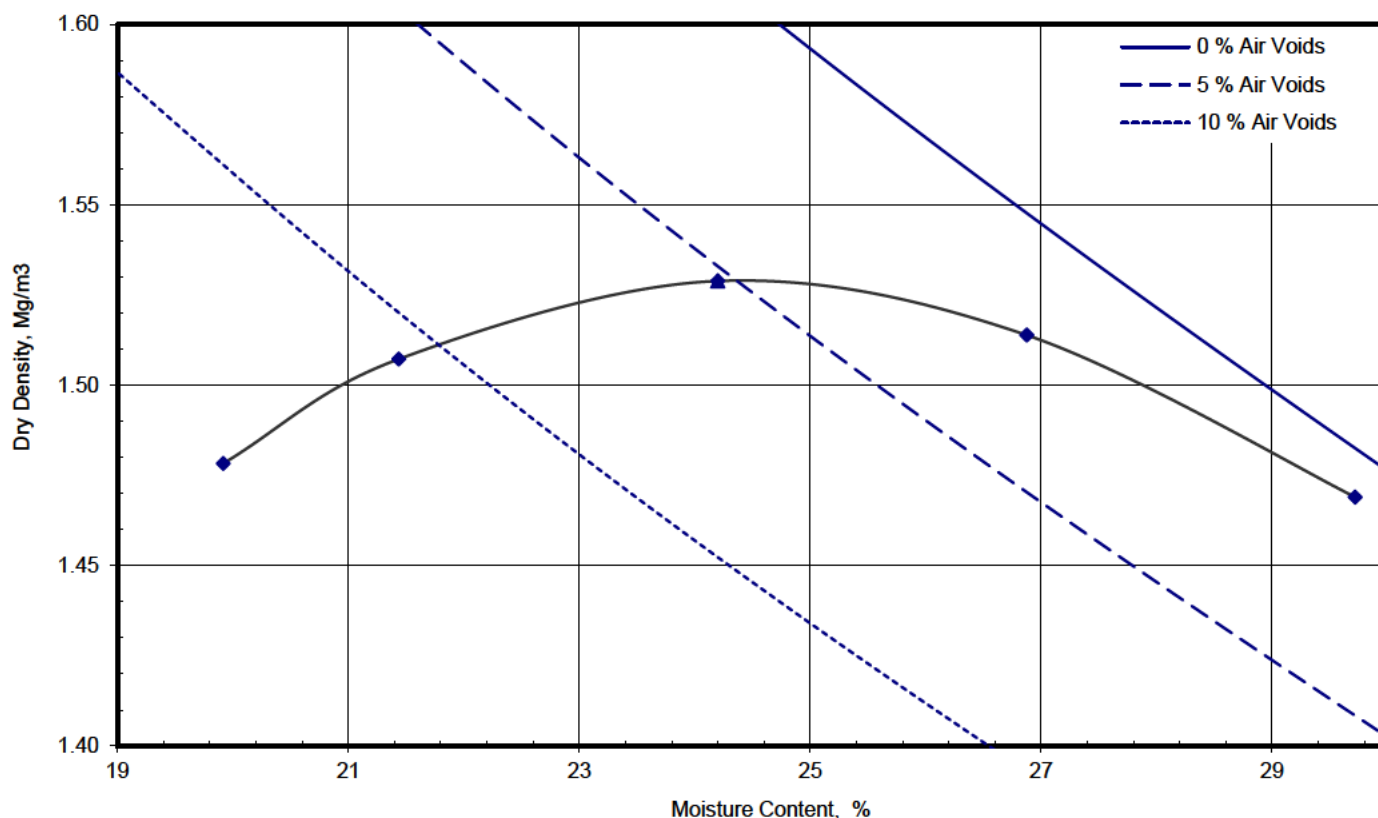
Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403243
Hole No.: TP240
Sample Reference: 1
Sample Description: Yellowish brown slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 0.40
Depth Base [m]: Not Given
Sample Type: B



Preparation	Material used was natural
Mould Type	1 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	2.65
As received Moisture Content	27
Maximum Dry Density	1.53
Optimum Moisture Content	24

Note: Tested in Accordance with BS 1377-4: 1990: Clause 3.3 using 2.5kg [light] Rammer

Remarks:

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

Hand Shear Vane at each compaction point

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403232
Hole No.: TP212
Sample Reference: 1
Soil Description: Light brown very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
20	UTP	UTP	UTP	UTP	UTP	
23	UTP	UTP	UTP	UTP	UTP	
26	56	72	64	66	65	
28	102	118	92	110	106	
30	94	102	94	104	99	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

Hand Shear Vane at each compaction point

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403233
Hole No.: TP203
Sample Reference: 1
Soil Description: Brown slightly gravelly slightly sandy very silty CLAY

Depth Top [m]: 0.50
Depth Base [m]: Not Given
Sample Type: B

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
17	UTP	UTP	UTP	UTP	UTP	
20	UTP	UTP	UTP	UTP	UTP	
22	130	130	130	130	130	
24	96	86	110	104	99	
28	62	60	56	58	59	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

Hand Shear Vane at each compaction point

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403240
Hole No.: TP235
Sample Reference: 2
Soil Description: Orangish brown slightly gravelly slightly sandy clayey SILT

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: B

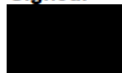
Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
18	UTP	UTP	UTP	UTP	UTP	
20	UTP	UTP	UTP	UTP	UTP	
22	64	>130	82	130	102	
25	42	40	36	38	39	
27	52	56	54	62	56	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

Hand Shear Vane at each compaction point

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 09/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403242
Hole No.: TP231
Sample Reference: 1
Soil Description: Light brown slightly sandy very silty CLAY

Depth Top [m]: 0.60
Depth Base [m]: Not Given
Sample Type: B

Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
20	UTP	UTP	UTP	UTP	UTP	
21	UTP	UTP	UTP	UTP	UTP	
23	UTP	UTP	UTP	UTP	UTP	
27	76	82	88	80	82	
30	52	50	50	50	51	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

Page 1 of 1

Date Reported: 17/01/2020

GF 275.8

TEST CERTIFICATE

Hand Shear Vane at each compaction point

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Tested in Accordance with: Guideline for Hand Shear Vane Test*

Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-79308
Date Sampled: Not Given
Date Received: 23/12/2019
Date Tested: 10/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 1403243
Hole No.: TP240
Sample Reference: 1
Soil Description: Yellowish brown slightly gravelly slightly sandy very clayey SILT

Depth Top [m]: 0.40
Depth Base [m]: Not Given
Sample Type: B

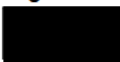
Moisture Content	Shear Vane Reading					
	1	2	3	4	Average	Tv
%	kPa	kPa	kPa	kPa	kPa	kPa
20	130	130	130	130	130	
21	130	130	130	130	130	
24	108	120	118	130	119	
27	102	78	108	90	95	
30	48	44	42	50	46	

Note: UTP - Unable To Penetrate; * - Guideline for Hand Held Shear Vane Test, New Zealand Geotechnical Society INC, August 2001

Remarks: Compacted by: Light Compaction 2.5kg (BS1377:Part 4:1990).

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



SUMMARY REPORT

Summary of Point Load Strength Index Tests Results

Tested in Accordance with: ISRM: 2007, pages 125-132

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Endeavour Drilling
Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD
Contact: Oliver Wendland
Site Address: L&G - LNO Horsham

Client Reference: J4175
Job Number: 20-80136
Date Sampled: Not Given
Date Received: 08/01/2020
Date Tested: 21/01/2020
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

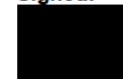
Laboratory Reference	Hole No.	Sample				Description	Remarks # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P kN	Equivalent diameter, De mm	Point Load Strength Index	
		Reference	Depth Top m	Depth Base m	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm			Is MPa	Is(50) MPa
1407332	BH207	Not Given	7.61	7.89	C	Grey MUDSTONE	w = 9.5%	1	A	U	YES	-	85.3	52.0	48.0	1.4	72.2	0.28	0.33
1407333	BH207	Not Given	12.84	13.32	C	Grey MUDSTONE	w = 6.0%	1	A	U	YES	-	86.4	36.0	32.0	2.3	59.3	0.66	0.71
1407334	BH207	Not Given	17.54	17.80	C	Brownish grey MUDSTONE	w = 8.2%	1	A	U	YES	-	86.9	31.0	28.0	0.5	55.7	0.15	0.15
1407335	BH207	Not Given	18.79	19.26	C	Mottled grey MUDSTONE	w = 8.4%	1	A	P	YES	-	84.9	52.0	48.0	1.9	72.0	0.36	0.43

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:



Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd



4041

Client: Endeavour Drilling

Client Address: Unit 7 Mapledean Industrial Estate, Maldon Road,
Chelmsford, CM3 6LD

Contact: Oliver Wendland

Site Address: L&G - LNO Horsham

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

Summary of Uniaxial Compression Test on Rock Test Results

Tested in Accordance with: ISRM, 2007, p153, part 1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client Reference: J4175

Job Number: 20-80136

Date Sampled: Not Given

Date Received: 08/01/2020

Date Tested: 21/01/2020

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Specimen Dimensions (2)				Bulk density (2) Mg/m3	Water Content (1) %	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample			Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
1407332*	BH207	Not Given	7.61	7.89	C	Grey MUDSTONE	Sample is below recommended length:diameter ratio.	84.0	78.3	0.9	Vertical	2.36	9.5	as received	0.0180	MS + AC	5.1
1407333*	BH207	Not Given	12.84	13.32	C	Grey MUDSTONE	Sample is below recommended length:diameter ratio.	86.2	127.4	1.5	Vertical	2.42	6.0	as received	0.0514	MS + AC	6.9
1407334	BH207	Not Given	17.54	17.80	C	Brownish grey MUDSTONE	Sample is below recommended length:diameter ratio.	86.6	128.3	1.5	Vertical	2.37	8.2	as received	0.0170	MS + AC	8.0
1407335*	BH207	Not Given	18.79	19.26	C	Mottled grey MUDSTONE	Sample is below recommended length:diameter ratio.	85.6	153.0	1.8	Vertical	2.45	8.4	as received	0.0521	MS + AC	32.8

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 °C, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments: * Testing completed above time specified in ISRM method, 2007, p153, part1.

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Signed:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
for and on behalf of i2 Analytical Ltd

APPENDIX K

Chemical Analysis Results



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation: 31 December 2019
Customer: Endeavour Drilling
Sample Delivery Group (SDG): 191203-105
Your Reference: J4175
Location: Moathouse Farm, Rusper Rd, Horsham
Report No: 535816

This report has been revised and directly supersedes 535459 in its entirety.

We received 22 samples on Tuesday December 03, 2019 and 7 of these samples were scheduled for analysis which was completed on Tuesday December 31, 2019. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 191203-105

Client Reference: J4175

Report Number: 535816

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report: 535459

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21282346	BH207	E1	0.30	29/11/2019
21282347	BH207	E2	0.80	29/11/2019
21282348	TP202	E1	0.10	29/11/2019
21282349	TP202	E2	0.50	29/11/2019
21282350	TP203	E1	0.10	29/11/2019
21282351	TP203	E2	0.50	29/11/2019
21282352	TP238	E1	0.10	29/11/2019
21282353	TP238	E2	0.50	29/11/2019
21282355	TP252	E1	0.10	29/11/2019
21282356	TP252	E2	0.50	29/11/2019
21282342	WS201	E1	0.50	29/11/2019
21282343	WS201	E2	1.00	29/11/2019
21282357	WS206	E1	0.26	28/11/2019
21282358	WS206	E2	1.20	28/11/2019
21282361	WS202A	E1	0.30	28/11/2019
21282362	WS202A	E2	0.90	28/11/2019
21282340	WS204A	E1	0.45	29/11/2019
21282341	WS204A	E2	1.00	29/11/2019
21282359	WS205A	E1	0.17	28/11/2019
21282360	WS205A	E2	1.10	28/11/2019
21282344	WS207A	E1	0.35	29/11/2019
21282345	WS207A	E2	0.90	29/11/2019

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

7.8

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

21282360	WS205A	E2	.10	60g VOC (ALE215)	S
				250g Amber Jar (ALE210)	S
X					
X					
				X	
X					
X					
X					
X					
X					
X					
X					
X					

21282360	WS205A	E2	1.10	60g VOC (ALE215)	S		X
				250g Amber Jar (ALE210)	S		



CERTIFICATE OF ANALYSIS

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Order Number:

Superseded Report: 535459

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21282348	TP202	0.10	Light Brown	Clay	None	None
21282352	TP238	0.10	Light Brown	Clay Loam	Stones	Vegetation
21282343	WS201	1.00	Red	Silty Clay Loam	Stones	None
21282357	WS206	0.26	Dark Brown	Sandy Loam	Stones	Brick
21282361	WS202A	0.30	Light Brown	Clay	None	None
21282340	WS204A	0.45	Dark Brown	Loamy Sand	Stones	Brick
21282360	WS205A	1.10	Light Brown	Sandy Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERT for sand, clay and loam/topsoil, or any of these materials whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191203-105
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175
Order Number:

Report Number: 535816
Superseded Report: 535459

Results Legend			Customer Sample Ref		TP202	TP238	WS201	WS206	WS202A	WS204A
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.10	0.10	1.00	0.26	0.30	0.45
M	mCERTS accredited.				Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
dis. filt	Aqueous / filtered sample.				29/11/2019	29/11/2019	29/11/2019	28/11/2019	28/11/2019	29/11/2019
tot. filt	Discarded / filtered sample.									
tot. unflt	Total / unfiltered sample.				03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019
*	Subcontracted - refer to subcontractor report for accreditation status.				191203-105	191203-105	191203-105	191203-105	191203-105	191203-105
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				21282348	21282352	21282343	21282357	21282361	21282340
(F)	Trigger breach confirmed				E1	E1	E2	E1	E1	E1
1-349@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Moisture Content Ratio (% of as received sample)	%	PM024			21	22	19	14	17	12
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB			<0.01	<0.01				
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB			<0.01	<0.01				
2,4-D*	<0.01 mg/kg	SUB			<0.01	<0.01				
2,4-DB*	<0.01 mg/kg	SUB			<0.01	<0.01				
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB			<0.01	<0.01				
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB			<0.01	<0.01				
Acifluorfen*	<0.01 mg/kg	SUB			<0.01	<0.01				
Bentazone*	0.01 mg/kg	SUB			0.01	0.01				
Bromoxynil*	<0.01 mg/kg	SUB			<0.01	<0.01				
Dicamba*	<0.01 mg/kg	SUB			<0.01	<0.01				
Diclofop*	<0.01 mg/kg	SUB			<0.01	<0.01				
Dinoseb*	<0.01 mg/kg	SUB			<0.01	<0.01				
DNOC*	<0.01 mg/kg	SUB			<0.01	<0.01				
Fluroxypyr*	<0.01 mg/kg	SUB			<0.01	<0.01				
oxynil*	<0.01 mg/kg	SUB			<0.01	<0.01				
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB			<0.01	<0.01				
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB			<0.01	<0.01				
Mecoprop (MCP)*	0.01 mg/kg	SUB			0.01	0.01				
Propoxycarbazon-sodium*	<0.01 mg/kg	SUB			<0.01	<0.01				
Triclopyr*	<0.01 mg/kg	SUB			<0.01	<0.01				
Triclosan*	<0.01 mg/kg	SUB			<0.01	<0.01				
Phenol	<0.01 mg/kg	TM062 (S)			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
					M	M	@ M	@ M	@ M	@ M
Cresols	<0.01 mg/kg	TM062 (S)			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
					M	M	@ M	@ M	@ M	@ M
ylenols	<0.015 mg/kg	TM062 (S)			<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
					M	M	@ M	@ M	@ M	@ M
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
					M	M	@ M	@ M	@ M	@ M
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)			<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
					M	M	@ M	@ M	@ M	@ M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)			<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
					M	M	@ M	@ M	@ M	@ M
oil Organic Matter (SOM)	0.35 %	TM132			2.84	3.22	0.35	3.84	1.06	1.07
					#	#	#	#	#	#
pH	1 pH Units	TM133			8.01	8.08	5.28	8.1	8.15	8.74
					M	M	M	M	M	M
Chromium, Hexavalent	<0.6 mg/kg	TM151			<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
					#	#	#	#	#	#
Arsenic	<0.6 mg/kg	TM181			10.8	8.4	11.2	8.87	8.66	11.9
					M	M	M	M	M	M
Cadmium	<0.02 mg/kg	TM181			0.688	0.447	0.547	0.269	0.44	0.411
					M	M	M	M	M	M



CERTIFICATE OF ANALYSIS

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SDG: 191203-105
Location: Moathouse Farm, Rusper

Client Reference: J4175
Order Number:

Report Number: 535816
Superseded Report: 535459

OC OP Pesticides and Triazine Herb

Results Legend			Customer Sample Ref	TP202	TP238			
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
dis.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-3496	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dichlorvos	<50 µg/kg	TM073		<50	<50			
Mevinphos	<50 µg/kg	TM073		<50	<100			
Tecnazene	<50 µg/kg	TM073		<50	<50			
Hexachlorobenzene	<50 µg/kg	TM073		<50	<50			
Trifluralin	<50 µg/kg	TM073		<50	<100			
Phorate	<50 µg/kg	TM073		<50	<50			
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50			
Quintozene (PCNB)	<50 µg/kg	TM073		<50	<50			
Diazinon	50 µg/kg	TM073		50	50			
Triallate	<50 µg/kg	TM073		<50	<50			
Etrimpfos	<50 µg/kg	TM073		<50	<50			
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073		<50	<50			
Disulfoton	<50 µg/kg	TM073		<50	<50			
Propetamphos	<50 µg/kg	TM073		<50	<50			
Heptachlor	<50 µg/kg	TM073		<50	<50			
Chlorpyrifos methyl	<50 µg/kg	TM073		<50	<50			
Dimethoate	<50 µg/kg	TM073		<50	<50			
Aldrin	<50 µg/kg	TM073		<50	<50			
Chlorothalonil	50 µg/kg	TM073		50	100			
Pirimiphos-methyl	<50 µg/kg	TM073		<50	<50			
Telodrin	<50 µg/kg	TM073		<50	<50			
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50			
Chlorpyrifos	<50 µg/kg	TM073		<50	<50			
Methyl parathion	<50 µg/kg	TM073		<100	<100			
sodrin	<50 µg/kg	TM073		<50	<50			
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50			
Malathion	<50 µg/kg	TM073		<100	<100			
Fenthion	<50 µg/kg	TM073		<50	<50			
Fenitrothion	50 µg/kg	TM073		100	100			
Heptachlor epoxide	<50 µg/kg	TM073		<50	<50			
Triadimefon	<50 µg/kg	TM073		<100	<100			
Pendimethalin	<50 µg/kg	TM073		<50	<100			
Parathion	<50 µg/kg	TM073		<50	<100			



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Order Number:

Report Number: 535816
Superseded Report: 535459

PAH by GCMS

Results Legend			Customer Sample Ref	TP202	TP238	WS201	WS206	WS202A	WS204A
#	ISO17025 accredited.			0.10	0.10	1.00	0.26	0.30	0.45
M	mCERTS accredited.			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
aq	Aqueous / settled sample.			29/11/2019	29/11/2019	29/11/2019	28/11/2019	28/11/2019	29/11/2019
disc.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery.			03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019	03/12/2019
(F)	Trigger breach confirmed			191203-105	191203-105	191203-105	191203-105	191203-105	191203-105
1-349@	Sample deviation (see appendix)			21282348	21282352	21282343	21282357	21282361	21282340
				E1	E1	E2	E1	E1	E1
Component	LOD/Units	Method							
Naphthalene-d8 % recovery**	%	TM218		93.5	90	87.8	93.3	96.1	9.66
Acenaphthene-d10 % recovery**	%	TM218		93.7	91.2	86.8	84.1	94.3	9.42
Phenanthrene-d10 % recovery**	%	TM218		93.2	89.4	86.3	92.6	98.6	9.36
Chrysene-d12 % recovery**	%	TM218		71.3	70.9	75.5	75.6	85.5	7.54
Perylene-d12 % recovery**	%	TM218		73.7	71.3	70	83.9	90.5	8.21
Naphthalene	<9 µg/kg	TM218		<9	<9	<9	507	<9	<9
Acenaphthylene	<12 µg/kg	TM218		<12	<12	<12	1220	<12	32.8
Acenaphthene	<8 µg/kg	TM218		<8	<8	<8	6110	<8	19.4
Fluorene	10 µg/kg	TM218		10	10	10	7380	10	21.1
Phenanthrene	<15 µg/kg	TM218		23.1	<15	<15	47000	<15	322
Anthracene	<16 µg/kg	TM218		<16	<16	<16	15800	<16	94.3
Fluoranthene	<17 µg/kg	TM218		61	<17	<17	83000	25.8	698
Pyrene	<15 µg/kg	TM218		49.6	<15	<15	69400	29.4	672
Benz(a)anthracene	<14 µg/kg	TM218		25.4	<14	<14	30700	<14	346
Chrysene	<10 µg/kg	TM218		22.4	<10	<10	26200	19.8	351
Benzo(b)fluoranthene	<15 µg/kg	TM218		34	<15	<15	35800	38.3	572
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14	<14	<14	12100	<14	180
Benzo(a)pyrene	<15 µg/kg	TM218		24.4	<15	<15	27900	<15	417
Indeno(1,2,3 cd)pyrene	18 µg/kg	TM218		18	18	18	18100	18	334
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23	<23	<23	2370	<23	43.3
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24	<24	<24	15300	<24	291
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		240	<118	<118	399000	<118	4400



CERTIFICATE OF ANALYSIS

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Report Number: 535816
Superseded Report: 535459

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5849@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP202E1 0.10 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282348 TM048	12/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP238E1 0.10 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282352 TM048	16/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS201E2 1.00 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282343 TM048	12/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS206E1 0.26 SOLID 28/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282357 TM048	16/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS202AE1 0.30 SOLID 28/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282361 TM048	16/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS204AE1 0.45 SOLID 29/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282340 TM048	12/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	WS205AE2 1.10 SOLID 28/11/2019 00:00:00 03/12/2019 06:00:00 191203-105 21282360 TM048	16/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



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Client Reference: J4175

Report Number: 535816

Location: Moathouse Farm, Rusper Rd
Order Number: 535459

Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



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Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	21282348	21282352	21282343	21282357	21282361	21282340	21282360
	TP202	TP238	WS201	WS206	WS202A	WS204A	WS205A
	E1	E1	E2	E1	E1	E1	E2
	0 10	0 10	1 00	0 26	0 30	0 45	1 10
	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Acid herbicides*	31-Dec-2019	31-Dec-2019					
Anions by Kone (soil)	17-Dec-2019	16-Dec-2019	16-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Asbestos ID in Solid Samples	12-Dec-2019	16-Dec-2019	12-Dec-2019	16-Dec-2019	16-Dec-2019	12-Dec-2019	16-Dec-2019
EPH CWG GC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
GRO by GC-FID (S)	13 Dec 2019	13 Dec 2019	13 Dec 2019	13 Dec 2019	13 Dec 2019	13 Dec 2019	13 Dec 2019
He aivalent Chromium ()	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019
Metals in solid samples by OES	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019
OC OP Pesticides and Triazine Herb	17-Dec-2019	17-Dec-2019					
PAH by GCMS	17-Dec-2019	17-Dec-2019	13-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
pH	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Phenols by HPLC (S)	13-Dec-2019	13-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Sample description	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019	11-Dec-2019
Total Organic Carbon	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	17-Dec-2019	16-Dec-2019	16-Dec-2019
TPH CWG GC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
Triazine Herbicides (S)*	27 Dec 2019	27 Dec 2019					
VOC MS (S)	12-Dec-2019	12-Dec-2019	12-Dec-2019	12-Dec-2019	12-Dec-2019		12-Dec-2019

Certificate of Analysis

Report No.: 19-89359-1

Issue No.: 1

Date of Issue 24/12/2019

Customer Details: ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US

Customer Contact: Carrie Foster

Customer Order No.: 191203-105

Customer Reference: 191203-105

Quotation Reference: 191111/01

Description: 2 soil samples

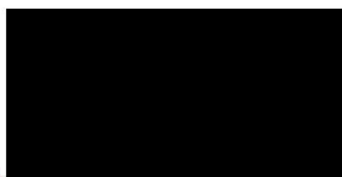
Date Received: 12/12/2019

Date Started: 18/12/2019

Date Completed: 20/12/2019

Test Methods: Details available on request (refer to SOP code against relevant result/s)

Notes: None



Approved By: Matthew Hickson, Laboratory Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.

This certificate shall not be reproduced except in full without the prior written approval of the laboratory.

Observations and interpretations are outside of the scope of UKAS accreditation.

Results reported herein relate only to the items supplied to the laboratory for testing.

Results on an Interim Report are not dry-weight corrected.

Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 19-89359-1

Customer Reference: 191203-105

Customer Order No: 191203-105

Customer Sample No	21335532	21334469
Customer Sample ID	TP202	TP238
RPS Sample No	424320	424321
Sample Type	SOIL	SOIL
Sample Depth (m)	0.1m	0.1m
Sampling Date	29/11/2019	29/11/2019

Determinand	CAS No	Codes	SOP	Units	RL		
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02	< 0.02

Deviating Samples

Report No.: 19-89359-1

Customer Reference: 191203-105

Customer Order No.: 191203-105

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).

RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.

Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.

Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.

Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submission may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
424320	21335532		29/11/2019	100ml clear glass bottle	No	
424321	21334469		29/11/2019	100ml clear glass bottle	No	

Report No.: 19-89359-1

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other



CERTIFICATE OF ANALYSIS

Work Order	PR19D6396	Issue Date	30-Dec-2019
Customer	ALS Life Sciences Ltd	Laboratory	ALS Czech Republic, s.r.o.
Contact	ALS Hawarden Reporting	Contact	Client Service
Address	Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	euhdnsbconresults@ALSGlobal.com	E-mail	customer.support@alsglobal.com
Telephone	----	Telephone	+420 226 226 228
Project	191203-105	Page	1 of 2
Order number	----	Date Samples Received	12-Dec-2019
		Quote number	PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	----	Date of test	18-Dec-2019 - 30-Dec-2019
Sampled by	client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Signatories

Zdeněk Jiráček



Position

Environmental Business Unit
Manager

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018





Analytical Results

Sub-Matrix: SOIL

Client sample ID

21334895

21334440

TP202

TP238

PR19D6396-001

PR19D6396-002

Client sampling date / time

11-Dec-2019 00:00

11-Dec-2019 00:00

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	71.9	± 6.0%	71.2	± 6.0%	----	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPB (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A ** symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.



CERTIFICATE OF ANALYSIS

SDG: 191203-105 Client Reference: J4175 Report Number: 535816
Location: athouse Farm, Rusper Rd, Horsham Order Number: Superseded Report: 535459

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of 75% are reported based on the best mass spectral library match. When a non target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18 Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	19 December 2019
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191205-120
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	534746

We received 10 samples on Thursday December 05, 2019 and 2 of these samples were scheduled for analysis which was completed on Thursday December 19, 2019. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

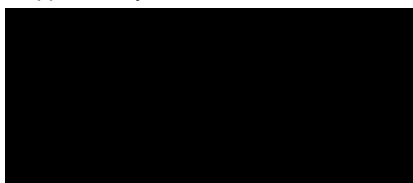
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-120

Client Reference: J4175 Stantec/ L & G

Report Number: 534746

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21298389	TP201		0.10	03/12/2019
21298390	TP201		0.50	03/12/2019
21298387	TP204		0.10	03/12/2019
21298388	TP204		0.60	03/12/2019
21298395	TP226		0.10	03/12/2019
21298396	TP226		0.50	03/12/2019
21298393	TP228		0.10	03/12/2019
21298394	TP228		0.50	03/12/2019
21298391	TP229		0.10	03/12/2019
21298392	TP229		0.50	03/12/2019

Maximum Sample/Coolbox Temperature (°C) :

1.8

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-120
Location: Moathouse Farm, Rusper

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 534746
Superseded Report:

Results Legend

- X** Test
N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	21298387	21298394
Customer Sample Reference	TP204	TP228
AGS Reference		
Depth (m)	0.10	0.50
Container	60g VOC (ALE215) 1kg TUB with Handle (ALE260)	60g VOC (ALE215) 250g Amber Jar (ALE210) 1kg TUB with Handle (ALE260)
Sample Type	S	S
Anions by Kone (soil)	All NDPs: 0 Tests: 2	X
Asbestos ID in Solid Samples	All NDPs: 0 Tests: 2	X
EPH CWG GC (S)	All NDPs: 0 Tests: 2	X
GRO by GC-FID (S)	All NDPs: 0 Tests: 2	X
Hexavalent Chromium ()	All NDP: 0 Tests: 2	X
Metals in solid samples by OES	All NDPs: 0 Tests: 2	X
PAH by GC/MS	All NDPs: 0 Tests: 2	X
pH	All NDPs: 0 Tests: 2	X
Phenols by HPLC (S)	All NDPs: 0 Tests: 2	X
Sample description	All NDPs: 0 Tests: 2	X
Total Organic Carbon	All NDPs: 0 Tests: 2	X
TPH CWG GC (S)	All NDPs: 0 Tests: 2	X
VOC MS (S)	All NDPs: 0 Tests: 2	X



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-120

Client Reference: J4175 Stantec/ L & G

Report Number: 534746

Location: Moathouse Farm, Rusper Road

Order Number:

Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21298387	TP204	0.10	Light Brown	Loamy Sand	Vegetation	None
21298394	TP228	0.50	Light Brown	Sandy Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

SDG: 191205-120

Client Reference: J4175 Stantec/ L & G

Report Number: 534746

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5	@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP204 0.10 SOLID 03/12/2019 00:00:00 05/12/2019 06:00:00 191205-120 21298387 TM048	17/12/19	Andrzej Ferrecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP228 0.50 SOLID 03/12/2019 00:00:00 05/12/2019 06:00:00 191205-120 21298394 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-120

Client Reference: J4175 Stantec/ L & G

Report Number: 534746

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-120

Client Reference: J4175 Stantec/ L & G

Report Number: 534746

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

21298387	21298394
TP204	TP228
0 10	0 50
Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	18-Dec-2019
Asbestos ID in Solid Samples	17-Dec-2019
EPH CWG GC (S)	18-Dec-2019
GRO by GC-FID (S)	17-Dec-2019
Hexavalent Chromium (s)	17 Dec 2019
Metal in solid sample by OES	17-Dec-2019
PAH by GCMS	18-Dec-2019
pH	19-Dec-2019
Phenols by HPLC (S)	17-Dec-2019
Sample description	13-Dec-2019
Total Organic Carbon	18-Dec-2019
TPH CWG GC (S)	18-Dec-2019
VOC MS (S)	17-Dec-2019



CERTIFICATE OF ANALYSIS

SDG: 191205-120 Client Reference: J4175 Stantec/ L & G Report Number: 534746
Location: athouse Farm, Rusper Rd, Horsham Order Number: Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of 75% are reported based on the best mass spectral library match. When a non target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18 Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Fax: (01244) 528701

email hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	20 December 2019
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191205-121
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	534952

We received 10 samples on Thursday December 05, 2019 and 3 of these samples were scheduled for analysis which was completed on Friday December 20, 2019. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

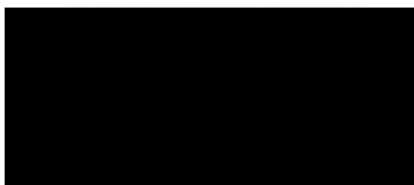
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-121**Client Reference:** J4175 Stantec/ L & G**Report Number:** 534952**Location:** Moathouse Farm, Rusper Rd**Order Number:****Superseded Report:**

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21298458	TP206		0.10	03/12/2019
21298457	TP206		0.50	03/12/2019
21298455	TP224		0.10	02/12/2019
21298456	TP224		0.40	02/12/2019
21298451	TP232		0.10	02/12/2019
21298452	TP232		0.50	02/12/2019
21298453	TP235		0.10	02/12/2019
21298454	TP235		0.50	02/12/2019
21298449	TP236		0.10	02/12/2019
21298450	TP236		0.50	02/12/2019

Maximum Sample/Coolbox Temperature (°C) :**1.8****ISO5667-3 Water quality - Sampling - Part3 -**

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-121
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 534952
Superseded Report:

Results Legend

- X** Test
N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	21298457			21298456			21298451		
						60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE260)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE260)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE260)
Anions by Kone (soil)	All	NDPs: 0 Tests: 3												
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 3												
EPH CWG GC (S)	All	NDPs: 0 Tests: 3												
GRO by GC-FID (S)	All	NDPs: 0 Tests: 3												
He valent Chromium ()	All	NDP: 0 Tests: 3												
Metals in solid samples by OES	All	NDPs: 0 Tests: 3												
PAH by GCMS	All	NDPs: 0 Tests: 3												
pH	All	NDPs: 0 Tests: 3												
Phenols by HPLC (S)	All	NDPs: 0 Tests: 3												
Sample description	All	NDPs: 0 Tests: 3												
Total Organic Carbon	All	NDPs: 0 Tests: 3												
TPH CWG GC (S)	All	NDPs: 0 Tests: 3												
VOC MS (S)	All	NDPs: 0 Tests: 3												



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-121

Client Reference: J4175 Stantec/ L & G

Report Number: 534952

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21298457	TP206	0.50	Light Brown	Loamy Sand	None	None
21298456	TP224	0.40	Light Brown	Sandy Loam	Vegetation	N/A
21298451	TP232	0.10	Light Brown	Loamy Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-121
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 534952
Superseded Report:

TPH CWG (S)

Results Legend			Customer Sample Ref			TP206			TP224			TP232						
#	ISO17025 accredited.																	
M	mCERTS accredited.																	
aq	Aqueous / settled sample.																	
dis.filt	Dissolved / filtered sample.																	
tot.unfilt	Total / unfiltered sample.																	
*	Subcontracted - refer to subcontractor report for accreditation status.																	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery																	
(F)	Trigger breach confirmed																	
1-3496	Sample deviation (see appendix)																	
Component		LOD/Units	Method	Depth (m)			Sample Type			Date Sampled			Sample Time			Date Received		
GRO Surrogate % recovery**		%	TM089	0.50			Soil/Solid (S)			03/12/2019			02/12/2019			05/12/2019		
Aliphatics >C5-C6		<10 µg/kg	TM089	0.40			Soil/Solid (S)			02/12/2019			02/12/2019			191205-121		
Aliphatics >C6-C8		<10 µg/kg	TM089	0.10			Soil/Solid (S)			02/12/2019			02/12/2019			21298457		
Aliphatics >C8-C10		<10 µg/kg	TM089															
Aliphatics >C10-C12		<1000 µg/kg	TM414															
Aliphatics >C12-C16		<1000 µg/kg	TM414															
Aliphatics >C16-C21		<1000 µg/kg	TM414															
Aliphatics >C21-C35		<1000 µg/kg	TM414															
Aliphatics C35 C44		1000 µg/kg	TM414															
Total Aliphatics >C10-C44		<5000 µg/kg	TM414															
Total Aliphatics & Aromatics >C10-C44		<10000 µg/kg	TM414															
Aromatics >EC5-EC7		<10 µg/kg	TM089															
Aromatics >EC7-EC8		<10 µg/kg	TM089															
Aromatics >EC8-EC10		<10 µg/kg	TM089															
Aromatics > EC10-EC12		<1000 µg/kg	TM414															
Aromatics > EC12-EC16		<1000 µg/kg	TM414															
Aromatics > EC16-EC21		<1000 µg/kg	TM414															
Aromatics > EC21-EC35		<1000 µg/kg	TM414															
Aromatics EC35 EC44		1000 µg/kg	TM414															
Aromatics > EC40-EC44		<1000 µg/kg	TM414															
Total Aromatics > EC10-EC44		<5000 µg/kg	TM414															
Total Aliphatics & Aromatics >C5-C44		<10000 µg/kg	TM414															
Total Aliphatics >C5-C10		<50 µg/kg	TM089															
Total Aromatics >EC5-EC10		<50 µg/kg	TM089															
GRO >C5-C10		<20 µg/kg	TM089															



CERTIFICATE OF ANALYSIS

SDG: 191205-121

Client Reference: J4175 Stantec/ L & G

Report Number: 534952

Location: Moathouse Farm, Rusper Road

Order Number:

Superseded Report:

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5	@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP206 0.50 SOLID 03/12/2019 00:00:00 05/12/2019 06:00:00 191205-121 21298457 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP224 0.40 SOLID 02/12/2019 00:00:00 05/12/2019 06:00:00 191205-121 21298456 TM048	17/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP232 0.10 SOLID 02/12/2019 00:00:00 05/12/2019 06:00:00 191205-121 21298451 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-121

Client Reference: J4175 Stantec/ L & G

Report Number: 534952

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 191205-121

Client Reference: J4175 Stantec/ L & G

Report Number: 534952

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Test Completion Dates

Lab Sample No(s)	21298457	21298456	21298451
Customer Sample Ref.	TP206	TP224	TP232
AGS Ref.			
Depth	0.50	0.40	0.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	18-Dec-2019	18-Dec-2019	18-Dec-2019
Asbestos ID in Solid Samples	17-Dec-2019	17-Dec-2019	17-Dec-2019
EPH CWG GC (S)	20-Dec-2019	18-Dec-2019	18-Dec-2019
GRO by GC-FID (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019
Hexavalent Chromium (s)	19 Dec 2019	16 Dec 2019	16 Dec 2019
Metal in solid sample by OES	18-Dec-2019	17-Dec-2019	18-Dec-2019
PAH by GC/MS	18-Dec-2019	18-Dec-2019	17-Dec-2019
pH	19-Dec-2019	19-Dec-2019	19-Dec-2019
Phenols by HPLC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019
Sample description	13-Dec-2019	13-Dec-2019	13-Dec-2019
Total Organic Carbon	18-Dec-2019	18-Dec-2019	18-Dec-2019
TPH CWG GC (S)	20-Dec-2019	18-Dec-2019	18-Dec-2019
VOC MS (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019



CERTIFICATE OF ANALYSIS

SDG: 191205-121 Client Reference: J4175 Stantec/ L & G Report Number: 534952
Location: athouse Farm, Rusper Rd, Horsham Order Number: Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of 75% are reported based on the best mass spectral library match. When a non target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18 Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	06 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191207-93
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	536308

This report has been revised and directly supersedes 535928 in its entirety.

We received 18 samples on Saturday December 07, 2019 and 4 of these samples were scheduled for analysis which was completed on Monday January 06, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

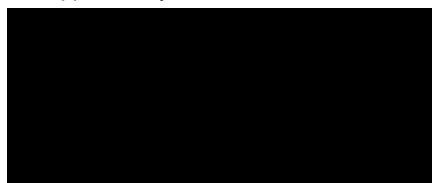
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93

Client Reference: J4175 Stantec/ L & G

Report Number: 536308

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report: 535928

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21314561	TP208		0.10 - 0.10	05/12/2019
21314563	TP208		0.50 - 0.50	05/12/2019
21314564	TP211		0.10 - 0.10	05/12/2019
21314565	TP211		0.50 - 0.50	05/12/2019
21314559	TP213		0.10 - 0.10	05/12/2019
21314560	TP213		0.50 - 0.50	05/12/2019
21314566	TP215		0.10 - 0.10	05/12/2019
21314567	TP215		0.60 - 0.60	05/12/2019
21314568	TP217		0.10 - 0.10	05/12/2019
21314569	TP217		0.60 - 0.60	05/12/2019
21314576	TP218		0.10 - 0.10	04/12/2019
21314577	TP218		0.40 - 0.40	04/12/2019
21314570	TP221		0.10 - 0.10	04/12/2019
21314571	TP221		0.50 - 0.50	04/12/2019
21314572	TP222		0.10 - 0.10	04/12/2019
21314573	TP222		0.50 - 0.50	04/12/2019
21314574	TP223		0.10 - 0.10	04/12/2019
21314575	TP223		0.50 - 0.50	04/12/2019

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

6.4

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93 Client Reference: J4175 Stantec/ L & G Report Number: 536308
Location: Moathouse Farm, Rusper Rd Order Number: Superseded Report: 535928

Results Legend

X Test
N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container				Sample Type	
Acid herbicides*	All	NDPs: 0 Tests: 1												
Anions by Kone (soil)	All	NDPs: 0 Tests: 4												
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 4												
EPH CWG GC (S)	All	NDPs: 0 Tests: 4												
GRO by GC FID (S)	All	NDP 0 Tests: 4												
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 4												
Metals in solid samples by OES	All	NDPs: 0 Tests: 4												
OC OP Pesticides and Triazine Herb	All	NDPs: 0 Te t 1												
PAH by GCMS	All	NDPs: 0 Tests: 4												
pH	All	NDPs: 0 Tests: 4												
Phenols by HPLC (S)	All	NDPs: 0 Tests: 4												
Sample description	All	NDPs: 0 Tests: 4												
Total Organic Carbon	All	NDPs: 0 Tests: 4												
TPH CWG GC (S)	All	NDPs: 0 Tests: 4												
Triazine Herbicide (S)*	All	NDP 0 Tests: 1												



Validated

CERTIFICATE OF ANALYSIS

SDG: 191207-93

Client Reference: J4175 Stantec/ L & G

Report Number: 536308

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report: 535928

Results Legend



Test

No Determination
Possible

Sample Types -

S - Soil/Solid
 UNS - Unspecified Solid
 GW - Ground Water
 SW - Surface Water
 LE - Land Leachate
 PL - Prepared Leachate
 PR - Process Water
 SA - Saline Water
 TE - Trade Effluent
 TS - Treated Sewage
 US - Untreated Sewage
 RE - Recreational Water
 DW - Drinking Water Non-regulatory
 UNL - Unspecified Liquid
 SL - Sludge
 G - Gas
 OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

VOC MS (S)

All

NDPs: 0
Tests: 4

X

X

X

X



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93

Client Reference: J4175 Stantec/ L & G

Report Number: 536308

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report: 535928

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21314565	TP211	0.50 - 0.50	Dark Brown	Loamy Sand	None	None
21314559	TP213	0.10 - 0.10	Light Brown	Silt Loam	None	None
21314568	TP217	0.10 - 0.10	Dark Brown	Loamy Sand	None	None
21314573	TP222	0.50 - 0.50	Light Brown	Loamy Sand	None	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 536308
Superseded Report: 535928

Results Legend			Customer Sample Ref	TP211	TP213	TP217	TP222		
#	ISO17025 accredited.								
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis. filt	Dissolved / filtered sample.								
tot. unflt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery.								
(F)	Trigger breach confirmed								
1-3496	Sample deviation (see appendix)								
Component	LOD/Units	Method	Depth (m)						
Moisture Content Ratio (% of as received sample)	%	PM024	Sample Type	0.50 - 0.50	0.10 - 0.10	0.10 - 0.10	0.50 - 0.50		
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB	Date Sampled	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)	Unspecified Solid (UNS)		
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB	Sample Time	05/12/2019	05/12/2019	05/12/2019	04/12/2019		
2,4-D*	<0.01 mg/kg	SUB	Date Received	07/12/2019	07/12/2019	07/12/2019	07/12/2019		
2,4-DB*	<0.01 mg/kg	SUB	SDG Ref	191207-93	191207-93	191207-93	191207-93		
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB	Lab Sample No.(s)	21314565	21314559	21314568	21314573		
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB	AGS Reference						
Acifluorfen*	<0.01 mg/kg	SUB							
Bentazone*	0.01 mg/kg	SUB							
Bromoxynil*	<0.01 mg/kg	SUB							
Dicamba*	<0.01 mg/kg	SUB							
Diclofop*	<0.01 mg/kg	SUB							
Dinoseb*	<0.01 mg/kg	SUB							
DNOC*	<0.01 mg/kg	SUB							
Fluroxypyr*	<0.01 mg/kg	SUB							
oxynil*	<0.01 mg/kg	SUB							
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB							
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB							
Mecoprop (MCP)*	0.01 mg/kg	SUB							
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB							
Triclopyr*	<0.01 mg/kg	SUB							
Triclosan*	<0.01 mg/kg	SUB							
Phenol	<0.01 mg/kg	TM062 (S)		<0.01	<0.01	<0.01	<0.01		
Cresols	<0.01 mg/kg	TM062 (S)		<0.01	<0.01	<0.01	<0.01		
ylenols	<0.015 mg/kg	TM062 (S)		<0.015	<0.015	<0.015	<0.015		
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)		<0.01	<0.01	<0.01	<0.01		
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)		<0.015	<0.015	<0.015	<0.015		
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)		<0.06	<0.06	<0.06	<0.06		
oil Organic Matter (SOM)	0.35 %	TM132		0.686	2.17	3.1	0.35		
pH	1 pH Units	TM133		7.63	7.56	7.2	5.45		
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6	<0.6	<0.6	<0.6		
Arsenic	<0.6 mg/kg	TM181		11.5	12	13.1	10.1		
Cadmium	<0.02 mg/kg	TM181		<0.02	0.0782	0.317	<0.02		



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93
Location: Moathouse Farm, Rusper

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 536308
Superseded Report: 535928

OC OP Pesticides and Triazine Herb

Results Legend		Customer Sample Ref	TP213				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.10 - 0.10 Unspecified Solid (UNS) 05/12/2019 07/12/2019 191207-93 21314559				
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
dis.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted - refer to subcontractor report for accreditation status.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-349@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Dichlorvos	<50 µg/kg	TM073	<50				
Mevinphos	<50 µg/kg	TM073	<50				
Tecnazene	<50 µg/kg	TM073	<50				
Hexachlorobenzene	<50 µg/kg	TM073	<50				
Trifluralin	<50 µg/kg	TM073	<50				
Phorate	<50 µg/kg	TM073	<50				
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50				
Quintozene (PCNB)	<50 µg/kg	TM073	<50				
Diazinon	50 µg/kg	TM073	50				
Triallate	<50 µg/kg	TM073	<50				
Etrimphos	<50 µg/kg	TM073	<50				
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073	<50				
Disulfoton	<50 µg/kg	TM073	<50				
Propetamphos	<50 µg/kg	TM073	<50				
Heptachlor	<50 µg/kg	TM073	<50				
Chlorpyrifos methyl	<50 µg/kg	TM073	<50				
Dimethoate	<50 µg/kg	TM073	<50				
Aldrin	<50 µg/kg	TM073	<50				
Chlorothalonil	50 µg/kg	TM073	50				
Pirimiphos-methyl	<50 µg/kg	TM073	<50				
Telodrin	<50 µg/kg	TM073	<50				
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50				
Chlorpyrifos	<50 µg/kg	TM073	<50				
Methyl parathion	<50 µg/kg	TM073	<50				
sodrin	<50 µg/kg	TM073	<50				
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073	<50				
Malathion	<50 µg/kg	TM073	<50				
Fenthion	<50 µg/kg	TM073	<50				
Fenitrothion	50 µg/kg	TM073	50				
Heptachlor epoxide	<50 µg/kg	TM073	<50				
Triadimefon	<50 µg/kg	TM073	<50				
Pendimethalin	<50 µg/kg	TM073	<50				
Parathion	<50 µg/kg	TM073	<50				

CERTIFICATE OF ANALYSIS



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536308
Location: Moathouse Farm, Rusper Rd **Order Number:** **Superseded Report:** 535928

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5	@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP211 0.50 - 0.50 MISC_SOLID 05/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314565 TM048	19/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP213 0.10 - 0.10 MISC_SOLID 05/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314559 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP217 0.10 - 0.10 MISC_SOLID 05/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314568 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP222 0.50 - 0.50 MISC_SOLID 04/12/2019 00:00:00 07/12/2019 06:00:00 191207-93 21314573 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93

Client Reference: J4175 Stantec/ L & G

Report Number: 536308

Location: Moathouse Farm, Rusper Rd Order Number: Superseded Report: 535928

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 191207-93

Client Reference: J4175 Stantec/ L & G

Report Number: 536308

Location: Moathouse Farm, Rusper R

Order Number:

Superseded Report: 535928

Test Completion Dates

Lab Sample No(s)	21314565	21314559	21314568	21314573
Customer Sample Ref.	TP211	TP213	TP217	TP222
AGS Ref.				
Depth	0 50 0 50	0 10 0 10	0 10 0 10	0 50 0 50
Type	Unspecified So	Unspecified So	Unspecified So	Unspecified So
Acid herbicides*		31-Dec-2019		
Anions by Kone (soil)	18-Dec-2019	20-Dec-2019	20-Dec-2019	18-Dec-2019
Asbestos ID in Solid Samples	19-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
EPH CWG GC (S)	21-Dec-2019	20-Dec-2019	21-Dec-2019	20-Dec-2019
GRO by GC-FID (S)	17 Dec 2019	17 Dec 2019	17 Dec 2019	17 Dec 2019
He aivalent Chromium ()	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019
Metals in solid samples by OES	18-Dec-2019	17-Dec-2019	18-Dec-2019	18-Dec-2019
OC OP Pesticides and Triazine Herb		23-Dec-2019		
PAH by GCMS	18-Dec-2019	18-Dec-2019	17-Dec-2019	18-Dec-2019
pH	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019
Phenols by HPLC (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019
Sample description	15-Dec-2019	15-Dec-2019	15-Dec-2019	15-Dec-2019
Total Organic Carbon	19-Dec-2019	18-Dec-2019	19-Dec-2019	18-Dec-2019
TPH CWG GC (S)	21-Dec-2019	20-Dec-2019	21-Dec-2019	20-Dec-2019
Triazine Herbicides (S)*		06 Jan 2020		
VOC MS (S)	17-Dec-2019	17-Dec-2019	17-Dec-2019	17-Dec-2019



CERTIFICATE OF ANALYSIS

Work Order	PR19D9995	Issue Date	31-Dec-2019
Customer	ALS Life Sciences Ltd	Laboratory	ALS Czech Republic, s.r.o.
Contact	ALS Hawarden Reporting	Contact	Client Service
Address	Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	euhdnsbconresults@ALSGlobal.com	E-mail	customer.support@alsglobal.com
Telephone	----	Telephone	+420 226 226 228
Project	191207-93	Page	1 of 2
Order number	191207-93	Date Samples Received	16-Dec-2019
		Quote number	PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	----	Date of test	23-Dec-2019 - 31-Dec-2019
Sampled by	client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Signatories

Zdeněk Jiráček



Position

Environmental Business Unit
Manager

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018





Analytical Results

Sub-Matrix: **SOLID**

Client sample ID

21374263
TP213

Laboratory sample ID

PR19D9995-001

Client sampling date / time

05-Dec-2019 00:00

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	79.0	± 6.0%	----	----	----	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
MCPP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	----	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A ** symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.

Certificate of Analysis

Report No.: 19-89493-1

Issue No.: 1

Date of Issue 03/01/2020

Customer Details: ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US

Customer Contact: Carrie Foster

Customer Order No.: 191207-93

Customer Reference: 191207-93

Quotation Reference: 191111/01

Description: 1 soil sample

Date Received: 17/12/2019

Date Started: 18/12/2019

Date Completed: 20/12/2019

Test Methods: Details available on request (refer to SOP code against relevant result/s)

Notes: None



Approved By: Matthew Hickson, Laboratory Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.

This certificate shall not be reproduced except in full without the prior written approval of the laboratory.

Observations and interpretations are outside of the scope of UKAS accreditation.

Results reported herein relate only to the items supplied to the laboratory for testing.

Results on an Interim Report are not dry-weight corrected.

Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 19-89493-1

Customer Reference: 191207-93

Customer Order No: 191207-93

Customer Sample No	21374271
Customer Sample ID	TP213
RPS Sample No	424813
Sample Type	SOIL
Sample Depth (m)	0.10
Sampling Date	05/12/2019

Determinand	CAS No	Codes	SOP	Units	RL	
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02
terbutylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02

Deviating Samples

Report No.: 19-89493-1

Customer Reference: 191207-93

Customer Order No.: 191207-93

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).

RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.

Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.

Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.

Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submission may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
424813	21374271		05/12/2019	100ml clear glass bottle	No	

Report No.: 19-89493-1

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other



CERTIFICATE OF ANALYSIS

SDG:	191207-93	Client Reference:	J4175 Stantec/ L & G	Report Number:	536308
Location:	athouse Farm, Rusper Rd, Horsham	Order Number:		Superseded Report:	535928

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of 75% are reported based on the best mass spectral library match. When a non target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18 Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation: 06 January 2020
Customer: Endeavour Drilling
Sample Delivery Group (SDG): 191211-121
Your Reference: J4175 Stantec/ L & G
Location: Moathouse Farm, Rusper Rd, Horsham
Report No: 536309

This report has been revised and directly supersedes 535817 in its entirety.

We received 18 samples on Wednesday December 11, 2019 and 7 of these samples were scheduled for analysis which was completed on Monday January 06, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

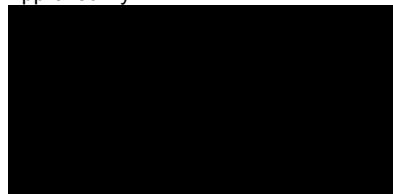
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 191211-121

Client Reference: J4175 Stantec/ L & G

Report Number: 536309

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report: 535817

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21340555	TP205		0.10	09/12/2019
21340556	TP205		0.50	09/12/2019
21340553	TP212		0.10	09/12/2019
21340554	TP212		0.50	09/12/2019
21340558	TP214		0.10	09/12/2019
21340559	TP214		0.50	09/12/2019
21340551	TP219		0.20	09/12/2019
21340552	TP219		0.50	09/12/2019
21340549	TP225		0.20	09/12/2019
21340550	TP225		0.60	09/12/2019
21340540	TP227		0.10	06/12/2019
21340541	TP227		0.50	06/12/2019
21340547	TP234		0.10	09/12/2019
21340548	TP234		0.50	09/12/2019
21340542	TP237		0.10	06/12/2019
21340544	TP237		0.50	06/12/2019
21340545	TP241		0.10	06/12/2019
21340546	TP241		0.50	06/12/2019

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

5.6

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



Validated

CERTIFICATE OF ANALYSIS

SDG: 191211-121

Client Reference: J4175 Stantec/ L & G

Report Number: 536309

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report: 535817

Results Legend



Test

No Determination
Possible

Sample Types -

S - Soil/Solid
 UNS - Unspecified Solid
 GW - Ground Water
 SW - Surface Water
 LE - Land Leachate
 PL - Prepared Leachate
 PR - Process Water
 SA - Saline Water
 TE - Trade Effluent
 TS - Treated Sewage
 US - Untreated Sewage
 RE - Recreational Water
 DW - Drinking Water Non-regulatory
 UNL - Unspecified Liquid
 SL - Sludge
 G - Gas
 OTH - Other

VOC MS (S)

All

NDPs: 0

Tests: 7

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

21340545

TP241

0.10

1kg TUB with
Handle (ALE260)

S

X

21340544

TP237

0.50

60g VOC (ALE215)

S

X

21340569

TP214

0.50

60g VOC (ALE215)

S

X

21340549

TP225

0.20

60g VOC (ALE215)

S

X

21340540

TP227

0.10

60g VOC (ALE215)

S

X

21340544

TP237

0.50

60g VOC (ALE215)

S

X

21340545

TP241

0.10

1kg TUB with
Handle (ALE260)

S

X

21340545	TP241		0.10	60g VOC (ALE215)	S		X
				250g Amber Jar (ALE210)	S		



CERTIFICATE OF ANALYSIS

SDG: 191211-121

Client Reference: J4175 Stantec/ L & G

Report Number: 536309

Location: Moathouse Farm, Rusper Rd Order Number: Superseded Report: 535817

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21340555	TP205	0.10	Dark Brown	Silt Loam	None	None
21340554	TP212	0.50	Light Brown	Loamy Sand	None	None
21340559	TP214	0.50	Light Brown	Loamy Sand	None	None
21340549	TP225	0.20	Dark Brown	Clay Loam	None	None
21340540	TP227	0.10	Dark Brown	Clay Loam	Stones	Vegetation
21340544	TP237	0.50	Light Brown	Clay Loam	None	N/A
21340545	TP241	0.10	Light Brown	Loamy Sand	Vegetation	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERT for sand, clay and loam/topsoil, or any of these materials whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191211-121
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 536309
Superseded Report: 535817

Results Legend			Customer Sample Ref	TP205	TP212	TP214	TP225	TP227	TP237
#	ISO17025 accredited.								
M	NCERTS accredited.								
mg	Aqueous / settled sample.								
dis. lit	Dissolved / filtered sample.								
tot. unit	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery.								
(F)	Trigger breach confirmed								
1-3496	Sample deviation (see appendix)								
Component	LOD/Units	Method	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)
Moisture Content Ratio (% of as received sample)	%	PM024	0.10	Soil/Solid (S)	09/12/2019		11/12/2019	191211-121	21340555
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB	0.50	Soil/Solid (S)	09/12/2019		11/12/2019	191211-121	21340554
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB	0.50	Soil/Solid (S)	09/12/2019		11/12/2019	191211-121	21340559
2,4-D*	<0.01 mg/kg	SUB	0.20	Soil/Solid (S)	09/12/2019		11/12/2019	191211-121	21340549
2,4-DB*	<0.01 mg/kg	SUB	0.10	Soil/Solid (S)	06/12/2019		11/12/2019	191211-121	21340540
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB	0.50	Soil/Solid (S)	06/12/2019		11/12/2019	191211-121	21340544
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB							
Acifluorfen*	<0.01 mg/kg	SUB							
Bentazone*	0.01 mg/kg	SUB							
Bromoxynil*	<0.01 mg/kg	SUB							
Dicamba*	<0.01 mg/kg	SUB							
Diclofop*	<0.01 mg/kg	SUB							
Dinoseb*	<0.01 mg/kg	SUB							
DNOC*	<0.01 mg/kg	SUB							
Fluroxypyr*	<0.01 mg/kg	SUB							
oxynil*	<0.01 mg/kg	SUB							
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB							
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB							
Mecoprop (MCP)*	0.01 mg/kg	SUB							
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB							
Triclopyr*	<0.01 mg/kg	SUB							
Triclosan*	<0.01 mg/kg	SUB							
Phenol	<0.01 mg/kg	TM062 (S)	<0.01	M	<0.01	M	<0.01	M	<0.01
Cresols	<0.01 mg/kg	TM062 (S)	<0.01	M	<0.01	M	<0.01	M	0.0132
ylenols	<0.015 mg/kg	TM062 (S)	<0.015	M	<0.015	M	<0.015	M	<0.015
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01	M	0.0128	M	<0.01	M	<0.01
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015	M	<0.015	M	<0.015	M	<0.015
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06	M	<0.06	M	<0.06	M	<0.06
oil Organic Matter (SOM)	0.35 %	TM132	3.4	#	0.503	#	0.35	#	2.38
pH	1 pH Units	TM133	6.75	M	6.87	M	8.11	M	6.94
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	#	<0.6	#	<0.6	#	<0.6
Arsenic	<0.6 mg/kg	TM181	7.01	M	7.82	M	7.33	M	9.27
Cadmium	<0.02 mg/kg	TM181	0.086	M	<0.02	M	<0.02	M	0.165



CERTIFICATE OF ANALYSIS

Validated

SDG: 191211-121
Location: Moathouse Farm, Rusper

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 536309
Superseded Report: 535817

OC OP Pesticides and Triazine Herb

Results Legend			Customer Sample Ref	TP205	TP237			
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
dis.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery.							
(F)	Trigger breach confirmed							
1-349@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Dichlorvos	<50 µg/kg	TM073		<50	<50			
Mevinphos	<50 µg/kg	TM073		<50	<50			
Tecnazene	<50 µg/kg	TM073		<50	<50			
Hexachlorobenzene	<50 µg/kg	TM073		<50	<50			
Trifluralin	<50 µg/kg	TM073		<50	<50			
Phorate	<50 µg/kg	TM073		<50	<50			
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50			
Quintozene (PCNB)	<50 µg/kg	TM073		<50	<50			
Diazinon	50 µg/kg	TM073		50	50			
Triallate	<50 µg/kg	TM073		<50	<50			
Etrimphos	<50 µg/kg	TM073		<50	<50			
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073		<50	<50			
Disulfoton	<50 µg/kg	TM073		<50	<50			
Propetamphos	<50 µg/kg	TM073		<50	<50			
Heptachlor	<50 µg/kg	TM073		<50	<50			
Chlorpyrifos methyl	<50 µg/kg	TM073		<50	<50			
Dimethoate	<50 µg/kg	TM073		<50	<50			
Aldrin	<50 µg/kg	TM073		<50	<50			
Chlorothalonil	50 µg/kg	TM073		50	50			
Pirimiphos-methyl	<50 µg/kg	TM073		<50	<50			
Telodrin	<50 µg/kg	TM073		<50	<50			
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50			
Chlorpyrifos	<50 µg/kg	TM073		<50	<50			
Methyl parathion	<50 µg/kg	TM073		<50	<50			
sodrin	<50 µg/kg	TM073		<50	<50			
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073		<50	<50			
Malathion	<50 µg/kg	TM073		<50	<50			
Fenthion	<50 µg/kg	TM073		<50	<50			
Fenitrothion	50 µg/kg	TM073		50	50			
Heptachlor epoxide	<50 µg/kg	TM073		<50	<50			
Triadimefon	<50 µg/kg	TM073		<50	<50			
Pendimethalin	<50 µg/kg	TM073		<50	<50			
Parathion	<50 µg/kg	TM073		<50	<50			



CERTIFICATE OF ANALYSIS

Validated

SDG: 191211-121
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175 Stantec/ L & G
Order Number:

Report Number: 536309
Superseded Report: 535817

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERIS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-58# Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP205 0.10 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340555 TM048	17/12/19	Andrzej Ferrecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP212 0.50 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340554 TM048	18/12/19	Andrzej Ferrecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP214 0.50 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340559 TM048	17/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP225 0.20 SOLID 09/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340549 TM048	17/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP227 0.10 SOLID 06/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340540 TM048	18/12/19	Andrzej Ferrecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP237 0.50 SOLID 06/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340544 TM048	17/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP241 0.10 SOLID 06/12/2019 00:00:00 11/12/2019 06:00:00 191211-121 21340545 TM048	17/12/2019	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected



CERTIFICATE OF ANALYSIS

Validated

SDG: 191211-121

Client Reference: J4175 Stantec/ L & G

Report Number: 536309

Location: Moathouse Farm, Rusper Rd
Order Number: 535817

Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 191211-121

Client Reference: J4175 Stantec/ L & G

Report Number: 536309

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report: 535817

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.
Depth
Type

	21340555	21340554	21340559	21340549	21340540	21340544	21340545
	TP205	TP212	TP214	TP225	TP227	TP237	TP241
	0 10	0 50	0 50	0 20	0 10	0 50	0 10
	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Acid herbicides*	31-Dec-2019					31-Dec-2019	
Anions by Kone (soil)	20-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
Asbestos ID in Solid Samples	17-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019
EPH CWG GC (S)	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	18-Dec-2019	18-Dec-2019
GRO by GC-FID (S)	17 Dec 2019	17 Dec 2019	17 Dec 2019	16 Dec 2019	16 Dec 2019	17 Dec 2019	17 Dec 2019
He avalent Chromium ()	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	17-Dec-2019	17-Dec-2019
Metals in solid samples by OES	17-Dec-2019	18-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019	18-Dec-2019	18-Dec-2019
OC OP Pesticides and Triazine Herb	23-Dec-2019					23-Dec-2019	
PAH by GCMS	18-Dec-2019	18-Dec-2019	17-Dec-2019	19-Dec-2019	17-Dec-2019	18-Dec-2019	17-Dec-2019
pH	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019	19-Dec-2019
Phenols by HPLC (S)	18-Dec-2019	18-Dec-2019	18-Dec-2019	17-Dec-2019	17-Dec-2019	18-Dec-2019	18-Dec-2019
Sample description	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019	13-Dec-2019
Total Organic Carbon	18-Dec-2019	18-Dec-2019	18-Dec-2019	19-Dec-2019	18-Dec-2019	18-Dec-2019	18-Dec-2019
TPH CWG GC (S)	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	20-Dec-2019	18-Dec-2019	18-Dec-2019
Triazine Herbicides (S)*	06 Jan 2020					06 Jan 2020	
VOC MS (S)	16-Dec-2019	17-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019	16-Dec-2019



CERTIFICATE OF ANALYSIS

Work Order	PR19E0037	Issue Date	30-Dec-2019
Customer	ALS Life Sciences Ltd	Laboratory	ALS Czech Republic, s.r.o.
Contact	ALS Hawarden Reporting	Contact	Client Service
Address	Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	euhdnsbconresults@ALSGlobal.com	E-mail	customer.support@alsglobal.com
Telephone	----	Telephone	+420 226 226 228
Project	191211-121	Page	1 of 2
Order number	----	Date Samples Received	17-Dec-2019
		Quote number	PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	----	Date of test	23-Dec-2019 - 30-Dec-2019
Sampled by	client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Zdeněk Jiráček



Position

Environmental Business Unit
Manager





Analytical Results

Sub-Matrix: SOIL

Client sample ID
Laboratory sample ID
Client sampling date / time

				21356370		21356218		----	
				PR19E0037-001		PR19E0037-002		----	
				09-Dec-2019 00:00		06-Dec-2019 00:00		----	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	71.6	± 6.0%	79.5	± 6.0%	----	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A ** symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.

Certificate of Analysis

Report No.: 19-89495-1

Issue No.: 1

Date of Issue 03/01/2020

Customer Details: ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US

Customer Contact: Carrie Foster

Customer Order No.: 191211-121

Customer Reference: 191211-121

Quotation Reference: 191111/01

Description: 2 soil samples

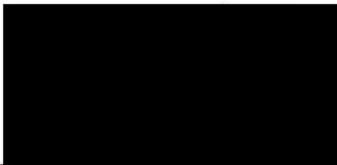
Date Received: 17/12/2019

Date Started: 18/12/2019

Date Completed: 20/12/2019

Test Methods: Details available on request (refer to SOP code against relevant result/s)

Notes: None

Approved By:  **Matthew Hickson, Laboratory Manager**

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.

This certificate shall not be reproduced except in full without the prior written approval of the laboratory.

Observations and interpretations are outside of the scope of UKAS accreditation.

Results reported herein relate only to the items supplied to the laboratory for testing.

Results on an Interim Report are not dry-weight corrected.

Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

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13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400

Results Summary

Report No.: 19-89495-1

Customer Reference: 191211-121

Customer Order No: 191211-121

Customer Sample No	21356405	21356237
Customer Sample ID	TP205	TP237
RPS Sample No	424815	424816
Sample Type	SOIL	SOIL
Sample Depth (m)	0.1	0.5
Sampling Date	09/12/2019	06/12/2019

Determinand	CAS No	Codes	SOP	Units	RL		
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02	< 0.02

Deviating Samples

Report No.: 19-89495-1

Customer Reference: 191211-121

Customer Order No.: 191211-121

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).

RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.

Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.

Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.

Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submission may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
424815	21356405		09/12/2019	250ml amber glass jar	No	
424816	21356237		06/12/2019	100ml clear glass bottle	No	

Report No.: 19-89495-1

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other



CERTIFICATE OF ANALYSIS

SDG: 91211-121 Client Reference: J4175 Stantec/ L & G Report Number: 536309
Location: athouse Farm, Rusper Rd, Horsham Order Number: Superseded Report: 535817

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of 75% are reported based on the best mass spectral library match. When a non target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18 Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation:	03 January 2020
Customer:	Endeavour Drilling
Sample Delivery Group (SDG):	191213-100
Your Reference:	J4175 Stantec/ L & G
Location:	Moathouse Farm, Rusper Rd, Horsham
Report No:	536099

We received 8 samples on Friday December 13, 2019 and 1 of these samples were scheduled for analysis which was completed on Friday January 03, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

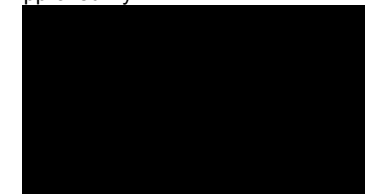
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



S
Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 191213-100

Client Reference: J4175 Stantec/ L & G

Report Number: 536099

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21360015	TP207		0.20 - 0.20	10/12/2019
21360016	TP207		0.60 - 0.60	10/12/2019
21360008	TP210		0.10 - 0.10	10/12/2019
21360009	TP210		0.50 - 0.50	10/12/2019
21360006	TP216		0.20 - 0.20	10/12/2019
21360007	TP216		0.70 - 0.70	10/12/2019
21360010	TP220		0.20 - 0.20	10/12/2019
21360011	TP220		0.60 - 0.60	10/12/2019

Maximum Sample/Coolbox Temperature (°C) :

5.6

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191213-100 Client Reference: J4175 Stantec/ L & G Report Number: 536099
 Location: Moathouse Farm, Rusper Rd Order Number: Superseded Report:

Results Legend

X Test
N No Determination Possible

Sample Types -

S - Soil/Solid
 UNS - Unspecified Solid
 GW - Ground Water
 SW - Surface Water
 LE - Land Leachate
 PL - Prepared Leachate
 PR - Process Water
 SA - Saline Water
 TE - Trade Effluent
 TS - Treated Sewage
 US - Untreated Sewage
 RE - Recreational Water
 DW - Drinking Water Non-regulatory
 UNL - Unspecified Liquid
 SL - Sludge
 G - Gas
 OTH - Other

	Lab Sample No(s)	21360015		
	Customer Sample Reference	TP207		
	AGS Reference			
	Depth (m)	0.20 - 0.20		
	Container	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE260)
	Sample Type	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 1	X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1	X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 1	X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1		X
He aivalent Chromium ()	All	NDP: 0 Tests: 1	X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 1	X	
PAH by GCMS	All	NDPs: 0 Tests: 1	X	
pH	All	NDPs: 0 Te t 1	X	
Phenols by HPLC (S)	All	NDPs: 0 Tests: 1	X	
Sample description	All	NDPs: 0 Tests: 1	X	
Total Organic Carbon	All	NDPs: 0 Tests: 1	X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 1	X	
VOC MS (S)	All	NDPs: 0 Tests: 1		X



CERTIFICATE OF ANALYSIS

SDG: 191213-100

Client Reference: J4175 Stantec/ L & G

Report Number: 536099

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21360015	TP207	0.20 - 0.20	Light Brown	Loamy Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

SDG: 191213-100

Client Reference: J4175 Stantec/ L & G

Report Number: 536099

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5	@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref.	TP207	23/12/2019	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Depth (m)	0.20 - 0.20										
Sample Type	SOLID										
Date Sampled	10/12/2019 00:00:00										
Date Received	13/12/2019 06:00:00										
SDG	191213-100										
Original Sample	21360015										
Method Number	TM048										



CERTIFICATE OF ANALYSIS

Validated

SDG: 191213-100

Client Reference: J4175 Stantec/ L & G

Report Number: 536099

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 191213-100

Client Reference: J4175 Stantec/ L & G

Report Number: 536099

Location: Moathouse Farm, Rusper Rd

Order Number:

Superseded Report:

Test Completion Dates

Lab Sample No(s)	21360015
Customer Sample Ref.	TP207
AGS Ref.	
Depth	0 20 0 20
Type	Soil/Solid (S)

Anions by Kone (soil)	27-Dec-2019
Asbestos ID in Solid Samples	23-Dec-2019
EPH CWG GC (S)	03-Jan-2020
GRO by GC-FID (S)	20-Dec-2019
Hexavalent Chromium (s)	27 Dec 2019
Metal in solid sample by OES	27-Dec-2019
PAH by GCMS	23-Dec-2019
pH	27-Dec-2019
Phenols by HPLC (S)	23-Dec-2019
Sample description	19-Dec-2019
Total Organic Carbon	23-Dec-2019
TPH CWG GC (S)	03-Jan-2020
VOC MS (S)	20-Dec-2019



CERTIFICATE OF ANALYSIS

SDG: 191213-100 **Client Reference:** J4175 Stantec/ L & G **Report Number:** 536099
Location: athouse Farm, Rusper Rd, Horsham **Order Number:** **Superseded Report:**

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of 75% are reported based on the best mass spectral library match. When a non target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18 Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anorthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Website: www.alsenvironmental.co.uk

Endeavour Drilling
Aldgate Tower
2 Leman Street
London
E1 8FA

Attention: Oliver Wendland

CERTIFICATE OF ANALYSIS

Date of report Generation: 16 January 2020
Customer: Endeavour Drilling
Sample Delivery Group (SDG): 191220-96
Your Reference: J4175
Location: Moathouse Farm, Rusper Rd, Horsham
Report No: 537504

This report has been revised and directly supersedes 536738 in its entirety.

We received 6 samples on Friday December 20, 2019 and 4 of these samples were scheduled for analysis which was completed on Thursday January 16, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

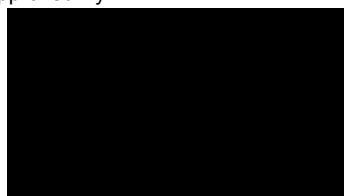
Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:



So
Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 191220-96

Client Reference: J4175

Report Number: 537504

Location: Moathouse Farm, Rusper Rd

Order Number: 13459AP

Superseded Report: 536738

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
21418337	HP101	E1	0.10	17/12/2019
21418338	HP101	E2	0.50	17/12/2019
21418339	HP102	E1	0.10	17/12/2019
21418341	HP102	E2	0.50	17/12/2019
21418342	HP103	E1	0.10	17/12/2019
21418344	HP103	E2	0.50	17/12/2019

Maximum Sample/Coolbox Temperature (°C) :

10

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



Validated

CERTIFICATE OF ANALYSIS

SDG: 191220-96

Client Reference: J4175

Report Number: 537504

Location: Moathouse Farm, Rusper Rd

Order Number: 13459AP

Superseded Report: 536738

Results Legend



Test

No Determination
Possible

Sample Types -

S - Soil/Solid
 UNS - Unspecified Solid
 GW - Ground Water
 SW - Surface Water
 LE - Land Leachate
 PL - Prepared Leachate
 PR - Process Water
 SA - Saline Water
 TE - Trade Effluent
 TS - Treated Sewage
 US - Untreated Sewage
 RE - Recreational Water
 DW - Drinking Water Non-regulatory
 UNL - Unspecified Liquid
 SL - Sludge
 G - Gas
 OTH - Other

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

Sample Type

VOC MS (S)

All

NDPs: 0
Tests: 4

X

X

X

X



CERTIFICATE OF ANALYSIS

Validated

SDG: 191220-96

Client Reference: J4175

Report Number: 537504

Location: Moathouse Farm, Rusper Rd

Order Number: 13459AP

Superseded Report: 536738

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
21418337	HP101	0.10	Dark Brown	Sandy Loam	Stones	Vegetation
21418341	HP102	0.50	Dark Brown	Clay	Stones	Vegetation
21418342	HP103	0.10	Dark Brown	Sandy Loam	Stones	Vegetation
21418344	HP103	0.50	Dark Brown	Clay Loam	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



CERTIFICATE OF ANALYSIS

Validated

SDG: 191220-96 Client Reference: J4175 Report Number: 537504
Location: Moathouse Farm, Rusper R Order Number: 13459AP Superseded Report: 536738

Results Legend		Customer Sample Ref	HP101	HP102	HP103	HP103		
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
dis. filt	Dissolved / filtered sample.							
tot. unflt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-349@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Moisture Content Ratio (% of as received sample)	%	PM024	25	24	25	20		
2,4,5-Trichlorophenol (2,4,5-T)*	<0.01 mg/kg	SUB	<0.01			<0.01		
2,4,5-TP (Fenoprop)*	<0.01 mg/kg	SUB	<0.01			<0.01		
2,4-D*	<0.01 mg/kg	SUB	<0.01			<0.01		
2,4-DB*	<0.01 mg/kg	SUB	<0.01			<0.01		
2,4-Dichloroprop (2,4 DP)*	<0.01 mg/kg	SUB	<0.01			<0.01		
4-Chlorophenoxyacetic acid (4-CPA)*	<0.01 mg/kg	SUB	<0.01			<0.01		
Acifluorfen*	<0.01 mg/kg	SUB	<0.01			<0.01		
Bentazone*	0 01 mg/kg	SUB	0 01			0 01		
Bromoxynil*	<0.01 mg/kg	SUB	<0.01			<0.01		
Dicamba*	<0.01 mg/kg	SUB	<0.01			<0.01		
Diclofop*	<0.01 mg/kg	SUB	<0.01			<0.01		
Dinoseb*	<0.01 mg/kg	SUB	<0.01			<0.01		
DNOC*	<0.01 mg/kg	SUB	<0.01			<0.01		
Fluroxypyr*	<0.01 mg/kg	SUB	<0.01			<0.01		
oxynil*	<0.01 mg/kg	SUB	<0.01			<0.01		
2-methyl-4-Chlorophenoxyacetic acid (MCPA)*	<0.01 mg/kg	SUB	<0.01			<0.01		
4-(4-Chloro-o-tolyloxy) butyric acid (MCPB)*	<0.01 mg/kg	SUB	<0.01			<0.01		
Mecoprop (MCP)*	0 01 mg/kg	SUB	0 01			0 01		
Propoxycarbazone-sodium*	<0.01 mg/kg	SUB	<0.01			<0.01		
Triclopyr*	<0.01 mg/kg	SUB	<0.01			<0.01		
Triclosan*	<0.01 mg/kg	SUB	<0.01			<0.01		
Phenol	<0.01 mg/kg	TM062 (S)	<0.01	<0.01	<0.01	<0.01		
			M	M	M	M		
Cresols	<0.01 mg/kg	TM062 (S)	<0.01	<0.01	<0.01	<0.01		
			M	M	M	M		
ylenols	<0.015 mg/kg	TM062 (S)	<0.015	<0.015	<0.015	<0.015		
			M	M	M	M		
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01	<0.01	<0.01	<0.01		
			M	M	M	M		
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015	<0.015	<0.015	<0.015		
			M	M	M	M		
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06	<0.06	<0.06	<0.06		
			M	M	M	M		
oil Organic Matter (SOM)	0 35 %	TM132	2 79	2 62	2 95	0 84		
			#	#	#	#		
pH	1 pH Units	TM133	7.81	7.76	8.04	8.05		
			M	M	M	M		
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	<0.6	<0.6	<0.6		
			#	#	#	#		
Arsenic	<0.6 mg/kg	TM181	14.9	13	10	6.4		
			M	M	M	M		
Cadmium	<0.02 mg/kg	TM181	0.241	0.554	0.322	0.0436		
			M	M	M	M		



CERTIFICATE OF ANALYSIS

Validated

SDG: 191220-96
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175
Order Number: 13459AP

Report Number: 537504
Superseded Report: 536738

OC OP Pesticides and Triazine Herb

Results Legend			Customer Sample Ref		HP101	HP103				
#	ISO17025 accredited.									
M	mCERTS accredited.									
aq	Aqueous / settled sample.									
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-3496	Sample deviation (see appendix)									
Component	LOD/Units	Method	Customer Sample Ref		HP101	HP103				
Dichlorvos	<50 µg/kg	TM073			<50	<50				
Mevinphos	<50 µg/kg	TM073			<50	<50				
Tecnazene	<50 µg/kg	TM073			<50	<50				
Hexachlorobenzene	<50 µg/kg	TM073			<50	<50				
Trifluralin	<50 µg/kg	TM073			<50	<50				
Phorate	<50 µg/kg	TM073			<50	<50				
alpha-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073			<50	<50				
Quintozene (PCNB)	<50 µg/kg	TM073			<50	<50				
Diazinon	50 µg/kg	TM073			50	50				
Triallate	<50 µg/kg	TM073			<50	<50				
Etrimphos	<50 µg/kg	TM073			<50	<50				
gamma-Hexachlorocyclohexane (HCH / Lindane)	<50 µg/kg	TM073			<50	<50				
Disulfoton	<50 µg/kg	TM073			<50	<50				
Propetamphos	<50 µg/kg	TM073			<50	<50				
Heptachlor	<50 µg/kg	TM073			<50	<50				
Chlorpyrifos methyl	<50 µg/kg	TM073			<50	<50				
Dimethoate	<50 µg/kg	TM073			<50	<50				
Aldrin	<50 µg/kg	TM073			<50	<50				
Chlorothalonil	50 µg/kg	TM073			50	50				
Pirimiphos-methyl	<50 µg/kg	TM073			<50	<50				
Telodrin	<50 µg/kg	TM073			<50	<50				
beta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073			<50	<50				
Chlorpyrifos	<50 µg/kg	TM073			<50	<50				
Methyl parathion	<50 µg/kg	TM073			<50	<50				
sodrin	<50 µg/kg	TM073			<50	<50				
delta-Hexachlorocyclohexane (HCH)	<50 µg/kg	TM073			<50	<50				
Malathion	<50 µg/kg	TM073			<50	<50				
Fenthion	<50 µg/kg	TM073			<50	<50				
Fenitrothion	50 µg/kg	TM073			50	50				
Heptachlor epoxide	<50 µg/kg	TM073			<50	<50				
Triadimefon	<50 µg/kg	TM073			<50	<50				
Pendimethalin	<50 µg/kg	TM073			<50	<50				
Parathion	<50 µg/kg	TM073			<50	<50				



CERTIFICATE OF ANALYSIS

SDG: 191220-96
Location: Moathouse Farm, Rusper RdClient Reference: J4175
Order Number: 13459APReport Number: 537504
Superseded Report: 536738

Asbestos Identification - Solid Samples

Results Legend

ISO17025 accredited.
M mCERTS accredited.
* Subcontracted test.
(F) Trigger breach confirmed
1-5	@ Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	HP101E1 0.10 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418337 TM048	30/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	HP102E2 0.10 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418341 TM048	30/12/19	Andrzej Ferrecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	HP103E1 0.10 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418342 TM048	30/12/2019	Barbara Urbanek-Wals h	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	HP103E2 0.50 SOLID 17/12/2019 00:00:00 20/12/2019 06:00:00 191220-96 21418344 TM048	30/12/2019	Lucy Caroe	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected



CERTIFICATE OF ANALYSIS

Validated

SDG: 191220-96

Client Reference: J4175

Report Number: 537504

Location: Moathouse Farm, Rusper Rd

Order Number: 13459AP

Superseded Report: 536738

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 191220-96
Location: Moathouse Farm, Rusper Rd

Client Reference: J4175
Order Number: 13459AP

Report Number: 537504
Superseded Report: 536738

Test Completion Dates

Lab Sample No(s)	21418337	21418341	21418342	21418344
Customer Sample Ref.	HP101	HP102	HP103	HP103
AGS Ref.	E1	E2	E1	E2
Depth	0 10	0 50	0 10	0 50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Acid herbicides*	08-Jan-2020			08-Jan-2020
Anions by Kone (soil)	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019
Asbestos ID in Solid Samples	30-Dec-2019	30-Dec-2019	30-Dec-2019	30-Dec-2019
EPH CWG GC (S)	04-Jan-2020	04-Jan-2020	06-Jan-2020	04-Jan-2020
GRO by GC-FID (S)	31 Dec 2019	31 Dec 2019	31 Dec 2019	31 Dec 2019
He aivalent Chromium ()	31-Dec-2019	31-Dec-2019	31-Dec-2019	31-Dec-2019
Metals in solid samples by OES	03-Jan-2020	06-Jan-2020	03-Jan-2020	02-Jan-2020
OC OP Pesticides and Triazine Herb	31-Dec-2019			31-Dec-2019
PAH by GCMS	02-Jan-2020	02-Jan-2020	02-Jan-2020	02-Jan-2020
pH	02-Jan-2020	02-Jan-2020	02-Jan-2020	02-Jan-2020
Phenols by HPLC (S)	27-Dec-2019	27-Dec-2019	27-Dec-2019	27-Dec-2019
Sample description	23-Dec-2019	23-Dec-2019	23-Dec-2019	23-Dec-2019
Total Organic Carbon	02-Jan-2020	02-Jan-2020	02-Jan-2020	02-Jan-2020
TPH CWG GC (S)	04-Jan-2020	04-Jan-2020	06-Jan-2020	04-Jan-2020
Triazine Herbicides (S)*	16 Jan 2020			16 Jan 2020
VOC MS (S)	30-Dec-2019	30-Dec-2019	31-Dec-2019	30-Dec-2019



CERTIFICATE OF ANALYSIS

Work Order	PR2000312	Issue Date	08-Jan-2020
Customer	ALS Life Sciences Ltd	Laboratory	ALS Czech Republic, s.r.o.
Contact	ALS Hawarden Reporting	Contact	Client Service
Address	Unit 7-8 Hawarden Business Park Manor Road, Hawarden CH5 3US Deeside United Kingdom	Address	Na Harfe 336/9 Prague 9 - Vysocany 190 00 Czech Republic
E-mail	euhdnsbconresults@ALSGlobal.com	E-mail	customer.support@alsglobal.com
Telephone	----	Telephone	+420 226 226 228
Project	191220-96	Page	1 of 2
Order number	191220-96	Date Samples Received	03-Jan-2020
		Quote number	PR2018ALSAL-GB0004 (CZ-256-18-0022)
Site	----	Date of test	03-Jan-2020 - 08-Jan-2020
Sampled by	client	QC Level	ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Zdeněk Jiráček



Position

Environmental Business Unit
Manager





Analytical Results

Sub-Matrix: SOIL

Client sample ID

21426777
HP101

21427087
HP103

Laboratory sample ID

PR2000312-001

PR2000312-002

Client sampling date / time

03-Jan-2020 00:00

03-Jan-2020 00:00

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Physical Parameters									
Dry matter @ 105°C	S-DRY-GRCI	0.10	%	75.5	± 6.0%	79.5	± 6.0%	----	----
Pesticides									
2.4.5-T	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4.5-TP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-D	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
2.4-DP (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
4-CPP	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bentazone	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dinoseb	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Fluroxypyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPA	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPB	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
MCPB (isomers)	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Acifluorfen	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Bromoxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
DNOC	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Dicamba	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Diclofop	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Ioxynil	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Propoxycarbazone-sodium	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclopyr	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----
Triclosan	S-PESLMSA1	0.0100	mg/kg DW	<0.0100	----	<0.0100	----	----	----

If no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, delivery date in brackets without a time component will be displayed instead. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
S-DRY-GRCI	CZ_SOP_D06_01_045 (CSN ISO 11465, CSN EN 12880, CSN EN 14346), CZ_SOP_D06_07_046 (CSN ISO 11465, CSN EN 12880, CSN EN 14346, CSN 46 5735) Determination of dry matter by gravimetry and determination of moisture by calculation from measured values.
S-PESLMSA1	CZ_SOP_D06_03_182.B (CSN EN 15637, US EPA 1694) Determination of acidic herbicides and drug residues by liquid chromatography method with MS/MS detection.

A ** symbol preceding any method indicates laboratory or subcontractor non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information. If the report contains subcontracted analysis, those are made in a subcontracted laboratory outside the laboratories ALS Czech Republic, s.r.o.

The calculation methods of summation parameters are available on request in the client service.

Certificate of Analysis

Report No.: 20-89677-1

Issue No.: 1

Date of Issue 16/01/2020

Customer Details: ALS Life Sciences Limited, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US

Customer Contact: Carrie Foster

Customer Order No.: 191220-96

Customer Reference: 191220-96

Quotation Reference: 191111/01

Description: 2 soil samples

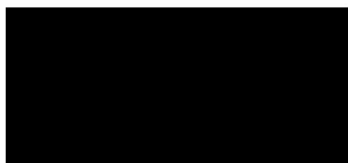
Date Received: 03/01/2020

Date Started: 09/01/2020

Date Completed: 10/01/2020

Test Methods: Details available on request (refer to SOP code against relevant result/s)

Notes: None



Approved By: Matthew Hickson, Laboratory Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.

This certificate shall not be reproduced except in full without the prior written approval of the laboratory.

Observations and interpretations are outside of the scope of UKAS accreditation.

Results reported herein relate only to the items supplied to the laboratory for testing.

Results on an Interim Report are not dry-weight corrected.

Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

Results Summary

Report No.: 20-89677-1

Customer Reference: 191220-96

Customer Order No: 191220-96

Customer Sample No	21426778	21427092
Customer Sample ID	HP101	HP103
RPS Sample No	425459	425460
Sample Type	SOIL	SOIL
Sample Depth (m)	0.1	0.5
Sampling Date	17/12/2019	17/12/2019

Determinand	CAS No	Codes	SOP	Units	RL		
atrazine	1912-24-9	N	in house	mg/kg	0.02	< 0.02	< 0.02
prometryn	7287-19-6	N	346	mg/kg	0.02	< 0.02	< 0.02
propazine	139-40-2	N	346	mg/kg	0.02	< 0.02	< 0.02
simazine	122-34-9	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutylazine	5915-41-3	N	346	mg/kg	0.02	< 0.02	< 0.02
terbutryn	886-50-0	N	346	mg/kg	0.02	< 0.02	< 0.02
trietazine	1912-26-1	N	346	mg/kg	0.02	< 0.02	< 0.02

Deviating Samples

Report No.: 20-89677-1

Customer Reference: 191220-96

Customer Order No: 191220-96

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).

RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.

Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.

Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.

Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submission may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
425459	21426778		17/12/2019	100ml clear glass bottle	No	
425460	21427092		17/12/2019	100ml clear glass bottle	No	

Report No.: 20-89677-1

Key Code	Description
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
F	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
N	Not Accredited Test
O	Marine Management Organisation (MMO) Validated
S	Subcontracted to approved laboratory
US	Subcontracted to approved laboratory UKAS Accredited for the test
MS	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SI	Subcontracted to internal RPS Group laboratory
USI	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
MSI	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Where the dry solids value of a sample is low (<50%), reporting limits are automatically raised for all determinants analysed on an as-received basis.

Soil Typing	Description
Type 1	Clay - Brown
Type 2	Clay - Grey/Black
Type 3	Sand
Type 4	Top Soil (Standard)
Type 5	Top Soil (High Peat)
Type 6	Made Ground (>50% Clay)
Type 7	Made Ground (>50% Sand)
Type 8	Made Ground (>50% Top Soil)
Type X	Other



CERTIFICATE OF ANALYSIS

SDG:	191220-96	Client Reference:	J4175	Report Number:	537504
Location:	athouse Farm, Rusper Rd, Horsham	Order Number:	13459AP	Superseded Report:	536738

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of 75% are reported based on the best mass spectral library match. When a non target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18 Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2107)*.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.