S.I. Ltd Contract No: 5728

Client: Fingal County Council
Engineer: Downes Associates
Contractor: Site Investigations Ltd

Affordable Housing,
Old Road, Hayestown, Rush, Co. Dublin
Site Investigation Report

Prepared by:

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Stephen Letch

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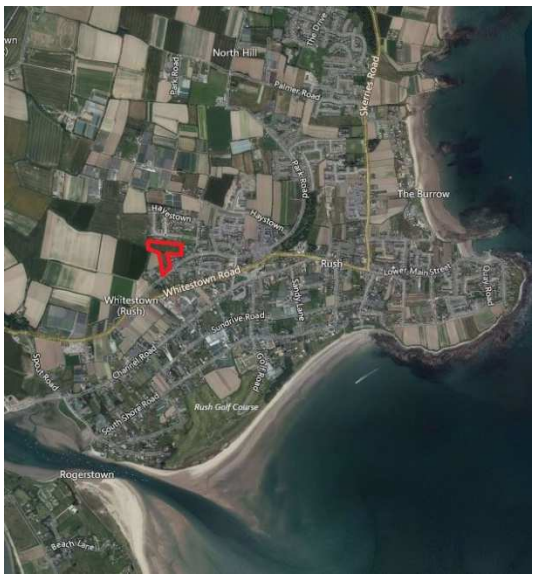
Appendices:

1. Introduction

On the instructions of Downes Associates, Site Investigations Ltd (SIL) was appointed to complete a ground investigation at Old Road, Hayestown, Rush, Co. Dublin. The investigation was for an affordable housing development and was completed on behalf of the Client, Fingal County Council. The investigation was completed in May 2020.

2. Site Location

The site is located to the west of Rush on the Old Road in the Hayestown townland in Co. Dublin. The first map below shows the location of Rush to the north of Dublin city and the second map shows the location of the site in the area.



3. Fieldwork

The fieldworks comprise a programme of cable percussive boreholes, rotary coreholes, trial pits, soakaway tests and California Bearing Ratio tests. All fieldwork was carried out in accordance with BS 5930:2015, Engineers Ireland GI Specification and Related Document 2nd Edition 2016 and Eurocode 7: Geotechnical Design. The fieldworks comprised of the following:

- 5 No. cable percussive boreholes with rotary coreholes
- 18 No. trial pits
- 4 No. soakaway tests
- Groundwater readings

3.1. Cable Percussive Boreholes with Rotary Coreholes

Cable percussion boring was undertaken at 5 No. locations using a Dando 150 rig and constructed 200mm diameter boreholes. Hand dug inspection pits were excavated to check for underground services after the areas had been C.A.T. scanned. The boreholes terminated at similar depths of 11.50mbgl to 12.70mbgl. It was not possible to collect undisturbed samples due to the granular soils encountered so bulk disturbed samples were recovered at regular intervals.

To test the strength of the stratum, Standard Penetration Tests (SPT's) were performed at 1.00m intervals in accordance with BS 1377 (1990). In soils with high gravel and cobble content it is appropriate to use a solid cone (60°) (CPT) instead of the split spoon and this was used throughout the testing. The test is completed over 450mm and the cone is driven 150mm into the stratum to ensure that the test is conducted over an undisturbed zone. The cone is then driven the remaining 300mm and the blows recorded to report the N-Value. The report shows the N-Value with the 75mm incremental blows listed in brackets (e.g. BH01 at 1.20mbgl where N=9-(1,1/2,2,3,2)). Where refusal of 50 blows across the test zone was encountered was achieved during testing, the penetration depth is also reported (e.g. BH01 at 5.00mbgl where N=50-(4,7/50 for 285mm)).

At three locations, groundwater monitoring standpipes were installed and these included a slotted pipe with a gravel surround pack to allow equalisation of the water level in the standpipe.

Following completion of the boreholes, rotary coreholes were completed adjacent to the cable percussive boreholes to investigate the depth and type of bedrock. The rotary drilling was carried out using a Sondeq SS71 top drive rig. Open hole drilling techniques were used to advance through the overburden and bedrock was recovered from three coreholes. The bedrock was then cored and the corehole terminated when 3m of core was recovered. At RC01 and RC03 the coreholes were terminated at 15.00mbgl at the scheduled depth.

Once the coreholes were completed, the rock cores were returned to SIL, where they were logged and photographed by a SIL geotechnical engineer. Provided on the logs are engineering geological descriptions of the rock cores with details of the bedding/discontinuities and mechanical indices for each core run, i.e. TCR, SCR, RQD and Fracture Index.

The cable percussive logs are presented in Appendix 1 with the rotary corehole logs and photographs are presented in Appendix 2.

3.2. Trial Pits

18 No. trial pits were excavated using a wheeled excavator. The strata were logged and photographed by SIL geotechnical engineer and groundwater ingresses and pit wall stability

was also recorded. Representative disturbed bulk samples were recovered as the pits were excavated, which were returned to the laboratory for geotechnical testing.

The trial pit logs and photographs are presented in Appendix 3.

3.3. Soakaway Tests

At four locations, soakaway tests were completed with the wheeled excavator. The soakaway test is used to identify possible areas for storm water drainage. The pit will be filled with water and the level of the groundwater recorded over time. As stipulated by BRE Special Digest 365, the pit should be filled three times and that the final cycle is used to provide the infiltration rate. The time taken for the water level to fall from 75% volume to 25% volume is required to calculate the rate of infiltration. However, if the water level does not fall at a steady rate then the test is deemed to have failed and the area is unsuitable for storm water drainage.

The test results and photographs are provided in Appendix 4.

3.4. Groundwater Readings

Following completion of the fieldworks, a series of groundwater readings were taken from the standpipes installed in the boreholes. The readings are presented in Appendix 5.

3.5. Surveying

Following the completion of the fieldworks, a survey of the exploratory hole locations was completed using a GeoMax GPS Rover. The data is supplied on each individual log and along with a site plan in Appendix 10.

4. Laboratory Testing

Geotechnical laboratory testing has been completed on representative soil samples in accordance with BS 1377 (1990). Testing includes:

- 18 No. Moisture contents
- 18 No. Atterberg limits
- 18 No. Particle size gradings
- 18 No. California Bearing Ratio tests
- 18 No. pH and sulphate content

Rock testing was completed on the rotary core samples and consists of the following:

- 9 No. Point loads

Environmental testing was completed by ALS Environmental Ltd. and consists of the following:

- 10 No. Soil Suite I analysis
- 3 No. Groundwater analysis

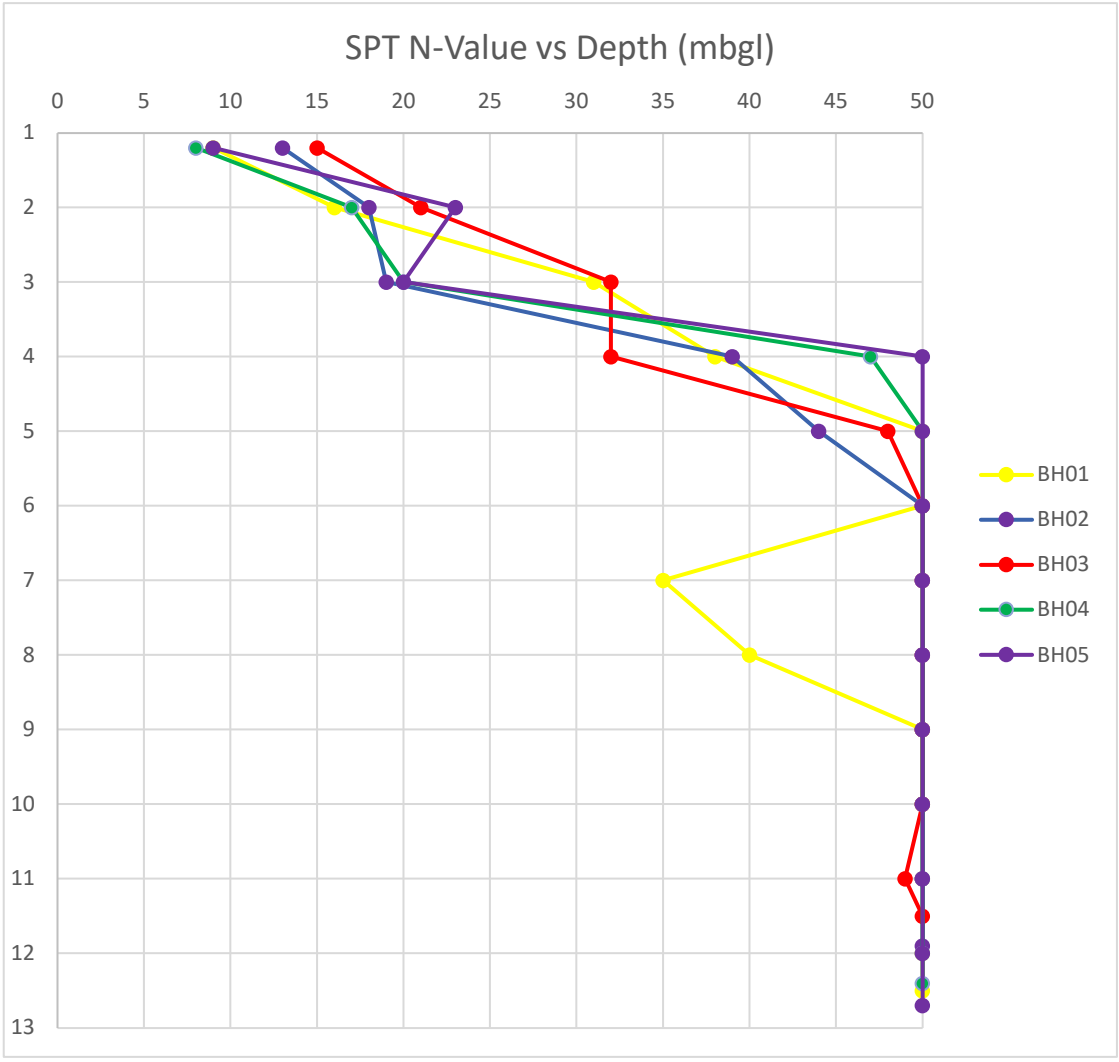
The geotechnical soil laboratory test results are presented in Appendix 6, the rock test results in Appendix 7, the environmental soil results and Waste Classification Report in Appendix 8, and the environmental groundwater analysis in Appendix 9.

5. Ground Conditions

5.1. Overburden

The site ground conditions in the boreholes are generally consistent with cohesive brown and brown grey sandy gravelly silty CLAY soils dominating the site. BH05, TP17 and TP18 to the south of the site did record a layer of SAND above the CLAY soils.

The SPT N-values vary slightly with values ranging from 8 to 15 at 1.20mbgl and this increases to 16 and 23 at 2.00mbgl.



The laboratory tests of the shallow cohesive soils confirm that CLAY soils dominate the site with low plasticity indexes of 10 to 17% recorded. The particle size distribution curves were poorly sorted straight-line curves with 20% to 47% fines content.

5.2. Bedrock

When the bedrock was encountered, it was recovered between 13.50mbgl and 14.60mbgl and consisted of strong light grey thickly bedded fine-grained muddy LIMESTONE interbedded with strong dark grey calcareous MUDSTONE with many fossils and calcite veins with a fresh to slightly weathered state. The discontinuities are generally rough to smooth, planar to slightly undulating, tight to open, sub-horizontal to sub-vertical dip, clean surfaces with occasional grey and brown staining with some clay smearing.

5.3. Groundwater

Groundwater details in the boreholes and trial pits during the fieldworks are noted on the logs in Appendix 1 and 3. Groundwater ingresses were recorded in the boreholes with shallower ingresses recorded at BH05 at 1.80mbgl, 3.50mbgl and 5.00mbgl whereas water was recorded at 7.50mbgl at the remaining boreholes. Groundwater was recorded in seven of the eighteen trial pits between 1.40mbgl to 1.90mbgl with all ingresses logged as seepages.

The groundwater readings from the standpipes showed slightly varying groundwater levels with the readings showing the levels between 16.76mOD and 17.47mOD across the course of the monitoring period.

6. Recommendations and Conclusions

Please note the following caveats:

The recommendations given, and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between the exploratory hole locations or below the final level of excavation, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for adjacent unexpected conditions that have not been revealed by the exploratory holes. It is further recommended that all bearing surfaces when excavated should be inspected by a suitably qualified Engineer to verify the information given in this report.

Excavated surfaces in clay strata should be kept dry to avoid softening prior to foundation placement. Foundations should always be taken to a minimum depth of 0.50mBGL to avoid the effects of frost action and possible seasonal shrinkage/swelling.

If it is intended that on-site materials are to be used as fill, then the necessary laboratory testing should be specified by the Client to confirm the suitability. Also, relevant lab testing should be

specified where stability of side slopes to excavations is a concern, or where contamination may be an issue.

6.1. Shallow Foundations

Due to the unknown depth of foundation and no longer-term groundwater information, this analysis assumes the groundwater will not influence the construction or performance of these foundations.

The boreholes encountered brown sandy slightly gravelly silty CLAY at 1.20mbgl and the SPT N-values at these depths range from 8 to 15 at 1.20mbgl.

Using a correlation proposed by Stroud and Butler between SPT N-values and plasticity indices, the SPT N-value can be used to calculate the undrained shear strength (C_u). The laboratory testing confirms the soil have a low plasticity index and therefore, the correlation of C_u=6N has been chosen. Using the lower SPT N-value of 8, the undrained shear strength of 48kN/m^2 has been calculated and this provides an ultimate bearing capacity of 270kN/m^2. Finally, a factor of safety of 3 is applied and this then gives the allowable bearing capacity of 90kN/m^2.

A suitably qualified Engineer should inspect the ground at each foundation and confirm that the soils are suitable for the final foundation design.

The following assumptions were made as part of these analyses. If any of these assumptions are not in accordance with detailed design or observations made during construction these recommendations should be re-evaluated.

- Foundations are to be constructed on a level formation of uniform material type (described above).
- The bulk unit weight of the material in this stratum has a minimum density of 19kN/m^3.
- All bearing capacity calculations allow for a settlement of 25mm.

The trial pits indicate that excavations in the cohesive soils should be stable for a short while at least. Regular inspection of temporary excavations should be completed during construction to ensure that all slopes are stable. Temporary support should be used on any excavation that will be left open for an extended period.

6.2. Groundwater

The caveats below relating to interpretation of groundwater levels should be noted:

There is always considerable uncertainty as to the likely rates of water ingress into excavations in clayey soil sites due to the possibility of localised unforeseen sand and gravel lenses acting as permeable conduits for unknown volumes of water.

Furthermore, water levels noted on the borehole and trial pit logs do not generally give an accurate indication of the actual groundwater conditions as the borehole or trial pit is rarely left open for sufficient time for the water level to reach equilibrium.

Also, during boring procedures, a permeable stratum may have been sealed off by the borehole casing, or water may have been added to aid drilling. Therefore, an extended period of groundwater monitoring using any constructed standpipes is required to provide more accurate information regarding groundwater conditions. Finally, groundwater levels vary with time of year, rainfall, nearby construction and tides.

Pumping tests would be required to determine likely seepage rates and persistence into excavations taken below the groundwater level. Deep trial pits also aid estimation of seepage rates.

As discussed previously, groundwater was encountered in the boreholes with perched water strikes in BH05 at 1.80mbgl and 3.50mbgl with deeper water strikes in the remaining boreholes. Seepages were also recorded in seven of the eighteen trial pits between 1.40mbgl and 1.90mbgl.

There is always considerable uncertainty as to the likely rates of water ingress into excavations in cohesive soil sites due to the possibility of localised unforeseen sand and gravel lenses acting as permeable conduits for unknown volumes of water. However, based on this information at the exploratory hole locations to date, it is considered likely that any shallow ingress (less than 2.00mbgl) into excavations of the CLAY will be slow. If granular soils are encountered in shallow excavations, then the possibility of water ingressing into an excavation increase.

If groundwater is encountered during excavations then mechanical pumps will be required to remove the groundwater from sumps. Sumps should be carefully located and constructed to ensure that groundwater is efficiently removed from excavations and trenches.

6.3. Soakaway Tests

The soakaway tests recorded no infiltration and therefore, failed the specification. The BRE Digest stipulates that the pit should half empty within 24hrs, and extrapolation indicates this condition would not be satisfied. The test was terminated at the end of the first (of a possible three) fill/empty cycle since further testing would give even slower fall rates due to increased soil saturation. The unsuitability of the soils for soakaways is further suggested by the soil

descriptions of the materials in this area of the site where the soakaway was completed, i.e. well compacted clay/silt soils.

6.4. Pavement Design

The CBR test results in Appendix 6 indicate CBR values generally ranging from 5.7% to 11.7%.

The CBR samples will be recovered from 0.50mbgl and inspection of the formation strata should be completed prior to construction of the pavement. Once the exact formation levels are finalised then additional in-situ testing could be completed to assist with the detailed pavement design.

6.5. Contamination

Environmental testing was carried out on ten samples from the investigation and the results are presented in Appendix 8. For material to be removed from site, Suite I testing was carried out to determine if the material is hazardous or non-hazardous and then the leachate results were compared with the published waste acceptance limits of BS EN 12457-2 to determine whether the material on the site could be accepted as 'inert material' by an Irish landfill.

The Waste Classification report created using HazWasteOnline™ software shows that the material tested can be classified as non-hazardous material. Two of the samples did record Total Petroleum Hydrocarbons exceeding the limits of detection but HP3 can be discounted as this is solid waste without a free draining liquid phase.

Following this analysis of the solid test results, the leachate disposal suite results show that the soils can be treated at Inert facilities.

Ten samples were tested for analysis but it cannot be discounted that any localised contamination may have been missed. Any MADE GROUND excavated on site should be stockpiled separately to natural soils to avoid any potential cross contamination of the soils. Additional testing of these soils may be requested by the individual landfill before acceptance and a testing regime designed by an environmental engineer would be recommended to satisfy the landfill.

6.6. Aggressive Ground Conditions

The chemical test results in Appendix 6 indicate a general pH value between 8.10 and 8.35, which is close to neutral and below the level of 9, therefore no special precautions are required.

The maximum value obtained for water soluble sulphate was 127mg/l as SO_3. The BRE Special Digest 1:2005 – '*Concrete in Aggressive Ground*' guidelines require SO_4 values and after

conversion ($SO_4 = SO_3$ x 1.2), the maximum value of 152mg/l shows Class 1 conditions and no special precautions are required.

Appendix 1

Cable Percussive Borehole Logs

Contract No: 5728	**Cable Percussion Borehole Log**	Borehole No: **BH01**

Contract:	Affordable Housing	Easting:	725119.273	Date Started:	26/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754263.194	Date Completed:	27/05/2020
Client:	Fingal County Council	Elevation:	19.25	Drilled By:	J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.			19.05					
		Firm grey slightly sandy gravelly silty CLAY.				1.00	B	JOT10		
						1.00	C	N=9 (1,1/2,3,2,2)		
	1.40	Brown sandy slightly gravelly silty CLAY.			17.85					
	1.80	Stiff becoming very stiff grey slightly sandy slightly gravelly silty CLAY with low cobble content.			17.45	2.00	B	JOT11		
						2.00	C	N=16 (2,3/3,4,5,4)		
						3.00	B	JOT12		
						3.00	C	N=31 (2,4/7,7,9,8)		
						4.00	B	JOT13		
						4.00	C	N=38 (3,4/7,9,11,11)		
	4.90	Very stiff grey slightly sandy slightly gravelly silty CLAY with medium cobble content.			14.35	5.00	B	JOT14		
						5.00	C	N=50 (4,7/50 for 285mm)		
						6.00	C	50 (10,15/50 for 110mm)		
						6.50	B	JOT15		
						7.00	C	N=35 (3,5/7,9,9,10)	▼	
						8.00	B	JOT16		
						8.00	C	N=40 (2,4/9,9,11,11)		
	8.50	Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.			10.75					
						9.00	C	50 (7,18/50 for 50mm)		
						9.50	B	JOT17		
						10.00	C			

Chiselling:

From:	To:	Time:
4.90	5.00	00:45
8.50	8.60	00:45
12.30	12.50	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
7.50	7.20	NS

Water Details:

Date:	Hole Depth:	Water Depth:
26/05	7.00	Dry
27/05	7.00	6.10
27/05	12.50	4.70

Installation:

From:	To:	Pipe:
0.00	1.50	Solid
1.50	7.50	Slotted

Backfill:

From:	To:	Type:
0.00	1.00	Bentonite
1.00	8.00	Gravel
8.00	12.50	Bentonite

Remarks: -

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**			Borehole No: **BH01**
Contract:	Affordable Housing	Easting:	725119.273	Date Started: 26/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754263.194	Date Completed: 27/05/2020
Client:	Fingal County Council	Elevation:	19.25	Drilled By: J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status: FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
10.5		Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		9.0				50 (25 for 125mm/50 for 35mm)		
11.0				8.5		11.00	B	JOT18		
						11.00	C	50 (23 for 100mm/50 for 30mm)		
11.5	11.50			8.0	7.75					
		Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.		7.5						
12.0						12.00	C	50 (25 for 90mm/50 for 25mm)		
	12.30			7.0	6.95					
12.5	12.50	Obstruction - boulder.			6.75	12.50	C	50 (25 for 5mm/50 for 0mm)		
		End of Borehole at 12.50m		6.5						
13.0				6.0						
13.5				5.5						
14.0				5.0						
14.5				4.5						
15.0				4.0						
15.5				3.5						
16.0				3.0						
16.5				2.5						
17.0				2.0						
17.5				1.5						
18.0				1.0						
18.5				0.5						
19.0				0.0						
19.5				-0.5						

Chiselling:

From:	To:	Time:
4.90	5.00	00:45
8.50	8.60	00:45
12.30	12.50	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
7.50	7.20	NS

Water Details:

Date:	Hole Depth:	Water Depth:

Installation:

From:	To:	Pipe:
0.00	1.50	Solid
1.50	7.50	Slotted

Backfill:

From:	To:	Type:
0.00	1.00	Bentonite
1.00	8.00	Gravel
8.00	12.50	Bentonite

Remarks: -

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**	Borehole No: **BH02**

Contract:	Affordable Housing	Easting:	725181.114	Date Started:	29/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754250.133	Date Completed:	29/05/2020
Client:	Fingal County Council	Elevation:	18.87	Drilled By:	J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.			18.67					
		Grey slightly sandy gravelly silty CLAY.		18.5						
0.5										
1.0				18.0		1.00	B	JOT28		
	1.10				17.77	1.00	C	N=13 (2,3/3,4,3,3)		
		Firm grey slightly sandy slightly gravelly silty CLAY.		17.5						
1.5										
2.0				17.0		2.00	B	JOT29		
	2.10				16.77	2.00	C	N=18 (2,3/4,4,5,5)		
		Stiff brown grey slightly sandy slightly gravelly silty CLAY with low cobble content.		16.5						
2.5										
3.0				16.0		3.00	B	JOT30		
						3.00	C	N=19 (2,4/4,4,5,6)		
3.5	3.50			15.5	15.37					
		Very stiff grey slightly sandy slightly gravelly silty CLAY with low cobble content.								
4.0				15.0		4.00	B	JOT31		
						4.00	C	N=39 (5,7/7,9,11,12)		
4.5				14.5						
5.0				14.0		5.00	B	JOT32		
						5.00	C	N=44 (4,7/9,11,12,12)		
5.5				13.5						
6.0				13.0		6.00	C	50 (9,11/50 for 125mm)		
	6.40			12.5	12.47					
6.5		Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.				6.50	B	JOT33		
7.0				12.0		7.00	C	N=50 (4,7/50 for 250mm)	▼	
7.5				11.5						
8.0				11.0		8.00	B	JOT34		
						8.00	C	N=50 (5,6/50 for 290mm)		
8.5	8.50			10.5	10.37					
		Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.								
9.0				10.0		9.00	C	50 (25 for 135mm/50 for 50mm)		
9.5				9.5		9.50	B	JOT35		
				9.0		10.00	C			

Chiselling: From:	To:	Time:	Water Strikes: Strike:	Rose:	Depth Sealed	Water Details: Date:	Hole Depth:	Water Depth:	Installation: From:	To:	Pipe:	Backfill: From:	To:	Type:	Remarks:
4.50	4.70	00:45	7.40	7.00	NS	29/05	11.90	4.50				0.00	11.90	Arisings	-
7.70	7.90	00:45													
11.80	11.90	01:30													

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**			Borehole No: **BH02**
Contract:	Affordable Housing	Easting:	725181.114	Date Started: 29/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754250.133	Date Completed: 29/05/2020
Client:	Fingal County Council	Elevation:	18.87	Drilled By: J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status: FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
10.5		Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.		8.5				50 (7,18/50 for 95mm)		
11.0				8.0		11.00	B	JOT36		
						11.00	C	50 (25 for 80mm/50 for 50mm)		
11.5				7.5						
	11.80				7.07					
12.0	11.90	Obstruction - boulder.		7.0	6.97	11.90	C	50 (25 for 5mm/50 for 0mm)		
		End of Borehole at 11.90m								
12.5				6.5						
13.0				6.0						
13.5				5.5						
14.0				5.0						
14.5				4.5						
15.0				4.0						
15.5				3.5						
16.0				3.0						
16.5				2.5						
17.0				2.0						
17.5				1.5						
18.0				1.0						
18.5				0.5						
19.0				0.0						
19.5				-0.5						
				-1.0						

Chiselling:

From:	To:	Time:
4.50	4.70	00:45
7.70	7.90	00:45
11.80	11.90	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
7.40	7.00	NS

Water Details:

Date:	Hole Depth:	Water Depth:

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	11.90	Arisings

Remarks: -

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**	Borehole No: **BH03**

Contract:	Affordable Housing	Easting:	725294.231	Date Started:	30/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754250.406	Date Completed:	30/05/2020
Client:	Fingal County Council	Elevation:	18.32	Drilled By:	J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.			18.12					
		Firm grey brown slightly sandy gravelly silty CLAY.		18.0		1.00	B	JOT37		
0.5				17.5		1.00	C	N=15 (2,2/3,4,4,4)		
1.0										
	1.30	Firm brown slightly sandy gravelly silty CLAY.		17.0	17.02					
1.5				16.5						
	1.90	Stiff becoming very stiff grey slightly sandy slightly gravelly silty CLAY with low cobble content.			16.42	2.00	B	JOT38		
2.0						2.00	C	N=21 (3,4/5,5,6,5)		
2.5				16.0						
3.0				15.5		3.00	B	JOT39		
						3.00	C	N=32 (6,7/7,7,9,9)		
3.5				15.0						
4.0				14.5		4.00	B	JOT40		
						4.00	C	N=32 (4,5/7,8,9,8)		
4.5				14.0						
5.0	5.00	Very stiff grey slightly sandy slightly gravelly silty CLAY with medium cobble content.		13.5	13.32	5.00	B	JOT41		
						5.00	C	N=48 (6,9/11,12,12,13)		
5.5				13.0						
6.0				12.5		6.00	C	50 (4,10/50 for 125mm)		
6.5				12.0		6.50	B	JOT42		
7.0				11.5		7.00	C	50 (6,10/50 for 165mm)		
7.5	7.50	Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		11.0	10.82					
8.0				10.5		8.00	B	JOT43		
						8.00	C	50 (10,15/50 for 110mm)		
8.5				10.0						
	8.80	Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.		9.5	9.52					
9.0						9.00	C	50 (7,11/50 for 175mm)		
9.5				9.0		9.50	B	JOT44		
				8.5		10.00	C			

Chiselling: From:	To:	Time:	Water Strikes: Strike:	Rose:	Depth Sealed	Water Details: Date:	Hole Depth:	Water Depth:	Installation: From:	To:	Pipe:	Backfill: From:	To:	Type:	Remarks:
5.70	5.90	00:45	7.50	7.30	NS	30/05	11.50	4.50	0.00	1.50	Solid	0.00	1.00	Bentonite	-
8.80	8.90	00:45							1.50	11.50	Slotted	1.00	11.50	Gravel	
11.40	11.50	01:30													

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**	Borehole No: **BH03**

Contract:	Affordable Housing	Easting:	725294.231	Date Started:	30/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754250.406	Date Completed:	30/05/2020
Client:	Fingal County Council	Elevation:	18.32	Drilled By:	J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth (m) Depth	Stratum Description	Legend	Level (mOD) Scale	Level (mOD) Depth	Samples and Insitu Tests Depth	Samples and Insitu Tests Type	Samples and Insitu Tests Result	Water Strike	Backfill
10.5		Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.		8.0				50 (10,15/50 for 90mm)		
11.0				7.5		11.00	B	JOT45		
						11.00	C	49 (25 for 90mm/49 for 100mm)		
11.5	11.40	Obstruction - boulder.		7.0	6.92					
	11.50	End of Borehole at 11.50m			6.82	11.50	C	50 (25 for 5mm/50 for 0mm)		
12.0				6.5						
12.5				6.0						
13.0				5.5						
13.5				5.0						
14.0				4.5						
14.5				4.0						
15.0				3.5						
15.5				3.0						
16.0				2.5						
16.5				2.0						
17.0				1.5						
17.5				1.0						
18.0				0.5						
18.5				0.0						
19.0				-0.5						
19.5				-1.0						
				-1.5						

Chiselling:

From:	To:	Time:
5.70	5.90	00:45
8.80	8.90	00:45
11.40	11.50	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
7.50	7.30	NS

Water Details:

Date:	Hole Depth:	Water Depth:

Installation:

From:	To:	Pipe:
0.00	1.50	Solid
1.50	11.50	Slotted

Backfill:

From:	To:	Type:
0.00	1.00	Bentonite
1.00	11.50	Gravel

Remarks: -

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**	Borehole No: **BH04**

Contract:	Affordable Housing	Easting:	725198.262	Date Started:	28/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754170.336	Date Completed:	28/05/2020
Client:	Fingal County Council	Elevation:	18.91	Drilled By:	J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.			18.71					
		Grey slightly sandy gravelly silty CLAY.		18.5						
0.5										
1.0				18.0		1.00	B	JOT19		
	1.20				17.71	1.00	C	N=8 (1,1/8 for 90mm)		
1.5		Firm brown grey slightly sandy slightly gravelly silty CLAY.		17.5						
	1.90			17.0	17.01					
2.0		Stiff grey slightly sandy slightly gravelly silty CLAY with low cobble content.				2.00	B	JOT20		
						2.00	C	N=17 (5 for 5mm/17 for 0mm)		
2.5				16.5						
3.0				16.0		3.00	B	JOT21		
						3.00	C	N=20 (3,5/4,5,6,5)		
3.5				15.5						
	3.60				15.31					
4.0		Very stiff grey slightly sandy slightly gravelly silty CLAY with low cobble content.		15.0		4.00	B	JOT22		
						4.00	C	N=47 (3,6/9,11,13,14)		
4.5				14.5						
5.0				14.0		5.00	B	JOT23		
						5.00	C	N=50 (4,10/50 for 275mm)		
5.5				13.5						
6.0				13.0		6.00	C	50 (9,14/50 for 125mm)		
6.5	6.50			12.5	12.41	6.50	B	JOT24		
		Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.								
7.0				12.0		7.00	C	50 (4,11/50 for 175mm)		
7.5				11.5					▼	
8.0				11.0		8.00	B	JOT25		
						8.00	C	50 (3,9/50 for 185mm)		
8.5	8.50			10.5	10.41					
		Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.								
9.0				10.0		9.00	C	50 (7,18/50 for 50mm)		
9.5				9.5		9.50	B	JOT26		
				9.0		10.00	C			

Chiselling: From:	To:	Time:	Water Strikes: Strike:	Rose:	Depth Sealed	Water Details: Date:	Hole Depth:	Water Depth:	Installation: From:	To:	Pipe:	Backfill: From:	To:	Type:	Remarks:
6.60	6.80	00:45	7.50	7.40	NS	28/05	12.40	4.20	0.00	1.50	Solid	0.00	1.00	Bentonite	-
10.20	10.30	00:45							1.50	8.00	Slotted	1.00	8.50	Gravel	
12.20	12.40	01:30										8.50	12.40	Bentonite	

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**			Borehole No: **BH04**
Contract:	Affordable Housing	Easting:	725198.262	Date Started: 28/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754170.336	Date Completed: 28/05/2020
Client:	Fingal County Council	Elevation:	18.91	Drilled By: J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status: FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
10.5		Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.		8.5				50 (11,14/50 for 65mm)		
11.0				8.0		11.00	B	JOT27		
						11.00	C	50 (25 for 110mm/50 for 25mm)		
11.5				7.5						
12.0				7.0		12.00	C	50 (25 for 50mm/50 for 25mm)		
	12.20	Obstruction - boulder.			6.71					
12.5	12.40	End of Borehole at 12.40m		6.5	6.51	12.40	C	50 (25 for 5mm/50 for 0mm)		
13.0				6.0						
13.5				5.5						
14.0				5.0						
14.5				4.5						
15.0				4.0						
15.5				3.5						
16.0				3.0						
16.5				2.5						
17.0				2.0						
17.5				1.5						
18.0				1.0						
18.5				0.5						
19.0				0.0						
19.5				-0.5						
				-1.0						

Chiselling:

From:	To:	Time:
6.60	6.80	00:45
10.20	10.30	00:45
12.20	12.40	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
7.50	7.40	NS

Water Details:

Date:	Hole Depth:	Water Depth:

Installation:

From:	To:	Pipe:
0.00	1.50	Solid
1.50	8.00	Slotted

Backfill:

From:	To:	Type:
0.00	1.00	Bentonite
1.00	8.50	Gravel
8.50	12.40	Bentonite

Remarks: -

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**	Borehole No: **BH05**

Contract:	Affordable Housing	Easting:	725217.771	Date Started:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754103.597	Date Completed:	25/02/2020
Client:	Fingal County Council	Elevation:	17.61	Drilled By:	J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
	0.20	TOPSOIL.		17.5	17.41					
		Brown sandy silty CLAY.								
0.5	0.50	Brown slightly silty SAND.		17.0	17.11					
1.0						1.00	B	JOT01		
	1.20	Firm brown slightly sandy slightly gravelly silty CLAY.		16.5	16.41	1.00	C	N=9 (1,1/2,2,2,3)		
1.5				16.0						
	1.80	Stiff brown grey slightly sandy slightly gravelly silty CLAY with low cobble content.			15.81					
2.0				15.5		2.00	B	JOT02		
						2.00	C	N=23 (4,5/5,6,6,6)		
2.5				15.0						
3.0						3.00	B	JOT03		
				14.5		3.00	C	N=20 (2,3/4,5,5,6)		
3.5	3.50	Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		14.0	14.11					
4.0				13.5		4.00	B	JOT04		
						4.00	C	N=50 (3,9/11,14,12,13)		
4.5				13.0						
5.0						5.00	B	JOT05		
				12.5		5.00	C	50 (25 for 125mm/50 for 25mm)		
5.5				12.0						
6.0						6.00	C	50 (7,12/50 for 155mm)		
6.5				11.5		6.50	B	JOT06		
7.0				11.0		7.00	C	50 (10,14/50 for 90mm)		
7.5				10.5						
8.0				10.0		8.00	B	JOT07		
				9.5		8.00	C	50 (12,13/50 for 210mm)		
8.5				9.0						
9.0				8.5		9.00	C	50 (4,10/50 for 105mm)		
9.5				8.0		9.50	B	JOT08		
						10.00	C			

Chiselling:

From:	To:	Time:
5.20	5.30	00:45
6.40	6.50	00:30
7.80	8.00	00:45
12.50	12.70	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
1.80	1.60	NS
3.50	3.00	NS
5.00	4.10	NS

Water Details:

Date:	Hole Depth:	Water Depth:
22/05	6.00	3.50
25/05	6.00	1.20
25/05	12.70	4.20

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	12.70	Arisings

Remarks: -

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Contract No: 5728	**Cable Percussion Borehole Log**	Borehole No: **BH05**

Contract:	Affordable Housing	Easting:	725217.771	Date Started:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754103.597	Date Completed:	25/02/2020
Client:	Fingal County Council	Elevation:	17.61	Drilled By:	J. O'Toole
Engineer:	Downes Associates	Borehole Diameter:	200mm	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples and Insitu Tests Depth	Type	Result	Water Strike	Backfill
10.5		Very stiff black slightly sandy slightly gravelly silty CLAY with low cobble content.		7.5				50 (6,18/50 for 80mm)		
	10.80			7.0	6.81					
11.0		Very stiff black slightly sandy slightly gravelly silty CLAY with medium cobble content.		6.5		11.00	B	JOT09		
						11.00	C	50 (25 for 75mm/50 for 50mm)		
11.5				6.0						
12.0				5.5		12.00	C	50 (25 for 65mm/50 for 35mm)		
12.5	12.50	Obstruction - boulder.			5.11					
	12.70	End of Borehole at 12.70m		5.0	4.91	12.70	C	50 (25 for 5mm/50 for 5mm)		
13.0				4.5						
13.5				4.0						
14.0				3.5						
14.5				3.0						
15.0				2.5						
15.5				2.0						
16.0				1.5						
16.5				1.0						
17.0				0.5						
17.5				0.0						
18.0				-0.5						
18.5				-1.0						
19.0				-1.5						
19.5				-2.0						

Chiselling:

From:	To:	Time:
5.20	5.30	00:45
6.40	6.50	00:30
7.80	8.00	00:45
12.50	12.70	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
1.80	1.60	NS
3.50	3.00	NS
5.00	4.10	NS

Water Details:

Date:	Hole Depth:	Water Depth:

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	12.70	Arisings

Remarks: -

Legend:
B: Bulk
D: Disturbed
U: Undisturbed
ES: Environmental
W: Water
C: Cone SPT
S: Split spoon SPT

Appendix 2

Rotary Corehole Logs and Photographs

Contract No: 5728	**Rotary Corehole Log**				Corehole No: **RC01**
Contract:	Affordable Housing	Easting:	725119.273	Date Started:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754263.194	Date Completed:	22/05/2020
Client:	Fingal County Council	Elevation:	19.25	Drilled By:	MEDL
Engineer:	Downes Associates	Rig Type:	Sondeq	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples	Rock Indices TCR/%	SCR/%	RQD/%	FI/m	Backfill
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0 12.5 13.0 13.5 14.0 14.5 15.0 15.5 16.0 16.5 17.0 17.5		Cable percussive borehole completed - see CP log.		19.0 18.5 18.0 17.5 17.0 16.5 16.0 15.5 15.0 14.5 14.0 13.5 13.0 12.5 12.0 11.5 11.0 10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5						
	12.50	Open hole drilling - driller reports returns of sandy gravelly clay with medium cobble and boulder content.			6.75	50 (25 for 79mm/50 for 35mm)					
	15.00	End of Corehole at 15.00m			4.25	50 (25 for 20mm/50 for 20mm)					

Installation: From:	To:	Pipe Type:	Backfill: From:	To:	Type:	Remarks:
			0.00	15.00	Bentonite	Cable percussive borehole completed adjacent to corehole location.

Contract No: 5728	**Rotary Corehole Log**				Corehole No: **RC02**
Contract:	Affordable Housing	Easting:	725181.114	Date Started:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754250.133	Date Completed:	22/05/2020
Client:	Fingal County Council	Elevation:	18.87	Drilled By:	MEDL
Engineer:	Downes Associates	Rig Type:	Sondeq	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples	Rock Indices TCR/%	SCR/%	RQD/%	FI/m	Backfill
0.5 … 17.5		Cable percussive borehole completed - see CP log.		18.5 … 1.0							
	11.90	Open hole drilling - driller reports returns of sandy gravelly clay with medium cobble and boulder content.			6.97						
	13.50	Strong to very strong light grey thickly bedded fine grained muddy LIMESTONE interbedded with strong dark grey calcareous MUDSTONE with occasional fossils and calcite veins. Fresh to slightly weathered. *Discontinuities - rough to smooth, planar to slightly undulating, tight to open, 20° to 45° dip, occasionally sub-vertical, clean with occasional grey and brown staining and some clay smearing.*			5.37	13.50 - 14.50	96	82	0	18	
						14.50 - 15.50	94	57	17		
	15.90	Very strong light grey thickly bedded fine grained muddy LIMESTONE with many fossils and some calcite veins. Fresh weathered state. *Discontinuities - rough, planar to slightly undulating, tight to open, sub-horizontal and sub-vertical dip, clean with occasional grey and brown staining and some clay smearing.*			2.97	15.50 - 16.50	95	76	30	12	
	16.50	End of Corehole at 16.50m			2.37						

Installation: From:	To:	Pipe Type:	Backfill: From:	To:	Type:	Remarks:
			0.00	16.50	Bentonite	Cable percussive borehole completed adjacent to corehole location.

Contract No: 5728	**Rotary Corehole Log**				Corehole No: **RC03**
Contract:	Affordable Housing	Easting:	725294.231	Date Started:	25/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754250.406	Date Completed:	25/05/2020
Client:	Fingal County Council	Elevation:	18.32	Drilled By:	MEDL
Engineer:	Downes Associates	Rig Type:	Sondeq	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples	Rock Indices TCR/%	SCR/%	RQD/%	FI/m	Backfill
0.5 – 11.0		Cable percussive borehole completed - see CP log.		18.0 – 7.0							
11.5	11.50	Open hole drilling - driller reports returns of sandy gravelly clay with medium cobble and boulder content.		6.5 – 3.5	6.82	50 (25 for 60mm/50 for 80mm)					
15.0	15.00	End of Corehole at 15.00m		3.0 – 0.5	3.32	50 (25 for 35mm/50 for 25mm)					
15.5 – 17.5				1.5 – 0.5							

Installation: From:	To:	Pipe Type:	Backfill: From:	To:	Type:	Remarks:
			0.00	15.00	Bentonite	Cable percussive borehole completed adjacent to corehole location.

Contract No: 5728	**Rotary Corehole Log**				Corehole No: **RC04**
Contract:	Affordable Housing	Easting:	725198.262	Date Started:	21/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754170.336	Date Completed:	21/05/2020
Client:	Fingal County Council	Elevation:	18.91	Drilled By:	MEDL
Engineer:	Downes Associates	Rig Type:	Sondeq	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples	Rock Indices TCR/%	SCR/%	RQD/%	FI/m	Backfill
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0 10.5 11.0 11.5 12.0		Cable percussive borehole completed - see CP log.		18.5 18.0 17.5 17.0 16.5 16.0 15.5 15.0 14.5 14.0 13.5 13.0 12.5 12.0 11.5 11.0 10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0							
12.5	12.40	Open hole drilling - driller reports returns of sandy gravelly clay with medium cobble and boulder content.		6.5 6.0 5.5	6.51	50 (25 for 50mm/50 for 10mm)					
14.0	14.00	Strong to very strong light grey thickly bedded fine grained muddy LIMESTONE interbedded with strong dark grey calcareous MUDSTONE with many fossils and calcite veins. Fresh to slightly weathered.		5.0 4.5 4.0	4.91	14.00 - 15.00	95	47	28	6 Ni 16	
15.5		*Discontinuities - rough, planar, tight to open, sub-horizontal, occasional 40° dip, clean with occasional grey staining.* *Discontinuities - non-intact section.* *Discontinuities - rough to smooth, planar, tight to open, 10° to 20° dip, clean with occasional grey staining.* *Discontinuities - non-intact section.*		3.5 3.0		15.00 - 16.00	95	48	20	Ni 5 Ni	
16.5		*Discontinuities - rough to smooth, planar, tight to open, sub-horizontal to 30° dip, clean with occasional grey staining.*		2.5		16.00 - 17.00	94	66	52	9	
17.0	17.00	End of Corehole at 17.00m		2.0 1.5	1.91						

Installation:			Backfill:		
From:	To:	Pipe Type:	From:	To:	Type:
			0.00	17.00	Bentonite

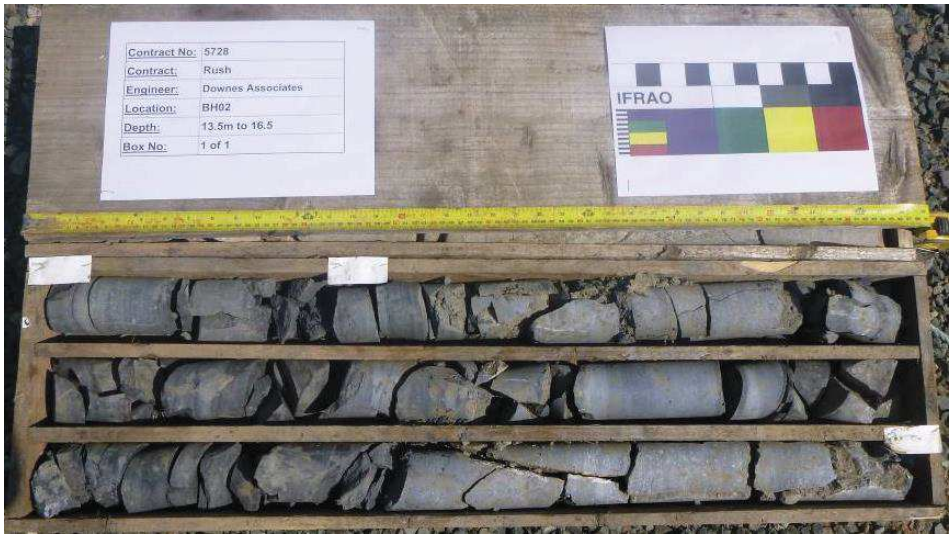
Remarks:
Cable percussive borehole completed adjacent to corehole location.

Contract No: 5728	**Rotary Corehole Log**				Corehole No: **RC05**
Contract:	Affordable Housing	Easting:	725217.771	Date Started:	21/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754103.597	Date Completed:	21/05/2020
Client:	Fingal County Council	Elevation:	17.61	Drilled By:	MEDL
Engineer:	Downes Associates	Rig Type:	Sondeq	Status:	FINAL

Depth (m) Scale	Depth	Stratum Description	Legend	Level (mOD) Scale	Depth	Samples	Rock Indices TCR/%	SCR/%	RQD/%	FI/m	Backfill
0.5 – 17.5		Cable percussive borehole completed - see CP log.		17.5 – 0.0							
	12.70	Open hole drilling - driller reports returns of sandy gravelly clay with medium cobble and boulder content.			4.91	50 (25 for 45mm/50 for 40mm)					
	14.60	Strong to very strong light grey thickly bedded fine grained muddy LIMESTONE interbedded with strong dark grey calcareous MUDSTONE with many fossils and calcite veins. Fresh to slightly weathered.			3.01	14.60 - 15.60	95	89	74	11	
		Discontinuities - rough to smooth, planar, tight to open, 20° to 30° dip, clean with occasional brown and grey staining.				15.60 - 16.60	100	94	64	16	
		Discontinuities - rough to smooth, planar to slightly undulating, tight to open, 20° to 75° dip, clean with occasional brown staining.				16.60 - 17.60	100	100	80	2	
	17.60	End of Corehole at 17.60m			0.01					25	

Installation: From:	To:	Pipe Type:	Backfill: From:	To:	Type:	Remarks:
			0.00	17.60	Bentonite	Cable percussive borehole completed adjacent to corehole location.

RC02 Box 1 of 1



RC04 Box 1 of 1

RC05 Box 1 of 1

Appendix 3

Trial Pit Logs and Photographs

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP01**
Contract:	Affordable Housing	Easting:	725104.002	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754272.752	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	19.18	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.50 x 0.60 x 2.70	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		19.0					
	0.30	Soft light brown grey slightly sandy slightly gravelly silty CLAY with low cobble content and occasional sand laminas. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			18.88				
0.5						0.50	CBR	MK05	
	0.70	Soft becoming firm grey and brown mottled slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded various lithologies.		18.5	18.48				
1.0						1.00	B	MK06	
	1.20	Firm grey brown sandy slightly gravelly silty CLAY with high cobble and low boulder content and occasional sand laminas. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded various lithologies (up to 400mm diameter).		18.0	17.98				
1.5									
				17.5					
2.0						2.00	B	MK07	
				17.0					
2.5									
	2.70	**Pit terminated at 2.70m**		16.5	16.48				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP02**
Contract:	Affordable Housing	Easting:	725144.169	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754273.131	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	19.18	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.70 x 0.50 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		19.0					
	0.30	Soft light brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies.			18.88				
0.5						0.50	CBR	MK08	
						0.50	ES	MK09	
	0.70	Soft becoming firm grey and brown mottled slightly sandy slightly gravelly silty CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		18.5	18.48				
1.0						1.00	B	MK10	
				18.0					
	1.30	Firm grey brown slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			17.88				
1.5				17.5					
2.0									
				17.0					
2.5						2.50	B	MK11	
				16.5					
	2.80	**Pit terminated at 2.80m**			16.38				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP03**
Contract:	Affordable Housing	Easting:	725181.029	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754267.077	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	19.10	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.60 x 0.50 x 2.70	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		19.0					
	0.30	Light grey silty SAND.			18.80				
	0.40	Soft becoming firm light grey brown sandy slightly gravelly silty CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			18.70				
0.5				18.5		0.50	CBR	MK12	
1.0				18.0		1.00	B	MK13	
	1.40	Firm grey brown slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).			17.70				
1.5				17.5					
2.0				17.0		2.00	B	MK14	
2.5				16.5					
	2.70	**Pit terminated at 2.70m**			16.40				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP04**
Contract:	Affordable Housing	Easting:	725226.017	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754264.129	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.91	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.60 x 0.60 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.40	Light grey brown silty slightly gravelly SAND.		18.5	18.51				
0.5	0.50	Firm light grey brown slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			18.41	0.50	CBR	MK36	
				18.0					
1.0						1.00	B	MK37	
	1.20	Firm becoming stiff grey brown slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).			17.71				
1.5				17.5					
				17.0					
2.0						2.00	B	MK38	
				16.5					
2.5									
	2.80	**Pit terminated at 2.80m**			16.11				
				16.0					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP05**
Contract:	Affordable Housing	Easting:	725307.901	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754264.543	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.43	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.60 x 0.60 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.30				18.13				
0.5		Firm light grey brown sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		18.0		0.50	CBR	MK29	
1.0				17.5		1.00	B	MK30	
	1.40				17.03				
1.5		Firm becoming stiff grey brown slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).		17.0					
2.0				16.5					
2.5				16.0		2.50	B	MK31	
	2.80	**Pit terminated at 2.80m**			15.63				
				15.5					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP06**
Contract:	Affordable Housing	Easting:	725112.753	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754255.402	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.89	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.70 x 0.60 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.30	Soft light brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies.		18.5	18.59	0.50 0.50	CBR ES	MK01 MK02	
0.5									
	0.80	Firm light grey brown mottled slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		18.0	18.09				
1.0						1.00	B	MK03	
1.5				17.5					
	1.70	Firm becoming stiff dark grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).		17.0	17.19				
2.0						2.00	B	MK04	
2.5				16.5					
	2.80	**Pit terminated at 2.80m**		16.0	16.09				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP07**
Contract:	Affordable Housing	Easting:	725147.280	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754234.198	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.52	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.80 x 0.60 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		18.5					
	0.20	Firm light grey brown mottled sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			18.32				
0.5				18.0		0.50	CBR	MK15	
						0.80	B	MK16	
1.0				17.5					
1.5				17.0					
	1.90	Firm becoming stiff dark grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).			16.62				▼
2.0				16.5		2.00	B	MK17	
2.5				16.0					
	2.80	**Pit terminated at 2.80m**			15.72				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	1.90 Seepage	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP08**
Contract:	Affordable Housing	Easting:	725178.534	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754232.703	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.52	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.90 x 0.65 x 2.70	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		18.5					
	0.30	Firm grey brown slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			18.22				
0.5				18.0		0.50 0.50	CBR ES	MK18 MK19	
	0.70	Firm light grey brown very sandy slightly gravelly silty CLAY with low cobble content and occasional sand laminas. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			17.82				
1.0				17.5		1.00	B	MK20	
	1.40	Firm becoming stiff dark grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).			17.12				▼
1.5				17.0					
2.0				16.5		2.00	B	MK21	
2.5				16.0					
	2.70	**Pit terminated at 2.70m**			15.82				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	1.60 Seepage	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP09**
Contract:	Affordable Housing	Easting:	725225.736	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754215.827	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.01	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.60 x 0.55 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.30	Light grey brown silty slightly gravelly SAND.			17.71				
0.5				17.5		0.50	CBR	MK22	
	0.70	Firm grey brown sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			17.31				
1.0				17.0		1.00	B	MK23	
1.5	1.50	Firm becoming stiff grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).		16.5	16.51				▼
2.0				16.0					
2.5				15.5		2.50	B	MK24	
	2.80	**Pit terminated at 2.80m**			15.21				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	1.70 Seepage	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP10**
Contract:	Affordable Housing	Easting:	725253.453	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754241.618	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.19	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.50 x 0.60 x 2.70	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		18.0					
	0.40				17.79				
0.5		Firm light grey brown slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		17.5		0.50 0.50	CBR ES	MK32 MK33	
1.0	1.00				17.19	1.00	B	MK34	
		Firm light grey brown sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		17.0					
1.5	1.50				16.69				
		Firm becoming stiff grey brown slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).		16.5					
2.0						2.00	B	MK35	
				16.0					
2.5									
	2.70	**Pit terminated at 2.70m**		15.5	15.49				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP11**
Contract:	Affordable Housing	Easting:	725300.790	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754223.097	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	17.61	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.50 x 0.65 x 2.60	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		17.5					
	0.30	Light grey silty SAND.			17.31				
	0.40	Firm light grey brown very sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			17.21	0.50 0.50	CBR ES	MK25 MK26	
0.5				17.0					
1.0						1.00	B	MK27	
	1.20	Firm grey slightly sandy slightly gravelly silty CLAY with high cobble and medium boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).		16.5	16.41				▼
1.5				16.0					
2.0				15.5					
2.5						2.50	B	MK28	
	2.60	**Pit terminated at 2.60m**		15.0	15.01				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Obstructions - boulders.	Pit walls stable.	1.50 Seepage	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP12**
Contract:	Affordable Housing	Easting:	725183.447	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754202.832	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.67	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.80 x 0.60 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		18.5					
	0.40				18.27				
0.5		Firm light grey brown mottled slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		18.0		0.50 0.50	CBR ES	MK39 MK40	
1.0				17.5					
	1.40				17.27				
1.5		Firm grey brown sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		17.0		1.50	B	MK41	
2.0				16.5					
2.5						2.50	B	MK42	
	2.60	Stiff grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).		16.0	16.07				
	2.80	**Pit terminated at 2.80m**			15.87				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP13**
Contract:	Affordable Housing	Easting:	725209.501	Date:	22/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754192.888	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.42	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.60 x 0.70 x 2.70	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.40	Light grey silty SAND.		18.0	18.02				
0.5	0.50	Soft becoming firm grey and brown mottled slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded various lithologies.			17.92	0.50	CBR	MK43	
				17.5					
1.0						1.00	B	MK44	
	1.20	Firm grey brown slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			17.22				
				17.0					
1.5									
				16.5					
2.0						2.00	B	MK45	
				16.0					
2.5	2.50	Stiff grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).			15.92				
	2.70	**Pit terminated at 2.70m**			15.72				
				15.5					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP14**
Contract:	Affordable Housing	Easting:	725192.845	Date:	25/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754171.270	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.83	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.90 x 0.60 x 2.70	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		18.5					
	0.40				18.43				
0.5		Firm grey brown slightly sandy slightly gravelly silty CLAY with low cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		18.0		0.50 0.50	CBR ES	MK46 MK47	
1.0									
	1.10				17.73				
		Firm light grey brown slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		17.5					
1.5						1.50	B	MK48	
				17.0					
2.0									
				16.5					
2.5						2.50	B	MK49	
	2.70				16.13				
		Pit terminated at 2.70m		16.0					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP15**
Contract:	Affordable Housing	Easting:	725218.283	Date:	25/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754143.657	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.23	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.70 x 0.70 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		18.0					
	0.40	Light grey silty SAND.			17.83				
0.5	0.50	Soft becoming firm grey and brown mottled slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded various lithologies.		17.5	17.73	0.50 0.50	CBR ES	MK50 MK51	
1.0				17.0					
	1.40	Firm grey brown sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			16.83	1.50	B	MK52	▼
1.5				16.5					
2.0									
	2.20	Stiff grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).		16.0	16.03				
2.5						2.50	B	MK53	
	2.80	**Pit terminated at 2.80m**		15.5	15.43				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	1.40 Seepage	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP16**
Contract:	Affordable Housing	Easting:	725188.848	Date:	25/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754115.990	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	18.01	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.60 x 0.60 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.30	Soft becoming firm grey and brown mottled very sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded various lithologies.			17.71				
0.5				17.5		0.50 0.50 0.50	B CBR ES	MK54 MK55 MK56	
1.0				17.0					
1.5				16.5					
2.0				16.0		2.00	B	MK57	
	2.30	Firm grey brown slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			15.71				
2.5				15.5					
	2.80	**Pit terminated at 2.80m**			15.21				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP17**
Contract:	Affordable Housing	Easting:	725230.746	Date:	25/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754103.119	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	17.88	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.90 x 0.65 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.30	Light grey brown slightly silty SAND.			17.58				
0.5				17.5		0.50	CBR	MK58	
1.0				17.0		1.00	B	MK59	
	1.40	Firm grey brown slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.		16.5	16.48				▼
1.5									
				16.0		2.00	B	MK60	
2.0									
				15.5					
2.5									
	2.80	**Pit terminated at 2.80m**		15.0	15.08				

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	1.40 Seepage	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 5728	**Trial Pit Log**				Trial Pit No: **TP18**
Contract:	Affordable Housing	Easting:	725200.693	Date:	25/05/2020
Location:	Old Road, Hayestown, Rush, Co. Dublin	Northing:	754074.461	Excavator:	5T MiniDigger
Client:	Fingal County Council	Elevation:	17.41	Logged By:	M. Kaliski
Engineer:	Downes Associates	Dimensions (LxWxD) (m):	2.80 x 0.60 x 2.80	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.							
	0.30	MADE GROUND: black brown silty slightly gravelly sand with low cobble content and some red brick fragments.			17.11				
0.5				17.0		0.50 0.50	CBR ES	MK61 MK62	
				16.5					
1.0	1.00	Light grey brown slightly silty slightly gravelly SAND.			16.41				
				16.0					
1.5						1.50	B	MK63	
	1.70	Firm grey brown slightly sandy slightly gravelly silty CLAY with high cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles are angular to subrounded of various lithologies.			15.71				▼
				15.5					
2.0						2.00	B	MK64	
	2.20	Stiff grey slightly sandy slightly gravelly silty CLAY with high cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of various lithologies. Cobbles and boulders are angular to subrounded of various lithologies (up to 400mm diameter).			15.21				
				15.0					
2.5									
	2.80	**Pit terminated at 2.80m**			14.61				
				14.5					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Scheduled depth.	Pit walls stable.	1.70 Seepage	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

TP01 Sidewall

TP01 Spoil

TP02 Sidewall

TP02 Spoil

TP03 Sidewall

TP03 Spoil

TP04 Sidewall

TP04 Spoil

TP05 Sidewall

TP05 Spoil

TP06 Sidewall

TP06 Spoil

TP07 Sidewall

TP07 Spoil

TP08 Sidewall

TP08 Spoil

TP09 Sidewall

TP09 Spoil

TP10 Sidewall

TP10 Spoil

TP11 Sidewall

TP11 Spoil

TP12 Sidewall

TP12 Spoil

TP13 Sidewall

TP13 Spoil

TP14 Sidewall

TP14 Spoil

TP15 Sidewall

TP15 Spoil

TP16 Sidewall

TP16 Spoil

TP17 Sidewall

TP17 Spoil

TP18 Sidewall

TP18 Spoil

Appendix 4

Soakaway Test Results and Photographs

SOAKAWAY TEST

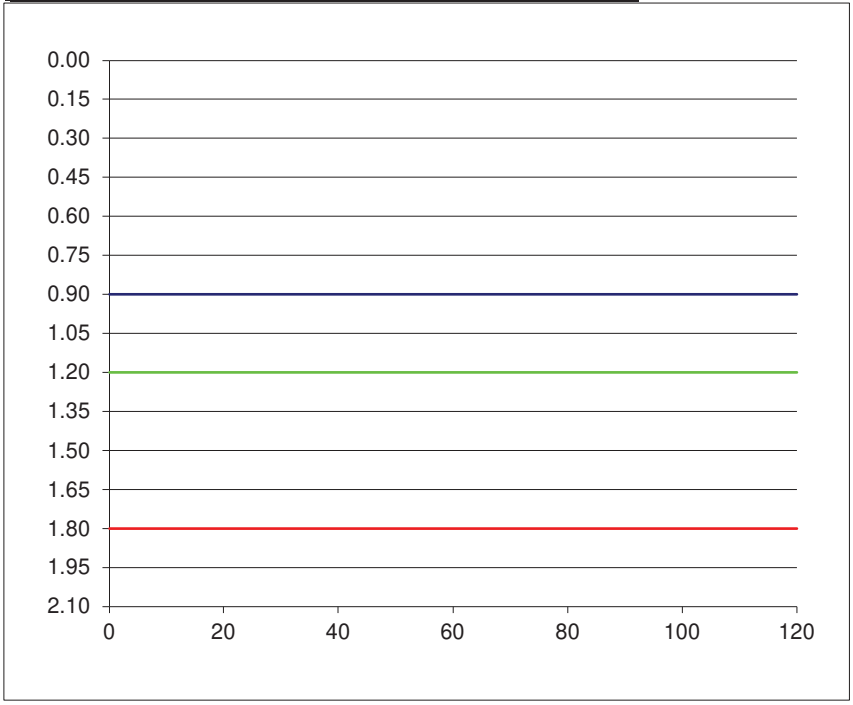
Project Reference:	5728
Contract name:	Affordable Housing
Location:	Old Road, Hayestown, Rush, Co. Dublin
Test No:	SA01
Date:	22/05/2020

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	1.10	Firm grey brown slightly sandy gravelly silty CLAY with low cobble content.
1.10	2.10	Firm grey brown slightly sandy gravelly silty CLAY with medium cobble content.

Elapsed Time (mins)	Fall of Water (m)
0	0.90
0.5	0.90
1	0.90
1.5	0.90
2	0.90
2.5	0.90
3	0.90
3.5	0.90
4	0.90
4.5	0.90
5	0.90
6	0.90
7	0.90
8	0.90
9	0.90
10	0.90
12	0.90
14	0.90
16	0.90
18	0.90
20	0.90
25	0.90
30	0.90
40	0.90
50	0.90
60	0.90
75	0.90
90	0.90
120	0.90

Pit Dimensions (m)		
Length (m)	2.00	m
Width (m)	0.30	m
Depth	2.10	m
Water		
Start Depth of Water	0.90	m
Depth of Water	1.20	m
75% Full	1.20	m
25% Full	1.80	m
75%-25%	0.60	m
Volume of water (75%-25%)	**0.36**	m3
Area of Drainage	**9.66**	m2
Area of Drainage (75%-25%)	**3.36**	m2
Time		
75% Full	N/A	min
25% Full	N/A	min
Time 75% to 25%	**N/A**	min
Time 75% to 25% (sec)	**N/A**	sec



f = **Fail** m/min or **Fail** m/s

SOAKAWAY TEST

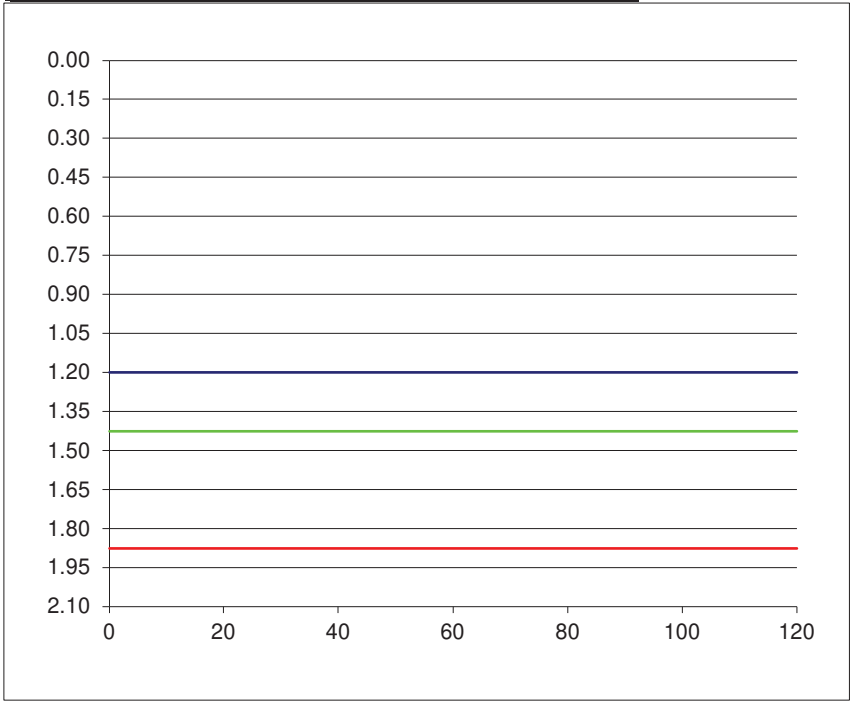
Project Reference:	5728
Contract name:	Affordable Housing
Location:	Old Road, Hayestown, Rush, Co. Dublin
Test No:	SA02
Date:	22/05/2020

Ground Conditions

From	To	
0.00	0.40	TOPSOIL.
0.40	0.70	Firm light grey brown slightly sandy gravelly silty CLAY with low cobble content.
1.10	2.10	Firm grey brown slightly sandy gravelly silty CLAY with high cobble content.

Elapsed Time (mins)	Fall of Water (m)
0	1.20
0.5	1.20
1	1.20
1.5	1.20
2	1.20
2.5	1.20
3	1.20
3.5	1.20
4	1.20
4.5	1.20
5	1.20
6	1.20
7	1.20
8	1.20
9	1.20
10	1.20
12	1.20
14	1.20
16	1.20
18	1.20
20	1.20
25	1.20
30	1.20
40	1.20
50	1.20
60	1.20
75	1.20
90	1.20
120	1.20

Pit Dimensions (m)		
Length (m)	1.90	m
Width (m)	0.30	m
Depth	2.10	m
Water		
Start Depth of Water	1.20	m
Depth of Water	0.90	m
75% Full	1.43	m
25% Full	1.88	m
75%-25%	0.45	m
Volume of water (75%-25%)	**0.26**	m3
Area of Drainage	**9.24**	m2
Area of Drainage (75%-25%)	**2.55**	m2
Time		
75% Full	N/A	min
25% Full	N/A	min
Time 75% to 25%	**N/A**	min
Time 75% to 25% (sec)	**N/A**	sec



f = **Fail** m/min or **Fail** m/s

SOAKAWAY TEST

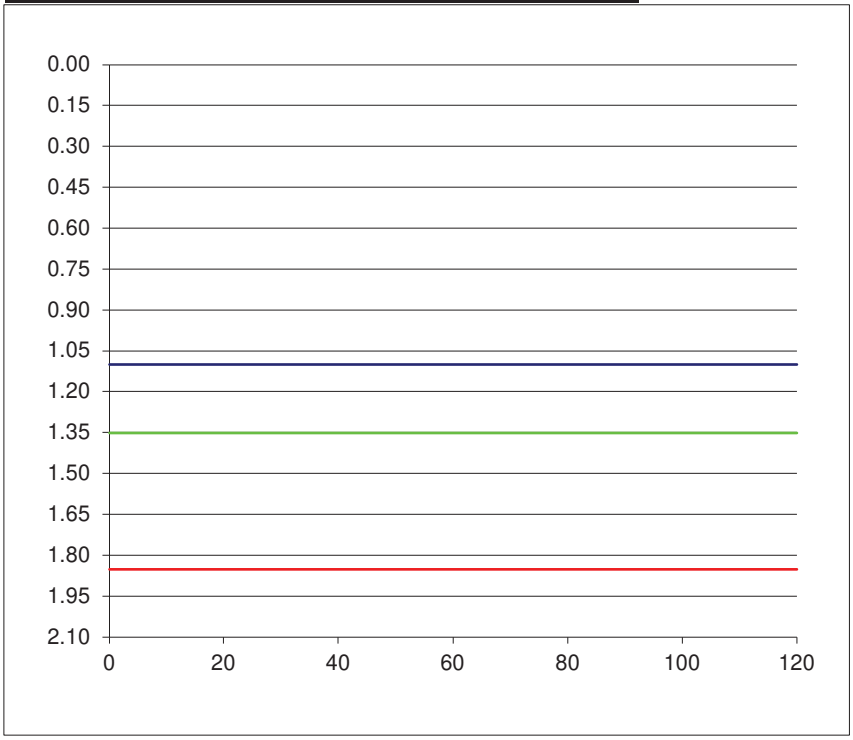
Project Reference:	5728
Contract name:	Affordable Housing
Location:	Old Road, Hayestown, Rush, Co. Dublin
Test No:	SA03
Date:	22/05/2020

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	2.10	Firm grey brown slightly sandy gravelly silty CLAY with medium cobble content.

Elapsed Time (mins)	Fall of Water (m)
0	1.10
0.5	1.10
1	1.10
1.5	1.10
2	1.10
2.5	1.10
3	1.10
3.5	1.10
4	1.10
4.5	1.10
5	1.10
6	1.10
7	1.10
8	1.10
9	1.10
10	1.10
12	1.10
14	1.10
16	1.10
18	1.10
20	1.10
25	1.10
30	1.10
40	1.10
50	1.10
60	1.10
75	1.10
90	1.10
120	1.10

Pit Dimensions (m)		
Length (m)	2.30	m
Width (m)	0.30	m
Depth	2.10	m
Water		
Start Depth of Water	1.10	m
Depth of Water	1.00	m
75% Full	1.35	m
25% Full	1.85	m
75%-25%	0.50	m
Volume of water (75%-25%)	**0.35**	m3
Area of Drainage	**10.92**	m2
Area of Drainage (75%-25%)	**3.29**	m2
Time		
75% Full	N/A	min
25% Full	N/A	min
Time 75% to 25%	**N/A**	min
Time 75% to 25% (sec)	**N/A**	sec



f = **Fail** m/min or **Fail** m/s

SOAKAWAY TEST

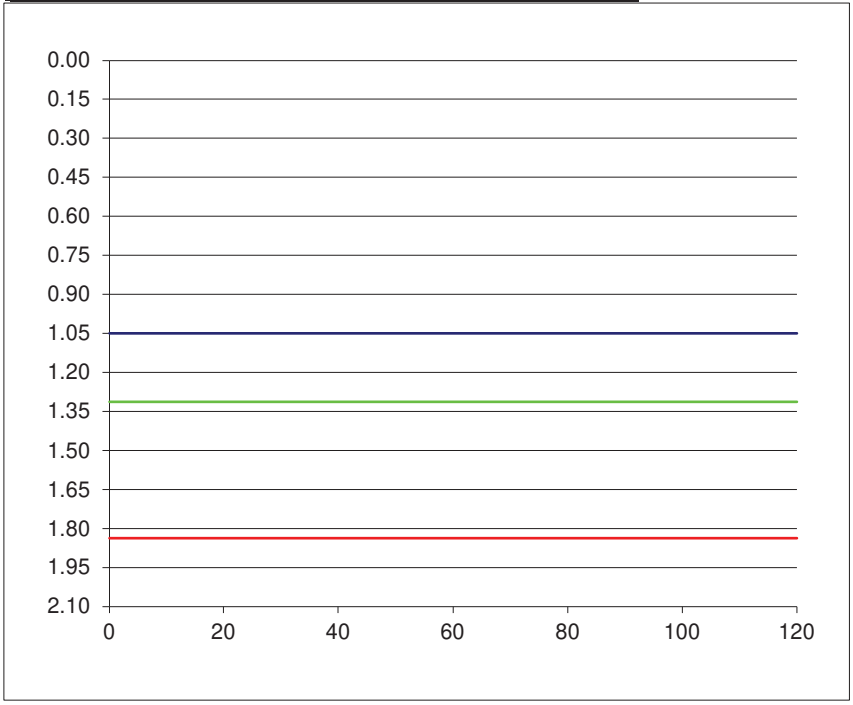
Project Reference:	5728
Contract name:	Affordable Housing
Location:	Old Road, Hayestown, Rush, Co. Dublin
Test No:	SA04
Date:	22/05/2020

Ground Conditions

From	To	
0.00	0.40	TOPSOIL.
0.40	0.70	Grey silty slightly gravelly SAND.
0.70	2.10	Firm grey brown slightly sandy gravelly silty CLAY with high cobble content.

Elapsed Time (mins)	Fall of Water (m)
0	1.05
0.5	1.05
1	1.05
1.5	1.05
2	1.05
2.5	1.05
3	1.05
3.5	1.05
4	1.05
4.5	1.05
5	1.05
6	1.05
7	1.05
8	1.05
9	1.05
10	1.05
12	1.05
14	1.05
16	1.05
18	1.05
20	1.05
25	1.05
30	1.05
40	1.05
50	1.05
60	1.05
75	1.05
90	1.05
120	1.05

Pit Dimensions (m)		
Length (m)	1.70	m
Width (m)	0.30	m
Depth	2.10	m
Water		
Start Depth of Water	1.05	m
Depth of Water	1.05	m
75% Full	1.31	m
25% Full	1.84	m
75%-25%	0.53	m
Volume of water (75%-25%)	**0.27**	m3
Area of Drainage	**8.40**	m2
Area of Drainage (75%-25%)	**2.61**	m2
Time		
75% Full	N/A	min
25% Full	N/A	min
Time 75% to 25%	**N/A**	min
Time 75% to 25% (sec)	**N/A**	sec



f = **Fail** m/min or **Fail** m/s

SA01 Sidewall

SA01 Spoil

SA02 Sidewall

SA02 Spoil

SA03 Sidewall

SA03 Spoil

SA04 Sidewall

SA04 Spoil

Appendix 5

Groundwater Monitoring

Groundwater Readings

BH No:	Depth to water - mbgl	Depth to water - m.O.D
Round 1 - 24/06/2020		
BH01	1.86	17.39
BH03	1.05	17.27
BH04	2.15	16.76
Round 2 - 30/06/2020		
BH01	1.78	17.47
BH03	1.09	17.23
BH04	2.08	16.83
Round 3 - 06/07/2020		
BH01	1.82	17.43
BH03	1.10	17.22
BH04	2.10	16.81

Appendix 6

Geotechnical Soil Laboratory Test Results

Classification Tests in accordance with BS1377: Part 4

Client	Fingal County Council
Site	Hayestown Housing, Rush
S.I. File No	5728 / 20
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email info@siteinvestigations.ie
Report Date	10th June 2020

Hole ID	Depth	Sample No	Lab Ref No.	Sample Type	Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plastic Index %	Min. Dry Density Mg/m^3	Particle Density Mg/m^3	% passing 425um	Comments	**Remarks** **C**=Clay; **M**=Silt **Plasticity**: **L**=Low; **I**=Intermediate; **H**=High; **V**=Very High; **E**=Extremely High
TP01	1.00	MK06	20/281	B	22.8	33	20	13			61.3		CL
TP02	1.00	MK10	20/282	B	13.8	34	21	13			61.7		CL
TP03	1.00	MK13	20/283	B	20.4	31	18	13			57.6		CL
TP04	1.00	MK37	20/284	B	14.3	32	20	12			54.7		CL
TP05	1.00	MK30	20/285	B	19.4	35	21	14			65.8		CL
TP06	1.00	MK03	20/286	B	22.7	36	21	15			63.7		CL
TP07	0.80	MK16	20/287	B	22.6	34	20	14			69.8		CL
TP08	1.00	MK20	20/288	B	24.6	32	18	14			74.7		CL
TP09	1.00	MK23	20/289	B	29.5	33	19	14			72.6		CL
TP10	1.00	MK34	20/290	B	27.9	34	20	14			55.2		CL
TP11	1.00	MK27	20/291	B	34.4	31	18	13			74.9		CL
TP12	1.50	MK41	20/292	B	14.5	34	21	13			68.3		CL
TP13	1.00	MK44	20/293	B	17.1	35	20	15			68.1		CL
TP14	1.50	MK48	20/294	B	17.6	36	19	17			66.7		CL
TP15	1.50	MK52	20/295	B	19.5	34	19	15			70.3		CL
TP16	0.50	MK56	20/296	B	17.3	30	20	10			84.0		CL
TP17	1.00	MK59	20/297	B	27.1	25	NP				97.4		
TP18	1.50	MK63	20/298	B	24.5	27	NP				95.9		

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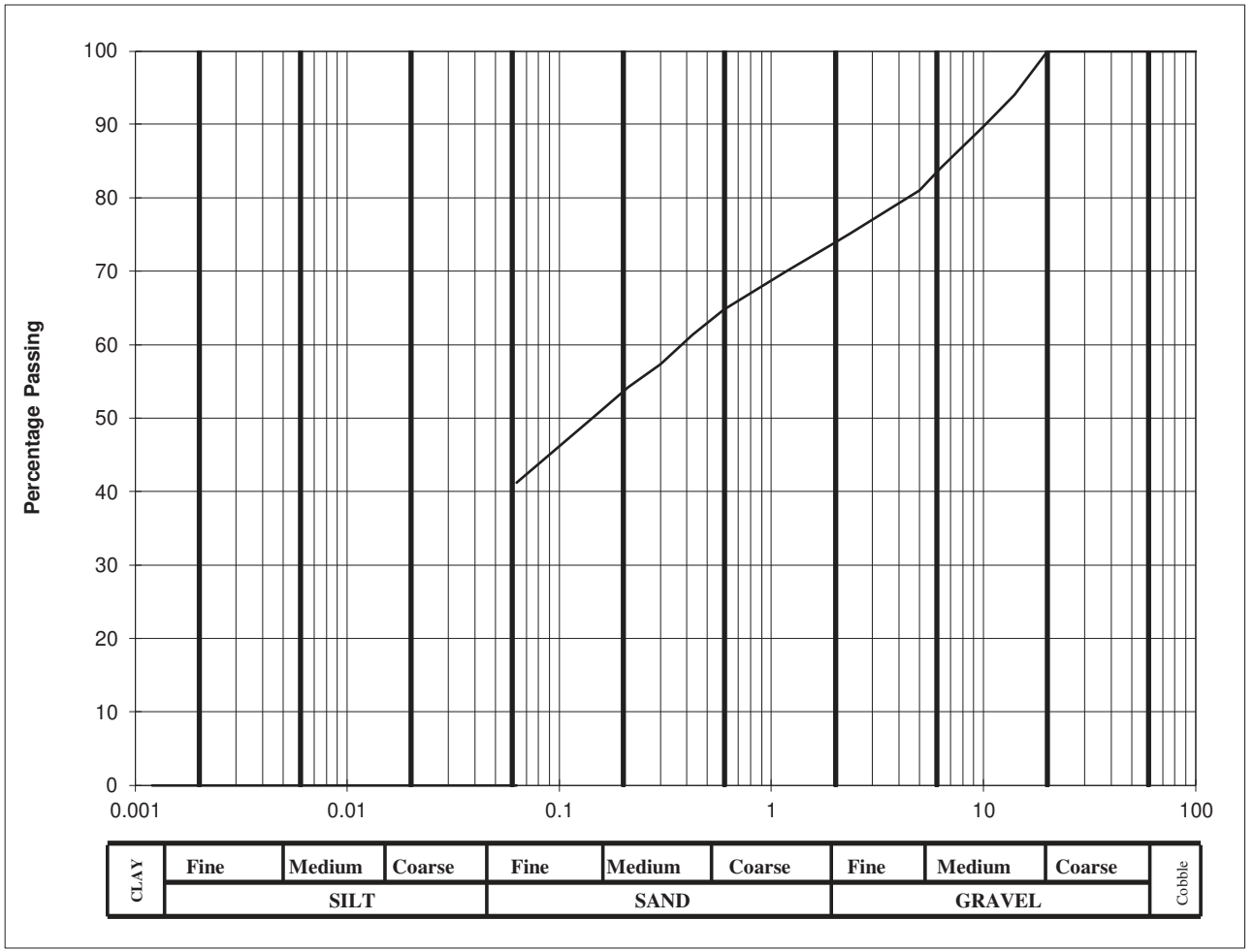
Site Investigations Ltd

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	89.7		
6.3	84		
5.0	81		
2.36	75.2		
2.00	73.9		
1.18	70		
0.600	64.8		
0.425	61.3		
0.300	57.3		
0.212	54.2		
0.150	50.5		
0.063	41		

Cobbles, %	0
Gravel, %	26
Sand, %	33
Clay / Silt, %	41



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/281
Sample No :	MK06

Hole ID :	TP 01
Depth, m :	1.00

Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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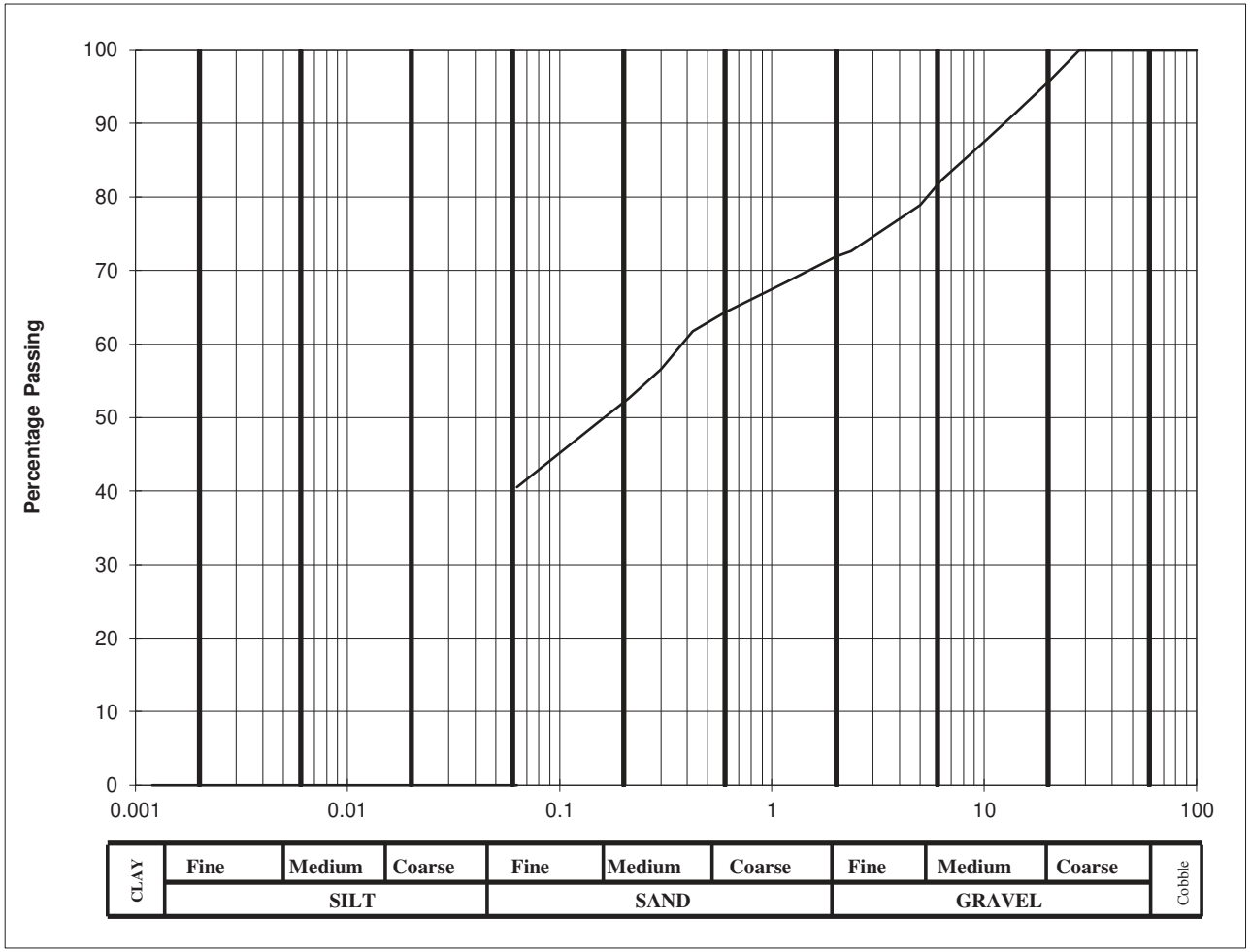
BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	95.6		
14	91.4		
10	87.5		
6.3	82.3		
5.0	78.9		
2.36	72.6		
2.00	71.9		
1.18	68.5		
0.600	64.3		
0.425	61.7		
0.300	56.6		
0.212	52.6		
0.150	49.2		
0.063	41		

Cobbles, %	0
Gravel, %	28
Sand, %	31
Clay / Silt, %	41



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/282
Sample No :	MK10

Hole ID :	TP 02
Depth, m :	1.00

Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

Printed 15/06/2020

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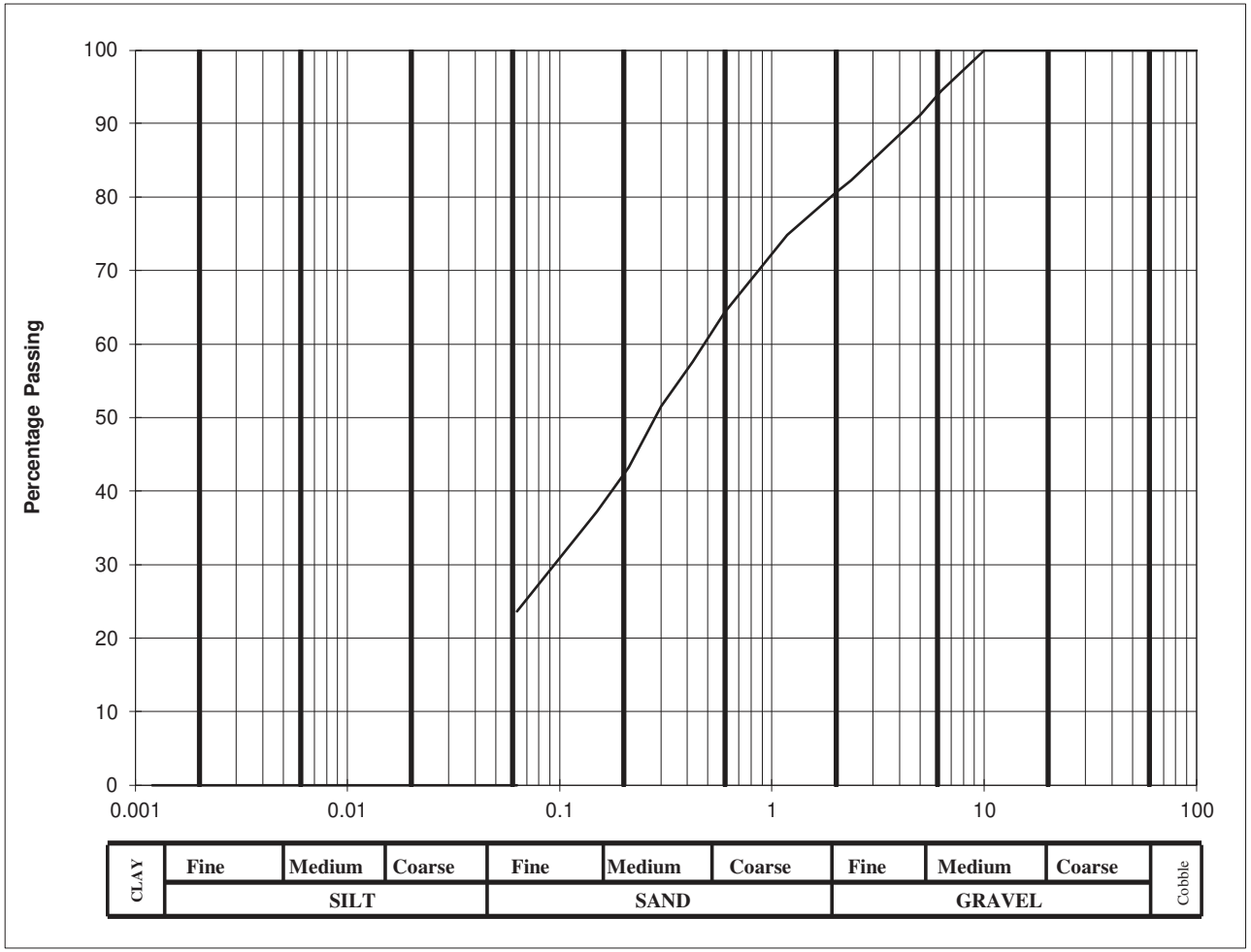
Site Investigations Ltd

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	94.4		
5.0	91.1		
2.36	82.3		
2.00	80.6		
1.18	74.8		
0.600	64.3		
0.425	57.6		
0.300	51.5		
0.212	43.2		
0.150	37.2		
0.063	24		

Cobbles, %	0
Gravel, %	19
Sand, %	57
Clay / Silt, %	24



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/283
Sample No :	MK13

Hole ID :	TP 03
Depth, m :	1.00

Material description :	sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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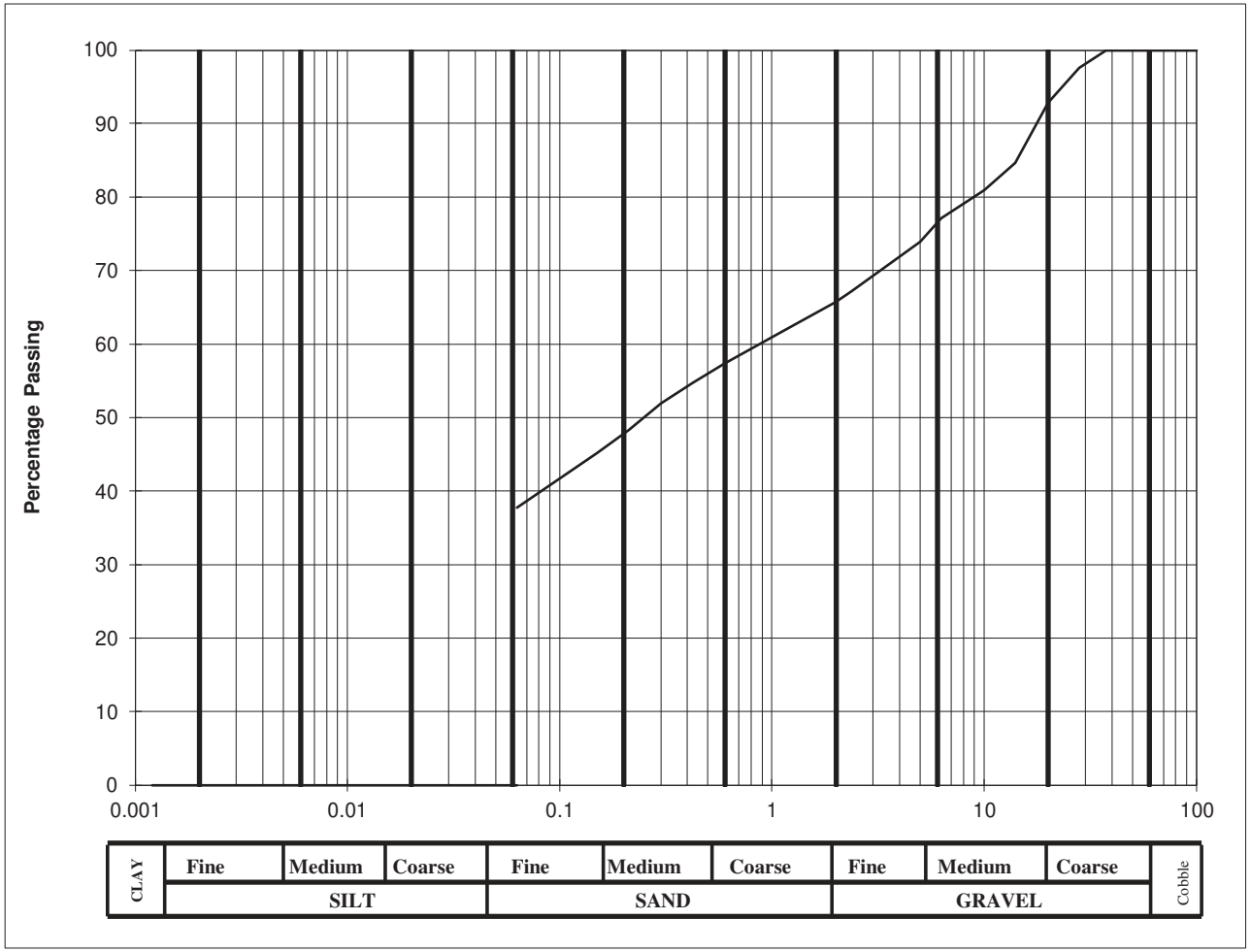
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	97.6		
20	92.8		
14	84.6		
10	80.9		
6.3	77.1		
5.0	73.9		
2.36	67.1		
2.00	65.7		
1.18	62.1		
0.600	57.3		
0.425	54.7		
0.300	51.9		
0.212	48.3		
0.150	45.2		
0.063	38		

Cobbles, %	0
Gravel, %	34
Sand, %	28
Clay / Silt, %	38



Client :	Fingal County Council	Lab. No :	20/284	Hole ID :	TP 04
Project :	Hayestown Housing, Rush	Sample No :	MK37	Depth, m :	1.00

Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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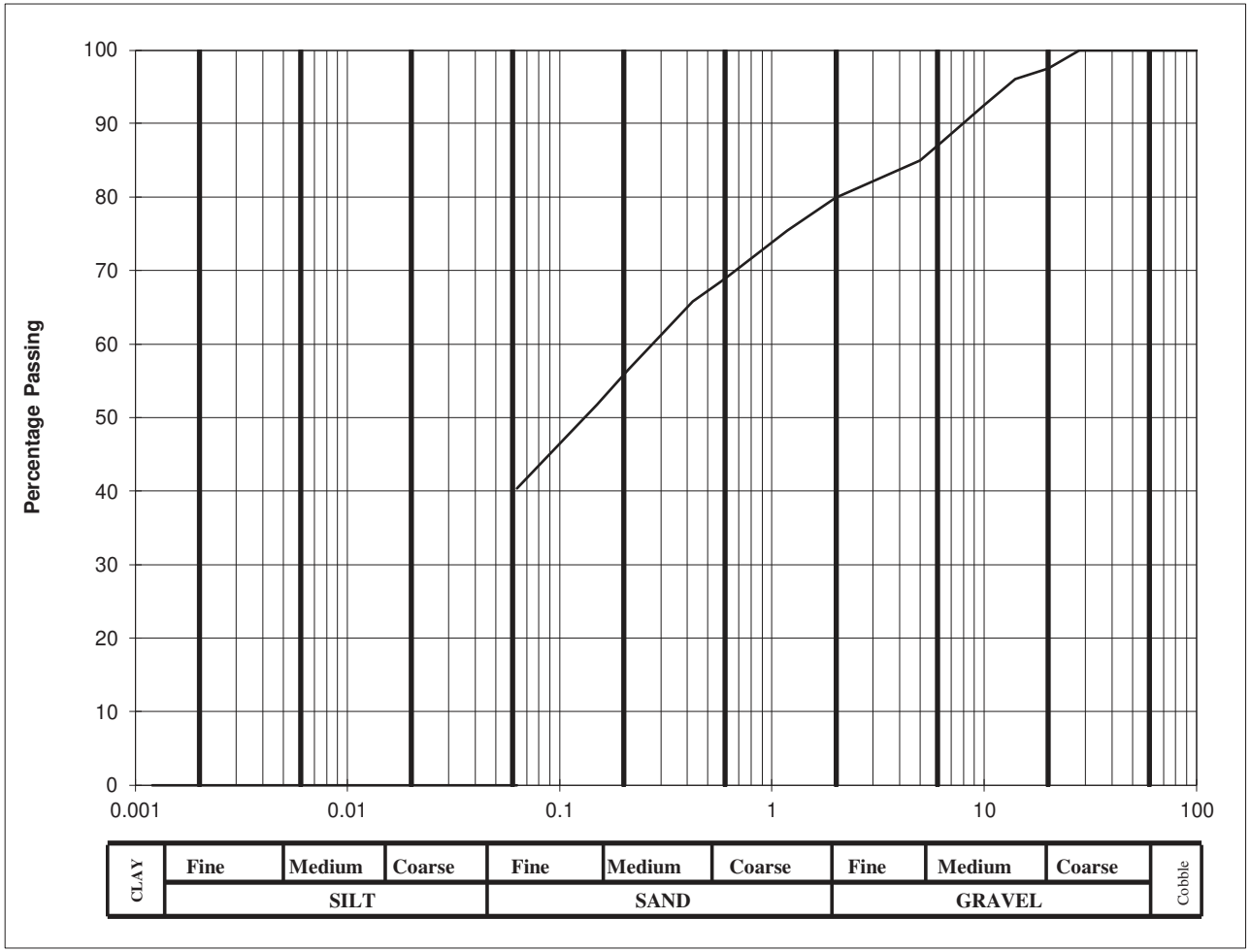
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	97.5		
14	96		
10	92.5		
6.3	87.4		
5.0	85		
2.36	80.8		
2.00	79.9		
1.18	75.4		
0.600	68.8		
0.425	65.8		
0.300	61.2		
0.212	56.6		
0.150	51.8		
0.063	40		

Cobbles, %	0
Gravel, %	20
Sand, %	40
Clay / Silt, %	40



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/285
Sample No :	MK30

Hole ID :	TP 05
Depth, m :	1.00

Material description :	sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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BS 1377 Particle Size Analysis

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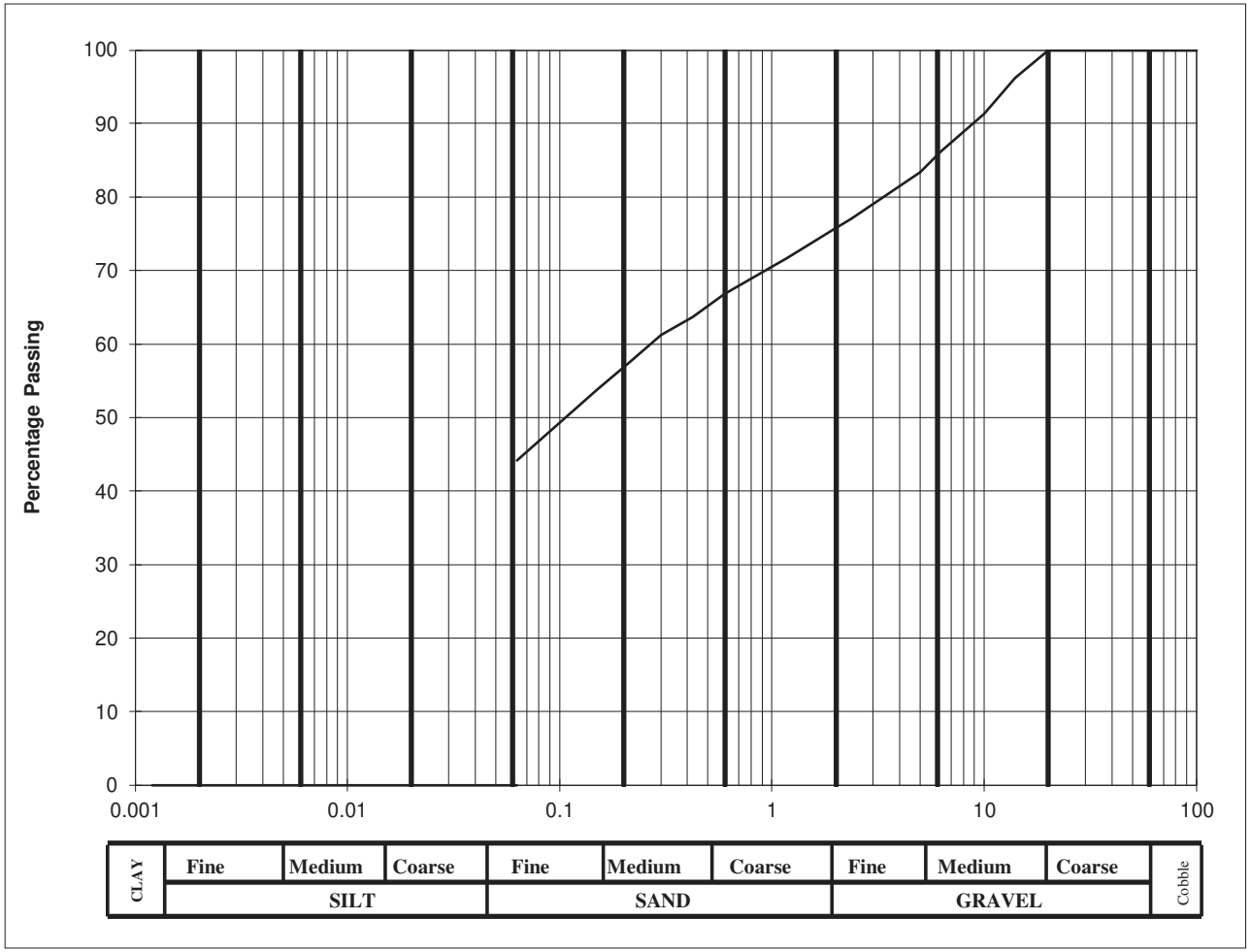
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	96.2		
10	91.3		
6.3	86.2		
5.0	83.4		
2.36	77		
2.00	75.8		
1.18	71.7		
0.600	66.8		
0.425	63.7		
0.300	61.2		
0.212	57.4		
0.150	53.8		
0.063	44		

Cobbles, %	0
Gravel, %	24
Sand, %	32
Clay / Silt, %	44



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/286
Sample No :	MK03

Hole ID :	TP 06
Depth, m :	1.00

Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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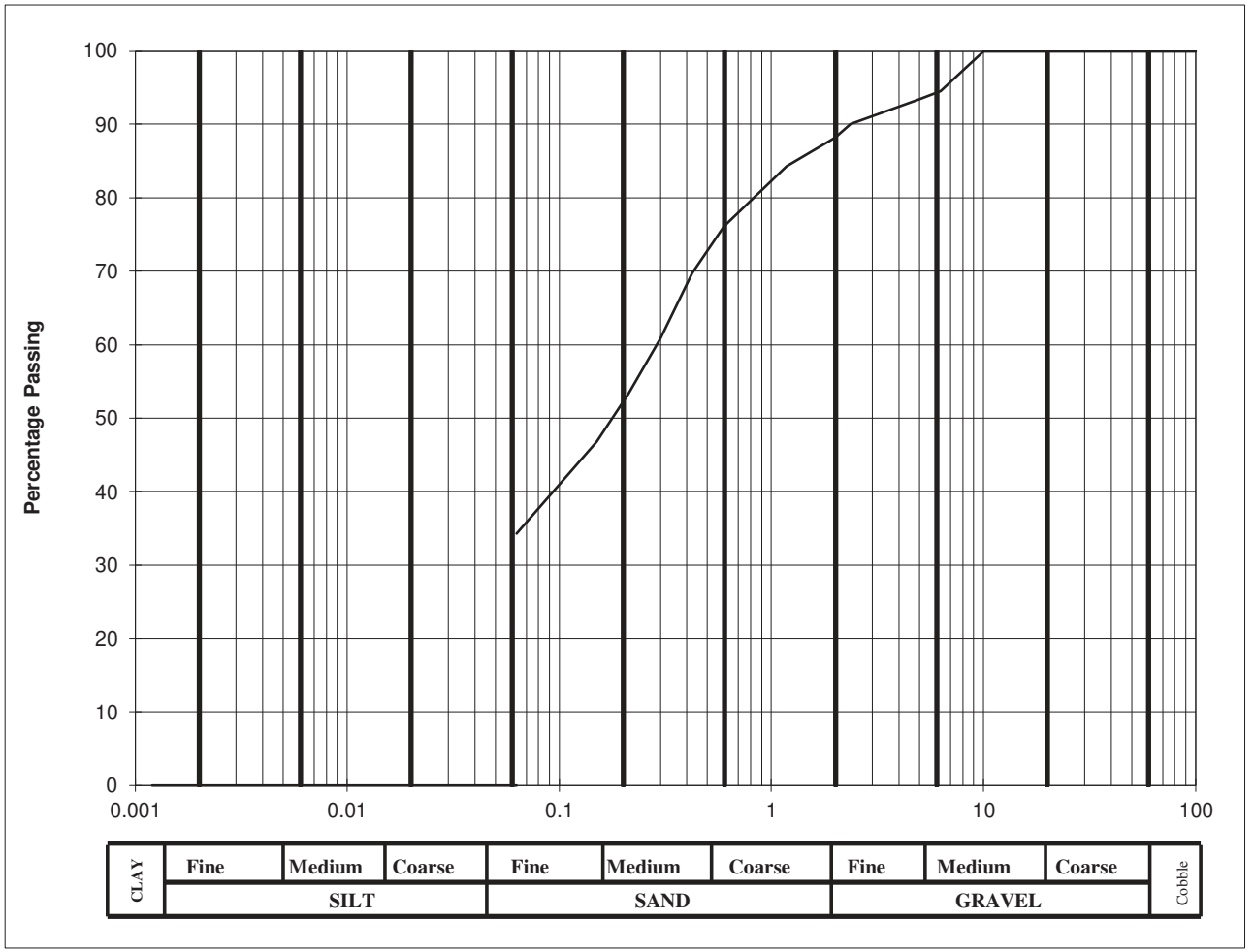
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	94.5		
5.0	93.4		
2.36	90		
2.00	88.2		
1.18	84.3		
0.600	76.1		
0.425	69.8		
0.300	60.9		
0.212	53.3		
0.150	46.8		
0.063	34		

Cobbles, %	0
Gravel, %	12
Sand, %	54
Clay / Silt, %	34



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/287
Sample No :	MK16

Hole ID :	TP 07
Depth, m :	0.80

Material description :	sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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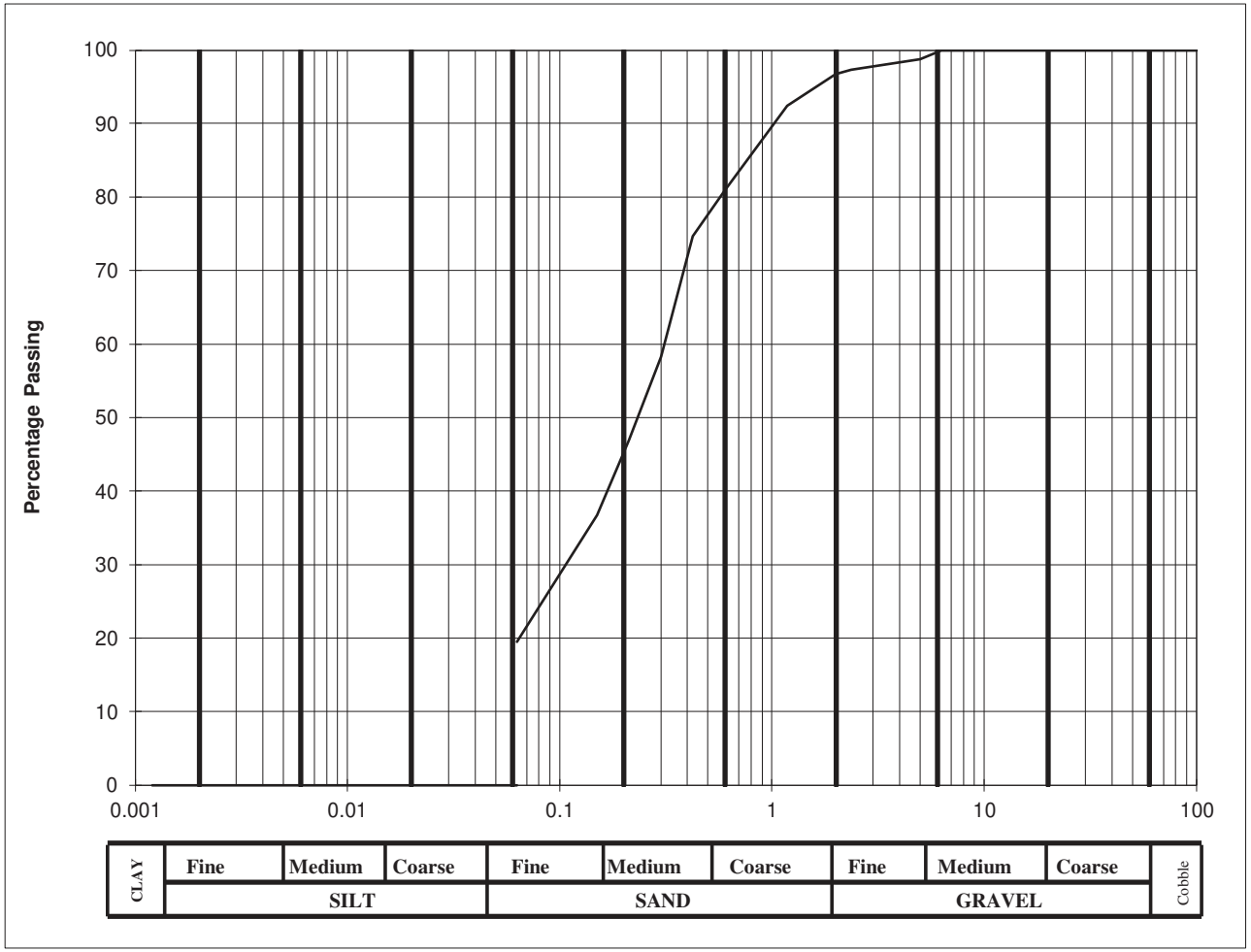
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5.0	98.7		
2.36	97.3		
2.00	96.7		
1.18	92.4		
0.600	80.8		
0.425	74.7		
0.300	58.3		
0.212	46.9		
0.150	36.7		
0.063	20		

Cobbles, %	0
Gravel, %	3
Sand, %	77
Clay / Silt, %	20



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/288
Sample No :	MK20

Hole ID :	TP 08
Depth, m :	1.00

Material description :	very sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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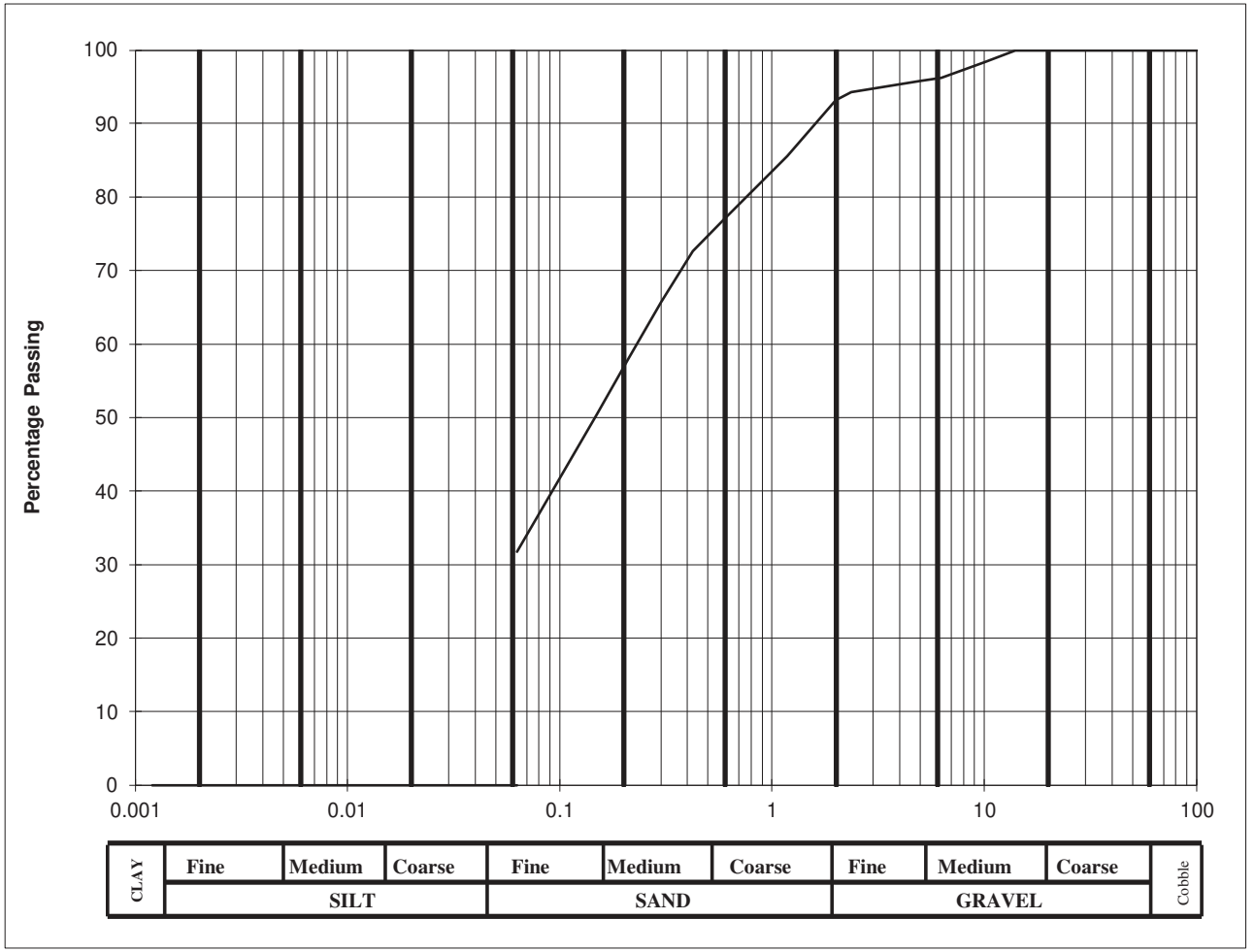
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98.3		
6.3	96.2		
5.0	95.8		
2.36	94.3		
2.00	93.2		
1.18	85.6		
0.600	77		
0.425	72.6		
0.300	65.7		
0.212	58.1		
0.150	50.5		
0.063	32		

Cobbles, %	0
Gravel, %	7
Sand, %	61
Clay / Silt, %	32



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/289
Sample No :	MK23

Hole ID :	TP 09
Depth, m :	1.00

Material description :	sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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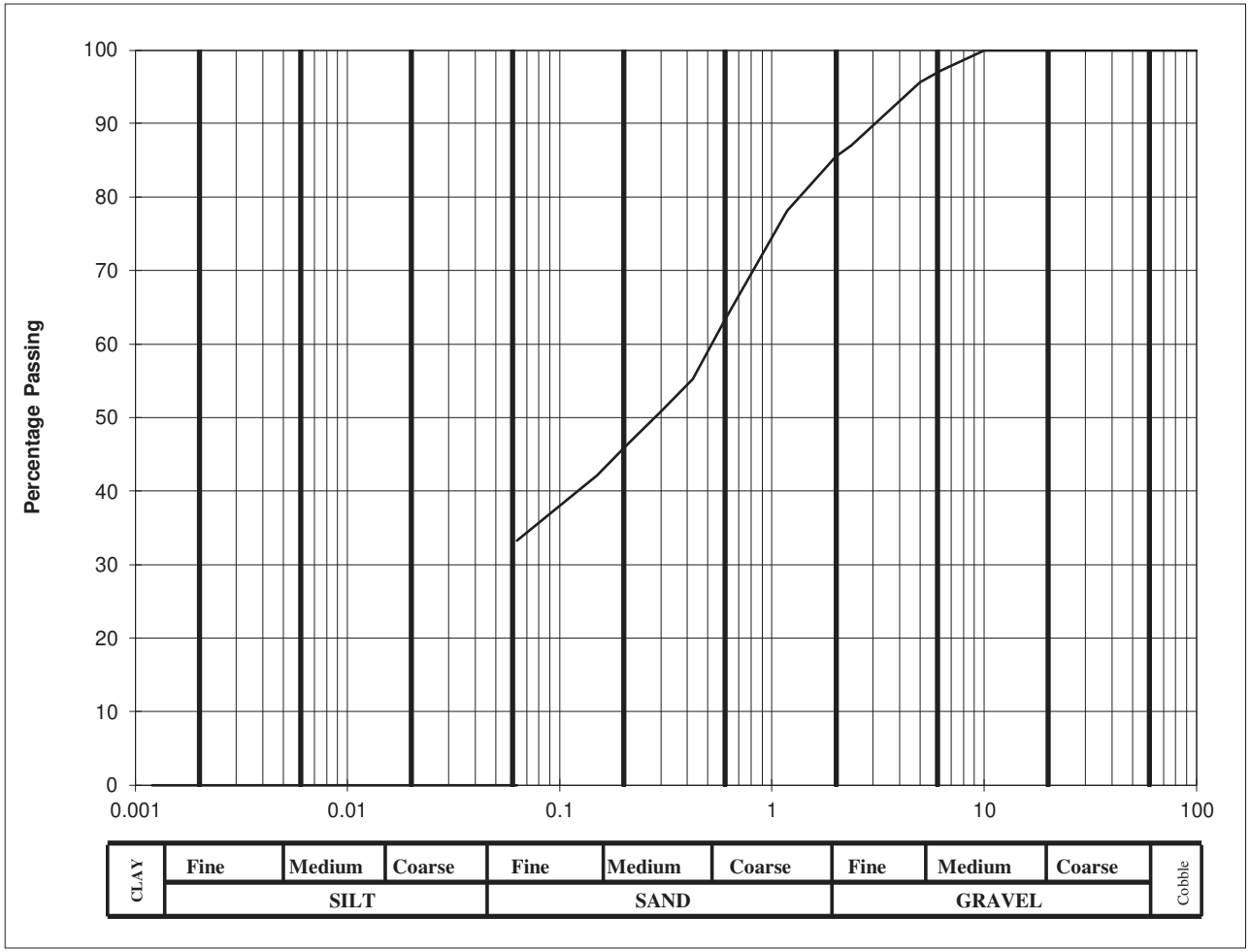
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	97.2		
5.0	95.6		
2.36	87		
2.00	85.5		
1.18	78.1		
0.600	63.2		
0.425	55.2		
0.300	50.8		
0.212	46.5		
0.150	42.1		
0.063	33		

Cobbles, %	0
Gravel, %	15
Sand, %	53
Clay / Silt, %	33



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/290
Sample No :	MK34

Hole ID :	TP 10
Depth, m :	1.00

Material description :	sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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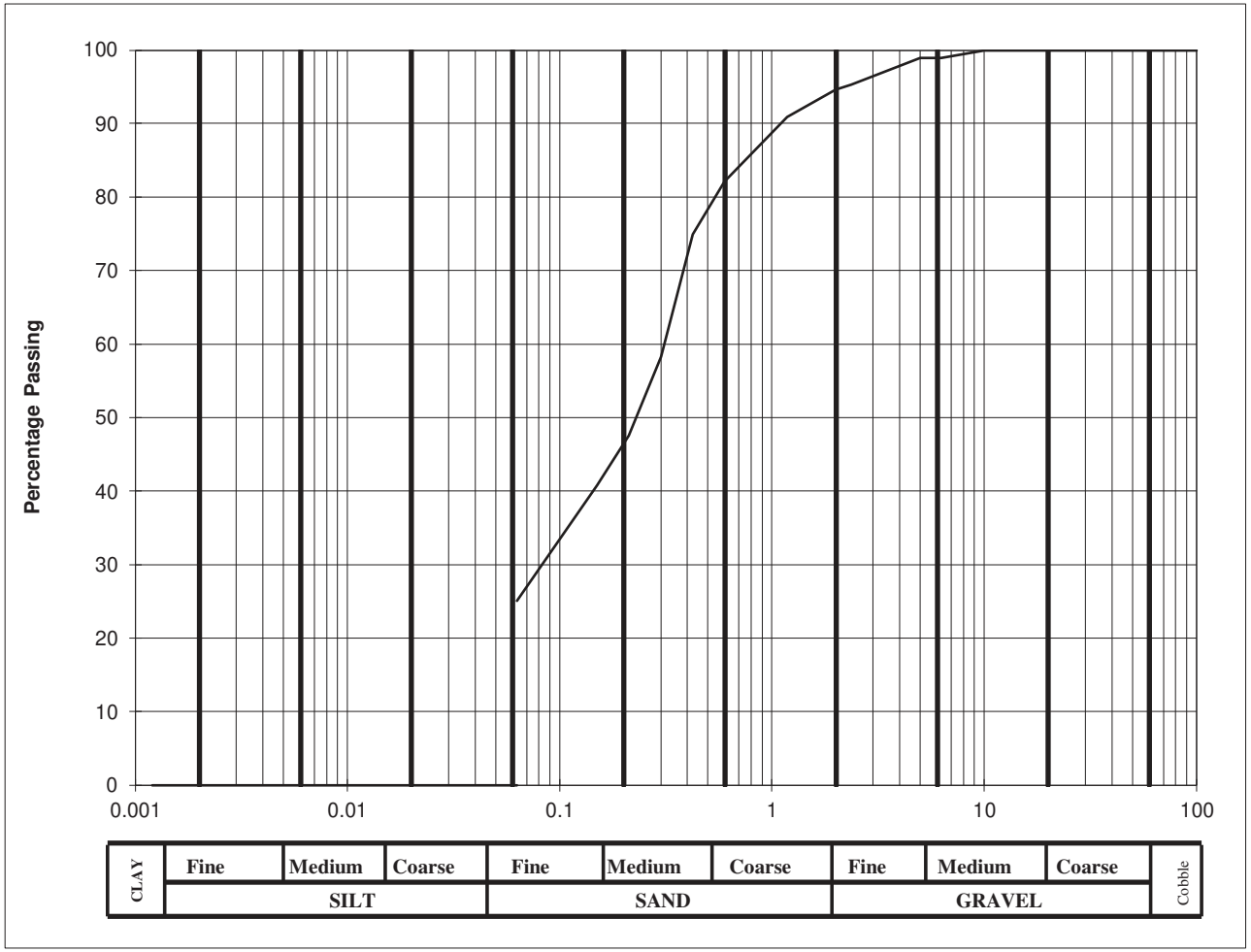
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	98.9		
5.0	98.9		
2.36	95.3		
2.00	94.6		
1.18	90.9		
0.600	82.1		
0.425	74.9		
0.300	58.3		
0.212	47.5		
0.150	40.8		
0.063	25		

Cobbles, %	0
Gravel, %	5
Sand, %	70
Clay / Silt, %	25



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/291
Sample No :	MK27

Hole ID :	TP 11
Depth, m :	1.00

Material description :	very sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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BS 1377 Particle Size Analysis

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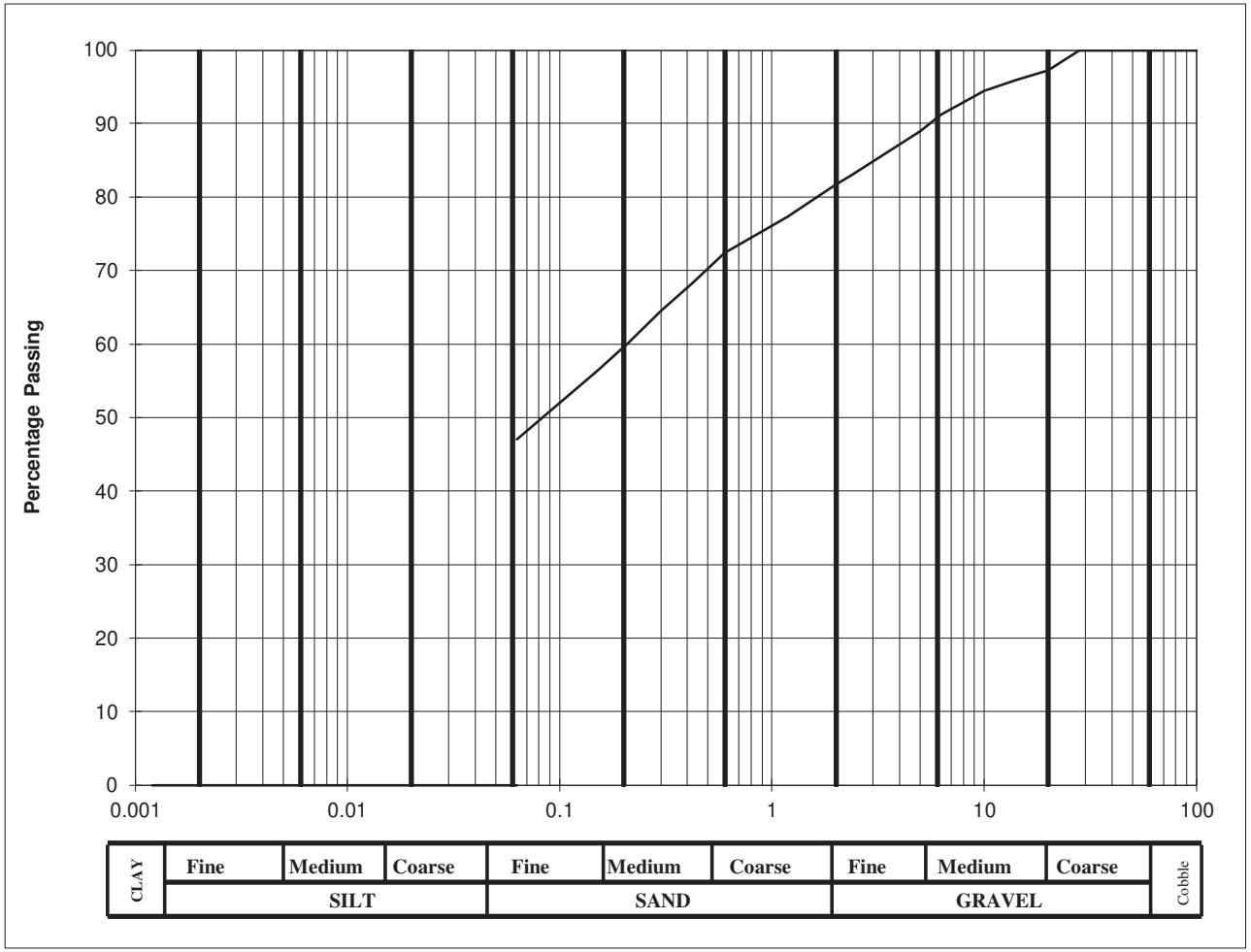
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	97.2		
14	95.9		
10	94.4		
6.3	91.2		
5.0	88.9		
2.36	82.9		
2.00	81.7		
1.18	77.3		
0.600	72.4		
0.425	68.3		
0.300	64.5		
0.212	60.2		
0.150	56.3		
0.063	47		

Cobbles, %	0
Gravel, %	18
Sand, %	35
Clay / Silt, %	47



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/292
Sample No :	MK41

Hole ID :	TP 12
Depth, m :	1.50

Material description :	sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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BS 1377 Particle Size Analysis

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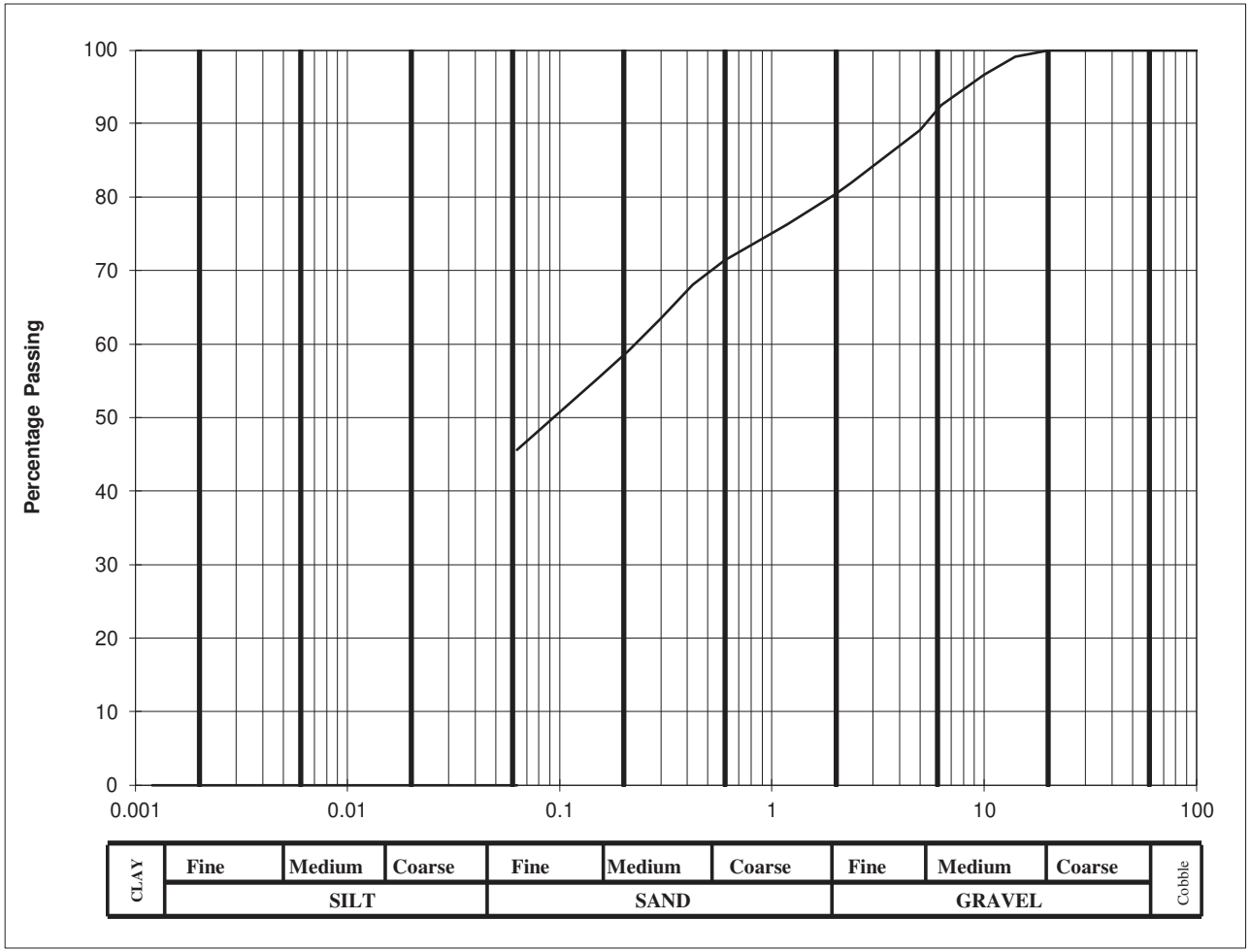
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	99.1		
10	96.6		
6.3	92.5		
5.0	89.1		
2.36	81.9		
2.00	80.4		
1.18	76.3		
0.600	71.4		
0.425	68.1		
0.300	63.5		
0.212	59.1		
0.150	55.2		
0.063	46		

Cobbles, %	0
Gravel, %	20
Sand, %	34
Clay / Silt, %	46



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/293
Sample No :	MK44

Hole ID :	TP 13
Depth, m :	1.00

Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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BS 1377 Particle Size Analysis

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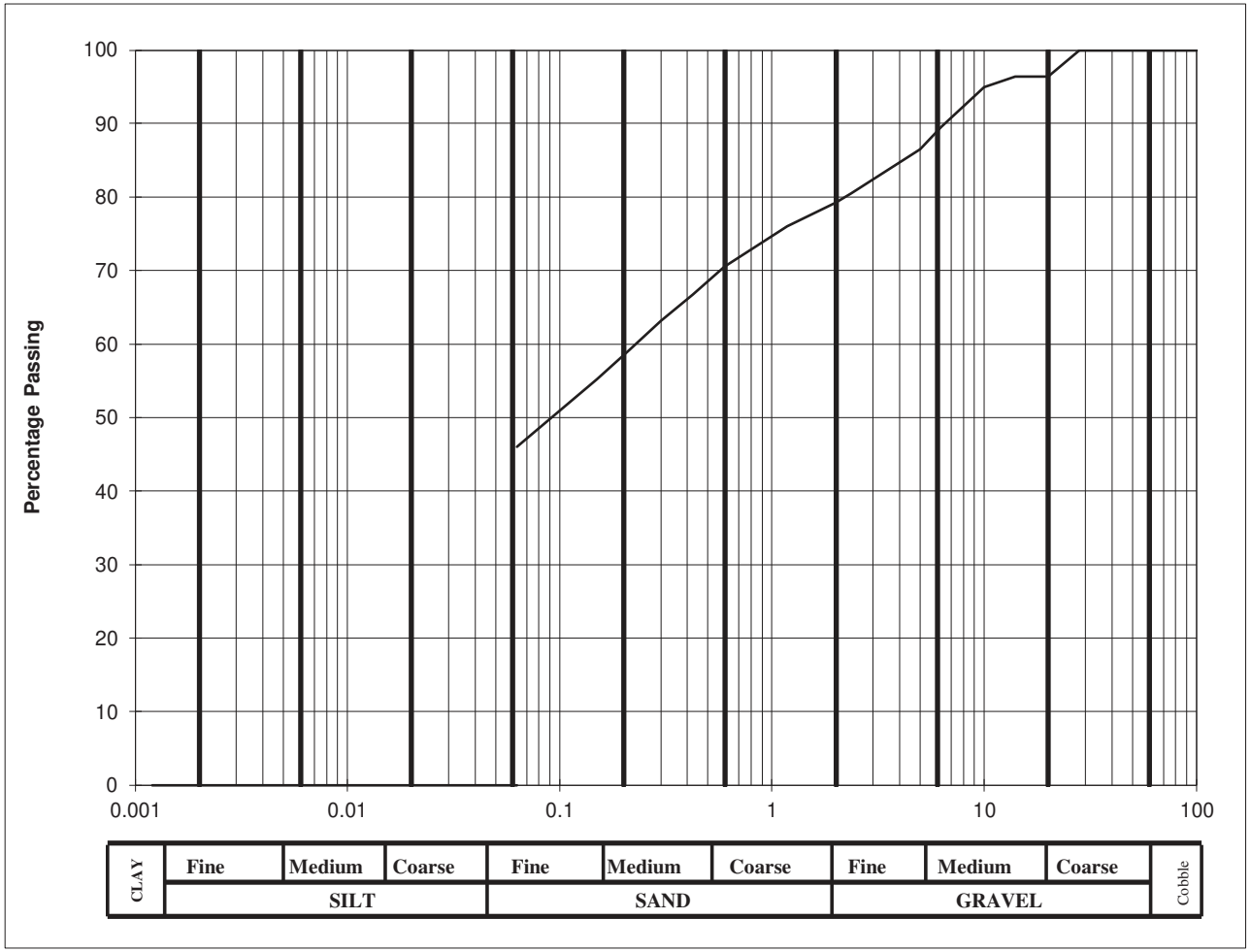
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	96.4		
14	96.4		
10	94.9		
6.3	89.5		
5.0	86.5		
2.36	80.5		
2.00	79.2		
1.18	76		
0.600	70.5		
0.425	66.7		
0.300	63.2		
0.212	59.1		
0.150	55.2		
0.063	46		

Cobbles, %	0
Gravel, %	21
Sand, %	33
Clay / Silt, %	46



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/294
Sample No :	MK48

Hole ID :	TP 14
Depth, m :	1.50

Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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BS 1377 Particle Size Analysis

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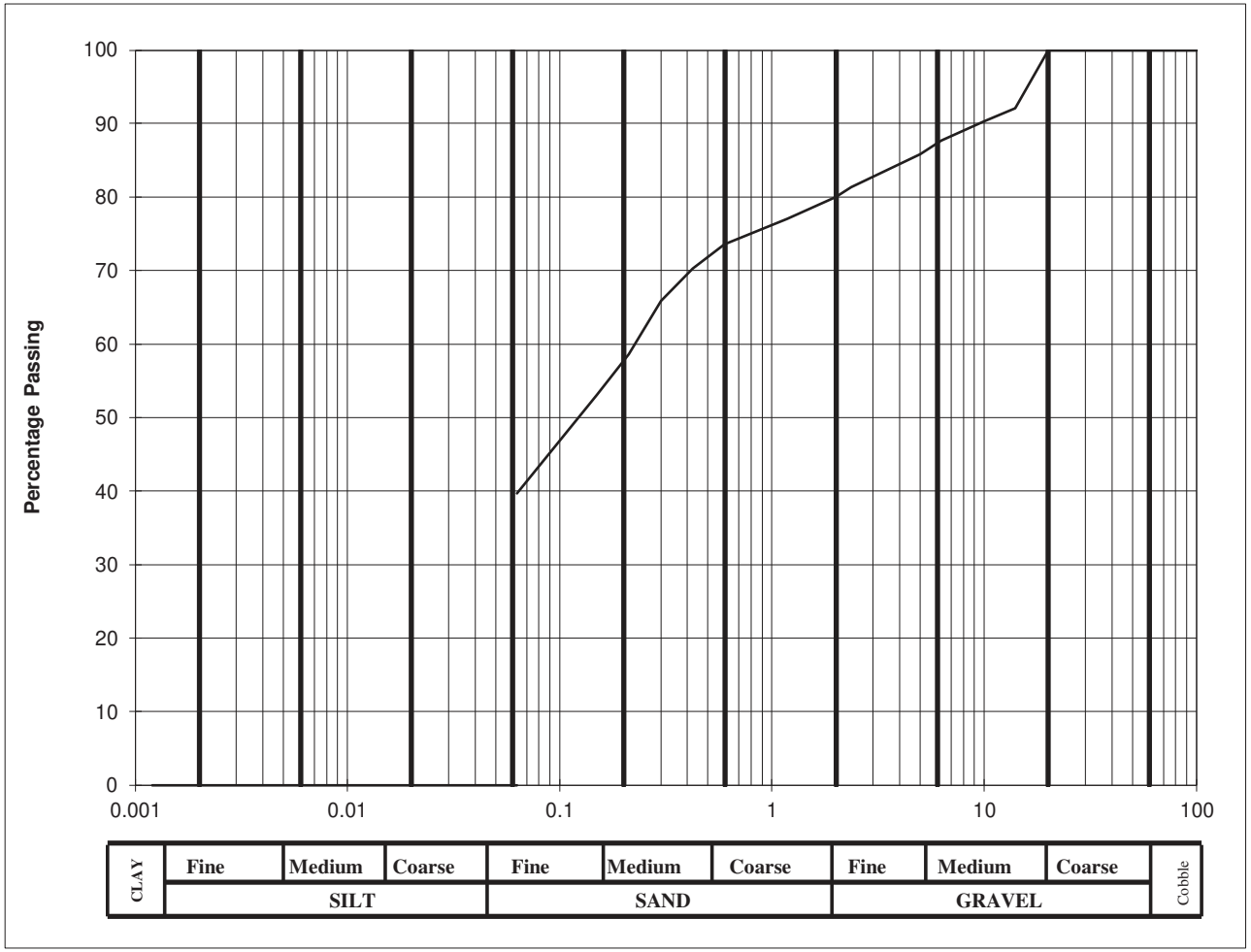
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	92.1		
10	90.3		
6.3	87.7		
5.0	85.8		
2.36	81.3		
2.00	80		
1.18	77		
0.600	73.6		
0.425	70.3		
0.300	65.9		
0.212	58.6		
0.150	53.1		
0.063	40		

Cobbles, %	0
Gravel, %	20
Sand, %	40
Clay / Silt, %	40



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/295
Sample No :	MK52

Hole ID :	TP 15
Depth, m :	1.50

Material description :	sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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BS 1377 Particle Size Analysis

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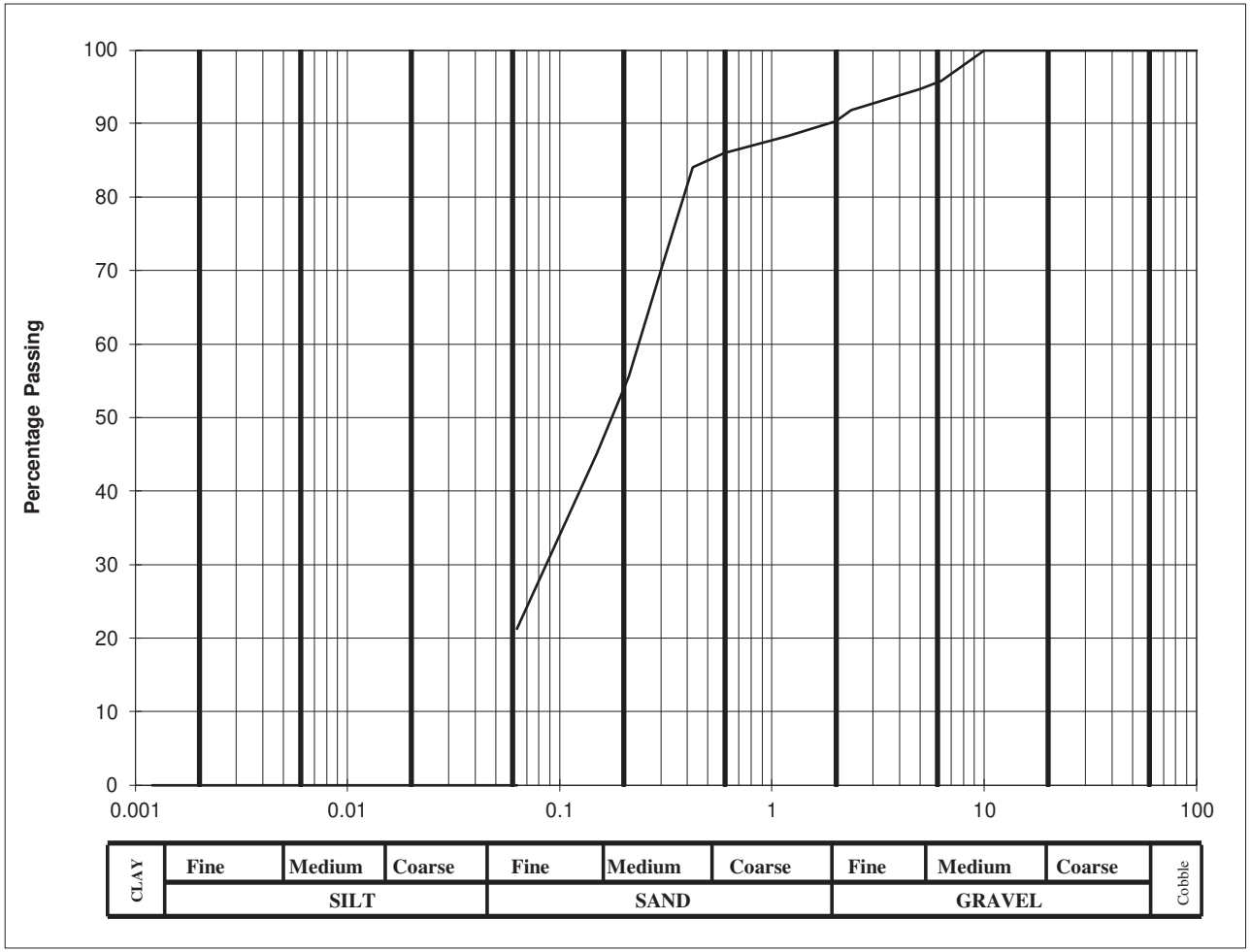
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	95.8		
5.0	94.7		
2.36	91.8		
2.00	90.3		
1.18	88.3		
0.600	86		
0.425	84		
0.300	70.1		
0.212	55.6		
0.150	45.2		
0.063	21		

Cobbles, %	0
Gravel, %	10
Sand, %	69
Clay / Silt, %	21



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/296
Sample No :	MK56

Hole ID :	TP 16
Depth, m :	0.50

Material description :	very sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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BS 1377 Particle Size Analysis

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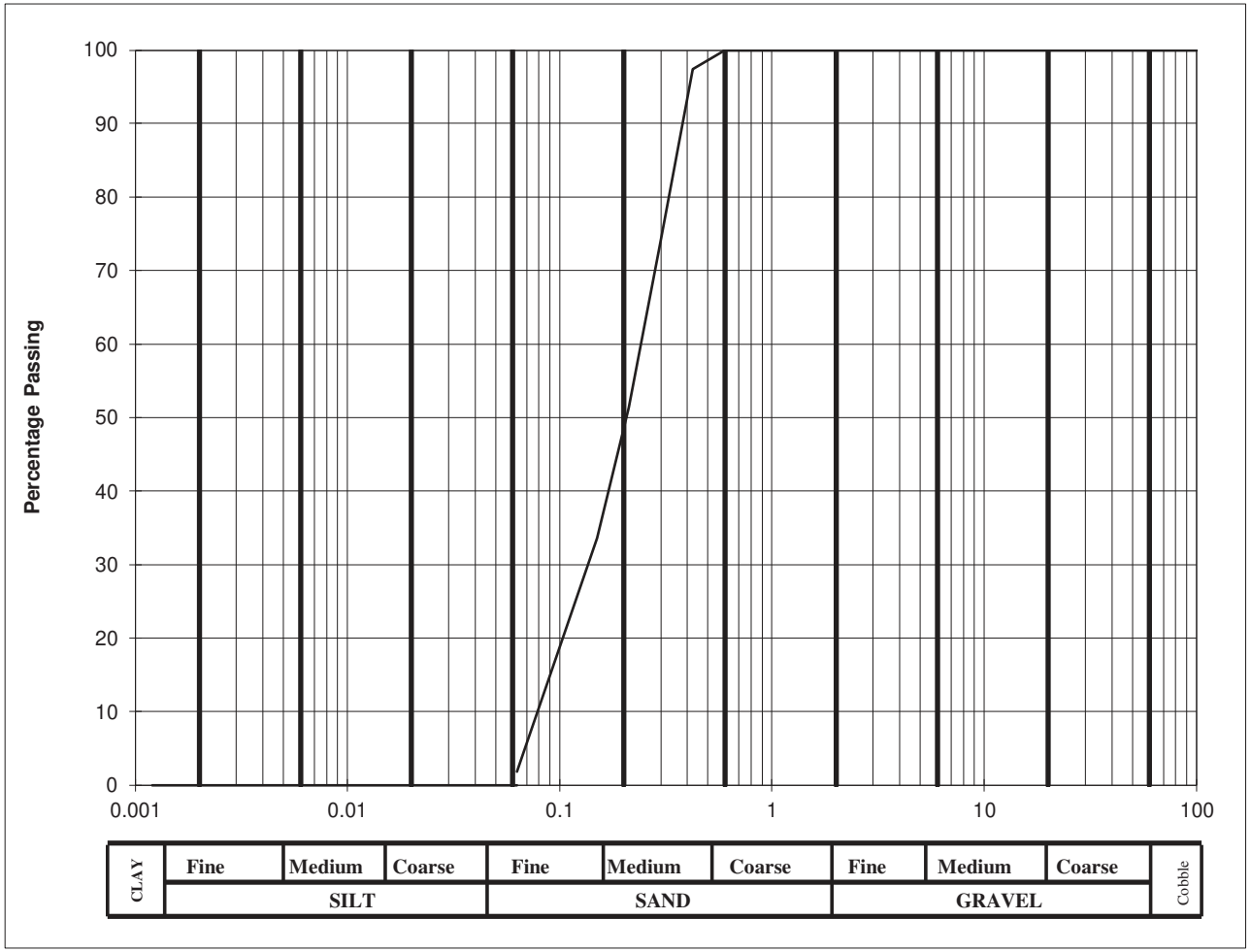
BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5.0	100		
2.36	100		
2.00	100		
1.18	100		
0.600	100		
0.425	97.4		
0.300	74.3		
0.212	51.3		
0.150	33.6		
0.063	2		

Cobbles, %	0
Gravel, %	0
Sand, %	98
Clay / Silt, %	2



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/297
Sample No :	MK59

Hole ID :	TP 17
Depth, m :	1.00

Material description :	slightly silty SAND
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

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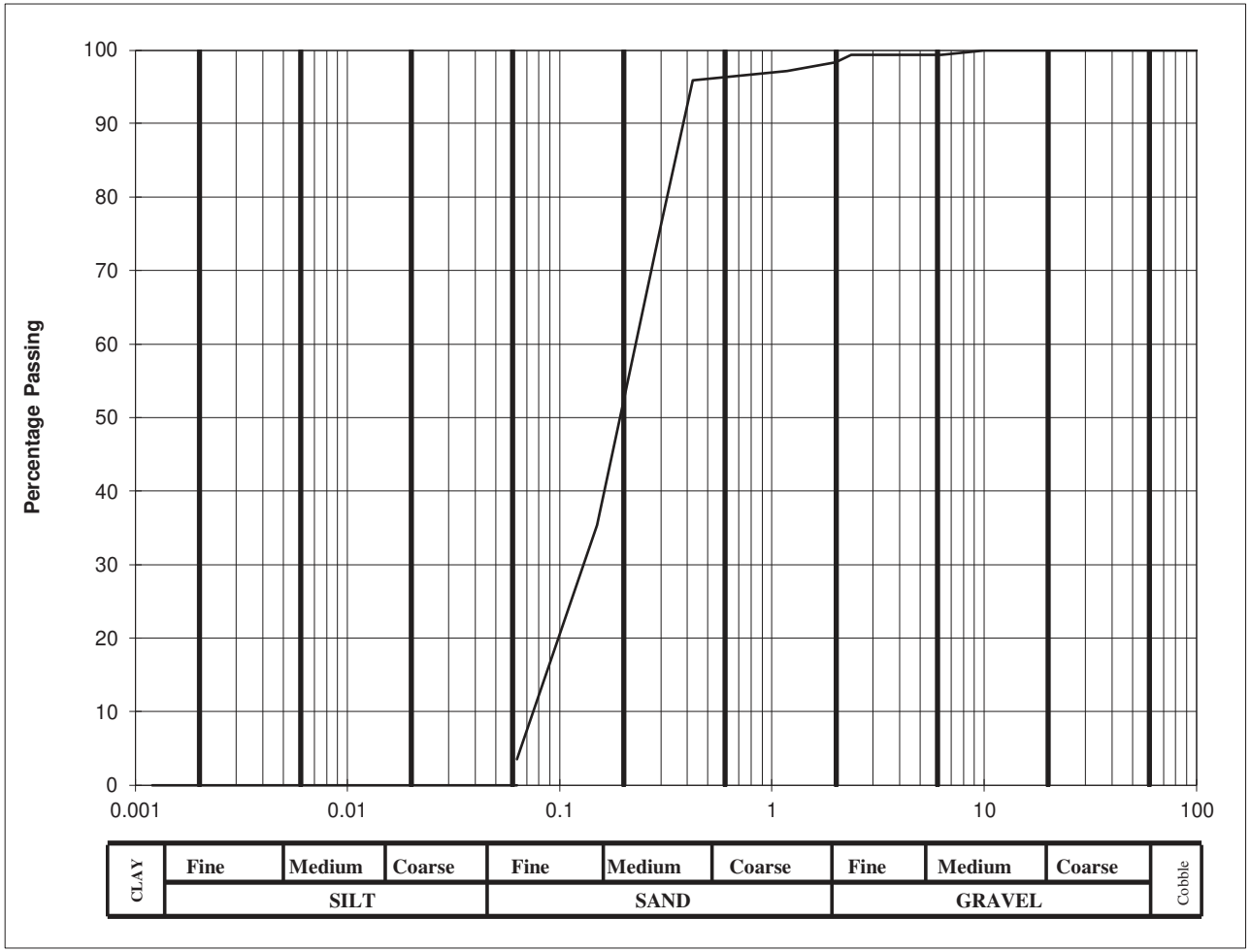
BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	
90	100	**0.0200**	
75	100	**0.0060**	
63	100	**0.0020**	
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99.3		
5.0	99.3		
2.36	99.3		
2.00	98.3		
1.18	97.1		
0.600	96.3		
0.425	95.9		
0.300	76.3		
0.212	55.6		
0.150	35.4		
0.063	4		

Cobbles, %	0
Gravel, %	2
Sand, %	94
Clay / Silt, %	4



Client :	Fingal County Council
Project :	Hayestown Housing, Rush

Lab. No :	20/298
Sample No :	MK63

Hole ID :	TP 18
Depth, m :	1.50

Material description :	slightly silty slightly gravelly SAND
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt >35% are classified as clay or silt

Printed 15/06/2020

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California Bearing Ratio (CBR) In accordance with BS1377: Part 4: Method 7

Client	Fingal County Council
Site	Hayestown Housing, Rush
S.I. File No	5728 / 20
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email info@siteinvestigations.ie
Report Date	10th June 2020

CBR No	Depth (mBGL)	Sample No	Sample Type	Lab Ref	CBR Value Top (%)	Moisture Content (%)	Remarks/Material Description
TP01	0.50	MK70	U	20/299	7.3	16.5	
TP02	0.50	MK71	U	20/300	8.9	15.5	
TP03	0.50	MK72	U	20/301	8.1	15.0	
TP04	0.50	MK73	U	20/302	8.1	16.8	
TP05	0.50	MK74	U	20/303	8.5	12.1	
TP06	0.50	MK75	U	20/304	7.3	19.1	
TP07	0.50	MK76	U	20/305	9.3	11.3	
TP08	0.50	MK77	U	20/306	11.7	12.6	
TP09	0.50	MK78	U	20/307	5.8	24.3	
TP10	0.50	MK79	U	20/308	5.8	27.9	
TP11	0.50	MK80	U	20/309	5.7	27.6	
TP12	0.50	MK81	U	20/310	6.6	15.9	
TP13	0.50	MK82	U	20/311	7.1	15.2	
TP14	0.50	MK83	U	20/312	10.0	10.5	
TP15	0.50	MK84	U	20/313	6.9	13.0	
TP16	0.50	MK85	U	20/314	6.6	20.4	
TP17	0.50	MK86	U	20/315	6.9	15.2	
TP18	0.50	MK87	U	20/316	8.5	20.0	

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Chemical Testing
In accordance with BS 1377: Part 3

Client	Fingal County Council
Site	Hayestown Housing, Rush
S.I. File No	5728 / 20
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	10th May 2020

Hole Id	Depth (mBGL)	Sample No	Lab Ref	pH Value	Water Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) g/L	Water Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) %	Acid Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) g/L	Acid Soluble Sulphate Content (2:1 Water-soil extract) (SO_3) %	Chloride ion Content (water:soil ratio 2:1) %	% passing 2mm
TP01	1.00	MK06	20/281	8.29	0.126	0.093			0.34	
TP02	1.00	MK10	20/282	8.19	0.124	0.089			0.33	
TP03	1.00	MK13	20/283	8.31	0.117	0.095			0.31	
TP04	1.00	MK37	20/284	8.34	0.120	0.079			0.29	
TP05	1.00	MK30	20/285	8.35	0.119	0.095			0.28	
TP06	1.00	MK03	20/286	8.26	0.123	0.093			0.28	
TP07	0.80	MK16	20/287	8.34	0.119	0.105			0.27	
TP08	1.00	MK20	20/288	8.31	0.116	0.112			0.26	
TP09	1.00	MK23	20/289	8.11	0.122	0.113			0.29	
TP10	1.00	MK34	20/290	8.23	0.120	0.103			0.34	
TP11	1.00	MK27	20/291	8.25	0.119	0.112			0.36	
TP12	1.50	MK41	20/292	8.28	0.124	0.102			0.28	
TP13	1.00	MK44	20/293	8.19	0.124	0.100			0.35	
TP14	1.50	MK48	20/294	8.19	0.126	0.100			0.34	
TP15	1.50	MK52	20/295	8.14	0.127	0.102			0.27	
TP16	0.50	MK56	20/296	8.16	0.122	0.110			0.26	
TP17	1.00	MK59	20/297	8.10	0.115	0.115			0.25	
TP18	1.50	MK63	20/298	8.28	0.116	0.114			0.30	

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Appendix 7

Geotechnical Rock Laboratory Test Results

Point Load Test Broch,E. & Franklin,J.A.,IRSM Point Load Test Method

Uniaxial Compressive Strength in accordance with BS1881

Client	Fingal County Council
Site	Hayestown Housing, Rush
S.I. File No	5670 / 19
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	23rd June 2020

Hole ID	Depth (m)	Lab Ref No.	Sample Type	Diameter / Height (mm)	Test Type	Is (MN/m^2)	Compressive Strength (MPa)	Strength Designation	Approx. Equivalent UCS Value (MPa)	Remarks
RC02	13.60	20/325	C	60	PL	1.67		Strong	50.0	Tested Diametrically
RC02	15.20	20/326	C	60	PL	4.44		Very Strong	108.5	Tested Diametrically
RC02	15.93	20/327	C	60	PL	4.72		Very Strong	115.5	Tested Diametrically
RC04	14.25	20/328	C	60	PL	3.06		Strong	75.0	Tested Diametrically
RC04	15.45	20/329	C	60	PL	5.00		Very Strong	122.5	Tested Diametrically
RC04	16.76	20/330	C	60	PL	3.61		Strong	88.5	Tested Diametrically
RC05	14.75	20/331	C	60	PL	1.67		Strong	50.0	Tested Diametrically
RC05	16.00	20/332	C	60	PL	4.17		Very Strong	102.0	Tested Diametrically
RC05	17.37	20/333	C	60	PL	3.06		Strong	75.0	Tested Diametrically

_____Paddy McGonagle
Site Investigations Ltd

Appendix 8

Environmental Soil Laboratory Test 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

Site Investigations Ltd
The Grange
Carhugar
12th Lock Road
Lucan
Co. Dublin

Attention: Stephen Letch

CERTIFICATE OF ANALYSIS

Date of report Generation:	29 June 2020
Customer:	Site Investigations Ltd
Sample Delivery Group (SDG):	200608-4
Your Reference:	
Location:	Rush
Report No:	556995

This report has been revised and directly supersedes 556885 in its entirety.

We received 10 samples on Saturday June 06, 2020 and 10 of these samples were scheduled for analysis which was completed on Monday June 29, 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.

Approved By:

Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22267264	TP2		0.50	
22267265	TP6		0.50	
22267266	TP8		0.50	
22267267	TP10		0.50	
22267269	TP11		0.50	
22267270	TP12		0.50	
22267271	TP14		0.50	
22267272	TP15		0.50	
22267273	TP16		0.50	
22267274	TP18		0.50	

Maximum Sample/Coolbox Temperature (°C) : **10.2**

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:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

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)	2267264			2267265			2267266			2267267			2267269			2267270			2267271
			Customer Sample Reference	TP2			TP6			TP8			TP10			TP11			TP12			TP14
			AGS Reference																			
			Depth (m)	0.50			0.50			0.50			0.50			0.50			0.50			0.50
			Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 10		X			X			X			X			X			X			X
CEN Readings	All	NDPs: 0 Tests: 10		X			X			X			X			X			X			X
Chromium III	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		
Coronene	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 10		X			X			X			X			X			X			X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 10		X			X			X			X			X			X			X
EPH by GCxGC-FID	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		
EPH CWG*	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		
Fluoride	All	NDPs: 0 Tests: 10		X			X			X			X			X			X			X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 10				X			X			X			X			X			X		
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		
Loss on Ignition in soils	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		
Mercury Dissolved	All	NDPs: 0 Tests: 10		X			X			X			X			X			X			X
Metals in solid samples by OES	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 10			X			X			X			X			X			X		

22267274	TP18		0.50	60g VOC (ALE215)	S		
				250g Amber Jar (ALE210)	S		
				1kg TUB with Handle (ALE260)	S	X	
				60g VOC (ALE215)	S		
22267273	TP16		0.50	250g Amber Jar (ALE210)	S		
				1kg TUB with Handle (ALE260)	S	X	
				60g VOC (ALE215)	S		
22267272	TP15		0.50	250g Amber Jar (ALE210)	S		
				1kg TUB with Handle (ALE260)	S	X	
				60g VOC (ALE215)	S		
22267271	TP14		0.50	250g Amber Jar (ALE210)	S		
				1kg TUB with Handle (ALE260)	S	X	
				60g VOC (ALE215)	S		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

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)	2267264	2267265	2267266	2267267	2267269	2267270	2267271
			Customer Sample Reference	TP2	TP6	TP8	TP10	TP11	TP12	TP14
			AGS Reference							
			Depth (m)	0.50	0.50	0.50	0.50	0.50	0.50	0.50
			Container	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
			Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
PCBs by GCMS	All	NDPs: 0 Tests: 10			X			X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		X
Sample description	All	NDPs: 0 Tests: 10			X			X			X			X			X			X	
Total Dissolved Solids on Leachates	All	NDPs: 0 Tests: 10		X			X			X			X			X			X		X
Total Organic Carbon	All	NDPs: 0 Tests: 10			X			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 10			X			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 10				X			X			X			X			X			X	

22267274	TP18		0.50	60g VOC (ALE215)	S														X
				250g Amber Jar (ALE210)	S		X				X				X		X		
				1kg TUB with Handle (ALE260)	S				X				X						
22267273	TP16		0.50	60g VOC (ALE215)	S														X
				250g Amber Jar (ALE210)	S		X				X				X		X		
				1kg TUB with Handle (ALE260)	S				X				X						
22267272	TP15		0.50	60g VOC (ALE215)	S														X
				250g Amber Jar (ALE210)	S		X				X				X		X		
				1kg TUB with Handle (ALE260)	S				X				X						
22267271	TP14		0.50	60g VOC (ALE215)	S														X
				250g Amber Jar (ALE210)	S		X				X				X		X		

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

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
22267264	TP2	0.50	Dark Brown	Loamy Sand	Stones	Vegetation
22267265	TP6	0.50	Dark Brown	Loamy Sand	Stones	Vegetation
22267266	TP8	0.50	Dark Brown	Loamy Sand	Stones	Vegetation
22267267	TP10	0.50	Dark Brown	Silty Clay Loam	Stones	Vegetation
22267269	TP11	0.50	Dark Brown	Sandy Silt Loam	Stones	Vegetation
22267270	TP12	0.50	Dark Brown	Loamy Sand	Stones	Vegetation
22267271	TP14	0.50	Dark Brown	Sandy Loam	Stones	Vegetation
22267272	TP15	0.50	Dark Brown	Sandy Loam	Stones	Vegetation
22267273	TP16	0.50	Dark Brown	Sandy Loam	Stones	Vegetation
22267274	TP18	0.50	Dark Brown	Sandy 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 ocurring 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:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP2	TP6	TP8	TP10	TP11	TP12
			Depth (m)	0.50	0.50	0.50	0.50	0.50	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020
			SDG Ref	200608-4	200608-4	200608-4	200608-4	200608-4	200608-4
			Lab Sample No.(s)	22267264	22267265	22267266	22267267	22267269	22267270
			AGS Reference						
Total Aliphatics & Aromatics >C5-C44	<10 mg/kg	SUB		<10 §	<10 §	<10 §	<10 §	<10 §	<10 §
Moisture Content Ratio (% of as received sample)	%	PM024		10 §	14 §	15 §	19 §	19 §	13 §
Ali >C12-C16*	<1 mg/kg	SUB		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Ali >C16-C21*	<1 mg/kg	SUB		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Ali >C21-C35*	<1 mg/kg	SUB		2 §	<1 §	2 §	<1 §	<1 §	<1 §
Aro >EC12-EC16*	<1 mg/kg	SUB		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Aro >EC16-EC21*	<1 mg/kg	SUB		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Aro >EC21-EC35*	<1 mg/kg	SUB		3 §	1 §	4 §	<1 §	<1 §	<1 §
Ali >C35-C44*	<1 mg/kg	SUB		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Aro >EC35-EC44*	<1 mg/kg	SUB		<1 §	<1 §	<1 §	<1 §	<1 §	<1 §
Total Aliphatics >C12-C44*	<4 mg/kg	SUB		5 §	4 §	5 §	4 §	4 §	4 §
Total Aromatics > EC12-EC44*	<4 mg/kg	SUB		6 §	4 §	7 §	4 §	4 §	4 §
Loss on ignition	<0.7 %	TM018		3.77 § M	4.81 § M	5.43 § M	4.19 § M	3.16 § M	2.67 § M
Organic Carbon, Total	<0.2 %	TM132		0.927 § M	1.1 § M	1.34 § M	0.464 § M	0.47 § M	0.409 § M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 § #	<0.6 § #	<0.6 § #	<0.6 § #	<0.6 § #	<0.6 § #
PCB congener 28	<3 µg/kg	TM168		<3 § M	<3 § M	<3 § M	<3 § M	<3 § M	<3 § M
PCB congener 52	<3 µg/kg	TM168		<3 § M	<3 § M	<3 § M	<3 § M	<3 § M	<3 § M
PCB congener 101	<3 µg/kg	TM168		<3 § M	<3 § M	<3 § M	<3 § M	<3 § M	<3 § M
PCB congener 118	<3 µg/kg	TM168		<3 § M	<3 § M	<3 § M	<3 § M	<3 § M	<3 § M
PCB congener 138	<3 µg/kg	TM168		<3 § M	<3 § M	<3 § M	<3 § M	<3 § M	<3 § M
PCB congener 153	<3 µg/kg	TM168		<3 § M	<3 § M	<3 § M	<3 § M	<3 § M	<3 § M
PCB congener 180	<3 µg/kg	TM168		<3 § M	<3 § M	<3 § M	<3 § M	<3 § M	<3 § M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21 §	<21 §	<21 §	<21 §	<21 §	<21 §
Chromium, Trivalent	<0.9 mg/kg	TM181		22.1 §	27.3 §	30.3 §	36.4 §	25.7 §	18.7 §
Antimony	<0.6 mg/kg	TM181		<0.6 § #	<0.6 § #	<0.6 § #	<0.6 § #	<0.6 § #	<0.6 § #
Arsenic	<0.6 mg/kg	TM181		13.1 § M	13.2 § M	13.7 § M	13.7 § M	8.02 § M	13.7 § M
Barium	<0.6 mg/kg	TM181		73.9 § #	98.1 § #	127 § #	119 § #	103 § #	70.9 § #
Cadmium	<0.02 mg/kg	TM181		0.689 § M	0.706 § M	0.722 § M	0.741 § M	0.794 § M	0.633 § M
Chromium	<0.9 mg/kg	TM181		22.1 § M	27.3 § M	30.3 § M	36.4 § M	25.7 § M	18.7 § M
Copper	<1.4 mg/kg	TM181		13.9 § M	15 § M	16.9 § M	14 § M	12.5 § M	9.08 § M
Lead	<0.7 mg/kg	TM181		25.5 § M	22.2 § M	28.5 § M	21.2 § M	14.8 § M	13.5 § M
Mercury	<0.14 mg/kg	TM181		<0.14 § M	<0.14 § M	<0.14 § M	<0.14 § M	<0.14 § M	<0.14 § M
Molybdenum	<0.1 mg/kg	TM181		1.15 § #	0.99 § #	0.842 § #	2.17 § #	0.639 § #	1.31 § #

Validated

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP2	TP6	TP8	TP10	TP11	TP12
			Depth (m)	0.50	0.50	0.50	0.50	0.50	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020
			SDG Ref	200608-4	200608-4	200608-4	200608-4	200608-4	200608-4
			Lab Sample No.(s)	22267264	22267265	22267266	22267267	22267269	22267270
			AGS Reference						
Nickel	<0.2 mg/kg	TM181		22.1 § M	27.8 § M	29.3 § M	45.8 § M	23.3 § M	19.6 § M
Selenium	<1 mg/kg	TM181		<1 § #	<1 § #	<1 § #	<1 § #	<1 § #	<1 § #
Zinc	<1.9 mg/kg	TM181		56.9 § M	59 § M	74.2 § M	73.4 § M	58.8 § M	41.3 § M
Coronene	<200 µg/kg	TM410		<200 §	<200 §	<200 §	<200 §	<200 §	<200 §
Mineral Oil >C10-C40	<5 mg/kg	TM415		<5 §	<5 §	<5 §	<5 §	<5 §	<5 §

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Customer Sample Ref.	TP14	TP15	TP16	TP18		
Depth (m)	0.50	0.50	0.50	0.50		
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled	-	-	-	-		
Sample Time	.	.	.	.		
Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020		
SDG Ref	200608-4	200608-4	200608-4	200608-4		
Lab Sample No.(s)	22267271	22267272	22267273	22267274		
AGS Reference						

Component	LOD/Units	Method											
Total Aliphatics & Aromatics >C5-C44	<10	mg/kg	SUB	<10	§	12.1	§	<10	§	23	§		
Moisture Content Ratio (% of as received sample)	%		PM024	13	§	12	§	16	§	15	§		
Ali >C12-C16*	<1	mg/kg	SUB	<1	§	<1	§	<1	§	<1	§		
Ali >C16-C21*	<1	mg/kg	SUB	<1	§	<1	§	<1	§	<1	§		
Ali >C21-C35*	<1	mg/kg	SUB	<1	§	3	§	<1	§	5	§		
Aro >EC12-EC16*	<1	mg/kg	SUB	<1	§	<1	§	<1	§	<1	§		
Aro >EC16-EC21*	<1	mg/kg	SUB	<1	§	1	§	<1	§	2	§		
Aro >EC21-EC35*	<1	mg/kg	SUB	<1	§	9	§	<1	§	18	§		
Ali >C35-C44*	<1	mg/kg	SUB	<1	§	<1	§	<1	§	1	§		
Aro >EC35-EC44*	<1	mg/kg	SUB	<1	§	<1	§	<1	§	2	§		
Total Aliphatics >C12-C44*	<4	mg/kg	SUB	4	§	6	§	4	§	8	§		
Total Aromatics > EC12-EC44*	<4	mg/kg	SUB	4	§	12	§	4	§	23	§		
Loss on ignition	<0.7	%	TM018	2.49	§ M	3.13	§ M	2.01	§ M	3.56	§ M		
Organic Carbon, Total	<0.2	%	TM132	0.234	§ M	0.914	§ M	0.558	§ M	1.32	§ M		
Chromium, Hexavalent	<0.6	mg/kg	TM151	<0.6	§ #	<0.6	§ #	<0.6	§ #	<0.6	§ #		
PCB congener 28	<3	µg/kg	TM168	<3	§ M	<3	§ M	<3	§ M	<3	§ M		
PCB congener 52	<3	µg/kg	TM168	<3	§ M	<3	§ M	<3	§ M	<3	§ M		
PCB congener 101	<3	µg/kg	TM168	<3	§ M	<3	§ M	<3	§ M	<3	§ M		
PCB congener 118	<3	µg/kg	TM168	<3	§ M	<3	§ M	<3	§ M	<3	§ M		
PCB congener 138	<3	µg/kg	TM168	<3	§ M	<3	§ M	<3	§ M	<3	§ M		
PCB congener 153	<3	µg/kg	TM168	<3	§ M	<3	§ M	<3	§ M	<3	§ M		
PCB congener 180	<3	µg/kg	TM168	<3	§ M	<3	§ M	<3	§ M	<3	§ M		
Sum of detected PCB 7 Congeners	<21	µg/kg	TM168	<21	§	<21	§	<21	§	<21	§		
Chromium, Trivalent	<0.9	mg/kg	TM181	32.4	§	16.2	§	12.8	§	11.9	§		
Antimony	<0.6	mg/kg	TM181	<0.6	§ #	<0.6	§ #	<0.6	§ #	<0.6	§ #		
Arsenic	<0.6	mg/kg	TM181	20.6	§ M	9.85	§ M	11.1	§ M	13.6	§ M		
Barium	<0.6	mg/kg	TM181	81.7	§ #	55.1	§ #	46	§ #	60.6	§ #		
Cadmium	<0.02	mg/kg	TM181	1.82	§ M	0.435	§ M	0.482	§ M	0.582	§ M		
Chromium	<0.9	mg/kg	TM181	32.4	§ M	16.2	§ M	12.8	§ M	11.9	§ M		
Copper	<1.4	mg/kg	TM181	39.5	§ M	17.7	§ M	10.8	§ M	15.3	§ M		
Lead	<0.7	mg/kg	TM181	20.6	§ M	24.5	§ M	14.9	§ M	24.2	§ M		
Mercury	<0.14	mg/kg	TM181	<0.14	§ M	<0.14	§ M	<0.14	§ M	<0.14	§ M		
Molybdenum	<0.1	mg/kg	TM181	3.32	§ #	0.474	§ #	0.494	§ #	0.785	§ #		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP14	TP15	TP16	TP18		
			Depth (m)	0.50	0.50	0.50	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	-	-	-	-		
			Sample Time	.	.	.	.		
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020		
			SDG Ref	200608-4	200608-4	200608-4	200608-4		
			Lab Sample No.(s)	22267271	22267272	22267273	22267274		
			AGS Reference						
Nickel	<0.2 mg/kg	TM181		64.5 § M	14.3 § M	17 § M	18.1 § M		
Selenium	<1 mg/kg	TM181		<1 § #	<1 § #	<1 § #	<1 § #		
Zinc	<1.9 mg/kg	TM181		71.6 § M	53.6 § M	40.7 § M	64.5 § M		
Coronene	<200 µg/kg	TM410		<200 §	<200 §	<200 §	<200 §		
Mineral Oil >C10-C40	<5 mg/kg	TM415		<5 §	5.72 §	<5 §	7.87 §		

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

GRO by GC-FID (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP2	TP6	TP8	TP10	TP11	TP12
			Depth (m)	0.50	0.50	0.50	0.50	0.50	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020
			SDG Ref	200608-4	200608-4	200608-4	200608-4	200608-4	200608-4
			Lab Sample No.(s)	22267264	22267265	22267266	22267267	22267269	22267270
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		108 §	103 §	94.8 §	107 §	111 §	107 §
Aliphatics >C5-C6	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	<10 §
Aliphatics >C6-C8	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	11.5 §
Aliphatics >C8-C10	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	16.1 §
Aliphatics >C10-C12	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	25.3 §
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	<10 §
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	<10 §
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	10.4 §
Aromatics >EC10-EC12	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §	<10 §	17.3 §
GRO >C5-C6	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
GRO >C6-C7	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
GRO >C7-C8	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §
GRO >C8-C10	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §	<20 §	26.5 §
GRO >C10-C12	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §	<20 §	42.6 §
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50 §	<50 §	<50 §	<50 §	<50 §	<50 §
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50 §	<50 §	<50 §	<50 §	<50 §	<50 §
GRO >C5-C10	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §	<20 §	<20 §

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

GRO by GC-FID (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP14	TP15	TP16	TP18		
			Depth (m)	0.50	0.50	0.50	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	-	-	-	-		
			Sample Time	.	.	.	.		
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020		
			SDG Ref	200608-4	200608-4	200608-4	200608-4		
			Lab Sample No.(s)	22267271	22267272	22267273	22267274		
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		111 §	110 §	105 §	106 §		
Aliphatics >C5-C6	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §		
Aliphatics >C6-C8	<10 µg/kg	TM089		<10 §	26 §	<10 §	<10 §		
Aliphatics >C8-C10	<10 µg/kg	TM089		<10 §	102 §	<10 §	<10 §		
Aliphatics >C10-C12	<10 µg/kg	TM089		<10 §	45.2 §	<10 §	<10 §		
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10 §	<10 §	<10 §	<10 §		
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10 §	67.8 §	<10 §	<10 §		
Aromatics >EC10-EC12	<10 µg/kg	TM089		<10 §	29.4 §	<10 §	<10 §		
GRO >C5-C6	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §		
GRO >C6-C7	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §		
GRO >C7-C8	<20 µg/kg	TM089		<20 §	<20 §	<20 §	<20 §		
GRO >C8-C10	<20 µg/kg	TM089		<20 §	170 §	<20 §	<20 §		
GRO >C10-C12	<20 µg/kg	TM089		<20 §	74.6 §	<20 §	<20 §		
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50 §	128 §	<50 §	<50 §		
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50 §	67.8 §	<50 §	<50 §		
GRO >C5-C10	<20 µg/kg	TM089		<20 §	195 §	<20 §	<20 §		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP2	TP6	TP8	TP10	TP11	TP12
			Depth (m)	0.50	0.50	0.50	0.50	0.50	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020
			SDG Ref	200608-4	200608-4	200608-4	200608-4	200608-4	200608-4
			Lab Sample No.(s)	22267264	22267265	22267266	22267267	22267269	22267270
			AGS Reference						
Naphthalene	<9 µg/kg	TM218		<9 § M	<9 § M	<9 § M	<9 § M	<9 § M	<9 § M
Acenaphthylene	<12 µg/kg	TM218		<12 § M	<12 § M	<12 § M	<12 § M	<12 § M	<12 § M
Acenaphthene	<8 µg/kg	TM218		<8 § M	<8 § M	<8 § M	<8 § M	<8 § M	<8 § M
Fluorene	<10 µg/kg	TM218		<10 § M	<10 § M	<10 § M	<10 § M	<10 § M	<10 § M
Phenanthrene	<15 µg/kg	TM218		25.1 § M	<15 § M	20.3 § M	<15 § M	<15 § M	<15 § M
Anthracene	<16 µg/kg	TM218		<16 § M	<16 § M	<16 § M	<16 § M	<16 § M	<16 § M
Fluoranthene	<17 µg/kg	TM218		54.4 § M	<17 § M	42.3 § M	<17 § M	<17 § M	<17 § M
Pyrene	<15 µg/kg	TM218		49.3 § M	<15 § M	39.2 § M	<15 § M	<15 § M	<15 § M
Benz(a)anthracene	<14 µg/kg	TM218		36.2 § M	<14 § M	28.2 § M	<14 § M	<14 § M	<14 § M
Chrysene	<10 µg/kg	TM218		38.2 § M	<10 § M	29.3 § M	<10 § M	<10 § M	<10 § M
Benzo(b)fluoranthene	<15 µg/kg	TM218		55.7 § M	<15 § M	47.9 § M	<15 § M	<15 § M	<15 § M
Benzo(k)fluoranthene	<14 µg/kg	TM218		18.3 § M	<14 § M	<14 § M	<14 § M	<14 § M	<14 § M
Benzo(a)pyrene	<15 µg/kg	TM218		39 § M	<15 § M	27 § M	<15 § M	<15 § M	<15 § M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		29.1 § M	<18 § M	24 § M	<18 § M	<18 § M	<18 § M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 § M	<23 § M	<23 § M	<23 § M	<23 § M	<23 § M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		27.9 § M	<24 § M	<24 § M	<24 § M	<24 § M	<24 § M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		373 §	<118 §	258 §	<118 §	<118 §	<118 §

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP14	TP15	TP16	TP18		
			Depth (m)	0.50	0.50	0.50	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	-	-	-	-		
			Sample Time	.	.	.	.		
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020		
			SDG Ref	200608-4	200608-4	200608-4	200608-4		
			Lab Sample No.(s)	22267271	22267272	22267273	22267274		
			AGS Reference						
Naphthalene	<9 µg/kg	TM218		<9 § M	<9 § M	<9 § M	<9 § M		
Acenaphthylene	<12 µg/kg	TM218		<12 § M	<12 § M	<12 § M	<12 § M		
Acenaphthene	<8 µg/kg	TM218		<8 § M	<8 § M	<8 § M	<8 § M		
Fluorene	<10 µg/kg	TM218		<10 § M	<10 § M	<10 § M	<10 § M		
Phenanthrene	<15 µg/kg	TM218		<15 § M	<15 § M	<15 § M	84.3 § M		
Anthracene	<16 µg/kg	TM218		<16 § M	<16 § M	<16 § M	20.9 § M		
Fluoranthene	<17 µg/kg	TM218		<17 § M	39.7 § M	<17 § M	234 § M		
Pyrene	<15 µg/kg	TM218		<15 § M	37.4 § M	<15 § M	212 § M		
Benz(a)anthracene	<14 µg/kg	TM218		<14 § M	30 § M	<14 § M	168 § M		
Chrysene	<10 µg/kg	TM218		<10 § M	32.1 § M	<10 § M	169 § M		
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 § M	53.8 § M	<15 § M	200 § M		
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 § M	<14 § M	<14 § M	70 § M		
Benzo(a)pyrene	<15 µg/kg	TM218		<15 § M	33.5 § M	<15 § M	162 § M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 § M	24.7 § M	<18 § M	128 § M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 § M	<23 § M	<23 § M	<23 § M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 § M	<24 § M	<24 § M	117 § M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118 §	251 §	<118 §	1560 §		

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP2	TP6	TP8	TP10	TP11	TP12
			Depth (m)	0.50	0.50	0.50	0.50	0.50	0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	-	-	-	-	-	-
			Sample Time	.	.	.	.	.	.
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020	06/06/2020
			SDG Ref	200608-4	200608-4	200608-4	200608-4	200608-4	200608-4
			Lab Sample No.(s)	22267264	22267265	22267266	22267267	22267269	22267270
			AGS Reference						
Dibromofluoromethane**	%	TM116		109 §	112 §	116 §	117 §	105 §	110 §
Toluene-d8**	%	TM116		96.5 §	95.6 §	91.3 §	98.1 §	97.2 §	97.7 §
4-Bromofluorobenzene**	%	TM116		89 §	83.6 §	72.2 §	99.1 §	89.7 §	98.1 §
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 § M	<10 § M	<10 § M	<10 § M	<10 § M	<10 § M
Benzene	<9 µg/kg	TM116		<9 § M	<9 § M	<9 § M	<9 § M	<9 § M	<9 § M
Toluene	<7 µg/kg	TM116		<7 § M	<7 § M	<7 § M	<7 § M	<7 § M	<7 § M
Ethylbenzene	<4 µg/kg	TM116		<4 § M	<4 § M	<4 § M	<4 § M	<4 § M	<4 § M
p/m-Xylene	<10 µg/kg	TM116		<10 § #	<10 § #	<10 § #	<10 § #	<10 § #	<10 § #
o-Xylene	<10 µg/kg	TM116		<10 § M	<10 § M	<10 § M	<10 § M	<10 § M	<10 § M

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP14	TP15	TP16	TP18		
			Depth (m)	0.50	0.50	0.50	0.50		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	-	-	-	-		
			Sample Time	.	.	.	.		
			Date Received	06/06/2020	06/06/2020	06/06/2020	06/06/2020		
			SDG Ref	200608-4	200608-4	200608-4	200608-4		
			Lab Sample No.(s)	22267271	22267272	22267273	22267274		
			AGS Reference						
Dibromofluoromethane**	%	TM116		108 §	109 §	123 §	113 §		
Toluene-d8**	%	TM116		98.5 §	95 §	99.6 §	99.7 §		
4-Bromofluorobenzene**	%	TM116		99.5 §	80.1 §	95.6 §	80.2 §		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 § M	<10 § M	<10 § M	<10 § M		
Benzene	<9 µg/kg	TM116		<9 § M	<9 § M	<9 § M	<9 § M		
Toluene	<7 µg/kg	TM116		<7 § M	<7 § M	<7 § M	<7 § M		
Ethylbenzene	<4 µg/kg	TM116		<4 § M	<4 § M	<4 § M	<4 § M		
p/m-Xylene	<10 µg/kg	TM116		<10 § #	<10 § #	<10 § #	<10 § #		
o-Xylene	<10 µg/kg	TM116		<10 § M	<10 § M	<10 § M	<10 § M		

Validated

CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.102	**Natural Moisture Content (%)**	13.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88.3
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267264
Sampled Date	
Customer Sample Ref.	TP2
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	0.927	3	5	6
Loss on Ignition (%)	3.77	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00195	<0.0005	0.0195	<0.005	0.5	2	25
Barium	0.0028	<0.0002	0.028	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00489	<0.0003	0.0489	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.000011	<0.00001	0.00011	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00113	<0.0004	0.0113	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00112	<0.001	0.0112	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	0.738	<0.5	7.38	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	40.8	<10	408	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	5.31	<3	53.1	<30	500	800	1000

Leach Test Information

Date Prepared	08-Jun-2020
pH (pH Units)	7.75
Conductivity (µS/cm)	50.20
Temperature (°C)	20.90
Volume Leachant (Litres)	0.888

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	17.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84.8
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267265
Sampled Date	
Customer Sample Ref.	TP6
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.1	3	5	6
Loss on Ignition (%)	4.81	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0009	<0.0005	0.009	<0.005	0.5	2	25
Barium	0.0739	<0.0002	0.739	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00142	<0.001	0.0142	<0.01	0.5	10	70
Copper	0.00256	<0.0003	0.0256	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000136	<0.00001	0.000136	<0.0001	0.01	0.2	2
Molybdenum	0.00392	<0.003	0.0392	<0.03	0.5	10	30
Nickel	0.000942	<0.0004	0.00942	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00257	<0.001	0.0257	<0.01	4	50	200
Chloride	2.8	<2	28	<20	800	15000	25000
Fluoride	0.716	<0.5	7.16	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	53.4	<10	534	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	5.55	<3	55.5	<30	500	800	1000

Leach Test Information

Date Prepared	08-Jun-2020
pH (pH Units)	8.32
Conductivity (µS/cm)	62.20
Temperature (°C)	20.70
Volume Leachant (Litres)	0.884

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.115	**Natural Moisture Content (%)**	28.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78.1
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267266
Sampled Date	
Customer Sample Ref.	TP8
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	1.34	3	5	6
Loss on Ignition (%)	5.43	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00215	<0.0005	0.0215	<0.005	0.5	2	25
Barium	0.18	<0.0002	1.8	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00139	<0.001	0.0139	<0.01	0.5	10	70
Copper	0.00774	<0.0003	0.0774	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000169	<0.00001	0.000169	<0.0001	0.01	0.2	2
Molybdenum	0.00335	<0.003	0.0335	<0.03	0.5	10	30
Nickel	0.000895	<0.0004	0.00895	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00221	<0.001	0.0221	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	0.59	<0.5	5.9	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	79	<10	790	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	5.22	<3	52.2	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	8.64
Conductivity (µS/cm)	96.00
Temperature (°C)	19.90
Volume Leachant (Litres)	0.875

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.113	**Natural Moisture Content (%)**	25.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	79.8
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267267
Sampled Date	
Customer Sample Ref.	TP10
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.464	3	5	6
Loss on Ignition (%)	4.19	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00156	<0.0002	0.0156	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00174	<0.0003	0.0174	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.0007	<0.0004	0.007	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	46.6	<10	466	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	4.32	<3	43.2	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	8.12
Conductivity (µS/cm)	89.90
Temperature (°C)	20.30
Volume Leachant (Litres)	0.878

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.122	**Natural Moisture Content (%)**	34.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74.5
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267269
Sampled Date	
Customer Sample Ref.	TP11
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.47	3	5	6
Loss on Ignition (%)	3.16	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.00193	<0.0002	0.0193	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00106	<0.001	0.0106	<0.01	0.5	10	70
Copper	0.00375	<0.0003	0.0375	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00122	<0.0004	0.0122	<0.004	0.4	10	40
Lead	0.000202	<0.0002	0.00202	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	42.2	<10	422	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	5.86	<3	58.6	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	7.75
Conductivity (µS/cm)	57.90
Temperature (°C)	20.70
Volume Leachant (Litres)	0.868

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ALS Environmental cannot be held responsible for any discrepancies with current legislation
Mcerts Certification does not apply to leachates
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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	17.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85.1
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267270
Sampled Date	
Customer Sample Ref.	TP12
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	0.409	3	5	6
Loss on Ignition (%)	2.67	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00166	<0.0005	0.0166	<0.005	0.5	2	25
Barium	0.0464	<0.0002	0.464	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00146	<0.001	0.0146	<0.01	0.5	10	70
Copper	0.0025	<0.0003	0.025	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.000012	<0.00001	0.00012	<0.0001	0.01	0.2	2
Molybdenum	0.00587	<0.003	0.0587	<0.03	0.5	10	30
Nickel	0.000889	<0.0004	0.00889	<0.004	0.4	10	40
Lead	0.00033	<0.0002	0.0033	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00297	<0.001	0.0297	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	0.509	<0.5	5.09	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	28.7	<10	287	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	4.5	<3	45	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	7.94
Conductivity (µS/cm)	33.00
Temperature (°C)	20.50
Volume Leachant (Litres)	0.884

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.105	**Natural Moisture Content (%)**	16.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85.8
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267271
Sampled Date	
Customer Sample Ref.	TP14
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	0.234	3	5	6
Loss on Ignition (%)	2.49	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	<0.0005	<0.0005	<0.005	<0.005	0.5	2	25
Barium	0.000832	<0.0002	0.00832	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.000742	<0.0003	0.00742	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.000407	<0.0004	0.00407	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	29.3	<10	293	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	3.47	<3	34.7	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	7.98
Conductivity (µS/cm)	36.10
Temperature (°C)	21.10
Volume Leachant (Litres)	0.885

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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.104	**Natural Moisture Content (%)**	14.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	87.2
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267272
Sampled Date	
Customer Sample Ref.	TP15
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.914	3	5	6
Loss on Ignition (%)	3.13	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	5.72	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Concⁿ in 10:1 eluate (mg/l)**		**A_2 10:1 concⁿ leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.00324	<0.0005	0.0324	<0.005	0.5	2	25
Barium	0.0018	<0.0002	0.018	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.00319	<0.0003	0.0319	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000101	<0.00001	0.000101	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00112	<0.0004	0.0112	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	<0.001	<0.001	<0.01	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	48.3	<10	483	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	5.16	<3	51.6	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	7.72
Conductivity (µS/cm)	62.10
Temperature (°C)	20.80
Volume Leachant (Litres)	0.887

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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.108	**Natural Moisture Content (%)**	20.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.3
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267273
Sampled Date	
Customer Sample Ref.	TP16
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	**Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon (%)	0.558	3	5	6
Loss on Ignition (%)	2.01	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	<5	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Arsenic	0.0088	<0.0005	0.088	<0.005	0.5	2	25
Barium	0.158	<0.0002	1.58	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00149	<0.001	0.0149	<0.01	0.5	10	70
Copper	0.00309	<0.0003	0.0309	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000119	<0.00001	0.000119	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.000772	<0.0004	0.00772	<0.004	0.4	10	40
Lead	<0.0002	<0.0002	<0.002	<0.002	0.5	10	50
Antimony	<0.001	<0.001	<0.01	<0.01	0.06	0.7	5
Selenium	<0.001	<0.001	<0.01	<0.01	0.1	0.5	7
Zinc	0.00208	<0.001	0.0208	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	<2	<2	<20	<20	1000	20000	50000
Total Dissolved Solids	50.5	<10	505	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	4.5	<3	45	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	8.16
Conductivity (µS/cm)	63.00
Temperature (°C)	21.00
Volume Leachant (Litres)	0.882

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CERTIFICATE OF ANALYSIS

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Rush
Mass Sample taken (kg)	0.109	**Natural Moisture Content (%)**	20.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.7
Particle Size <4mm	>95%		

Case	
SDG	200608-4
Lab Sample Number(s)	22267274
Sampled Date	
Customer Sample Ref.	TP18
Depth (m)	0.50

Solid Waste Analysis	**Result**	**Landfill Waste Acceptance Criteria Limits**		
		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Total Organic Carbon (%)	1.32	3	5	6
Loss on Ignition (%)	3.56	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg)	7.87	500	-	-
PAH Sum of 17 (mg/kg)	-	-	-	-
pH (pH Units)	-	-	-	-
ANC to pH 6 (mol/kg)	-	-	-	-
ANC to pH 4 (mol/kg)	-	-	-	-

Eluate Analysis	**C_2 Conc^n in 10:1 eluate (mg/l)**		**A_2 10:1 conc^n leached (mg/kg)**		**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.00678	<0.0005	0.0678	<0.005	0.5	2	25
Barium	0.214	<0.0002	2.14	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	<0.001	<0.001	<0.01	<0.01	0.5	10	70
Copper	0.006	<0.0003	0.06	<0.003	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	0.01	0.2	2
Molybdenum	0.00488	<0.003	0.0488	<0.03	0.5	10	30
Nickel	0.00191	<0.0004	0.0191	<0.004	0.4	10	40
Lead	0.000354	<0.0002	0.00354	<0.002	0.5	10	50
Antimony	0.00133	<0.001	0.0133	<0.01	0.06	0.7	5
Selenium	0.00132	<0.001	0.0132	<0.01	0.1	0.5	7
Zinc	0.00699	<0.001	0.0699	<0.01	4	50	200
Chloride	<2	<2	<20	<20	800	15000	25000
Fluoride	<0.5	<0.5	<5	<5	10	150	500
Sulphate (soluble)	2.1	<2	21	<20	1000	20000	50000
Total Dissolved Solids	78.4	<10	784	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	6.73	<3	67.3	<30	500	800	1000

Leach Test Information

Date Prepared	09-Jun-2020
pH (pH Units)	8.05
Conductivity (µS/cm)	99.80
Temperature (°C)	20.80
Volume Leachant (Litres)	0.882

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
SUB		Subcontracted Test
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM132	In - house Method	ELTRA CS800 Operators Guide
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of 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

SDG:	200608-4	**Client Reference:**		**Report Number:**	556995
Location:	Rush	**Order Number:**	50/A/20	**Superseded Report:**	556885

Test Completion Dates

Lab Sample No(s)	22267264	22267265	22267266	22267267	22267269	22267270	22267271	22267272	22267273	22267274
Customer Sample Ref.	TP2	TP6	TP8	TP10	TP11	TP12	TP14	TP15	TP16	TP18
AGS Ref.										
Depth	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020
CEN 10:1 Leachate (1 Stage)	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020
CEN Readings	16-Jun-2020	16-Jun-2020	13-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020
Chromium III	16-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	17-Jun-2020	16-Jun-2020
Coronene	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020
Dissolved Metals by ICP-MS	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020
Dissolved Organic/Inorganic Carbon	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020	18-Jun-2020
EPH by GCxGC-FID	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020
EPH CWG*	24-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020
Fluoride	15-Jun-2020	15-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020
GRO by GC-FID (S)	15-Jun-2020	16-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	16-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020
Hexavalent Chromium (s)	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	11-Jun-2020	11-Jun-2020	15-Jun-2020	15-Jun-2020
Loss on Ignition in soils	15-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020
Mercury Dissolved	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020
Metals in solid samples by OES	16-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	18-Jun-2020	16-Jun-2020
Moisture at 105C	08-Jun-2020	08-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020
PAH by GCMS	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	13-Jun-2020
PCBs by GCMS	15-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	12-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020	11-Jun-2020
Phenols by HPLC (W)	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020	16-Jun-2020
Sample description	08-Jun-2020	08-Jun-2020	08-Jun-2020	08-Jun-2020	08-Jun-2020	08-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020	09-Jun-2020
Total Dissolved Solids on Leachates	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020
Total Organic Carbon	15-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	17-Jun-2020	15-Jun-2020	16-Jun-2020	16-Jun-2020	15-Jun-2020	16-Jun-2020
TPH CWG GC (S)	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020
VOC MS (S)	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020	15-Jun-2020

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 20/04843
Issue Number: s6 **Date:** 23 June, 2020

Client:
ALS Life Sciences Ltd
Units 7&8 Hawarden Business Park
Manor Road
Hawarden
Flintshire
CH5 3US

Project Manager: Hawarden Subcontracting
Project Name: Not specified
Project Ref: Various
Order No: 200606-4, -37,38,40,200605-127
Date Samples Received: 16/06/20
Date Instructions Received: 17/06/20
Date Analysis Completed: 22/06/20

Prepared by:

Sophie France
Client Service Manager

Approved by:

John Gustafson
Managing Director

Envirolab Job Number: 20/04843

Client Project Name: Not specified

Client Project Ref: Various

Lab Sample ID	20/04843/26	20/04843/27	20/04843/28	20/04843/29	20/04843/30	20/04843/31	20/04843/32	Units	Limit of Detection	Method ref
Client Sample No	22304908	22304922	22304874	22302287	22302322	22302261	22302240			
Client Sample ID	TP10	TP11	TP12	TP14	TP15	TP16	TP18			
Depth to Top	0.50	0.50	0.50	0.50	0.50	0.50	0.50			
Depth To Bottom										
Date Sampled										
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	5AE	5A	6A	5A	6A	4A	4A			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
Ali >C12-C16$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C21-C35$_A$	<1	<1	<1	<1	3	<1	5	mg/kg	1	A-T-055s
Ali >C35-C44$_A$	<1	<1	<1	<1	<1	<1	1	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	<1	<1	<1	<1	1	<1	2	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	<1	<1	<1	<1	9	<1	18	mg/kg	1	A-T-055s
Aro >C35-C44$_A$	<1	<1	<1	<1	<1	<1	2	mg/kg	1	A-T-055s

Envirolab Job Number: 20/04843 **Client Project Name: Not specified**

Client Project Ref: Various

Lab Sample ID	20/04843/33	20/04843/34	20/04843/35					Units	Limit of Detection	Method ref
Client Sample No	22302118	22302159	22305232							
Client Sample ID	TP2	TP6	TP8							
Depth to Top	0.50	0.50	0.50							
Depth To Bottom										
Date Sampled										
Sample Type	Soil	Soil	Soil							
Sample Matrix Code	6AE	6AE	6AE							
% Stones >10mm$_A$	<0.1	<0.1	<0.1					% w/w	0.1	A-T-044
Ali >C12-C16$_A^{M\#}$	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C21-C35$_A$	2	<1	2					mg/kg	1	A-T-055s
Ali >C35-C44$_A$	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16$_A$	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	3	1	4					mg/kg	1	A-T-055s
Aro >C35-C44$_A$	<1	<1	<1					mg/kg	1	A-T-055s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: ALS Life Sciences Ltd, Units 7&8 Hawarden Business Park, Manor Road, Hawarden, Flintshire, CH5 3US

Project No: 20/04843
Date Received: 17/06/2020 (am)
Cool Box Temperatures (°C): 9.6

Project:
Clients Project No: Various

Lab Sample ID	20/04843/26	20/04843/27	20/04843/28	20/04843/29	20/04843/30	20/04843/31	20/04843/32	20/04843/33	20/04843/34	20/04843/35
Client Sample No	22304908	22304922	22304874	22302287	22302322	22302261	22302240	22302118	22302159	22305232
Client Sample ID/Depth	TP10 0.50m	TP11 0.50m	TP12 0.50m	TP14 0.50m	TP15 0.50m	TP16 0.50m	TP18 0.50m	TP2 0.50m	TP6 0.50m	TP8 0.50m
Date Sampled										
Deviation Code										
E (no date)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Key
E (no date) *No sampling date provided (all results affected if not provided)*

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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 (2017).*

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.

Waste Classification Report

FWXBM-GJY6N-84VPG

Job name

5728

Description/Comments

Client: Fingal County Council
Engineer: Downes Associates

Project

Affordable Housing

Site

Hayestown, Rush, Co. Dublin

Related Documents

#	Name	Description
1	200608-4.hwol	.hwol file used to create the Job

Waste Stream Template

Rilta Suite NEW

WAC Results

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate the samples in this job: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

Classified by

Name:
Stephen Letch
Date:
30 Jun 2020 11:49 GMT
Telephone:
353 1 6108 768

Company:
Site Investigations Ltd
Carhugar, The Grange
12th Lock Road, Lucan
Dublin

HazWasteOnline™ Training Record:

Course	Date
Hazardous Waste Classification	09 Apr 2019
Advanced Hazardous Waste Classification	09 Oct 2019

Report

Created by: Stephen Letch
Created date: 30 Jun 2020 11:49 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	WAC Results		Page
					Inert	Non Haz	
1	TP10-000000--0.50	0.50	Non Hazardous		Pass	Pass	3
2	TP11-000000--0.50	0.50	Non Hazardous		Pass	Pass	7

#	Sample Name	Depth [m]	Classification Result	Hazard properties	WAC Results		Page
					Inert	Non Haz	
3	TP12-000000--0.50	0.50	Non Hazardous		Pass	Pass	11
4	TP14-000000--0.50	0.50	Non Hazardous		Pass	Pass	15
5	TP15-000000--0.50	0.50	Non Hazardous		Pass	Pass	19
6	TP16-000000--0.50	0.50	Non Hazardous		Pass	Pass	23
7	TP18-000000--0.50	0.50	Non Hazardous		Pass	Pass	27
8	TP02-000000--0.50	0.50	Non Hazardous		Pass	Pass	31
9	TP06-000000--0.50	0.50	Non Hazardous		Pass	Pass	35
10	TP08-000000--0.50	0.50	Non Hazardous		Pass	Pass	39

Classification of sample: TP10-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP10-000000--0.50
Sample Depth:
0.50 m
Moisture content:
19%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% Wet Weight Moisture Correction applied (MC)

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
2		confirm TPH has NOT arisen from diesel or petrol					☑					
3		antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		<LOD
4		arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		13.7 mg/kg	1.534	17.021 mg/kg	0.0017 %	✓	
5		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		119 mg/kg	1.233	118.896 mg/kg	0.0119 %	✓	
6		cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.741 mg/kg	1.855	1.113 mg/kg	0.000111 %	✓	
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		14 mg/kg	1.126	12.768 mg/kg	0.00128 %	✓	
8		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	21.2 mg/kg		17.172 mg/kg	0.00172 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		<LOD
10		molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		2.17 mg/kg	1.5	2.637 mg/kg	0.000264 %	✓	
11		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		45.8 mg/kg	2.637	97.816 mg/kg	0.00978 %	✓	
12		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
13		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		73.4 mg/kg	2.469	146.81 mg/kg	0.0147 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		36.4 mg/kg	1.462	43.093 mg/kg	0.00431 %	✓	
15	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6 mg/kg	1.923	<1.154 mg/kg	<0.000115 %		<LOD
16	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
17	acenaphthylene		205-917-1	208-96-8		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
18	acenaphthene		201-469-6	83-32-9		<0.008 mg/kg		<0.008 mg/kg	<0.0000008 %		<LOD
19	fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	phenanthrene		201-581-5	85-01-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
21	anthracene		204-371-1	120-12-7		<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %		<LOD
22	fluoranthene		205-912-4	206-44-0		<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %		<LOD
23	pyrene		204-927-3	129-00-0		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
24	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
25	chrysene	601-048-00-0	205-923-4	218-01-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
26	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
27	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
28	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
29	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.018 mg/kg		<0.018 mg/kg	<0.0000018 %		<LOD
30	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023 mg/kg		<0.023 mg/kg	<0.0000023 %		<LOD
31	benzo[ghi]perylene		205-883-8	191-24-2		<0.024 mg/kg		<0.024 mg/kg	<0.0000024 %		<LOD
32	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021 mg/kg		<0.021 mg/kg	<0.0000021 %		<LOD
33	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	benzene	601-020-00-8	200-753-7	71-43-2		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
35	toluene	601-021-00-3	203-625-9	108-88-3		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
36	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
37	coronene		205-881-7	191-07-1		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
38	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
								Total:	0.0472 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP10-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.464	3	5
2	LOI (loss on ignition)	%	4.19	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.118	100	-
7	pH	pH	8.12	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	<0.005	0.5	2
10	barium	mg/kg	0.0156	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0174	2	50
14	mercury	mg/kg	<0.0001	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.007	0.4	10
17	lead	mg/kg	<0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	<0.01	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	<5	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	43.2	500	800
26	TDS (total dissolved solids)	mg/kg	466	4,000	60,000

Key

User supplied data

Classification of sample: TP11-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP11-000000--0.50
Sample Depth:
0.50 m
Moisture content:
19%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		<LOD
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		8.02 mg/kg	1.534	9.964 mg/kg	0.000996 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		103 mg/kg	1.233	102.91 mg/kg	0.0103 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.794 mg/kg	1.855	1.193 mg/kg	0.000119 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12.5 mg/kg	1.126	11.4 mg/kg	0.00114 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	14.8 mg/kg		11.988 mg/kg	0.0012 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		<LOD
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.639 mg/kg	1.5	0.776 mg/kg	0.0000776 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		23.3 mg/kg	2.637	49.762 mg/kg	0.00498 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		58.8 mg/kg	2.469	117.608 mg/kg	0.0118 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25.7 mg/kg	1.462	30.425 mg/kg	0.00304 %	✓	
15	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6 mg/kg	1.923	<1.154 mg/kg	<0.000115 %		<LOD
16	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
17	acenaphthylene		205-917-1	208-96-8		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
18	acenaphthene		201-469-6	83-32-9		<0.008 mg/kg		<0.008 mg/kg	<0.0000008 %		<LOD
19	fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	phenanthrene		201-581-5	85-01-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
21	anthracene		204-371-1	120-12-7		<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %		<LOD
22	fluoranthene		205-912-4	206-44-0		<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %		<LOD
23	pyrene		204-927-3	129-00-0		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
24	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
25	chrysene	601-048-00-0	205-923-4	218-01-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
26	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
27	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
28	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
29	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.018 mg/kg		<0.018 mg/kg	<0.0000018 %		<LOD
30	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023 mg/kg		<0.023 mg/kg	<0.0000023 %		<LOD
31	benzo[ghi]perylene		205-883-8	191-24-2		<0.024 mg/kg		<0.024 mg/kg	<0.0000024 %		<LOD
32	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021 mg/kg		<0.021 mg/kg	<0.0000021 %		<LOD
33	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	benzene	601-020-00-8	200-753-7	71-43-2		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
35	toluene	601-021-00-3	203-625-9	108-88-3		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
36	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
37	coronene		205-881-7	191-07-1		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
38	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
								Total:	0.0351 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP11-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.47	3	5
2	LOI (loss on ignition)	%	3.16	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.118	100	-
7	pH	pH	7.75	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	<0.005	0.5	2
10	barium	mg/kg	0.0193	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	0.0106	0.5	10
13	copper	mg/kg	0.0375	2	50
14	mercury	mg/kg	<0.0001	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.0122	0.4	10
17	lead	mg/kg	0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	<0.01	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	<5	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	58.6	500	800
26	TDS (total dissolved solids)	mg/kg	422	4,000	60,000

Key

User supplied data

Classification of sample: TP12-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP12-000000--0.50
Sample Depth:
0.50 m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		**<LOD**
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		13.7 mg/kg	1.534	18.282 mg/kg	0.00183 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		70.9 mg/kg	1.233	76.086 mg/kg	0.00761 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.633 mg/kg	1.855	1.021 mg/kg	0.000102 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9.08 mg/kg	1.126	8.894 mg/kg	0.000889 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	13.5 mg/kg		11.745 mg/kg	0.00117 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		1.31 mg/kg	1.5	1.71 mg/kg	0.000171 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		19.6 mg/kg	2.637	44.961 mg/kg	0.0045 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		41.3 mg/kg	2.469	88.724 mg/kg	0.00887 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18.7	mg/kg	1.462	23.778	mg/kg	0.00238 %	✓	
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<LOD
16		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
17		acenaphthylene		205-917-1	208-96-8		<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
18		acenaphthene		201-469-6	83-32-9		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
19		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
20		phenanthrene		201-581-5	85-01-8		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
21		anthracene		204-371-1	120-12-7		<0.016	mg/kg		<0.016	mg/kg	<0.0000016 %		<LOD
22		fluoranthene		205-912-4	206-44-0		<0.017	mg/kg		<0.017	mg/kg	<0.0000017 %		<LOD
23		pyrene		204-927-3	129-00-0		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
24		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
25		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
26		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
27		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
28		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
29		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.018	mg/kg		<0.018	mg/kg	<0.0000018 %		<LOD
30		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<LOD
31		benzo[ghi]perylene		205-883-8	191-24-2		<0.024	mg/kg		<0.024	mg/kg	<0.0000024 %		<LOD
32		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<LOD
33		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
38		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
											Total:	0.029 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP12-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.409	3	5
2	LOI (loss on ignition)	%	2.67	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.118	100	-
7	pH	pH	7.94	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.0166	0.5	2
10	barium	mg/kg	0.464	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	0.0146	0.5	10
13	copper	mg/kg	0.025	2	50
14	mercury	mg/kg	0.0001	0.01	0.2
15	molybdenum	mg/kg	0.0587	0.5	10
16	nickel	mg/kg	0.0088	0.4	10
17	lead	mg/kg	0.0033	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	0.0297	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	5.09	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	45	500	800
26	TDS (total dissolved solids)	mg/kg	287	4,000	60,000

Key

User supplied data

Classification of sample: TP14-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP14-000000--0.50
Sample Depth:
0.50 m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		**<LOD**
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		20.6 mg/kg	1.534	27.49 mg/kg	0.00275 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		81.7 mg/kg	1.233	87.676 mg/kg	0.00877 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		1.82 mg/kg	1.855	2.937 mg/kg	0.000294 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		39.5 mg/kg	1.126	38.691 mg/kg	0.00387 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	20.6 mg/kg		17.922 mg/kg	0.00179 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		3.32 mg/kg	1.5	4.333 mg/kg	0.000433 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		64.5 mg/kg	2.637	147.958 mg/kg	0.0148 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		71.6 mg/kg	2.469	153.817 mg/kg	0.0154 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		32.4	mg/kg	1.462	41.198	mg/kg	0.00412 %	✓	
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<LOD
16		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
17		acenaphthylene		205-917-1	208-96-8		<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
18		acenaphthene		201-469-6	83-32-9		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
19		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
20		phenanthrene		201-581-5	85-01-8		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
21		anthracene		204-371-1	120-12-7		<0.016	mg/kg		<0.016	mg/kg	<0.0000016 %		<LOD
22		fluoranthene		205-912-4	206-44-0		<0.017	mg/kg		<0.017	mg/kg	<0.0000017 %		<LOD
23		pyrene		204-927-3	129-00-0		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
24		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
25		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
26		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
27		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
28		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
29		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.018	mg/kg		<0.018	mg/kg	<0.0000018 %		<LOD
30		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<LOD
31		benzo[ghi]perylene		205-883-8	191-24-2		<0.024	mg/kg		<0.024	mg/kg	<0.0000024 %		<LOD
32		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<LOD
33		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
38		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
											Total:	0.0537 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP14-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.234	3	5
2	LOI (loss on ignition)	%	2.49	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.118	100	-
7	pH	pH	7.98	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	<0.005	0.5	2
10	barium	mg/kg	0.0083	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0074	2	50
14	mercury	mg/kg	<0.0001	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.004	0.4	10
17	lead	mg/kg	<0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	<0.01	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	<5	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	34.7	500	800
26	TDS (total dissolved solids)	mg/kg	293	4,000	60,000

Key

User supplied data

Classification of sample: TP15-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP15-000000--0.50
Sample Depth:
0.50 m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		12.1 mg/kg		10.648 mg/kg	0.00106 %	✓	
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		<LOD
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		9.85 mg/kg	1.534	13.296 mg/kg	0.00133 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		55.1 mg/kg	1.233	59.81 mg/kg	0.00598 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.435 mg/kg	1.855	0.71 mg/kg	0.000071 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17.7 mg/kg	1.126	17.537 mg/kg	0.00175 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	24.5 mg/kg		21.56 mg/kg	0.00216 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		<LOD
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.474 mg/kg	1.5	0.626 mg/kg	0.0000626 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		14.3 mg/kg	2.637	33.18 mg/kg	0.00332 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		53.6 mg/kg	2.469	116.472 mg/kg	0.0116 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16.2	mg/kg	1.462	20.836	mg/kg	0.00208 %	✓	
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<LOD
16		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
17		acenaphthylene		205-917-1	208-96-8		<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
18		acenaphthene		201-469-6	83-32-9		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
19		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
20		phenanthrene		201-581-5	85-01-8		<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
21		anthracene		204-371-1	120-12-7		<0.016	mg/kg		<0.016	mg/kg	<0.0000016 %		<LOD
22		fluoranthene		205-912-4	206-44-0		0.0397	mg/kg		0.0349	mg/kg	0.00000349 %	✓	
23		pyrene		204-927-3	129-00-0		0.0374	mg/kg		0.0329	mg/kg	0.00000329 %	✓	
24		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.03	mg/kg		0.0264	mg/kg	0.00000264 %	✓	
25		chrysene	601-048-00-0	205-923-4	218-01-9		0.0321	mg/kg		0.0282	mg/kg	0.00000282 %	✓	
26		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.0538	mg/kg		0.0473	mg/kg	0.00000473 %	✓	
27		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
28		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.0335	mg/kg		0.0295	mg/kg	0.00000295 %	✓	
29		indeno[123-cd]pyrene		205-893-2	193-39-5		0.0247	mg/kg		0.0217	mg/kg	0.00000217 %	✓	
30		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<LOD
31		benzo[ghi]perylene		205-883-8	191-24-2		<0.024	mg/kg		<0.024	mg/kg	<0.0000024 %		<LOD
32		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<LOD
33		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
38		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
											Total:	0.03 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00106%)

WAC Results for sample: TP15-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.914	3	5
2	LOI (loss on ignition)	%	3.13	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	5.72	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	0.251	100	-
7	pH	pH	7.72	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.0324	0.5	2
10	barium	mg/kg	0.018	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0319	2	50
14	mercury	mg/kg	0.0001	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.0112	0.4	10
17	lead	mg/kg	<0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	<0.01	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	<5	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	51.6	500	800
26	TDS (total dissolved solids)	mg/kg	483	4,000	60,000

Key

User supplied data

Classification of sample: TP16-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP16-000000--0.50
Sample Depth:
0.50 m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		**<LOD**
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		11.1 mg/kg	1.534	14.302 mg/kg	0.00143 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		46 mg/kg	1.233	47.662 mg/kg	0.00477 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.482 mg/kg	1.855	0.751 mg/kg	0.0000751 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10.8 mg/kg	1.126	10.214 mg/kg	0.00102 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	14.9 mg/kg		12.516 mg/kg	0.00125 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.494 mg/kg	1.5	0.623 mg/kg	0.0000623 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		17 mg/kg	2.637	37.652 mg/kg	0.00377 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		40.7 mg/kg	2.469	84.42 mg/kg	0.00844 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12.8 mg/kg	1.462	15.715 mg/kg	0.00157 %	✓	
15	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6 mg/kg	1.923	<1.154 mg/kg	<0.000115 %		<LOD
16	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
17	acenaphthylene		205-917-1	208-96-8		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
18	acenaphthene		201-469-6	83-32-9		<0.008 mg/kg		<0.008 mg/kg	<0.0000008 %		<LOD
19	fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	phenanthrene		201-581-5	85-01-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
21	anthracene		204-371-1	120-12-7		<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %		<LOD
22	fluoranthene		205-912-4	206-44-0		<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %		<LOD
23	pyrene		204-927-3	129-00-0		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
24	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
25	chrysene	601-048-00-0	205-923-4	218-01-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
26	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
27	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
28	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
29	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.018 mg/kg		<0.018 mg/kg	<0.0000018 %		<LOD
30	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023 mg/kg		<0.023 mg/kg	<0.0000023 %		<LOD
31	benzo[ghi]perylene		205-883-8	191-24-2		<0.024 mg/kg		<0.024 mg/kg	<0.0000024 %		<LOD
32	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021 mg/kg		<0.021 mg/kg	<0.0000021 %		<LOD
33	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	benzene	601-020-00-8	200-753-7	71-43-2		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
35	toluene	601-021-00-3	203-625-9	108-88-3		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
36	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
37	coronene		205-881-7	191-07-1		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
38	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
								Total:	0.0239 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP16-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.558	3	5
2	LOI (loss on ignition)	%	2.01	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.118	100	-
7	pH	pH	8.16	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.088	0.5	2
10	barium	mg/kg	1.58	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	0.0149	0.5	10
13	copper	mg/kg	0.0309	2	50
14	mercury	mg/kg	0.0001	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.0077	0.4	10
17	lead	mg/kg	<0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	0.0208	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	<5	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	45	500	800
26	TDS (total dissolved solids)	mg/kg	505	4,000	60,000

Key

User supplied data

Classification of sample: TP18-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP18-000000--0.50
Sample Depth:
0.50 m
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		23 mg/kg		19.55 mg/kg	0.00196 %	✓	
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		**<LOD**
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		13.6 mg/kg	1.534	17.732 mg/kg	0.00177 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		60.6 mg/kg	1.233	63.537 mg/kg	0.00635 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.582 mg/kg	1.855	0.917 mg/kg	0.0000917 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15.3 mg/kg	1.126	14.642 mg/kg	0.00146 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	24.2 mg/kg		20.57 mg/kg	0.00206 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.785 mg/kg	1.5	1.001 mg/kg	0.0001 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		18.1 mg/kg	2.637	40.565 mg/kg	0.00406 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		64.5 mg/kg	2.469	135.379 mg/kg	0.0135 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		11.9	mg/kg	1.462	14.784	mg/kg	0.00148 %	✓	
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<LOD
16		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
17		acenaphthylene		205-917-1	208-96-8		<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
18		acenaphthene		201-469-6	83-32-9		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
19		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
20		phenanthrene		201-581-5	85-01-8		0.0843	mg/kg		0.0717	mg/kg	0.00000717 %	✓	
21		anthracene		204-371-1	120-12-7		0.0209	mg/kg		0.0178	mg/kg	0.00000178 %	✓	
22		fluoranthene		205-912-4	206-44-0		0.234	mg/kg		0.199	mg/kg	0.0000199 %	✓	
23		pyrene		204-927-3	129-00-0		0.212	mg/kg		0.18	mg/kg	0.000018 %	✓	
24		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.168	mg/kg		0.143	mg/kg	0.0000143 %	✓	
25		chrysene	601-048-00-0	205-923-4	218-01-9		0.169	mg/kg		0.144	mg/kg	0.0000144 %	✓	
26		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.2	mg/kg		0.17	mg/kg	0.000017 %	✓	
27		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.07	mg/kg		0.0595	mg/kg	0.00000595 %	✓	
28		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.162	mg/kg		0.138	mg/kg	0.0000138 %	✓	
29		indeno[123-cd]pyrene		205-893-2	193-39-5		0.128	mg/kg		0.109	mg/kg	0.0000109 %	✓	
30		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<LOD
31		benzo[ghi]perylene		205-883-8	191-24-2		0.117	mg/kg		0.0994	mg/kg	0.00000994 %	✓	
32		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<LOD
33		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
38		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
											Total:	0.0335 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because HP 3 can be discounted as this is a solid waste without a free draining liquid phase.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00196%)

WAC Results for sample: TP18-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	1.32	3	5
2	LOI (loss on ignition)	%	3.56	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	7.87	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	1.56	100	-
7	pH	pH	8.05	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.0678	0.5	2
10	barium	mg/kg	2.14	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.06	2	50
14	mercury	mg/kg	<0.0001	0.01	0.2
15	molybdenum	mg/kg	0.0488	0.5	10
16	nickel	mg/kg	0.0191	0.4	10
17	lead	mg/kg	0.0035	0.5	10
18	antimony	mg/kg	0.0133	0.06	0.7
19	selenium	mg/kg	0.0132	0.1	0.5
20	zinc	mg/kg	0.0699	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	<5	10	150
23	sulphate	mg/kg	21	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	67.3	500	800
26	TDS (total dissolved solids)	mg/kg	784	4,000	60,000

Key

User supplied data

Classification of sample: TP02-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP02-000000--0.50
Sample Depth:
0.50 m
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		**<LOD**
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		13.1 mg/kg	1.534	18.084 mg/kg	0.00181 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		73.9 mg/kg	1.233	82.04 mg/kg	0.0082 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.689 mg/kg	1.855	1.15 mg/kg	0.000115 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		13.9 mg/kg	1.126	14.085 mg/kg	0.00141 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	25.5 mg/kg		22.95 mg/kg	0.00229 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		1.15 mg/kg	1.5	1.553 mg/kg	0.000155 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		22.1 mg/kg	2.637	52.444 mg/kg	0.00524 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		56.9 mg/kg	2.469	126.453 mg/kg	0.0126 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22.1 mg/kg	1.462	29.07 mg/kg	0.00291 %	✓	
15	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6 mg/kg	1.923	<1.154 mg/kg	<0.000115 %		<LOD
16	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
17	acenaphthylene		205-917-1	208-96-8		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
18	acenaphthene		201-469-6	83-32-9		<0.008 mg/kg		<0.008 mg/kg	<0.0000008 %		<LOD
19	fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	phenanthrene		201-581-5	85-01-8		0.0251 mg/kg		0.0226 mg/kg	0.00000226 %	✓	
21	anthracene		204-371-1	120-12-7		<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %		<LOD
22	fluoranthene		205-912-4	206-44-0		0.0544 mg/kg		0.049 mg/kg	0.0000049 %	✓	
23	pyrene		204-927-3	129-00-0		0.0493 mg/kg		0.0444 mg/kg	0.00000444 %	✓	
24	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.0362 mg/kg		0.0326 mg/kg	0.00000326 %	✓	
25	chrysene	601-048-00-0	205-923-4	218-01-9		0.0382 mg/kg		0.0344 mg/kg	0.00000344 %	✓	
26	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.0557 mg/kg		0.0501 mg/kg	0.00000501 %	✓	
27	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.0183 mg/kg		0.0165 mg/kg	0.00000165 %	✓	
28	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.039 mg/kg		0.0351 mg/kg	0.00000351 %	✓	
29	indeno[123-cd]pyrene		205-893-2	193-39-5		0.0291 mg/kg		0.0262 mg/kg	0.00000262 %	✓	
30	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023 mg/kg		<0.023 mg/kg	<0.0000023 %		<LOD
31	benzo[ghi]perylene		205-883-8	191-24-2		0.0279 mg/kg		0.0251 mg/kg	0.00000251 %	✓	
32	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021 mg/kg		<0.021 mg/kg	<0.0000021 %		<LOD
33	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	benzene	601-020-00-8	200-753-7	71-43-2		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
35	toluene	601-021-00-3	203-625-9	108-88-3		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
36	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
37	coronene		205-881-7	191-07-1		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
38	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
								Total:	0.0363 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP02-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	0.927	3	5
2	LOI (loss on ignition)	%	3.77	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	0.373	100	-
7	pH	pH	7.75	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.0195	0.5	2
10	barium	mg/kg	0.028	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0489	2	50
14	mercury	mg/kg	0.0001	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.0113	0.4	10
17	lead	mg/kg	<0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	0.0112	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	7.38	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	53.1	500	800
26	TDS (total dissolved solids)	mg/kg	408	4,000	60,000

Key

User supplied data

Classification of sample: TP06-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP06-000000--0.50
Sample Depth:
0.50 m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		**<LOD**
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		13.2 mg/kg	1.534	17.413 mg/kg	0.00174 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		98.1 mg/kg	1.233	104.065 mg/kg	0.0104 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.706 mg/kg	1.855	1.126 mg/kg	0.000113 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15 mg/kg	1.126	14.524 mg/kg	0.00145 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	22.2 mg/kg		19.092 mg/kg	0.00191 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.99 mg/kg	1.5	1.277 mg/kg	0.000128 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		27.8 mg/kg	2.637	63.038 mg/kg	0.0063 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		59 mg/kg	2.469	125.292 mg/kg	0.0125 %	✓	

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27.3 mg/kg	1.462	34.314 mg/kg	0.00343 %	✓	
15	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6 mg/kg	1.923	<1.154 mg/kg	<0.000115 %		<LOD
16	naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
17	acenaphthylene		205-917-1	208-96-8		<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<LOD
18	acenaphthene		201-469-6	83-32-9		<0.008 mg/kg		<0.008 mg/kg	<0.0000008 %		<LOD
19	fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
20	phenanthrene		201-581-5	85-01-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
21	anthracene		204-371-1	120-12-7		<0.016 mg/kg		<0.016 mg/kg	<0.0000016 %		<LOD
22	fluoranthene		205-912-4	206-44-0		<0.017 mg/kg		<0.017 mg/kg	<0.0000017 %		<LOD
23	pyrene		204-927-3	129-00-0		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
24	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
25	chrysene	601-048-00-0	205-923-4	218-01-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
26	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
27	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014 mg/kg		<0.014 mg/kg	<0.0000014 %		<LOD
28	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.015 mg/kg		<0.015 mg/kg	<0.0000015 %		<LOD
29	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.018 mg/kg		<0.018 mg/kg	<0.0000018 %		<LOD
30	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023 mg/kg		<0.023 mg/kg	<0.0000023 %		<LOD
31	benzo[ghi]perylene		205-883-8	191-24-2		<0.024 mg/kg		<0.024 mg/kg	<0.0000024 %		<LOD
32	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021 mg/kg		<0.021 mg/kg	<0.0000021 %		<LOD
33	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	benzene	601-020-00-8	200-753-7	71-43-2		<0.009 mg/kg		<0.009 mg/kg	<0.0000009 %		<LOD
35	toluene	601-021-00-3	203-625-9	108-88-3		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		<LOD
36	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
37	coronene		205-881-7	191-07-1		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
38	o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
								Total:	0.0395 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP06-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	1.1	3	5
2	LOI (loss on ignition)	%	4.81	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	<0.118	100	-
7	pH	pH	8.32	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.009	0.5	2
10	barium	mg/kg	0.739	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	0.0142	0.5	10
13	copper	mg/kg	0.0256	2	50
14	mercury	mg/kg	0.0001	0.01	0.2
15	molybdenum	mg/kg	0.0392	0.5	10
16	nickel	mg/kg	0.0094	0.4	10
17	lead	mg/kg	<0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	0.0257	4	50
21	chloride	mg/kg	28	800	15,000
22	fluoride	mg/kg	7.16	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	55.5	500	800
26	TDS (total dissolved solids)	mg/kg	534	4,000	60,000

Key

User supplied data

Classification of sample: TP08-000000--0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:
TP08-000000--0.50
Sample Depth:
0.50 m
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#	Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
2	confirm TPH has NOT arisen from diesel or petrol					☑					
3	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<0.6 mg/kg	1.197	<0.718 mg/kg	<0.0000718 %		**<LOD**
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		13.7 mg/kg	1.534	17.862 mg/kg	0.00179 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		127 mg/kg	1.233	133.156 mg/kg	0.0133 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.722 mg/kg	1.855	1.138 mg/kg	0.000114 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16.9 mg/kg	1.126	16.173 mg/kg	0.00162 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	28.5 mg/kg		24.225 mg/kg	0.00242 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.14 mg/kg	1.353	<0.189 mg/kg	<0.0000189 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.842 mg/kg	1.5	1.074 mg/kg	0.000107 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		29.3 mg/kg	2.637	65.667 mg/kg	0.00657 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		**<LOD**
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		74.2 mg/kg	2.469	155.739 mg/kg	0.0156 %	✓	

#		Determinand	CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30.3	mg/kg	1.462	37.642	mg/kg	0.00376 %	✓	
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<LOD
16		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
17		acenaphthylene		205-917-1	208-96-8		<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
18		acenaphthene		201-469-6	83-32-9		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
19		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
20		phenanthrene		201-581-5	85-01-8		0.0203	mg/kg		0.0173	mg/kg	0.00000173 %	✓	
21		anthracene		204-371-1	120-12-7		<0.016	mg/kg		<0.016	mg/kg	<0.0000016 %		<LOD
22		fluoranthene		205-912-4	206-44-0		0.0423	mg/kg		0.036	mg/kg	0.0000036 %	✓	
23		pyrene		204-927-3	129-00-0		0.0392	mg/kg		0.0333	mg/kg	0.00000333 %	✓	
24		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.0282	mg/kg		0.024	mg/kg	0.0000024 %	✓	
25		chrysene	601-048-00-0	205-923-4	218-01-9		0.0293	mg/kg		0.0249	mg/kg	0.00000249 %	✓	
26		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.0479	mg/kg		0.0407	mg/kg	0.00000407 %	✓	
27		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
28		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.027	mg/kg		0.0229	mg/kg	0.00000229 %	✓	
29		indeno[123-cd]pyrene		205-893-2	193-39-5		0.024	mg/kg		0.0204	mg/kg	0.00000204 %	✓	
30		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<LOD
31		benzo[ghi]perylene		205-883-8	191-24-2		<0.024	mg/kg		<0.024	mg/kg	<0.0000024 %		<LOD
32		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<LOD
33		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
38		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.02	mg/kg		<0.02	mg/kg	<0.000002 %		<LOD
											Total:	0.0468 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

WAC Results for sample: TP08-000000--0.50

WAC Settings: samples in this job constitute a single population.

WAC limits used to evaluate this sample: "Ireland"
The WAC used in this report are the WAC defined for the inert and non-hazardous classes of landfill in the Republic of Ireland. You should check the actual acceptance criteria when the disposal site is identified as they may differ from the generic WAC used in this report.

The sample PASSES the Inert (Inert waste landfill) criteria.

The sample PASSES the Non Haz (Non hazardous waste landfill) criteria.

WAC Determinands

Solid Waste Analysis				Landfill Waste Acceptance Criteria Limits	
#	Determinand		User entered data	Inert waste landfill	Non hazardous waste landfill
1	TOC (total organic carbon)	%	1.34	3	5
2	LOI (loss on ignition)	%	5.43	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.04	6	-
4	PCBs (polychlorinated biphenyls, 7 congeners)	mg/kg	<0.021	1	-
5	Mineral oil (C10 to C40)	mg/kg	<5	500	-
6	PAHs (polycyclic aromatic hydrocarbons)	mg/kg	0.258	100	-
7	pH	pH	8.64	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.0215	0.5	2
10	barium	mg/kg	1.8	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	0.0139	0.5	10
13	copper	mg/kg	0.0774	2	50
14	mercury	mg/kg	0.0001	0.01	0.2
15	molybdenum	mg/kg	0.0335	0.5	10
16	nickel	mg/kg	0.0089	0.4	10
17	lead	mg/kg	<0.002	0.5	10
18	antimony	mg/kg	<0.01	0.06	0.7
19	selenium	mg/kg	<0.01	0.1	0.5
20	zinc	mg/kg	0.0221	4	50
21	chloride	mg/kg	<20	800	15,000
22	fluoride	mg/kg	5.9	10	150
23	sulphate	mg/kg	<20	1,000	20,000
24	phenol index	mg/kg	<0.16	1	-
25	DOC (dissolved organic carbon)	mg/kg	52.2	500	800
26	TDS (total dissolved solids)	mg/kg	790	4,000	60,000

Key

User supplied data

Appendix A: Classifier defined and non CLP determinands

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

confirm TPH has NOT arisen from diesel or petrol

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

barium sulphide (EC Number: 244-214-4, CAS Number: 21109-95-5)

CLP index number: 016-002-00-X
Description/Comments:
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): EUH031 >= 0.8 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH031 >= 0.8 % hazard statement sourced from: WM3, Table C12.2

lead compounds with the exception of those specified elsewhere in this Annex (worst case)

CLP index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following CLP protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462
Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2 H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

- **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Additional Hazard Statement(s): Carc. 1A H350
Reason for additional Hazards Statement(s):
29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source:
http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2 H371

Appendix B: Rationale for selection of metal species

antimony {antimony trioxide}

Worst case scenario.

arsenic {arsenic pentoxide}

Arsenic pentoxide used as most hazardous species.

barium {barium sulphide}

Chromium VII at limits of detection. Barium sulphide used as the next most hazardous species. No chromate present.

cadmium {cadmium sulfate}

Cadmium sulphate used as the most hazardous species.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Chromium VII at limits of detection. Lead compounds used as the next most hazardous species. No chromate present.

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight

molybdenum {molybdenum(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Chromium VII at limits of detection. Nickel sulphate used as the next most hazardous species. No chromate present.

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil.

zinc {zinc sulphate}

Chromium VII at limits of detection. Zinc sulphate used as the next most hazardous species. No chromate present.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018
HazWasteOnline Classification Engine Version: 2020.181.4392.8609 (29 Jun 2020)
HazWasteOnline Database: 2020.181.4392.8609 (29 Jun 2020)

This classification utilises the following guidance and legislation:
WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

Appendix 9

Environmental Groundwater Laboratory Test 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

Site Investigations Ltd
The Grange
Carhugar
12th Lock Road
Lucan
Co. Dublin

Attention: Stephen Letch

CERTIFICATE OF ANALYSIS

Date of report Generation:	07 July 2020
Customer:	Site Investigations Ltd
Sample Delivery Group (SDG):	200627-39
Your Reference:	5728
Location:	Haystown, Rush
Report No:	557996

We received 3 samples on Saturday June 27, 2020 and 3 of these samples were scheduled for analysis which was completed on Tuesday July 07, 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.

Approved By:

Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	200627-39	**Client Reference:**	5728	**Report Number:**	557996
Location:	Haystown, Rush	**Order Number:**	59/A/20	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22385775	BH 01		7.00 - 7.00	25/06/2020
22385776	BH 03		7.50 - 7.50	27/06/2020
22385778	BH 05		5.00 - 5.00	22/06/2020

Maximum Sample/Coolbox Temperature (°C) : **20.2**

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:	200627-39	**Client Reference:**	5728	**Report Number:**	557996
Location:	Haystown, Rush	**Order Number:**	59/A/20	**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)					
			22385775		22385776		22385778	
			Customer Sample Reference					
			BH 01		BH 03		BH 05	
			AGS Reference					
			Depth (m)					
			7.00 - 7.00		7.50 - 7.50		5.00 - 5.00	
			Container					
			0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)
			Sample Type					
			GW	GW	GW	GW	GW	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 3	X		X		X	
Anions by Kone (w)	All	NDPs: 0 Tests: 3		X		X		X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3		X		X		X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3	X		X		X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3	X		X		X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X		X		X	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 3	X		X		X	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 3	X		X		X	
Mercury Dissolved	All	NDPs: 0 Tests: 3	X		X		X	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3	X		X		X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 3	X		X		X	
pH Value	All	NDPs: 0 Tests: 3		X		X		X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 3	X		X		X	
TPH CWG (W)	All	NDPs: 0 Tests: 3	X		X		X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	200627-39	**Client Reference:**	5728	**Report Number:**	557996
Location:	Haystown, Rush	**Order Number:**	59/A/20	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 01	BH 03	BH 05			
			Depth (m)	7.00 - 7.00	7.50 - 7.50	5.00 - 5.00			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	25/06/2020	27/06/2020	22/06/2020			
			Sample Time	-	-	-			
			Date Received	27/06/2020	27/06/2020	27/06/2020			
			SDG Ref	200627-39	200627-39	200627-39			
			Lab Sample No.(s)	22385775	22385776	22385778			
			AGS Reference						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 2 #	<0.2 2 #	<0.2 2 #			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		0.277 #	0.29 #	0.763 #			
Arsenic (diss.filt)	<0.5 µg/l	TM152		1.46 2 #	1.33 2 #	0.953 2 #			
Boron (diss.filt)	<10 µg/l	TM152		17 2 #	21.4 2 #	128 2 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2 #	<0.08 2 #	<0.08 2 #			
Chromium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 2 #	<1 2 #			
Copper (diss.filt)	<0.3 µg/l	TM152		0.557 2 #	0.758 2 #	<0.3 2 #			
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 2 #	<0.2 2 #	<0.2 2 #			
Manganese (diss.filt)	<3 µg/l	TM152		36.3 2 #	67.9 2 #	2730 2 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		0.59 2 #	0.737 2 #	16.7 2 #			
Zinc (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 2 #	2.94 2 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152		2.59 2 #	2.75 2 #	2.61 2 #			
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 2 #	<0.01 2 #	<0.01 2 #			
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 2 #	0.059 2 #	<0.05 2 #			
Sulphate	<2 mg/l	TM184		41.7 #	40.6 #	86.8 #			
Chloride	<2 mg/l	TM184		16.1 #	15.7 #	36.8 #			
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	0.442	<0.3			
Cyanide, Total	<0.05 mg/l	TM227		<0.05 2 #	<0.05 2 #	<0.05 2 #			
pH	<1 pH Units	TM256		8.23 #	8.02 #	7.51 #			
Phenol	<0.002 mg/l	TM259		<0.002 2 #	<0.002 2 #	<0.002 2 #			
Cresols	<0.006 mg/l	TM259		<0.006 2 #	<0.006 2 #	<0.006 2 #			
Xylenols	<0.008 mg/l	TM259		<0.008 2 #	<0.008 2 #	0.05 2 #			
Phenols, Total Detected monohydric	<0.016 mg/l	TM259		<0.016 2 #	<0.016 2 #	0.05 2 #			

Validated

CERTIFICATE OF ANALYSIS

SDG:	200627-39	**Client Reference:**	5728	**Report Number:**	557996
Location:	Haystown, Rush	**Order Number:**	59/A/20	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 01	BH 03	BH 05			
			Depth (m)	7.00 - 7.00	7.50 - 7.50	5.00 - 5.00			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	25/06/2020	27/06/2020	22/06/2020			
			Sample Time	-	-	-			
			Date Received	27/06/2020	27/06/2020	27/06/2020			
			SDG Ref	200627-39	200627-39	200627-39			
			Lab Sample No.(s)	22385775	22385776	22385778			
			AGS Reference						
Naphthalene (aq)	<0.01 µg/l	TM178		<0.2 #	0.784 #	0.214 #			
Acenaphthene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	<0.1 #			
Acenaphthylene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	<0.1 #			
Fluoranthene (aq)	<0.005 µg/l	TM178		0.153 #	0.154 #	2.19 #			
Anthracene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	0.178 #			
Phenanthrene (aq)	<0.005 µg/l	TM178		0.293 #	0.303 #	1.28 #			
Fluorene (aq)	<0.005 µg/l	TM178		<0.1 #	0.105 #	<0.1 #			
Chrysene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	1.57 #			
Pyrene (aq)	<0.005 µg/l	TM178		0.34 #	0.32 #	2.76 #			
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	1.21 #			
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	<0.1 #			
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	<0.1 #			
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178		<0.04 #	<0.04 #	<0.04 #			
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	<0.1 #			
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178		0.545 #	0.319 #	6.31 #			
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178		<0.1 #	<0.1 #	2.29 #			
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178		<1.64 #	1.98 #	18 #			

Validated

CERTIFICATE OF ANALYSIS

SDG: 200627-39 **Client Reference:** 5728 **Report Number:** 557996
Location: Haystown, Rush **Order Number:** 59/A/20 **Superseded Report:**

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.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
1-3+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 01	BH 03	BH 05			
			Depth (m)	7.00 - 7.00	7.50 - 7.50	5.00 - 5.00			
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)			
			Date Sampled	25/06/2020	27/06/2020	22/06/2020			
			Sample Time	-	-	-			
			Date Received	27/06/2020	27/06/2020	27/06/2020			
			SDG Ref	200627-39	200627-39	200627-39			
			Lab Sample No.(s)	22385775	22385776	22385778			
			AGS Reference						
GRO Surrogate % recovery**	%	TM245		100 2	87 2	72 2			
GRO >C5-C12	<50 µg/l	TM245		<50 2 #	<50 2 #	<50 2 #			
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 2 #	<3 2 #	<3 2 #			
Benzene	<7 µg/l	TM245		<7 2 #	<7 2 #	<7 2 #			
Toluene	<4 µg/l	TM245		<4 2 #	<4 2 #	<4 2 #			
Ethylbenzene	<5 µg/l	TM245		<5 2 #	<5 2 #	<5 2 #			
m,p-Xylene	<8 µg/l	TM245		<8 2 #	<8 2 #	<8 2 #			
o-Xylene	<3 µg/l	TM245		<3 2 #	<3 2 #	<3 2 #			
Sum of detected Xylenes	<11 µg/l	TM245		<11 2	<11 2	<11 2			
Sum of detected BTEX	<28 µg/l	TM245		<28 2	<28 2	<28 2			
Aliphatics >C5-C6	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aliphatics >C6-C8	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aliphatics >C8-C10	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aliphatics >C10-C12	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		354	14	586			
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		400	<10	856			
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		4390	227	79600			
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		5140	241	81100			
Aromatics >EC5-EC7	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aromatics >EC7-EC8	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aromatics >EC8-EC10	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aromatics >EC10-EC12	<10 µg/l	TM245		<10 2	<10 2	<10 2			
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<200	<200	<200			
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<200	<200	<200			
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<200	<200	333			
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<200	<200	333			
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		5140	241	81400			
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		4790	227	80500			

Table of Results - Appendix

Method No	Reference	Description
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

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

SDG:	200627-39	**Client Reference:**	5728	**Report Number:**	557996
Location:	Haystown, Rush	**Order Number:**	59/A/20	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22385775	22385776	22385778
Customer Sample Ref.	BH 01	BH 03	BH 05
AGS Ref.			
Depth	7.00 - 7.00	7.50 - 7.50	5.00 - 5.00
Type	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	02-Jul-2020	02-Jul-2020	02-Jul-2020
Anions by Kone (w)	03-Jul-2020	03-Jul-2020	03-Jul-2020
Conductivity (at 20 deg.C)	03-Jul-2020	03-Jul-2020	03-Jul-2020
Cyanide Comp/Free/Total/Thiocyanate	06-Jul-2020	06-Jul-2020	06-Jul-2020
Dissolved Metals by ICP-MS	03-Jul-2020	03-Jul-2020	03-Jul-2020
EPH CWG (Aliphatic) Aqueous GC (W)	06-Jul-2020	06-Jul-2020	06-Jul-2020
EPH CWG (Aromatic) Aqueous GC (W)	06-Jul-2020	06-Jul-2020	06-Jul-2020
GRO by GC-FID (W)	04-Jul-2020	04-Jul-2020	06-Jul-2020
Mercury Dissolved	01-Jul-2020	01-Jul-2020	01-Jul-2020
Nitrite by Kone (w)	03-Jul-2020	03-Jul-2020	03-Jul-2020
PAH Spec MS - Aqueous (W)	06-Jul-2020	06-Jul-2020	06-Jul-2020
pH Value	02-Jul-2020	02-Jul-2020	02-Jul-2020
Phenols by HPLC (W)	06-Jul-2020	06-Jul-2020	06-Jul-2020
TPH CWG (W)	07-Jul-2020	07-Jul-2020	07-Jul-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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 (2017).*

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.

Appendix 10

Survey Data

Survey Data

Location	Irish Transverse Mercator		Elevation	Irish National Grid	
	Easting	Northing		Easting	Northing
Boreholes and Coreholes					
BH01	725119.273	754263.194	19.25	325195.423	254241.336
BH02	725181.114	754250.133	18.87	325257.277	254228.272
BH03	725294.231	754250.406	18.32	325370.418	254228.546
BH04	725198.262	754170.336	18.91	325274.430	254148.458
BH05	725217.771	754103.597	17.61	325293.943	254081.705
Trial Pits					
TP01	725104.002	754272.752	19.18	325180.148	254250.896
TP02	725144.169	754273.131	19.18	325220.324	254251.275
TP03	725181.029	754267.077	19.10	325257.192	254245.220
TP04	725226.017	754264.129	18.91	325302.189	254242.271
TP05	725307.901	754264.543	18.43	325384.091	254242.686
TP06	725112.753	754255.402	18.89	325188.902	254233.542
TP07	725147.280	754234.198	18.52	325223.436	254212.334
TP08	725178.534	754232.703	18.52	325254.697	254210.838
TP09	725225.736	754215.827	18.01	325301.909	254193.959
TP10	725253.453	754241.618	18.19	325329.631	254219.756
TP11	725300.790	754223.097	17.61	325376.979	254201.231
TP12	725183.447	754202.832	18.67	325259.611	254180.961
TP13	725209.501	754192.888	18.42	325285.671	254171.015
TP14	725192.845	754171.270	18.83	325269.011	254149.392
TP15	725218.283	754143.657	18.23	325294.455	254121.773
TP16	725188.848	754115.990	18.01	325265.014	254094.100
TP17	725230.746	754103.119	17.88	325306.921	254081.227
TP18	725200.693	754074.461	17.41	325276.862	254052.562
Soakaway Tests					
SA01	725144.240	754252.351	19.00	325220.395	254230.490
SA02	725223.648	754240.929	18.47	325299.820	254219.066
SA03	725201.610	754157.317	18.68	325277.778	254135.436
SA04	725211.262	754124.608	18.10	325287.433	254102.720

Legend Key

- Locations By Type - CP
- Locations By Type - IP
- Locations By Type - TP

Contract No:	5728
Contract Name:	Affordable Housing
Location:	Old Road, Hayestown, Rush, Co. Dublin
Client:	Fingal County Council
Engineer:	Downes Associates
Title:	Site Plan
Scale:	1:1500
Drawn By:	SL

Site Investigations Ltd
The Grange
12th Lock Road
Lucan
Co. Dublin
T: 01 6108768
e: info@siteinvestigations.ie