Appendix G – Site Investigation Report

S.I. Ltd Contract No: 6377

Client:	Corcom Enterprises Ltd
Engineer:	ORS
Contractor:	Site Investigations Ltd

Boreen Bradach,
Kinnegad, Co. Westmeath
Site Investigation Report

Prepared by:

.....

Stephen Letch

Issue Date:	06/01/2024
Status	Final
Revision	0

Contents:

Appendices:

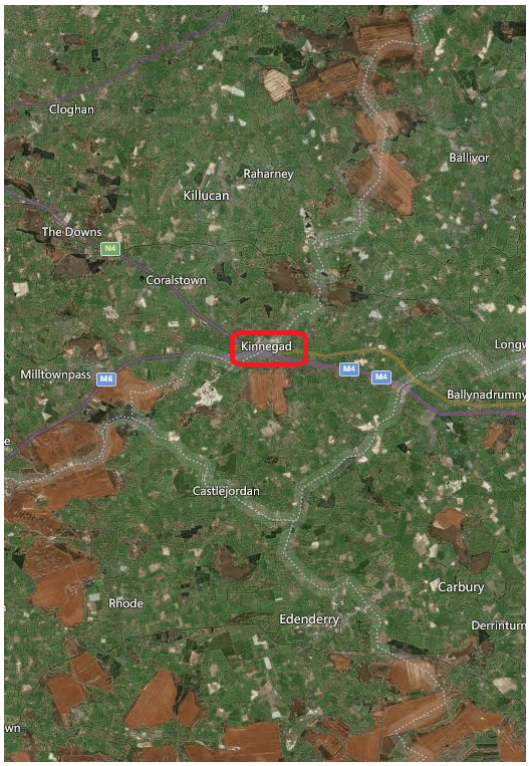
1. Introduction

On the instructions of ORS, Site Investigations Ltd (SIL) was appointed to complete a ground investigation at Kinnegad, Co. Westmeath. The investigation was completed for a residential development, Boreen Bradach, and was completed on behalf of the Client, Corcom Enterprises Ltd. The fieldworks were started in October and completed in November 2024.

This report presents the factual geotechnical data obtained from the field and laboratory testing with interpretation of the ground conditions discussed.

2. Site Location

Kinnegad is located close to the border of Co. Meath with the junction of the M4 and M6 motorways to the south of the town. The site is located to the north of Kinnegad town centre. The map on the left shows the location Kinnegad close to the border with Co. Meath and the map on the right shows the location of the site in the town.



3. Fieldwork

All fieldwork was carried out in accordance with Eurocode 7: Geotechnical Design and IEI Specification & Related Documents for Ground Investigation in Ireland (2006). The fieldworks comprised the following:

- 8 No. cable percussive boreholes
- 5 No. trial pits
- 10 No. dynamic probes
- 5 No. foundation pits
- 6 No. soakaway tests
- 10 No. California Bearing Ratio tests

3.1. Cable Percussive Boreholes

Cable percussion boring was completed at 8 No. locations using a Dando 2000 rig and constructed 200mm diameter boreholes. After CAT scanning the locations, hand dug inspection pits were excavated to 1.00mbgl to check for underground services. The boreholes terminated at depths ranging from 5.20mbgl (BH05) to 8.20mbgl (BH01) after an hour and a half of chiselling was completed with no further progress. Bulk disturbed samples were recovered at regular intervals as the boreholes progressed.

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 1.00mbgl where N=8(1,1/2,2,2,2)). 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-(25 for 95mm/50 for 15mm)).

The cable percussive borehole logs are presented in Appendix 1.

3.2. Trial Pits

5 No. trial pits were excavated using a tracked excavator. The pit strata, wall stability and any groundwater ingresses were logged and then photographed by SIL geotechnical engineer. Representative disturbed bulk samples were recovered as the pits were excavated, which were returned to the laboratory for geotechnical and environmental testing.

The trial pit logs and photographs are presented in Appendix 2.

3.3. Dynamic Probes

At 10 No. locations, dynamic probes were completed using a track mounted Competitor 130 machine. The testing complies with the requirements of BS1377: Part 9 (1990) and Eurocode 7: Part 3. The configuration utilised standard DPH (Heavy) probing method comprising a 50kg

weight, 500mm drop height and a 50mm diameter (90°) cone. The number of blows required to drive the cone each 100mm increment into the sub soil is recorded in accordance with the standards. The dynamic probe provides no information regarding soil type or groundwater conditions.

The dynamic probe results can be used to analyse the strength of the soil strata encountered by the probe. 'Proceedings of the Trinity College Dublin Symposium of Field and Laboratory Testing of Soils for Foundations and Embankments' presents a paper by Foirbart that is most relevant to Irish soil conditions and within this paper the following equations were included:

Granular Soils: DPH N_{100} x 2.5 = SPT N value
Cohesive Soils: C_u = 15 x DPH N_{100} + 30 kN/m^2

These equations present a relationship between the probe N_{100} value and the SPT N value for granular soils and the undrained shear strength of cohesive soils.

The dynamic probe logs are presented in Appendix 3.

3.4. Foundation Pits

At 5 No. locations, foundation pits were excavated adjacent to boundary walls on the site. These were completed to investigate the existing foundations of the walls with these logged and photographed before being backfilled with the arisings and reinstated.

The foundation pit logs are presented in Appendix 4.

3.5. Soakaway Pits

At 6 No. locations, soakaway tests were completed and these were logged by SIL geotechnical engineer. BRE Special Digest 365 stipulates that 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 soakaway test results and photographs are presented in Appendix 5.

3.6. Plate Tests

At ten locations, plate tests were completed to provide a California Bearing Ratio value for pavement design. The tests were completed at 0.50mbgl, using the excavator as kentledge. Pressure is then added to a 600mm diameter plate, via a hydraulic jack, with the settlement of the plate measured using gauges. The rate of settlement is used to calculate the CBR value.

The plate test results are presented in Appendix 6.

3.6. Surveying

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

4. Laboratory Testing

4.1. Geotechnical Testing

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

- 24 No. Moisture contents
- 24 No. Atterberg limits
- 24 No. Linear shrinkage
- 24 No. Particle size gradings with hydrometers
- 24 No. Laboratory shear vanes
- 24 No. pH, sulphate and chloride content

The geotechnical laboratory test results are presented in Appendix 7.

4.2. Environmental Testing

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

- 6 No. Suite I analysis
- 24 No. Total Organic Carbon tests

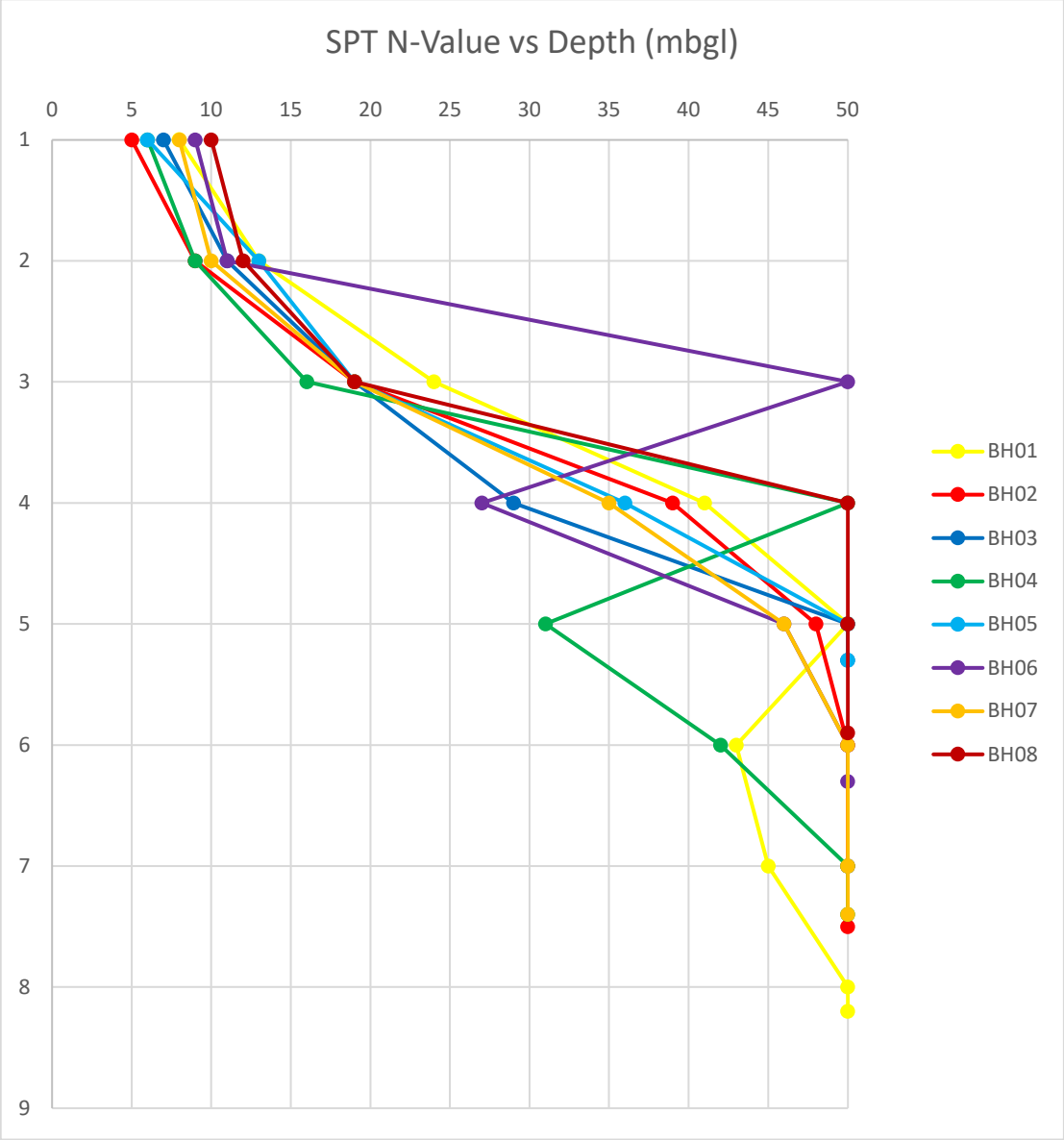
The environmental test results are reported in Appendix 8 with a Waste Classification report in Appendix 9.

5. Ground Conditions

5.1. Overburden

The natural ground is dominated by brown slightly sandy slightly gravelly silty CLAY with cobbles with grey brown and grey coloured soils identified at a few locations.

The SPT N-values are consistent with values of 5 to 10 at 1.00mbgl, 9 to 13 at 2.00mbgl and 16 to 24 at 3.00mbgl and then continue to increase with depth. The graph overleaf shows the SPT N-values vs depth.



The laboratory tests of the cohesive soils show CLAY soils with low to intermediate plasticity indexes of 9 to 19% recorded. The particle size distribution curves were poorly sorted straight-line curves with 40% to 77% fines content in the cohesive CLAY soils.

5.2. Groundwater

Groundwater was recorded in seven boreholes between 2.80mbgl at BH03 and BH05 and 3.50mbgl in BH02. These strikes were sealed off by the casings between 3.20mbgl and 4.00mbgl with water encountered again in BH01 at 7.00mbgl and remaining in the borehole until completion. BH08 recorded a deeper water strike compared to the other boreholes at 5.80mbgl and this remained in the hole until completion.

Groundwater was not recorded in any of the trial pits during the fieldworks.

6.0. 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. 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.

For cohesive soils, a correlation proposed by Stroud and Butler between SPT N-values and plasticity indices can be used to calculate the undrained shear strength. Dependent on the plasticity index at each site, the Stroud and Butler correlation is C_u=4 to 6N. With the low to intermediate plasticity indexes recorded in the laboratory for the soils on this site, the correlation chosen is C_u=6N. The SPT tests recorded values of 5 to 10 at 1.00mbgl and this indicates a C_u range of 30kN/m^2 to 60kN/m^2. This is then used to calculate the ultimate bearing capacity, which is the total loading that the soil could withstand, and this ranges from 171kN/m^2 to 324kN/m^2. Finally, a factor of safety is applied to the ultimate bearing capacity to calculate the allowable bearing capacity, with a factor of safety of 3 chosen, indicating an allowable bearing capacity range of 57kN/m^2 to 108kN/m^2.

The SPT N-values increase to 9 to 13 at 2.00mbgl indicating a C_u range of 54kN/m^2 to 78kN/m^2. This provides an ultimate bearing capacity range of 311kN/m^2 to 434kN/m^2 and an allowable bearing capacity range of 104kN/m^2 to 145kN/m^2.

For analysis of bearing capacities from the dynamic probes, the N_{100} values are used as follows in cohesive soils. The undrained shear strength (C_u) is calculated using the N_{100} value as per the equation in Section 3.3. This can then be used in calculations to work out the ultimate bearing capacity (ULS) and when a factor of safety of 3 is applied, the allowable bearing capacity (ABC) can be provided.

The table below shows the allowable bearing capacities for N_{100} values 1 to 10 at 1.00mbgl and these can be used provide the allowable bearing capacity at each probe location.

N_{100} Value	Cohesive Soils		
	C_u	ULS	ABC
1	45	248	83
2	60	330	110
3	75	400	135
4	90	480	160
5	105	555	185
6	120	630	210
7	135	705	235
8	150	780	260
9	165	855	285
10	180	930	310

All capacities shown are in kN/m^2.

The probes recorded values of 2 or greater from 1.00mbgl therefore, indicating allowable bearing capacities of $110kN/m^2$ so slightly higher than the SPT N-values. DP05, DP09 and DP10 did record lower N_{100} values around 3.00mbgl. Therefore, it would be recommended that a suitably qualified Engineer inspects the founding soils before pouring the foundations.

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.
- All man-made or filled material is to be removed prior to construction.
- The bulk unit weight of the material in this stratum has a minimum density of $19kN/m^3$.
- Based on groundwater observations this analysis assumes the groundwater will not influence the construction or performance of these foundations.
- All bearing capacity calculations allow for 25mm settlement.

The trial pit walls generally remained stable initially but did record some collapse at the base of the pits below 3.00mbgl. Therefore, it would be recommended that all excavations should be checked immediately and battered back if required. Regular inspection of temporary excavations should also 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 or nearby construction.

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 recorded in the boreholes below 2.80mbgl. 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. 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 to medium. If granular soils are encountered in shallow excavations, then the possibility of water ingressing into an excavation increase with higher ingress rates.

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 test at SA01 passed the specification and recorded a f-value of $7.13x10^{-5}$m/s.

The remaining tests failed the specification as the water level did not fall sufficiently enough to complete the test. The BRE Digest stipulates that the pit should half empty within 24hrs, and extrapolation indicates this condition would not be satisfied. The tests were 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 soils.

6.4. Pavement Design

The plate test results in Appendix 6 indicate CBR values ranging from 7.6% to 12.7%.

The plate tests were completed at 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 completed on six samples with the results provided 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 generally can be classified as non-hazardous material.

Following this analysis of the solid test results, the leachate disposal suite results indicate that the soils tested would generally be able to be treated as Inert Waste.

Six 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.

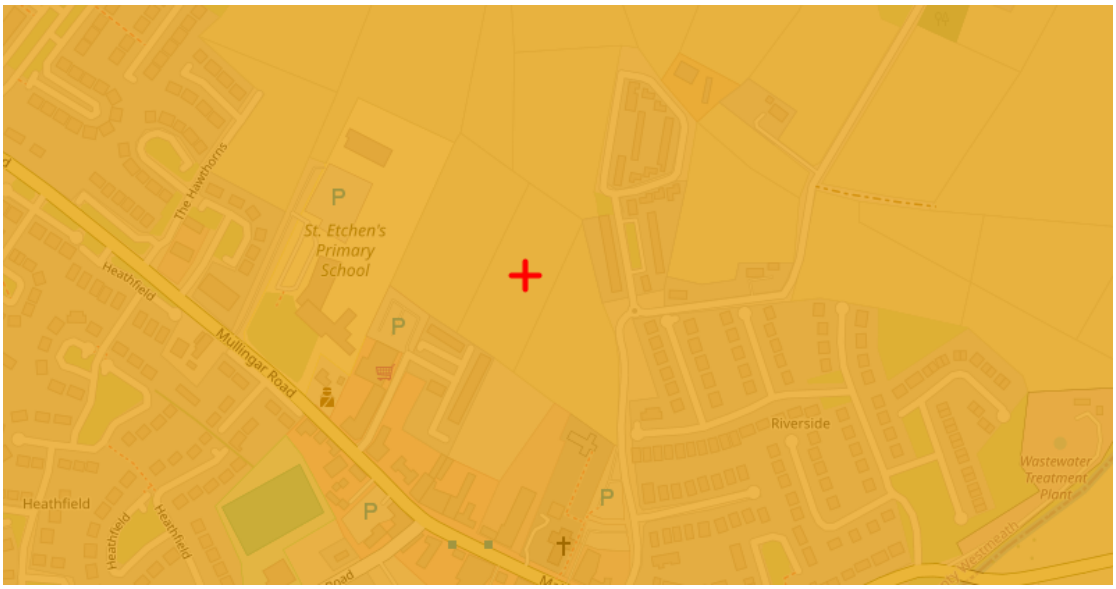
6.6. Aggressive Ground Conditions

The chemical test results in Appendix 7 indicate a general pH value of 8.28 to 8.99.

The maximum value obtained for water soluble sulphate was 136mg/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 163mg/l shows Class 1 conditions and no special precautions are required.

6.7. Radon Gas

The Environmental Protection Agency (EPA) has recently updated the Radon gas exposure map and this is available to view on the EPA website. This shows the possible exposure to radon gas with the bedrock geology, subsoil geology, soil permeability and aquifer type analysed to produce the map. The map based on residential homes shows that the site falls within the medium category of 1 in 10 homes have a possibility of high radon exposure. Measures should still be taken in the form of radon protection barriers to protect from radon exposure in any new enclosed structure.



EPA map identifying possible Radon exposure.
https://gis.epa.ie/EPAMaps/Radon?&lid=EPA:RadonRiskMapofIreland

Appendix 1

Cable Percussion Borehole Logs

Contract No: 6377	**Cable Percussion Borehole Log**				Borehole No: **BH01**
Contract:	Boreen Bradach	Easting:	659861.220	Date Started:	17/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745516.426	Date Completed:	17/10/2024
Client:	Corcom Enterprises Ltd	Elevation:	74.89	Drilled By:	D. McEoin
Engineer:	ORS	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
0.5	0.20	TOPSOIL.		74.5	74.69					
		Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble content.				1.00	B	DMc01		
1.0				74.0		1.00	C	N=8 (1,1/2,2,2,2)		
1.5	1.50			73.5	73.39					
		Firm becoming stiff brown slightly sandy gravelly silty CLAY with high cobble content.				2.00	B	DMc02		
2.0				73.0		2.00	C	N=13 (2,2/2,3,4,4)		
2.5				72.5						
3.0				72.0		3.00	B	DMc03		
						3.00	C	N=24 (2,3/5,5,7,7)		
3.5	3.50			71.5	71.39					
		Very stiff brown slightly sandy slightly gravelly silty CLAY with high cobble content.				4.00	B	DMc04		
4.0				71.0		4.00	C	N=41 (3,5/9,9,10,13)		
4.5				70.5						
5.0				70.0		5.00	B	DMc05		
						5.00	C	50 (25 for 95mm/50 for 15mm)		
5.5	5.50			69.5	69.39					
		Very stiff grey slightly sandy slightly gravelly silty CLAY with medium cobble content.				6.00	B	DMc06		
6.0				69.0		6.00	C	N=43 (8,8/10,13,10,10)		
6.5				68.5						
7.0				68.0		7.00	B	DMc07		
						7.00	C	N=45 (5,8/11,10,12,12)		
7.5				67.5						
8.0	8.10			67.0	66.79	8.00	C	50 (25 for 95mm/50 for 10mm)		
	8.20	Obstruction - possible boulders.			66.69	8.20	C	50 (25 for 5mm/50 for 5mm)		
8.5		End of Borehole at 8.20m		66.5						
9.0				66.0						
9.5				65.5						
10.0				65.0						
10.5				64.5						
				64.0						

Chiselling:

From:	To:	Time:
5.10	5.30	01:00
8.10	8.20	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
3.00	2.80	3.50
7.00	6.70	NS

Water Details:

Date:	Hole Depth:	Water Depth:
17/10	8.20	6.80

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	8.20	Arisings

Remarks: Borehole terminated due to obstruction.

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

Contract No: 6377	**Cable Percussion Borehole Log**	Borehole No: **BH02**

Contract:	Boreen Bradach	Easting:	659850.685	Date Started:	22/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745565.571	Date Completed:	22/10/2024
Client:	Corcom Enterprises Ltd	Elevation:	75.12	Drilled By:	D. McEoin
Engineer:	ORS	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.		75.0	74.92					
0.5		Soft brown slightly sandy slightly gravelly silty CLAY with medium cobble content.		74.5						
1.0				74.0		1.00	B	DMc08		
						1.00	C	N=5 (1,1/1,1,2,1)		
1.5	1.70			73.5	73.42					
2.0		Firm becoming stiff brown slightly sandy gravelly silty CLAY with high cobble content.		73.0		2.00	B	DMc09		
						2.00	C	N=9 (1,2/2,3,2,2)		
2.5				72.5						
3.0						3.00	B	DMc10		
				72.0		3.00	C	N=19 (2,3/4,4,6,5)		
3.5				71.5						
4.0						4.00	B	DMc11		
				71.0		4.00	C	N=39 (3,5/8,8,9,14)		
4.5				70.5						
5.0	5.00				70.12	5.00	B	DMc12		
		Very stiff grey slightly sandy slightly gravelly silty CLAY with medium cobble content.		70.0		5.00	C	N=48 (8,9/10,12,13,13)		
5.5				69.5						
6.0						6.00	B	DMc13		
				69.0		6.00	C	N=50 (7,11/12,11,13,14)		
6.5				68.5						
7.0						7.00	B	DMc14		
				68.0		7.00	C	50 (10,15/50 for 70mm)		
	7.30				67.82					
7.5	7.50	Obstruction - possible boulders.		67.5	67.62	7.50	C	50 (25 for 5mm/50 for 5mm)		
		End of Borehole at 7.50m								
8.0				67.0						
8.5				66.5						
9.0				66.0						
9.5				65.5						
10.0				65.0						
10.5				64.5						

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:
4.70	4.90	01:00	3.50	3.20	4.00	22/10	7.50	Dry				0.00	7.50	Arisings	Borehole terminated due to obstruction.
7.30	7.50	01:30													

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

Contract No: 6377	**Cable Percussion Borehole Log**				Borehole No: **BH03**
Contract:	Boreen Bradach	Easting:	659754.056	Date Started:	29/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745570.806	Date Completed:	29/10/2024
Client:	Corcom Enterprises Ltd	Elevation:	75.74	Drilled By:	D. McEoin
Engineer:	ORS	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	0.20	TOPSOIL.		75.5	75.54					
0.5		Soft brown slightly sandy slightly gravelly silty CLAY with medium cobble content.		75.0		1.00	B	DMc27		
1.0						1.00	C	N=7 (1,1/2,2,1,2)		
1.5				74.5						
2.0				74.0		2.00	B	DMc28		
	2.20			73.5	73.54	2.00	C	N=11 (1,2/2,3,3,3)		
2.5		Firm becoming stiff grey brown slightly sandy slightly gravelly silty CLAY with high cobble content.							▼	
3.0				73.0		3.00	B	DMc29		
3.5				72.5		3.00	C	N=19 (4,5/4,4,5,6)		
4.0	4.00			72.0						
		Stiff brown slightly sandy slightly gravelly silty CLAY with high cobble content.			71.74	4.00	B	DMc30		
4.5				71.5		4.00	C	N=29 (3,5/6,8,8,7)		
5.0				71.0						
	5.10				70.64	5.00	B	DMc31		
	5.30	Obstruction - possible boulders.		70.5	70.44	5.00	C	50 (25 for 100mm/50 for 15mm)		
5.5		End of Borehole at 5.30m				5.30	C	50 (25 for 5mm/50 for 5mm)		
6.0				70.0						
6.5				69.5						
7.0				69.0						
7.5				68.5						
8.0				68.0						
8.5				67.5						
9.0				67.0						
9.5				66.5						
10.0				66.0						
10.5				65.5						
				65.0						

Chiselling:

From:	To:	Time:
3.70	3.90	01:00
5.10	5.30	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
2.80	2.50	3.20

Water Details:

Date:	Hole Depth:	Water Depth:
29/10	5.30	Dry

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	5.30	Arisings

Remarks:

Borehole terminated due to obstruction.

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

Contract No: 6377	**Cable Percussion Borehole Log**				Borehole No: **BH04**
Contract:	Boreen Bradach	Easting:	659692.729	Date Started:	30/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745600.212	Date Completed:	30/10/2024
Client:	Corcom Enterprises Ltd	Elevation:	76.56	Drilled By:	D. McEoin
Engineer:	ORS	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.			76.36					
0.5	0.60	Brown slightly sandy slightly gravelly silty CLAY with medium cobble content.		76.0	75.96					
1.0		Soft light brown slightly sandy slightly gravelly silty CLAY with high cobble content.		75.5		1.00	B	DMc32		
						1.00	C	N=6 (1,1/1,2,1,2)		
1.5	1.50			75.0	75.06					
2.0		Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with high cobble content.		74.5		2.00	B	DMc33		
						2.00	C	N=9 (2,2/2,2,3,2)		
2.5				74.0						
3.0				73.5		3.00	B	DMc34		
						3.00	C	N=16 (2,3/3,4,4,5)		
3.5				73.0						
4.0				72.5		4.00	B	DMc35		
						4.00	C	50 (25 for 80mm/50 for 25mm)		
4.5	4.50			72.0	72.06					
5.0		Very stiff brown slightly sandy slightly gravelly silty CLAY with high cobble content.		71.5		5.00	B	DMc36		
						5.00	C	N=31 (3,5/7,7,9,8)		
5.5				71.0						
6.0				70.5		6.00	B	DMc37		
						6.00	C	N=42 (5,8/10,10,10,12)		
6.5				70.0						
7.0				69.5		7.00	B	DMc38		
	7.20				69.36	7.00	C	50 (10,12/50 for 40mm)		
	7.40	Obstruction - possible boulders.			69.16	7.40	C	50 (25 for 5mm/50 for 5mm)		
7.5		End of Borehole at 7.40m		69.0						
8.0				68.5						
8.5				68.0						
9.0				67.5						
9.5				67.0						
10.0				66.5						
10.5				66.0						

Chiselling:

From:	To:	Time:
4.10	4.20	01:00
7.20	7.40	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
3.00	2.70	3.50

Water Details:

Date:	Hole Depth:	Water Depth:
30/10	7.40	Dry

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	7.40	Arisings

Remarks: Borehole terminated due to obstruction.

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

Contract No: 6377	**Cable Percussion Borehole Log**				Borehole No: **BH05**
Contract:	Boreen Bradach	Easting:	659721.152	Date Started:	31/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745649.357	Date Completed:	31/10/2024
Client:	Corcom Enterprises Ltd	Elevation:	75.39	Drilled By:	D. McEoin
Engineer:	ORS	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
0.5	0.20	TOPSOIL.		75.0	75.19					
		Brown slightly sandy slightly gravelly silty CLAY with medium cobble content.								
1.0	0.90			74.5	74.49	1.00	B	DMc39		
		Soft light brown slightly sandy gravelly silty CLAY with high cobble content.				1.00	C	N=6 (1,1/1,2,1,2)		
1.5	1.50			74.0	73.89					
		Firm becoming stiff becoming very stiff brown slightly sandy slightly gravelly silty CLAY with high cobble content.		73.5		2.00	B	DMc40		
2.0						2.00	C	N=13 (2,3/3,3,3,4)		
2.5				73.0						
3.0				72.5		3.00	B	DMc41		
						3.00	C	N=19 (2,4/5,5,4,5)		
3.5				72.0						
4.0				71.5		4.00	B	DMc42		
						4.00	C	N=36 (3,8/8,8,10,10)		
4.5				71.0						
5.0	5.10			70.5	70.29	5.00	B	DMc43		
	5.20	Obstruction - possible boulders.			70.19	5.00	C	50 (25 for 105mm/50 for 20mm)		
5.5		End of Borehole at 5.20m		70.0		5.30	C	50 (25 for 5mm/50 for 5mm)		
6.0				69.5						
6.5				69.0						
7.0				68.5						
7.5				68.0						
8.0				67.5						
8.5				67.0						
9.0				66.5						
9.5				66.0						
10.0				65.5						
10.5				65.0						
				64.5						

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:
5.10	5.20	01:30	2.80	2.70	3.30	31/10	5.20	Dry				0.00	5.20	Arisings	Borehole terminated due to obstruction.

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

Contract No: 6377	**Cable Percussion Borehole Log**	Borehole No: **BH06**

Contract:	Boreen Bradach	Easting:	659743.419	Date Started:	01/11/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745704.024	Date Completed:	01/11/2024
Client:	Corcom Enterprises Ltd	Elevation:	74.18	Drilled By:	D. McEoin
Engineer:	ORS	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.		74.0	73.98					
0.5		Brown slightly sandy slightly gravelly silty CLAY with medium cobble content.								
	0.70			73.5	73.48					
1.0		Firm light brown slightly sandy slightly gravelly silty CLAY with high cobble content.				1.00	B	DMc44		
				73.0		1.00	C	N=9 (1,1/2,2,3,2)		
1.5										
	1.90			72.5	72.28					
2.0		Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with high cobble content.				2.00	B	DMc45		
				72.0		2.00	C	N=11 (2,2/3,2,3,3)		
2.5										
				71.5						
3.0						3.00	B	DMc46		
				71.0		3.00	C	50 (3,9/50 for 115mm)		
3.5										
				70.5						
4.0						4.00	B	DMc47		
	4.20			70.0	69.98	4.00	C	N=27 (3,5/7,7,6,7)		
4.5		Stiff becoming very stiff brown slightly sandy slightly gravelly silty CLAY with high cobble content.								
				69.5						
5.0						5.00	B	DMc48		
				69.0		5.00	C	N=46 (5,10/11,13,12,10)		
5.5										
				68.5						
6.0						6.00	B	DMc49		
	6.10			68.0	68.08	6.00	C	50 (25 for 95mm/50 for 25mm)		
	6.30	Obstruction - possible boulders.			67.88	6.30	C	50 (25 for 5mm/50 for 5mm)		
6.5		End of Borehole at 6.30m								
				67.5						
7.0				67.0						
7.5				66.5						
8.0				66.0						
8.5				65.5						
9.0				65.0						
9.5				64.5						
10.0				64.0						
10.5				63.5						

Chiselling:

From:	To:	Time:
1.60	1.70	01:00
3.30	3.50	01:00
6.10	6.30	01:30

Water Strikes:

Strike:	Rose:	Depth Sealed
3.20	2.80	3.50

Water Details:

Date:	Hole Depth:	Water Depth:
01/11	6.30	Dry

Installation:

From:	To:	Pipe:

Backfill:

From:	To:	Type:
0.00	6.30	Arisings

Remarks: Borehole terminated due to obstruction.

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

Contract No: 6377	**Cable Percussion Borehole Log**				Borehole No: **BH07**
Contract:	Boreen Bradach	Easting:	659790.469	Date Started:	25/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745618.025	Date Completed:	25/10/2024
Client:	Corcom Enterprises Ltd	Elevation:	75.10	Drilled By:	D. McEoin
Engineer:	ORS	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	0.20	TOPSOIL.		75.0	74.90					
0.5		Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble content.		74.5						
1.0				74.0		1.00	B	DMc20		
1.5						1.00	C	N=8 (1,1/2,2,2,2)		
2.0				73.5						
2.5				73.0		2.00	B	DMc21		
						2.00	C	N=10 (2,2/2,3,2,3)		
3.0	2.60	Stiff becoming very stiff grey brown slightly sandy slightly gravelly silty CLAY with medium cobble content.		72.5	72.50					
3.5				72.0		3.00	B	DMc22		
4.0						3.00	C	N=19 (3,3/4,4,5,6)		
4.5	4.50	Very stiff brown slightly sandy gravelly silty CLAY with high cobble content.		71.5						
5.0				71.0		4.00	B	DMc23		
						4.00	C	N=35 (5,8/8,10,9,8)		
5.5				70.5	70.60					
6.0				70.0		5.00	B	DMc24		
						5.00	C	N=46 (5,10/12,10,11,13)		
6.5				69.5						
7.0				69.0		6.00	B	DMc25		
						6.00	C	50 (25 for 115mm/50 for 30mm)		
	7.20	Obstruction - possible boulders.		68.5						
7.5	7.40	End of Borehole at 7.40m		68.0	67.90	7.00	B	DMc26		
					67.70	7.00	C	50 (9,13/50 for 50mm)		
				67.5		7.40	C	50 (25 for 5mm/50 for 5mm)		
8.0				67.0						
8.5				66.5						
9.0				66.0						
9.5				65.5						
10.0				65.0						
10.5				64.5						

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:
6.20	6.40	01:00	3.00	2.50	3.50	25/10	7.40	Dry				0.00	7.40	Arisings	Borehole terminated due to obstruction.
7.20	7.40	01:30													

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

Contract No: 6377	**Cable Percussion Borehole Log**				Borehole No: **BH08**
Contract:	Boreen Bradach	Easting:	659831.760	Date Started:	24/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745648.677	Date Completed:	24/10/2024
Client:	Corcom Enterprises Ltd	Elevation:	74.24	Drilled By:	D. McEoin
Engineer:	ORS	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.			74.04					
		Firm brown slightly sandy slightly gravelly silty CLAY with low cobble content.				1.00	B	DMc15		
						1.00	C	N=10 (1,2/2,3,2,3)		
						2.00	B	DMc16		
	2.20				72.04	2.00	C	N=12 (2,3/3,2,3,4)		
		Firm becoming stiff brown slightly sandy gravelly silty CLAY with medium cobble content.								
						3.00	B	DMc17		
						3.00	C	N=19 (3,3/4,4,5,6)		
	3.50				70.74					
		Very stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble content.				4.00	B	DMc18		
						4.00	C	50 (8,10/50 for 210mm)		
						5.00	B	DMc19		
						5.00	C	N=50 (8,13/50 for 275mm)		
	5.70				68.54					
	5.90	Obstruction - possible boulders.			68.34	5.90	C	50 (25 for 5mm/50 for 5mm)		
		End of Borehole at 5.90m								

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:
4.30	4.40	01:00	5.40	5.00	NS	24/10	5.90	5.00				0.00	5.90	Arisings	Borehole terminated due to obstruction.
5.70	5.90	01:30													

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

Appendix 2

Trial Pit Logs and Photographs

Contract No: 6377	**Trial Pit Log**				Trial Pit No: **TP01**
Contract:	Boreen Bradach	Easting:	659867.624	Date:	14/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745497.452	Excavator:	8T Tracked Excavator
Client:	Corcom Enterprises Ltd	Elevation:	74.71	Logged By:	P. McGonagle
Engineer:	ORS	Dimensions (LxWxD) (m):	3.80 x 0.50 x 3.50	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		74.5					
0.5	0.50	Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of limestone. Cobbles are angular to subrounded of limestone.		74.0	74.21	0.50	CBR	PM01	
1.0						1.00	B	PM02	
1.5	1.50	Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of limestone. Cobbles and boulders are angular to subrounded of limestone (up to 250mm diameter).		73.5	73.21				
2.0				73.0		2.00	B	PM03	
2.5				72.5					
3.0				72.0		3.00	B	PM04	
3.5	3.50	Pit terminated due to pit wall instability at the base. **Pit terminated at 3.50m**		71.5	71.21				
4.0				71.0					
4.5				70.5					
				70.0					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Minor pit wall instability after 3.00mbgl.	Minor collapse at base of pit.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 6377	**Trial Pit Log**				Trial Pit No: **TP02**
Contract:	Boreen Bradach	Easting:	659857.176	Date:	14/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745532.791	Excavator:	8T Tracked Excavator
Client:	Corcom Enterprises Ltd	Elevation:	75.10	Logged By:	P. McGonagle
Engineer:	ORS	Dimensions (LxWxD) (m):	4.00 x 0.50 x 3.40	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
0.5	0.40	TOPSOIL.		75.0	74.70				
		Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of limestone. Cobbles and boulders are angular to subrounded of limestone (up to 250mm diameter).		74.5		0.50	CBR	PM05	
1.0						1.00	B	PM06	
1.5				74.0					
2.0				73.5		2.00	B	PM07	
2.5				73.0					
3.0				72.5		3.00	B	PM08	
3.5	3.40	Pit terminated due to pit wall instability at the base. **Pit terminated at 3.40m**		72.0	71.70				
4.0				71.5					
4.5				71.0					
				70.5					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Minor pit wall instability after 3.00mbgl.	Minor collapse at base of pit.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 6377	**Trial Pit Log**				Trial Pit No: **TP03**
Contract:	Boreen Bradach	Easting:	659785.546	Date:	14/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745561.041	Excavator:	8T Tracked Excavator
Client:	Corcom Enterprises Ltd	Elevation:	75.27	Logged By:	P. McGonagle
Engineer:	ORS	Dimensions (LxWxD) (m):	4.00 x 0.50 x 3.50	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		75.0	74.97				
	0.30	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of limestone. Cobbles and boulders are angular to subrounded of limestone (up to 250mm diameter).				0.50	CBR	PM09	
0.5				74.5					
1.0						1.00	B	PM10	
				74.0					
1.5									
				73.5					
2.0						2.00	B	PM11	
				73.0					
2.5									
				72.5					
3.0						3.00	B	PM12	
				72.0					
3.5	3.50	Pit terminated due to pit wall instability at the base. **Pit terminated at 3.50m**			71.77				
				71.5					
4.0									
				71.0					
4.5									
				70.5					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Minor pit wall instability after 3.00mbgl.	Minor collapse at base of pit.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 6377	**Trial Pit Log**				Trial Pit No: **TP04**
Contract:	Boreen Bradach	Easting:	659771.680	Date:	14/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745683.208	Excavator:	8T Tracked Excavator
Client:	Corcom Enterprises Ltd	Elevation:	74.15	Logged By:	P. McGonagle
Engineer:	ORS	Dimensions (LxWxD) (m):	4.00 x 0.50 x 3.60	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		74.0					
	0.30	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of limestone. Cobbles and boulders are angular to subrounded of limestone (up to 250mm diameter).			73.85				
0.5				73.5		0.50	CBR	PM13	
1.0				73.0		1.00	B	PM14	
1.5				72.5					
2.0				72.0		2.00	B	PM15	
2.5				71.5					
3.0				71.0		3.00	B	PM16	
3.5	3.60	Pit terminated due to pit wall instability at the base. **Pit terminated at 3.60m**		70.5	70.55				
4.0				70.0					
4.5				69.5					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Minor pit wall instability after 3.00mbgl.	Minor collapse at base of pit.	Dry	-	B = Bulk disturbed D = Small disturbed CBR = Undisturbed CBR ES = Environmental

Contract No: 6377	**Trial Pit Log**				Trial Pit No: **TP05**
Contract:	Boreen Bradach	Easting:	659702.323	Date:	14/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745619.281	Excavator:	8T Tracked Excavator
Client:	Corcom Enterprises Ltd	Elevation:	76.20	Logged By:	P. McGonagle
Engineer:	ORS	Dimensions (LxWxD) (m):	4.00 x 0.50 x 3.30	Status:	FINAL

Level (mbgl) Scale:	Depth	Stratum Description	Legend	Level (mOD) Scale:	Depth:	Samples / Field Tests Depth	Type	Result	Water Strike
		TOPSOIL.		76.0					
	0.30	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of limestone. Cobbles and boulders are angular to subrounded of limestone (up to 250mm diameter).			75.90				
0.5				75.5		0.50	CBR	PM17	
1.0						1.00	B	PM18	
				75.0					
1.5				74.5					
2.0						2.00	B	PM19	
				74.0					
2.5				73.5					
3.0						3.00	B	PM20	
	3.30	Pit terminated due to pit wall instability at the base. **Pit terminated at 3.30m**		73.0	72.90				
3.5				72.5					
4.0				72.0					
4.5				71.5					

Termination:	Pit Wall Stability:	Groundwater Rate:	Remarks:	Key:
Minor pit wall instability after 3.00mbgl.	Minor collapse at base of pit.	Dry	-	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

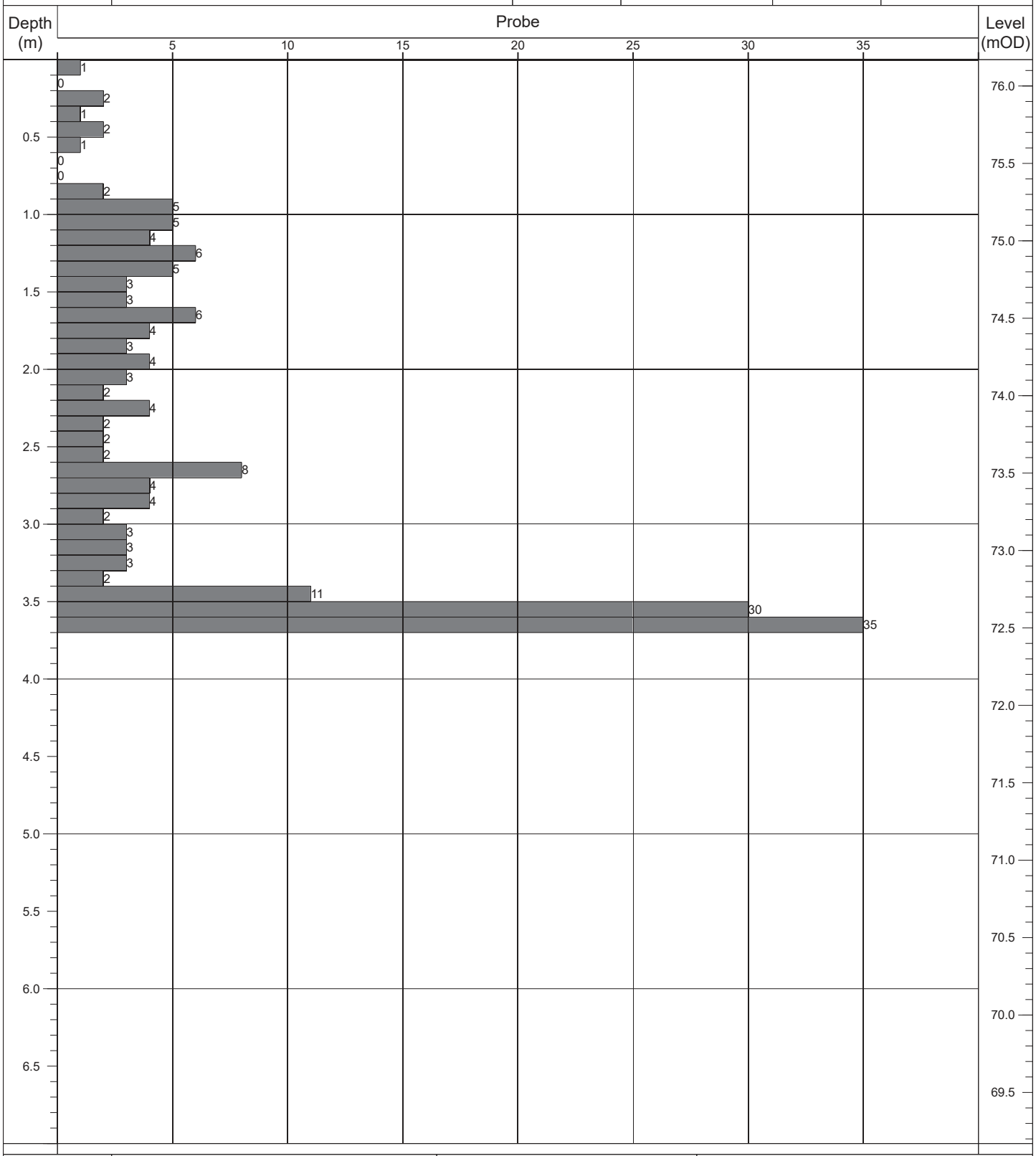
TP05 Sidewall

TP05 Spoil

Appendix 3

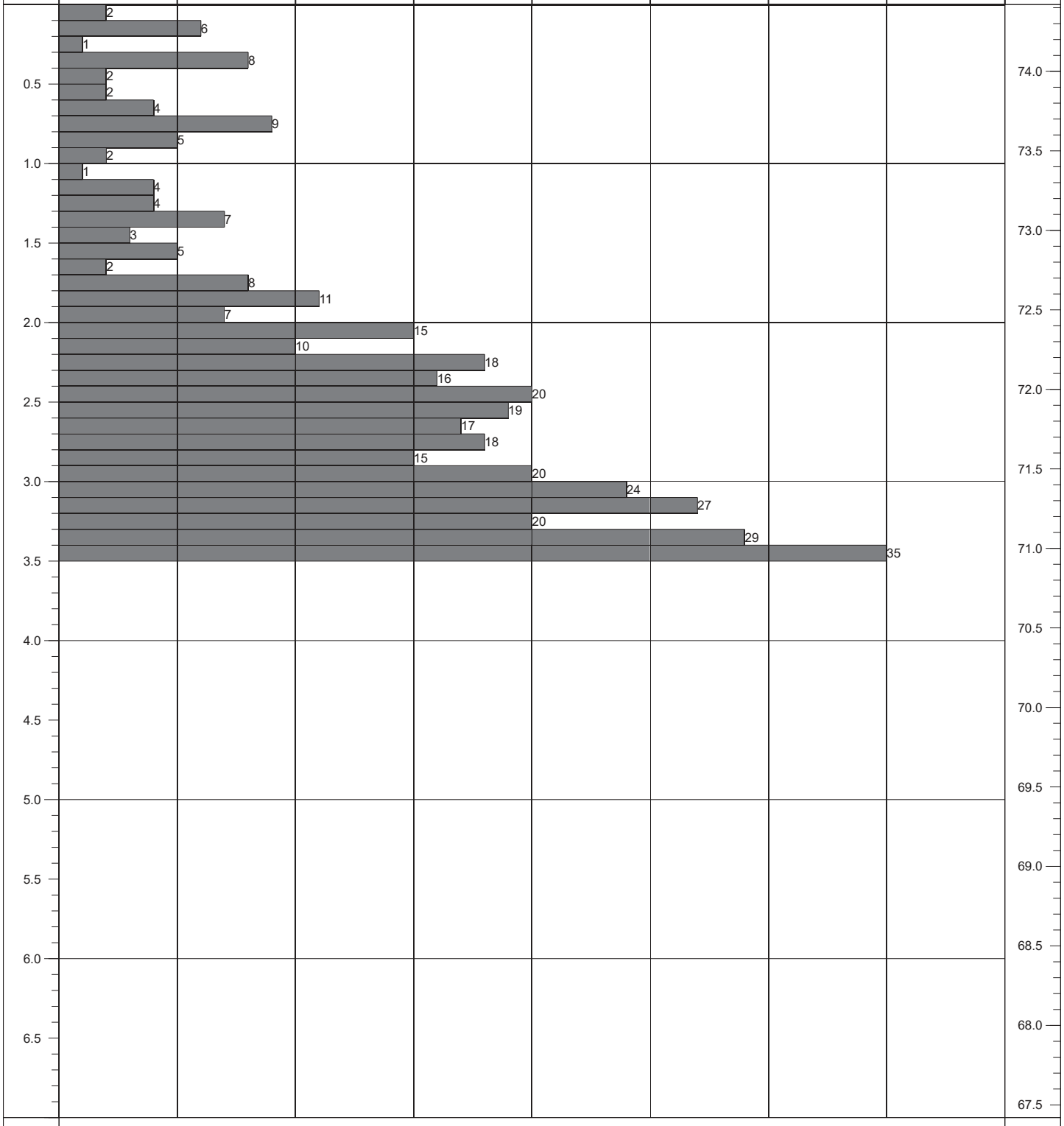
Dynamic Probe Logs

Contract No: 6377	Dynamic Probe Log				Probe No: DP01
Contract:	Boreen Bradach	Easting:	659683.922	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745636.207	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	76.17	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



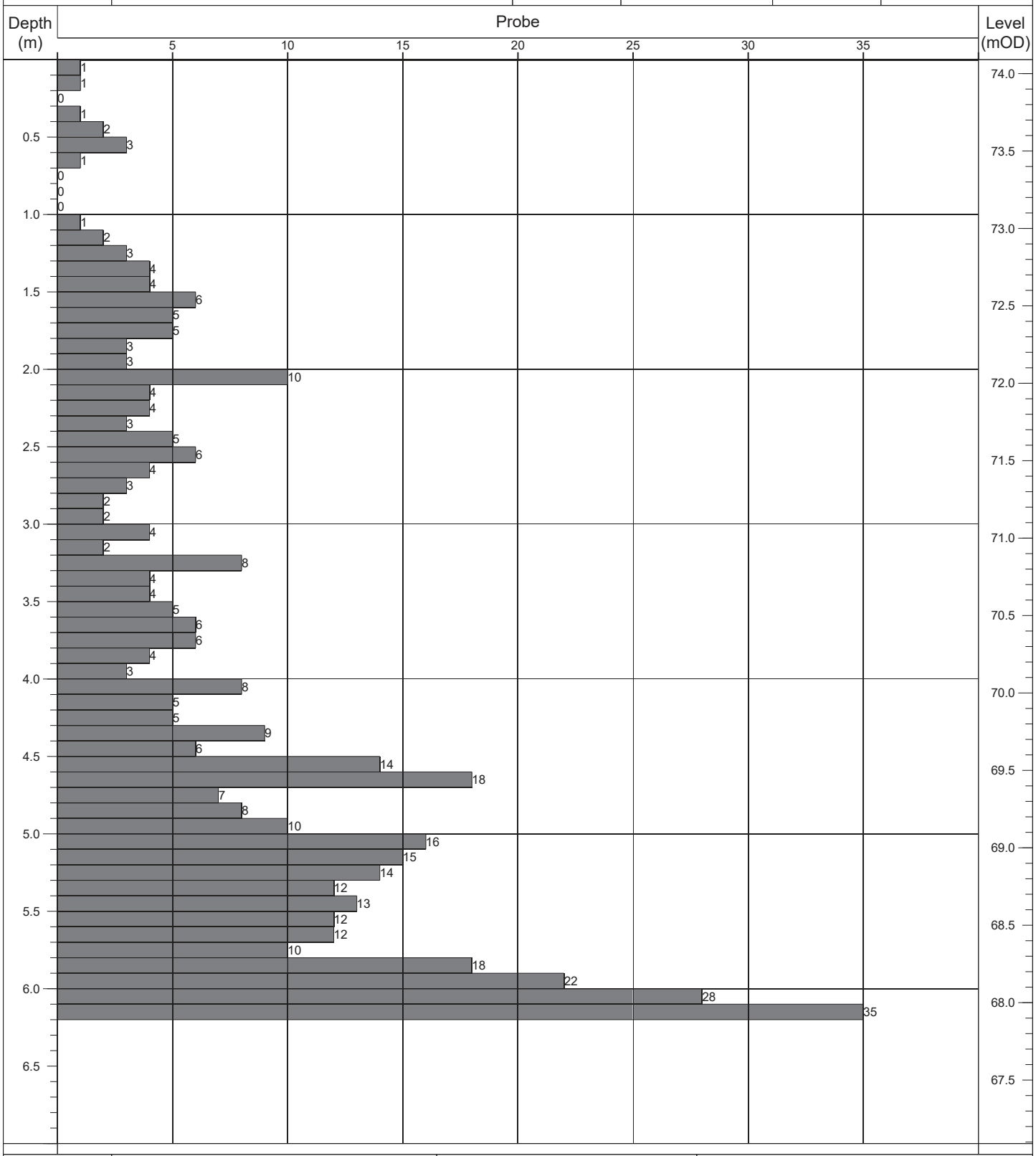
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
3.70m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	Dynamic Probe Log				Probe No: DP02
Contract:	Boreen Bradach	Easting:	659759.120	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745676.258	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	74.42	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



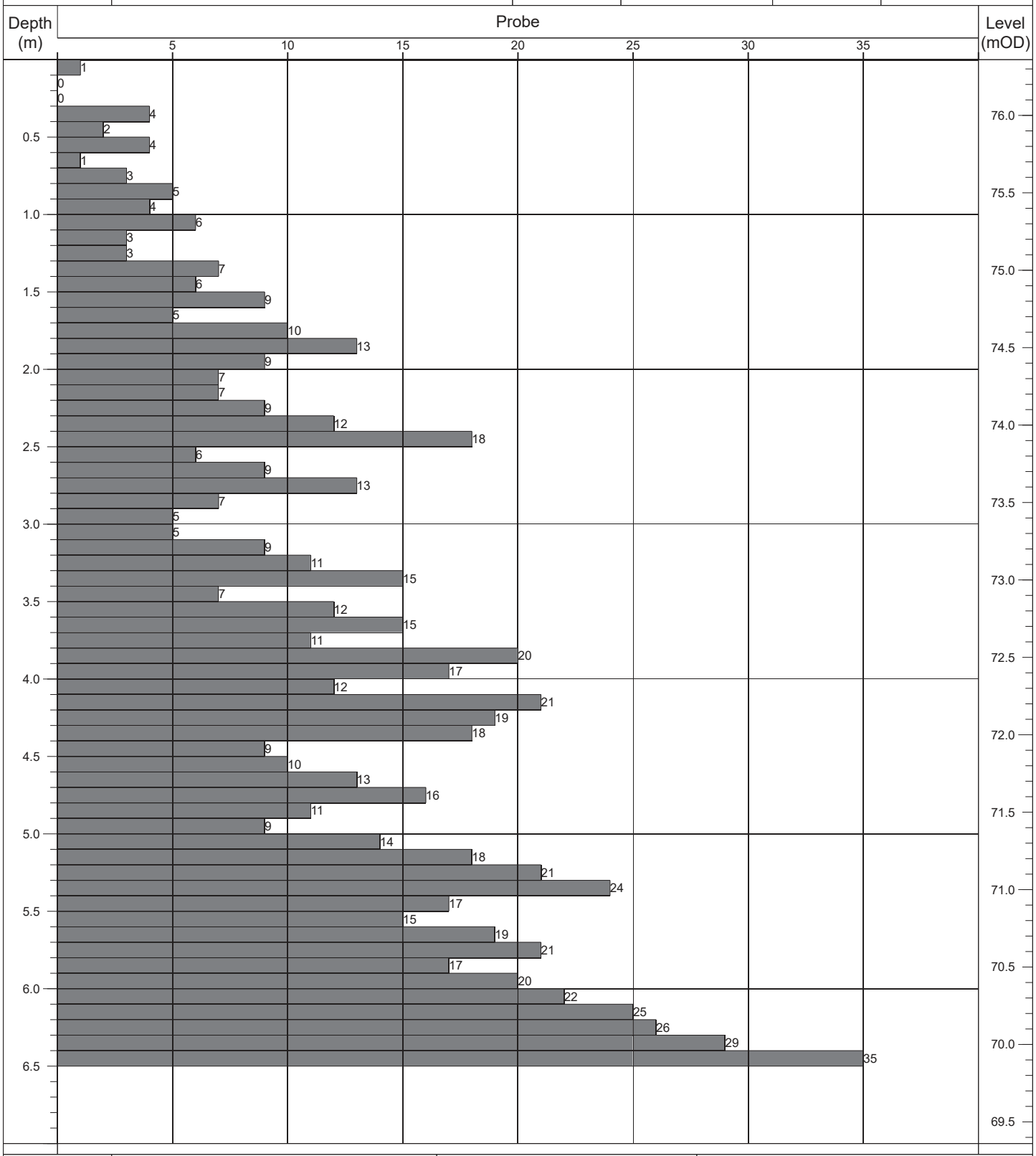
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
3.50m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	Dynamic Probe Log				Probe No: DP03
Contract:	Boreen Bradach	Easting:	659817.795	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745664.544	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	74.09	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



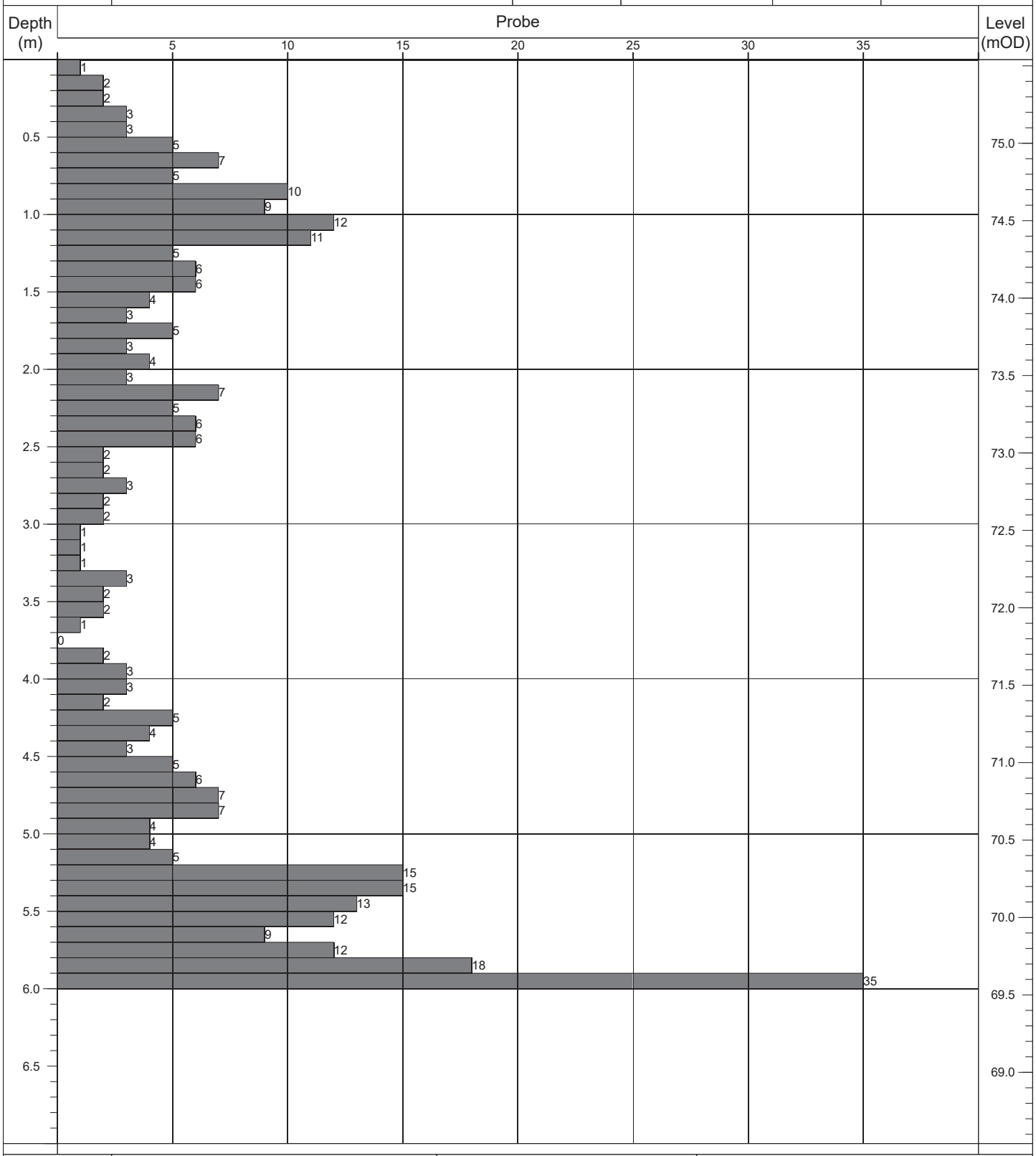
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
6.20m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	**Dynamic Probe Log**				Probe No: **DP04**
Contract:	Boreen Bradach	Easting:	659725.600	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745571.734	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	76.36	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



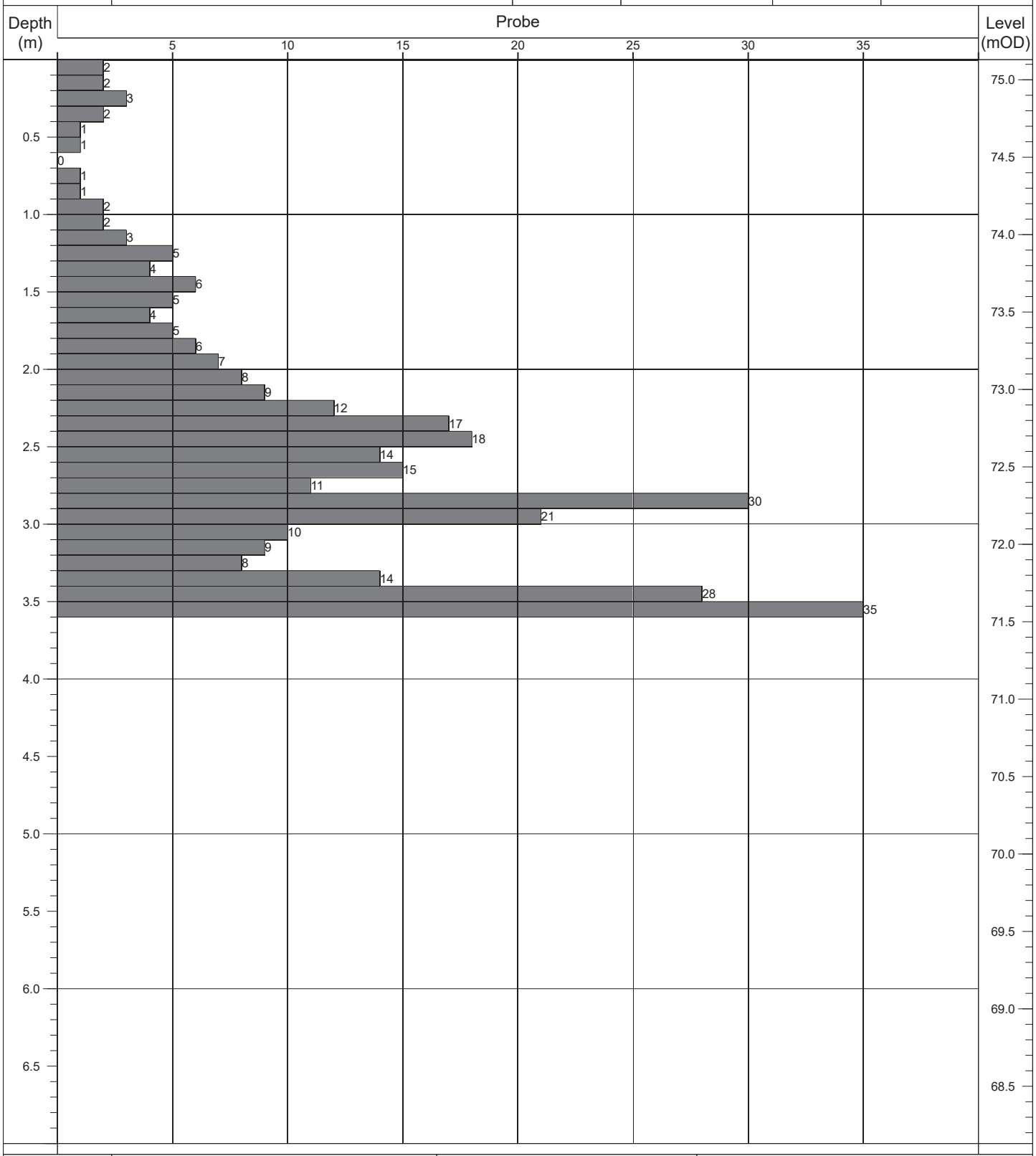
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
6.50m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	**Dynamic Probe Log**				Probe No: **DP05**
Contract:	Boreen Bradach	Easting:	659773.962	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745582.038	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	75.54	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



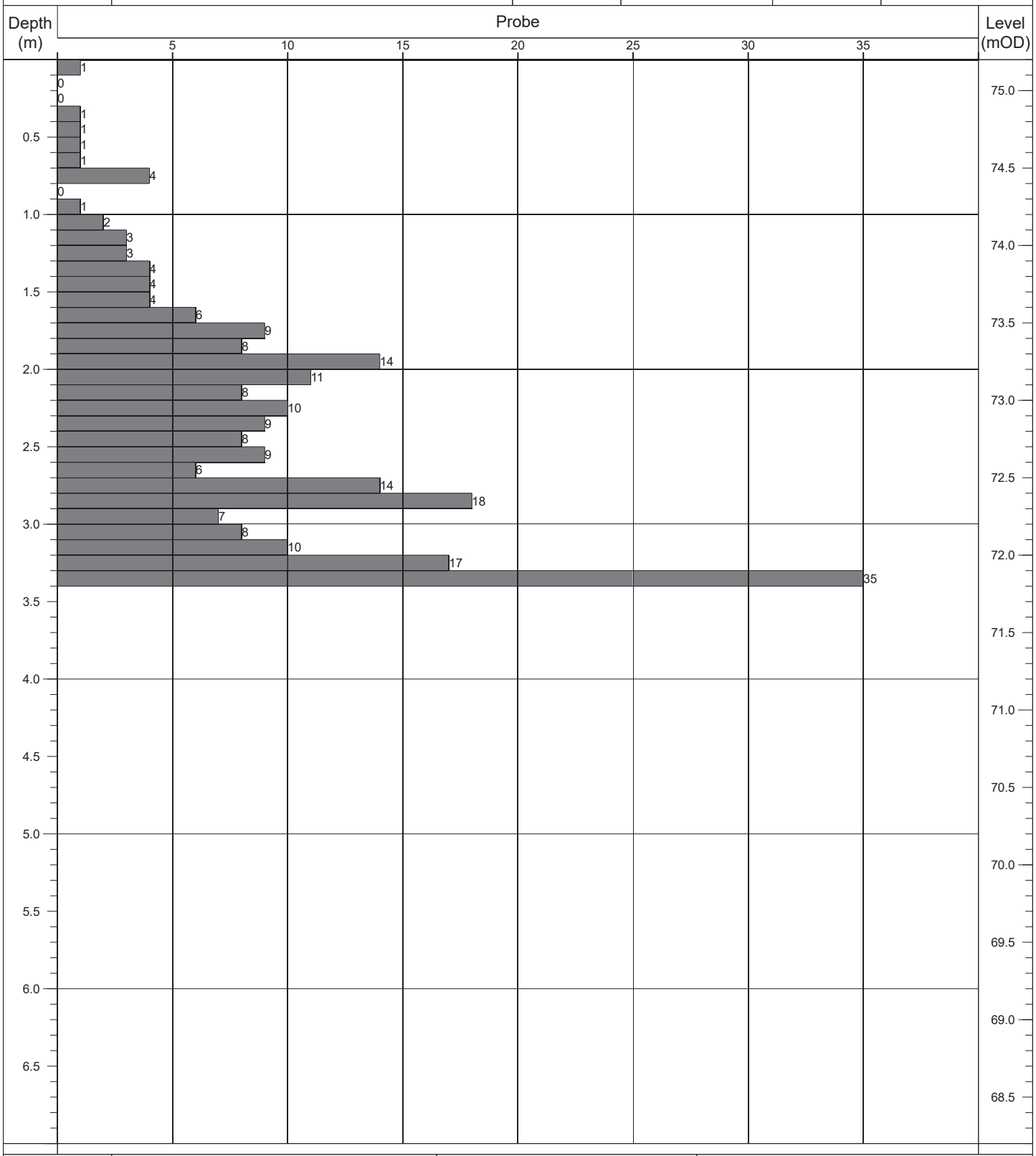
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
6.00m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	Dynamic Probe Log				Probe No: DP06
Contract:	Boreen Bradach	Easting:	659847.848	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745589.880	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	75.13	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



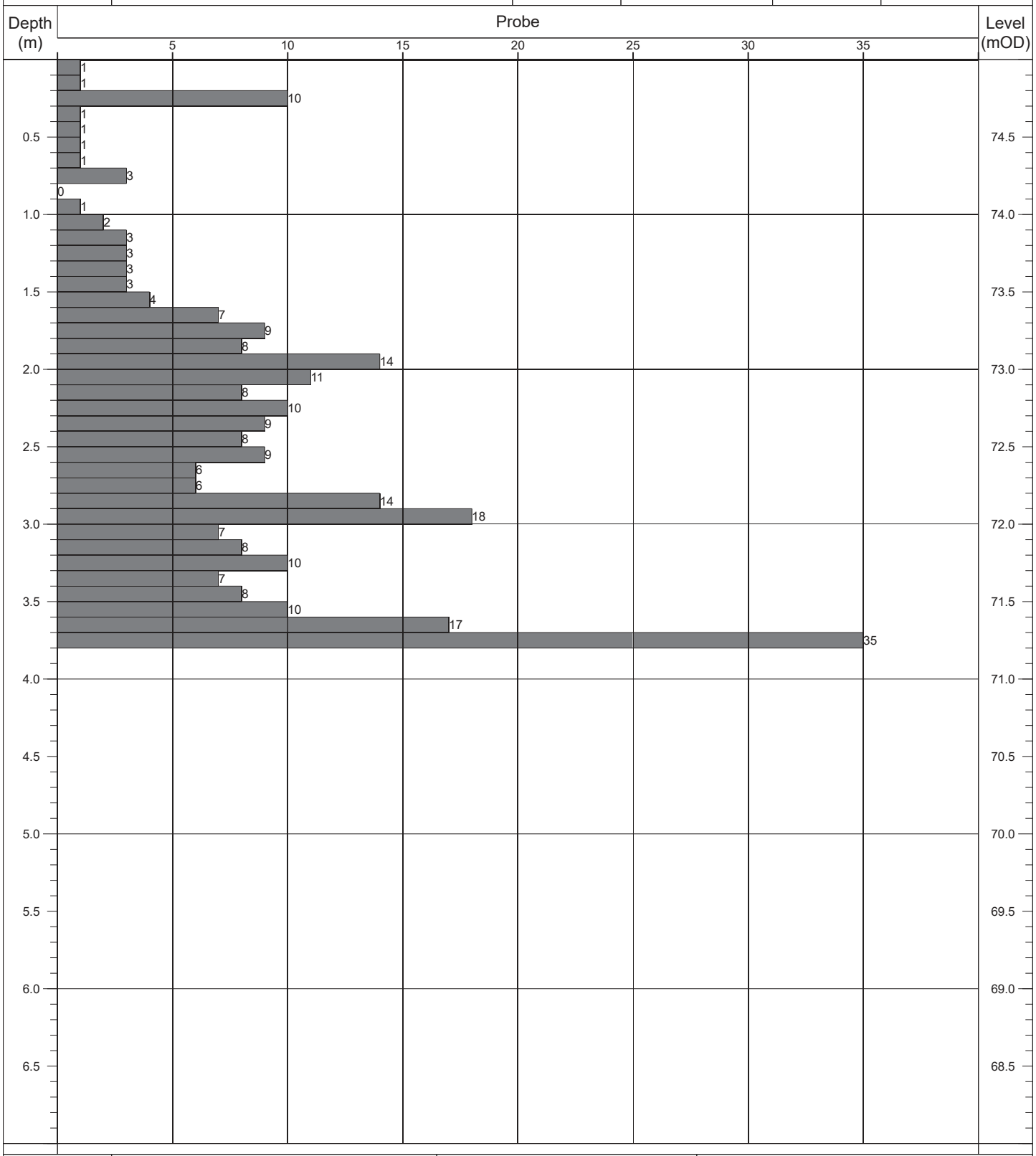
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
3.60m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	Dynamic Probe Log				Probe No: DP07
Contract:	Boreen Bradach	Easting:	659779.876	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745546.836	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	75.20	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



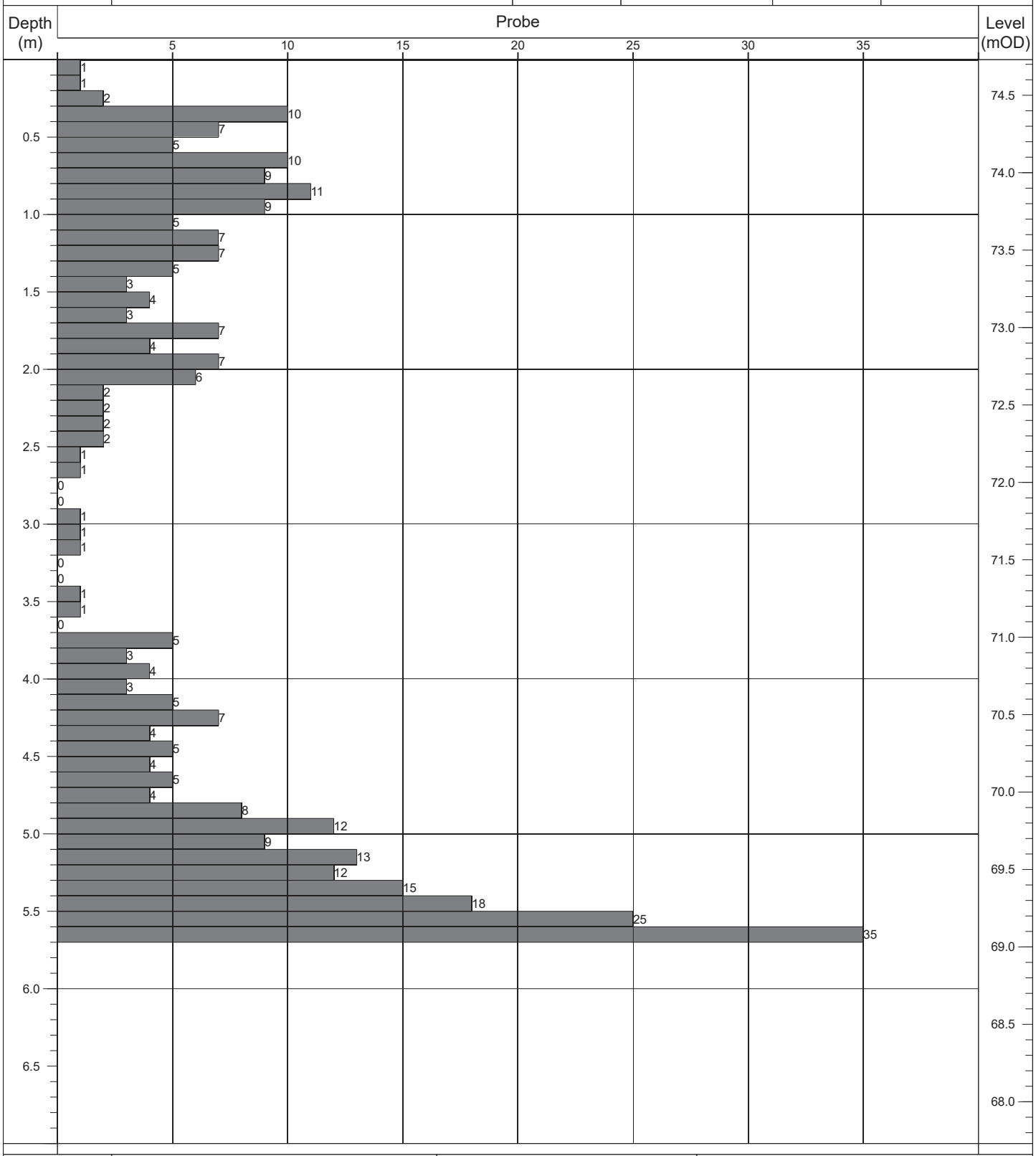
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
3.40m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	Dynamic Probe Log				Probe No: DP08
Contract:	Boreen Bradach	Easting:	659859.399	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745527.428	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	75.00	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



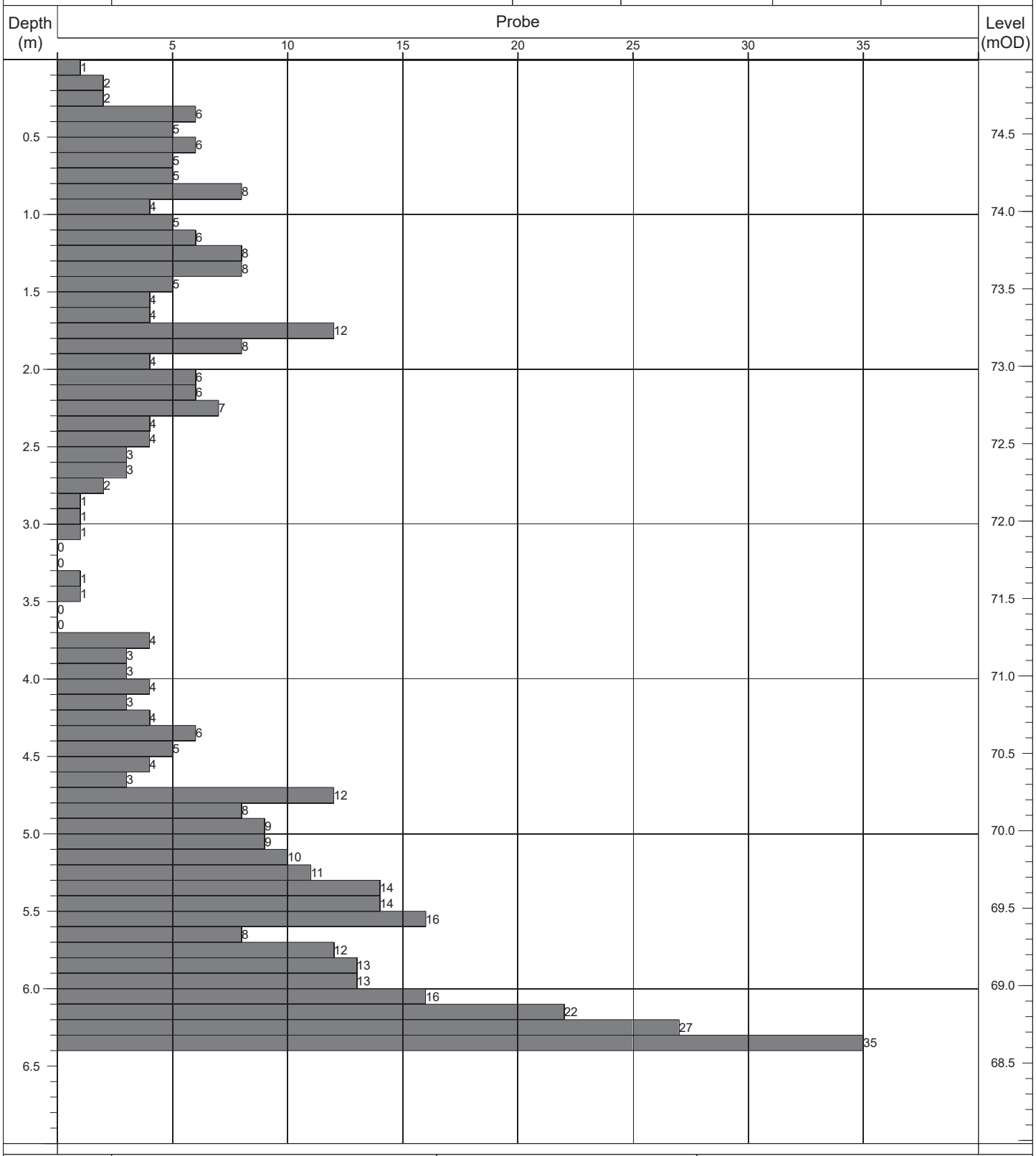
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
3.80m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	Dynamic Probe Log				Probe No: DP09
Contract:	Boreen Bradach	Easting:	659851.030	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745451.502	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	74.73	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
5.70m	Obstruction - possible boulders.	DPH	50kg	500mm	

Contract No: 6377	Dynamic Probe Log				Probe No: DP10
Contract:	Boreen Bradach	Easting:	659871.190	Date Started:	21/10/2024
Location:	Kinnegad, Co. Westmeath	Northing:	745460.970	Logged By:	K. Carpenter
Client:	Corcom Enterprises Ltd	Elevation:	74.98	Scale:	1:35
Engineer:	ORS	Rig Type:	Competitor 130	Sheet No:	Sheet 1 of 1



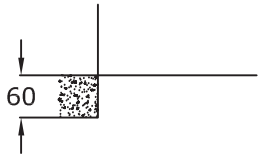
Termination:		Probe Details:			Remarks:
Depth:	Reason:	Type:	Mass	Drop:	-
6.40m	Obstruction - possible boulders.	DPH	50kg	500mm	

Appendix 4

Foundation Pit Logs

Foundation Pits

ST01



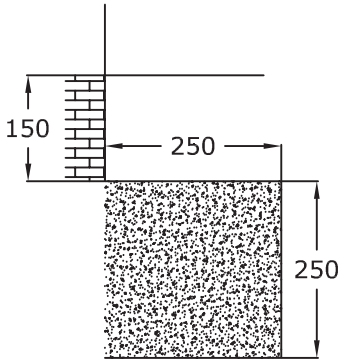
Foundation Details:
Concrete plinth to 60mm below ground level, no underlying foundation.

Ground Conditions:
0.00m: TOPSOIL.
0.20m: Firm brown slightly sandy slightly gravelly silty CLAY.
0.50m: Pit terminated.

SITE INVESTIGATIONS LTD	Project: Boreen Bradach, Kinnegad	Logged by: P. McGonagle	Excavation Started: 14/10/2024	Excavation Finished: 14/10/2024	CONTRACT NUMBER
	Client: Corcom Enterprises Ltd	Scale: NOT TO SCALE, ALL DISTANCES IN mm			6377
	Consultant: ORS	DEPTH ARE TO THE TOP OF SERVICES			

Foundation Pits

ST02



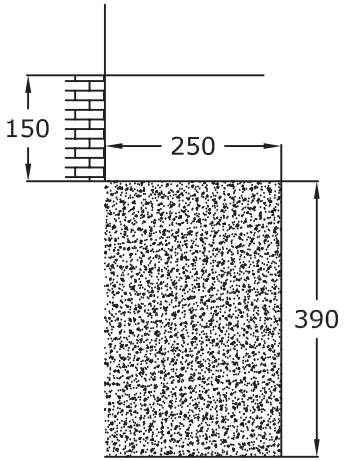
Foundation Details:
Wall to 150mm below ground level, foundation extends 250mm from the wall and 250mm thick.

Ground Conditions:
0.00m: TOPSOIL.
0.30m: Firm brown slightly sandy slightly gravelly silty CLAY.
0.80m: Pit terminated.

SITE INVESTIGATIONS LTD	Project:	Boreen Bradach, Kinnegad	Logged by: P. McGonagle	Excavation Started: 14/10/2024	Excavation Finished: 14/10/2024	CONTRACT NUMBER
	Client:	Corcom Enterprises Ltd	Scale: NOT TO SCALE, ALL DISTANCES IN mm			6377
	Consultant:	ORS	DEPTH ARE TO THE TOP OF SERVICES			

Foundation Pits

ST03



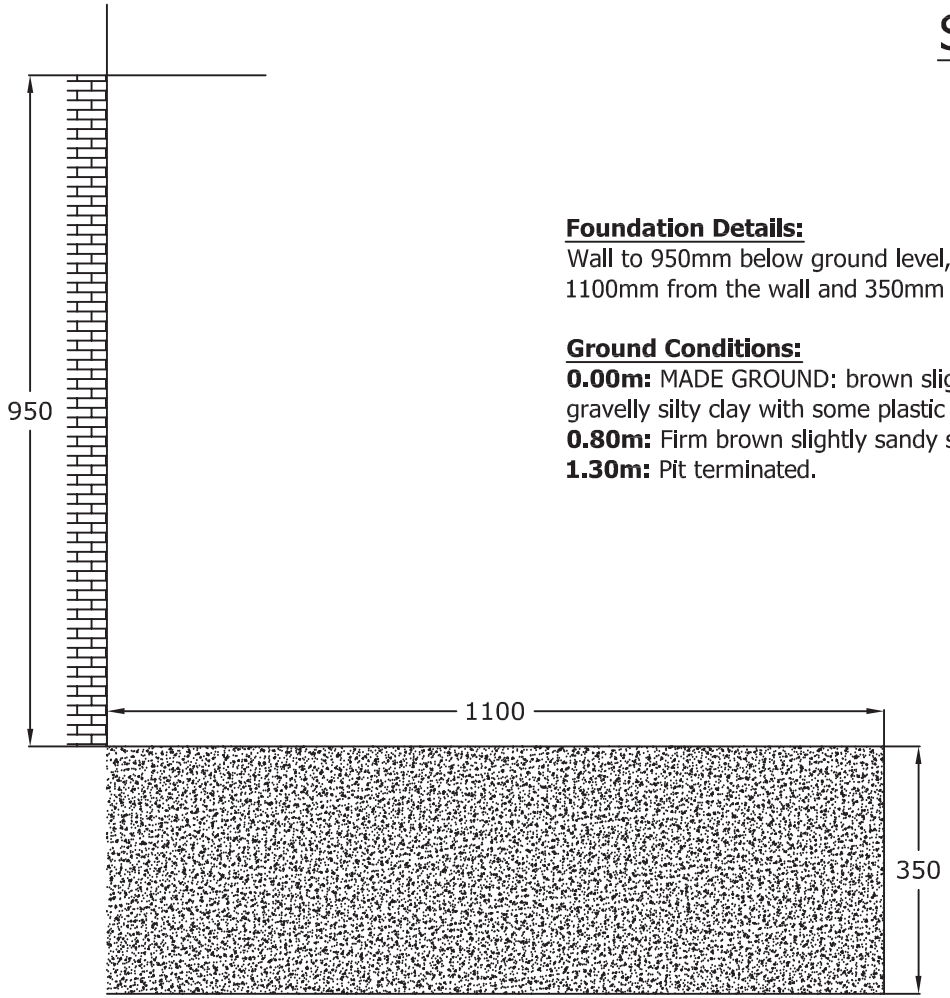
Foundation Details:
Wall to 150mm below ground level, foundation extends 250mm from the wall and 390mm thick.

Ground Conditions:
0.00m: TOPSOIL.
0.40m: Firm brown slightly sandy slightly gravelly silty CLAY.
0.80m: Pit terminated.

SITE INVESTIGATIONS LTD	Project: Boreen Bradach, Kinnegad	Logged by: P. McGonagle	Excavation Started: 14/10/2024	Excavation Finished: 14/10/2024	CONTRACT NUMBER
	Client: Corcom Enterprises Ltd	Scale: NOT TO SCALE, ALL DISTANCES IN mm			6377
	Consultant: ORS	DEPTH ARE TO THE TOP OF SERVICES			

Foundation Pits

ST04



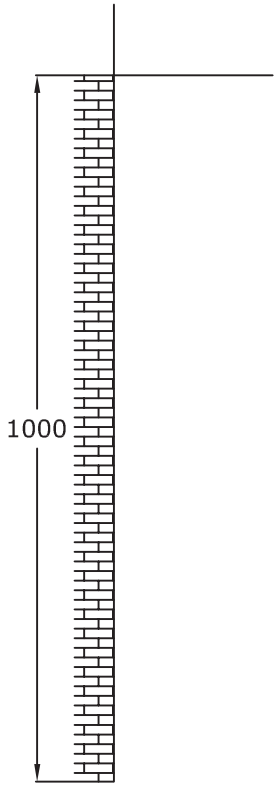
Foundation Details:
Wall to 950mm below ground level, foundation extends 1100mm from the wall and 350mm thick.

Ground Conditions:
0.00m: MADE GROUND: brown slightly sandy slightly gravelly silty clay with some plastic and steel content.
0.80m: Firm brown slightly sandy slightly gravelly silty CLAY.
1.30m: Pit terminated.

SITE INVESTIGATIONS LTD	Project:	Boreen Bradach, Kinnegad	Logged by: P. McGonagle	Excavation Started: 14/10/2024	Excavation Finished: 14/10/2024	CONTRACT NUMBER
	Client:	Corcom Enterprises Ltd	Scale: NOT TO SCALE, ALL DISTANCES IN mm			6377
	Consultant:	ORS	DEPTH ARE TO THE TOP OF SERVICES			

Foundation Pits

ST05



Foundation Details:
Wall to 1000mm below ground level, no underlying foundation.

Ground Conditions:
0.00m: TOPSOIL.
0.60m: Firm brown slightly sandy slightly gravelly silty CLAY with medium cobble content.
1.20m: Pit terminated.

SITE INVESTIGATIONS LTD	Project:	Boreen Bradach, Kinnegad	Logged by: P. McGonagle	Excavation Started: 14/10/2024	Excavation Finished: 14/10/2024	CONTRACT NUMBER
	Client:	Corcom Enterprises Ltd	Scale: NOT TO SCALE, ALL DISTANCES IN mm			6377
	Consultant:	ORS	DEPTH ARE TO THE TOP OF SERVICES			

Appendix 5

Soakaway Test Results and Photographs

SOAKAWAY TEST

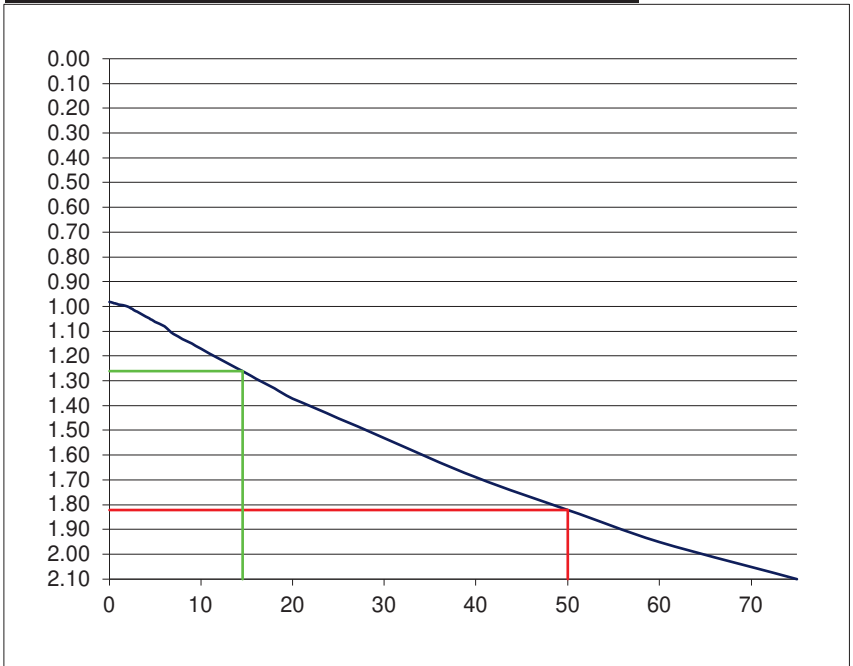
Project Reference:	6377
Contract name:	Boreen Bradach
Location:	Kinnegad, Co. Westmeath
Test No:	SA01
Date:	14/10/2024

Ground Conditions

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

Elapsed Time (mins)	Fall of Water (m)
0	0.98
0.5	0.99
1	0.99
1.5	1.00
2	1.00
2.5	1.01
3	1.02
3.5	1.03
4	1.04
4.5	1.05
5	1.06
6	1.08
7	1.11
8	1.13
9	1.15
10	1.17
12	1.21
14	1.25
16	1.29
18	1.33
20	1.37
25	1.45
30	1.53
40	1.69
50	1.82
60	1.95
75	2.10

Pit Dimensions (m)		
Length (m)	2.50	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	0.98	m
Depth of Water	1.12	m
75% Full	1.26	m
25% Full	1.82	m
75%-25%	0.56	m
Volume of water (75%-25%)	**0.70**	m3
Area of Drainage	**12.60**	m2
Area of Drainage (75%-25%)	**4.61**	m2
Time		
75% Full	14.5	min
25% Full	50	min
Time 75% to 25%	**35.5**	min
Time 75% to 25% (sec)	**2130**	sec



f = 0.00428 m/min or **7.13E-05 m/s**

SOAKAWAY TEST

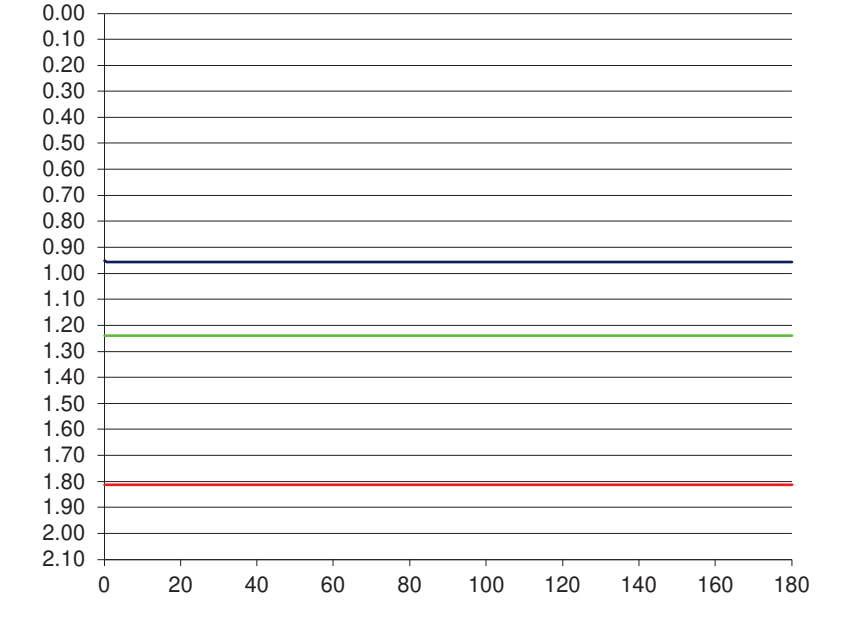
Project Reference:	6377
Contract name:	Boreen Bradach
Location:	Kinnegad, Co. Westmeath
Test No:	SA02
Date:	14/10/2024

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	2.10	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content.

Elapsed Time (mins)	Fall of Water (m)
0	0.95
0.5	0.96
1	0.96
1.5	0.96
2	0.96
2.5	0.96
3	0.96
3.5	0.96
4	0.96
4.5	0.96
5	0.96
6	0.96
7	0.96
8	0.96
9	0.96
10	0.96
12	0.96
14	0.96
16	0.96
18	0.96
20	0.96
25	0.96
30	0.96
40	0.96
50	0.96
60	0.96
75	0.96
90	0.96
120	0.96
150	0.96
180	0.96

Pit Dimensions (m)		
Length (m)	2.50	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	0.95	m
Depth of Water	1.15	m
75% Full	1.24	m
25% Full	1.81	m
75%-25%	0.58	m
Volume of water (75%-25%)	**0.72**	m3
Area of Drainage	**12.60**	m2
Area of Drainage (75%-25%)	**4.70**	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

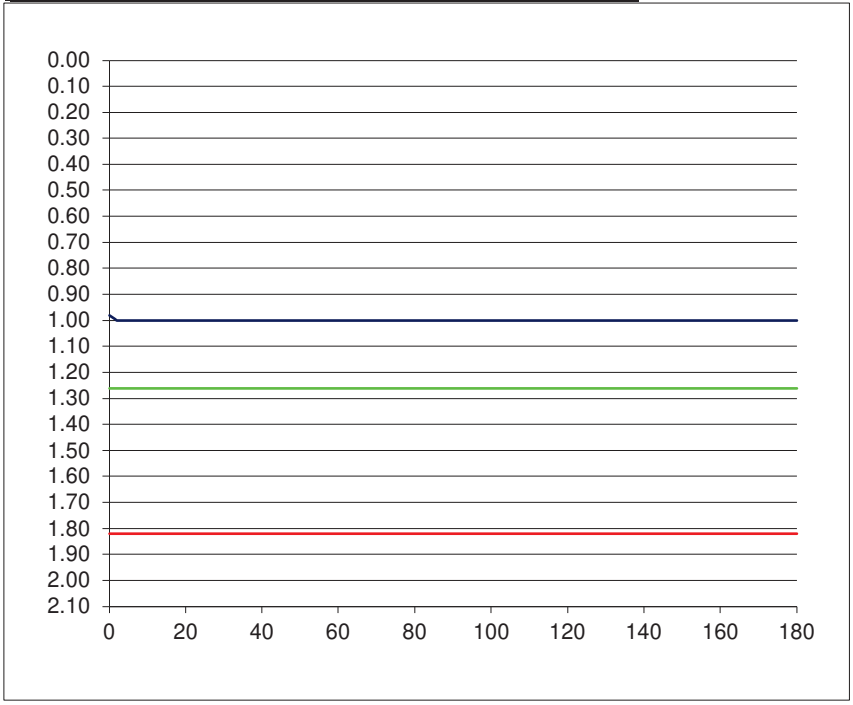
Project Reference:	6377
Contract name:	Boreen Bradach
Location:	Kinnegad, Co. Westmeath
Test No:	SA03
Date:	14/10/2024

Ground Conditions

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

Elapsed Time (mins)	Fall of Water (m)
0	0.98
0.5	0.99
1	0.99
1.5	1.00
2	1.00
2.5	1.00
3	1.00
3.5	1.00
4	1.00
4.5	1.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
12	1.00
14	1.00
16	1.00
18	1.00
20	1.00
25	1.00
30	1.00
40	1.00
50	1.00
60	1.00
75	1.00
90	1.00
120	1.00
150	1.00
180	1.00

Pit Dimensions (m)		
Length (m)	2.50	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	0.98	m
Depth of Water	1.12	m
75% Full	1.26	m
25% Full	1.82	m
75%-25%	0.56	m
Volume of water (75%-25%)	**0.70**	m3
Area of Drainage	**12.60**	m2
Area of Drainage (75%-25%)	**4.61**	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

SOAKAWAY TEST

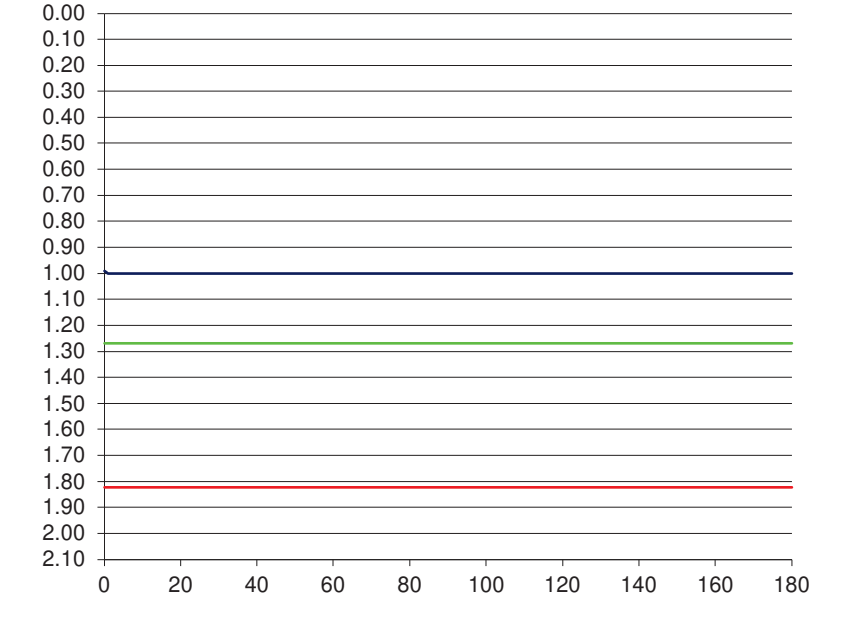
Project Reference:	6377
Contract name:	Boreen Bradach
Location:	Kinnegad, Co. Westmeath
Test No:	SA04
Date:	14/10/2024

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	2.10	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content.

Elapsed Time (mins)	Fall of Water (m)
0	0.99
0.5	1.00
1	1.00
1.5	1.00
2	1.00
2.5	1.00
3	1.00
3.5	1.00
4	1.00
4.5	1.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
12	1.00
14	1.00
16	1.00
18	1.00
20	1.00
25	1.00
30	1.00
40	1.00
50	1.00
60	1.00
75	1.00
90	1.00
120	1.00
150	1.00
180	1.00

Pit Dimensions (m)		
Length (m)	2.50	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	0.99	m
Depth of Water	1.11	m
75% Full	1.27	m
25% Full	1.82	m
75%-25%	0.56	m
Volume of water (75%-25%)	**0.69**	m3
Area of Drainage	**12.60**	m2
Area of Drainage (75%-25%)	**4.58**	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

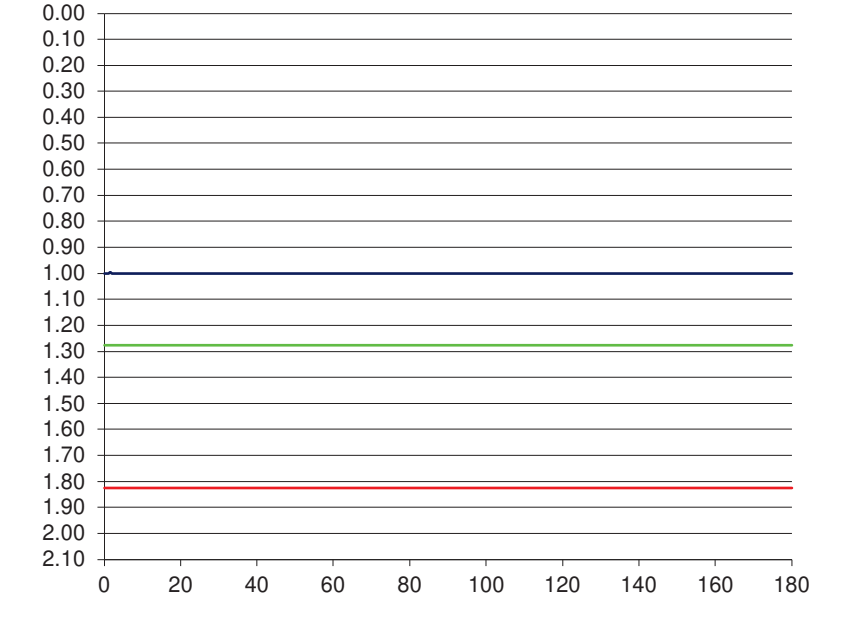
Project Reference:	6377
Contract name:	Boreen Bradach
Location:	Kinnegad, Co. Westmeath
Test No:	SA05
Date:	14/10/2024

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	2.10	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content.

Elapsed Time (mins)	Fall of Water (m)
0	1.00
0.5	1.00
1	1.00
1.5	1.00
2	1.00
2.5	1.00
3	1.00
3.5	1.00
4	1.00
4.5	1.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
12	1.00
14	1.00
16	1.00
18	1.00
20	1.00
25	1.00
30	1.00
40	1.00
50	1.00
60	1.00
75	1.00
90	1.00
120	1.00
150	1.00
180	1.00

Pit Dimensions (m)		
Length (m)	2.50	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	1.00	m
Depth of Water	1.10	m
75% Full	1.28	m
25% Full	1.83	m
75%-25%	0.55	m
Volume of water (75%-25%)	**0.69**	m3
Area of Drainage	**12.60**	m2
Area of Drainage (75%-25%)	**4.55**	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

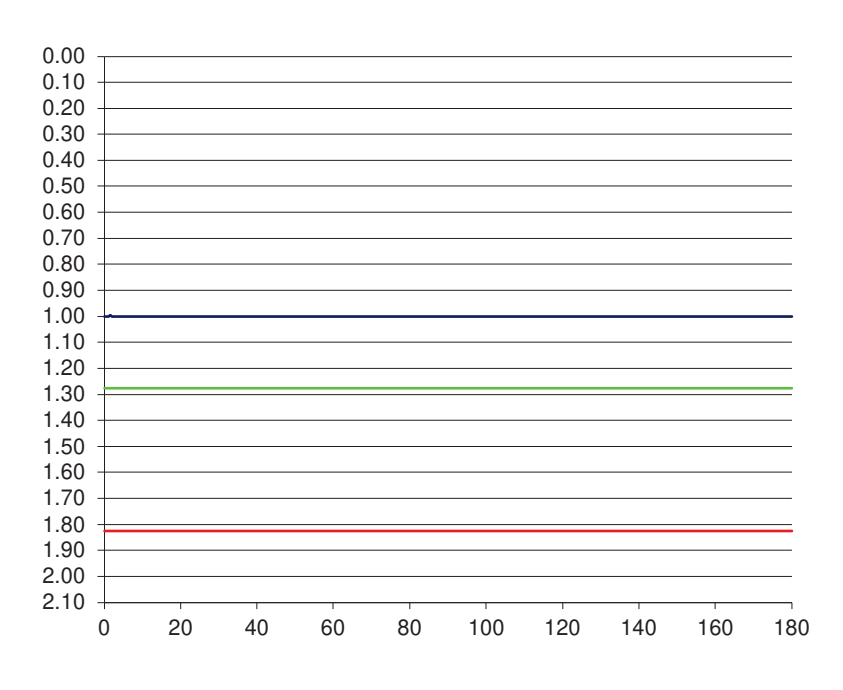
Project Reference:	6377
Contract name:	Boreen Bradach
Location:	Kinnegad, Co. Westmeath
Test No:	SA06
Date:	14/10/2024

Ground Conditions

From	To	
0.00	0.30	TOPSOIL.
0.30	2.10	Firm becoming stiff brown slightly sandy slightly gravelly silty CLAY with medium cobble and low boulder content.

Elapsed Time (mins)	Fall of Water (m)
0	1.00
0.5	1.00
1	1.00
1.5	1.00
2	1.00
2.5	1.00
3	1.00
3.5	1.00
4	1.00
4.5	1.00
5	1.00
6	1.00
7	1.00
8	1.00
9	1.00
10	1.00
12	1.00
14	1.00
16	1.00
18	1.00
20	1.00
25	1.00
30	1.00
40	1.00
50	1.00
60	1.00
75	1.00
90	1.00
120	1.00
150	1.00
180	1.00

Pit Dimensions (m)		
Length (m)	2.50	m
Width (m)	0.50	m
Depth	2.10	m
Water		
Start Depth of Water	1.00	m
Depth of Water	1.10	m
75% Full	1.28	m
25% Full	1.83	m
75%-25%	0.55	m
Volume of water (75%-25%)	**0.69**	m3
Area of Drainage	**12.60**	m2
Area of Drainage (75%-25%)	**4.55**	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**

SA01 Sidewall

SA01 Spoil

SA02 Sidewall

SA02 Spoil

SA03 Sidewall

SA03 Spoil

SA04 Sidewall

SA04 Spoil

SA05 Sidewall

SA05 Spoil

SA06 Sidewall

SA06 Spoil

Appendix 6

Plate Test Results

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

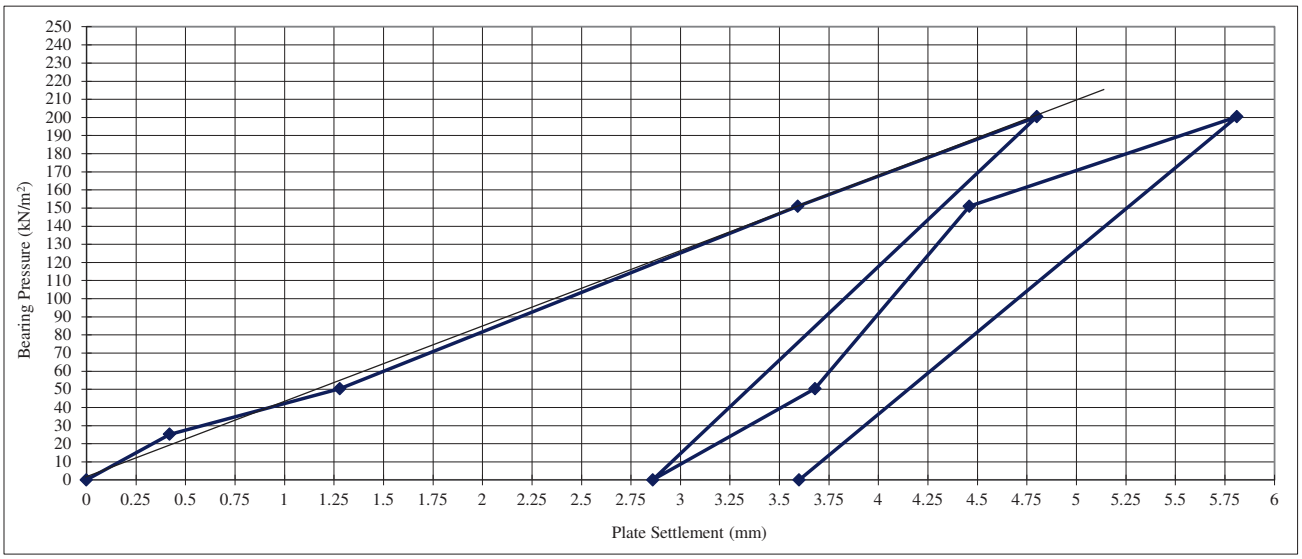
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

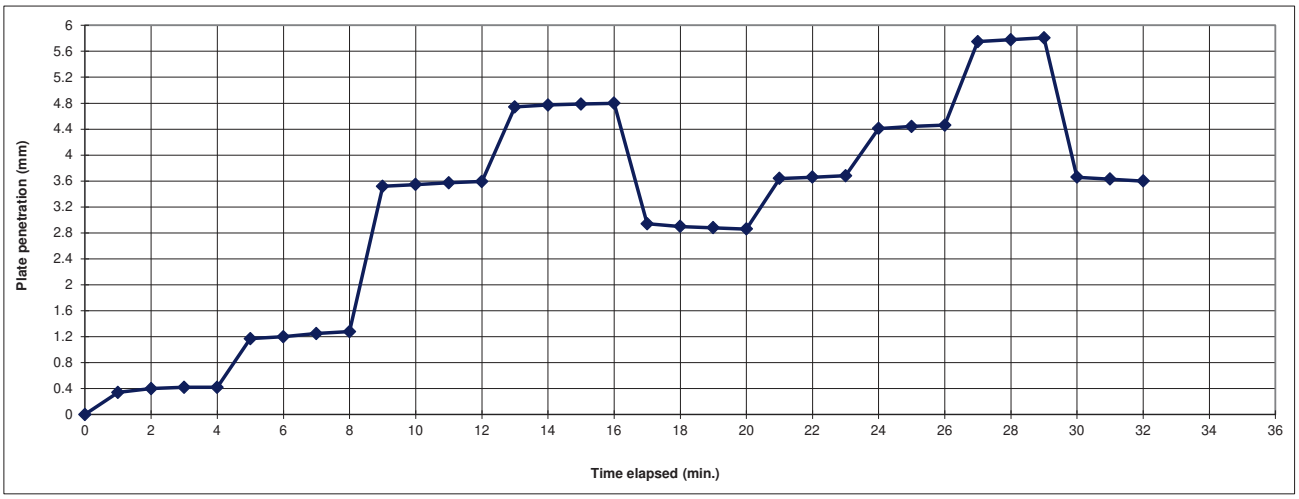
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR01
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**53**
Equivalent CBR Value-Initial loading (%)	**9.4**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**45**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.42
	50	1.28
	151	3.59
	200	4.80
	0.0	2.86
Reload	50	3.68
	151	4.46
	200	5.81
Final Condition	0.0	3.60

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

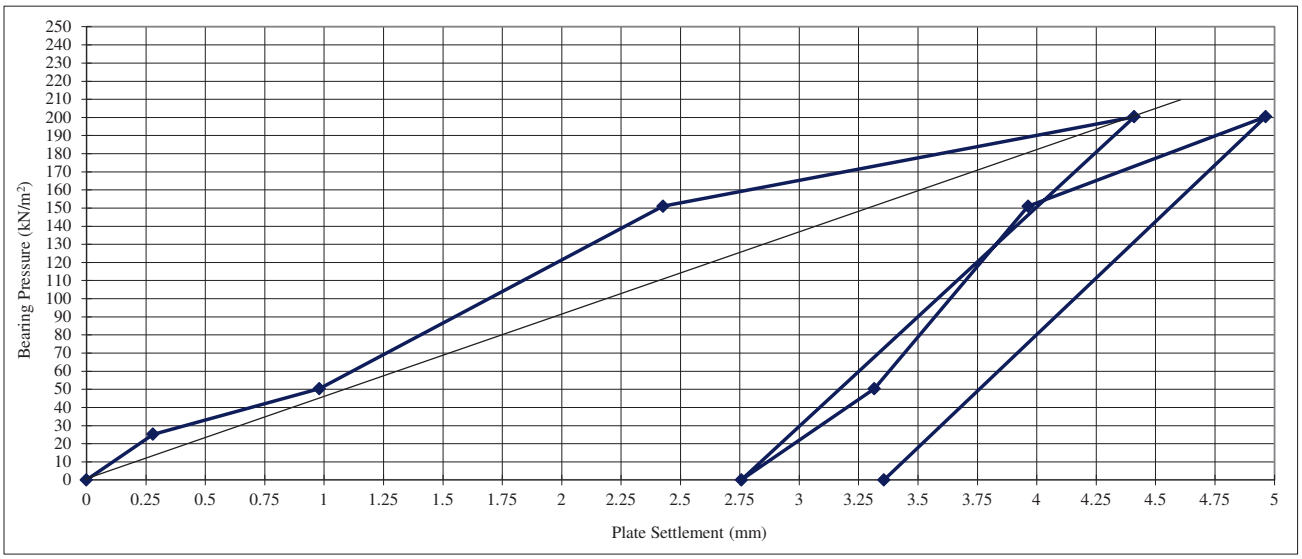
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

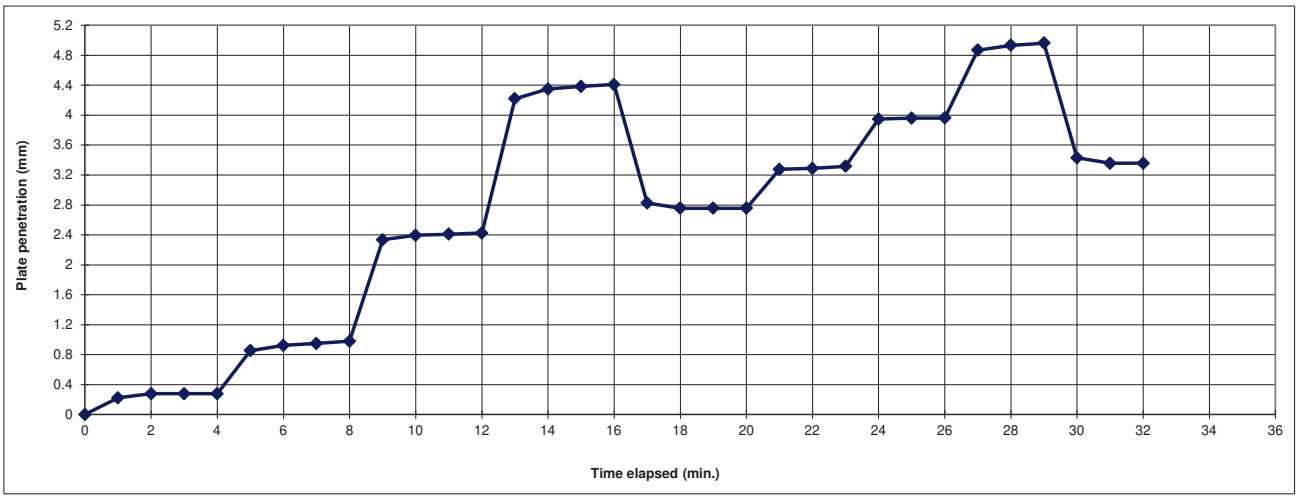
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR02
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**58**
Equivalent CBR Value-Initial loading (%)	**11.0**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**49**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.28
	50	0.98
	151	2.43
	200	4.41
	0.0	2.76
Reload	50	3.32
	151	3.96
	200	4.96
Final Condition	0.0	3.36

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

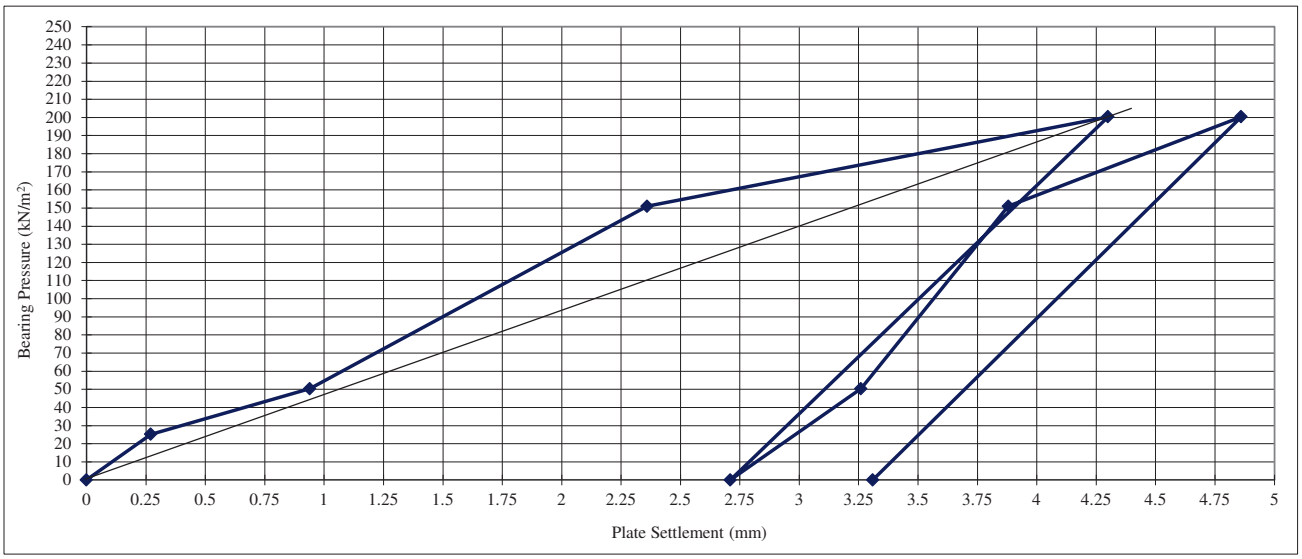
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

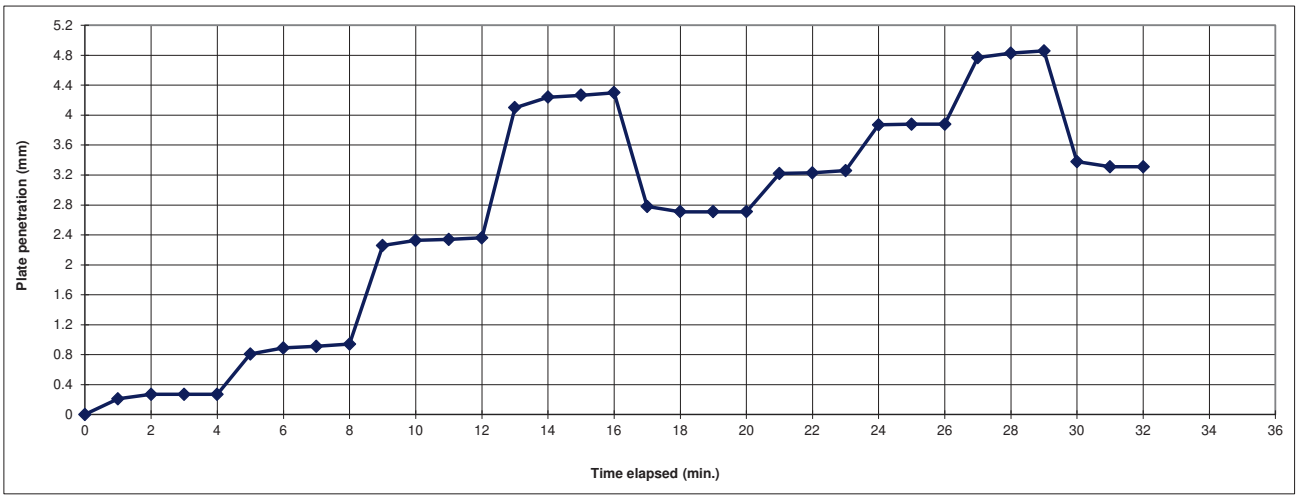
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR03
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**59**
Equivalent CBR Value-Initial loading (%)	**11.3**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**50**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.27
	50	0.94
	151	2.36
	200	4.30
	0.0	2.71
Reload	50	3.26
	151	3.88
	200	4.86
Final Condition	0.0	3.31

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

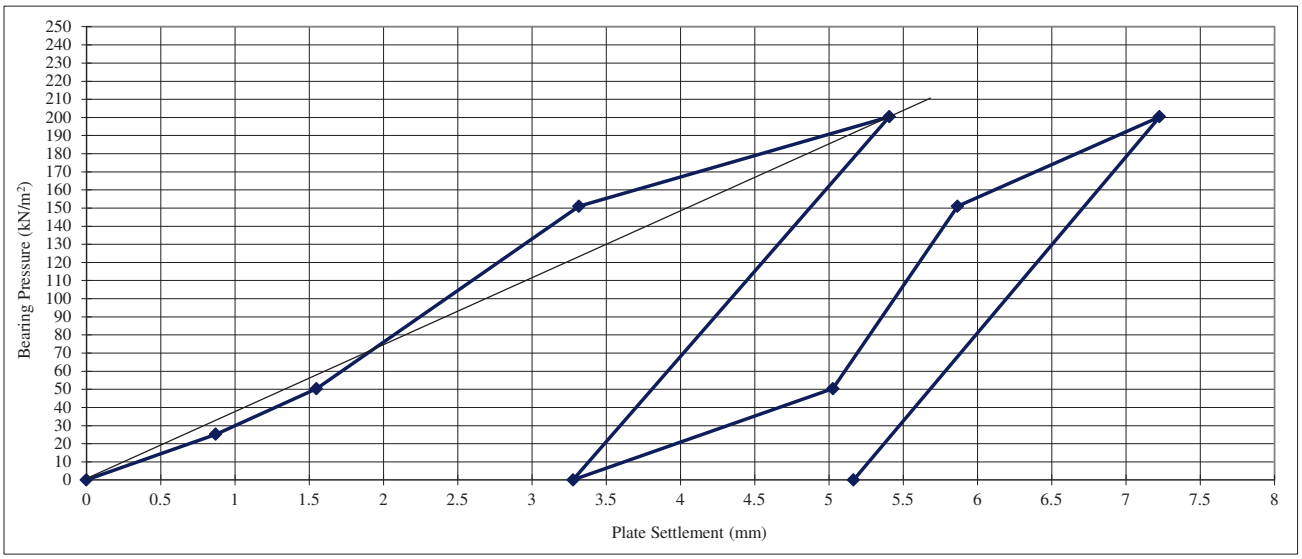
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

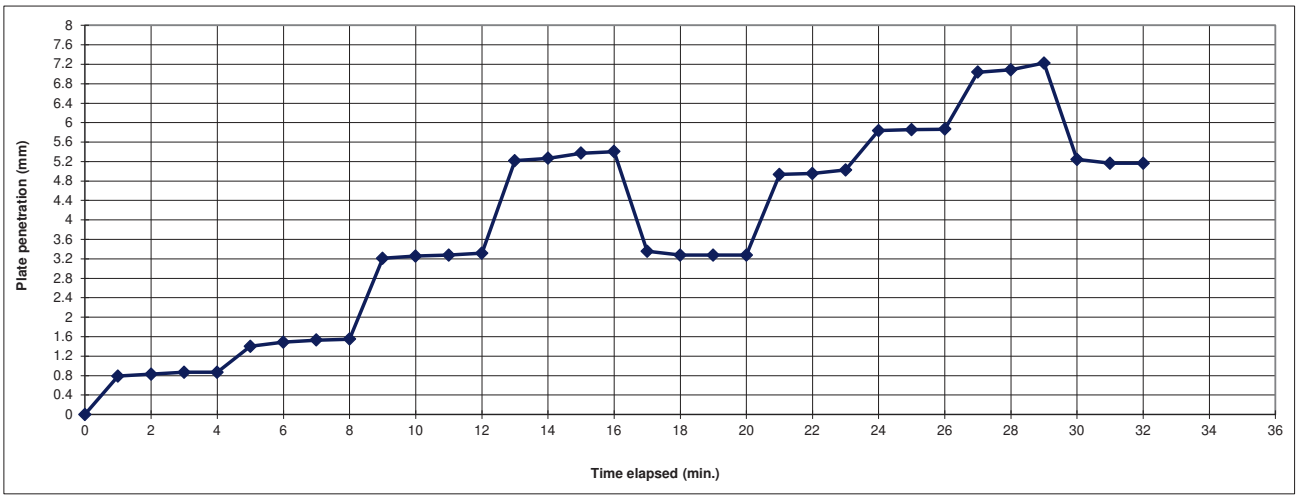
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR04
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**47**
Equivalent CBR Value-Initial loading (%)	**7.6**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**40**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.87
	50	1.55
	151	3.32
	200	5.41
	0.0	3.28
Reload	50	5.03
	151	5.87
	200	7.23
Final Condition	0.0	5.17

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

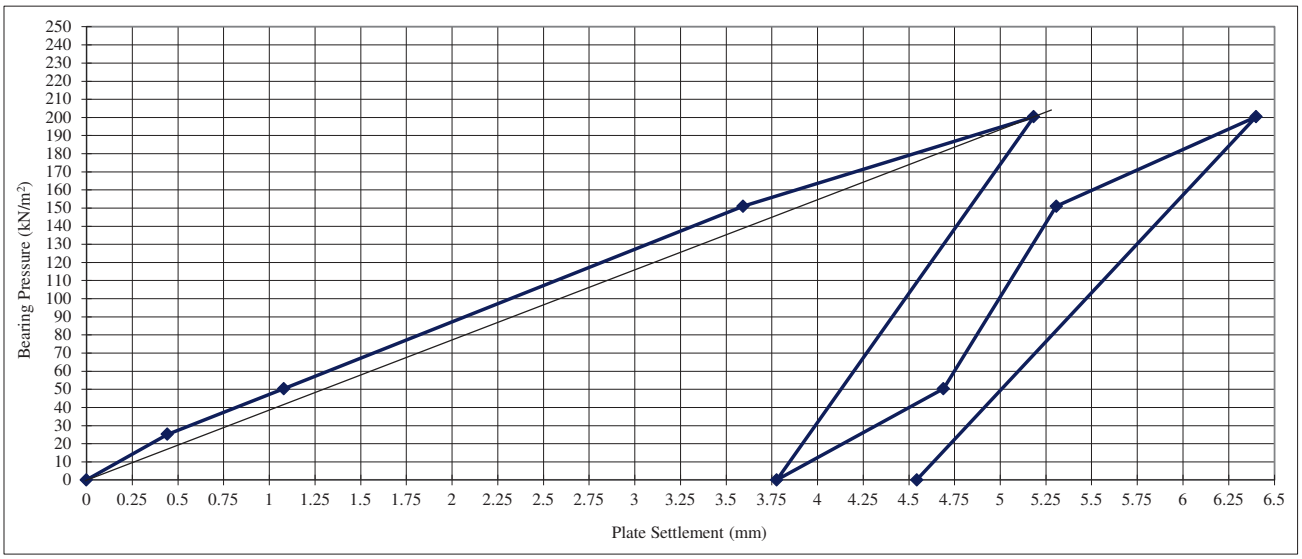
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

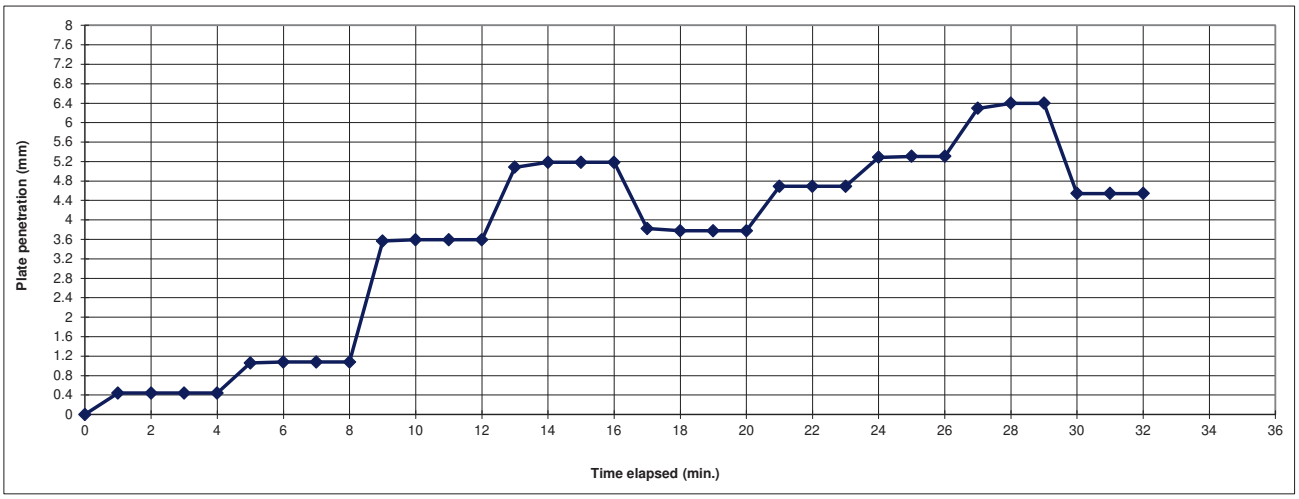
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR05
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**48**
Equivalent CBR Value-Initial loading (%)	**7.9**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**41**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.44
	50	1.08
	151	3.59
	200	5.18
	0.0	3.78
Reload	50	4.69
	151	5.31
	200	6.40
Final Condition	0.0	4.54

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

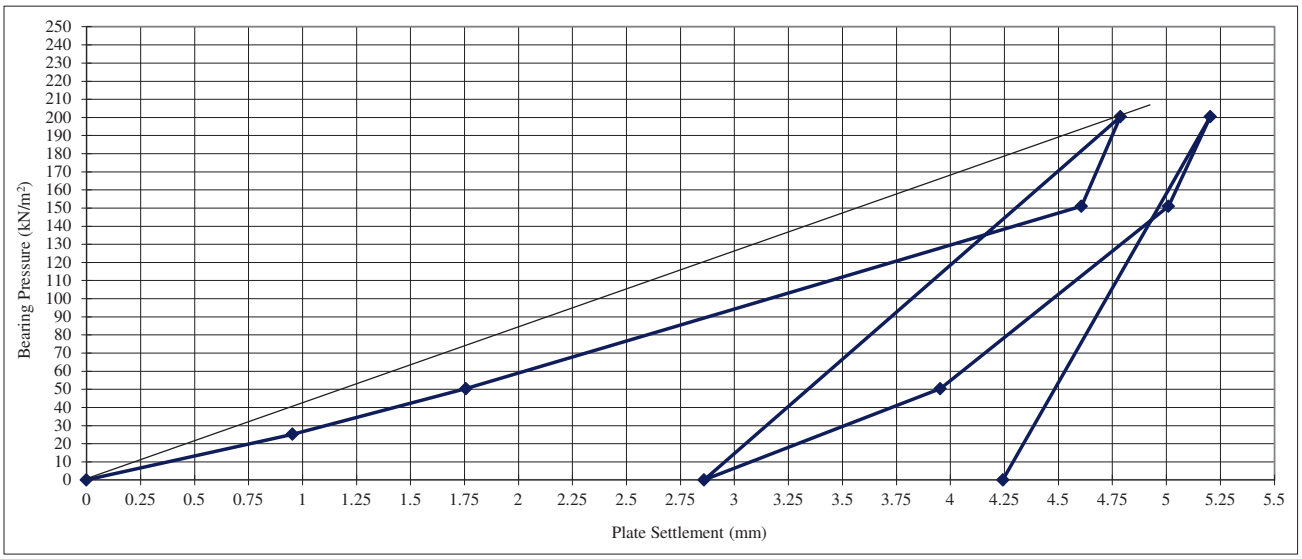
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

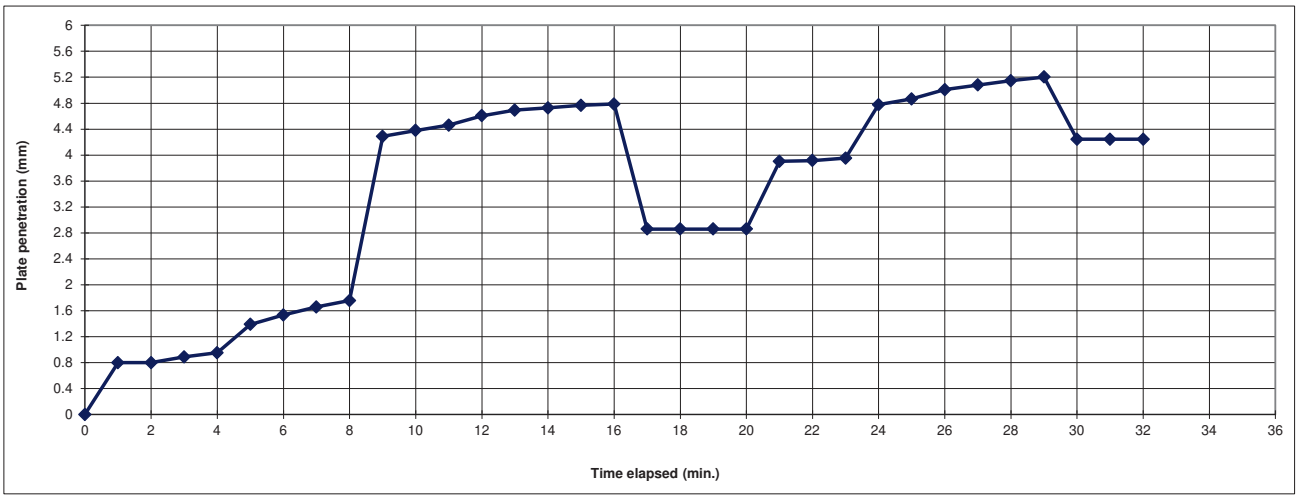
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR06
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**52**
Equivalent CBR Value-Initial loading (%)	**9.1**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**44**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.95
	50	1.76
	151	4.61
	200	4.79
	0.0	2.86
Reload	50	3.95
	151	5.01
	200	5.20
Final Condition	0.0	4.24

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

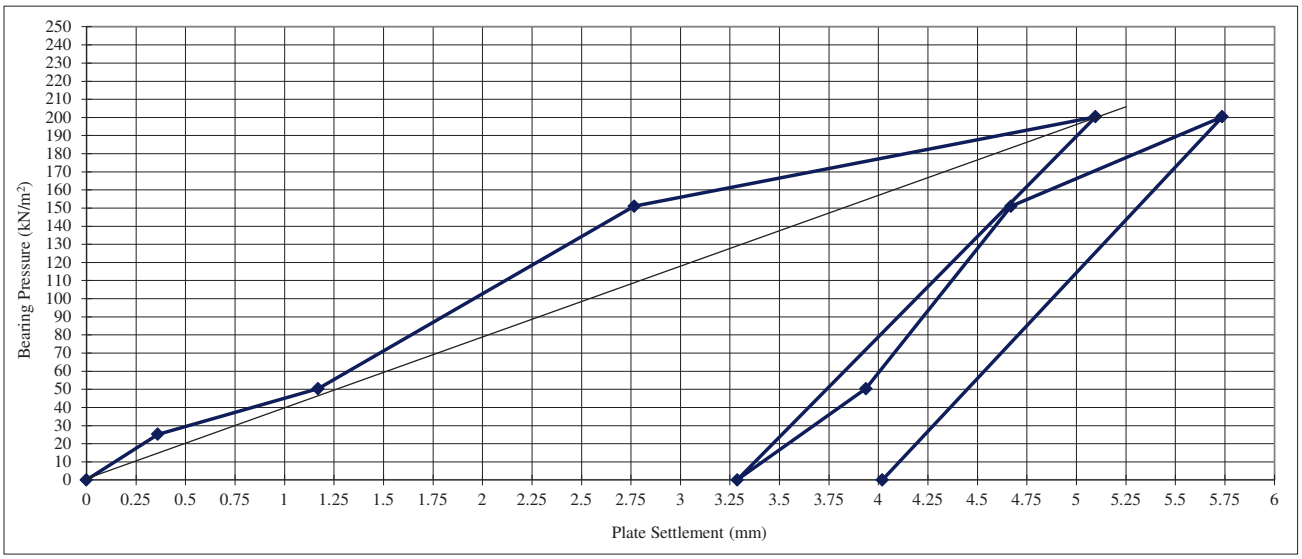
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

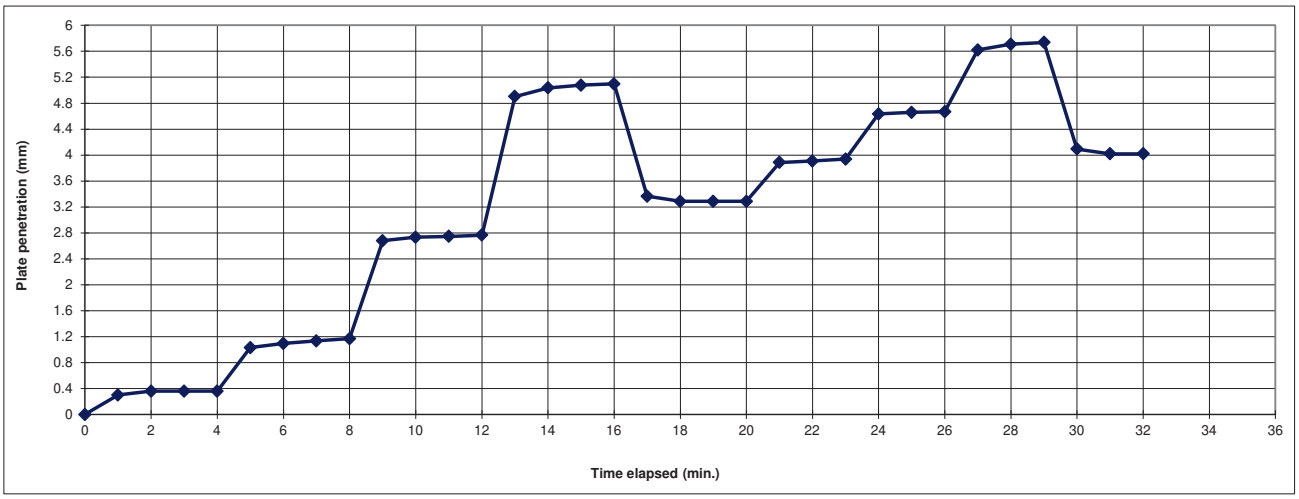
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR07
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**49**
Equivalent CBR Value-Initial loading (%)	**8.2**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**42**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.36
	50	1.17
	151	2.77
	200	5.10
	0.0	3.29
Reload	50	3.94
	151	4.67
	200	5.74
Final Condition	0.0	4.02

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

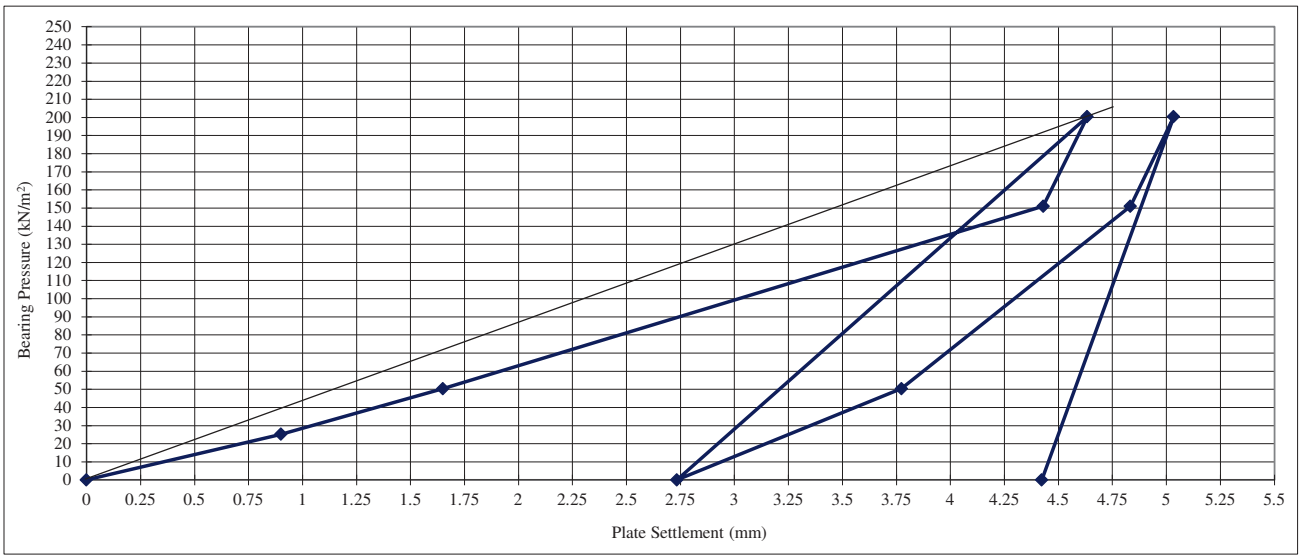
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

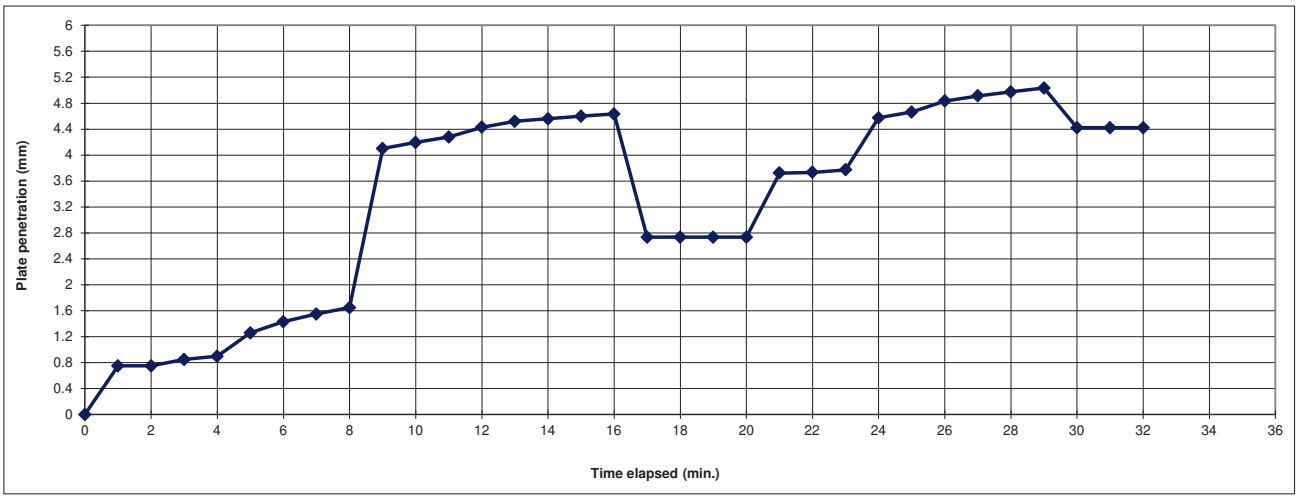
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR08
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**54**
Equivalent CBR Value-Initial loading (%)	**9.7**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**46**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.90
	50	1.65
	151	4.43
	200	4.63
	0.0	2.73
Reload	50	3.77
	151	4.83
	200	5.03
Final Condition	0.0	4.42

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

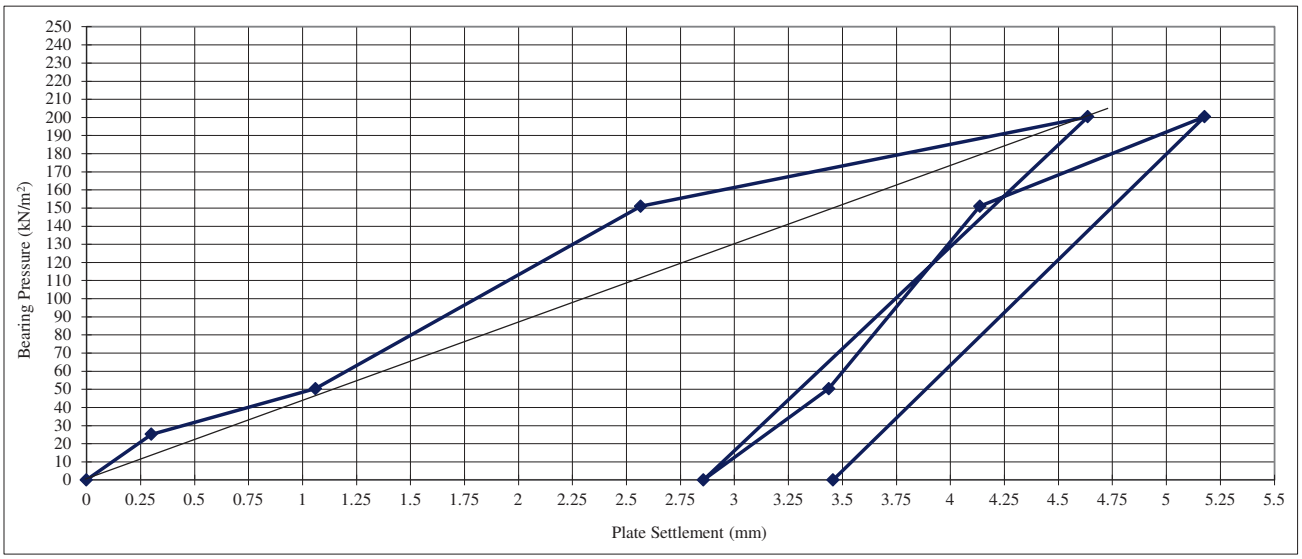
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

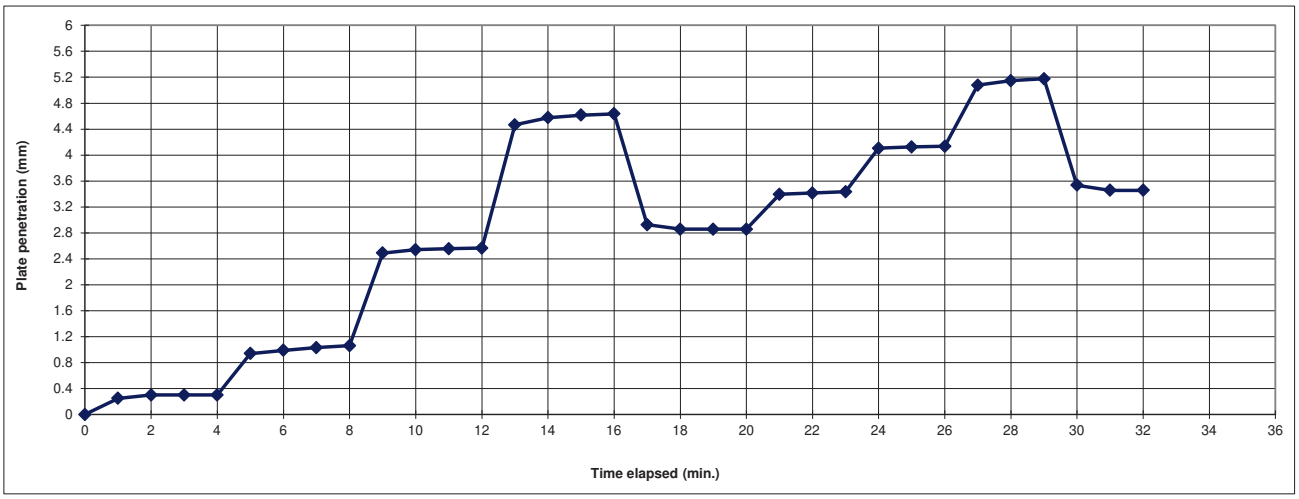
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR09
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**53**
Equivalent CBR Value-Initial loading (%)	**9.4**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**45**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.30
	50	1.06
	151	2.57
	200	4.64
	0.0	2.86
Reload	50	3.44
	151	4.14
	200	5.18
Final Condition	0.0	3.46

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Plate Bearing Test in accordance with BS 1377: Part 9 and Part 2 HD 25/94

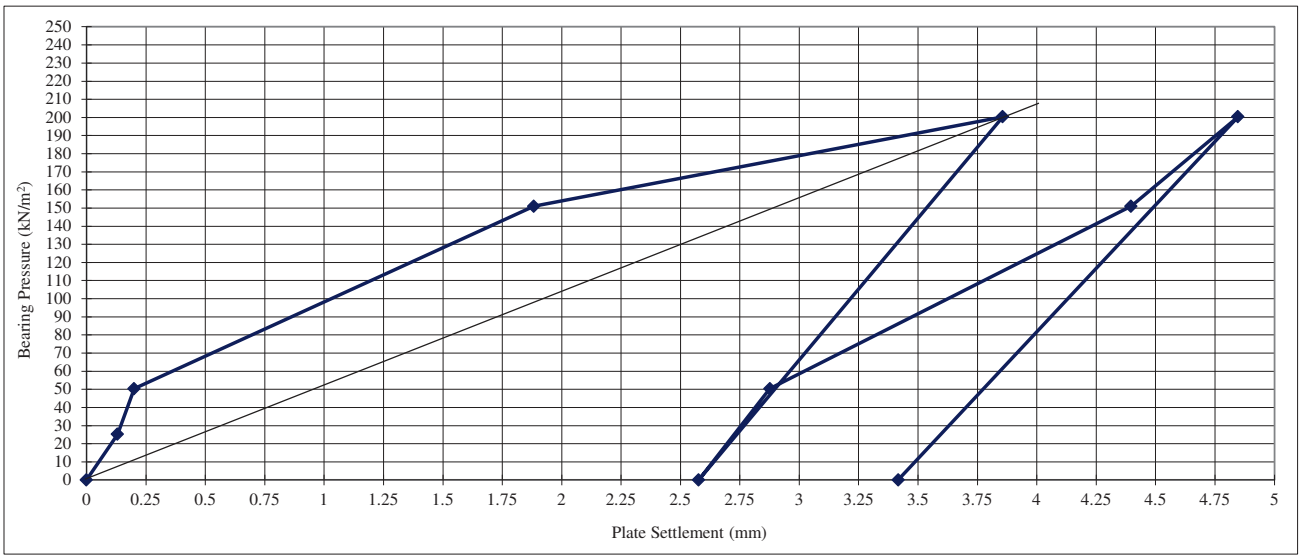
Site Investigations Ltd., Carhugar The Grange, 12th Lock Road, Lucan, Co. Dublin Tel: 01 6108768 Email:info@siteinvestigations.ie

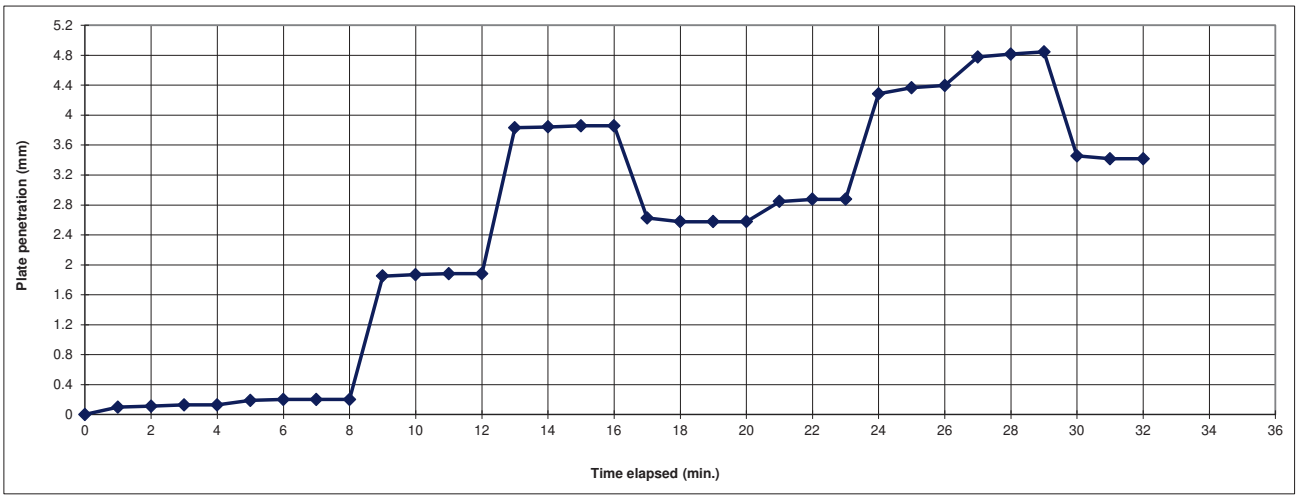
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
Test Date	15-Oct-24
Location:	CBR10
Plate Diameter:	*600mm*
Type of reaction Load	*13tonne tracked excavator*
Material Type:	*Brown sandy gravelly silty CLAY*
Depth test carried out:	*0.50m BGL*
CBR value is as per specification for 762mm Plate	

1.25mm settlement (graph) for 762mm Plate (kPa)	**63**
Equivalent CBR Value-Initial loading (%)	**12.7**
Mod. of subgrade Reaction k for 600mm Plate(kPa)	**54**
Correction factor for 600mm Plate	**0.85**

Pressure Stages	Bearing Pressure (kN/m^2)	Plate Settlement (mm)
Initial	0.0	0.00
	25	0.13
	50	0.20
	151	1.88
	200	3.86
	0.0	2.58
Reload	50	2.88
	151	4.40
	200	4.85
Final Condition	0.0	3.42

ITM Co-ords	Easting	Northing	Level





29/11/2024

Site Investigatins Ltd.

Appendix 7

Geotechnical Laboratory Test Results

Classification Tests
In accordance with BS 1377: Part 2

Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
S.I. File No	6377 / 24
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	20th November 2024

Hole ID	Depth	Sample No	Lab Ref No.	Sample Type	Natural Moisture Content %	Liquid Limit %	Plastic Limit %	Plastic Index %	Bulk Density g/cm^3	Specific gravity	% passing 425um	Comments	**Remarks** **C**=Clay; **M**=Silt **Plasticity**: **L**=Low; **I**=Intermediate; **H**=High; **V**=Very High; **E**=Extremely High
BH01	1.00	DMc01	24/1689	B	23.7	36	20	16			64.5		CI
BH01	2.00	DMc02	24/1690	B	11.3	34	20	14			52.6		CL
BH01	4.00	DMc04	24/1691	B	12.1	33	20	13			59.8		CL
BH02	1.00	DMc08	24/1692	B	13.2	38	21	17			66.7		CI
BH02	2.00	DMc09	24/1693	B	10.6	32	18	14			52.7		CL
BH02	4.00	DMc11	24/1694	B	11.6	37	19	18			79.4		CI
BH03	1.00	DMc27	24/1695	B	14.6	36	20	16			65.4		CI
BH03	3.00	DMc29	24/1696	B	8.9	29	18	11			54.6		CL
BH03	5.00	DMc31	24/1697	B	10.6	37	20	17			65.3		CI
BH04	1.00	DMc32	24/1698	B	8.6	37	19	18			57.6		CI
BH04	2.00	DMc33	24/1699	B	9.3	38	20	18			58.5		CI
BH04	5.00	DMc36	24/1700	B	8.7	34	21	13			67.1		CL
BH05	1.00	DMc39	24/1701	B	7.8	32	18	14			51.9		CL
BH05	2.00	DMc40	24/1702	B	9.5	34	18	16			61.6		CL
BH05	3.00	DMc41	24/1703	B	6.0	32	20	12			63.7		CL
BH06	1.00	DMc44	24/1704	B	17.0	38	22	16			72.6		CI
BH06	2.00	DMc45	24/1705	B	9.4	30	20	10			58.8		CL
BH06	5.00	DMc48	24/1706	B	12.9	28	19	9			60.7		CL
BH07	1.00	DMc20	24/1707	B	16.3	31	20	11			59.7		CL
BH07	3.00	DMc22	24/1708	B	9.6	30	21	9			54.5		CI
BH07	5.00	DMc24	24/1709	B	10.5	36	21	15			61.5		CI
BH08	1.00	DMc15	24/1710	B	21.6	39	21	18			70.3		CI
BH08	3.00	DMc17	24/1711	B	8.8	35	19	16			53.2		CL/CI
BH08	4.00	DMc18	24/1712	B	15.9	40	21	19			86.3		CI

Determination of Linear Shrinkage BS 1377: Part 2: Method 6.5

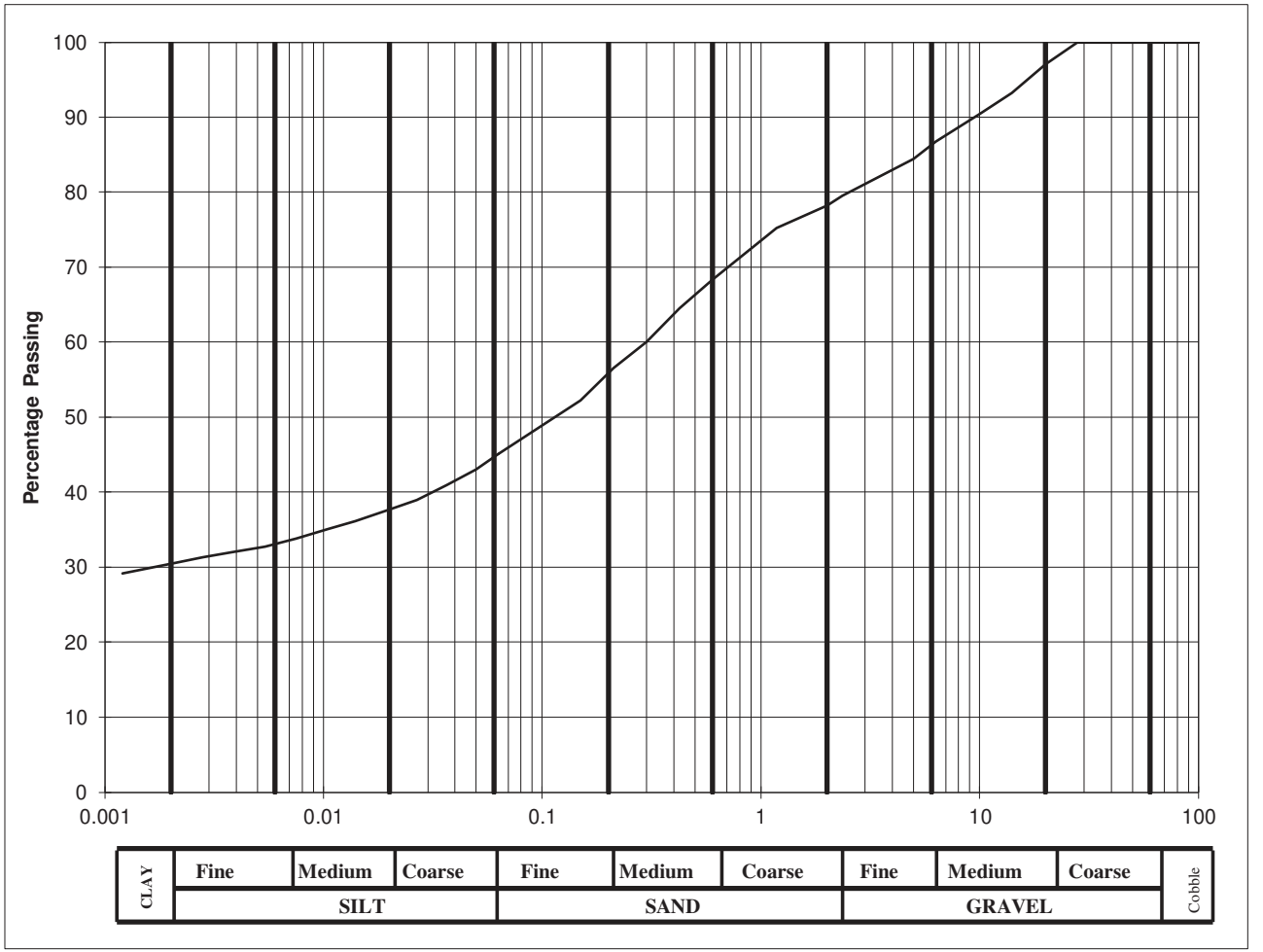
Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
S.I. File No	6377 / 24
Test Lab	Site Investigations Ltd., The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Test date	21st November 2024

Hole Id	Depth (m)	Sample No.	Lab Ref.	Sample Type	Natural Moisture Content %	Initial Wet Length (mm)	Dried Length (mm)	Linear Shrinkage (%)	% passing 425U	Remarks
BH01	1.00	DMc01	24/1689	B	23.7	139.5	137.3	1.6	64.5	
BH01	2.00	DMc02	24/1690	B	11.3	139.5	138.1	1.0	52.6	
BH01	4.00	DMc04	24/1691	B	12.1	139.5	138.0	1.1	59.8	
BH02	1.00	DMc08	24/1692	B	13.2	139.5	137.9	1.1	66.7	
BH02	2.00	DMc09	24/1693	B	10.6	139.5	137.7	1.3	52.7	
BH02	4.00	DMc11	24/1694	B	11.6	139.5	138.2	0.9	79.4	
BH03	1.00	DMc27	24/1695	B	14.6	139.5	139.2	0.2	65.4	
BH03	3.00	DMc29	24/1696	B	8.9	139.5	138.1	1.0	54.6	
BH03	5.00	DMc31	24/1697	B	10.6	139.5	137.2	1.6	65.3	
BH04	1.00	DMc32	24/1698	B	8.6	139.5	136.9	1.9	57.6	
BH04	2.00	DMc33	24/1699	B	9.3	139.5	138.0	1.1	58.5	
BH04	5.00	DMc36	24/1700	B	8.7	139.5	136.6	2.1	67.1	
BH05	1.00	DMc39	24/1701	B	7.8	139.5	137.7	1.3	51.9	
BH05	2.00	DMc40	24/1702	B	9.5	139.5	137.1	1.7	61.6	
BH05	3.00	DMc41	24/1703	B	6.0	139.5	138.2	0.9	63.7	
BH06	1.00	DMc44	24/1704	B	17.0	139.5	136.5	2.2	72.6	
BH06	2.00	DMc45	24/1705	B	9.4	139.5	137.4	1.5	58.8	
BH06	5.00	DMc48	24/1706	B	12.9	139.5	137.0	1.8	60.7	
BH07	1.00	DMc20	24/1707	B	16.3	139.5	138.1	1.0	59.7	
BH07	3.00	DMc22	24/1708	B	9.6	139.5	137.7	1.3	54.5	
BH07	5.00	DMc24	24/1709	B	10.5	139.5	137.6	1.4	61.5	
BH08	1.00	DMc15	24/1710	B	21.6	139.5	136.6	2.1	70.3	
BH08	3.00	DMc17	24/1711	B	8.8	139.5	138.2	0.9	53.2	
BH08	4.00	DMc18	24/1712	B	15.9	139.5	137.1	1.7	86.3	

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	45
90	100	**0.0200**	37
75	100	**0.0060**	33
63	100	**0.0020**	31
50	100		
37.5	100		
28	100		
20	97		
14	93.2		
10	90.4		
6.3	86.7		
5.0	84.4		
2.36	79.5		
2.00	78.2		
1.18	75.2		
0.600	68.3		
0.425	64.5		
0.300	60		
0.212	56.5		
0.150	52.2		
0.063	45		



Cobbles, %	0
Gravel, %	22
Sand, %	33
Silt, %	14
Clay, %	31

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1689
Sample No :	DMc01

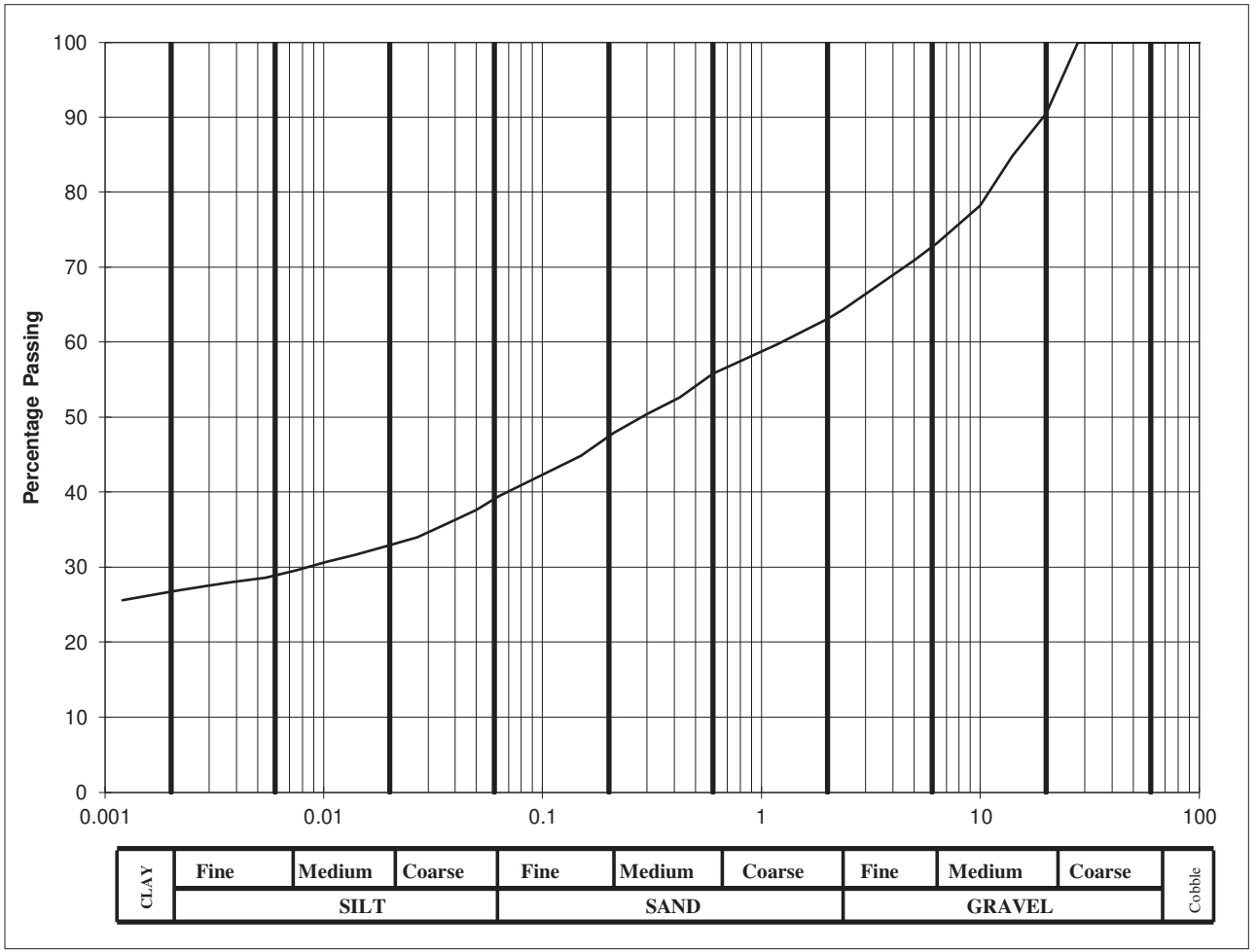
Hole ID :	BH 01
Depth, m :	1.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	40
90	100	**0.0200**	33
75	100	**0.0060**	29
63	100	**0.0020**	27
50	100		
37.5	100		
28	100		
20	90.5		
14	84.8		
10	78.2		
6.3	73.1		
5.0	70.9		
2.36	64.3		
2.00	63.1		
1.18	59.7		
0.600	55.8		
0.425	52.6		
0.300	50.4		
0.212	47.9		
0.150	44.8		
0.063	40		



Cobbles, %	0
Gravel, %	37
Sand, %	23
Silt, %	13
Clay, %	27

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1690
Sample No :	DMc02

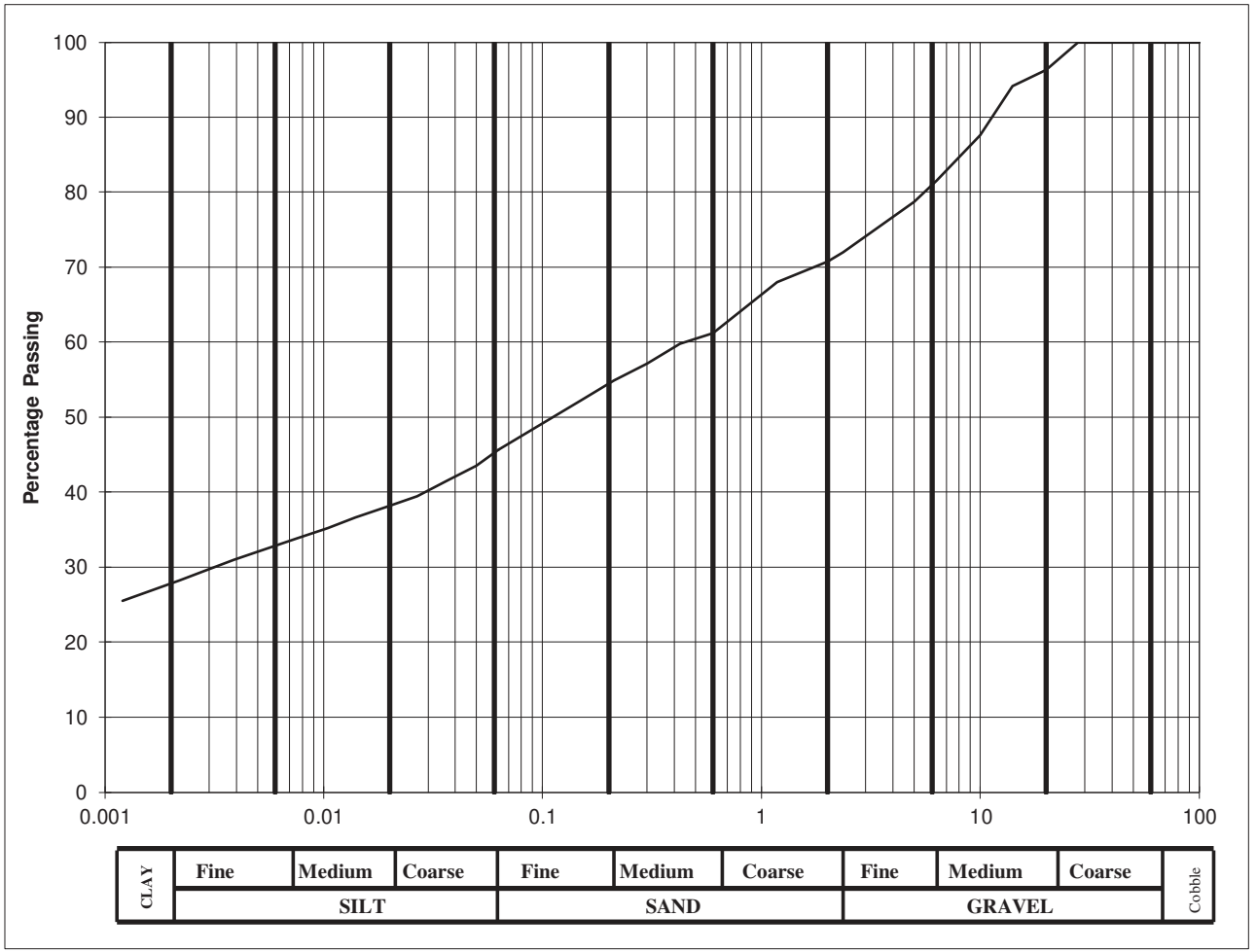
Hole ID :	BH 01
Depth, m :	2.00

Material description :	slightly sandy 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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	46
90	100	**0.0200**	38
75	100	**0.0060**	33
63	100	**0.0020**	27
50	100		
37.5	100		
28	100		
20	96.3		
14	94.1		
10	87.6		
6.3	81.5		
5.0	78.7		
2.36	72		
2.00	70.7		
1.18	68		
0.600	61.2		
0.425	59.8		
0.300	57.1		
0.212	54.9		
0.150	52.2		
0.063	46		



Cobbles, %	0
Gravel, %	29
Sand, %	25
Silt, %	19
Clay, %	27

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1691
Sample No :	DMc04

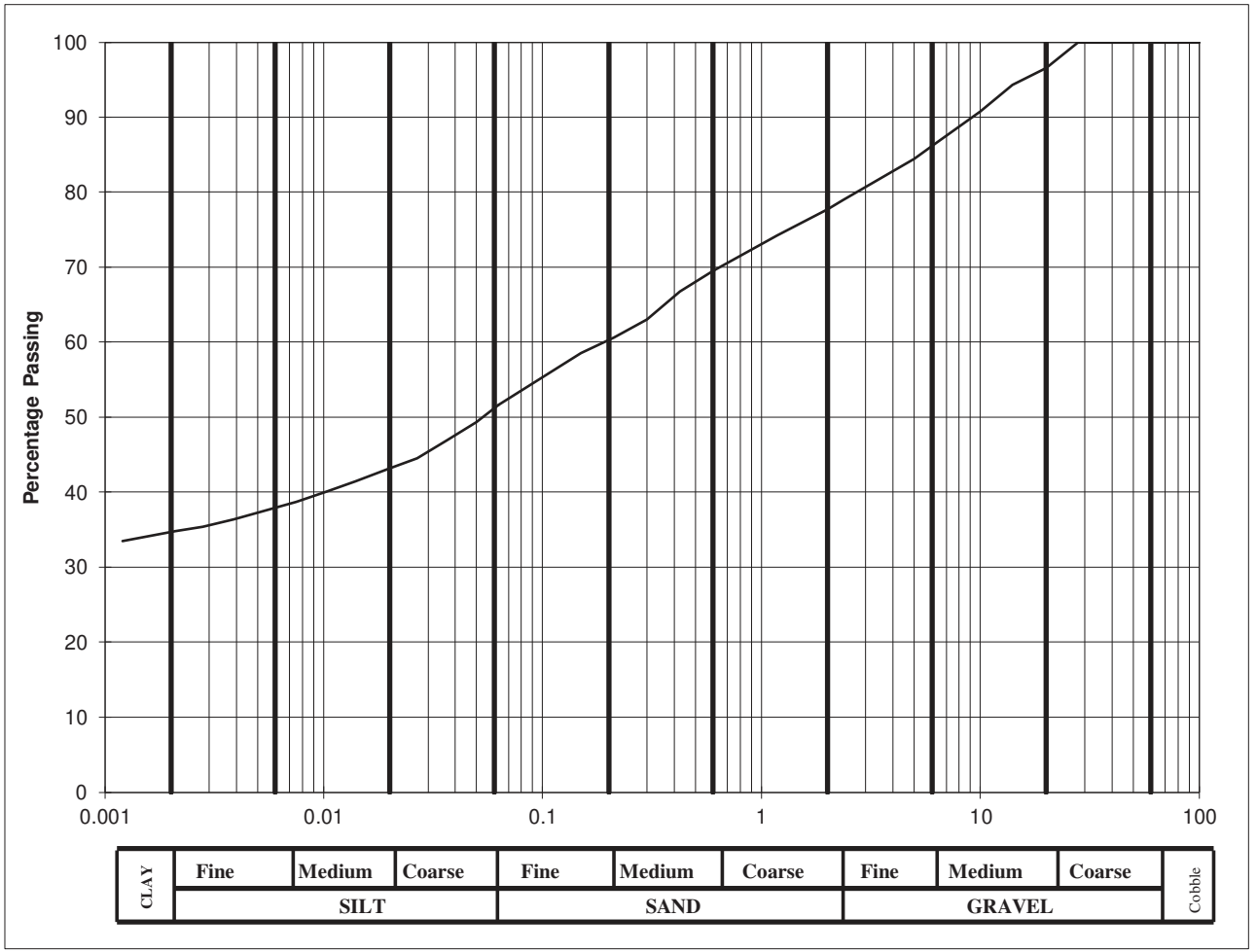
Hole ID :	BH 01
Depth, m :	4.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	52
90	100	**0.0200**	43
75	100	**0.0060**	37
63	100	**0.0020**	35
50	100		
37.5	100		
28	100		
20	96.5		
14	94.3		
10	90.7		
6.3	86.6		
5.0	84.4		
2.36	78.9		
2.00	77.7		
1.18	74.2		
0.600	69.5		
0.425	66.7		
0.300	63		
0.212	60.6		
0.150	58.5		
0.063	52		



Cobbles, %	0
Gravel, %	22
Sand, %	26
Silt, %	17
Clay, %	35

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1692
Sample No :	DMc08

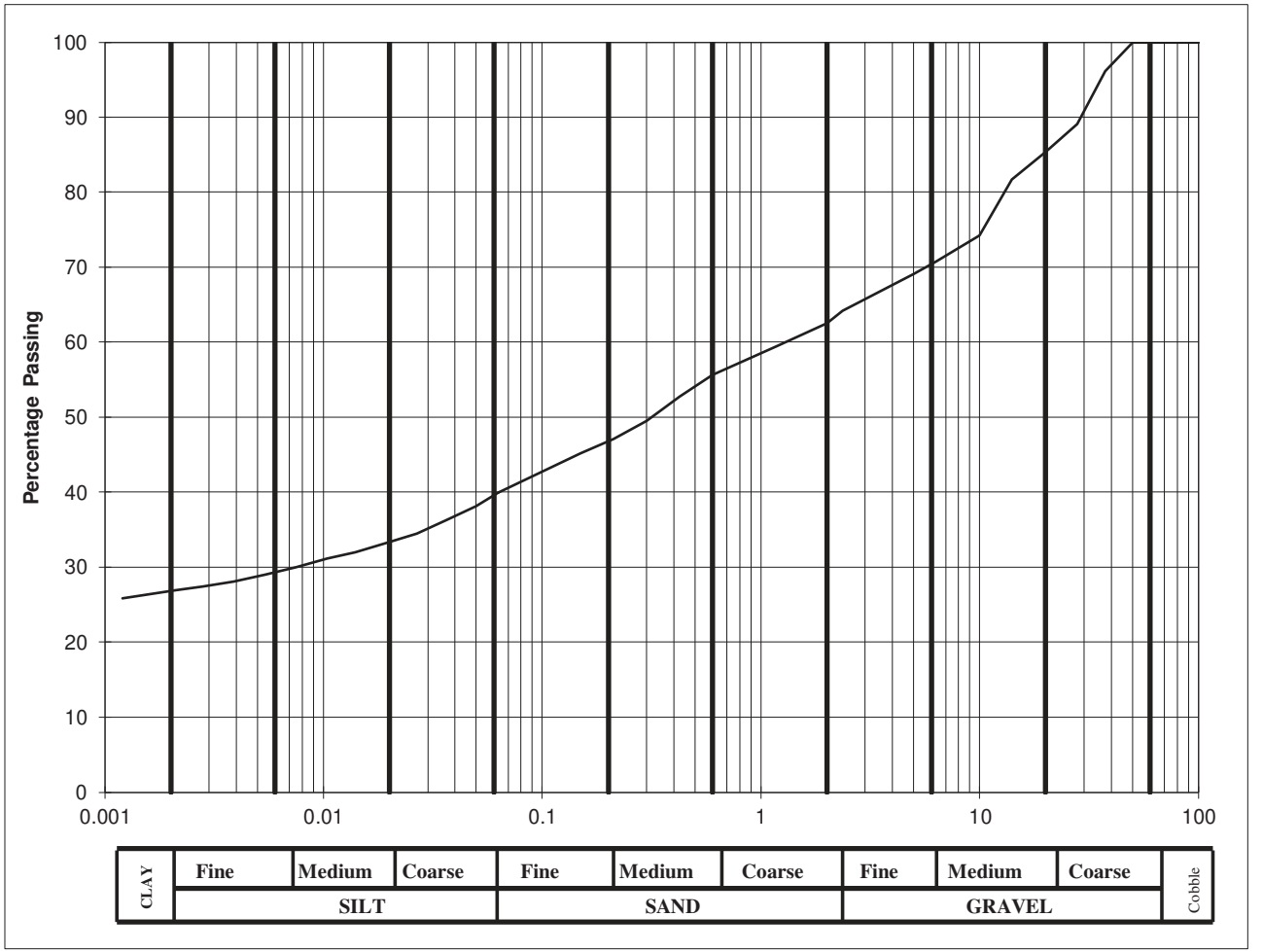
Hole ID :	BH 02
Depth, m :	1.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	40
90	100	**0.0200**	33
75	100	**0.0060**	29
63	100	**0.0020**	27
50	100		
37.5	96.1		
28	89.1		
20	85.3		
14	81.7		
10	74.2		
6.3	70.7		
5.0	69.1		
2.36	64.2		
2.00	62.5		
1.18	59.4		
0.600	55.6		
0.425	52.7		
0.300	49.5		
0.212	47.1		
0.150	45.2		
0.063	40		



Cobbles, %	0
Gravel, %	38
Sand, %	23
Silt, %	13
Clay, %	27

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1693
Sample No :	DMc09

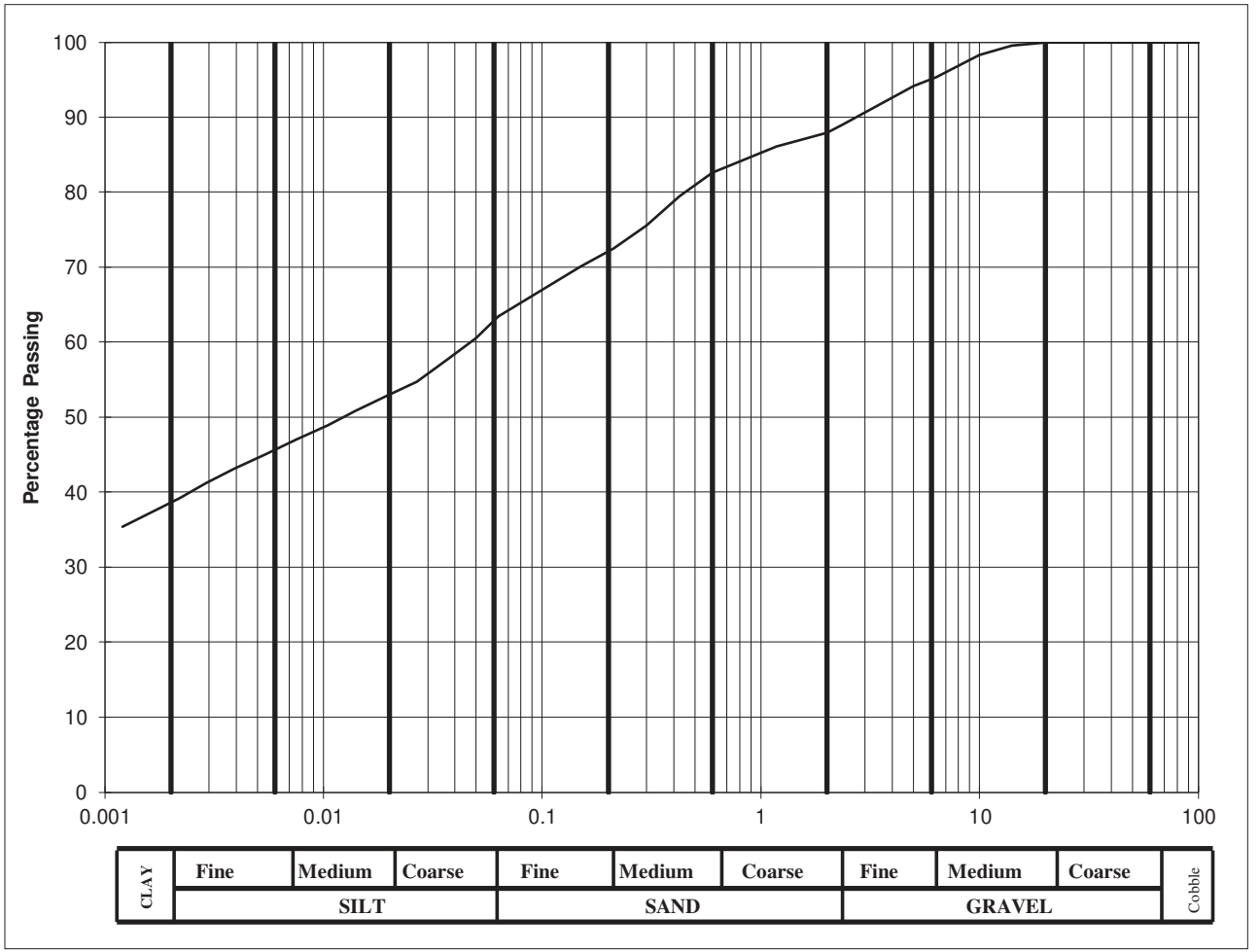
Hole ID :	BH 02
Depth, m :	2.00

Material description :	slightly sandy 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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	64
90	100	**0.0200**	54
75	100	**0.0060**	46
63	100	**0.0020**	39
50	100		
37.5	100		
28	100		
20	100		
14	99.5		
10	98.3		
6.3	95.3		
5.0	94.1		
2.36	89		
2.00	87.9		
1.18	86.1		
0.600	82.6		
0.425	79.4		
0.300	75.5		
0.212	72.5		
0.150	70.1		
0.063	64		



Cobbles, %	0
Gravel, %	12
Sand, %	24
Silt, %	25
Clay, %	39

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1694
Sample No :	DMc11

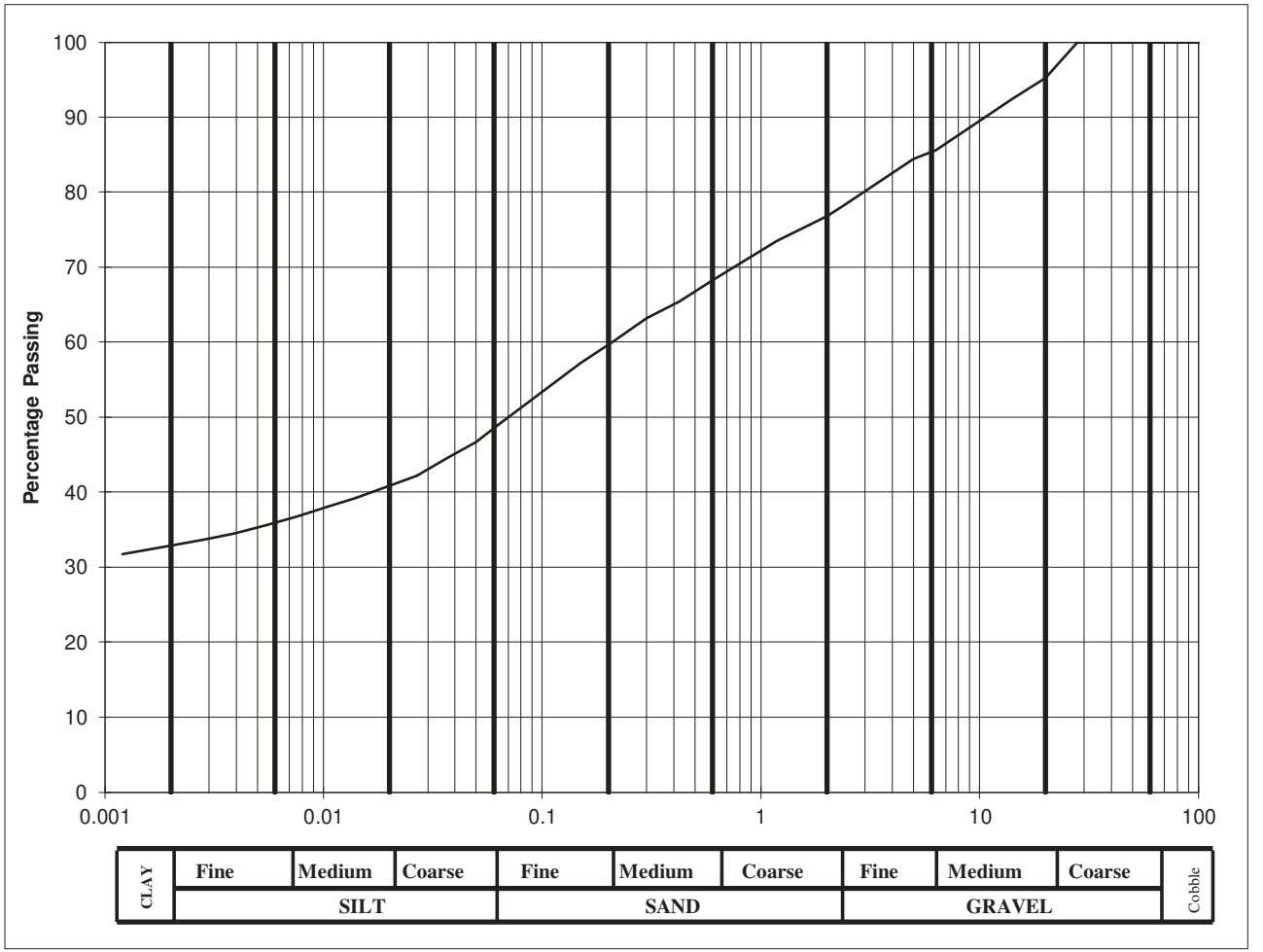
Hole ID :	BH 02
Depth, m :	4.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	49
90	100	**0.0200**	41
75	100	**0.0060**	36
63	100	**0.0020**	33
50	100		
37.5	100		
28	100		
20	95.2		
14	92.4		
10	89.5		
6.3	85.6		
5.0	84.4		
2.36	78.1		
2.00	76.8		
1.18	73.5		
0.600	68.2		
0.425	65.4		
0.300	63.2		
0.212	60.1		
0.150	57.2		
0.063	49		



Cobbles, %	0
Gravel, %	23
Sand, %	28
Silt, %	16
Clay, %	33

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1695
Sample No :	DMc27

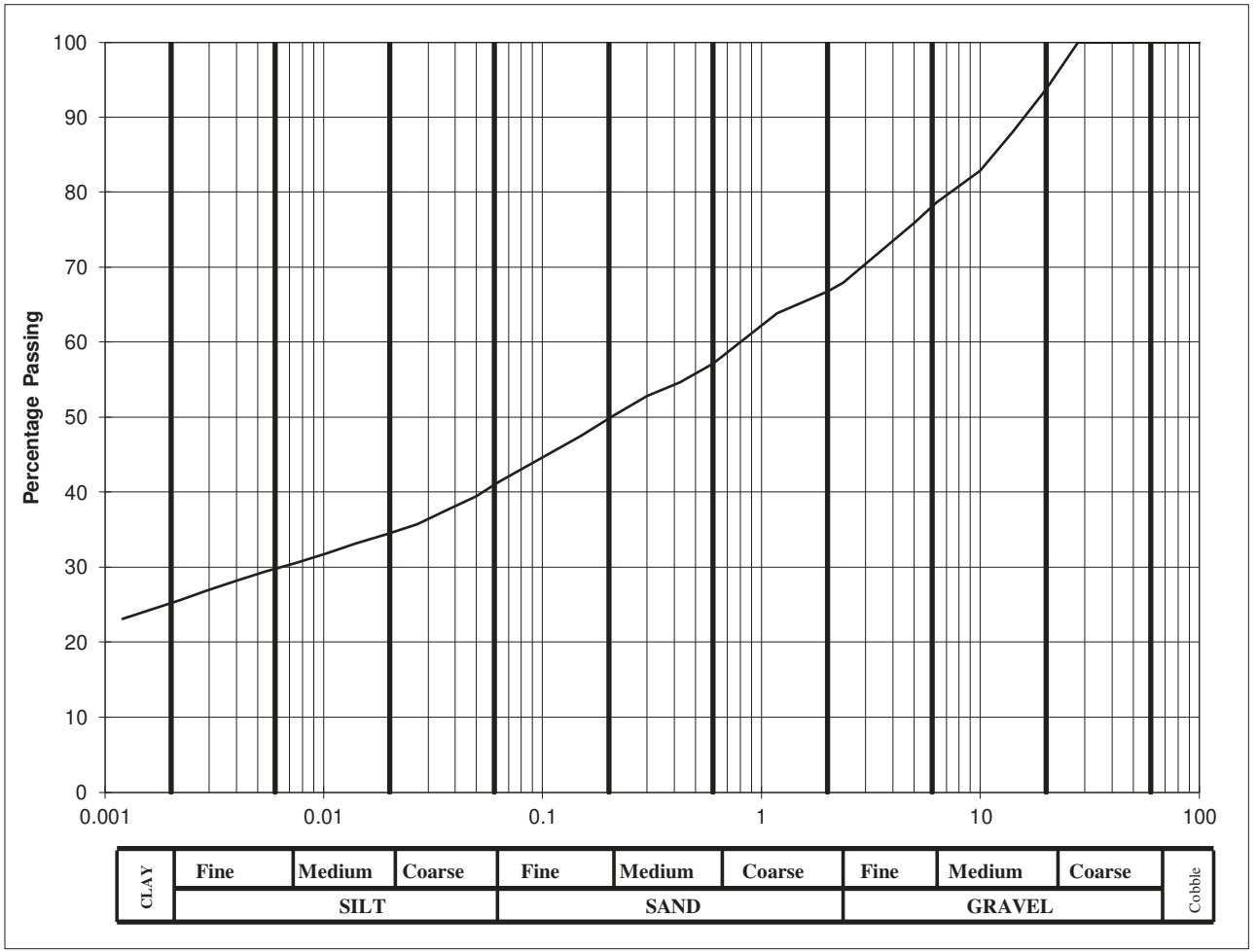
Hole ID :	BH 03
Depth, m :	1.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	41
90	100	**0.0200**	35
75	100	**0.0060**	30
63	100	**0.0020**	25
50	100		
37.5	100		
28	100		
20	93.7		
14	88		
10	82.8		
6.3	78.6		
5.0	75.9		
2.36	67.9		
2.00	66.7		
1.18	63.8		
0.600	57.1		
0.425	54.6		
0.300	52.8		
0.212	50.2		
0.150	47.5		
0.063	41		



Cobbles, %	0
Gravel, %	33
Sand, %	26
Silt, %	16
Clay, %	25

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1696
Sample No :	DMc29

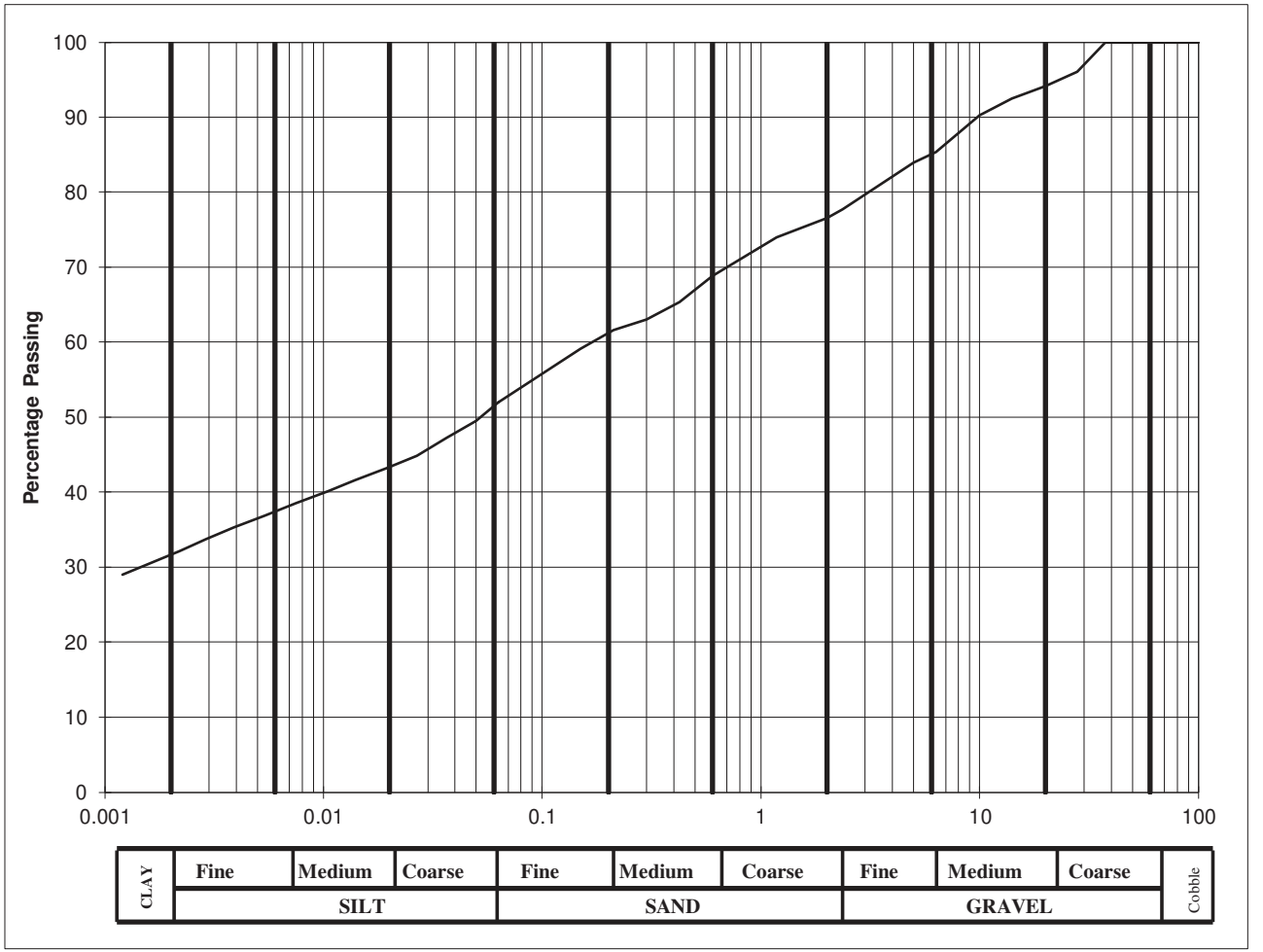
Hole ID :	BH 03
Depth, m :	3.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	52
90	100	**0.0200**	44
75	100	**0.0060**	37
63	100	**0.0020**	32
50	100		
37.5	100		
28	96		
20	94.1		
14	92.5		
10	90.2		
6.3	85.3		
5.0	83.9		
2.36	77.7		
2.00	76.5		
1.18	74		
0.600	68.8		
0.425	65.3		
0.300	63		
0.212	61.6		
0.150	59.1		
0.063	52		



Cobbles, %	0
Gravel, %	24
Sand, %	25
Silt, %	20
Clay, %	32

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1697
Sample No :	DMc31

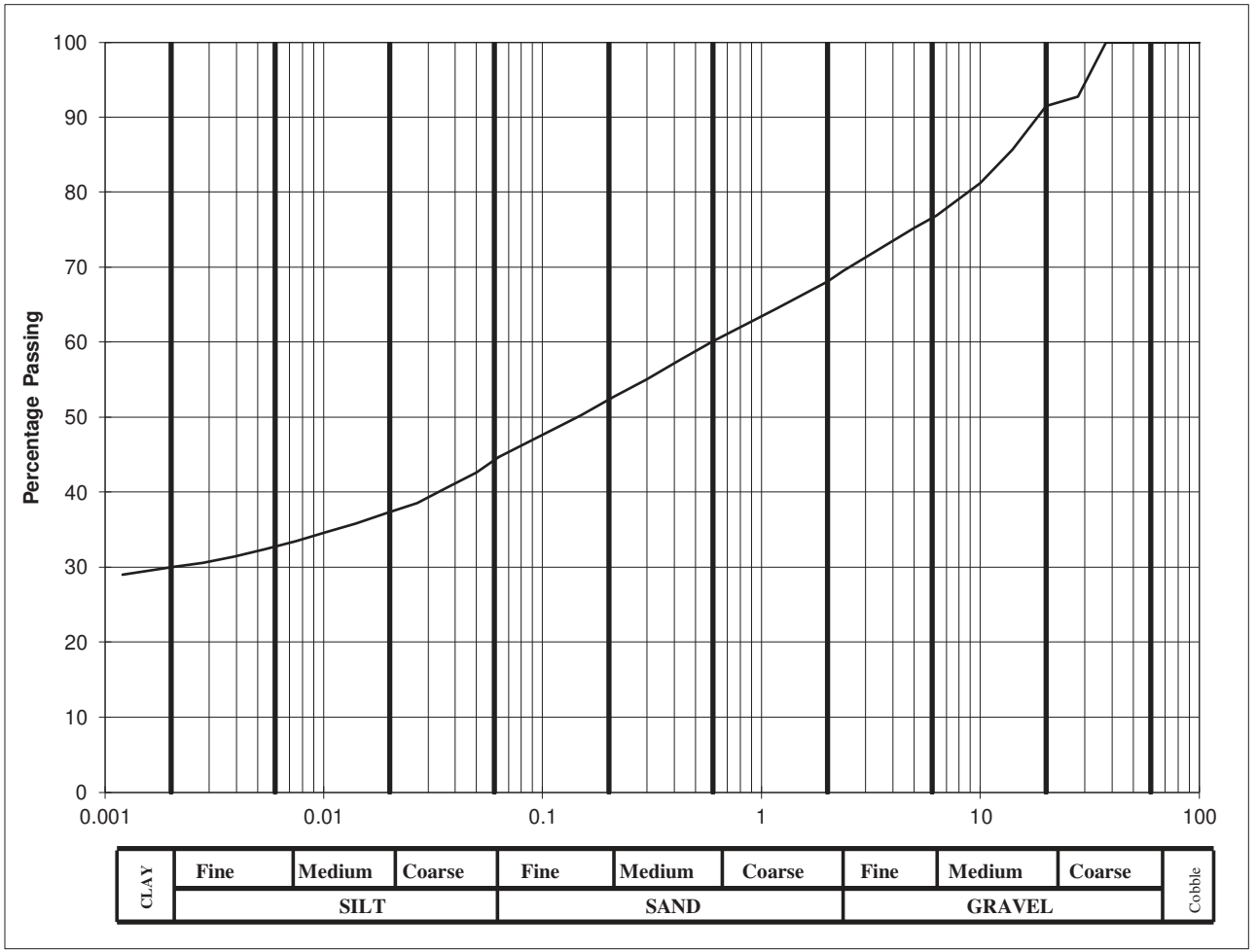
Hole ID :	BH 03
Depth, m :	5.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	45
90	100	**0.0200**	37
75	100	**0.0060**	33
63	100	**0.0020**	30
50	100		
37.5	100		
28	92.7		
20	91.5		
14	85.7		
10	81.2		
6.3	76.9		
5.0	75.2		
2.36	69.5		
2.00	68.1		
1.18	64.5		
0.600	60.1		
0.425	57.6		
0.300	55		
0.212	52.7		
0.150	50.2		
0.063	45		



Cobbles, %	0
Gravel, %	32
Sand, %	23
Silt, %	15
Clay, %	30

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1698
Sample No :	DMc32

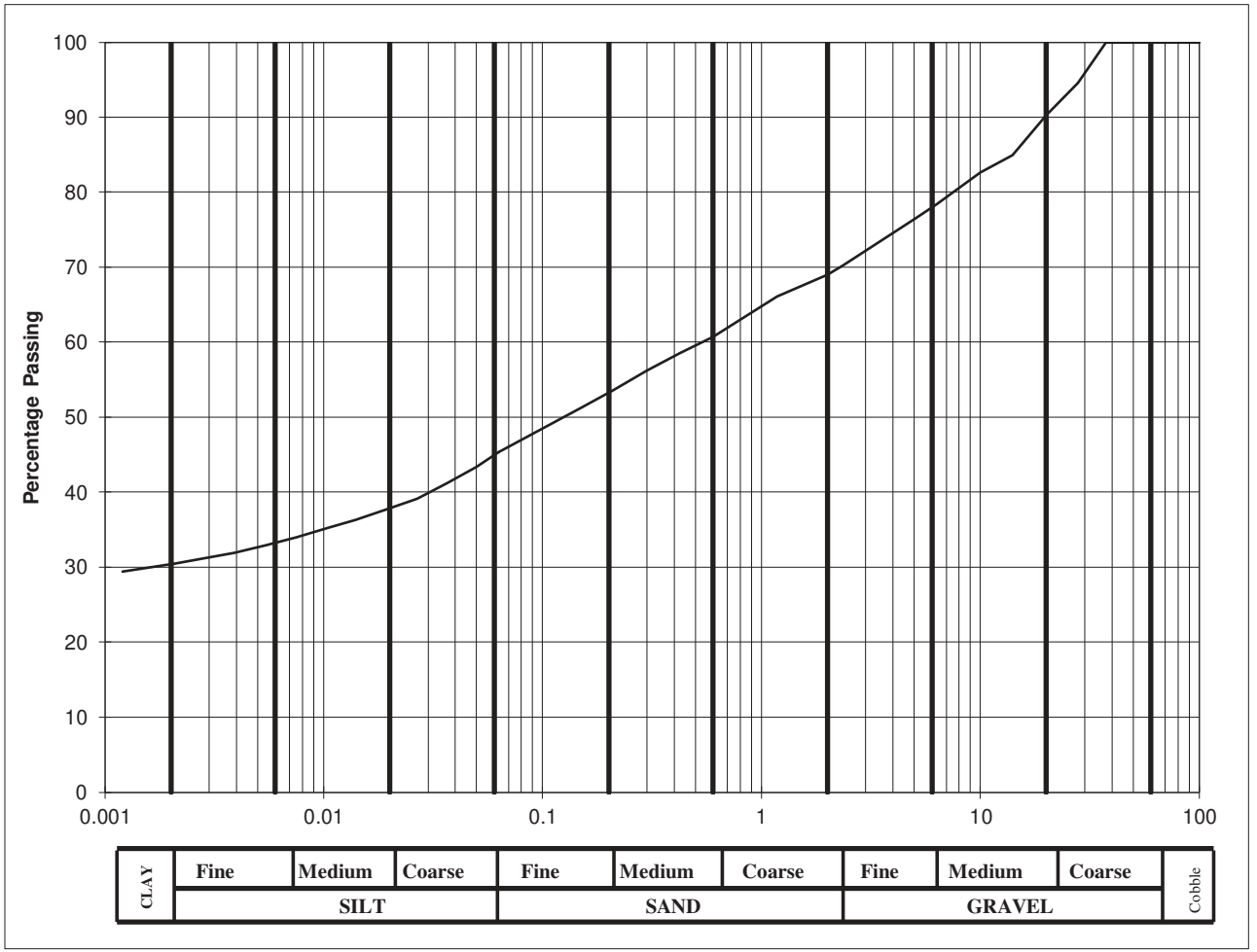
Hole ID :	BH 04
Depth, m :	1.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	45
90	100	**0.0200**	38
75	100	**0.0060**	33
63	100	**0.0020**	31
50	100		
37.5	100		
28	94.5		
20	90.2		
14	84.9		
10	82.6		
6.3	78.4		
5.0	76.4		
2.36	70.2		
2.00	69		
1.18	66.1		
0.600	60.7		
0.425	58.5		
0.300	56.2		
0.212	53.6		
0.150	51.2		
0.063	45		



Cobbles, %	0
Gravel, %	31
Sand, %	24
Silt, %	14
Clay, %	31

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1699
Sample No :	DMc33

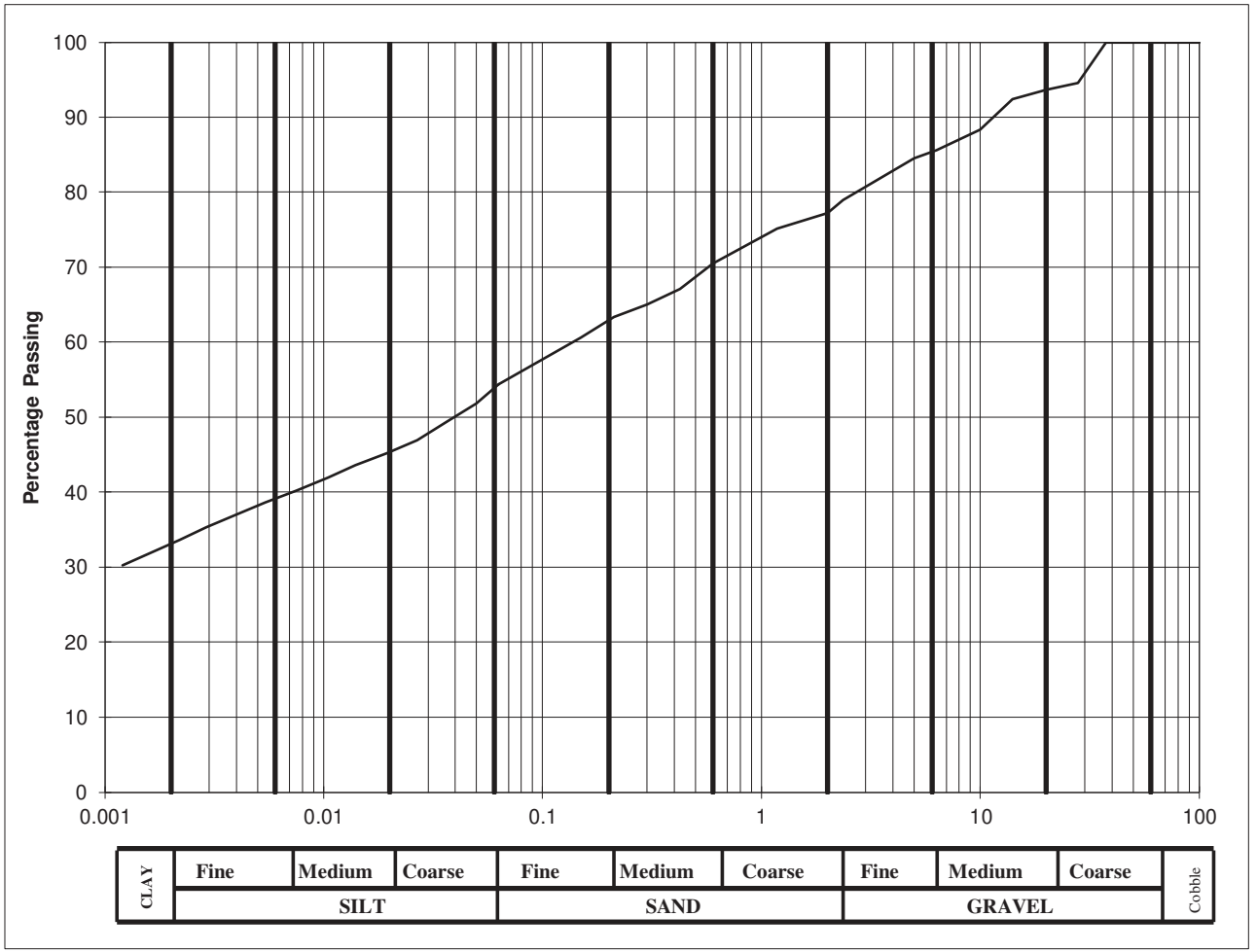
Hole ID :	BH 04
Depth, m :	2.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	54
90	100	**0.0200**	45
75	100	**0.0060**	39
63	100	**0.0020**	33
50	100		
37.5	100		
28	94.5		
20	93.6		
14	92.4		
10	88.3		
6.3	85.6		
5.0	84.5		
2.36	78.9		
2.00	77.2		
1.18	75.1		
0.600	70.5		
0.425	67.1		
0.300	65		
0.212	63.3		
0.150	60.6		
0.063	54		



Cobbles, %	0
Gravel, %	23
Sand, %	23
Silt, %	21
Clay, %	33

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1700
Sample No :	DMc31

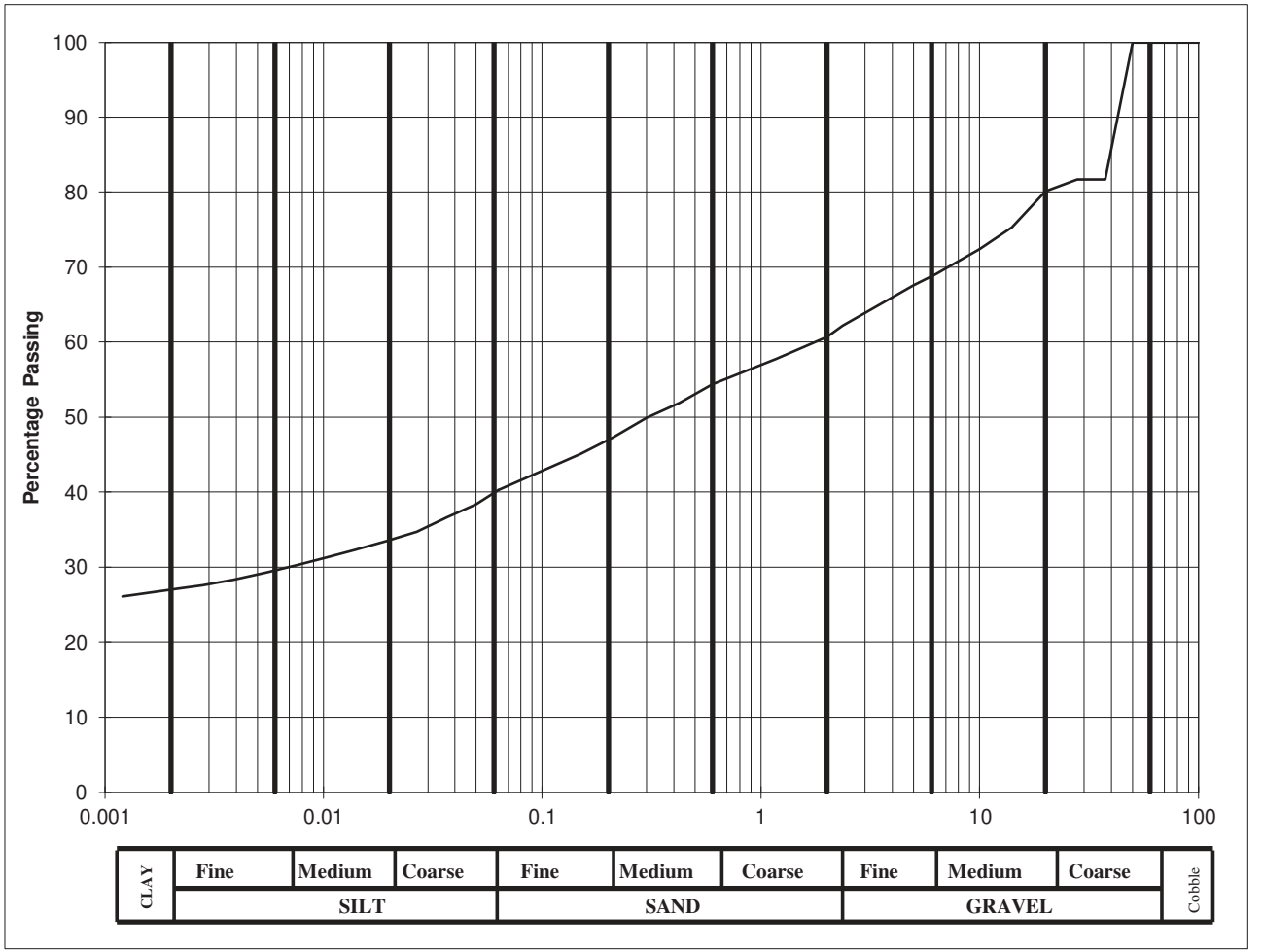
Hole ID :	BH 04
Depth, m :	5.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	40
90	100	**0.0200**	33
75	100	**0.0060**	29
63	100	**0.0020**	27
50	100		
37.5	81.7		
28	81.7		
20	80.1		
14	75.3		
10	72.4		
6.3	69.1		
5.0	67.6		
2.36	62.2		
2.00	60.7		
1.18	57.8		
0.600	54.4		
0.425	51.9		
0.300	49.9		
0.212	47.3		
0.150	45.1		
0.063	40		



Cobbles, %	0
Gravel, %	39
Sand, %	21
Silt, %	13
Clay, %	27

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1701
Sample No :	DMc39

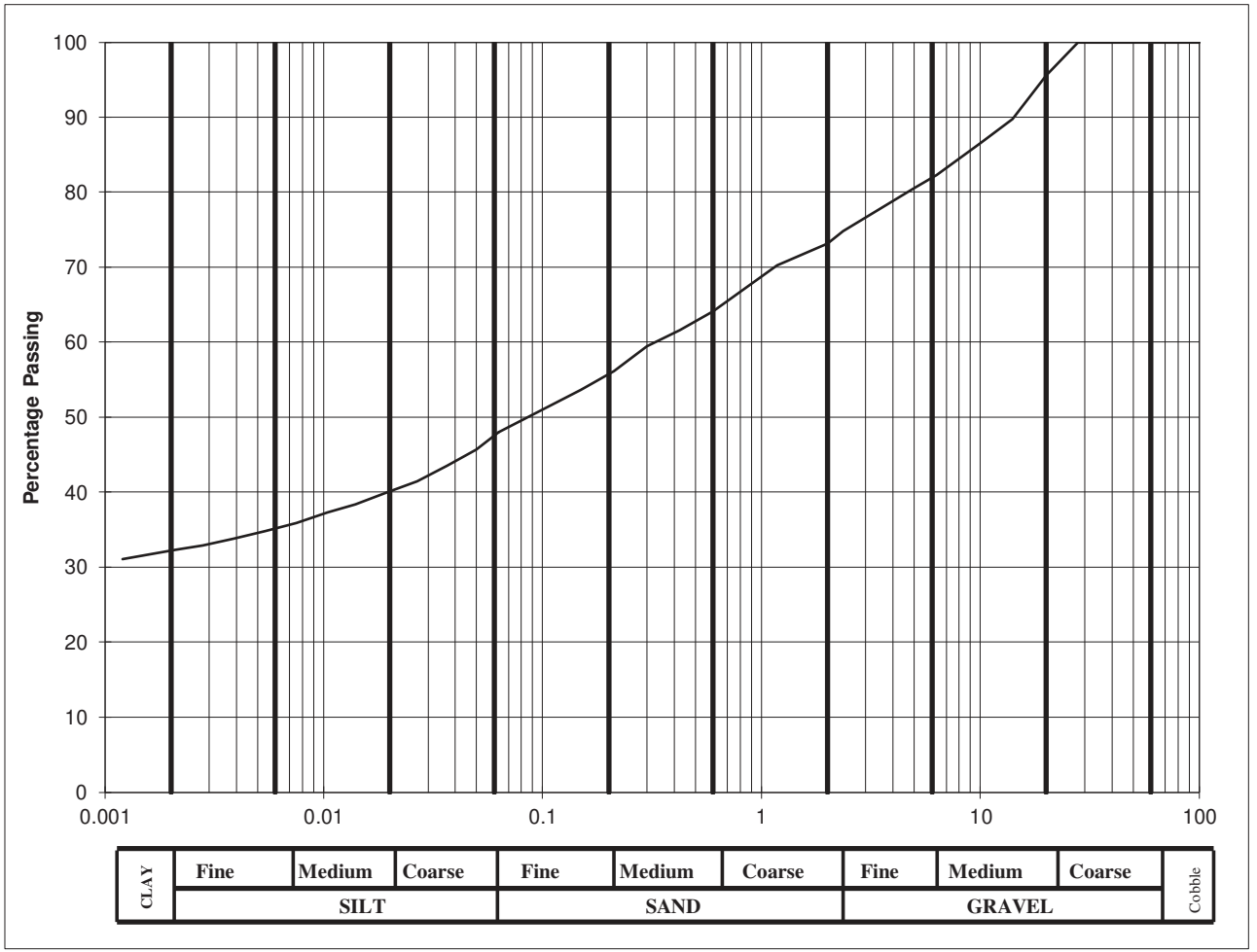
Hole ID :	BH 05
Depth, m :	1.00

Material description :	slightly sandy 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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	48
90	100	**0.0200**	40
75	100	**0.0060**	35
63	100	**0.0020**	32
50	100		
37.5	100		
28	100		
20	95.5		
14	89.7		
10	86.5		
6.3	82.3		
5.0	80.5		
2.36	74.8		
2.00	73.1		
1.18	70.2		
0.600	64.1		
0.425	61.6		
0.300	59.4		
0.212	56.1		
0.150	53.6		
0.063	48		



Cobbles, %	0
Gravel, %	27
Sand, %	25
Silt, %	16
Clay, %	32

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1702
Sample No :	DMc40

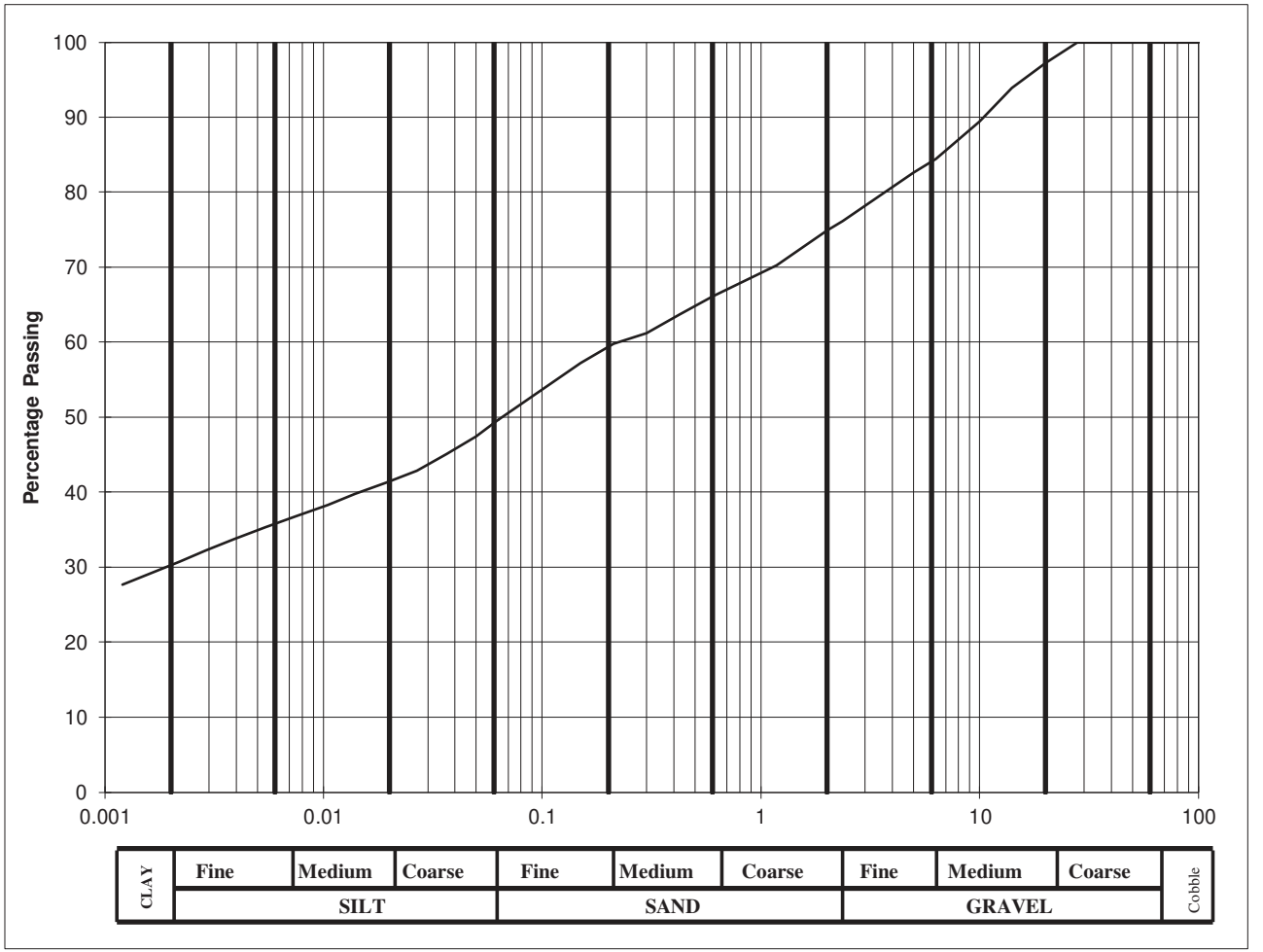
Hole ID :	BH 05
Depth, m :	2.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	50
90	100	**0.0200**	42
75	100	**0.0060**	36
63	100	**0.0020**	30
50	100		
37.5	100		
28	100		
20	97.2		
14	93.9		
10	89.4		
6.3	84.4		
5.0	82.6		
2.36	76.1		
2.00	74.9		
1.18	70.2		
0.600	66.1		
0.425	63.7		
0.300	61.2		
0.212	59.8		
0.150	57.2		
0.063	50		



Cobbles, %	0
Gravel, %	25
Sand, %	25
Silt, %	20
Clay, %	30

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1703
Sample No :	DMc41

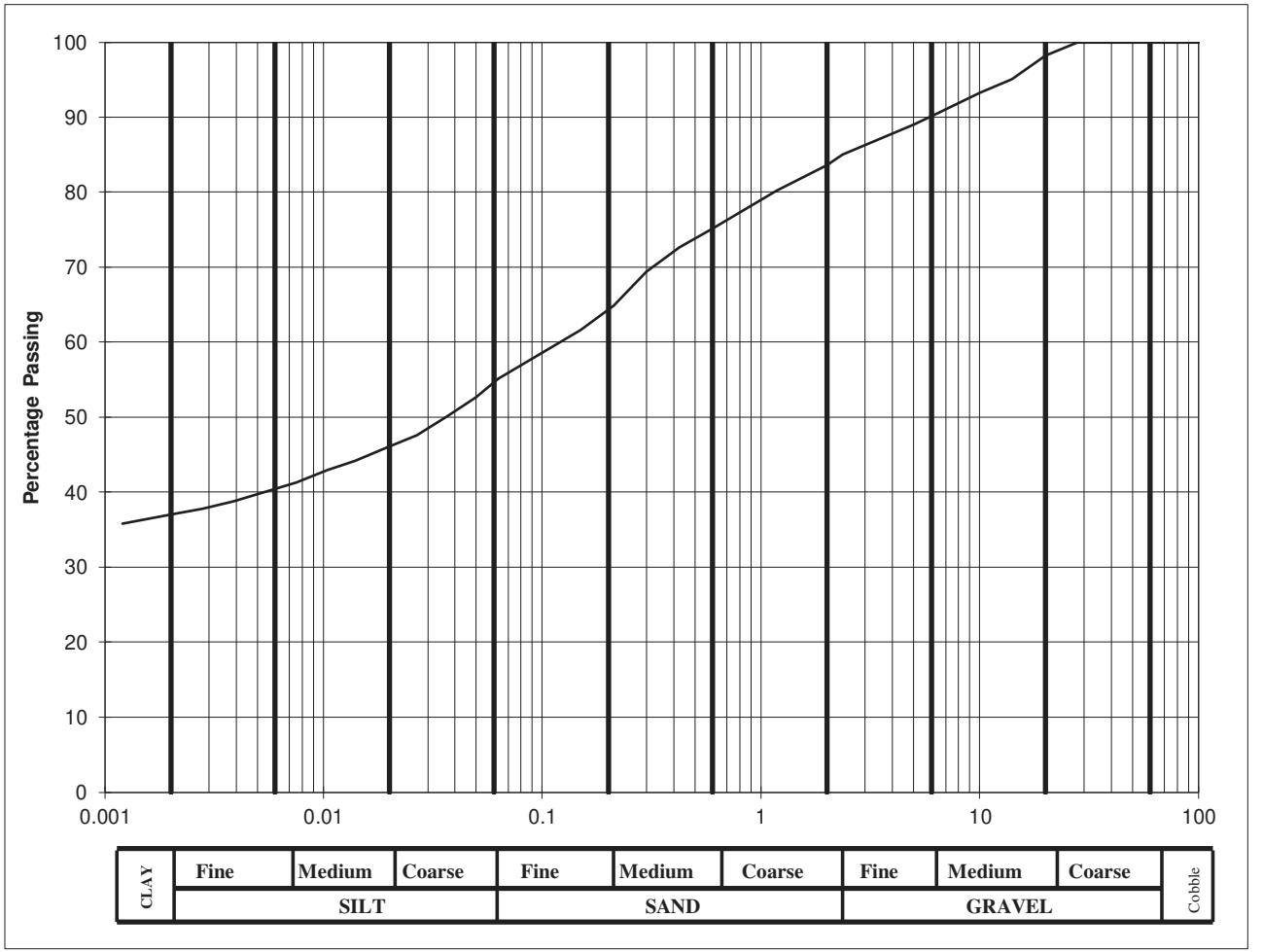
Hole ID :	BH 05
Depth, m :	3.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	55
90	100	**0.0200**	46
75	100	**0.0060**	41
63	100	**0.0020**	37
50	100		
37.5	100		
28	100		
20	98.2		
14	95		
10	93.2		
6.3	90.4		
5.0	89		
2.36	85		
2.00	83.6		
1.18	80.2		
0.600	75.1		
0.425	72.6		
0.300	69.4		
0.212	64.8		
0.150	61.6		
0.063	55		



Cobbles, %	0
Gravel, %	16
Sand, %	29
Silt, %	18
Clay, %	37

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1704
Sample No :	DMc44

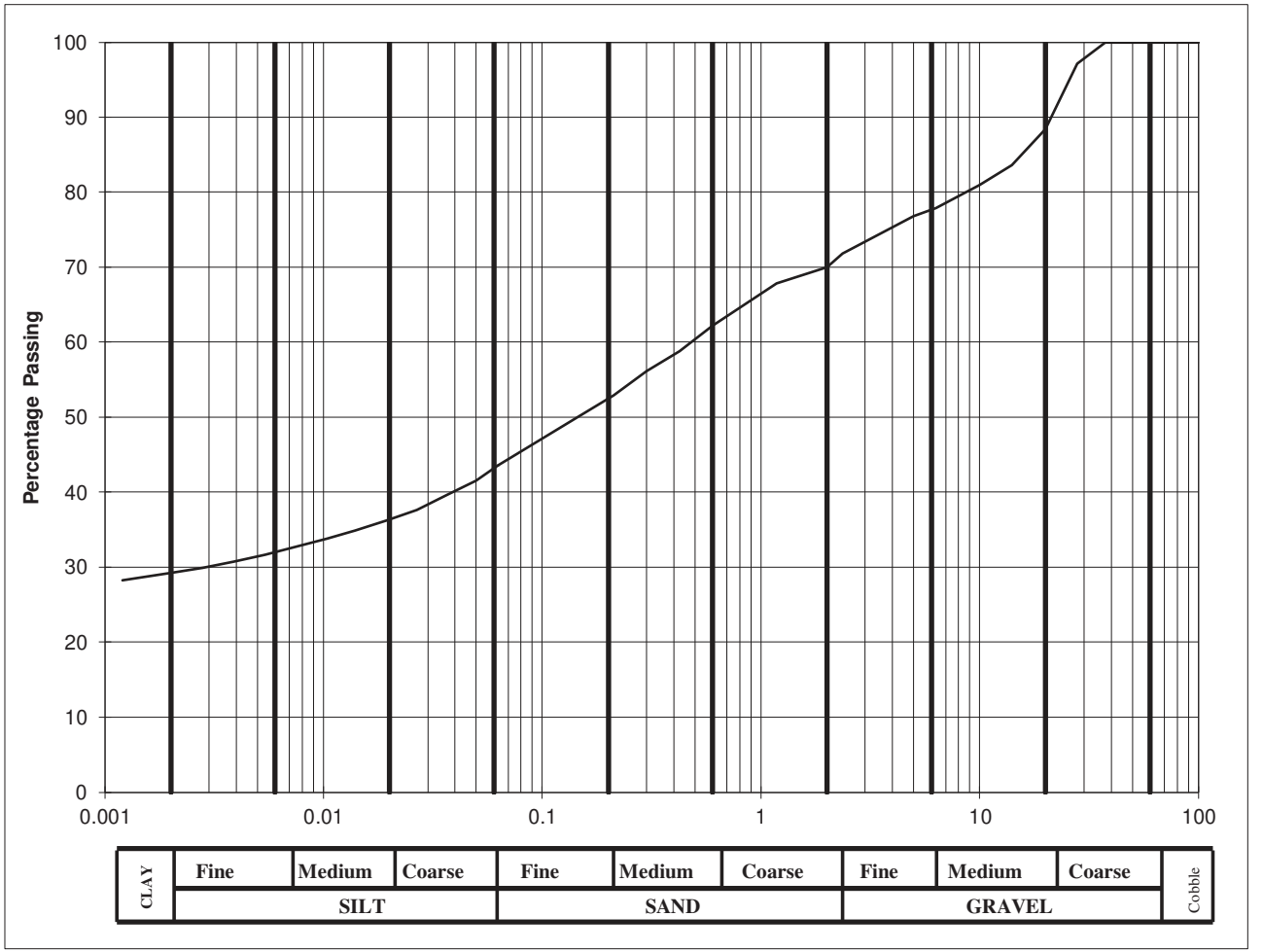
Hole ID :	BH 06
Depth, m :	1.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	44
90	100	**0.0200**	36
75	100	**0.0060**	32
63	100	**0.0020**	29
50	100		
37.5	100		
28	97.1		
20	88.4		
14	83.6		
10	80.9		
6.3	77.9		
5.0	76.8		
2.36	71.8		
2.00	70		
1.18	67.8		
0.600	62.2		
0.425	58.8		
0.300	56.1		
0.212	52.9		
0.150	50.2		
0.063	44		



Cobbles, %	0
Gravel, %	30
Sand, %	26
Silt, %	15
Clay, %	29

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1705
Sample No :	DMc45

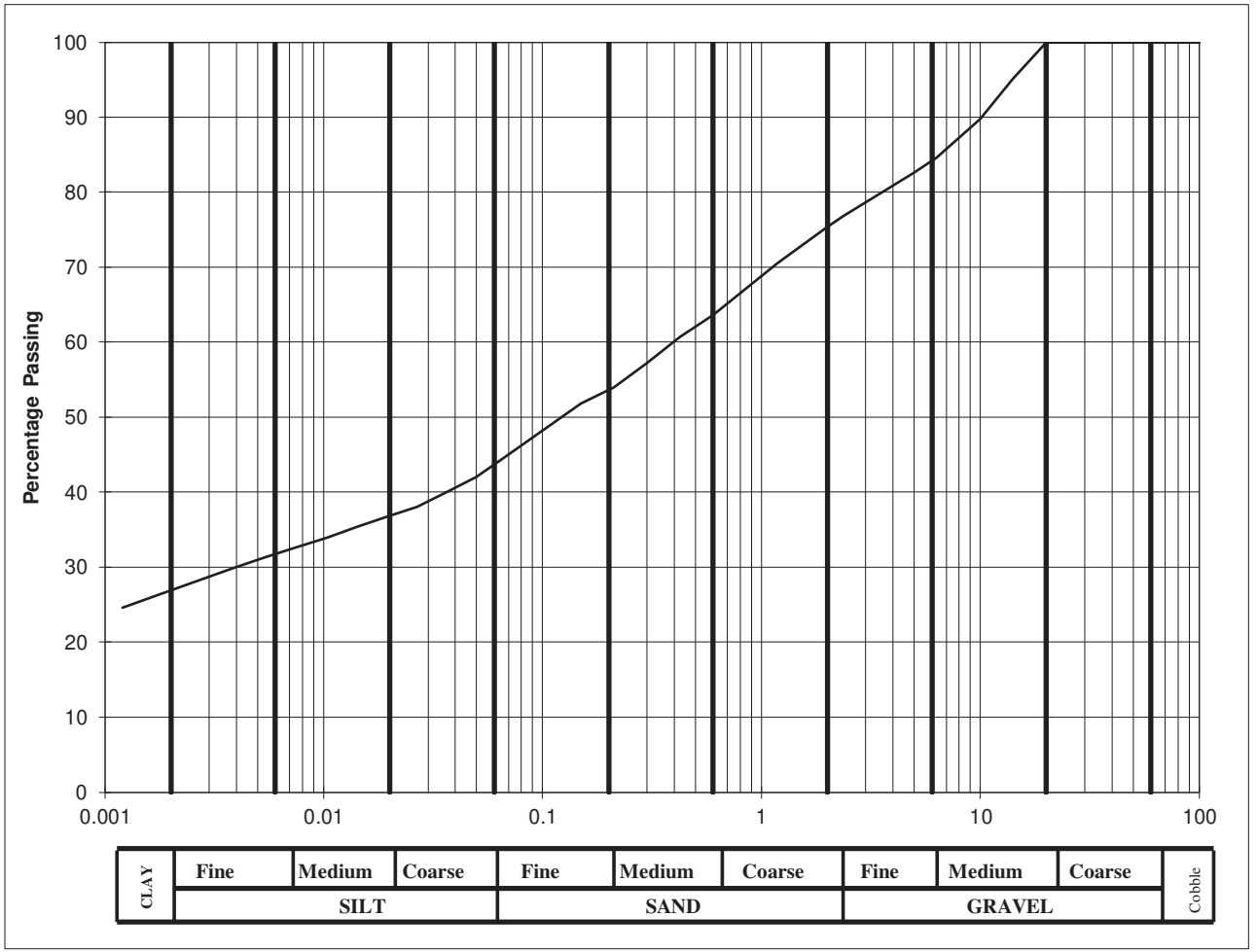
Hole ID :	BH 06
Depth, m :	2.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	44
90	100	**0.0200**	37
75	100	**0.0060**	32
63	100	**0.0020**	26
50	100		
37.5	100		
28	100		
20	100		
14	95		
10	89.7		
6.3	84.6		
5.0	82.6		
2.36	76.8		
2.00	75.4		
1.18	70.5		
0.600	63.6		
0.425	60.7		
0.300	57.2		
0.212	54		
0.150	51.8		
0.063	44		



Cobbles, %	0
Gravel, %	25
Sand, %	31
Silt, %	18
Clay, %	26

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1706
Sample No :	DMc48

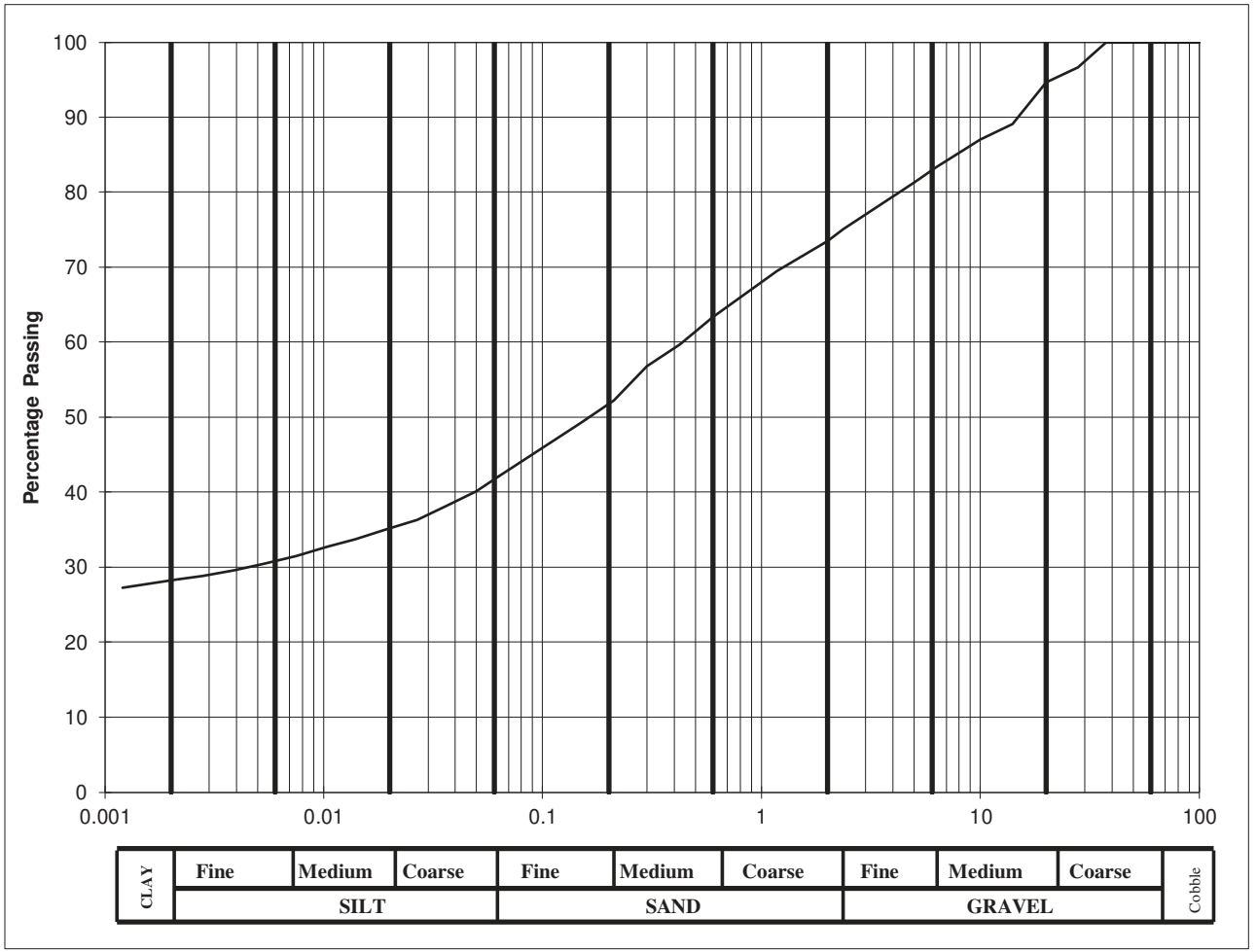
Hole ID :	BH 06
Depth, m :	5.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	42
90	100	**0.0200**	35
75	100	**0.0060**	31
63	100	**0.0020**	28
50	100		
37.5	100		
28	96.6		
20	94.6		
14	89.1		
10	87		
6.3	83.3		
5.0	81.3		
2.36	75		
2.00	73.5		
1.18	69.5		
0.600	63.3		
0.425	59.7		
0.300	56.8		
0.212	52.2		
0.150	49.2		
0.063	42		



Cobbles, %	0
Gravel, %	27
Sand, %	32
Silt, %	14
Clay, %	28

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1707
Sample No :	DMc20

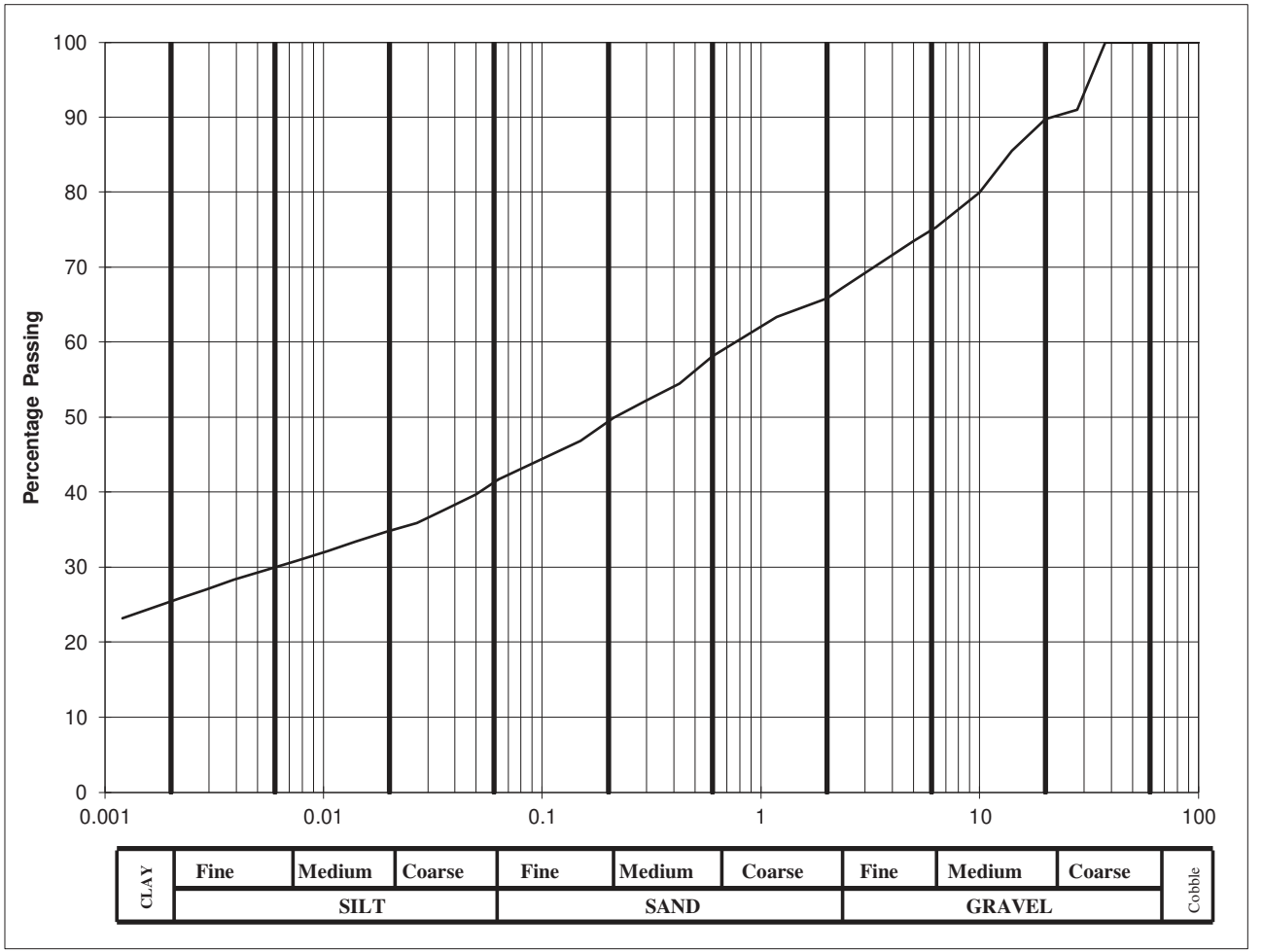
Hole ID :	BH 07
Depth, m :	1.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	44
90	100	**0.0200**	37
75	100	**0.0060**	32
63	100	**0.0020**	26
50	100		
37.5	100		
28	91		
20	89.7		
14	85.5		
10	79.9		
6.3	75.3		
5.0	73.5		
2.36	67.2		
2.00	65.8		
1.18	63.3		
0.600	58.1		
0.425	54.5		
0.300	52.2		
0.212	49.9		
0.150	46.8		
0.063	42		



Cobbles, %	0
Gravel, %	34
Sand, %	24
Silt, %	16
Clay, %	26

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1708
Sample No :	DMc22

Hole ID :	BH 07
Depth, m :	3.00

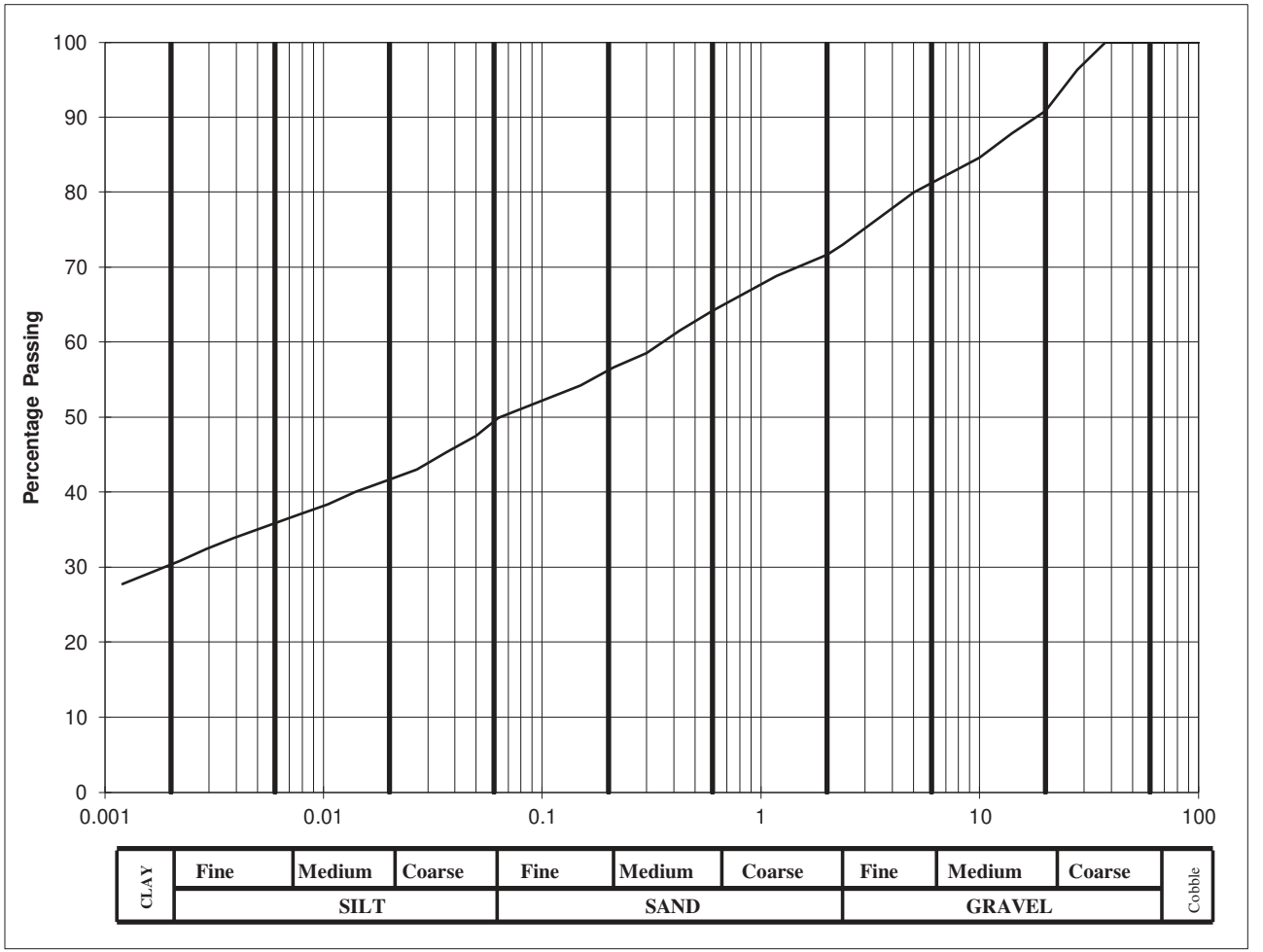
Material description :	slightly sandy slightly gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	50
90	100	**0.0200**	42
75	100	**0.0060**	36
63	100	**0.0020**	31
50	100		
37.5	100		
28	96.3		
20	90.8		
14	87.8		
10	84.6		
6.3	81.5		
5.0	79.9		
2.36	73		
2.00	71.6		
1.18	68.8		
0.600	64.2		
0.425	61.5		
0.300	58.5		
0.212	56.6		
0.150	54.2		
0.063	50		

Cobbles, %	0
Gravel, %	28
Sand, %	22
Silt, %	19
Clay, %	31



Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1709
Sample No :	DMc24

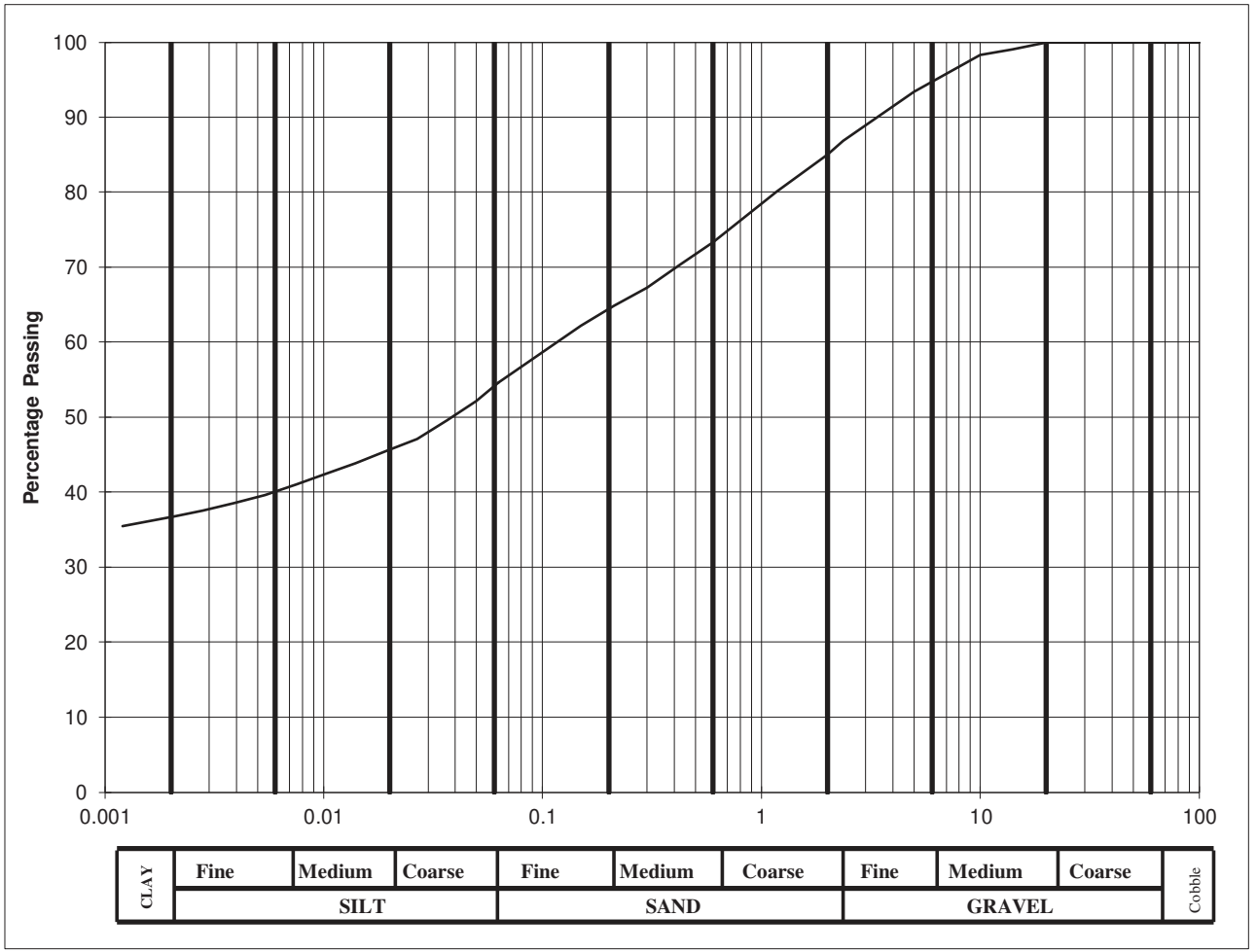
Hole ID :	BH 07
Depth, m :	5.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	55
90	100	**0.0200**	45
75	100	**0.0060**	40
63	100	**0.0020**	37
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98.3		
6.3	95		
5.0	93.4		
2.36	86.8		
2.00	85		
1.18	80.1		
0.600	73.3		
0.425	70.3		
0.300	67.2		
0.212	64.8		
0.150	62.2		
0.063	55		



Cobbles, %	0
Gravel, %	15
Sand, %	30
Silt, %	18
Clay, %	37

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1710
Sample No :	DMc15

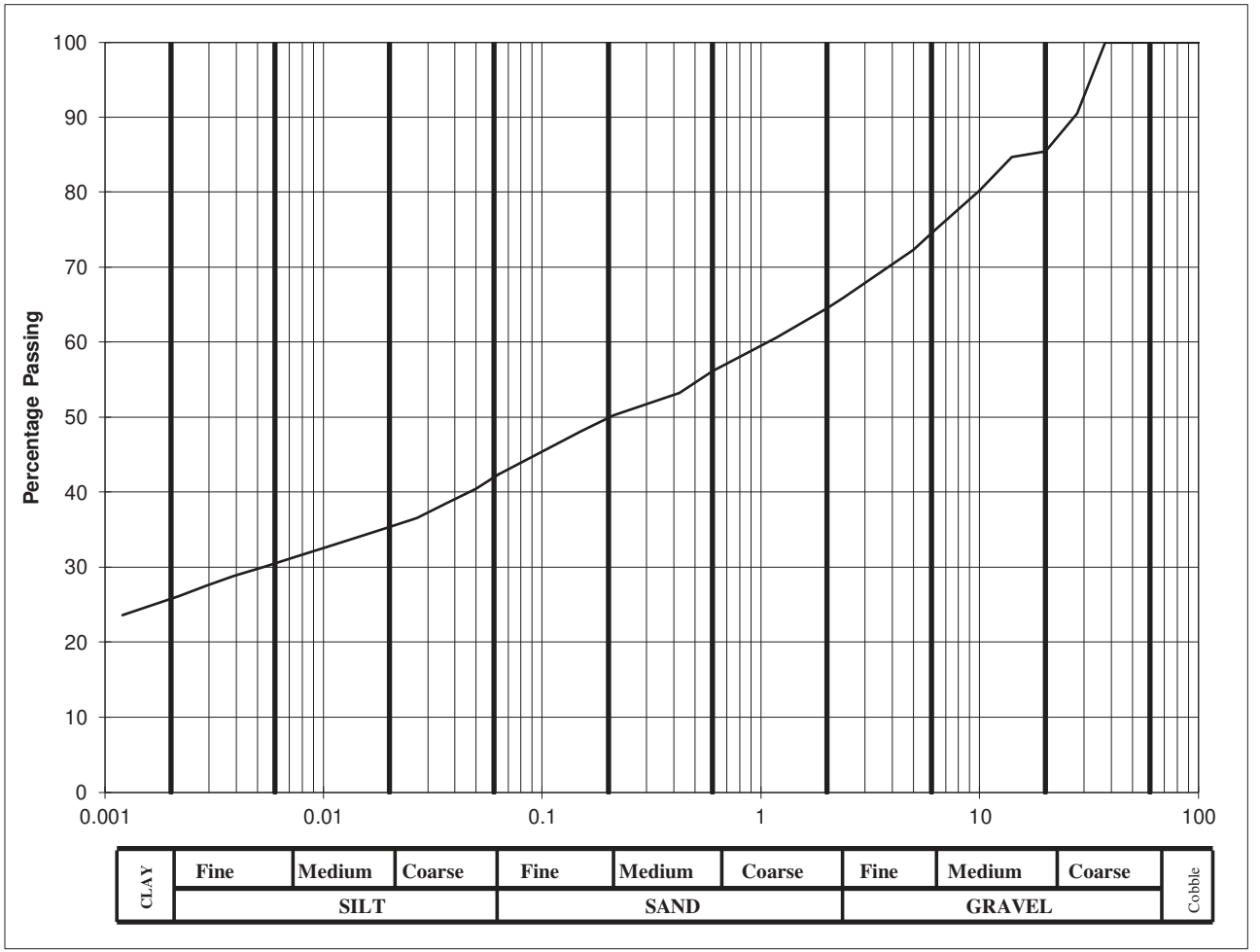
Hole ID :	BH 08
Depth, m :	1.00

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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	50
90	100	**0.0200**	42
75	100	**0.0060**	36
63	100	**0.0020**	31
50	100		
37.5	100		
28	90.5		
20	85.4		
14	84.7		
10	80.2		
6.3	75		
5.0	72.3		
2.36	65.8		
2.00	64.5		
1.18	60.6		
0.600	56.1		
0.425	53.2		
0.300	51.7		
0.212	50.2		
0.150	48.1		
0.063	42		



Cobbles, %	0
Gravel, %	36
Sand, %	23
Silt, %	11
Clay, %	31

Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1711
Sample No :	DMc24

Hole ID :	BH 08
Depth, m :	3.00

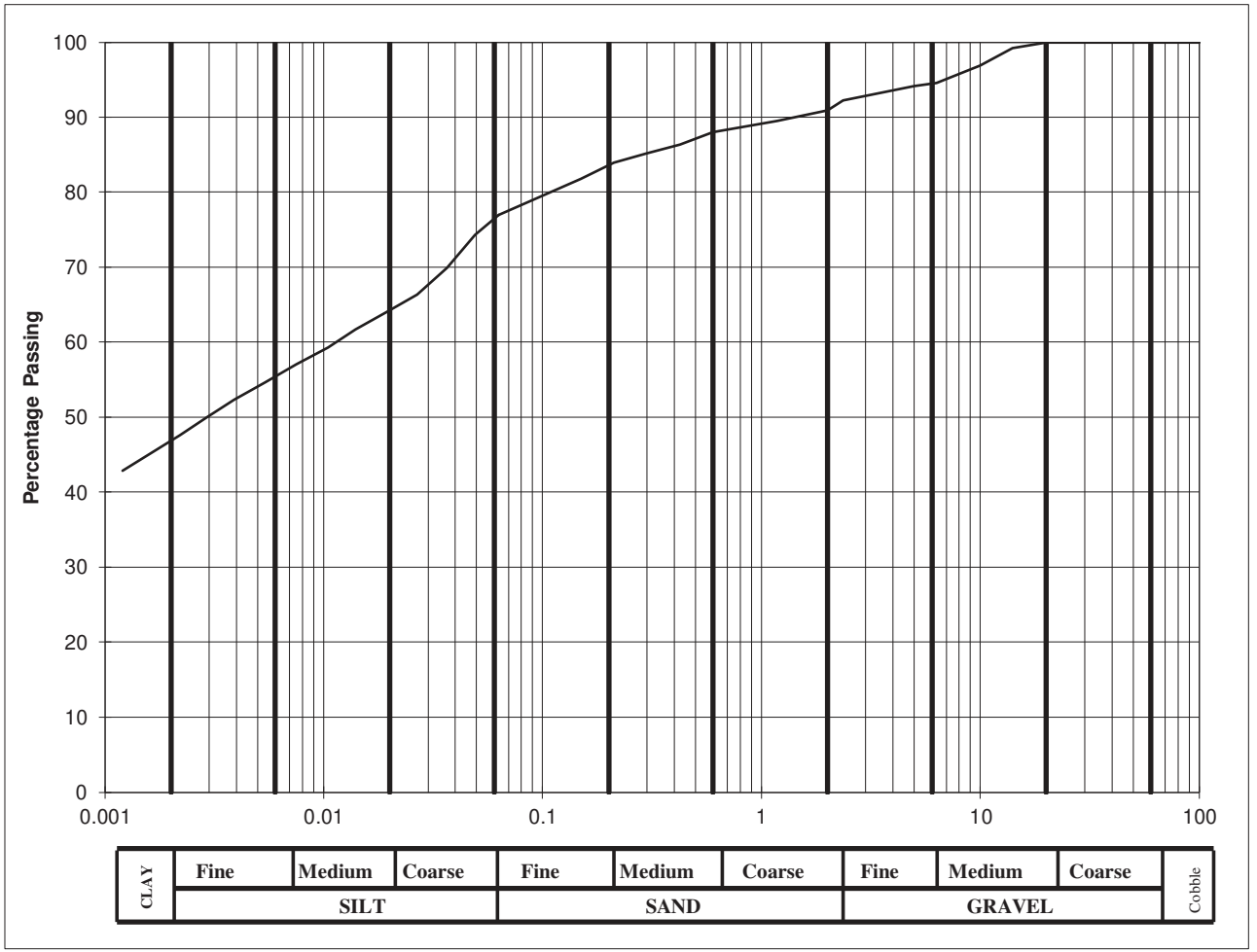
Material description :	slightly sandy gravelly silty CLAY
Remarks :	Soils with clay or silt content between 15% - 35% can be classified as clay or silt depending on the field Engineers assessment of in-situ behaviour. Where material is for re-use and therefore disturbed, only soils with clay or silt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

BS 1377 Particle Size Analysis

Site Investigations Limited

BS Sieve size, mm	Percent passing	Hydrometer analysis	
		Diameter, mm	% passing
100	100	**0.0630**	77
90	100	**0.0200**	64
75	100	**0.0060**	55
63	100	**0.0020**	46
50	100		
37.5	100		
28	100		
20	100		
14	99.2		
10	96.9		
6.3	94.5		
5.0	94.1		
2.36	92.2		
2.00	90.9		
1.18	89.5		
0.600	88		
0.425	86.3		
0.300	85.2		
0.212	83.9		
0.150	81.8		
0.063	77		

Cobbles, %	0
Gravel, %	9
Sand, %	14
Silt, %	31
Clay, %	46



Client :	Corcom Enterprises Ltd.
Project :	Boreen Bradach, Kinnegad

Lab. No :	24/1712
Sample No :	DMc18

Hole ID :	BH 08
Depth, m :	4.00

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

Determination of Shear Strength by Laboratory Vane Method BS:1377:Part 7:Method 3

Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
S.I.File No	6377 / 24
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report date	22nd November 2024

Hole Id	Depth	Sample No.	Lab Ref No.	Sample Type	Vane Used	Moisture Content at test horizon %	Vane Sheer Strength (Kpa)	Soil Description at Horizon	Comments
BH01	1.00	DMc01	24/1689	B	19mm	23.7	22		
BH01	2.00	DMc02	24/1690	B	19mm	11.3	48		
BH01	4.00	DMc04	24/1691	B	19mm	12.1	86		
BH02	1.00	DMc08	24/1692	B	19mm	13.2	28		
BH02	2.00	DMc09	24/1693	B	19mm	10.6	56		
BH02	4.00	DMc11	24/1694	B	19mm	11.6	78		
BH03	1.00	DMc27	24/1695	B	19mm	14.6	32		
BH03	3.00	DMc29	24/1696	B	19mm	8.9	62		
BH03	5.00	DMc31	24/1697	B	19mm	10.6	98		
BH04	1.00	DMc32	24/1698	B	19mm	8.6	38		
BH04	2.00	DMc33	24/1699	B	19mm	9.3	58		
BH04	5.00	DMc36	24/1700	B	19mm	8.7	112		
BH05	1.00	DMc39	24/1701	B	19mm	7.8	30		
BH05	2.00	DMc40	24/1702	B	19mm	9.5	54		
BH05	3.00	DMc41	24/1703	B	19mm	6.0	60		
BH06	1.00	DMc44	24/1704	B	19mm	17.0	50		
BH06	2.00	DMc45	24/1705	B	19mm	9.4	66		
BH06	5.00	DMc48	24/1706	B	19mm	12.9	88		
BH07	1.00	DMc20	24/1707	B	19mm	16.3	40		
BH07	3.00	DMc22	24/1708	B	19mm	9.6	94		
BH07	5.00	DMc24	24/1709	B	19mm	10.5	108		
BH08	1.00	DMc15	24/1710	B	19mm	21.6	62		
BH08	3.00	DMc17	24/1711	B	19mm	8.8	98		
BH08	4.00	DMc18	24/1712	B	19mm	15.9	110		

Chemical Testing
In accordance with BS 1377: Part 3

Client	Corcom Enterprises Ltd.
Site	Boreen Bradagh, Kinnegad
S.I. File No	6377 / 24
Test Lab	Site Investigations Ltd., Carhugar The Grange, 12th Lock Rd., Lucan Co. Dublin. Tel (01) 6108768 Email:info@siteinvestigations.ie
Report Date	22nd November 2024

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
BH01	1.00	DMc01	24/1689	8.80	0.124	0.097			0.11	78.2
BH01	2.00	DMc02	24/1690	8.88	0.126	0.080			0.15	63.1
BH01	4.00	DMc04	24/1691	8.90	0.129	0.091			0.15	70.7
BH02	1.00	DMc08	24/1692	8.86	0.131	0.102			0.14	77.7
BH02	2.00	DMc09	24/1693	8.91	0.126	0.079			0.15	62.5
BH02	4.00	DMc11	24/1694	8.98	0.131	0.116			0.14	87.9
BH03	1.00	DMc27	24/1695	8.99	0.126	0.097			0.15	76.8
BH03	3.00	DMc29	24/1696	8.66	0.124	0.083			0.21	66.7
BH03	5.00	DMc31	24/1697	8.31	0.131	0.101			0.14	76.5
BH04	1.00	DMc32	24/1698	8.40	0.126	0.086			0.15	68.1
BH04	2.00	DMc33	24/1699	8.74	0.127	0.089			0.15	69.0
BH04	5.00	DMc36	24/1700	8.66	0.126	0.097			0.15	77.2
BH05	1.00	DMc39	24/1701	8.74	0.124	0.076			0.11	60.7
BH05	2.00	DMc40	24/1702	8.72	0.124	0.091			0.11	73.1
BH05	3.00	DMc41	24/1703	8.56	0.123	0.092			0.16	74.9
BH06	1.00	DMc44	24/1704	8.56	0.129	0.108			0.15	83.6
BH06	2.00	DMc45	24/1705	8.64	0.124	0.088			0.19	70.0
BH06	5.00	DMc48	24/1706	8.65	0.123	0.093			0.26	75.4
BH07	1.00	DMc20	24/1707	8.69	0.122	0.089			0.12	73.5
BH07	3.00	DMc22	24/1708	8.72	0.124	0.082			0.11	65.8
BH07	5.00	DMc24	24/1709	8.71	0.133	0.095			0.18	71.6
BH08	1.00	DMc15	24/1710	8.79	0.131	0.112			0.14	85.0
BH08	3.00	DMc17	24/1711	8.28	0.126	0.081			0.15	64.5
BH08	4.00	DMc18	24/1712	8.95	0.136	0.123			0.17	90.9

Appendix 8

Environmental Laboratory Test Results

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
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:	28 October 2024
Customer:	Site Investigations Ltd
Sample Delivery Group (SDG):	241018-64
Your Reference:	6377
Location:	KINNEGAD
Report No:	744943
Order Number:	38/B/24

We received 6 samples on Thursday October 17, 2024 and 6 of these samples were scheduled for analysis which was completed on Monday October 28, 2024. 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 Laboratories (UK) Limited Hawarden.

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:

Lauren Ellis
General Manager Western Europe Environmental

1291

CERTIFICATE OF ANALYSIS

SDG: 241018-64 Report Number: 744943 Superseded Report:
Client Ref.: 6377 Location: KINNEGAD

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
30539163	SA 01		0.50 - 0.50	15/10/2024
30539165	SA 02		0.50 - 0.50	15/10/2024
30539166	SA 03		0.50 - 0.50	15/10/2024
30539168	SA 04		0.50 - 0.50	15/10/2024
30539169	SA 05		0.50 - 0.50	15/10/2024
30539170	SA 06		0.50 - 0.50	15/10/2024

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

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 **Report Number:** 744943 **Superseded Report:**
Client Ref.: 6377 **Location:** KINNEGAD

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)																	
			30539163			30539165			30539166			30539168			30539169			30539170		
			Customer Sample Reference			SA 01			SA 02			SA 03			SA 04			SA 05			SA 06		
			AGS Reference																			
			Depth (m)			0.50 - 0.50			0.50 - 0.50			0.50 - 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)
			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: 6		X			X			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
Chromium III	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Coronene	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
EPH by GCxGC-FID	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Fluoride	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 6				X			X			X			X			X			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
Mercury Dissolved	All	NDPs: 0 Tests: 5		X			X			X			X			X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 **Report Number:** 744943 **Superseded Report:**
Client Ref.: 6377 **Location:** KINNEGAD

Results Legend

X Test

N No Determination Possible

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

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
			30539163	SA 01		0.50 - 0.50	1kg TUB with Handle (ALE260)	S
							250g Amber Jar (ALE210)	S
							60g VOC (ALE215)	S
			30539165	SA 02		0.50 - 0.50	1kg TUB with Handle (ALE260)	S
							250g Amber Jar (ALE210)	S
							60g VOC (ALE215)	S
			30539166	SA 03		0.50 - 0.50	1kg TUB with Handle (ALE260)	S
							250g Amber Jar (ALE210)	S
							60g VOC (ALE215)	S
			30539168	SA 04		0.50 - 0.50	1kg TUB with Handle (ALE260)	S
							250g Amber Jar (ALE210)	S
							60g VOC (ALE215)	S
			30539169	SA 05		0.50 - 0.50	1kg TUB with Handle (ALE260)	S
							250g Amber Jar (ALE210)	S
			30539170	SA 06		0.50 - 0.50	1kg TUB with Handle (ALE260)	S
							250g Amber Jar (ALE210)	S
PAH by GCMS	All	NDPs: 0 Tests: 6		X				X			X			X		X
PCBs by GCMS	All	NDPs: 0 Tests: 6		X				X			X			X		X
pH	All	NDPs: 0 Tests: 6		X				X			X			X		X
pH Value of Filtered Water	All	NDPs: 0 Tests: 6	X			X			X			X			X		X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 6	X			X			X			X			X		X	
Sample description	All	NDPs: 0 Tests: 6		X				X			X			X		X
Total Organic Carbon	All	NDPs: 0 Tests: 6		X				X			X			X		X
TPH CWG GC (S)	All	NDPs: 0 Tests: 6		X				X			X			X		X
VOC MS (S)	All	NDPs: 0 Tests: 6			X				X			X			X		X

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
30539163	SA 01	0.50 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation
30539165	SA 02	0.50 - 0.50	Dark Brown	Sandy Silt Loam	Stones	Vegetation
30539166	SA 03	0.50 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation
30539168	SA 04	0.50 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation
30539169	SA 05	0.50 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation
30539170	SA 06	0.50 - 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: 241018-64 **Report Number:** 744943 **Superseded Report:**
Client Ref.: 6377 **Location:** KINNEGAD

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
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SA 01	SA 02	SA 03	SA 04	SA 05	SA 06
			Depth (m)	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	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	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
			Sample Time	-	-	-	-	-	-
			Date Received	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024
			SDG Ref	241018-64	241018-64	241018-64	241018-64	241018-64	241018-64
			Lab Sample No.(s)	30539163	30539165	30539166	30539168	30539169	30539170
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		6.8	16	17	18	11	13
Loss on ignition	<0.7 %	TM018		1.07 M	3.2 M	2.15 M	2.98 M	1.25 M	1.68 M
Organic Carbon, Total	<0.2 %	TM132		0.232 M	0.301 M	0.31 M	0.697 M	0.262 M	0.288 M
pH	1 pH Units	TM133		8.92 M	6.89 M	7.47 M	6.92 M	8.65 M	8.53 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 M	<0.6 M	<0.6 M	<0.6 M	<0.6 M	<0.6 M
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		4.54	19.1	13.5	13.7	6.58	7.06
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	0.644 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		3.63 M	10.3 M	10.1 M	9 M	4.9 M	5.75 M
Barium	<0.6 mg/kg	TM181		19.2 #	48.2 #	35.6 #	40.4 #	20.6 #	27.8 #
Cadmium	<0.02 mg/kg	TM181		0.802 M	1.22 M	1.17 M	1.29 M	1.13 M	1.26 M
Chromium	<0.9 mg/kg	TM181		4.54 M	19.1 M	13.5 M	13.7 M	6.58 M	7.06 M
Copper	<1.4 mg/kg	TM181		7.19 M	23.9 M	20.2 M	19.2 M	12.5 M	12.5 M
Lead	<0.7 mg/kg	TM181		4.18 M	16.5 M	17.5 M	17 M	8.4 M	10.4 M
Mercury	<0.1 mg/kg	TM181		<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M
Molybdenum	<0.1 mg/kg	TM181		0.448 #	0.643 #	1.07 #	1.09 #	0.532 #	0.685 #
Nickel	<0.2 mg/kg	TM181		17.4 M	51.8 M	48.9 M	51.1 M	25.4 M	27.5 M
Selenium	<1 mg/kg	TM181		1.64 #	1.07 #	1.58 #	1.73 #	1.06 #	<1 #
Zinc	<1.9 mg/kg	TM181		37 M	106 M	128 M	110 M	61.1 M	64 M
PAH Total 17 (inc Coronene) Moisture Corrected	<10 mg/kg	TM410		<10	<10	<10	<10	<10	<10
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200
Mineral Oil >C10-C40 (EH_2D_AL)	<5 mg/kg	TM415		<5	<5	<5	<5	<5	<5

CERTIFICATE OF ANALYSIS

SDG: 241018-64 **Report Number:** 744943 **Superseded Report:**
Client Ref.: 6377 **Location:** KINNEGAD

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
1-4♦§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SA 01	SA 02	SA 03	SA 04	SA 05	SA 06
			Depth (m)	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	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	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
			Sample Time	-	-	-	-	-	-
			Date Received	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024
			SDG Ref	241018-64	241018-64	241018-64	241018-64	241018-64	241018-64
			Lab Sample No.(s)	30539163	30539165	30539166	30539168	30539169	30539170
			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		<15 M	<15 M	<15 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		<17 M	<17 M	<17 M	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 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		<24 M	<24 M	<24 M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG: 241018-64 Report Number: 744943 Superseded Report:
Client Ref.: 6377 Location: KINNEGAD

TPH CWG (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
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SA 01	SA 02	SA 03	SA 04	SA 05	SA 06
			Depth (m)	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	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	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
			Sample Time	-	-	-	-	-	-
			Date Received	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024
			SDG Ref	241018-64	241018-64	241018-64	241018-64	241018-64	241018-64
			Lab Sample No.(s)	30539163	30539165	30539166	30539168	30539169	30539170
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		113	108	103	97.5	104	108
Aliphatics >C5-C6 (HS_1D_AL)	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8 (HS_1D_AL)	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10 (HS_1D_AL)	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	<1000 #	<1000 #	<1000 #
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	<1000 #	<1000 #	<1000 #
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	<1000 #	<1000 #	<1000 #
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	2350 #	<1000 #	<1000 #
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	<5000
Total Aliphatics & Aromatics >C10-C44 (EH_2D_Total_#1)	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8 (HS_1D_AR)	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10 (HS_1D_AR)	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	<1000 #	<1000 #	<1000 #
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	<1000 #	<1000 #	<1000 #
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	<1000 #	<1000 #	<1000 #
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000 #	<1000 #	<1000 #	1670 #	<1000 #	<1000 #
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	<5000
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
GRO >C5-C6 (HS_1D)	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20
GRO >C6-C7 (HS_1D)	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20
GRO >C7-C8 (HS_1D)	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20
GRO >C8-C10 (HS_1D)	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20
GRO >C10-C12 (HS_1D)	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20
Total Aliphatics >C5-C10 (HS_1D_AL_TOTAL)	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10 (HS_1D_AR_TOTAL)	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10 (HS_1D_TOTAL)	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG: 241018-64 **Report Number:** 744943 **Superseded Report:**
Client Ref.: 6377 **Location:** KINNEGAD

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
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	SA 01	SA 02	SA 03	SA 04	SA 05	SA 06
			Depth (m)	0.50 - 0.50	0.50 - 0.50	0.50 - 0.50	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	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024	15/10/2024
			Sample Time	-	-	-	-	-	-
			Date Received	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024	17/10/2024
			SDG Ref	241018-64	241018-64	241018-64	241018-64	241018-64	241018-64
			Lab Sample No.(s)	30539163	30539165	30539166	30539168	30539169	30539170
			AGS Reference						
Dibromofluoromethane**	%	TM116		117	122	122	114	120	117
Toluene-d8**	%	TM116		111	95.2	103	101	104	103
4-Bromofluorobenzene**	%	TM116		104	100	97.8	85	96.8	98.2
Methyl Tertiary Butyl Ether	<0.5 µg/kg	TM116		<0.5 M	<0.5 M	<0.5 M	<0.5 M	<0.5 M	<0.5 M
Benzene	<1 µg/kg	TM116		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Toluene	<1 µg/kg	TM116		<2 M	<2 M	<2.5 M	<2.5 M	<1 M	<1 M
Ethylbenzene	<1 µg/kg	TM116		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
p/m-Xylene	<2 µg/kg	TM116		<2 #	<2 #	<2 #	<2 #	<2 #	<2 #
o-Xylene	<2 µg/kg	TM116		<2 M	<2 M	<2 M	<2 M	<2 M	<2 M

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 Report Number: 744943 Superseded Report:
Client Ref.: 6377 Location: KINNEGAD

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	KINNEGAD
Mass Sample taken (kg)	0.105	**Natural Moisture Content (%)**	15.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	86.4
Particle Size <4mm	>95%		

Case	
SDG	241018-64
Lab Sample Number(s)	30539163
Sampled Date	15-Oct-2024
Customer Sample Ref.	SA 01
Depth (m)	0.50 - 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 (%)	0.232	3	5	6
Loss on Ignition (%)	1.07	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.92	-	>6	-
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	0.00554	<0.0002	0.0554	<0.002	20	100	300
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	0.04	1	5
Chromium	0.00274	<0.001	0.0274	<0.01	0.5	10	70
Copper	0.00466	<0.0003	0.0466	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000141	<0.00001	0.000141	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.0109	<0.0004	0.109	<0.004	0.4	10	40
Lead	0.000247	<0.0002	0.00247	<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	0.00471	<0.001	0.0471	<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	94.3	<10	943	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	6.04	<3	60.4	<30	500	800	1000

Leach Test Information

Date Prepared	19-Oct-2024
pH (pH Units)	8.62
Conductivity (µS/cm)	123
Volume Leachant (Litres)	0.885

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

28/10/2024 12:39:34

12:39:27 28/10/2024

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 | Report Number: 744943 | Superseded Report:
Client Ref.: 6377 | Location: KINNEGAD

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	KINNEGAD
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	80.7
Particle Size <4mm	>95%		

Case	
SDG	241018-64
Lab Sample Number(s)	30539165
Sampled Date	15-Oct-2024
Customer Sample Ref.	SA 02
Depth (m)	0.50 - 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 (%)	0.301	3	5	6
Loss on Ignition (%)	3.2	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	6.89	-	>6	-
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	0.00108	<0.0005	0.0108	<0.005	0.5	2	25
Barium	0.0234	<0.0002	0.234	<0.002	20	100	300
Cadmium	0.00315	<0.00008	0.0315	<0.0008	0.04	1	5
Chromium	0.00351	<0.001	0.0351	<0.01	0.5	10	70
Copper	0.0268	<0.0003	0.268	<0.003	2	50	100
Mercury Dissolved (CVAF)	0.0000385	<0.00001	0.000385	<0.0001	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.0139	<0.0004	0.139	<0.004	0.4	10	40
Lead	0.00173	<0.0002	0.0173	<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	0.0368	<0.001	0.368	<0.01	4	50	200
Chloride	5.4	<2	54	<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	103	<10	1030	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	23	<3	230	<30	500	800	1000

Leach Test Information

Date Prepared	19-Oct-2024
pH (pH Units)	7.69
Conductivity (µS/cm)	134
Volume Leachant (Litres)	0.879

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

28/10/2024 12:39:34

12:39:27 28/10/2024

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 Report Number: 744943 Superseded Report:
Client Ref.: 6377 Location: KINNEGAD

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	KINNEGAD
Mass Sample taken (kg)	0.109	**Natural Moisture Content (%)**	20.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.1
Particle Size <4mm	>95%		

Case	
SDG	241018-64
Lab Sample Number(s)	30539166
Sampled Date	15-Oct-2024
Customer Sample Ref.	SA 03
Depth (m)	0.50 - 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 (%)	0.31	3	5	6
Loss on Ignition (%)	2.15	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	7.47	-	>6	-
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	0.00264	<0.0002	0.0264	<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	0.00167	<0.0003	0.0167	<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	0.000645	<0.0004	0.00645	<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	0.00109	<0.001	0.0109	<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	73.9	<10	739	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	6.34	<3	63.4	<30	500	800	1000

Leach Test Information

Date Prepared	19-Oct-2024
pH (pH Units)	8.47
Conductivity (µS/cm)	96
Volume Leachant (Litres)	0.882

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

28/10/2024 12:39:34

12:39:27 28/10/2024

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 Report Number: 744943 Superseded Report:
Client Ref.: 6377 Location: KINNEGAD

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	KINNEGAD
Mass Sample taken (kg)	0.112	**Natural Moisture Content (%)**	24.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	80.1
Particle Size <4mm	>95%		

Case	
SDG	241018-64
Lab Sample Number(s)	30539168
Sampled Date	15-Oct-2024
Customer Sample Ref.	SA 04
Depth (m)	0.50 - 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 (%)	0.697	3	5	6
Loss on Ignition (%)	2.98	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	6.92	-	>6	-
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	0.00226	<0.0002	0.0226	<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	0.00366	<0.0003	0.0366	<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	0.00286	<0.0004	0.0286	<0.004	0.4	10	40
Lead	0.000295	<0.0002	0.00295	<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	0.00552	<0.001	0.0552	<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	27.6	<10	276	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	7.22	<3	72.2	<30	500	800	1000

Leach Test Information

Date Prepared	19-Oct-2024
pH (pH Units)	7.80
Conductivity (µS/cm)	36
Volume Leachant (Litres)	0.878

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

28/10/2024 12:39:34

12:39:27 28/10/2024

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 Report Number: 744943 Superseded Report:
Client Ref.: 6377 Location: KINNEGAD

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	KINNEGAD
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	18.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84.5
Particle Size <4mm	>95%		

Case	
SDG	241018-64
Lab Sample Number(s)	30539169
Sampled Date	15-Oct-2024
Customer Sample Ref.	SA 05
Depth (m)	0.50 - 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 (%)	0.262	3	5	6
Loss on Ignition (%)	1.25	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.65	-	>6	-
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	0.00251	<0.0002	0.0251	<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	0.00302	<0.0003	0.0302	<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	0.00087	<0.0004	0.0087	<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	0.00234	<0.001	0.0234	<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	74	<10	740	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	6.76	<3	67.6	<30	500	800	1000

Leach Test Information

Date Prepared	19-Oct-2024
pH (pH Units)	8.82
Conductivity (µS/cm)	97
Volume Leachant (Litres)	0.883

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

28/10/2024 12:39:34

12:39:27 28/10/2024

Validated

CERTIFICATE OF ANALYSIS

SDG: 241018-64 Report Number: 744943 Superseded Report:
Client Ref.: 6377 Location: KINNEGAD

CEN 10:1 SINGLE STAGE LEACHATE TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	KINNEGAD
Mass Sample taken (kg)	0.105	**Natural Moisture Content (%)**	16.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85.9
Particle Size <4mm	>95%		

Case	
SDG	241018-64
Lab Sample Number(s)	30539170
Sampled Date	15-Oct-2024
Customer Sample Ref.	SA 06
Depth (m)	0.50 - 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 (%)	0.288	3	5	6
Loss on Ignition (%)	1.68	-	-	10
Sum of BTEX (mg/kg)	-	-	-	-
Sum of 7 PCBs (mg/kg)	<0.021	1	-	-
Mineral Oil (mg/kg) (EH_2D_AL)	<5	500	-	-
PAH Sum of 17 (mg/kg)	<10	100	-	-
pH (pH Units)	8.53	-	>6	-
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	0.00766	<0.0002	0.0766	<0.002	20	100	300
Cadmium	0.0000847	<0.00008	0.000847	<0.0008	0.04	1	5
Chromium	0.00209	<0.001	0.0209	<0.01	0.5	10	70
Copper	0.00356	<0.0003	0.0356	<0.003	2	50	100
Mercury Dissolved (CVAF)	-	-	-	-	0.01	0.2	2
Molybdenum	<0.003	<0.003	<0.03	<0.03	0.5	10	30
Nickel	0.00296	<0.0004	0.0296	<0.004	0.4	10	40
Lead	0.000697	<0.0002	0.00697	<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	0.00683	<0.001	0.0683	<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	75.4	<10	754	<100	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	1	-	-
Dissolved Organic Carbon	4.57	<3	45.7	<30	500	800	1000

Leach Test Information

Date Prepared	19-Oct-2024
pH (pH Units)	8.70
Conductivity (µS/cm)	98
Volume Leachant (Litres)	0.885

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable
Leachates prepared in accordance with BS EN 12457 will be carried out at room temperature (20±5°C)
Stated limits are for guidance only and ALS Laboratories (UK) Limited cannot be held responsible for any discrepancies with current legislation

28/10/2024 12:39:34

12:39:27 28/10/2024

Table of Results - Appendix

Method No	Description
PM024	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
TM018	Determination of Loss on Ignition
TM089	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM090	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Determination of Fluoride using the Kone Analyser
TM116	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM132	ELTRA CS800 Operators Guide
TM133	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Determination of Hexavalent Chromium using Kone analyser
TM152	Analysis of Aqueous Samples by ICP-MS
TM168	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM181	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM218	The determination of PAH in soil samples by GC-MS
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM410	Determination of Coronene in soils by GCMS
TM414	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 241018-64 **Report Number:** 744943 **Superseded Report:**
Client Ref.: 6377 **Location:** KINNEGAD

Test Completion Dates

Lab Sample No(s)	30539163	30539165	30539166	30539168	30539169	30539170
Customer Sample Ref.	SA 01	SA 02	SA 03	SA 04	SA 05	SA 06
AGS Ref.						
Depth	0.50 - 0.50	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)
Anions by Kone (w)	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	22-Oct-2024
CEN 10:1 Leachate (1 Stage)	19-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024
CEN Readings	22-Oct-2024	23-Oct-2024	22-Oct-2024	22-Oct-2024	23-Oct-2024	22-Oct-2024
Chromium III	23-Oct-2024	23-Oct-2024	24-Oct-2024	23-Oct-2024	24-Oct-2024	24-Oct-2024
Coronene	24-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024
Dissolved Metals by ICP-MS	25-Oct-2024	28-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	24-Oct-2024
Dissolved Organic/Inorganic Carbon	23-Oct-2024	23-Oct-2024	22-Oct-2024	22-Oct-2024	22-Oct-2024	22-Oct-2024
EPH by GCxGC-FID	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024
EPH CWG GC (S)	22-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	23-Oct-2024
Fluoride	23-Oct-2024	23-Oct-2024	23-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024
GRO by GC-FID (S)	22-Oct-2024	22-Oct-2024	22-Oct-2024	22-Oct-2024	22-Oct-2024	22-Oct-2024
Hexavalent Chromium (s)	23-Oct-2024	23-Oct-2024	24-Oct-2024	23-Oct-2024	24-Oct-2024	24-Oct-2024
Loss on Ignition in soils	22-Oct-2024	22-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024
Mercury Dissolved	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	
Metals in solid samples by OES	24-Oct-2024	24-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024
Moisture at 105C	19-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024
PAH 16 & 17 Calc	25-Oct-2024	24-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024
PAH by GCMS	25-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024
PCBs by GCMS	24-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024	25-Oct-2024
pH	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024
pH Value of Filtered Water	22-Oct-2024	23-Oct-2024	22-Oct-2024	22-Oct-2024	23-Oct-2024	23-Oct-2024
Phenols by HPLC (W)	24-Oct-2024	24-Oct-2024	23-Oct-2024	23-Oct-2024	24-Oct-2024	23-Oct-2024
Sample description	18-Oct-2024	18-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024	19-Oct-2024
Total Organic Carbon	24-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024
TPH CWG GC (S)	22-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	24-Oct-2024	23-Oct-2024
VOC MS (S)	22-Oct-2024	22-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024	23-Oct-2024

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 15 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 15 days 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **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 (2021), 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 asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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

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

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528777
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:	22 November 2024
Customer:	Site Investigations Ltd
Sample Delivery Group (SDG):	241118-58
Your Reference:	6377
Location:	Boreen Bradagh, Kinnegad
Report No:	747491
Order Number:	41/B/24

We received 24 samples on Monday November 18, 2024 and 24 of these samples were scheduled for analysis which was completed on Friday November 22, 2024. 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 Laboratories (UK) Limited Hawarden.

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:

Lauren Ellis
General Manager Western Europe Environmental

1291

CERTIFICATE OF ANALYSIS

SDG: 241118-58 **Report Number:** 747491 **Superseded Report:**
Client Ref.: 6377 **Location:** Boreen Bradagh, Kinnegad

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
30689319	BH 01		1.00 - 1.00	14/11/2024
30689320	BH 01		2.00 - 2.00	14/11/2024
30689321	BH 01		4.00 - 4.00	14/11/2024
30689322	BH 02		1.00 - 1.00	14/11/2024
30689324	BH 02		2.00 - 2.00	14/11/2024
30689325	BH 02		4.00 - 4.00	14/11/2024
30689326	BH 03		1.00 - 1.00	14/11/2024
30689327	BH 03		3.00 - 3.00	14/11/2024
30689328	BH 03		5.00 - 5.00	14/11/2024
30689329	BH 04		1.00 - 1.00	14/11/2024
30689330	BH 04		2.00 - 2.00	14/11/2024
30689331	BH 04		5.00 - 5.00	14/11/2024
30689332	BH 05		1.00 - 1.00	14/11/2024
30689333	BH 05		2.00 - 2.00	14/11/2024
30689334	BH 05		3.00 - 3.00	14/11/2024
30689335	BH 06		1.00 - 1.00	14/11/2024
30689336	BH 06		2.00 - 2.00	14/11/2024
30689337	BH 06		5.00 - 5.00	14/11/2024
30689338	BH 07		1.00 - 1.00	14/11/2024
30689339	BH 07		3.00 - 3.00	14/11/2024
30689340	BH 07		5.00 - 5.00	14/11/2024
30689341	BH 08		1.00 - 1.00	14/11/2024
30689342	BH 08		3.00 - 3.00	14/11/2024
30689343	BH 08		4.00 - 4.00	14/11/2024

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

Validated

CERTIFICATE OF ANALYSIS

SDG: 241118-58 **Report Number:** 747491 **Superseded Report:**
Client Ref.: 6377 **Location:** Boreen Bradagh, Kinnegad

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)			30689319	30689320	30689321	30689322	30689324	30689325	30689326	30689327	30689328	30689329	30689330	30689331	30689332	30689333	30689334	30689335	30689336	30689337	30689338
Customer Sample Reference			BH 01	BH 01	BH 01	BH 02	BH 02	BH 02	BH 03	BH 03	BH 03	BH 04	BH 04	BH 04	BH 05	BH 05	BH 05	BH 06	BH 06	BH 06	BH 07
AGS Reference																					
Depth (m)			1.00 - 1.00	2.00 - 2.00	4.00 - 4.00	1.00 - 1.00	2.00 - 2.00	4.00 - 4.00	1.00 - 1.00	3.00 - 3.00	5.00 - 5.00	1.00 - 1.00	2.00 - 2.00	5.00 - 5.00	1.00 - 1.00	2.00 - 2.00	3.00 - 3.00	1.00 - 1.00	2.00 - 2.00	5.00 - 5.00	1.00 - 1.00
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Sample description	All	NDPs: 0 Tests: 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Total Organic Carbon	All	NDPs: 0 Tests: 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

30689343	BH 08		4.00 - 4.00	250g Amber Jar (ALE210)	S		X		X
30689342	BH 08		3.00 - 3.00	250g Amber Jar (ALE210)	S		X		X
30689341	BH 08		1.00 - 1.00	250g Amber Jar (ALE210)	S		X		X
30689340	BH 07		5.00 - 5.00	250g Amber Jar (ALE210)	S		X		X
30689339	BH 07		3.00 - 3.00	250g Amber Jar (ALE210)	S		X		X

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
30689319	BH 01	1.00 - 1.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
30689320	BH 01	2.00 - 2.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
30689321	BH 01	4.00 - 4.00	Light Brown	Sandy Clay Loam	Stones	None
30689322	BH 02	1.00 - 1.00	Light Brown	Sandy Loam	Stones	Vegetation
30689324	BH 02	2.00 - 2.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
30689325	BH 02	4.00 - 4.00	Light Brown	Sandy Clay Loam	Stones	None
30689326	BH 03	1.00 - 1.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
30689327	BH 03	3.00 - 3.00	Dark Brown	Sand	Stones	Vegetation
30689328	BH 03	5.00 - 5.00	Light Brown	Sandy Clay Loam	Stones	None
30689329	BH 04	1.00 - 1.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
30689330	BH 04	2.00 - 2.00	Dark Brown	Loamy Sand	Stones	Vegetation
30689331	BH 04	5.00 - 5.00	Dark Brown	Sandy Clay	Stones	Vegetation
30689332	BH 05	1.00 - 1.00	Dark Brown	Sand	Stones	Vegetation
30689333	BH 05	2.00 - 2.00	Light Brown	Sand	Stones	Vegetation
30689334	BH 05	3.00 - 3.00	Light Brown	Loamy Sand	Stones	Vegetation
30689335	BH 06	1.00 - 1.00	Light Brown	Sandy Clay Loam	Stones	None
30689336	BH 06	2.00 - 2.00	Light Brown	Sandy Clay Loam	Stones	None
30689337	BH 06	5.00 - 5.00	Light Brown	Sandy Clay Loam	Stones	None
30689338	BH 07	1.00 - 1.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
30689339	BH 07	3.00 - 3.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
30689340	BH 07	5.00 - 5.00	Light Brown	Sandy Clay Loam	Stones	None
30689341	BH 08	1.00 - 1.00	Dark Brown	Sand	Stones	Vegetation
30689342	BH 08	3.00 - 3.00	Dark Brown	Sandy Clay	Stones	Vegetation
30689343	BH 08	4.00 - 4.00	Light Brown	Clay	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.

Validated

CERTIFICATE OF ANALYSIS

SDG: 241118-58 **Report Number:** 747491 **Superseded Report:**
Client Ref.: 6377 **Location:** Boreen Bradagh, Kinnegad

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
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 01	BH 01	BH 01	BH 02	BH 02	BH 02
			Depth (m)	1.00 - 1.00	2.00 - 2.00	4.00 - 4.00	1.00 - 1.00	2.00 - 2.00	4.00 - 4.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024
			Sample Time	-	-	-	-	-	-
			Date Received	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024
			SDG Ref	241118-58	241118-58	241118-58	241118-58	241118-58	241118-58
			Lab Sample No.(s)	30689319	30689320	30689321	30689322	30689324	30689325
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		22	11	10	23	15	14
Organic Matter, Total	<0.35 %	TM132		1.49 #	<0.35 #	<0.35 #	2.07 #	0.679 #	<0.35 #

Validated

CERTIFICATE OF ANALYSIS

SDG: 241118-58 **Report Number:** 747491 **Superseded Report:**
Client Ref.: 6377 **Location:** Boreen Bradagh, Kinnegad

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
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 03	BH 03	BH 03	BH 04	BH 04	BH 04
			Depth (m)	1.00 - 1.00	3.00 - 3.00	5.00 - 5.00	1.00 - 1.00	2.00 - 2.00	5.00 - 5.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024
			Sample Time	-	-	-	-	-	-
			Date Received	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024
			SDG Ref	241118-58	241118-58	241118-58	241118-58	241118-58	241118-58
			Lab Sample No.(s)	30689326	30689327	30689328	30689329	30689330	30689331
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		16	12	14	16	19	11
Organic Matter, Total	<0.35 %	TM132		0.815 #	0.433 #	<0.35 #	0.828 #	0.779 #	<0.35 #

Validated

CERTIFICATE OF ANALYSIS

SDG: 241118-58 **Report Number:** 747491 **Superseded Report:**
Client Ref.: 6377 **Location:** Boreen Bradagh, Kinnegad

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
1-4+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 05	BH 05	BH 05	BH 06	BH 06	BH 06
			Depth (m)	1.00 - 1.00	2.00 - 2.00	3.00 - 3.00	1.00 - 1.00	2.00 - 2.00	5.00 - 5.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024
			Sample Time	-	-	-	-	-	-
			Date Received	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024
			SDG Ref	241118-58	241118-58	241118-58	241118-58	241118-58	241118-58
			Lab Sample No.(s)	30689332	30689333	30689334	30689335	30689336	30689337
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		10	9.6	9.9	20	12	11
Organic Matter, Total	<0.35 %	TM132		3.41 #	<0.35 #	<0.35 #	0.8 #	<0.35 #	<0.35 #

Validated

CERTIFICATE OF ANALYSIS

SDG: 241118-58 **Report Number:** 747491 **Superseded Report:**
Client Ref.: 6377 **Location:** Boreen Bradagh, Kinnegad

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
- 1-4+§@ Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH 07	BH 07	BH 07	BH 08	BH 08	BH 08
			Depth (m)	1.00 - 1.00	3.00 - 3.00	5.00 - 5.00	1.00 - 1.00	3.00 - 3.00	4.00 - 4.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024
			Sample Time	-	-	-	-	-	-
			Date Received	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024	18/11/2024
			SDG Ref	241118-58	241118-58	241118-58	241118-58	241118-58	241118-58
			Lab Sample No.(s)	30689338	30689339	30689340	30689341	30689342	30689343
			AGS Reference						
Moisture Content Ratio (% of as received sample)	%	PM024		15	8.2	11	23	9.9	14
Organic Matter, Total	<0.35 %	TM132		0.583 #	<0.35 #	<0.35 #	1.51 #	<0.35 #	<0.35 #

Table of Results - Appendix

Method No	Description
PM024	Soil preparation including homogenisation, moisture, screens of soils for Asbestos Containing Material
TM132	ELTRA CS800 Operators Guide

NA = not applicable.
Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).

CERTIFICATE OF ANALYSIS

SDG: 241118-58 Report Number: 747491 Superseded Report:
Client Ref.: 6377 Location: Boreen Bradagh, Kinnegad

Test Completion Dates

Lab Sample No(s)	30689319	30689320	30689321	30689322	30689324	30689325	30689326	30689327	30689328	30689329
Customer Sample Ref.	BH 01	BH 01	BH 01	BH 02	BH 02	BH 02	BH 03	BH 03	BH 03	BH 04
AGS Ref.										
Depth	1.00 - 1.00	2.00 - 2.00	4.00 - 4.00	1.00 - 1.00	2.00 - 2.00	4.00 - 4.00	1.00 - 1.00	3.00 - 3.00	5.00 - 5.00	1.00 - 1.00
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)
Sample description	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024
Total Organic Carbon	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024

Lab Sample No(s)	30689330	30689331	30689332	30689333	30689334	30689335	30689336	30689337	30689338	30689339
Customer Sample Ref.	BH 04	BH 04	BH 05	BH 05	BH 05	BH 06	BH 06	BH 06	BH 07	BH 07
AGS Ref.										
Depth	2.00 - 2.00	5.00 - 5.00	1.00 - 1.00	2.00 - 2.00	3.00 - 3.00	1.00 - 1.00	2.00 - 2.00	5.00 - 5.00	1.00 - 1.00	3.00 - 3.00
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)
Sample description	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024
Total Organic Carbon	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024

Lab Sample No(s)	30689340	30689341	30689342	30689343
Customer Sample Ref.	BH 07	BH 08	BH 08	BH 08
AGS Ref.				
Depth	5.00 - 5.00	1.00 - 1.00	3.00 - 3.00	4.00 - 4.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Sample description	20-Nov-2024	20-Nov-2024	20-Nov-2024	20-Nov-2024
Total Organic Carbon	22-Nov-2024	22-Nov-2024	22-Nov-2024	22-Nov-2024

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 15 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 15 days 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. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

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 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

18. **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.

19. **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**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

20. **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 (2021), 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 asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials andd soils 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 (2021).

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.

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.

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 9

Waste Classification Report

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

2LNK3-V8XSL-8N5JD

Report is invalid if pages are removed.

Job name

6377

Description/Comments

Client: Westmeath County Council
Engineer: ORS

Project

Boreen Bradach

Site

Kinnegad, Co. Westmeath

Classified by

Name:
Stephen Letch
Date:
28 Nov 2024 12:36 GMT
Telephone:
00353 86817 9449

Company:
Site Investigations Ltd
The Grange
12th Lock Road
Lucan
K78 F598

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	09 Oct 2019
Most recent 3 year Refresher	04 Oct 2022

Next 3 year Refresher due by Oct 2025

Purpose of classification

2 - Material Characterisation

Address of the waste

Boreen Bradach, Kinnegad, Co. Westmeath **Post Code** N/A

SIC for the process giving rise to the waste

43130 Test drilling and boring

Description of industry/producer giving rise to the waste

Site Investigation

Description of the specific process, sub-process and/or activity that created the waste

Soils recovered for environmental testing

Description of the waste

Natural soils

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	WAC Results		Page
					Inert	Non Haz	
1	SA01-0.50	0.50	Non Hazardous		Pass	Pass	3
2	SA02-0.50	0.50	Non Hazardous		Pass	Pass	7
3	SA03-0.50	0.50	Non Hazardous		Pass	Pass	11
4	SA04-0.50	0.50	Non Hazardous		Pass	Pass	15
5	SA05-0.50	0.50	Non Hazardous		Pass	Pass	19
6	SA06-0.50	0.50	Non Hazardous		Pass	Pass	23

Related documents

#	Name	Description
1	241018-64.hwol	ALS Hawarden .hwol file used to populate the Job
2	Rilta Suite NEW	waste stream template used to create this Job

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.

Report

Created by: Stephen Letch

Created date: 28 Nov 2024 12:36 GMT

Classification of sample: SA01-0.50

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

Sample details

Sample name:
SA01-0.50
Sample Depth:
0.50 m
Moisture content:
6.8%
(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: 6.8% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU 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		3.63 mg/kg	1.534	5.189 mg/kg	0.000519 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		19.2 mg/kg	1.233	22.073 mg/kg	0.00221 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		0.802 mg/kg	1.855	1.386 mg/kg	0.000139 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		7.19 mg/kg	1.126	7.545 mg/kg	0.000754 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	4.18 mg/kg		3.896 mg/kg	0.00039 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.448 mg/kg	1.5	0.626 mg/kg	0.0000626 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		17.4 mg/kg	2.637	42.759 mg/kg	0.00428 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.64 mg/kg	1.405	2.148 mg/kg	0.000215 %	✓	
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		37 mg/kg	2.469	85.151 mg/kg	0.00852 %	✓	
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		4.54 mg/kg	1.462	6.184 mg/kg	0.000618 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
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		<0.0005 mg/kg		<0.0005 mg/kg	<0.00000005 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
38		pH			PH		8.92 pH		8.92 pH	8.92 pH		
39		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]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
									Total:	0.0189 %		

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
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: SA01-0.50

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)	%	0.232	3	5
2	LOI (loss on ignition)	%	1.07	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.008	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	<10	100	-
7	pH	pH	8.92	-	>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	0.0554	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	0.0274	0.5	10
13	copper	mg/kg	0.0466	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	0.109	0.4	10
17	lead	mg/kg	0.0024	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	0.0471	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	60.4	500	800
26	TDS (total dissolved solids)	mg/kg	943	4,000	60,000

Key

User supplied data

Classification of sample: SA02-0.50

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

Sample details

Sample name:
SA02-0.50
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	EU 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		10.3 mg/kg	1.534	13.271 mg/kg	0.00133 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		48.2 mg/kg	1.233	49.942 mg/kg	0.00499 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		1.22 mg/kg	1.855	1.901 mg/kg	0.00019 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		23.9 mg/kg	1.126	22.603 mg/kg	0.00226 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	16.5 mg/kg		13.86 mg/kg	0.00139 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.643 mg/kg	1.5	0.81 mg/kg	0.000081 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		51.8 mg/kg	2.637	114.727 mg/kg	0.0115 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.07 mg/kg	1.405	1.263 mg/kg	0.000126 %	✓	
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		106 mg/kg	2.469	219.866 mg/kg	0.022 %	✓	
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19.1 mg/kg	1.462	23.449 mg/kg	0.00234 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
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		<0.0005 mg/kg		<0.0005 mg/kg	<0.00000005 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2 mg/kg		<0.2 mg/kg	<0.00002 %		<LOD
38		pH			PH		6.89 pH		6.89 pH	6.89 pH		
39		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]		<0.004 mg/kg		<0.004 mg/kg	<0.0000004 %		<LOD
									Total:	0.0474 %		

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
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: SA02-0.50

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)	%	0.301	3	5
2	LOI (loss on ignition)	%	3.2	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.008	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	<10	100	-
7	pH	pH	6.89	-	>6
8	ANC (acid neutralisation capacity)	mol/kg		-	-
Eluate Analysis 10:1					
9	arsenic	mg/kg	0.0108	0.5	2
10	barium	mg/kg	0.234	20	100
11	cadmium	mg/kg	0.0315	0.04	1
12	chromium	mg/kg	0.0351	0.5	10
13	copper	mg/kg	0.268	2	50
14	mercury	mg/kg	0.0003	0.01	0.2
15	molybdenum	mg/kg	<0.03	0.5	10
16	nickel	mg/kg	0.139	0.4	10
17	lead	mg/kg	0.0173	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	0.368	4	50
21	chloride	mg/kg	54	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	230	500	800
26	TDS (total dissolved solids)	mg/kg	1030	4,000	60,000

Key

User supplied data

Classification of sample: SA03-0.50

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

Sample details

Sample name:
SA03-0.50
Sample Depth:
0.50 m
Moisture content:
17%
(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: 17% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU 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		0.644 mg/kg	1.197	0.64 mg/kg	0.000064 %	✓	
4	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		10.1 mg/kg	1.534	12.858 mg/kg	0.00129 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		35.6 mg/kg	1.233	36.447 mg/kg	0.00364 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		1.17 mg/kg	1.855	1.801 mg/kg	0.00018 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		20.2 mg/kg	1.126	18.877 mg/kg	0.00189 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	17.5 mg/kg		14.525 mg/kg	0.00145 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		1.07 mg/kg	1.5	1.332 mg/kg	0.000133 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		48.9 mg/kg	2.637	107.015 mg/kg	0.0107 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.58 mg/kg	1.405	1.843 mg/kg	0.000184 %	✓	
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		128 mg/kg	2.469	262.338 mg/kg	0.0262 %	✓	
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		13.5 mg/kg	1.462	16.377 mg/kg	0.00164 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
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		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.0025	mg/kg		<0.0025	mg/kg	<0.00000025 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
38		pH			PH		7.47	pH		7.47	pH	7.47 pH		
39		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]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
											Total:	0.0486 %		

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
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: SA03-0.50

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)	%	0.31	3	5
2	LOI (loss on ignition)	%	2.15	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.0085	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	<10	100	-
7	pH	pH	7.47	-	>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	0.0264	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0167	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	0.0064	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	0.0109	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	63.4	500	800
26	TDS (total dissolved solids)	mg/kg	739	4,000	60,000

Key

User supplied data

Classification of sample: SA04-0.50

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

Sample details

Sample name:
SA04-0.50
Sample Depth:
0.50 m
Moisture content:
18%
(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: 18% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU 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		9 mg/kg	1.534	11.32 mg/kg	0.00113 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		40.4 mg/kg	1.233	40.863 mg/kg	0.00409 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		1.29 mg/kg	1.855	1.962 mg/kg	0.000196 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		19.2 mg/kg	1.126	17.726 mg/kg	0.00177 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	17 mg/kg		13.94 mg/kg	0.00139 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		1.09 mg/kg	1.5	1.341 mg/kg	0.000134 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		51.1 mg/kg	2.637	110.482 mg/kg	0.011 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.73 mg/kg	1.405	1.993 mg/kg	0.000199 %	✓	
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		110 mg/kg	2.469	222.731 mg/kg	0.0223 %	✓	
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		13.7 mg/kg	1.462	16.419 mg/kg	0.00164 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
16		naphthalene				<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
17		acenaphthylene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
			205-917-1	208-96-8									
18		acenaphthene				<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
			201-469-6	83-32-9									
19		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
20		phenanthrene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
			201-581-5	85-01-8									
21		anthracene				<0.016	mg/kg		<0.016	mg/kg	<0.0000016 %		<LOD
			204-371-1	120-12-7									
22		fluoranthene				<0.017	mg/kg		<0.017	mg/kg	<0.0000017 %		<LOD
			205-912-4	206-44-0									
23		pyrene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
			204-927-3	129-00-0									
24		benzo[a]anthracene				<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
26		benzo[b]fluoranthene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[k]fluoranthene				<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
28		benzo[a]pyrene; benzo[def]chrysene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
29		indeno[123-cd]pyrene				<0.018	mg/kg		<0.018	mg/kg	<0.0000018 %		<LOD
			205-893-2	193-39-5									
30		dibenz[a,h]anthracene				<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		benzo[ghi]perylene				<0.024	mg/kg		<0.024	mg/kg	<0.0000024 %		<LOD
			205-883-8	191-24-2									
32		polychlorobiphenyls; PCB				<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
33		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
34		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
35		toluene				<0.0025	mg/kg		<0.0025	mg/kg	<0.00000025 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
36		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
37		coronene				<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
			205-881-7	191-07-1									
38		pH				6.92	pH		6.92	pH	6.92 pH		
				PH									
39		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		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]									
										Total:	0.0451 %		

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
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: SA04-0.50

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)	%	0.697	3	5
2	LOI (loss on ignition)	%	2.98	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.0085	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	<10	100	-
7	pH	pH	6.92	-	>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	0.0226	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0366	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	0.0286	0.4	10
17	lead	mg/kg	0.0029	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	0.0552	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	72.2	500	800
26	TDS (total dissolved solids)	mg/kg	276	4,000	60,000

Key

User supplied data

Classification of sample: SA05-0.50

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

Sample details

Sample name:
SA05-0.50
Sample Depth:
0.50 m
Moisture content:
11%
(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: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU 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		4.9 mg/kg	1.534	6.689 mg/kg	0.000669 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		20.6 mg/kg	1.233	22.615 mg/kg	0.00226 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		1.13 mg/kg	1.855	1.865 mg/kg	0.000187 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12.5 mg/kg	1.126	12.526 mg/kg	0.00125 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	8.4 mg/kg		7.476 mg/kg	0.000748 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		<LOD
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.532 mg/kg	1.5	0.71 mg/kg	0.000071 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		25.4 mg/kg	2.637	59.605 mg/kg	0.00596 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.06 mg/kg	1.405	1.325 mg/kg	0.000133 %	✓	
13	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		61.1 mg/kg	2.469	134.278 mg/kg	0.0134 %	✓	
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		6.58 mg/kg	1.462	8.559 mg/kg	0.000856 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.6	mg/kg	1.923	<1.154	mg/kg	<0.000115 %		<LOD
		024-001-00-0	215-607-8	1333-82-0									
16		naphthalene				<0.009	mg/kg		<0.009	mg/kg	<0.0000009 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
17		acenaphthylene				<0.012	mg/kg		<0.012	mg/kg	<0.0000012 %		<LOD
			205-917-1	208-96-8									
18		acenaphthene				<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
			201-469-6	83-32-9									
19		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
20		phenanthrene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
			201-581-5	85-01-8									
21		anthracene				<0.016	mg/kg		<0.016	mg/kg	<0.0000016 %		<LOD
			204-371-1	120-12-7									
22		fluoranthene				<0.017	mg/kg		<0.017	mg/kg	<0.0000017 %		<LOD
			205-912-4	206-44-0									
23		pyrene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
			204-927-3	129-00-0									
24		benzo[a]anthracene				<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
26		benzo[b]fluoranthene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[k]fluoranthene				<0.014	mg/kg		<0.014	mg/kg	<0.0000014 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
28		benzo[a]pyrene; benzo[def]chrysene				<0.015	mg/kg		<0.015	mg/kg	<0.0000015 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
29		indeno[123-cd]pyrene				<0.018	mg/kg		<0.018	mg/kg	<0.0000018 %		<LOD
			205-893-2	193-39-5									
30		dibenz[a,h]anthracene				<0.023	mg/kg		<0.023	mg/kg	<0.0000023 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		benzo[ghi]perylene				<0.024	mg/kg		<0.024	mg/kg	<0.0000024 %		<LOD
			205-883-8	191-24-2									
32		polychlorobiphenyls; PCB				<0.021	mg/kg		<0.021	mg/kg	<0.0000021 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
33		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
34		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
35		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
36		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
37		coronene				<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
			205-881-7	191-07-1									
38		pH				8.65	pH		8.65	pH	8.65 pH		
				PH									
39		o-xylene; [1] p-xylene; [2] m-xylene; [3] xylene [4]				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		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]									
										Total:	0.0268 %		

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
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: SA05-0.50

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)	%	0.262	3	5
2	LOI (loss on ignition)	%	1.25	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.007	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	<10	100	-
7	pH	pH	8.65	-	>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	0.0251	20	100
11	cadmium	mg/kg	<0.0008	0.04	1
12	chromium	mg/kg	<0.01	0.5	10
13	copper	mg/kg	0.0302	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	0.0087	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	0.0234	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	67.6	500	800
26	TDS (total dissolved solids)	mg/kg	740	4,000	60,000

Key

User supplied data

Classification of sample: SA06-0.50

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

Sample details

Sample name:
SA06-0.50
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	EU 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		5.75 mg/kg	1.534	7.673 mg/kg	0.000767 %	✓	
5	barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		27.8 mg/kg	1.233	29.833 mg/kg	0.00298 %	✓	
6	cadmium { cadmium sulfate }	048-009-00-9	233-331-6	10124-36-4		1.26 mg/kg	1.855	2.033 mg/kg	0.000203 %	✓	
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12.5 mg/kg	1.126	12.244 mg/kg	0.00122 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	10.4 mg/kg		9.048 mg/kg	0.000905 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.1 mg/kg	1.353	<0.135 mg/kg	<0.0000135 %		**<LOD**
10	molybdenum { molybdenum(VI) oxide }	042-001-00-9	215-204-7	1313-27-5		0.685 mg/kg	1.5	0.894 mg/kg	0.0000894 %	✓	
11	nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		27.5 mg/kg	2.637	63.083 mg/kg	0.00631 %	✓	
12	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		**<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 mg/kg	2.469	137.49 mg/kg	0.0137 %	✓	
14	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		7.06 mg/kg	1.462	8.977 mg/kg	0.000898 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
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		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
34		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
35		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
36		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
37		coronene		205-881-7	191-07-1		<0.2	mg/kg		<0.2	mg/kg	<0.00002 %		<LOD
38		pH			PH		8.53	pH		8.53	pH	8.53 pH		
39		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]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
											Total:	0.0285 %		

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
CLP: Note 1	Only the metal concentration has been used for classification

WAC results for sample: SA06-0.50

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)	%	0.288	3	5
2	LOI (loss on ignition)	%	1.68	-	-
3	BTEX (benzene, toluene, ethylbenzene and xylenes)	mg/kg	<0.007	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	<10	100	-
7	pH	pH	8.53	-	>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	0.0766	20	100
11	cadmium	mg/kg	0.0008	0.04	1
12	chromium	mg/kg	0.0209	0.5	10
13	copper	mg/kg	0.0356	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	0.0296	0.4	10
17	lead	mg/kg	0.0069	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	0.0683	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	45.7	500	800
26	TDS (total dissolved solids)	mg/kg	754	4,000	60,000

Key

User supplied data

Appendix A: Classifier defined and non EU 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: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

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)

EU CLP index number: 016-002-00-X
Description/Comments:
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)

EU 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
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)

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: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

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: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

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: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

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 Acute 1; H400 , Aquatic Chronic 1; H410

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: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **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: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **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: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **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: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **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 Acute 1; H400 , Aquatic Chronic 1; H410

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

EU 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.
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)

EU CLP index number: 601-023-00-4
Description/Comments:
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

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

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 VI 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 VI 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 VI 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 VI 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.NI - Jan 2021
HazWasteOnline Classification Engine Version: 2024.332.6362.11667 (27 Nov 2024)
HazWasteOnline Database: 2024.331.6361.11659 (26 Nov 2024)

This classification utilises the following guidance and legislation:
WM3 v1.1.NI - Waste Classification - 1st Edition v1.1.NI - Jan 2021
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 Waste 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
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
17th ATP - Regulation (EU) 2021/849 of 11 March 2021
18th ATP - Regulation (EU) 2022/692 of 16 February 2022
19th ATP - Regulation (EU) 2023/1434 of 25 April 2023
20th ATP - Regulation (EU) 2023/1435 of 2 May 2023
21st ATP - Regulation (EU) 2024/197 of 19 October 2023
22nd ATP - Regulation (EU) 2024/2564 of 19th June 2024

Appendix 10

Survey Data

Survey Data

Location	Irish Transverse Mercator		Elevation	Irish National Grid	
	Easting	Northing		Easting	Northing
Cable Percussive Boreholes					
BH01	659861.220	745516.426	74.89	259923.455	245492.291
BH02	659850.685	745565.571	75.12	259912.917	245541.446
BH03	659754.056	745570.806	75.74	259816.267	245546.682
BH04	659692.729	745600.212	76.56	259754.927	245576.094
BH05	659721.152	745649.357	75.39	259783.355	245625.250
BH06	659743.419	745704.024	74.18	259805.627	245679.929
BH07	659790.469	745618.025	75.10	259852.688	245593.911
BH08	659831.760	745648.677	74.24	259893.987	245624.570
Trial Pits					
TP01	659867.624	745497.452	74.71	259929.860	245473.313
TP02	659857.176	745532.791	75.10	259919.410	245508.659
TP03	659785.546	745561.041	75.27	259847.764	245536.915
TP04	659771.680	745683.208	74.15	259833.894	245659.108
TP05	659702.323	745619.281	76.20	259764.523	245595.167
Dynamic Probes					
DP01	659683.922	745636.207	76.17	259746.117	245612.097
DP02	659759.120	745676.258	74.42	259821.332	245652.157
DP03	659817.795	745664.544	74.09	259880.019	245640.441
DP04	659725.600	745571.734	76.36	259787.805	245547.610
DP05	659773.962	745582.038	75.54	259836.177	245557.917
DP06	659847.848	745589.880	75.13	259910.079	245565.761
DP07	659779.876	745546.836	75.20	259842.093	245522.707
DP08	659859.399	745527.428	75.00	259921.633	245503.295
DP09	659851.030	745451.502	74.73	259913.263	245427.353
DP10	659871.190	745460.970	74.98	259933.427	245436.823
Soakaway Tests					
SA01	659859.700	745453.453	74.90	259921.935	245429.304
SA02	659805.749	745530.366	75.14	259867.972	245506.234
SA03	659749.122	745545.974	76.00	259811.332	245521.845
SA04	659807.742	745608.171	75.41	259869.964	245584.055
SA05	659667.812	745597.796	76.87	259730.004	245573.677
SA06	659739.269	745686.160	74.53	259801.476	245662.061
Slit Trenches					
ST01 Fence	659852.879	745633.405	74.52	259915.111	245609.295
ST02 Wall	659699.524	745554.029	77.06	259761.723	245529.901
ST03 Wall	659752.179	745518.616	76.17	259814.390	245494.481
ST04 Wall	659822.439	745467.504	74.62	259884.666	245443.358
ST05 Wall	659858.303	745443.730	74.78	259920.537	245419.579
California Bearing Ratio Tests					
CBR01	659854.252	745477.444	74.66	259916.485	245453.300
CBR02	659800.395	745519.470	75.10	259862.616	245495.335
CBR03	659716.847	745578.459	76.55	259779.050	245554.337
CBR04	659670.845	745607.893	76.66	259733.038	245583.777

Survey Data

Location	Irish Transverse Mercator		Elevation	Irish National Grid	
	Easting	Northing		Easting	Northing
CBR05	659701.861	745672.926	75.21	259764.060	245648.824
CBR06	659744.976	745643.420	74.98	259807.185	245619.312
CBR07	659725.119	745728.316	74.40	259787.323	245704.226
CBR08	659775.085	745690.336	74.01	259837.300	245666.238
CBR09	659814.338	745627.465	74.94	259876.562	245603.354
CBR10	659827.504	745581.643	75.33	259889.731	245557.522

Legend Key

- Locations By Type - CBR
- Locations By Type - CP
- Locations By Type - DP
- Locations By Type - IP
- Locations By Type - OP
- Locations By Type - TP

Contract No:	6377
Contract Name:	Boreen Bradach
Location:	Kinnegad, Co. Westmeath
Client:	Corcom Enterprises Ltd
Engineer:	ORS
Title:	Site Plan
Scale:	1:2000
Drawn By:	SL

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