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Ground Investigations Ireland
Swiss Cottage Enniskerry
Corrigan Hodnett Consulting Ltd.
Ground Investigation Report
March 2025

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Ground Investigations Ireland Limited | Registered in Ireland Company Registration No.: 405726



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1.0 Preamble

On the instructions of Corrigan Hodnett Consulting, a site investigation was carried out by Ground Investigations Ireland Ltd., in February 2025 at the site of the proposed residential development in Enniskerry Co. Wicklow.

2.0 Overview

2.1. Background

It is proposed to construct a new residential development with associated services, access roads and car parking at the proposed site. The site is currently overgrown with some demolition waste at site entrance and is situated on the R117 to the East of Enniskerry Village. The proposed construction is envisaged to consist of conventional foundations and pavement make up with some local excavations for services and plant.

2.2. Purpose and Scope

The purpose of the site investigation was to investigate subsurface conditions utilising a variety of investigative methods in accordance with the project specification. The scope of the work undertaken for this project included the following:

- Visit project site to observe existing conditions
- Carry out 3 No. Trial Pits to a maximum depth of 2.40m BGL
- Carry out 1 No. Soakaway to determine a soil infiltration value to BRE digest 365
- Carry out 5 No. Dynamic Probes to determine soil strength/density characteristics
- Carry out 1 No. Plate Test to determine the modulus of subgrade reaction and equivalent CBR value
- Geotechnical & Environmental Laboratory testing
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing were undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.

The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

3.2. Trial Pits

The trial pits were excavated using an 8T tracked excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by an Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered, and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report.

3.3. Soakaway Testing

The soakaway testing was carried out in the selected trial pit at the location shown in the exploratory hole location plan in Appendix 1. This pit was carefully excavated and filled with water to assess the infiltration characteristics of the proposed site. The pit was allowed to drain and the drop in water level was recorded over time as required by BRE Digest 365. The pit was logged prior to completing the soakaway test and were backfilled with arising's upon completion. The soakaway test result is provided in Appendix 3 of this Report.

3.4. Dynamic Probing (DPH)

The dynamic probe tests (DPH) were carried out at the locations shown in the location plan in Appendix 1 in accordance with B.S. 1377: Part 9 1990. The test consists of mechanically driving a cone with a 50kg weight in 100mm intervals and monitoring the number of blows required. An equivalent Standard Penetration Test (SPT) 'N' value may be calculated by dividing the total number of blows over a 300mm drive length by 1.5. The dynamic probe logs are provided in Appendix 4 of this Report.

3.5. Insitu Plate Bearing Test

The plate bearing tests were carried out using a 457mm diameter plate at the locations shown on the site plan in Appendix 1. The plate was loaded in increments using a hydraulic jack and an excavator to provide a reaction and the displacement was monitored in accordance with BS1377 Part 9 using independently mounted digital strain gauges. The constrained modulus and equivalent CBR are calculated in accordance with HD29/75 and are provided on the test reports in Appendix 5 of this Report.

3.6. Surveying

The exploratory hole locations have been recorded using a KQ GEO Technologies KQ-M8 System which records the coordinates and elevation of the locations to ITM as required by the project specification. The coordinates and elevations are provided on the exploratory hole logs in the appendices of this Report.

3.7. Laboratory Testing

Samples were selected from the exploratory holes for a range of geotechnical and environmental testing to assist in the classification of soils and to provide information for the proposed design.

Environmental & Chemical testing as required by the specification, including the Rilta Suite pH and sulphate testing was carried out by Element Materials Technology Laboratory in the UK. The Rilta suite testing includes both Solid Waste and Leachate Waste Acceptance Criteria.

Geotechnical testing consisting of moisture content, Atterberg limits and Particle Size Distribution (PSD) tests were carried out in NMTL's Geotechnical Laboratory in Carlow.

The results of the laboratory testing are included in Appendix 6 of this Report.

4.0 Ground Conditions

4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were variable across the site and generally comprised;

- Topsoil
- Made Ground
- Granular Deposits
- Cohesive Deposits

TOPSOIL: Topsoil was encountered in TP02 and was present to a maximum depth of 0.30m BGL.

MADE GROUND: Made Ground deposits were encountered from the surface at SA01, SA02 and TP01 and were present to a relatively consistent depth of between 0.20m and 0.50m BGL. These deposits were described generally as *dark brown slightly sandy slightly gravelly Clay with rootlets and occasional fragments of concrete, red brick, glass, plastic and aluminium.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground and were described typically as *brownish grey slightly sandy slightly gravelly CLAY*. The secondary sand and gravel constituents varied across the site and with depth. These deposits had low, medium or high cobble and boulder content, where noted on the exploratory hole logs.

GRANULAR DEPOSITS: Granular deposits were encountered within and below the cohesive deposits and were typically described as *greyish brown clayey sandy subangular to subrounded fine to coarse GRAVEL* or *brownish grey clayey gravelly fine to coarse SAND*. The secondary sand/gravel and silt/clay constituents

varied across the site and with depth while low, medium or high cobble and boulder content also present where noted on the exploratory hole logs.

It should be noted that many of the trial pits where granular deposits or groundwater were encountered, experienced instability. This was described either as side wall spalling or as side wall collapse in the remarks section at the base of the trial pit logs. A groundwater strike was noted in the boreholes on encountering the granular deposits.

4.2. Insitu Strength Testing

The correlated DPH blow counts indicate that the overburden deposits are soft / loose to depth of 1.10m to 2.00m BGL and become firm or stiff / medium dense with depth.

4.3. Groundwater

Groundwater strikes are noted on the exploratory hole logs where they occurred and where possible excavation was suspended for twenty minutes to allow the subsequent rise in groundwater to be recorded. We would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the tide, time of year, rainfall, nearby construction and other factors.

4.4. Laboratory Testing

4.4.1. Geotechnical Laboratory Testing

The geotechnical testing carried out on soil samples recovered generally confirm the descriptions on the logs with the primary constituent of the cohesive deposits found to be a CLAY of low plasticity. The Particle Size Distribution tests confirm that generally the cohesive deposits are well-graded with percentages of sands and gravels ranging between 18.2 and 39.3% generally with fines contents of 37.4 to 54.2%.

4.4.1. Chemical Laboratory Testing

The pH and sulphate testing carried out indicate that pH results are near neutral and that the water soluble sulphate results is low when compared to the guideline values from BRE Special Digest 1:2005. The samples tested classify the soil as a Design Sulphate Level DS-1.

4.4.2. Environmental Laboratory Testing

A sample is being analysed for a suite of parameters which allows for the assessment of the sampled material in terms of total pollutant content for classification of materials as *hazardous* or *non-hazardous*. The suite also allows for the assessment of the sampled material in terms of suitability for placement at licenced landfills (inert, stable non-reactive, hazardous etc.). The parameter list for the suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, cyanide, lead, nickel,

mercury, zinc, speciated aliphatic and aromatic petroleum hydrocarbons, pH, sulphate, sulphide, moisture content, soil organic matter and an asbestos screen.

The suite also includes those parameters specified in the EU Council Decision establishing criteria for the acceptance of waste at Landfills (Council Decision 2003/33/EC), which for the solid samples are total organic carbon (TOC), speciated aliphatic and aromatic petroleum hydrocarbons, BTEX, phenol, polychlorinated biphenyls (PCB) and PAH.

As part of the suite a leachate is generated from the solid sample which is analysed for antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, chloride, fluoride, soluble sulphate, sulphide, phenols, dissolved organic carbon (DOC) and total dissolved solids (TDS).

While the laboratory report provides a comparison with the waste acceptance criteria limits it does not provide a waste classification of the material sampled nor does it comment on any potentially hazardous properties of the materials tested. The possibility for contamination, not revealed by the testing undertaken should be borne in mind particularly where Made Ground deposits are present or the previous site use or location indicate a risk of environmental variation.

A waste classification report is recommended to be carried out to provide an interpretation of the laboratory data should any material be required to be disposed of off site.

5.0 Recommendations & Conclusions

5.1. General

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 exploratory hole locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the exploratory holes. Limited information has been provided at the ground investigation stage and any designs based on the recommendations or conclusions should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory hole logs.

5.2. Foundations

At the tested locations an allowable bearing capacity of 100 kN/m² and 200 kN/m² is recommended for conventional strip or pad foundations on the stiff cohesive / medium dense granular deposits at the depths outlined in the table below.

The possibility for variation in the depth of the made ground in the vicinity of these foundations should be considered and foundation inspections should be carried out. Any soft spots encountered at the proposed foundation depths should be excavated and replaced with lean mix concrete.

A ground bearing floor slab is recommended to be based on the stiff cohesive or medium dense deposits with an appropriate depth of compacted hardcore specified by the consulting engineer and in accordance with the limits and guidelines in SR21:2014+A1:2016 and/or NRA SRW CL808 Type E granular stone fill. Where the depth of Made Ground/Soft deposits exceeds 0.9m then suspended floor slabs should be considered.

Allowable Bearing Capacities (ABC) kN/m ²							
EH ID	ABC	Depth	Comment	EH ID	ABC	Depth	Comment
No.	kN/m ²	m BGL		No.	kN/m ²	m BGL	
DP01	100	2.10	Cohesive	DP01	200	2.30	-
DP02	100	1.20	Granular	DP02	200	2.40	-
DP03	100	1.20	-	DP03	200	3.20	-
DP04	100	1.30	-	DP04	200	2.50	-
DP05	100	1.10	-	DP05	200	3.60	-

Due to the presence of soft and compressible Cohesive deposits beneath the footprint of the proposed structure piled foundations may be more economically advantageous for the proposed building. The type, size and depth of the pile foundations should be confirmed by a specialist piling contractor based on the loading from the proposed building. The floor slab is recommended be suspended and also supported on the building piles.

Negative skin friction from the very soft cohesive deposits should be considered in the pile design due to the possibility of loading from working platforms or the adjacent pavement make up.

The pH and sulphate testing completed on samples recovered from the exploratory holes indicates the pH results are near neutral and the sulphate results are low, when compared to the guideline values from BRE Special Digest 1:2005. No special precautions are required for concrete foundations to prevent sulphate attack.

5.3. External Pavements

The proposed pavements are recommended to be designed in accordance with the CBR test result included in the Appendices of this Report. The low CBR test result indicates that a capping layer or a sufficient depth of crushed stone fill may be required. Plate bearing tests are recommended at the time of construction to verify the design assumptions for the proposed pavement make up and to verify adequate compaction has been achieved.

The use of a geogrid and separation membrane may improve the performance of the proposed pavement and enable a more economical pavement design to be achieved, a specialist supplier is recommended to advise of the required strength, depth and type of geotextile for the proposed design.

5.4. Excavations

Short term temporary excavations in the cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25m BGL or is required to permit man entry. Excavations in the Made Ground or soft Cohesive Deposits will require to be appropriately battered or the sides supported due to the low strength of these deposits.

Any excavations which penetrate the granular deposits will require to be appropriately battered or the sides supported and are likely to require dewatering due to the groundwater seepages noted in the exploratory hole logs in the Appendices of this Report.

The groundwater and stability noted on the trial pit logs should be consulted when determining the most appropriate construction methods for excavations. Generally, where significant excavations are required in water bearing granular deposits a cut-off wall may be more cost effective than extensive dewatering. An assessment by a specialist dewatering contractor is recommended to determine the most cost effective approach to the proposed excavation.

Any waste material to be removed off site should be disposed of to a suitably licenced landfill.

A waste classification report is recommended to be carried out to provide an interpretation of the laboratory data should any material be required to be disposed of off site.

5.5. Soakaway Design

At the location of SA01 the water level dropped too slowly to allow calculation of 'f' the soil infiltration rate. This location is therefore not recommended as suitable for soakaway design and construction.

The recommendations provided in this report should be verified in the design of the proposed buildings, using the full details of the loading conditions and taking into consideration the allowable tolerable settlements/movements that the building can accommodate. The founding strata should be inspected and verified by a suitably qualified engineer prior to construction of the building foundations.

APPENDIX 1 - Site Location Plan



722700E

722750E

722800E








718000N

717000N

722000E

723000E



-  Site Location
-  Indicative Site Boundary
-  Trial Pit
-  Soakaway
-  Dynamic Probe

Client:



Project Code:

14401-01-25

Project Title:

Swiss Cottage Enniskerry

Drawing Title:

Site Location Plan



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0 5 10 15 20 25 m

Drawn By:
SG

Date:
13-03-2025

722700E

722750E

722800E

717350N

717300N

APPENDIX 2 – Trial Pit Records





GROUND INVESTIGATIONS IRELAND
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Trial Pit Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 11/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722739.36 N717346.12	
Project No. : 14401-01-25		Crew Name: JOB		Equipment: 8T Excavator	
Location Number BRE01	Location Type TP	Level 48.36m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth (m)	Type	Results					
▼	1.00	B		0.20	48.16		MADE GROUND: Brown slightly sandy slightly gravelly Clay with rootlets and occasional fragments of plastic, aluminium and glass.	
				0.50	47.86		MADE GROUND: Dark brown slightly sandy slightly gravelly Clay with rootlets and occasional fragments of plastic and aluminium.	0.5
				0.70	47.66		Brownish grey slightly clayey gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse.	
				1.90	46.46		Firm to stiff thinly laminated brownish grey mottled black slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium.	2.0
	2.20	B		2.20	46.16			

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.30	0.70	Unstable: Sidewalls spalling		Soakaway carried out to 2.20m BGL.			

Remarks
 Groundwater encountered at 1.60m BGL. Slow ingress.
 Trial pit terminated at scheduled depth.
 Trial pit backfilled upon completion of soakaway test.





GROUND INVESTIGATIONS IRELAND
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Trial Pit Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 11/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722774.46 N717344.18	
Project No. : 14401-01-25		Crew Name: JOB		Equipment: 8T Excavator	
Location Number BRE02	Location Type TP	Level 47.42m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
Depth (m)	Type	Results					
			0.30	47.12		MADE GROUND: Dark brown to black peaty Clay with occasional fragments of plastic and aluminium.	
			0.80	46.62		Soft black slightly sandy slightly gravelly peaty CLAY with medium subrounded cobble and boulder content. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse.	0.5
							1.0
							1.5
							2.0
							2.5
							3.0
							3.5
							4.0
							4.5
							5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.50	0.70	Unstable: Sidewalls spalling		Unable to carry out soakaway test due to ingress of surface water.			

Remarks
 Trial pit terminated due to fast ingress of surface water.
 Trial pit backfilled upon completion.





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Trial Pit Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 11/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722763.70 N717331.86	
Project No. : 14401-01-25		Crew Name: JOB		Equipment: 8T Excavator	
Location Number TP01	Location Type TP	Level 48.14m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1

Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth (m)	Type	Results					
				0.20	47.94		MADE GROUND: Dark brown slightly sandy Clay with rootlets, and rare fragments of plastic, aluminium and red brick.	
	0.80	B		0.80	47.34		Soft brownish grey mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular fine to coarse.	0.5
▼	1.40	B		2.10	46.04		Brown mottled red and dark brown clayey sandy subangular to subrounded fine to coarse GRAVEL with high subangular to subrounded cobble and boulder content. Sand is fine to coarse.	1.0
								1.5
								2.0
								2.5
								3.0
								3.5
								4.0
								4.5
								5.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.10	0.70	Unstable: Sidewalls collapsed		Plate test carried out in trial pit at 0.50m BGL.			

Remarks
 Groundwater encountered at 1.40m BGL. Medium ingress.
 Trial pit terminated due to sidewall collapse.
 Trial pit backfilled upon completion.





GROUND INVESTIGATIONS IRELAND
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Trial Pit Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 11/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722764.72 N717325.81	
Project No. : 14401-01-25		Crew Name: JOB		Equipment: 8T Excavator	
Location Number TP02	Location Type TP	Level 49.99m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
Depth (m)	Type	Results						
1.60	B		0.30	49.69		TOPSOIL: Dark brown slightly sandy Clay with rootlets (strong organic odour).		
						Soft brown mottled grey slightly sandy slightly gravelly CLAY with low subrounded cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse.	0.5	
				1.80	48.19		Brownish grey clayey slightly gravelly fine to medium SAND with low subrounded cobble content. Gravel is subangular to subrounded fine to coarse.	2.0
				2.40	47.59			2.5
							3.0	
							3.5	
							4.0	
							4.5	
							5.0	

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.00	0.70	Unstable: Sidewalls collapsed					

Remarks
 No groundwater encountered.
 Trial pit terminated due to sidewall collapse.
 Trial pit backfilled upon completion.



Swiss Cottage Enniskerry – Trial Pit Photographs

BRE01



BRE01



Swiss Cottage Enniskerry – Trial Pit Photographs

BRE01



BRE01



Swiss Cottage Enniskerry – Trial Pit Photographs

BRE02



BRE02



Swiss Cottage Enniskerry – Trial Pit Photographs

BRE02



BRE02



Swiss Cottage Enniskerry – Trial Pit Photographs

BRE02



BRE02



Swiss Cottage Enniskerry – Trial Pit Photographs

TP01



TP01



Swiss Cottage Enniskerry – Trial Pit Photographs

TP01



TP01



Swiss Cottage Enniskerry – Trial Pit Photographs

TP02



TP02



Swiss Cottage Enniskerry – Trial Pit Photographs

TP02



TP02



APPENDIX 3 – Soakaway Test Result





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SA01

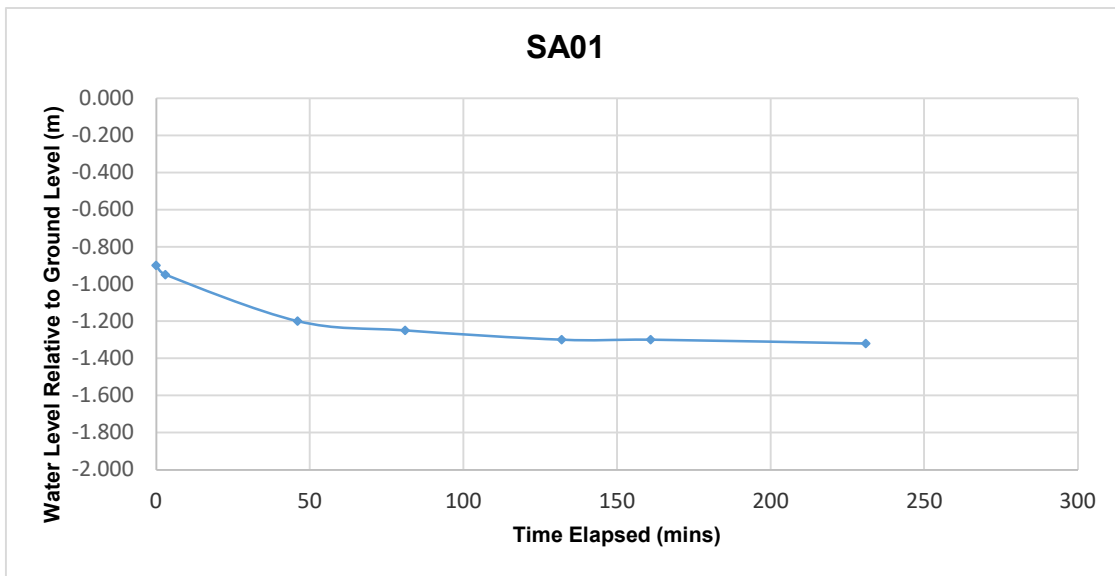
Soakaway Test to BRE Digest 365

Trial Pit Dimensions: 2.30m x 0.70m x 2.20m (L x W x D)

Date	Time	Water level (m bgl)
11/02/2025	0	-0.900
11/02/2025	3	-0.950
11/02/2025	46	-1.200
11/02/2025	81	-1.250
11/02/2025	132	-1.300
11/02/2025	161	-1.300
11/02/2025	231	-1.320

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.90	2.200	1.300	1.225	1.875



APPENDIX 4 – Dynamic Probe Results






GROUND INVESTIGATIONS IRELAND
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Dynamic Probe Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 20/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722744.72 N717346.36	
Project No. : 14401-01-25		Crew Name: PW & MK		Drilling Equipment: Tecopsa Tec 10	
Borehole Number DP01	Hole Type DP	Level 48.30m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1

Blows for Depth Increment	Stratum Description	Depth (m)	Level (m)	Number of Blows						
				0	10	20	30	40	50	
0										
0										
2										
1										
2										
0.5										
2										
3										
5										
14										
11										
1.0										
18										
20										
19										
22										
36										
1.5										
22										
20										
7										
3										
2.0										
2										
8										
7										
10										
10										
2.5										
13										
15										
15										
25										
3.0										
3.5										
4.0										
4.5										
5.0										

Remarks
Refusal at 2.90m BGL 25 blows for 100mm.

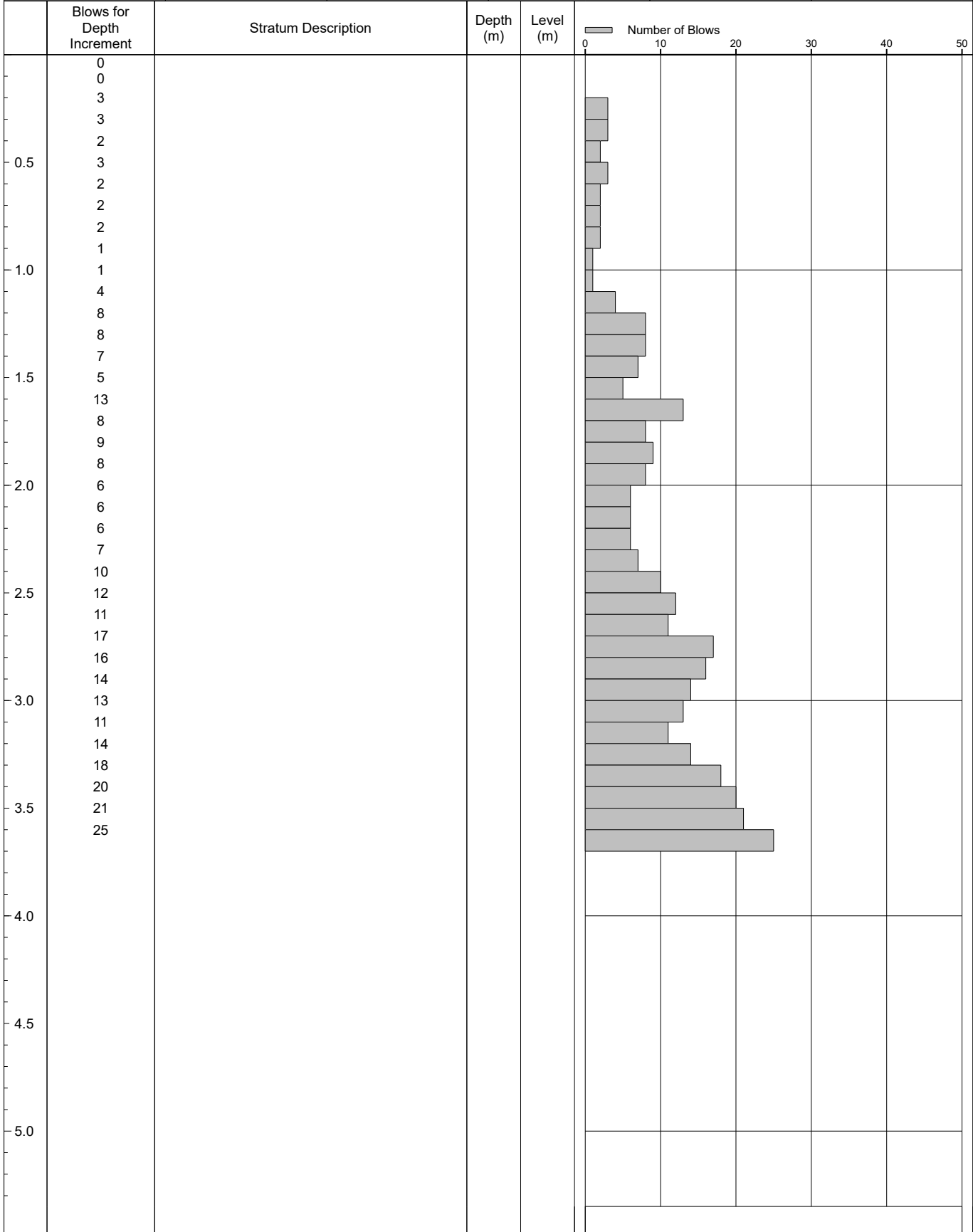





GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Dynamic Probe Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 20/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722763.80 N717334.70	
Project No. : 14401-01-25		Crew Name: PW & MK		Drilling Equipment: Tecopsa Tec 10	
Borehole Number DP02	Hole Type DP	Level 47.85m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1



Remarks
Refusal at 3.70m BGL 25 blows for 100mm.

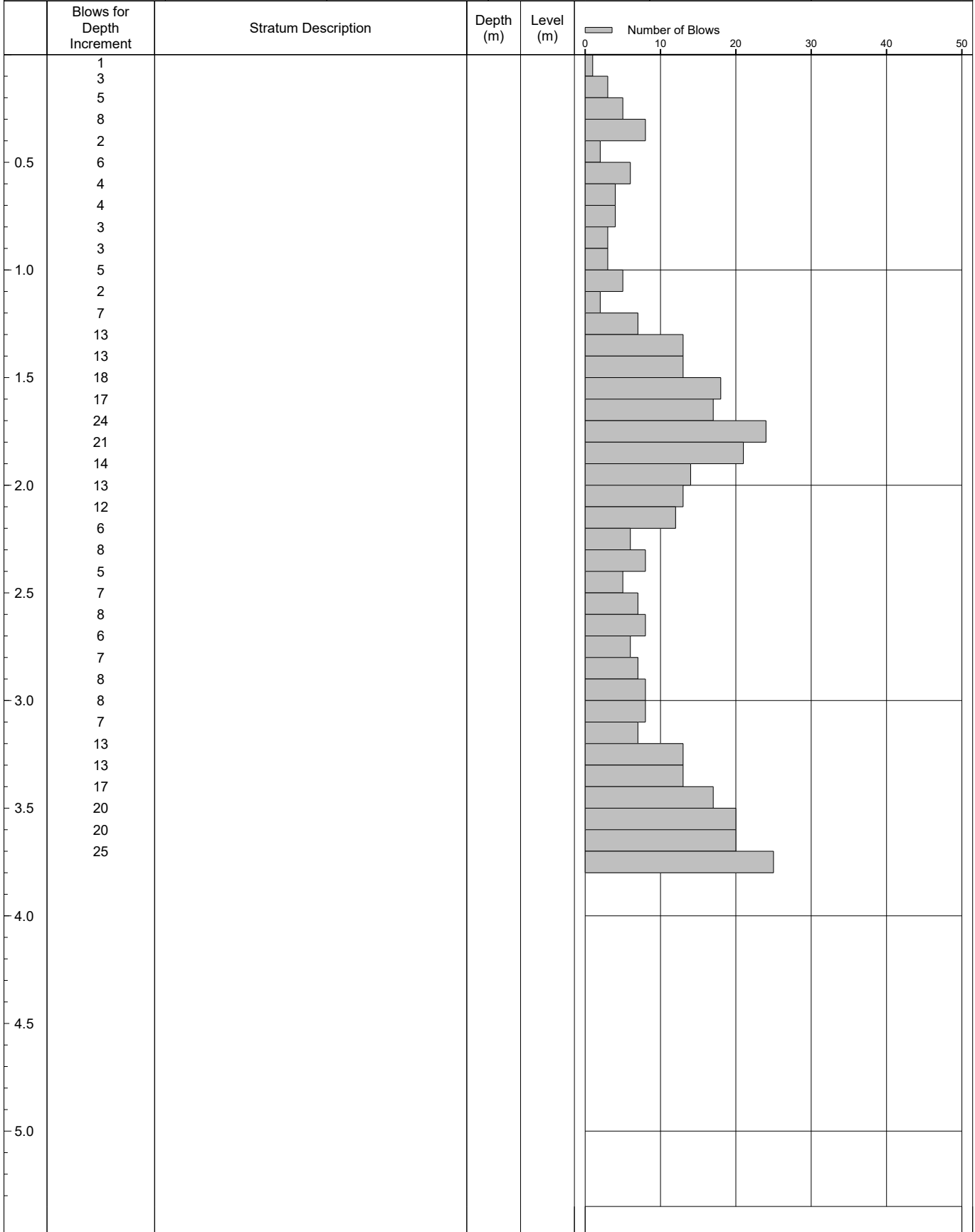





GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Dynamic Probe Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 20/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722768.28 N717344.88	
Project No. : 14401-01-25		Crew Name: PW & MK		Drilling Equipment: Tecopsa Tec 10	
Borehole Number DP03	Hole Type DP	Level 48.16m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1



Remarks
Refusal at 3.80m BGL 25 blows for 100mm.

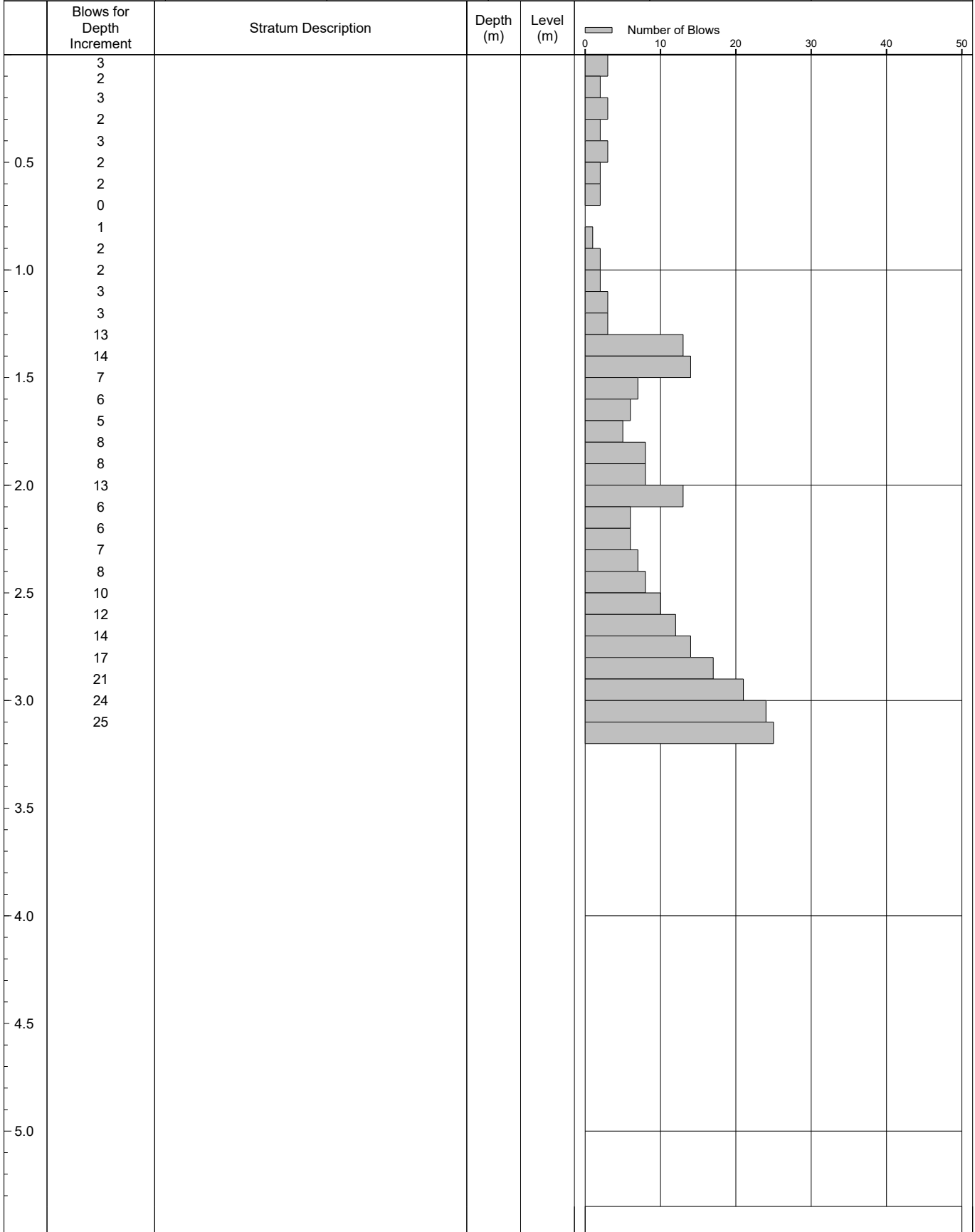





GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Dynamic Probe Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 20/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722774.22 N717336.50	
Project No. : 14401-01-25		Crew Name: PW & MK		Drilling Equipment: Tecopsa Tec 10	
Borehole Number DP04	Hole Type DP	Level 47.61m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1



Remarks
Refusal at 3.20m BGL 25 blows for 100mm.






GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Dynamic Probe Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 20/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722759.84 N717343.31	
Project No. : 14401-01-25		Crew Name: PW & MK		Drilling Equipment: Tecopsa Tec 10	
Borehole Number DP05	Hole Type DP	Level 48.31m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1

Blows for Depth Increment	Stratum Description	Depth (m)	Level (m)	Number of Blows					
				0	10	20	30	40	50
2				2					
2				2					
2				2					
2				2					
0.5				2					
2				3					
3				9					
25				25	10				
5				5	25				
2				2	5				
1.0				6	2				
9				9	6				
15				15	9				
1.5				17	15				
11				11	17				
12				12	11				
13				13	12				
13				13	13				
4				4	13				
2.0				10	4				
12				12	10				
6				6	12				
9				9	6				
13				13	9				
2.5				14	13				
14				14	14				
12				12	14				
12				12	12				
18				18	12				
3.0				10	18				
6				6	10				
7				7	6				
11				11	7				
12				12	11				
3.5				8	12				
9				9	8				
10				10	9				
12				12	10				
25				25	12				
4.0				25	25				

Remarks
Refusal at 3.90m BGL 25 blows for 100mm.





GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

Dynamic Probe Log

Project Name: Swiss Cottage Enniskerry		Client: Corrigan Hodnett		Date: 20/02/2025	
Location: Enniskerry, Co. Wicklow		Contractor: GII Ltd.		Co-ords: E722759.84 N717343.31	
Project No. : 14401-01-25		Crew Name: PW & MK		Drilling Equipment: Tecopsa Tec 10	
Borehole Number DP05 A	Hole Type DP	Level 48.31m AoD	Logged By CT	Scale 1:25	Page Number Sheet 1 of 1

Blows for Depth Increment	Stratum Description	Depth (m)	Level (m)	Number of Blows					
				0	10	20	30	40	50
2				0	0	0	0	0	0
2				0	0	0	0	0	0
2				0	0	0	0	0	0
8				0	0	0	0	0	0
3				0	0	0	0	0	0
0.5				0	0	0	0	0	0
2				0	0	0	0	0	0
19				0	0	0	0	0	0
7				0	0	0	0	0	0
25				0	0	0	0	0	0
1.0									
1.5									
2.0									
2.5									
3.0									
3.5									
4.0									
4.5									
5.0									

Remarks
Refusal at 0.90m BGL 25 blows for 100mm.



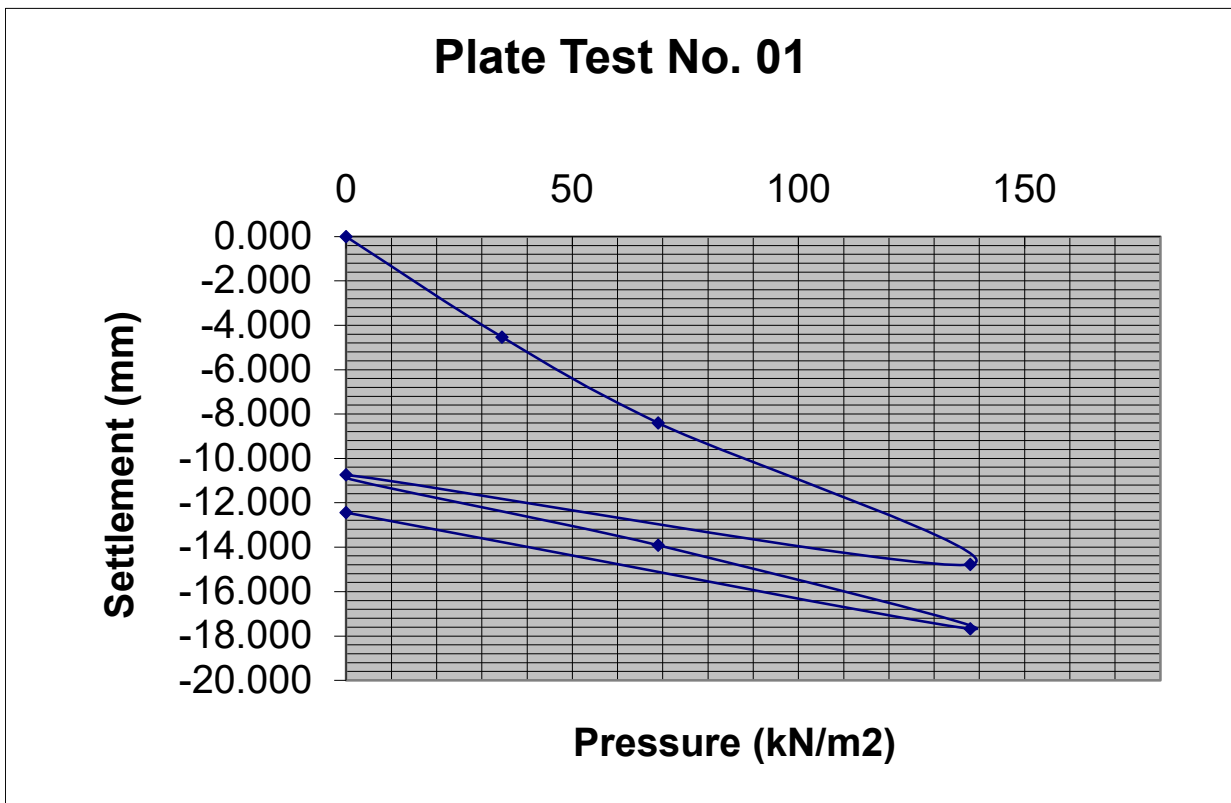
APPENDIX 5 – Plate Bearing Test



Applied Load	Gauge settlement
0	0.000
34.5	-4.53
69	-8.4
138	-14.785
0	-10.75
69	-13.915
138	-17.685
0	-12.445



LOCATION	Swiss Cottage Enniskerry	MATERIAL	Brownish grey slightly sandy slightly gravelly CLAY
CONTRACT NO.	14401-01-25		
DATE	11/02/2025		
CLIENT	Corrigan Hodnett	DEPTH	0.50m
PLATE DIAMETER	457mm	NOTES	Plate test carried out in TP01
TEST NO.	CBR-01	SAMPLES	



Modulus of subgrade reaction, K (Initial) = **5.55 MN/m²/m**

Modulus of subgrade reaction, K (Reload) = **14.73 MN/m²/m**

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **0.19 %**

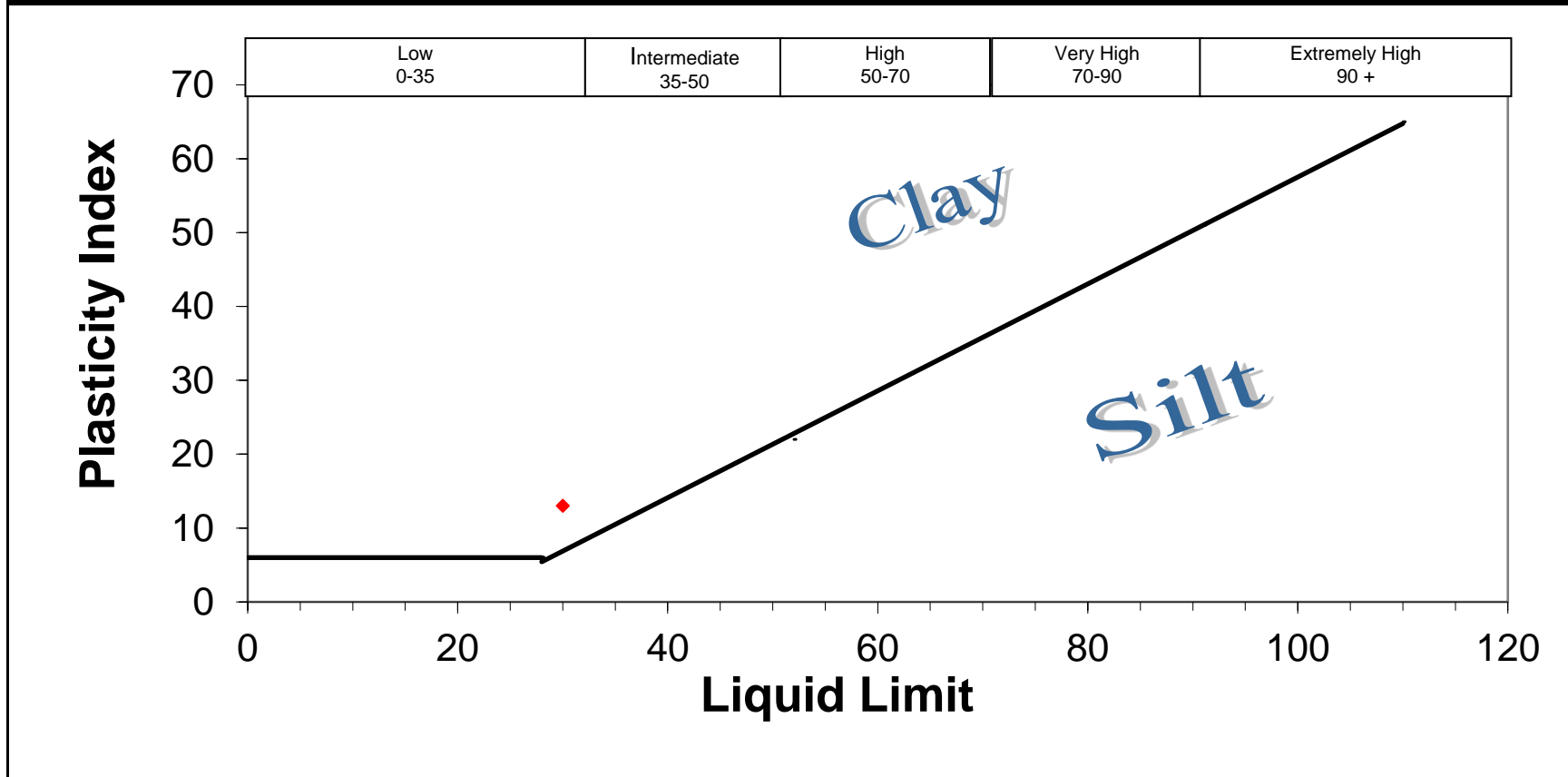
Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **1.02 %**

APPENDIX 6 – Laboratory Testing



NMTL LTD
Unit 18c, Tullow Industrial Estate
Tullow
County Carlow
Tel: 00353 59 9180822
Mob: 00353 872575508
billa@nmtl.ie

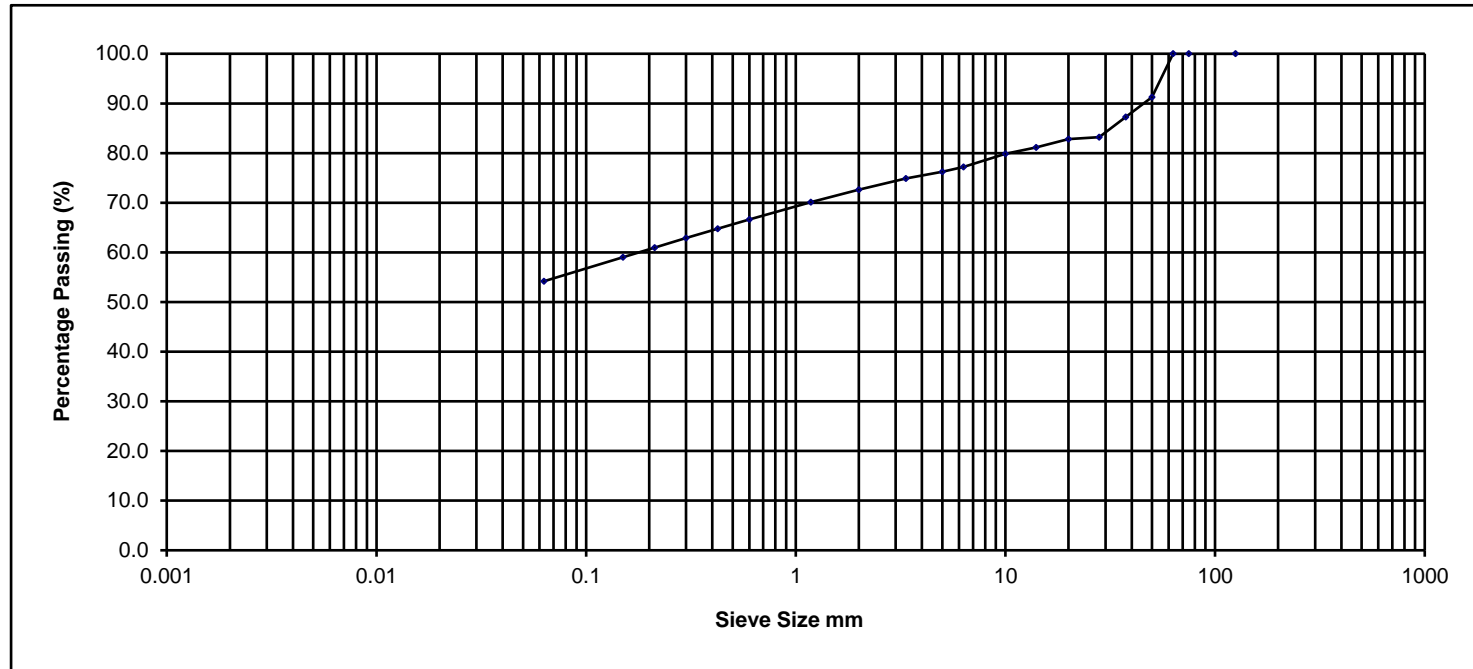
Contract: Swiss Cottage, Enniskerry
Client: Ground Investigations Ireland Ltd
Engineer: Scott Graydon
GII Project ID: 14401-01-25
Date: 19/03/2025
Tested By: Js **Checked:** Bc
Job ref No.: NMTL 3855



NMTL Ltd

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	91.3
37.500	87.3
28.000	83.2
20.000	82.8
14.000	81.1
10.000	79.8
6.300	77.2
5.000	76.2
3.350	74.9
2.000	72.6
1.180	70.1
0.600	66.7
0.425	64.8
0.300	62.9
0.212	61.0
0.150	59.0
0.063	54.2

Determination of Particle Size Distribution BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5



Percentage Particle Size

Clay	Fine			Medium			Coarse			Cobbles	Boulder
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse		
	Silt			Sand			Gravel			0.0	0.0
	54.2			18.5			27.4				

Sample Description Grey slightly sandy slightly gravelly silty CLAY.

Project No. NMTL 3855

BH/TP No. BRE01

Project Swiss Cottage, Enniskerry

GII PROJECT ID:14401-01-25

Sample No. B

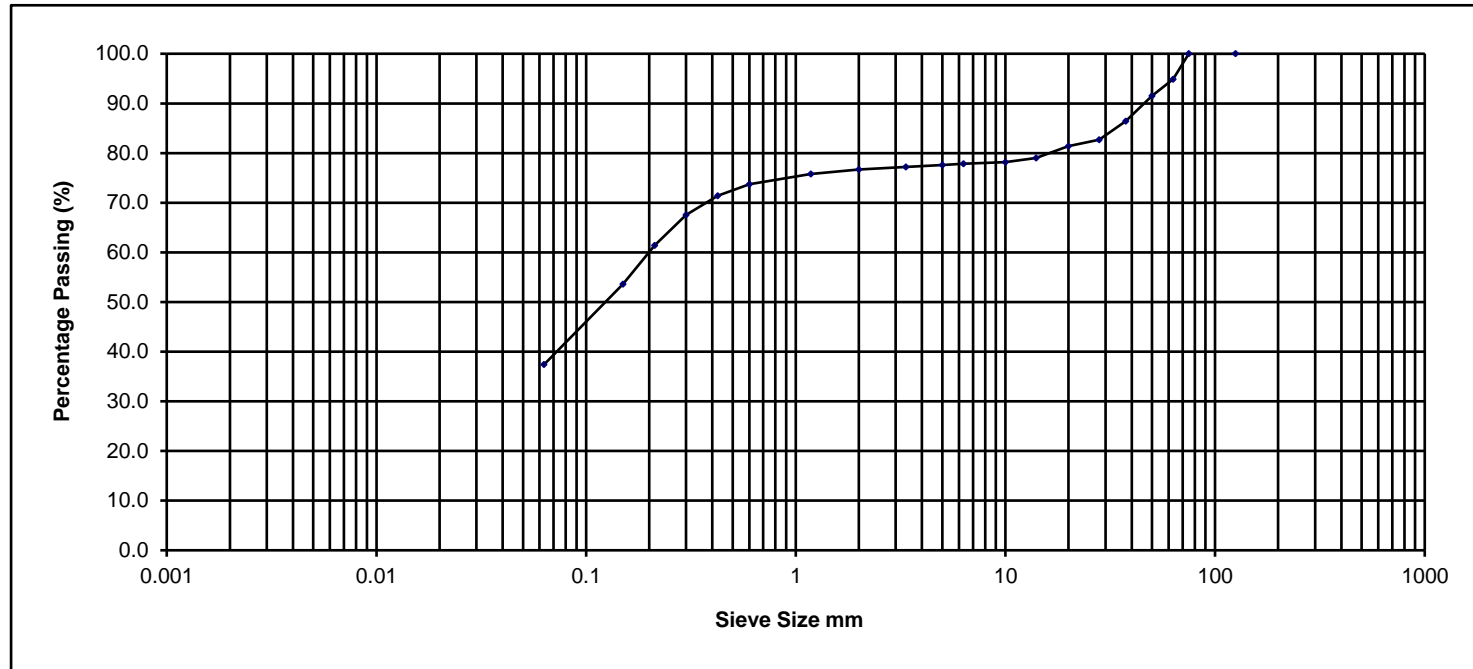
NMTL Ltd

Operator	Js	Checked	Nc	Approved	Bc	Date sample tested	12/03/2025	Depth	2.20m
----------	----	---------	----	----------	----	--------------------	------------	-------	-------

NMTL Ltd

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	94.9
50.000	91.5
37.500	86.5
28.000	82.7
20.000	81.4
14.000	79.0
10.000	78.2
6.300	77.9
5.000	77.6
3.350	77.2
2.000	76.7
1.180	75.8
0.600	73.7
0.425	71.4
0.300	67.5
0.212	61.4
0.150	53.6
0.063	37.4

Determination of Particle Size Distribution BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5



Percentage Particle Size

Clay	Fine			Medium			Coarse			Cobbles	Boulder
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse		
	Silt			Sand			Gravel				
	37.4			39.3			18.2			5.1	0.0

Sample Description Grey brown slightly gravelly sandy clayey SILT.

Project No. NMTL 3855

BH/TP No. TP02

Project Swiss Cottage, Enniskerry

GII PROJECT ID:14401-01-25

Sample No. B

NMTL Ltd

Operator	Js	Checked	Nc	Approved	Bc	Date sample tested	12/03/2025	Depth	1.60m
----------	----	---------	----	----------	----	--------------------	------------	-------	-------

Ground Investigations Ireland
Catherinstown House
Hazelhatch Road
Newcastle
Co. Dublin
Ireland
D22 K5P8



4225



Attention : Barry Sexton
Date : 11th March, 2025
Your reference : 14401-01-25
Our reference : Test Report 25/2841 Batch 1
Location : Swiss Cottage Enniskerry
Date samples received : 24th February, 2025
Status : Final Report
Issue : 202503111112

Two samples were received for analysis on 24th February, 2025 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 1.014 kg of CO2

Scope 1&2&3 emissions - 2.395 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 25/2841

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

Please include all sections of this report if it is reproduced

All solid results are expressed on a dry weight basis unless stated otherwise.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

Ground Investigations Ireland
Catherinestown House
Hazelhatch Road
Newcastle
Co. Dublin
Ireland
D22 K5P8



4225



Attention : Barry Sexton
Date : 25th March, 2025
Your reference : 14401-01-25
Our reference : Test Report 25/2841 Batch 1
Location : Swiss Cottage Enniskerry
Date samples received : 24th February, 2025
Status : Final Report
Issue : 202503251451

Two samples were received for analysis on 24th February, 2025 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

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The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 5.864 kg of CO2

Scope 1&2&3 emissions - 13.859 kg of CO2

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

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EMT Job No.: 25/2841

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NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.	Yes		AD	Yes

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 degrees Celsius. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma-Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) - All anions comparable to BS ISO 15923-1: 2013l	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes

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Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM61	Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998)	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35 degrees Celsius or 105 degrees Celsius. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	