



APPENDIX 4-4

CAUSEWAY GEOTECH LAURCLAVAGH WF – GROUND INVESTIGATION REPORT



Laurclavagh WF - Ground Investigation

Client: Turnkey Developments

Client's Representative: Enerco Energy

Report No.: 23-0237

Date: May 2023

Status: Final for Issue



CONTENTS

Document Control Sheet

Note on: Methods of describing soils and rocks & abbreviations used on exploratory hole logs

1	AUTI	HORITY	4
2	SCOF	PE	4
3	DESC	CRIPTION OF SITE	4
4	SITE 4.1 4.2 4.3 4.4 4.5 4.6	OPERATIONS	.5 .6
5	LAB(5.1 5.2	ORATORY WORKGeotechnical laboratory testing of soilsGeotechnical laboratory testing of rock	.7
6	GROU 6.1 6.2 6.3	UND CONDITIONS	8.8
7	REFE	CRENCES	9

APPENDICES

Appendix I

Appendix A	Site and exploratory hole location plans
Appendix B	Borehole logs
Appendix C	Core photographs
Appendix D	Trial pit logs
Appendix E	Trial pit photographs
Appendix F	Infiltration test logs and results
Appendix G	Indirect in-situ CBR test results
Appendix H	Geotechnical laboratory test results

SPT hammer energy measurement report





Document Control Sheet

Report No.:		23-0237			
Project Title:		Laurclavagh WF	; Ground Investig	gation	
Client:		Turnkey Develo	pments		
Client's Repres	entative:	Enerco Energy			
Revision:	A00	Status:	Final for Issue	Issue Date:	24 th May 2023
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The works were conducted in accordance with:

British Standards Institute (2015) BS 5930:2015+A1:2020, Code of practice for ground investigations.

BS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland

Laboratory testing was conducted in accordance with:

British Standards Institute BS 1377:1990 parts 2, 4, 5, 7 and 9





METHODS OF DESCRIBING SOILS AND ROCKS

Soil and rock descriptions are based on the guidance in BS5930:2015+A1:2020, The Code of Practice for Ground Investigation.

Abbreviations use	ed on exploratory hole logs
U	Nominal 100mm diameter undisturbed open tube sample (thick walled sampler).
UT	Nominal 100mm diameter undisturbed open tube sample (thin walled sampler).
P	Nominal 100mm diameter undisturbed piston sample.
В	Bulk disturbed sample.
LB	Large bulk disturbed sample.
D	Small disturbed sample.
С	Core sub-sample (displayed in the Field Records column on the logs).
L	Liner sample from dynamic sampled borehole.
W	Water sample.
ES / EW	Soil sample for environmental testing / Water sample for environmental testing.
SPT (s)	Standard penetration test using a split spoon sampler (small disturbed sample obtained).
SPT (c)	Standard penetration test using 60 degree solid cone.
(x,x/x,x,x,x)	Blows per increment during the standard penetration test. The initial two values relate to the seating drive (150mm) and the remaining four to the 75mm increments of the test length.
(Y for Z/Y for Z)	Incomplete standard penetration test where the full test length was not achieved. The blows 'X' represent the total blows for the given seating or test length 'Z' (mm).
N=X	SPT blow count 'N' given by the summation of the blows 'X' required to drive the full test length (300mm).
HVP / HVR	In situ hand vane test result (HVP) and vane test residual result (HVR). Results presented in kPa.
V VR	Shear vane test (borehole). Shear strength stated in kPa. V: undisturbed vane shear strength VR: remoulded vane shear strength
Soil consistency description	In cohesive soils, where samples are disturbed and there are no suitable laboratory tests, N values may be used to indicate consistency on borehole logs – a median relationship of Nx5=Cu is used (as set out in Stroud & Butler 1975).
dd-mm-yyyy	Date at the end and start of shifts, shown at the relevant borehole depth. Corresponding casing and water depths shown in the adjacent columns.
∇	Water strike: initial depth of strike.
T	Water strike: depth water rose to.
Abbreviations relatin	g to rock core – reference Clause 36.4.4 of BS 5930: 2015+A1:2020
TCR (%)	Total Core Recovery: Ratio of rock/soil core recovered (both solid and non-intact) to the total length of core run.
SCR (%)	Solid Core Recovery: Ratio of solid core to the total length of core run. Solid core has a full diameter, uninterrupted by natural discontinuities, but not necessarily a full circumference and is measured along the core axis between natural fractures.
RQD (%)	Rock Quality Designation: Ratio of total length of solid core pieces greater than 100mm to the total length of core run
FI	Fracture Index: Number of natural discontinuities per metre over an indicated length of core of similar intensity of fracturing.
NI	Non Intact: Used where the rock material was recovered fragmented, for example as fine to coarse gravel size particles
AZCL	Assessed zone of core loss: The estimated depth range where core was not recovered.
DIF	Drilling induced fracture: A fracture of non-geological origin brought about by the rock coring.
(xxx/xxx/xxx)	Spacing between discontinuities (minimum/average/maximum) measured in millimetres.





Laurclavagh WF; Ground Investigation

1 **AUTHORITY**

On the instructions of Enerco Energy ("the Client's Representative"), acting on the behalf of Turnkey Developments ("the Client"), a ground investigation was undertaken at the above location to provide geotechnical and environmental information for input to the design and construction of a proposed wind farm development including access roads and areas of hardstanding.

This report details the work carried out both on site and in the geotechnical and chemical testing laboratories; it contains a description of the site and the works undertaken, the exploratory hole logs and the laboratory test results.

All information given in this report is based upon the ground conditions encountered during the ground investigation works, and on the results of the laboratory and field tests performed. However, there may be conditions at the site that have not been taken into account, such as unpredictable soil strata, contaminant concentrations, and water conditions between or below exploratory holes. It should be noted that groundwater levels usually vary due to seasonal and/or other effects and may at times differ to those recorded during the investigation. No responsibility can be taken for conditions not encountered through the scope of work commissioned, for example between exploratory hole points, or beneath the termination depths achieved.

This report was prepared by Causeway Geotech Ltd for the use of the Client and the Client's Representative in response to a particular set of instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

2 SCOPE

The extent of the investigation, as instructed by the Client's Representative, included boreholes, trial pits, soil and rock core sampling, in-situ and laboratory testing, and the preparation of a factual report on the findings.

3 DESCRIPTION OF SITE

As shown on the site location plan in Appendix A, the works were conducted over several sites, located in Laurclavagh, County Galway. The sites comprised 3rd Party Owned agricultural lands, within an area spanning approximately 5km located west of the N83 in Clough, County Galway. Elevations vary across the area of the ground investigation.





4 SITE OPERATIONS

4.1 Summary of site works

Site operations, which were conducted between the 20th of March and the 27th of April 2023, comprised:

- ten boreholes by rotary drilling
- seven machine dug trial pits
- an infiltration test performed in thirteen trial pits; and
- indirect CBR tests at forty-six locations.

The exploratory holes and in-situ tests were located as instructed by the Client's Representative, and as shown on the exploratory hole location plan in Appendix A.

4.2 Boreholes

Ten boreholes (RC01-RC09 and RC11) were put to their completion by rotary drilling techniques only. The boreholes were completed to a maximum depth of 10.50m using a Comacchio 602 drilling rig.

Hand dug inspection pits were carried out between ground level and 1.20m depth to ensure boreholes were put down at locations clear of services or subsurface obstructions.

Symmetrix-cased full hole rotary percussive drilling techniques were employed to advance the boreholes to bedrock, after which rotary coring was employed to recover core samples of the bedrock. SPTs were carried out at standard intervals throughout the overburden, with small and bulk disturbed samples obtained where possible through the soils strata.

Standard penetration tests were carried out in accordance with BS EN 22476-3:2005+A1:2011 at standard depth intervals throughout the overburden using the split spoon sampler ($SPT_{(s)}$) or solid cone attachment ($SPT_{(c)}$). The penetrations are stated for those tests for which the full 150mm seating drive or 300mm test drive was not possible. The N-values provided on the borehole logs are uncorrected and no allowance has been made for energy ratio corrections. The SPT hammer energy measurement report is provided in Appendix I.

Where coring was carried out within bedrock strata, Geobor S Coring was used. The core was extracted in up to 1.5m lengths using an SK6L core barrel, which produced core of nominal 102mm diameter, and was placed in single channel wooden core boxes.



The core was subsequently photographed and examined by a qualified and experienced Engineering Geologist, thus enabling the production of an engineering log in accordance with *BS 5930: 2015+A1:2020: Code of practice for ground investigations*.

Appendix B presents the borehole logs, with core photographs presented in Appendix C.

4.3 Trial Pits

Seven trial pits (TP01–TP03 and TP05-TP08) were excavated using a 13t tracked excavator fitted with a 600mm wide bucket, to depths ranging between 0.80m and 3.50m.

Disturbed (bulk bag) samples were taken at standard depth intervals and at change of strata.

No groundwater strikes were encountered during excavation. The stability of the trial pit walls was noted on completion.

Appendix C presents the trial pit logs with photographs of the pits and arising provided in Appendix D.

4.4 Infiltration tests

An infiltration/soakaway test was carried out at thirteen locations (ITP01-ITP13) in accordance with BRE Digest 365 - Soakaways (BRE, 2016). The tests were conducted in similarly numbered trial pits.

Appendix F presents infiltration pit logs and the results and analysis of the infiltration test. The absence of the outflow from the pits precluded calculation of infiltration coefficients.

4.5 Indirect CBR tests (DCP)

An indirect CBR test was conducted at forty-six locations (DCP01-DCP40 and DCP13A, DCP15A, DCP16A, DCP24A, DCP26A, DCP32A and DCP38A) using a Dynamic Cone Penetrometer (DCP). The equipment was developed in conjunction with the UK Transport Research Laboratory, and is discussed in Highways England CS229 (2020) which refers to the methodology described in TRL Overseas Road Note 18 (1999).

The test results are presented in Appendix G in the form of plots of the variation with depth of the penetration per blow. Straight lines have been fitted to the plots and the CBR for each depth range estimated using the following relationship, which is taken from TRRL Overseas Road Note 8 (1990), A user's manual for a program to analyse dynamic cone penetrometer data.

Log CBR = 2.48-1.057 Log (mm/blow)

The frequently elevated CBR values are a consequence of the coarse-grained content of the penetrated soils and are often not representative of the soil matrix.





4.6 Surveying

The as-built exploratory hole positions were surveyed following completion of site operations by a Site Engineer from Causeway Geotech. Surveying was carried out using a Trimble R10 GPS system employing VRS and real time kinetic (RTK) techniques.

The plan coordinates (Irish Transverse Mercator) and ground elevation (mOD Malin) at each location are recorded on the individual exploratory hole logs. The exploratory hole location plan presented in Appendix A shows these as-built positions.

5 LABORATORY WORK

Upon their receipt in the laboratory, all disturbed samples were carefully examined and accurately described, and their descriptions incorporated into the borehole logs.

5.1 Geotechnical laboratory testing of soils

Laboratory testing of soils comprised:

- **soil classification:** moisture content measurement, Atterberg Limit tests and particle size distribution analysis.
- soil chemistry: pH and water soluble sulphate content

Laboratory testing of soils samples was carried out in accordance with British Standards Institute: *BS 1377, Methods of test for soils for civil engineering purposes; Part 1 (2016), and Parts 2-9 (1990).*

The test results are presented in Appendix H.

5.2 Geotechnical laboratory testing of rock

Laboratory testing of rock sub-samples comprised:

- point load index
- unconfined compressive strength (UCS) tests

Test	Test carried out in accordance with
Point load index	ISRM Suggested Methods (1985) Suggested method for determining point-load
	strength. Int. J. Rock Mech. Min. Sci. Geomech. Abstr. 22, pp. 53–60
Uniaxial	ISRM Suggested Methods (1981) Suggested method for determining
compression	deformability of rock materials in uniaxial compression, Part 2
strength tests	and





ISRM (2007) Ulusay R, Hudson JA (eds) The complete ISRM suggested methods
for rock characterization, testing and monitoring, 2007

The test results are presented in Appendix H.

6 GROUND CONDITIONS

6.1 General geology of the area

Published geological mapping indicate the superficial deposits underlying the site comprise till derived from limestone and outcrop/subcrop. These deposits are underlain by pale grey clean skeletal limestone of the Burren Formation.

6.2 Ground types encountered during investigation of the site

A summary of the ground types encountered in the exploratory holes is listed below, in approximate stratigraphic order:

- **Topsoil:** encountered typically in 200mm thickness across the site.
- **Glacial Till:** sandy gravelly clay, frequently with low cobble content, typically firm or stiff in upper horizons, becoming very stiff with increasing depth, with occasional sand horizons.
- Bedrock (Limestone): Medium strong to strong grey limestone rockhead was encountered at depths ranging from 2.50m in RC02 to 5.85m in RC07. In addition, possible limestone rockhead recovered as gravel through rotary drilling was noted in RC02 at a depth of 1.75m

6.3 Groundwater

Groundwater was not noted at any of the exploratory hole locations. However, it should be noted that the casing used in supporting the borehole walls during drilling may have sealed out any groundwater strikes and the possibility of encountering groundwater during excavation works should not be ruled out.

It should be noted that any groundwater strikes within bedrock may have been masked by the fluid used as the drilling flush medium.

Seasonal variation in groundwater levels should also be factored into design considerations.





7 REFERENCES

Geotechnical Society of Ireland (2016), Specification & Related Documents for Ground Investigation in Ireland.

IS EN 1997-2: 2007: Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. National Standards Authority of Ireland.

BS 5930: 2015+A1:2020: Code of practice for ground investigations. British Standards Institution.

BS EN ISO 14688-1:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description.

BS EN ISO 14688-2:2018: Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification.

BS 1377: 1990: Methods of test for soils for civil engineering purposes. British Standards Institution.

BS EN ISO 14689-1:2018: Geotechnical investigation and testing. Identification and classification of rock. Identification and description.

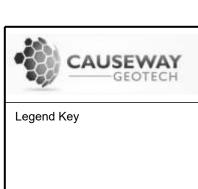
BS EN ISO 22476-3:2005+A1:2011: Geotechnical investigation and testing. Field testing. Standard penetration test.

Building Research Establishment (2007), BRE Digest 365: Soakaways.



APPENDIX A SITE AND EXPLORATORY HOLE LOCATION PLANS





Client:

Turnkey Developments

1 Kilometres 4000 Feet

Project Name:

Laurclavagh WF; Ground Investigation

Client's Representative:

Enerco Energy



Title:

Site Location Plan

Last Revised: 10/05/2023 1:25000

Scale:



Client:

Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's Representative:

Enerco Energy

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan -1

Last Revised: Scale: 23/05/2023 1:3000



Client: Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's

Enerco Energy Representative:

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 2

Last Revised: Scale: 19/05/2023 1:3000



Client:

Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's Representative:

Enerco Energy

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 3

Last Revised: 23/05/2023

Scale:

1:3000



Client:

Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's

Enerco Energy



Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 4

Last Revised: Scale: 22/05/2023 1:3000



Client:

Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's

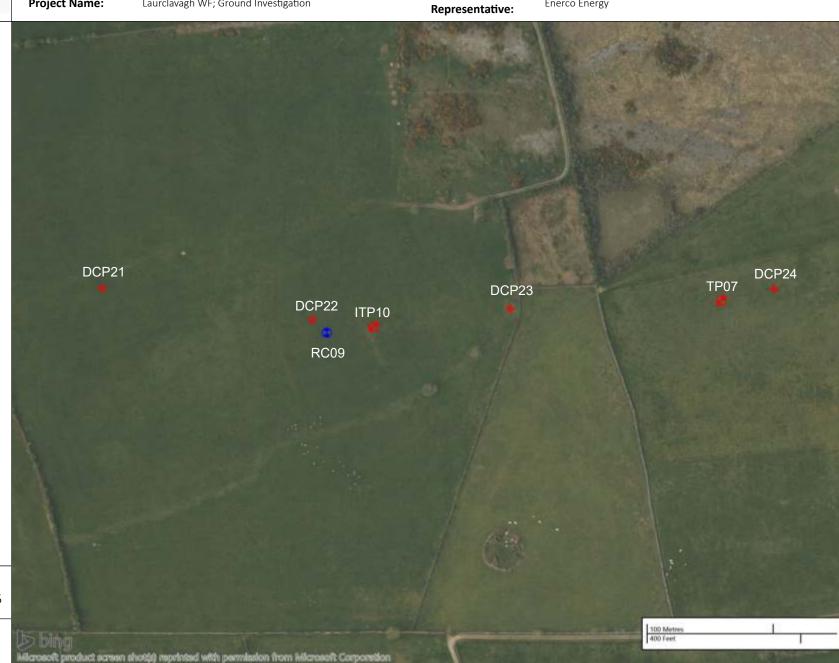
Enerco Energy

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 5

Last Revised: 22/05/2023

Scale:

1:3000



Client:

Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's Representative:

Enerco Energy

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 6

Last Revised: 22/05/2023 1:3000

Scale:



Client:

Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's

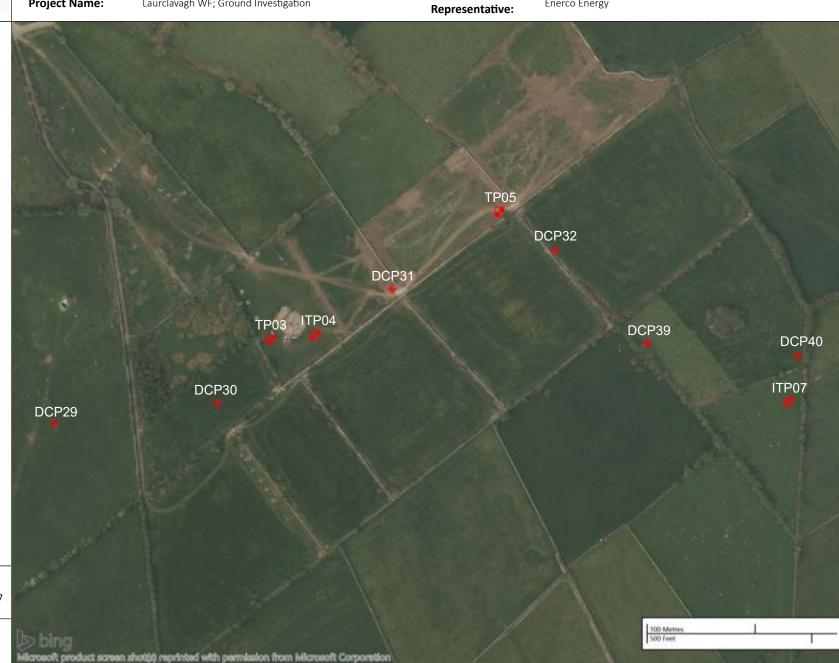
Enerco Energy

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 7

Last Revised: Scale: 23/05/2023 1:3500



Client: Turnkey Developments

Client's

Project Name:

Laurclavagh WF; Ground Investigation

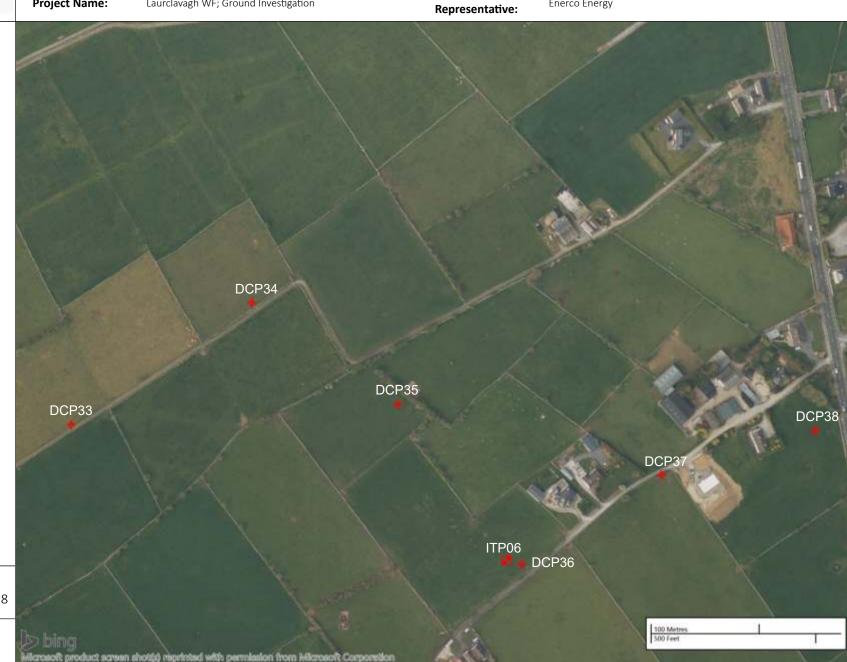
Enerco Energy

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 8

Last Revised: Scale: 23/05/2023 1:3500



Client:

Turnkey Developments

Project Name:

Laurclavagh WF; Ground Investigation

Client's Representative:

Enerco Energy

Legend Key

Locations By Type - DCP

Locations By Type - RC

Locations By Type - TP



Title:

Exploratory Hole Location Plan - 9

Last Revised: Scale: 24/05/2023

1:1000



APPENDIX B
BOREHOLE LOGS



Meth	9	AUS	EC	TE	EC	Н	Base (m	23-	ect No. 0237	Project Name: Laurclavagh WF; Ground Investigation Client: Turnkey Developments Client's Rep Enerco Energy	Borehole ID RC01
Rotary Pe	rcussion	Comacch Comacch	io 60)2	0.	(m) 00 50	3.50 10.50		59.65 E	Final Depth: 10.50 m Start Date: 22/03/2023 Driller: GT	Sheet 1 of 2 Scale: 1:40
•								74382	29.76 N	Elevation: 33.61 mOD End Date: 22/03/2023 Logger: DM	FINAL
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	FI	Casing Water Depth Depth (m) (m)	Level mOD	Depth (m)	Legend Description Soft brown slightly sandy CLAY. Sand is fine to coarse.	Backfill
1.50 1.50 - 1.95	D1 SPT(S) N (2,2/2,3,							32.41	1.20	Soft brown CLAY (Driller's Description)	1.0
3.00 3.00 - 3.29	D2 SPT(S) 50 for 136n	0 (10,15/50 nm)						31.41		Stiff to very stiff brownish grey sandy gravelly CLAY with low cobble and boulder content. (Driller's Description).	2.5 —
			95	50	10	NI		30.11	- 3.50 - 4.00	Dense light brownish grey sandy slightly clayey subangular to subrounded fine to medium GRAVEL. Sand is fine to coarse. Medium strong light grey LIMESTONE. Moderately weathered: reduced strength, closer fracture spacing, with common light brow discolouration on joint surfaces. Discontinuities: 1. 5-10 degree fractures medium spaced (35/220/475), undulating	3.5 — - - - 4.0 — - - - - - - - - - - - - - - - - - - -
5.00			97	60	35	11				and rough with light brown staining on joint surfaces. 2. 45-50 degree fractures medium spaced (90/430/1170), undulating, rough with light brown staining on joint surfaces. 3. 80-90 degree joints from 5.65-5.80m, 7.70-7.85m and 9.20-9.30 undulating, rough with light brown staining on joint surfaces.	5.0 — 5.0 — 5.5 — 5.5 — 6.0 —
6.50 - 6.60 6.50 6.80 - 6.90	C1 C2		97 TCR	80	RQD				-		6.5 — ———————————————————————————————————
Casing To (m)	Casing to (m)	Core I	Barre	el	n) Ir	lo obv	tion pit ha			r added during coring.	
		Flush Wa	Typ o ater	e			nation R	eason heduled d	epth.		Updated AGS AGS

	C	AUS	E						Project	ct No.)237	Project Client: Client's		Developme		gation		В	RC0	
Metho Rotary Perci Rotary Co	ussion	Plant I Comacch Comacch	nio 60)2	0.	(m) 00 50	3.50 10.5	ס	Coord 53535		Final De	pth: 10.50 m	Start Date:	22/03/2023	Driller:	GT		heet 2 Scale: 1	
							Casing	Vator	74382		Elevatio	n: 33.61 mOD	End Date:	22/03/2023	Logger:	DM	_	FINA	_
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	FI	Depth D	Vater epth (m)	Level mOD	Depth (m)	Legend	Manada. M. C.		cription		- 4.	Water	Backfil	1
ruck at (m) Ca:	Water	Strikes Time (min)		90 70 to (r	R n) Ir	ema ispec	tion pit		23.11		ter added	Medium strong ligh reduced strength, cl discolouration on jo Discontinuities: 1. 5-10 degree fract and rough with light 2. 45-50 degree fract undulating, rough w 3. 80-90 degree joir undulating, rough w	loser fracture int surfaces. ures medium t brown stainictures mediur with light brownts from 5.65-yith light brow	spacing, with co spaced (35/220 ing on joint surfa in spaced (90/43 vn staining on jo 5.80m, 7.70-7.8	ommon lig (/475), uncaces. (/1170), int surface 5m and 9.	ht brown lulating ss.			7.5 8.0 - 8.5 9.0 - 10.0 - 11.5 12.0 - 13.5 14.0 -
Casing De		Core	Barre	el	7														
To (m) Di	am (mm) 200	Sk	K6L																
-		Flush	Тур	e	T	ermi	natior	ı Re	ason							Last Up	date	d 🔳	•
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0.0	V _a								Proje	ct No.	Project	Name: Laurclavagh WF; Ground Investigation	Т	Borehole ID
	1 C	AUS	E	M	//	v			•	237			"	
	7				EC				23-0	J23 <i>1</i>	Client:	Turnkey Developments		RC02
											Client's	Rep Enerco Energy		
Meth Rotary Per	rcussion	Plant Comacch	hio 60	02	0.	00	Base 2.5	50		inates	Final De	pth: 10.00 m Start Date: 20/04/2023 Driller: GT		Sheet 1 of 2 Scale: 1:40
Rotary C	Coring	Comaccl	nio 60	02	2.	50	10.	00		4.85 E 0.04 N	Elevatio	n: 54.18 mOD End Date: 20/04/2023 Logger: DM		FINAL
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill
							.,	.,		-		Firm brown CLAY.	+-	
										-				
										-				0.5 -
										_				
										-				
										_	====			1.0 —
									52.98	1.20			_	
											000	Loose grey COBBLES and BOULDERS (Driller's Description).		
1.50 - 1.50		0 (25 for								-	000			1.5
	0mm/50) for 0mm)							52.43	1.75	0,0			
									-2.75			Grey angular GRAVEL of limestone. (Possible bedrock) (Driller's Description).		
										-		F		2.0 —
										_				
									F4 60	2.50				0.5
									51.68	- 2.50 -		Strong dark grey LIMESTONE with white calcite veins up to 10mm		2.5 -
										-		thick. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, with rare orangish brown discolouration on fractur	e	
										-		surfaces.		3.0 —
										_		Discontinuities:		
			97	95	85					-	\rightarrow	1. 5-10 degree joints medium spaced (50/300/750), planar, smooth and clean.		
												and clean.		3.5 -
										-		2. 80-90 degree fractures from 8.50-8.60m and 9.60-9.75m, smooth and clean.		
										-		and clean.		
4.00			-			6				_				4.0 —
										_				
										-				
										-				4.5 -
			97	95	90					-				
										-				5.0
										-				5.0 —
										-				
5.50										-				5.5 -
										-				
										_				
										-				6.0 —
			100	100	100					-	+			
			100	100	100	3				-				
										_				6.5 -
7.05														
7.00										-				7.0 —
										-				
			TCR	SCR	RQD	_							Ш	
Struck at (m)		Strikes	Poss	to /		Rema		ta 1		1 20				
truck at (III)	casing to (iii	, Time (iiiii)	Nose	10 (nd dug to ndwater st		iter added	during coring.		
					_									
Casing [Core	Barre	el										
To (m) I	Diam (mm) 200	SI	K6L											
		Flush	1 Тур	e	Т	erm	inatio	n Re	eason			Last	Update	ed 🔳
		W	ater		Т	ermi	nated	at sc	heduled de	epth.		23/0	05/2023	AGS

- 32	1								Proje	ct No.	Project	Name: Laurclava	agh WF; Gr	ound Investig	ation		Bo	rehole	ID
	C	AUS	E	W	A	Y			23-0	237	Client:	Turnkey	Developme	ents				RC02	
	7		SEC	TI	EC	H					Client's	Rep Enerco E	nergy						
Metho	od	Plant (Used		Тор	(m)	Base	(m)	Coord	inates							Sh	eet 2 of	2
otary Perc Rotary Co		Comacch Comacch				00 50	2.5 10.		53659	4 85 F	Final De	pth: 10.00 m	Start Date:	20/04/2023	Driller:	GT	Sc	ale: 1:4	.0
	y8	001110001					20.		74440		Elevatio	n: 54.18 mOD	End Date:	20/04/2023	Logger:	DM	ı	INAL	
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend			cription			Water	Backfill	
(m) 50			97	97	95	8		(m)	44.18	(m)		Strong dark grey LIN thick. Slightly weath fracture spacing, wi surfaces. Discontinuities: 1. 5-10 degree joint and clean. 2. 80-90 degree fract and clean.	MESTONE with hered: slightly ith rare orangi ts medium spa ctures from 8.	n white calcite vereduced strengt sh brown discoluted aced (50/300/75	th, slightly clouration on	Omm oser fracture mooth	M A		7.5 8.0 9.0 9.5 9.5 11.0 11.5 11.5 11.5 11.5 11.5 11.5 11
			TCR	SCR	RQD	FI				-							F	1	14.5
	Water	Strikes	. or	JUN	Ч-	ema	rks												_
	asing to (m)	Time (min)			n) Ir	rspec	tion p		nd dug to : dwater st		ter added (during coring.							
Casing Do	etails iam (mm)	Core		el															
.0.00	200	Si	(6L																
		Flush	Тур	е	T	ermi	natio	n Re	ason							Last Upd	ated		Ī
		W	ater		Te	ermir	nated	at sch	eduled de	epth.						23/05/2	023	Δſ	ř

Made	97 -		SEC	TI	EC	H	.	()	23-0	ct No.	Project Client: Client's	•	Developme		gation		R	chole	
Rotary Dr Rotary Co	rilling	Comacch Comacch	nio 60)2	0.	(m) 00 00	3.0 10.	00	53471	6.37 E	Final De			27/04/2023	Driller:		Sca	et 1 of le: 1:4 NAL	10
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth	Water Depth	Level mOD	Depth	Legend			ription			<u> </u>	ackfill	\dashv
1.50 - 1.95	SPT(C) N (6,8/8,1	N=44 (0,12,14)					(m)	(m)	23.32	(m)		Brown CLAY with low subrounded. Boulde	ers are subroui	nded.	c. Cobbles a		>		1.0 —
									21.82	2.70		LIMESTONE (Driller's Strong thickly lamina slightly reduced stre	ated dark grey						2.5 — — — — — 3.0 — —
4.50			100	98	88	3						discolouration Discontinuities: 1.5-10° bedding fracrough, with rare brown the fracture at 5. 2. One 80-90° fracture with patch orange st	own staining or 70m up to 1m are from 5.45-5	n fracture surfac m thick. 5.70m, undulati	ces with cla	y infill			3.5 — 4.0 — 4.5 — 45.
			100	97	95	8				-									5.0 —
6.00			100	100	85	5													6.0 —
Struck at (m) Co	asing to (m	Core	Rose	to (n	n) Ir	ema nspec	tion p		nd dug to ndwater st		ater added	during coring.							-
. , =		Flush	(6L Typ oater	e					eason neduled de	epth.						23/05/20		A	∓ GS

	2								Proje	ct No.	Project	Name: Laurclav	agh WF; Gr	ound Investig	ation		Borel	nole II
	C	AUS	E	W	A	Y			23-0	237	Client:	Turnkey	Developme	nts			RC	203
	7		EC	TI	ECI	Н					Client's	·	•					
Metho	d	Plant l	Isad		Ton	(m)	Base	(m)	Coord	inates	Cheffe	THEP ENCICOE	T				Chaat	t 2 of 2
Rotary Dri	illing	Comacch	nio 60	02	0.0	00	3.0	0			Final De	pth: 10.00 m	Start Date:	27/04/2023	Driller:	GT		t 2 ot 2 e: 1:40
Rotary Co	ring	Comacch	nio 60	02	3.0	00	10.0	00	53471									
									74313	0.35 N	Elevatio	n: 24.52 mOD	End Date:	27/04/2023	Logger:	AK	FIN	NAL
Depth (m)	Samples / Fi	ield Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend			cription			Mac Bac	:kfill
60										-		Strong thickly lamin						7.
												discolouration						
										-		Discontinuities:						
										_		1. 5-10° bedding fra						8.0
										_		rough, with rare bro			ces with cla	y infill		
			100	100	95					-		on the fracture at 5 2. One 80-90° fracti			ing and smo	ooth		
										_		with patch orange s						8.
						4				_								8.
						"				-	+							
										-	\Box							
)						1				-								9
										-								
										-	\Box							
			100	95	88					_								9
										-	+							
										-	\perp							
00									14.52	– 10.00			End of Bore	hole at 10.00m				10
										-								
										_								
										-								10.
										_								
										-								
										_								11.
										-								11.
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										-								11.
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										_								12.0
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										-								
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			TCR	SCR	RQD	FI				-								
	Water St	trikes			_	ema	rks											
ck at (m) Ca	sing to (m) T		Rose	e to (r	n) Ir	spec	tion pi		nd dug to									
											ter added	during coring.						
					_													
Casing De		Core	Barre	el														
o (m) Di	am (mm)	Sk	(6L															
	L				+-	or	noë-	n Da	2502						1	I not I local	atod	_
		Flush	тур	e	16	ermi	natio	пке	ason							Last Upda	itea	
		\\/-	ater		1 -		atod :	t cch	eduled de	enth						23/05/20	122	40

Na ada	9 -	AUS	EC	W	ECI	H	Dage (23	ect No.	Project Name: Laurclavagh WF; Ground Investigation Client: Turnkey Developments Client's Rep Enerco Energy	Borehole ID RC04
Meth Rotary Per Rotary C	rcussion	Comacch Comacch	io 60		0.0		3.50 10.50		rdinates 363.88 E	Final Depth: 10.50 m Start Date: 23/03/2023 Driller: GT	Sheet 1 of 2 Scale: 1:40
									775.96 N	Elevation: 34.05 mOD End Date: 23/03/2023 Logger: DM	FINAL
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Wa Depth De (m) (r	ter oth n) Level mOD	Depth (m)	Legend Description	Backfill
1.50 1.50 - 1.95 3.00 - 3.15	67mm/5	2,2) 0 (25 for						32.85	- - -	Firm brown slightly sandy CLAY. Sand is fine to coarse. Firm brown CLAY (Driller's Description) Very stiff greyish brown slightly sandy slightly gravelly CLAY (Driller's Description).	1.0 - 1.5 - 2.0 -
	87mm)		87	70	35	NI		30.55		Dense greyish brown sandy clayey subangular to subrounded fine to medium GRAVEL. Sand is fine to coarse. Medium strong to strong dark grey LIMESTONE with white calcite mineralisation throughout. Moderately weathered: reduced strength, closer fracture spacing, occasional light brown discolouration. Discontinuities: 1. 5-10 degree fractures medium spaced (40/210/450), planar, undulating, rough with light brown staining on joint surfaces.	4.0 -
5.00 5.25 - 6.50	61		100	90	20	9				2. 45-50 degree joints widely spaced (120/818/2670), undulating, rough with light brown staining on joint surfaces. 3. 80-90 degree joints from 5.20-5.30m, 5.90-6.00m and 6.20-6.30m, undulating, rough with light brown staining on joint surfaces.	5.0 - 5.5 -
5.50	C1		90 TCR		10	13 FI			-		6.5 ·
Casing [Casing to (m	SK	Barre	el	n) Ir	o obv	tion pit vious gro			ter added during coring.	
		Flush Wa	Type ater	ť				Reason scheduled	depth.	23/05,	- H-÷

3.00	ssion Comacch	nio 60 nio 60)2)2	0.	00 50	Depth De) 53:		Final D E N Elevati	n: 34.05 mOD End Date: 23/03/2023 Logger: D	M Mater MG	heet 2 of 2 Scale: 1:40 FINAL
(m) 3				RQD	FI	Casing W Depth (m)	ater Leve	el Dep	th Legend	Description	Water	
(m) S				RQD	FI	Depth (m) (pth			<u> </u>		Backfill
		95	90					-		Medium strong to strong dark grey LIMESTONE with white calc mineralisation throughout. Moderately weathered: reduced strength, closer fracture spacing, occasional light brown discolouration. Discontinuities:		7.5
.50				50	10					5-10 degree fractures medium spaced (40/210/450), planar, undulating, rough with light brown staining on joint surfaces. 45-50 degree joints widely spaced (120/818/2670), undulatir rough with light brown staining on joint surfaces. 80-90 degree joints from 5.20-5.30m, 5.90-6.00m and 6.20-4 undulating, rough with light brown staining on joint surfaces.	ing,	8.0 - 8.5 9.0 -
		75	75	70	4			-				10.0 -
0.50 - 10.75 C	.3						23.5	5 - 10.	50	End of Borehole at 10.50m		11.0 · 11.5 12.0 · 12.5 13.0 · 14.0 ·
		TCR	SCR	RQD				-				14.5
	Water Strikes Ing to (m) Time (min) Time (min) Time (min)			n) Ir		tion pit		to 1.20m er strikes		during coring.		
To (m) Dian	m (mm)	K6L										
	Flush	Typ	е				Reason schedule				23/05/2023	.

	9		SEC	TI	EC	H	In	()	23-0	ct No.	Project Client: Client's		Developme		gation			oreho RC0	5
Rotary (Drilling	Plant I Comacch Comacch	nio 60	02	0.	00 00	3.0 10.0	0	53648	0.01 E 3.20 N	Final De			27/04/2023	Driller:			Sheet 1 Scale: :	1:40
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend		Desc	ription		1	Water	Backfi	11
1.50 - 1.65	SPT(C) 5 62mm/ 87mm)	0 (25 for 50 for							42.33	1.20	16 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Stiff brown CLAY wit subangular. Boulder	rs are subroun	ded.		oles are			0.5 - 1.0 - 1.5 -
									41.23	2.30		LIMESTONE (Driller	's description)						2.5 -
4.50			100	97	93	4			40.53	- 3.00		Strong thickly lamin weathered: slightly slight yellowish bro Discontinuities: 1. 10-20 degree bed undulating, smooth up to 2mm thick. 2. Seven 50-60 degrand 9.80m, undulating surfaces up to 2mm	reduced stren wn discolourat dding fractures a, with brownis ree joints at 3. ting, rough, wit	gth, closer fract tion on fracture t, closely spaced h grey clay infil 15m, 3.30m, 3.6	ture spacin surfaces. d (50/150/5 l on joint su	g, with 500), urfaces n, 8.20m			3.5 - 4.0 -
			100	85	80					-									5.0 -
6.00			100	96	93	9				-									6.5 -
			TCR	SCR	RQD	FI													
Casing	Casing to (m	Strikes Time (min) Core	Rose	e to (r	n) Ir	ema nspec	tion pi		nd dug to ndwater st		ater added	during coring.							
		Flush		e	T	ermi	natio	n Re	eason							Last Up	date	ed 📕	
		W	ater		Te	ermir	nated a	t scł	neduled de	epth.						23/05/	2023	I	AGS

200	1								Proje	ct No.	Project	Name: Laurclav	agh WF; Gr	ound Investig	ation		Во	rehole I
	CA	LUS	E	W	A	Y			23-0	237	Client:	Turnkey	Developme	ents				RC05
	7 -	—-G	EC	TI	ECI	Н					Client's							
Metho	d	Plant U	lsad		Ton	(m)	Base	(m)	Coord	inatos	Cheffe	thep Ellerco E	Tiergy					eet 2 of
Rotary Dri		Comacch			_	00	3.0	$\overline{}$	Coord	inates	Final De	pth: 10.00 m	Start Date:	27/04/2023	Driller:	GT		eet 2 of cale: 1:4
Rotary Co	ring	Comacch	io 60	02	3.0	00	10.0	00	53648	0.01 E								Jaic. 1.4
									74378	3.20 N	Elevatio	n: 43.53 mOD	End Date:	27/04/2023	Logger:	AK		FINAL
Depth (m)	Samples / Fie	eld Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend			cription			Water	Backfill
50											\top	Strong thickly lamin weathered: slightly	nated greyish	orown LIMESTON	NE. Slightly	g with		
U										-	\neg	slight yellowish bro				8,		
										-	\neg	Discontinuities: 1. 10-20 degree bed	ding fracture	s closely snaced	1 (50/150/5	500)		
										_	\perp	undulating, smooth					ı	
										_		up to 2mm thick.			-			
			100	87	75	>20						2. Seven 50-60 degrand 9.80m, undulat						
										=		surfaces up to 2mm		tii biowilisii gie	y ciay iiiiiii	on joint		
										-	\neg							
						7				-								
										-	\perp							
)										-								9
										<u> </u>								
										-								
			100	90	70					_								
						2				-								
											+							
.00									33.53	- 10.00			End of Bore	hole at 10.00m				1
										-								
										-								
										=								10
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			TCR	SCR	RQD	FI				=							-	
	Water St	rikes			4	ema	rks											
ck at (m) Cas	sing to (m) Ti		Rose	to (r	n) Ir	spec	tion pi		nd dug to									
											ter added	during coring.						
Casing De	etails	Core	L Barre	el	\dashv													
	am (mm)																	
			(6L															
		Flush	Тур	e	To	ermi	natio	n Re	ason							Last Upd	ated	
l l																		

	C	AUS	E	W	/Δ	Y			ect No.	oject Name: Laurclavagh WF; Gro		Borehole ID
	9 -		SEC	TC	EC	Н				ent's Rep Enerco Energy		
Meth Rotary Per	rcussion	Plant I	nio 60	02	0.	00	Base ()	dinates	nal Depth: 10.00 m Start Date:	30/03/2023 Driller: GT	Sheet 1 of 2 Scale: 1:40
Rotary (Coring	Comacch	nio 60	02	3.	00	10.0		61.34 E 94.58 N	evation: 38.01 mOD End Date:	30/03/2023 Logger: DM	FINAL
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing W Depth D (m)	Level m) mOD	Depth (m)	gend Descr	iption	Backfill
								36.81	1.20	Soft brown slightly sandy CLAY. Sar Stiff greyish brown sandy gravelly		0.5 -
1.50 1.50 - 1.95	D1 SPT(S) N (2,3/4,4							25.76		Colonia (in colonia) (in coloni		1.5 -
								35.76	2.25	Medium dense grey angular GRAV weathered bedrock) (Driller's Desc		2.5 —
3.10 - 3.40	C1		95	90	55	6		35.01	- 3.00	Strong dark grey LIMESTONE with throughout. Slightly weathered: sl closer fracture spacing, with occas Discontinuities: 1. 5-10 degree fractures medium s undulating, rough with light brown	ightly reduced strength, slightly ional brown discolouration. paced (40/212/470), planar,	3.5
						>20	.		-	surfaces. 2. 35-45 degree fractures widely syrough with light brown staining on	paced (100/700/1250), undulat	4.0
4.50									-	3. One 90 degree fracture from 9.1 greyish brown staining on joint sur	.5-9.30m, undulating, rough, face.	4.5 — - - - - 5.0 —
			85	80	75	7			-			- - - 5.5 —
6.00						-			-			6.0 - -
6.30 - 6.45	C2		90	85	75				-			6.5 —
									-			
		.	TCR	SCR	RQD	_						
Struck at (m)		Strikes Time (min)	Rose	e to (r	n) Ir		tion pit	hand dug to oundwater :		dded during coring.		
Casing I	Details Diam (mm)	Core	 Barro	el								
		Flush		e	 T	ermi	nation	Reason			Las	st Updated
		Wa	ater		Т	ermir	nated at	scheduled (depth.			3/05/2023 AGS

Method Rotary Percu Rotary Cor	ussion		Project No. 23-0237 Client: Turnkey Developments Client's Rep Enerco Energy Used Top (m) Base (m) Coordinates Chio 602 0 00 3 00 Final Depth: 10.00 m Start Date: 30/03/2023 Driller: GT											RC06					
Rotary Cor	·						Base 3.0	$\overline{}$	Coord	inates	Final De	oth: 10.00 m Start Date: 30/03/2023 Driller:	GT l	heet 2 of 2					
Denth							10.0		53736: 74349		Elevatio	n: 38.01 mOD End Date : 30/03/2023 Logger :		FINAL					
(m)	Samples / Fie	eld Records	TCR	SCR	RQD	FI	Depth [Vater Depth (m)	Level mOD	Depth (m)	Legend	Description	Water	Backfill					
9.00			97	95	85							Strong dark grey LIMESTONE with white calcite mineralisation throughout. Slightly weathered: slightly reduced strength, slig closer fracture spacing, with occasional brown discolouration Discontinuities: 1. 5-10 degree fractures medium spaced (40/212/470), plana undulating, rough with light brown staining and clay infill on f surfaces. 2. 35-45 degree fractures widely spaced (100/700/1250), und rough with light brown staining on joint surfaces. 3. One 90 degree fracture from 9.15-9.30m, undulating, rough greyish brown staining on joint surface.	n ghtly r, fracture Julating,	7.5 8.0 - 8.5					
.60 - 9.75	C3		80	65	20	10				- - - - -				9.5					
10.00									28.01	10.00		End of Borehole at 10.00m		11.0 -					
														12.5 13.0 13.5					
			TCR	SCR	RQD	FI				- - - -				14.5					
	Water St		ICK	JUK	Ц.	ema	rke												
Casing Det	etails				n) Ir	rspec	tion pi		nd dug to 1 dwater sti		ter added (luring coring.							
To (m) Dia	am (mm)	SK																	
		Flush	Typ o	е			natio		ason eduled de	anth			23/05/2023	-					

	9 -		SEC	TI	EC	Н	lp (v	23-	ect No. 0237	Project Name: Laurclavagh WF; Ground Investigation Client: Turnkey Developments Client's Rep Enerco Energy	Borehole ID RC07
Rotary Pe Rotary 0	rcussion	Plant I Comacch Comacch	nio 60)2	0.	00 00 00	3.00 10.50		dinates 70.78 E	Final Depth: 10.50 m Start Date: 30/03/2023 Driller: GT	Sheet 1 of 2 Scale: 1:40
Notary	Cornig	Comacci	110 00	JZ	3.	00	10.50		16.49 N	Elevation: 39.47 mOD End Date: 30/03/2023 Logger: DM	FINAL
Depth (m)	Samples /	/ Field Records	TCR	SCR	RQD	FI	Casing Wa Depth Dep (m) (n	th	Depth (m)	Legend Description	Backfill
1.50 - 1.95	SPT(C) N (2,3/2,3,							38.27	1.20	Firm to stiff greyish brown sandy gravelly CLAY (Driller's Description	1.0 -
3.00 - 3.45	SPT(C) N (4,7/7,8,							36.47	- 3.00	Medium dense light brown slightly sandy clayey subrounded to subangular fine to medium GRAVEL. Sand is fine to coarse.	2.5 -
			90					35.77	3.70	Dense light brown slightly gravelly sandy CLAY. Sand is fine to coarse Gravel is subangular to subrounded fine to medium.	3.5 -
4.50 - 4.64 4.50 5.00 - 5.15	SPT(C) 5 67mm/5 78mm)					NI			-		4.5
			93	15	15			34.17	5.30	Dense light orangish brown slightly gravelly clayey slightly fine to coarse SAND. Gravel is subangular to subrounded fine to medium. Strong dark grey LIMESTONE with white calcite mineralisation	5.5 -
6.00			97	93	80	-			- - - - - - - - -	throughout. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, rare light brown discolouration. Discontinuities: 1. 5-10 degree fractures medium spaced (90/270/440), planar, undulating and rough.	6.5 -
			TCR	SCR	RQD	FI	-		-	1 1	
	Casing to (m)	Strikes Time (min)			n) Ir		tion pit l	nand dug to oundwater s		er added during coring.	
To (m)	Details Diam (mm)	Si	(6L					D			
		Flush Wa	i iypo ater	e				Reason scheduled o	depth.		Updated AGS

20 - 8.40 C2	•	Percussion Comacchio 602 0.00								Project 23-0)237	Project Client: Client's	Name: Laurclavag Turnkey D Rep Enerco En	evelopme		gation		ı	ehol	7
Signature Private National Tests (Sci. 1909) 19 1 19 1 19 1 19 1 19 1 19 1 19	Rotary Perc	cussion	Comacch	nio 60)2	0.0	00	3.0	0	53737	0.78 E							Sc	ale: 1	:40
Trong park gary, LMASTON with white cactive intercellation inconcilation of complete signify recognized signify and proceed (90), 770, 440), plants of complete signify recognized signify and process straight, alignity constraints and complete signify recognized (90), 770, 440), plants of complete significant	Depth		=					Casing V	Vater				n: 39.47 mOD E			Logger	: DN			1
So So So C3 83 80 75 28.97 10.50 End of Borehole at 10.50m So So So So C3 80 80 75 28.97 10.50 End of Borehole at 10.50m Water Strikes Remarks Remarks In Course to (in Time (min) Rose to (in Monocourse strikes water added during coring Casing Details So Core Barrel So Co. Plush Type Termination Reason Last Updated Flush Type Flush Type Termination Reason Last Updated	(m) 7.50 7.20 - 8.40							(m)	(m)	mOD	(m)		throughout. Slightly v closer fracture spacin Discontinuities: 1. 5-10 degree fractu	ESTONE with weathered: s ng, rare light l res medium :	white calcite m lightly reduced brown discolou	strength, ration.	slight	M		7.5
28.97 10.50 End of Borehole at 10.50m End of B	.55 - 9.90	C3		83	80	75	6				-									9.0 -
Water Strikes Water Strikes Water Strikes Remarks Remarks Inspection pit hand dug to 1.20m. No obvious groundwater strikes - water added during coring. Casing Details Core Barrel O(m) Diam (mm) SK6L Flush Type Termination Reason Last Updated	.0.50									28.97	- - - - 10.50 - -			End of Borel	nole at 10.50m					10.0 -
Water Strikes Water Strikes Remarks Inspection pit hand dug to 1.20m. No obvious groundwater strikes - water added during coring. Casing Details To (m) Diam (mm) SK6L Flush Type Termination Reason											- - - - - - - - - - -									11.5
Water Strikes Kek at (m) Casing to (m) Time (min) Rose to (m) Casing Details Core Barrel SK6L Flush Type Termination Reason Last Updated											- - - - - - - - -									13.0
Casing Details To (m) Diam (mm) Time (min) Rose to (m) Time (min) Rose to (m) Inspection pit hand dug to 1.20m. No obvious groundwater strikes - water added during coring. Casing Details To (m) Diam (mm) SK6L Flush Type Termination Reason Last Updated				TCR	SCR	RQD	FI				- - - - -									14.0
Casing Details To (m) Diam (mm) SK6L Flush Type Termination Reason No obvious groundwater strikes - water added during coring. Last Updated				_		_														
Flush Type Termination Reason Last Updated	Casing Do	etails	Core	Barre								ter added (during coring.							
	10 (111) DI	(111111)																	,	
Water Terminated at scheduled depth. 23/05/2023					e														ļ	Ļ

0,3									Proie	ct No.	Project	Name: Laurclavagh WF; Ground Investigation Borehole ID
0	80 0	AUS	F	W	//	Y			•)237	Client:	Turnkey Developments RC08
6	7	700	SEC	T	EC	Н			25-0	1237		
		81	- TITLES		I_	<u> </u>	_	, ,			Client's	
Rotary D Rotary O	Drilling	Comacch Comacch	nio 60	02	0.	(m) 00 50	3.5 10.	50		0.99 E	Final Dep	oth: 10.00 m Start Date: 25/04/2023 Driller: GT Sheet 1 of 2 Scale: 1:40
Notal y C	Corning	Comacci	110 00	J2	3.	30	10.	.00		5.31 N	Elevation	n: 43.75 mOD End Date : 25/04/2023 Logger : AK FINAL
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description Backfill Backfill
1.50 - 1.95	SPT(C) N (4,7/10,	N=44 12,12,10)							42.55	1.20		Brown CLAY with low boulder content. Boulders are angular. 0.5 — 1.0 — 1.0 — 2.0 — 2.0 — 2.1 — 2.0 — 2.0 — 2.1 — 2.0 — 2.1 — 2.1 — 2.1 — 2.2 — 2.3 — 2.3 — 2.4 — 2.5 — 2.5 — 2.6 — 2.7 — 2.8 — 2.8 — 2.9 — 2.9 — 2.9 — 2.0 —
5.00			100	90	95	4 >20 9			40.25	- 3.50		Strong very thinly laminated light grey dolomotised LIMESTONE, Moderately weathered: slightly reduced strength, closer fracture spacing with occasional yellowish brown discolouration on surfaces. Discontinuities: 1. 10-20° bedding fractures medium spaced (50/250/750). Undulating, rough with rare yellowish brown staining. Common yellowish brown clay infill up to 5mm thick. 2. One 45°joint at 8.55m planar, smooth with yellowish brown staining. 3. Three 80-90° joints at 4.5-4.6m, 5.0-5.7m, 9.35-9.5m undulating and rough, with occasional yellow, brown staining, clean.
			97	90		6 >20				-		5.5 — 6.0 —
6.50			100	100	100					- - - - - -		6.5 — - - 7.0 — -
			TCR	SCR	RQD							
Struck at /m\		Strikes	Ross	to /-		lema				1.20		
STRUCK AT (M)	casing to (m) Time (min)	KOSE	: tO (I					nd dug to ndwater st		ater added d	uring coring.
Casing	Details	Core	Barre	el	\dashv							
	Diam (mm)	SH	<6L									
		Flush			T.	ermi	natio	n Pr	eason			Last Updated
				e								
		l W	ater		Te	ermir	nated	at scl	heduled de	epth.		23/05/2023 AGS

	Iling Comacchio 602 0.00									ct No. 0237	Project Client: Client's	Name: Laurclavagh WF; Ground Investigation Turnkey Developments Rep Enerco Energy	Вс	rehole ID RC08
Metho							_	$\overline{}$	Coord	inates			SI	heet 2 of 2
Rotary Dri	-						3.5 10.0	- 1		0.99 E	Final De		9	Scale: 1:40
Depth							Casing Depth	Water	74380	5.31 N Depth	Elevatio			FINAL
(m)	Samples / Fi	eld Records	TCR	SCR	RQD	FI	Depth (m)	Depth (m)	mOD	(m)	Legend	Description Strong very thinly laminated light grey dolomotised LIMES	N ate	Backfill
.00			97	80	76	3				-		Moderately weathered: slightly reduced strength, closer fi spacing with occasional yellowish brown discolouration or Discontinuities: 1. 10-20° bedding fractures medium spaced (50/250/750) Undulating, rough with rare yellowish brown staining. Con yellowish brown clay infill up to 5mm thick. 2. One 45° joint at 8.55m planar, smooth with yellowish brotaining. 3. Three 80-90° joints at 4.5-4.6m, 5.0-5.7m, 9.35-9.5m ur and rough, with occasional yellow, brown staining, clean.	acture surfaces. mon	7.5 8.0 8.5
										[
50						>20				-	\perp			9.5
			100	100	100	2				-				
0.00									33.75	_ _ 10.00		End of Borehole at 10.00m		10.0
														10.5 11.0 11.5 12.0 12.5 13.0 14.0
	Water St	rikes	TCR	SCR	RQD	FI ema	rks							
Casing De	sing to (m) T	Core	Barre		n) Ir	spec	tion pi		nd dug to dwater st		ter added (uring coring.		
. , ,			(6L		T.	arm:	natio	n Da	ason				Last Undata	d ====
		Flush	тур	e	6				ason ieduled de				23/05/2023	

The second second	SV.							Pro	ect No.	Project	Name: Laurclavagh WF; Ground Investigation Bo	orehole ID
0	C	AUS	E	W	A	Y			-0237	Client:	Turnkey Developments	RC09
	9 -		EC	TC	EC	Н			0237			NC03
7			CITICO				L .			Client's		
Metho Rotary Perc		Plant I Comacch			_	(m) 00	Base (r 3.00	n) Coo	rdinates	Final De	oth: 10.00 m Start Date: 30/03/2023 Driller: GT	heet 1 of 2 Scale: 1:40
Rotary Co	oring	Comacch	nio 60	02	3.	00	10.00		889.19 E			
							Casing Wa		548.39 N	Elevatio		FINAL
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Depth Dep (m) (n	th Love	Depth (m)	Legend	Description Fig. 2 Soft brown slightly sandy CLAY. Sand is fine to coarse.	Backfill
									-		Soft Stown Singitary Suriary CEA. Suriar is time to course.	
									-			
									-			0.5 -
									-			
									L			1.0 —
									-			1.0
								35.42	1.20	~~~~~~;	Stiff brownish grey sandy gravelly CLAY. (Driller's Description).	
1.50	D1								Ī	~		1.5 -
1.50 - 1.95	SPT(S) N								-	-0-0:		
	(4,4/4,5	,5,5)							-	-0-0-		
									F	-0-0-		2.0
									-	-0-0		
									-			
												2.5 -
									ŀ	-0-0-		
									-	-0-0		
								33.62	- 3.00	Ţ,,	Strong dark grey LIMESTONE with white calcite mineralisation	3.0 —
											throughout. Slightly weathered: slightly reduced strength, slightly closer fracture spacing, rare light brown discolouration.	
									-		Discontinuities:	3.5 -
									_		1. 5-10 degree fractures closely spaced (20/115/340), planar,	
			90	80	50	8			-		undulating, rough with light brown discolouration on joint surfaces.	
									F		2. 40-45 degree fractures widely spaced (110/777/1650), undulating	4.0
									-		and rough.	
									_		3. 90 degree fractures from 4.35-4.50m, 5.75-6.00m and 6.50-6.55m,	
4.50									_		undulating and rough.	4.5 -
									-			
									Ī.			
									_			5.0 —
			92	85	70				-			
									_			5.5 -
									ŀ	+		
									-			
6.00			<u> </u>		_	12			F			6.0
									ļ			
									ţ			
									ŀ			6.5 -
6.70 - 7.10	C1		99	95	87				-			
									-			
									-			7.0 —
									ţ			
	1		TCR	SCR	RQD		<u> </u>					
Struck at (m) Ca		Strikes Time (min)	Rose	to (r	-	lema		nand dug t	o 1 20m			
22 30 (111) Ca	65 (111)	, , , , , , , , , , , , , , , , ,	1	(1						ater added	during coring.	
Casing De	etails	Core	Barre	el	\dashv							
	iam (mm)		<6L									
					1_							
		Flush	Тур	е	17	ermi	nation	Reason			Last Update	d
			ater		1			scheduled			23/05/2023	

	Percussion Comacchio 602 0.00								Projec		Project Client: Client's		Developme		ation		В	orehol RC0	
Metho Rotary Pero Rotary Co	cussion	Comacch	nio 60)2	0.	00	3.0 10.0	0	Coord 53688		Final De	pth: 10.00 m	Start Date:	30/03/2023	Driller:	GT		heet 2 Scale: 1	
Depth							Casing	Water	74354	8.39 N Depth	Elevatio	n: 36.62 mOD		30/03/2023	Logger	: DM	'n	FINA	
(m)	Samples /	Field Records	TCR	SCR	RQD	FI	Depth	Depth (m)	mOD	(m)	Legend	Character dead, and 110		ription			Water	Backfil	_
2.50 2.60 - 8.80 2.00 2.20 - 9.30 0.00		Strikes	TCR			ema		it han	26.62	1 20m		Strong dark grey LIN throughout. Slightly closer fracture spac Discontinuities: 1. 5-10 degree fract undulating, rough w 2. 40-45 degree fracture and rough. 3. 90 degree fracture undulating and rough.	weathered: sing, rare light tures closely spirit light brow ctures widely stress from 4.35-4	lightly reduced brown discolous paced (20/115/3 n discolouration spaced (110/77)	strength, s ration. 840), plana n on joint s 7/1650), u	ar, surfaces. ndulating			7.5 8.0 - 8.5 9.0 - 9.5 10.0 - 11.5 12.0 - 13.5 14.0 -
											ter added	during coring.							
Casing D	etails	Core	L Barre	el	\dashv														
	iam (mm)	Ç k	(6L																
	,	Sr.																	
		Flush	Тур	е	T	ermi	natio	n Re	ason							Last Up	date	ed 🔳	
		\\\\	ater			ormir	+	nt cch	neduled de	enth						23/05/	/2022		ō

Meti	2	Plant	SEC	DTE	ECI	H	Base	150	23-0	oct No. 0237	Project Client: Client's		1
Rotary I Rotary	Drilling	Comacch Comacch	nio 60	02	0.0		3.	50 .00	53649	98.64 E 90.15 N	Final De	Scale: 1	:40
Depth (m)	Samples	/ Field Records	TCR	SCR	RQD	FI	Casing Depth (m)	Water Depth (m)	Level mOD	Depth (m)	Legend	Description Backfill	
.50 - 1.58		N=50 (25 for 0 for 75mm)						[60]	42.17	1.20		Brown CLAY. Grey GRAVEL and BOULDERS (Driller's description)	1.0 - 2.0 - 2.5
.00			100	95	86	5 >20			39.87	3.50		Strong thickly laminated brownish grey LIMESTONE. Slightly weathered: Slightly reduced strength, slightly closer fracture spacing, occasional yellowish brown discolouration on fracture surfaces. Discontinuities: 1. 10-20 degree bedding fractures, closely spaced (20/95/500), undulating, smooth, with brownish grey staining on fracture surfaces. 2. Five 40-50 degree joints at 4.50m, 5.30m, 7.50m, 9.10m and 9.60m, undulating, rough, with brownish grey staining on fracture surfaces.	3.5 4.0 •
5.50				95	88	6							6.0 -
			TCR	SCR	RQD	FI				É			1
Casing		r Strikes i) Time (min) Core	Rose	e to (n	R n) In	ema ispec	tion p		nd dug to Idwater st		I ater added	during coring.	
		Flush		e	To	ermi	natio	on Re	ason			Last Updated	_
		Wa	ater		Te	ermin	nated	at sch	neduled d	epth.		23/05/2023	G

	C	Iling Comacchio 602 0.00							Proje	ct No. 0237	Project Client: Client's		Developme		ation		В	orehol	
Metho	od	Plant l	Jsed		Тор	(m)	Base	(m)	Coord	inates		-					ς.	heet 2	of 2
Rotary Dri Rotary Co	illing		io 60)2	0.0		3.5 10.0	0	53649		Final De	pth: 10.00 m	Start Date:	25/04/2023	Driller:	GT		Scale: 1	
notary co	711116	comacci	110 00	,,,	J.,	50	10.0			0.15 N	Elevatio	n: 43.37 mOD	End Date:	25/04/2023	Logger:	AK		FINA	L
Depth (m)	Samples /	Field Records	TCR	SCR	RQD	FI	Depth	Water Depth (m)	Level mOD	Depth (m)	Legend			cription			Water	Backfil	1
.00			100	83	83	5				- - - - - - - - - - - - - - - - - - -		Strong thickly lamin weathered: Slightly occasional yellowish Discontinuities: 1. 10-20 degree becundulating, smooth surfaces. 2. Five 40-50 degree 9.60m, undulating, surfaces.	reduced strem in brown disco dding fracture , with browning e joints at 4.50	ngth, slightly closiouration on fraction on fractions, closely spaced ship grey staining to the company of the	ser fractur cture surfa I (20/95/5 on fractur m, 9.10m	e spacing, aces. 00), e			7.5 8.0 -
.50										- - - -									9.0
			100	70	70	3				-									
																			10.5 11.0 11.5 12.0 13.5 14.0
	Water 9	Strikes	TCR	SCR	RQD	FI ema	rks												
Casing De	ising to (m)	Time (min)	Barre		n) Ir	spec	tion pi		nd dug to i		ter added (during coring.							
.5 (.11)		Flush	(6L	ρ	Т.	ermi	natio	n Re	ason							Last Up	date	d =	_
		riusn Wa		ت					eduled de							23/05/:		۳ <u> </u>	ᆛ



APPENDIX C
CORE PHOTOGRAPHS





RC01 Box 1 (3.50-5.00m)



RC02 Box 2 (5.00-6.50m)



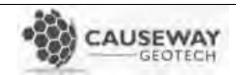
RC01 Box 3 (6.50-8.00m)



RC01 Box 4 (8.00-9.50m)



RC01 Box 5 (9.50-10.50m)





RC02 Box 1 (2.50-4.00m)



RC02 Box 2 (4.00-5.50m)



RC02 Box 3 (5.50-7.00m)



RC02 Box 4 (7.00-8.50m)



RC02 Box 5 (8.50-10.00m)





RC03 Box 1 (3.00-4.50m)



RC03 Box 2 (4.50-6.00m)



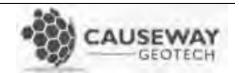
RC03 Box 3 (6.00-7.50m)



RC03 Box 4 (7.50-9.00m)



RC03 Box 5 (9.00-10.00m)





RC04 Box 1 (3.50-5.00m)



RC04 Box 2 (5.00-6.50m)



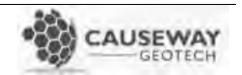
RC04 Box 3 (6.50-8.00m)



RC04 Box 4 (8.00-9.50m)



RC04 Box 5 (9.50-10.50m)





RC05 Box 1 (3.00-4.50m)



RC05 Box 2 (4.50-6.00m)



RC05 Box 3 (6.00-7.50m)



RC05 Box 4 (7.50-9.00m)





RC06 Box 1 (3.00-4.50m)



RC06 Box 2 (4.50-6.00m)



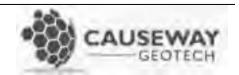
RC06 Box 3 (6.00-7.50m)



RC06 Box 4 (7.50-9.00m)



RC06 Box 5 (9.00-10.00m)





RC07 Box 1 (3.00-4.50m)



RC07 Box 2 (4.50-6.00m)



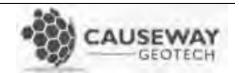
RC07 Box 3 (6.00-7.50m)



RC07 Box 4 (7.50-9.00m)



RC07 Box 5 (9.00-10.50m)





RC08 Box 1 (3.50-5.00m)



RC08 Box 2 (5.00-6.50m)



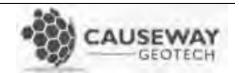
RC08 Box 3 (6.50-8.00m)



RC08 Box 4 (8.00-9.50m)



RC08 Box 5 (9.50-10.00m)





RC09 Box 1 (3.00-4.50m)



RC09 Box 2 (4.50-6.00m)



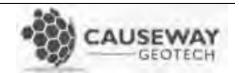
RC09 Box 3 (6.00-7.50m)



RC09 Box 4 (7.50-9.00m)



RC09 Box 5 (9.00-10.00m)





RC11 Box 1 (3.50-5.00m)



RC11 Box 2 (5.00-6.50m)



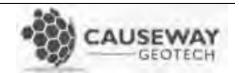
RC11 Box 3 (6.50-8.00m)



RC11 Box 4 (8.00-9.50m)



RC11 Box 5 (9.50-10.00m)





APPENDIX D
TRIAL PIT LOGS



	CALIS	EWAY		ect No.	1	: Name: vagh WF; Ground Investigation	Т	rial Pit ID
8	CAUS	EOTECH	Coord	dinates	Client:	y Developments		TP01
Method:			53563	30.50 E		s Representative:	Sk	neet 1 of 1
Trial Pitting			74358	83.82 N	Enerco	Energy		cale: 1:25
Plant:				ation	Date:	Logger:		FINAL
13T Tracked Depth	Excavator Sample /		32.58 Level	MOD Depth	22/03/		h	THVAL
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description TOPSOIL: Firm greyish brown slightly sandy CLAY with rootlets. San	Mage and is	
			32.38	0.20		fine to coarse. Firm light greyish brown slightly sandy CLAY. Sand is fine to coarse.		
).40	B1			-				-
			31.98	- - 0.60		Soft to firm light grey sandy gravelly CLAY with low cobble content.	Sand	0.5 —
				-		is fine to coarse. Gravel is subrounded fine to coarse of limestone. Cobbles are subrounded of limestone.		
.90	B2			-				10-
				-				
				-				
				-	a 74			1.5 -
				-				
80	В3			-				
				_				2.0 —
				-				
				-				
			30.08	2.50	**************************************	Firm to stiff light grey slightly sandy slightly gravelly SILT. Sand is fin	ne to	2.5 -
				-	X X X X	coarse. Gravel is subrounded fine to medium of limestone.		
					X X X X X X X X			
00	B4			- - -	X X X X			3.0 —
				-	XXXX			
					X X X X X X X X			
			29.08	- - 3.50	# 0000 0 0 0 0	End of trial pit at 3.50m		3.5 -
				- - -				
				- - -				4.0 —
				-				
				<u>-</u>				4.5 -
				-				
				-				
Wa	ater Strikes		Rem	narks:				
Struck at (n		Depth: 3.50 Width: 0.70		groundwat	er encou	ntered.		
		Length: 3.50						
		Stability:	Tern	nination R	leason	- 1	Last Update	
		Unstable	Term	inated due	to pit wal	s collapsing.	23/05/2023	AGS

			Proi	ect No.	Project	: Name:		Trial Pit ID
- 250	CALIC	FIACAN		-0237	1 -	vagh WF; Ground Investigation		
277	CAUS	EOTECH		rdinates	Client:			TP02
0,/		FOLECH			Turnke	y Developments		
Method:				512.78 E	Client's	s Representative:		Sheet 1 of 1
Trial Pitting			7439	72.98 N	Enerco	Energy		Scale: 1:25
Plant:			Ele	vation	Date:	Logger:		CINIAI
13t Tracked Ex	xcavator		47.4	6 mOD	17/04/	2023 MMC		FINAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
						TOPSOIL		
			47.26	0.20		Light grey very clayey fine to coarse SAND and angular to subang	nulas fina	_
						to coarse GRAVEL of limestone.	guiai iiile	-
0.40	B1			-				-
			46.96	0.50	0.00	Light grey very sandy silty angular to subangular GRAVEL of lime with medium cobble and boulder content. Sand is fine to coarse	stone	0.5 —
				-	0.0	are subangular of limestone. Boulders are subangular of limesto		
				-	0:0	(Possible weathered bedrock)		_
				-	0:00			_
					0::0:			1.0
1.20	B2			-	0:00			
				_	0::0			_
			46.06	1.40	0500	End of trial pit at 1.40m		_
				-				1.5 —
				_				
				-				_
								-
				-				2.0
				-				
				-				
				-				_
				-				2.5
				Ė				
				-				_
				-				_
				-				3.0
				-				_
				_				_
				-				3.5 —
				-				-
				-				
				Ė				-
				-				4.0
				-				
				-				
				-				-
				-				4.5
				-				
				-				
				-				_
				<u> </u>	\perp			
	er Strikes	Depth: 1.40	- 1	narks:			<u>'</u>	
Struck at (m)	Remarks	Width: 1.00	No	groundwat	er encou	nterea.		
		Length: 2.50						
		Stability:	Ter	mination R	leason	I	Last Updat	ed
		Unstable		ninated on p		rdrock.	23/05/202	
i		STISTUDIE	leii	accu 011 þ	שלו שומוכב.		20,00,202	1:100

0.0			Proj	ect No.	Projec	t Name:	1	rial Pit ID
	CALIS	EMAY		-0237		vagh WF; Ground Investigation		
HOH!	CAUS	EOTECH	Coor	dinates	Client:			TP03
		JEO I ECIT	5382	79.07 E		y Developments		
Method:				08.34 N		s Representative:		heet 1 of 1
Trial Pitting Plant:				vation	Enerco Date:	Energy	9	Scale: 1:25
13T Tracked E	xcavator			1 mOD	23/03/	Logger: 2023 MMC		FINAL
Depth	Sample /	Field Records	Level	Depth	Legend	Description	Water	
(m)	Tests	Tiela Records	(mOD)	(m)	Legend	TOPSOIL	×	
				ŀ				
			40.76	0.25	X-X-X-2	Firm light brownish grey sandy gravelly SILT. Sand is fine to coarse.	Gravel	
				-	XXXX XXXX	is subangular to subrounded fine to medium of limestone.		-
0.60	B1			ŀ	XXXX			0.5
0.00	BI			-	XXXX			_
				-	X X X X			_
				_	Cocx			1.0
				-	XXXX			
				-	XXXX			-
1.30	B2			ŀ	X X X 3			
				-	XXX			1.5 —
				-	XXXX			-
			39.21	1.80	XXXX			
			33.21	1.00		End of trial pit at 1.80m		_
				-				2.0
				-				
				-				_
				[
								2.5 —
								_
				-				
				[3.0
								-
				ŀ				
								_
				-				3.5 —
				-				
				<u> </u>				-
				}				-
				-				4.0 —
				<u> </u>				-
				<u> </u>				
				-				4.5 —
				-				-
				Ė				
				}				
	er Strikes	Depth: 1.80		narks: groundwat	ter encou	ntered		
Struck at (m)	Remarks	Width: 0.70	I NO !	₅ , oundwdl	ici encou	mereu.		
		Length: 3.50						
		Stability:	Terr	mination R	Reason		Last Update	ed 🔲
		Unstable	Tern	ninated on p	oossible be	edrock.	23/05/2023	AGS

•			Proj	ect No.	Project	t Name:		Т	rial Pit ID
2	CALIS	EWAY	23-	-0237	Laurcla	vagh WF; Ground Investigation			
525	CAUS	EOTECH	Coor	dinates	Client:				TP05
			5384	93.40 E		y Developments			
Method: Trial Pitting				23.97 N		s Representative: Energy			neet 1 of 1
Plant:			Elev	vation	Date:		Logger:	5	cale: 1:25
13T Tracked E	xcavator			1 mOD	23/03/		MMC		FINAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water	
0.50	В1		39.44	0.30		TOPSOIL: Firm brown sandy CLAY with rootlets Light brownish grey subangular COBBLES and BOULDE with some sandy gravelly clay. Sand is fine to coarse. C subrounded to subangular fine to coarse of limestone	Gravel is	tone	0.5
			38.84	0.90	0.00	End of trial pit at 0.90m			1.0
				-					- - -
				-					1.5 —
									2.0 —
				-					2.5 —
									-
				- - - - - -					3.0
				- - - - - - -					3.5 —
				- - - - - -					4.0
				-					4.5 —
				-					
	er Strikes	Depth: 0.90		narks:		ntanad			
Struck at (m)	Remarks	Width: 0.80	No g	groundwat	er encou	ntered.			
		Length: 3.00							
		Stability:	Terr	nination R	leason			Last Update	d
		Stable	Term	ninated on p	ossible be	edrock.		23/05/2023	AGS

			Proi	ect No.	Project	Name:			rial Pit ID
200	-			-0237	1 -	vagh WF; Ground Investigation		•	TIGHT ICID
	CAUS	EWAY		dinates	Client:	,			TP06
-07		EOTECH				y Developments			
Method:				23.12 E	1	s Representative:		SI	heet 1 of 1
Trial Pitting			7438	98.73 N		Energy			Scale: 1:25
Plant:			Ele	vation	Date:		.ogger:		
13T Tracked E	xcavator		49.39	mOD	28/03/		ИМС		FINAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water	
				-		TOPSOIIL: Firm brown slightly sandy CLAY with rootlets. coarse.	Sand is fine to		
			49.09	0.30	704	Firm light grey slightly gravelly sandy CLAY with low cob content. Sand is fine to coarse. Gravel is subrounded fin			_
0.60	B1			-		limestone. Cobbles and boulders are subrounded of lim			0.5 —
				- - -					_
				- - -					1.0
				-	0.0				-
									-
1.50	B2			-	0.0 0.0				1.5 —
				-	0-0				-
				-					2.0
				-					_
					0-0				
2.60	В3		46.89	- 2.50 -	0 :0 0 :0	Stiff light brownish grey slightly gravelly sandy CLAY with boulder content. Sand is fine to coarse. Gravel is subang subrounded fine to coarse.			2.5 —
				-	0.0				_
				- - -					3.0 —
3.30	B4			-	001 001				-
					0.0				3.5 —
			45.79	3.60	C/45.845%	End of trial pit at 3.60m			-
				-					-
				-					4.0 —
				-					
				- - -					4.5 —
									-
				-					_
Wate	er Strikes		Rem	narks:	1				
Struck at (m)		Depth: 3.60	1	groundwat	er encou	ntered.			İ
,		Width: 0.60							
		Length: 3.00							
		Stability:	Terr	nination R	leason		Last l	Jpdate	ed 🔃
		Stable	Term	ninated on r	efusal in v	ery stiff clay.	23/0	5/2023	AGS

4.5				Project No. 23-0237 Coordinates 537204.42 E		Project Name: Laurclavagh WF; Ground Investigation Client: Turnkey Developments Client's Representative:		
H.S.	Coor							
-0,/								
Method:								
Trial Pitting Plant:				743569.80 N Elevation		Enerco Energy		
						Date: Logge 24/03/2023 MMC		FINAL
13T Tracked Excavator				39.20 mOD		2023 MMC		
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
				-		TOPSOIL: Firm brown slightly sandy CLAY with rootlets		
			38.95	0.25				
			36.93	0.23	X X X X	Stiff grey slightly gravelly sandy SILT with medium cobble and bou content. Sand is fine to coarse. Gravel is subangular to angular fin		
0.50	B1			Ė	××××	medium of limestone. Cobbles are subangular of limestone. Bould		0.5 —
0.30				-		subrounded of limestone.		-
				Ė	W.X.X.			_
			38.40	0.80	2.545.5	End of trial pit at 0.80m		-
				-				10
				-				1.0 —
				ŧ				-
				<u> </u>				-
				-				1.5
				[1.5 —
				-				_
				[-
				-				-
								2.0 —
				<u> </u>				_
				[-
				-				
				Ē				2.5 —
				-				
				[
				-				-
				-				3.0 —
				<u> </u>				
				<u> </u>				
				-				-
				[3.5 —
				<u>-</u>				
				-				-
				<u>-</u>				-
				-				4.0 —
				<u> </u>				_
				[-
				<u> </u>				-
				[4.5 —
				<u>-</u>				_
				-				-
				<u>}</u>				-
_	G: "			narks:				
Wate Struck at (m)	er Strikes Remarks	Depth: 0.80	1	narks: groundwat	er encou	ntered.		
50. 30K at (111)	Nemarks	Width: 0.70						
		Length: 3.00						
		Stability:	Terr	mination R	leason		Last Updat	ted
		Tern	Terminated on possible bedrock. 23/05,					

	CALISEMAN			Project No. 23-0237 Coordinates		Project Name: Laurclavagh WF; Ground Investigation Client:				
CAUSEWAY						Turnkey Developments			TP08	
Method:		537713.99 E 743859.60 N Elevation		Client's Representative: Enerco Energy			Sheet 1 of 1 Scale: 1:25			
Trial Pitting									/438	
Plant:					Date:			FINAL		
13T Tracked E				2 mOD	28/03/	2023 MM	С		TINAL	
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water		
		Field Records		0.30 - 0.30 - 2.50 - 2.50	Legend TOPSOIL: Firm brown slightly sandy CLAY with rootlets. Sand coarse. Firm light brownish grey slightly sandy slightly gravelly CLAY to coarse. Gravel is subangular to subrounded fine to coarse to coarse. Gravel is subangular to subrounded fine to coarse to coarse with the subrounded fine to coarse to coarse subrounded fine to coarse to coarse. Gravel is subangular to subrounded fine to coarse to coarse subrounded fine to coarse to coarse fine to coarse subrounded fine to coarse to coarse subrounded fine to coarse to coarse fine to coarse subrounded fine to c	Sand is fine . Sand is fine .	Wate	1.5 — 2.0 — 3.0 — 4.0 — 4.5 — 4.5 — 4.5 —		
				<u> </u>						
				Ė					-	
			\pm							
	r Strikes	Depth: 2.50	1	narks:						
Struck at (m)	Remarks	Width: 0.60	No {	groundwat	er encou	nterea.				
		Length: 3.00								
		Stability:	Torre	mination R	lascon		Last Up	data		
						desde			, CO	
		Unstable	Tern	Terminated on possible bedrock. 23/						



APPENDIX E
TRIAL PIT PHOTOGRAPHS







TP01



TP01



TP01





TP01



TP01



TP01





TP01





TP01





TP01



TP02



TP02





TP02







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TP02



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TP03





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TP03







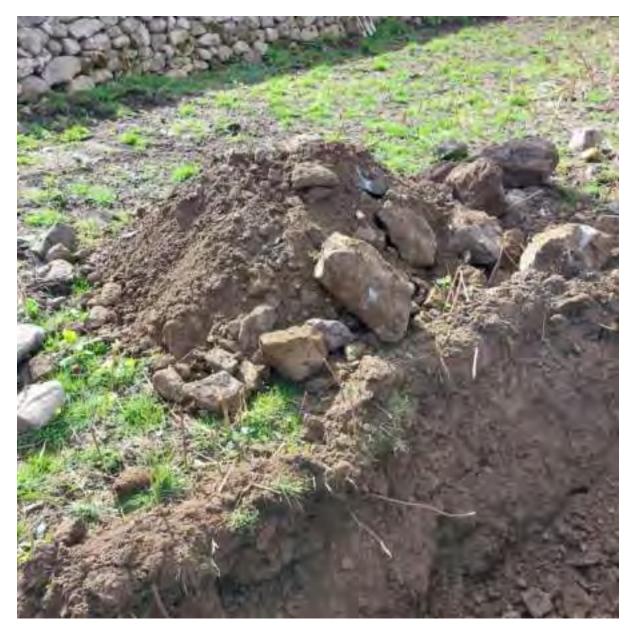
TP03



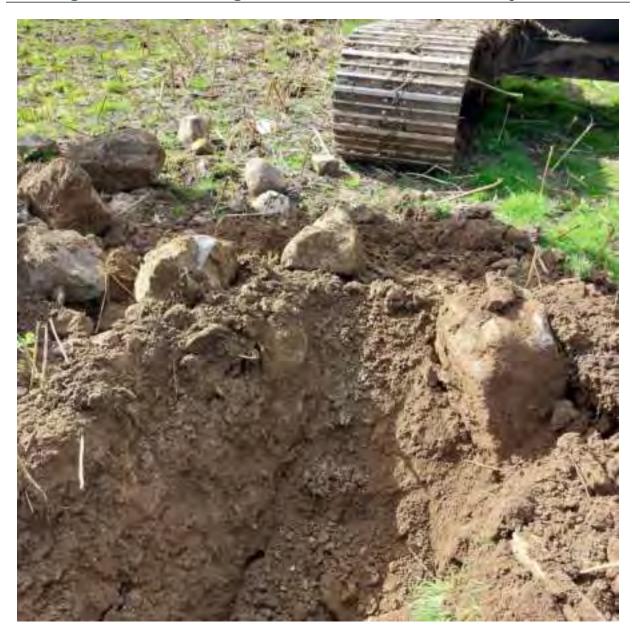




TP03



TP05



TP05







TP05





TP05







TP05







TP05







TP05



TP05

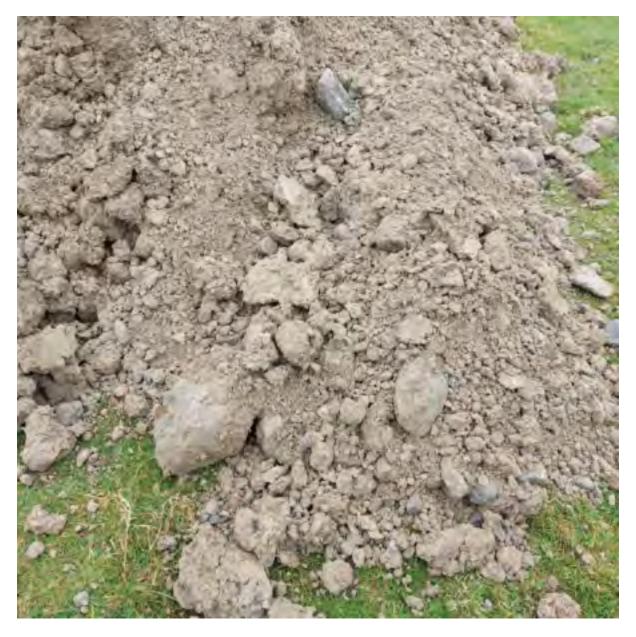






TP06





TP06





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TP06



TP06





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TP08

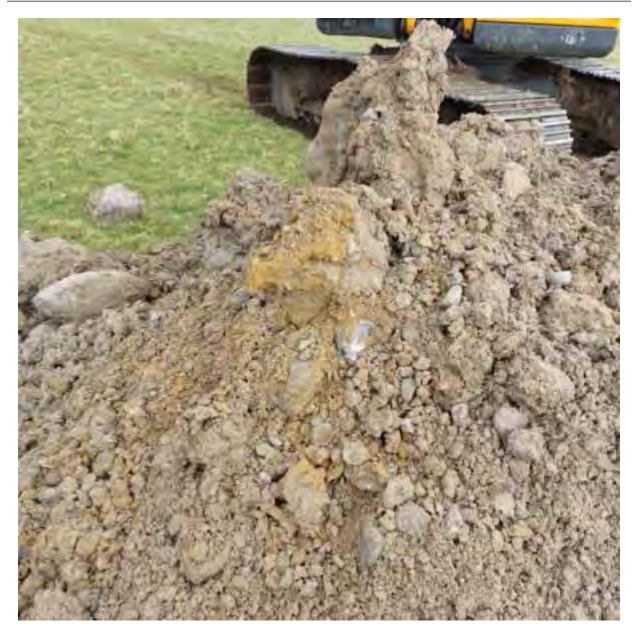




TP08







ITP01







ITP01







ITP01





ITP01

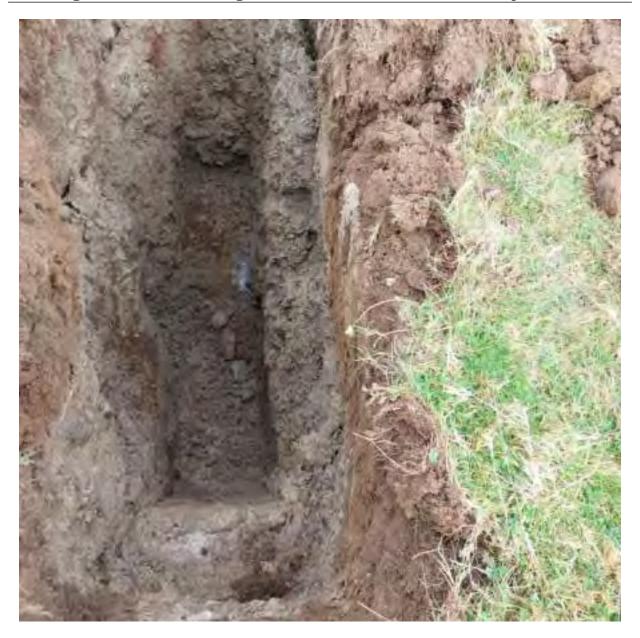






ITP01





ITP01





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ITP02







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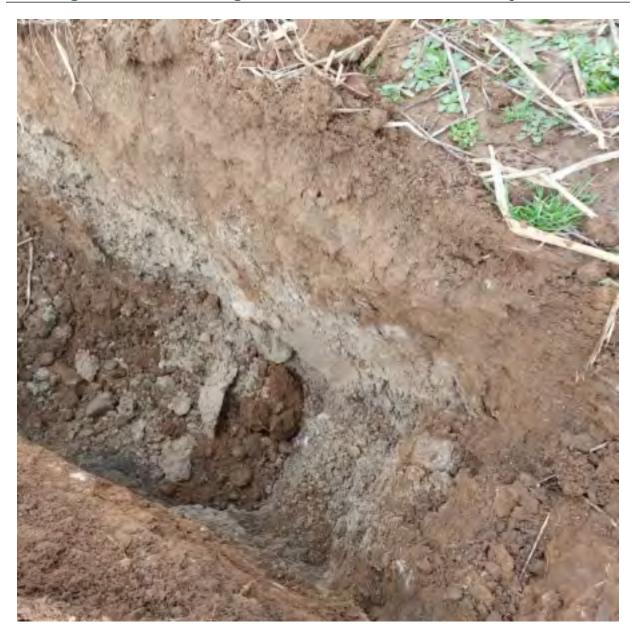
ITP04





ITP04





ITP04





ITP04





ITP04





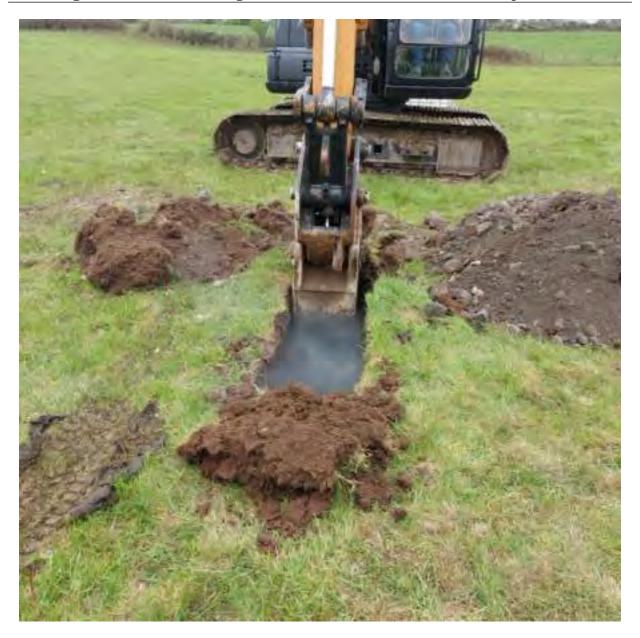
ITP04





ITP05





ITP05





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ITP06





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ITP07



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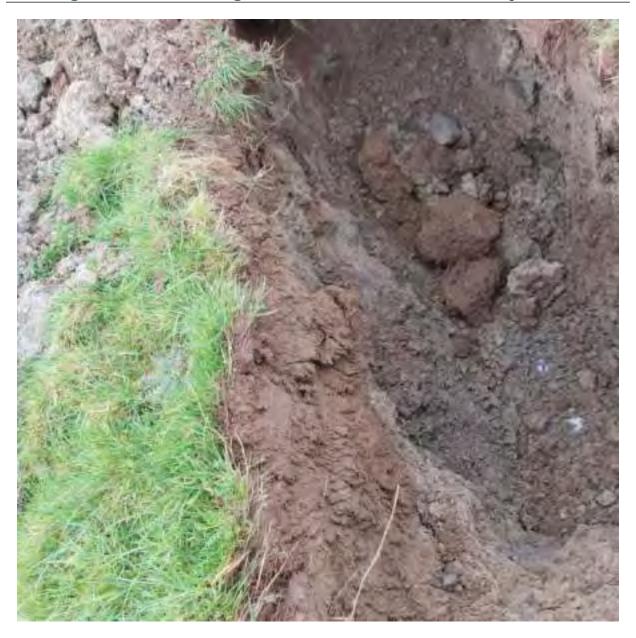


ITP07



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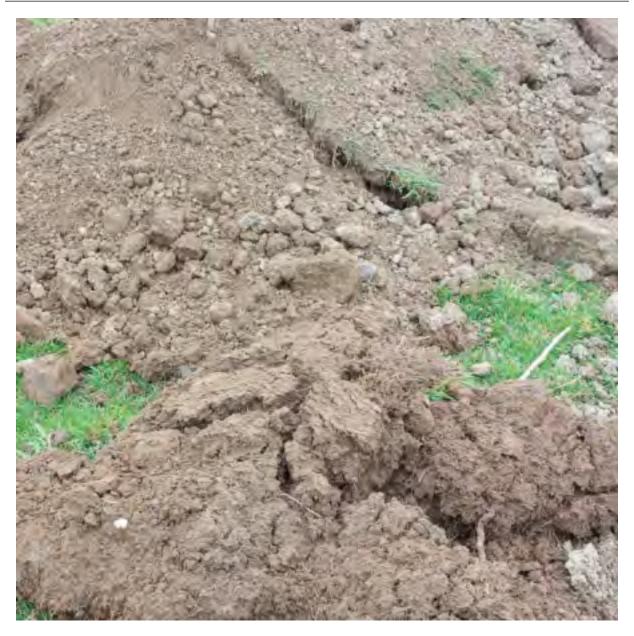




ITP10







ITP10

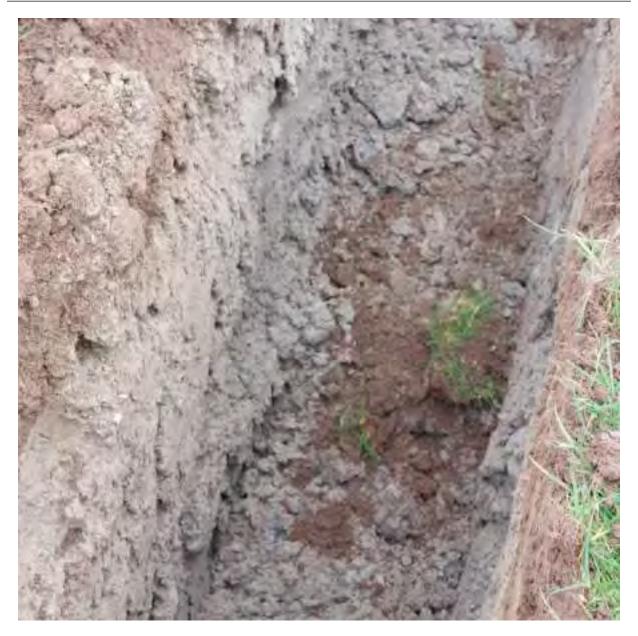




ITP10







ITP10





ITP10







ITP10



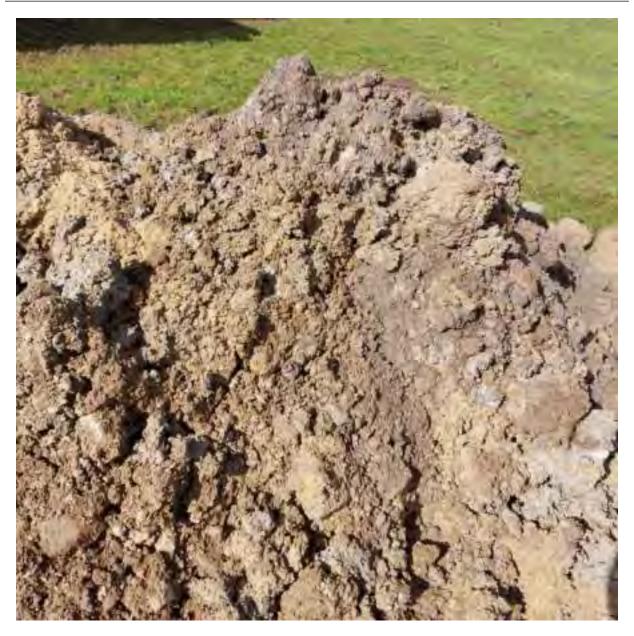




ITP11

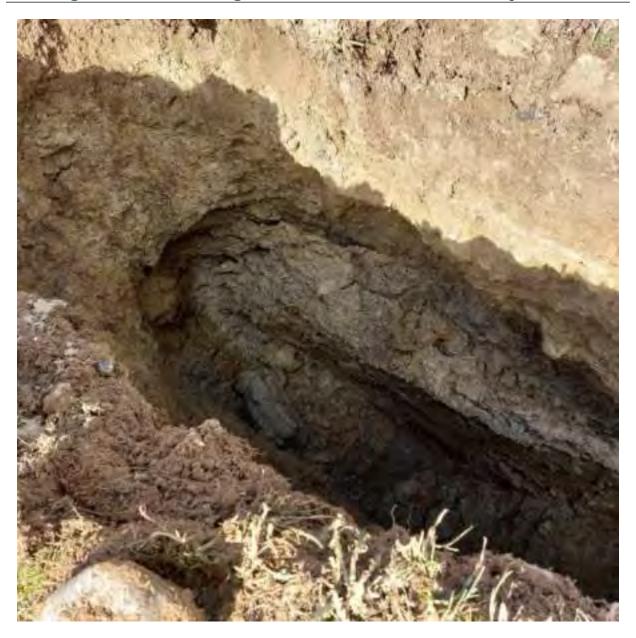






ITP11





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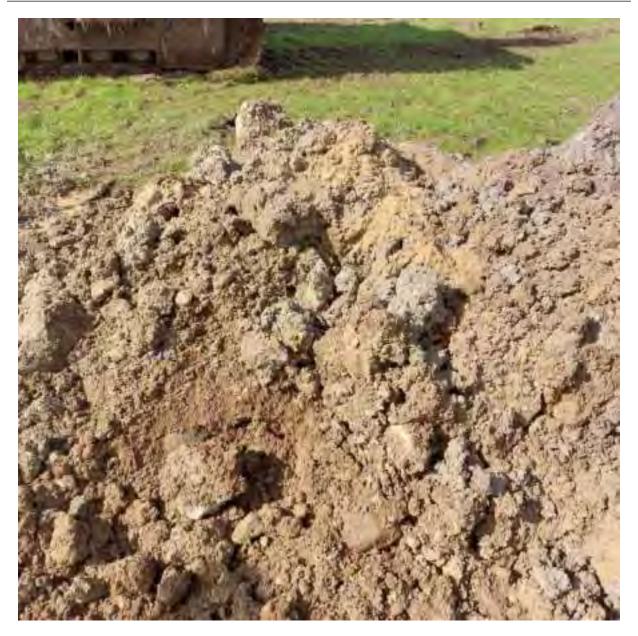
ITP11





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APPENDIX F
INFILTRATION TEST LOGS AND



4.4			Proi	ect No.	Proiect	t Name:		Т	rial Pit ID	
	CALIS	FINAN		-0237	Laurclavagh WF; Ground Investigation					
208	CAUS	EWAY	Cooi	dinates	Client:			-	ITP01	
-07		BEOTECH	5277	88.42 E	1	y Developments				
Method:				08.44 N		s Representative:			eet 1 of 1	
Trial Pitting						Energy		Scale: 1:25		
Plant: 13T Tracked E	xcavator			vation 9 mOD	Date: 28/03/		ogger: MC		FINAL	
Depth	Sample /	Field Records	Level	Depth	Legend	Description	1110	Water		
(m)	Tests	Field Records	(mOD)	(m)	Legenu	TOPSOIL: Firm brown slightly sandy CLAY with rootlets. Sa	and is fine to	W		
				-		coarse.			_	
			48.09	0.30						
0.40	B1			-		Firm orangish brown slightly sandy CLAY. Sand is fine to o	oarse.		_	
			47.89	0.50	0+.04	Firm light brownish grey slightly gravelly sandy CLAY with			0.5 —	
				-	0.0	content and one boulder. Sand is fine to coarse. Gravel is to coarse of limestone. Cobbles are subangular to subrou				
				-	0-04	limestone. Boulder is subrounded of limestone.			_	
1.00				-	004				-	
1.00	B2			-	202				1.0	
				<u> </u>	XX				-	
			47.09	1.30		Firm to stiff light brownish grey slightly sandy slightly gra			-	
				-	0.0	low cobble and low boulder content and some pockets of brown very sandy CLAY. Sand is fine to coarse. Gravel is su			1.5 —	
					0.0	to medium of limestone. Cobbles are subangular to subro limestone. Boulders are subrounded of limestone.	ounded of		-	
				-	0.0				-	
				-	0.0]	
2.00	В3			-					2.0	
				-	0-0				-	
									1	
				<u> </u>					-	
				-					2.5 —	
2.70	B4				0.0				1	
			45.59	2.80	A 943	End of trial pit at 2.80m			-	
									-	
				-					3.0	
				-					_	
				[-	
				-					3.5 —	
									_	
				<u> </u>					-	
				-						
				-					4.0	
				}					\dashv	
				[
				Ė					-	
				}					4.5 —	
				-						
				<u> </u>					-	
				[-	
141-	or Christon		Ron	narks:						
Struck at (m)	er Strikes Remarks		No	groundwat		ntered.				
,		Width: 0.60	Soa	kaway com	pleted.					
		Length: 3.00						al. c		
		Stability:		mination R			Last Up			
l		Stable	Tern	ninated on p	ossible be	еагоск.	23/05/	2023	AUGS	

20%		Project No.		Project	Name:		Trial Pit ID		
200	CALIS	EWAY	23	-0237	Laurcla	vagh WF; Ground Investigation			
32	CAUS	EOTECH	Cooi	rdinates	Client:			IT	P02
- 4/	17		5365	599.98 E	1	y Developments			
Method:				864.08 N		Representative:			et 1 of 1
Trial Pitting Plant:			Fle	vation	Date:	Energy Logger	··	Scal	e: 1:25
13t Tracked Exc	avator			9 mOD	17/04/				NAL
Depth	Sample /	Field Records	Level	Depth	Legend	Description		water	
(m)	Tests	Tield Records	(mOD)	(m)	Legena			Š	
	B1		54.09	0.20		Firm to stiff light grey slightly sandy slightly gravelly CLAY. Sand coarse. Gravel is subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subangular to subrounded fine to medium of light gravelly subro	is fine to		1.5 —
				-					_
				-					4.5 —
				-					-
				-					-
				-]
				-				-	
Water	Strikes	Darth: 4.00		narks:	1				
Struck at (m)	Remarks	Depth: 1.00		groundwat		ntered.			
		Width: 0.50	Soa	kaway com	pleted.				
		Length: 2.00	\perp						
		Stability:	Teri	mination R	eason		Last Upda	ted	
		Stable	Tern	ninated on p	ossible be	drock.	23/05/20	23	AGS

4.4			Proi	ect No.	Project	t Name:	 	Trial Pit ID
	-	FIACAN		-0237	1	vagh WF; Ground Investigation		
2027	CAUS	EOTECH		dinates	Client:			ITP03
0/		FOLECH			Turnke	y Developments		
Method:				84.54 E	1	s Representative:	· · · · ·	Sheet 1 of 1
Trial Pitting			7435	52.95 N		Energy		Scale: 1:25
Plant:			Ele	vation	Date:			
13T Tracked Ex	kcavator		39.8	0 mOD	24/03/			FINAL
Depth	Sample /	Field Records	Level	Depth	Legend	Description	Water	
(m)	Tests		(mOD)	(m)	\/\\\\	TOPSOIL: Firm brown slightly sandy CLAY with rootlets		
			39.65	0.15		Light grey subangular BOULDERS of limestone with high cobble o	content	
				-	000	and some sandy slightly clayey gravel. Sand is fine to coarse. Gra		
				-	000	subangular to angular fine to coarse of limestone. Cobbles are subangular to angular of limestone.		_
0.50	B1			-	000			0.5 —
				-	000			-
					000			
				-	000			
			38.80	1.00	000	End of trial pit at 1.00m		1.0
						End of that pical 1.00III		
				-				
				Ė				
				-				1.5
				-				_
				-				-
				-				-
				_				2.0 —
				-				
				-				_
								-
				-				-
				-				2.5 —
				-				
				-				-
								_
				-				3.0
				-				
								_
				-				3.5 —
				[
				-				
				-				
				-				4.0
				-				-
				-				
				-				
				-				4.5
				-				
				-				
				-				
Wate	r Strikes		Ren	narks:	1	I		
Struck at (m)	Remarks	Depth: 1.00	No	groundwat		ntered.		
		Width: 0.70	Soa	kaway com	pleted.			
		Length: 1.80						
		Stability:	Teri	mination R	leason		Last Update	
		Stable	Tern	ninated on p	ossible be	edrock.	23/05/202	3 AGS

			Proi	ect No.	Project	t Name:		т.	ial Pit ID		
201				-0237	Laurclavagh WF; Ground Investigation				I I I I I I I I I I I I I I I I I I I		
	CAUS	EWAY		dinates	Client:				ITP04		
-0,7	G	EOTECH				y Developments					
Method:				20.32 E		s Representative:		Sh	eet 1 of 1		
Trial Pitting			7438	11.54 N		Energy			cale: 1:25		
Plant:			Ele	vation	Date:	Logge	r:				
13T Tracked Exc	cavator		40.01	l mOD	23/03/	2023 MMC			FINAL		
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water			
(111)	16313		(IIIOD)	- (111)	X//X/	TOPSOIL: Firm brown slightly sandy CLAY with rootlets. Sand is	fine to				
						coarse.					
			39.76	0.25	23.2	Firm light grey sandy gravelly CLAY with low cobble content. Sa			_		
				[23.22	to coarse. Gravel is subrounded fine to coarse of limestone. Co subrounded of limestone.	bbles are		-		
				-					0.5		
				-							
				-					-		
				-					-		
									1.0		
				-	2 2 2				4		
					25 2 T				_		
			38.61	1.40	a	Firm light grey sandy gravelly CLAY with low boulder content. S					
				-	2	to coarse. Gravel is subrounded fine to coarse of limestone. Bo subrounded of limestone.	ulders are		1.5 —		
				-	0 - D				-		
				[0 D				-		
				-	a in Dr				20		
				-	200 Dr				2.0		
					0 D				-		
				-	0 - Dr				-		
					0°-0°				2.5 —		
				-	o br				-		
				-	o br				-		
			37.21	2.80		End of trial pit at 2.80m					
				-					3.0		
									-		
				-					-		
				-							
				-					3.5 —		
				-					-		
				-							
				-							
				L					4.0		
				-]		
				-					-		
				-					4.5		
									-		
				-					-		
147-4	Ctriles		Ran	narks:							
Struck at (m)	Strikes Remarks	Depth: 2.80	No §	groundwat		ntered.					
-, /		Width: 0.80	Soal	kaway com	pleted.						
		Length: 3.50									
		Stability:		nination R			Last Upo				
		Unstable	Term	ninated on p	oossible be	edrock.	23/05/2	2023	AUGS		

			Proi	ect No.	Project	Name:		Trial Pit ID
400		CELAZAN		-0237		vagh WF; Ground Investigation		
777	CAUS	SEWAY GEOTECH	-	dinates	Client:	<u>-</u> . C		ITP05
-0,/		GEOTECH			1	y Developments		
Method:				58.34 E	Client's	Representative:		Sheet 1 of 1
Trial Pitting				42.61 N	Enerco	Energy		Scale: 1:25
Plant:				vation	Date:		ger:	FINAL
13T Tracked Exc				l mOD	25/04/	2023 MN		
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
(m)	Tests	Field Records	25.01 25.01	(m) - 0.10	Legend	TOPSOIL Light grey slightly gravelly very clayey fine to coarse SAND ocobble content. Gravel is subangular to subrounded fine to Cobbles are subangular to subrounded of limestone. End of trial pit at 1.30m	with low	1.0 — 1.5 — 2.0 — 3.5 — 4.0 — 4.5 —
				_				
Water	Strikes		Rem	narks:				
Struck at (m)	Remarks	Depth: 1.30	No g	groundwat				
		Width: 0.60	Soal	kaway carr	ied out a	t 0.70m.		
		Length: 3.50						
		Stability:	Terr	mination R	eason		Last Updat	ed
		Stable	Term	ninated on p	ossible be	drock.	23/05/202	

4.4			Proi	ject No.	Proiec	t Name:		Т	rial Pit ID
	CALIC	TIMAN		-0237	Laurclavagh WF; Ground Investigation				
+5H	CAUS	EOTECH	Cool	rdinates	Client:				ITP06
-07		BEOTECH	530/	157.42 E	1	y Developments			
Method:				774.26 N	1	s Representative:			neet 1 of 1
Trial Pitting						Energy	Te	S	cale: 1:25
Plant: 13T Tracked E:	xcavator			vation 8 mOD	Date: 20/03/	2023	Logger: MMC		FINAL
Depth	Sample /	Field Records	Level	Depth	Legend	Description	1	Water	
(m)	Tests	Tield Records	(mOD)	(m)	Zegend	TOPSOIL		×	
			29.88	0.20					
			29.00	0.20		Soft to firm light orangish brown slightly sandy CLAY. S coarse.	Sand is fine to		
0.40	B1			_					-
			29.58	0.50	XXXX	Stiff light grey slightly sandy slightly gravelly SILT with			0.5
				-	X X X X	content. Sand is fine to coarse. Gravel is subangular fi Boulders are subangular to angular of limestone.	ne to coarse.		
				_	XXXX				-
				_					1.0
				-	*****************				-
1.20	B2				**********				-
				-	******				-
				-					1.5 —
									_
			20.20	1.80	X X X Y				-
			28.28	1.60		End of trial pit at 1.80m			4
									2.0
				-					-
				-					_
				-					2.5 —
				-					_
				-					-
				-					3.0 —
				-					_
				-					-
				-					3.5 —
									_
				-					-
				-					
				-					4.0
				-					-
				-]
									-
				-					4.5 —
				-					
									-
				-					
Wate	r Strikes		Rer	narks:					
Struck at (m)	Remarks	Depth: 1.80	No	groundwat		ntered.			
		Width: 1.00 Length: 2.50	Soa	ikaway com	pleted.				
		Stability:	Torr	mination R	leason			Last Update	d
		Stability.		minated on p		edrock	[]	23/05/2023	
İ		June	1 1611	uccu OII þ	SOSIDIE DE			20,00,2023	1:100

			Proi	ect No.	Project	: Name:		Т	rial Pit ID	
201		and the second		-0237		vagh WF; Ground Investigation		1110111010		
	CAUS	SEWAY	_	dinates	Client:				ITP07	
0,/		SEOTECH				y Developments				
Method:				60.65 E	1	s Representative:		Sh	eet 1 of 1	
Trial Pitting			7437	43.99 N	Enerco	Energy			cale: 1:25	
Plant:			Ele	vation	Date:	Logg		FIL		
13T Tracked Ex	cavator) mOD	21/03/	2023 MM	С		FINAL	
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		Water		
0.80	B1		30.95	0.35	ないない。	Firm light grey mottled light brown gravelly very sandy CLAY medium cobble and high boulder content. Sand is fine to co is subangular fine to coarse of limestone. Cobbles are suban limestone. Boulders are subangular of limestone.	with arse. Gravel		0.5 —	
1.50	В2		30.10	1.20		Stiff light grey sandy gravelly CLAY with medium cobble and content and some light greyish brown sandy slightly gravelly fine to coarse. Gravel is subangular fine to medium. Cobbles subangular to angular of limestone. Boulders are angular to of limestone.	clay. Sand is are		1.5 —	
			29.50	1.80	77774	End of trial pit at 1.80m			-	
				-					20	
				-					2.0	
									_	
				-					-	
				-					2.5 —	
				-					_	
				-					-	
				-						
				-					3.0	
									-	
				_						
				-					_	
									3.5 —	
				-						
				-					_	
				-					-	
				-					4.0	
				<u>-</u>					-	
									-	
				-					4.5 —	
				<u> </u>					-	
									-	
				-						
				-						
Water	r Strikes	Depth: 1.80	1	narks:	1					
Struck at (m)	Remarks	Width: 1.00		groundwat kaway com		ntered.				
		Length: 3.00		,	-					
		Stability:	Terr	nination R	eason		Last Up	date		
		Stable	Term	ninated on p	ossible be	drock.	23/05/	2023	AGS	

•			Proj	ect No.	Project	Name:		1	rial Pit ID
200	CALIS	EWAY	23	-0237	Laurcla	vagh WF; Ground Investigation			
+24	CAUS	EOTECH	Coor	dinates	Client:				ITP08
-01	· ·		5349	76.50 E	1	y Developments			
Method:				77.84 N		s Representative:			heet 1 of 1
Trial Pitting						Energy	Te	5	Scale: 1:25
Plant: 13T Tracked Ex	cavator			vation 5 mOD	Date: 22/03/	2022	Logger: MMC		FINAL
Depth Depth	Sample /		Level	Depth			IVIIVIC	e	
(m)	Tests	Field Records	(mOD)	(m)	Legend	Description TOPSOIL: Firm brown sandy CLAY with rootlets. Sand	is fine to coa	Water	
			30.05	0.10	0 0 m 0	Brown subangular to subrounded COBBLES of limesto	ne with muc	h	_
				-	0.000	sandy gravelly clay. Sand is fine to coarse. Gravel is su coarse of limestone.	brounded fin	e to	_
				[0 0 m 0	sease of minestone.			
				Ė	0.00				0.5 —
0.60	B1				0.00				-
				Ė	0.2				
				-	0.20				_
				-	0.000				1.0
				<u>-</u>	0.000				-
			28.85	1.30	0 0 mg 0				
				‡		Light grey very sandy clayey subrounded fine to coars limestone. Sand is fine to coarse.	e GRAVEL of		_
1.50	B2			-					1.5 —
				Ė					
			28.35	1.80		End of trial pit at 1.80m			_
						End of that pit at 1.00m			-
				-					2.0
				[
				Ė					_
				-					-
									2.5
				ŀ					-
				-					-
									3.0
									_
				[-
				-					
				<u> </u>					3.5 —
				<u> </u>					
				-					
				Ė					-
				-					4.0
				-					
				<u>-</u>					_
				[-
				<u> </u>					4.5
				<u> </u>					
				[-
				-					_
Water	Strikes		Ren	narks:					
Struck at (m)	Remarks	Depth: 1.80	No	groundwat		ntered.			
		Width: 0.70 Length: 2.50	Soa	kaway com	ipieted.				
		Stability:	Torr	mination R	bason			Last Update	od 💻 💶
		Stability.		ninated on p		drock		23/05/2023	
		Stable	lein	imateu on p	vossinie de	urock.		23/03/2023	AUS

202			Proj	ject No.	Project	Name:		Tria	al Pit ID
O HOLL	CALIS	SEWAY	23	-0237	Laurcla	vagh WF; Ground Investigation			
H	CAUS	GEOTECH	Cooi	rdinates	Client:			ľ	ТР09
-0//		32012011		Е	1	y Developments			
Method:				N		Representative:		She	et 1 of 1
Trial Pitting					Enerco			Sca	ıle: 1:25
Plant:			Ele	vation	Date:	Logge	er:		INAL
13t Tracked Exc	cavator			mOD	17/04/	2023 MMC		Г	IIVAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description		water	
(,	1000		(02)	- (,	X/\X	TOPSOIL: Firm brown slightly sandy CLAY. Sand is fine to coars			
				0.20					
0.30	B1			0.20		Firm light brown slightly sandy slightly gravelly CLAY. Sand is fi coarse. Gravel is subangular to subrounded fine to coarse.	ne to		
				0.40			to coorse		_
				-		Firm light grey slightly sandy slightly gravelly CLAY. Sand is fine Gravel is subrounded fine to medium.	e to coarse.		0.5 —
									-
				-					_
				-					
1.00	B2			_					1.0
1.00	-			-					4
				-					4
									-
									-
				-					1.5 —
				1.60	25.25	Firm light brown mottled light grey sandy gravelly CLAY with r			
				[cobble content. Sand is fine to coarse. Gravel is subrounded fi coarse of limestone. Cobbles are subrounded of limestone.	ne to		
				-					_
2.00	В3			-					2.0
					2.1				-
									-
				2.30	3.1	Light grey mottled light brown very sandy silty subangular fine	e to coarse		_
				-	19 (19 (19 (19 (19 (19 (19 (19 (19 (19 (GRAVEL with medium cobble and boulder content. Sand is fin Cobbles are angular of limestone. Boulders are angular of limestone.			
				[3.2.4	(Possible weathered bedrock).	estorie.		2.5
					4 (c) * 17(1)				_
				-	14 (c) 1 (d) 1				4
				-	A (c) * * * * * * * * * * * * * * * * * * *				-
3.00	B4			-	4 (c) * * * * * * * * * * * * * * * * * * *				3.0
				-	4 Sc 7 7 1 3				-
				3.20	THE DOMEST	End of trial pit at 3.20m			_
				[
				-					3.5 —
				-					_
				[4
				-					4
				-					\dashv
				-					4.0
				-]
				-					_]
				-					4
				E					4.5
				-					4
				-					\dashv
				-					- 1
				-					
\A/=+	Strikes		Ron	narks:					
Struck at (m)	Strikes Remarks	Depth: 3.20	1	groundwate	er encou	ntered.			
Juliack at (III)	Nemarks	Width: 1.20		kaway com					
		Length: 3.50							
		Stability:	Teri	mination R	eason		Last Upda	ted	
		Unstable	Tern	minated on p	ossible be	drock.	23/05/20	23	AGS
	I .	i	- 1				1		4 (4 (6)

•			Proj	ect No.	Project	t Name:	1	rial Pit ID
CHAN	CAUS	EWAY	23-	-0237	1	vagh WF; Ground Investigation		
	G	EOTECH	Coor	dinates	Client:			ITP10
Method:		tara-i anali	5369	26.62 E		y Developments s Representative :		
rial Pitting			7435	52.52 N		Energy		heet 1 of 1 Scale: 1:25
Plant:			Elev	vation	Date:	Logge		
.3T Tracked E	Excavator			5 mOD	28/03/			FINAL
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water	
			36.15	0.20	* # 05.3. * x , \$ * w 05.3. * x , \$ * w 05.3. * w 05.3.	TOPSOIL: Firm brown slightly sandy CLAY with rootlets. Sand is coarse. Firm light brownish grey slightly sandy slightly gravelly SILT. Sa to coarse. Gravel is subangular to subrounded fine to medium limestone.	nd is fine	- 0.5 —
0.70	B1				X x, x, y Y x , x, y			1.0
			35.05	1.30		Firm to stiff light brownish grey slightly sandy gravelly CLAY. Sa to coarse. Grave is subangular to subrounded fine to medium limestone.		1.5 —
.70	B2			-				2.0 —
.50	В3			- - - - - -				2.5
			33.65	2.70	iner di Silat, fila Personali mendi	End of trial pit at 2.70m		
				- - -				3.0 —
				-				
				- - -				3.5 -
				-				
				<u>-</u>				
				-				
				-				4.0 -
				<u>-</u> [
				-				
				-				
				-				4.5
				- -				
				-				
Wate	er Strikes		Rem	narks:				
Struck at (m)		Depth: 2.70 Width: 0.70	No g	groundwat kaway con		ntered.		
		Length: 3.00 Stability:	Torre	nination F	Bascon		Last Update	м I III
		Stable	lerm	ninated on p	possible be	енгоск.	23/05/2023	AU

			Proje	ect No.	Project	Name:	Т	rial Pit ID		
	CAUS	EWAY	23-	-0237		vagh WF; Ground Investigation				
585		EOTECH	Coor	dinates	Client:			ITP11		
1ethod:		Miles est miles est mil	5353	98.89 E	1	y Developments s Representative:	-			
ial Pitting			7437	81.63 N		Energy		neet 1 of 1 cale: 1:25		
lant:			Elev	vation	Date:	Logger:	3	cale. 1.23		
3T Tracked E	excavator			3 mOD	22/03/			FINAL		
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water			
				-		TOPSOIL: Soft to firm brown CLAY.				
			33.03	0.25						
			33.03	- 0.23		Firm brown slightly sandy slightly gravelly CLAY with low cobble co Sand is fine to coarse. Gravel is subangular to subrounded fine to c				
50	B1			-		of limestone.		0.5		
50	D1		32.68	0.60		Light groundighth, conductighth, groundly CLAV Cond is fine to cons		0.5		
						Light grey slightly sandy slightly gravelly CLAY. Sand is fine to coars: Gravel is subangular to subrounded fine to medium of limestone.	e.			
				-						
00	B2			-				1.0 -		
,,,	DZ			-				1.5		
				_						
				-						
								1.5		
60	В3			-				1.5		
				-						
			24.20	2.00				20		
			31.28	2.00	XXX	Stiff grey slightly gravelly sandy SILT. Sand is fine to coarse. Gravel is subrounded fine to medium.	is	2.0		
.0	B4			-	X X X X	Subjourned fine to medium.				
			30.98	2.30	W 9000	End of trial pit at 2.30m				
				-				0.5		
				-				2.5		
				-						
				-						
				-						
								3.0 -		
				-						
				-						
				-				3.5		
				-						
				-						
				<u> </u>				4.0		
				-						
				-						
				-						
				<u>-</u>				4.5		
				<u> </u> -						
				-						
	er Strikes	Depth: 2.30		narks: groundwat	er encou	ntered.				
	Romarko									
	Remarks	Width: 1.50	Soal	kaway com	ipleted.					
	Remarks	Width: 1.50 Length: 2.10	Soal	kaway com	ipleted.					
Wate	Remarks			caway com			Last Update	d		

0.0			Proj	ect No.	Project	Name:		Т	rial Pit ID	
	CALIS	EVAVAV		-0237	1	vagh WF; Ground Investigation				
HOH	CAUS	EWAY	Coor	rdinates	Client:			ITP12		
The second second		JEO I ECIT	5365	603.17 E	1	Developments				
Method:				61.47 N	1	Representative:		neet 1 of 1		
Trial Pitting Plant:				vation	Enerco Date:	Energy	S	cale: 1:25		
13T Tracked Ex	cavator			8 mOD	21/03/	2023	Logger: MMC		FINAL	
Depth	Sample /	Field Records	Level	Depth				ater		
Depth (m)	Sample / Tests	Field Records	42.13 41.78	Depth (m)	Legend	TOPSOIL. Firm light grey slightly gravelly very sandy CLAY with content. Sand is fine to coarse. Gravel is subangula limestone. Cobbles are angular of limestone. End of trial pit at 0.70m	th medium coblar to angular of	ple Mater	1.5 — 2.0 — 3.0 — 4.0 — 4.5 — 4.5 — 4.5 — 4.5 — 4.5 — 4.5 — 4.7 — 4.8 — 4.9 — 4.9 — 4.9 — 4.9 — 4.1 — 4.1 — 4.1 — 4.2 — 4.3 — 4.4 — 4.5 — 4.	
				-					-	
			<u> </u>	<u> </u>						
	Strikes	Depth: 0.70	l l	narks:				·		
Struck at (m)	Remarks	Width: 0.60		groundwat kaway com		ntered.				
		Length: 1.80	Soa	naway COM	ipieteu.					
			Torre	mination R	Aasar			Lact Hadata	d =====	
		Stability:						Last Update		
		Stable	Term	ninated on p	ossible be	drock.		23/05/2023	AUCKS	

			Proje	ect No.	Project	Name:		Trial Pit ID	
	CAUS	EWAY	23-	-0237	Laurclavagh WF; Ground Investigation Client: Turnkey Developments			ITP13	
	G	EOTECH	Coor	dinates					
/lethod:			53599	95.34 E		s Representative:			
rial Pitting			7435	32.28 N		Energy		Sheet 1 of 1 Scale: 1:25	
Plant:			Elev	vation	Date:	Logger:		JCale. 1.23	
.3T Tracked E	xcavator			5 mOD	24/03/			FINAL	
Depth (m)	Sample / Tests	Field Records	Level (mOD)	Depth (m)	Legend	Description	Water		
				-		TOPSOIL: Firm brown sandy CLAY with rootlets.			
			34.26	- 0.20		Firm orangish brown slightly sandy slightly gravelly CLAY. Sand is fin-	no to		
.30	B1					coarse. Gravel is subrounded fine to coarse of limestone.	ic to		
			34.06	0.40		Firm light grey slightly gravelly very sandy CLAY with low cobble con		0.5 -	
				-		Sand is fine to coarse. Gravel is subrounded fine to coarse of limesto Cobbles are subrounded of limestone.	one.	0.3	
				-					
				-	25 25 2			1.0 —	
10	B2							1.0	
				-					
			33.16	1.30		Firm light grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gr	ravel		
				-		is subrounded fine to medium of limestone.		4.5	
				_				1.5	
				-					
				-					
00	B3			-				2.0 -	
				-					
				-					
				-				2.5	
			31.66	- 2.80		Firm light grey slightly sandy slightly gravelly CLAY with small lenses	r of		
				-		brown very silty sand. Sand is fine to coarse. Gravel is subrounded f	fine to		
.00	B4			-		medium of limestone.		3.0 -	
				=					
			30.96	- 3.50	the Age of	End of trial pit at 3.50m		3.5	
				-					
				<u>-</u>					
				_					
				L -				4.0 -	
				<u> </u>					
				-					
				<u>-</u>					
				-				4.5	
				-					
				<u>-</u>					
	er Strikes	Depth: 3.50	l l	narks:	or on	ntarad			
Struck at (m)	Remarks	Width: 0.80		groundwat kaway com		merea.			
		Length: 3.50		•					
			1						
		Stability:	Tern	nination F	Reason	L	ast Updat	ed 🔳	

Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP01

Test Date: 28 March 2023



width (m) length (m) Analysis using method as described in BRE Digest 365 0.50 2.00 and CIRIA Report C697-The SUDS Manual

test pit top dimensions 0.50 2.00 test pit base dimensions 0.50 1.80

test pit depth (m) 1.30 depth to groundwater before adding water (m) = Dry

	1 ()	
	depth to water surface	depth of water in pit
time (mins)	(m)	(m)
0	0.45	0.85
1	0.46	0.84
2	0.46	0.84
3	0.46	0.84
4	0.47	0.83
5	0.47	0.83
6	0.47	0.83
7	0.47	0.83
8	0.47	0.83
9	0.47	0.83
10	0.47	0.83
15	0.48	0.82
20	0.48	0.82
25	0.49	0.81
30	0.49	0.81
40	0.50	0.80
50	0.50	0.80
60	0.51	0.79
90	0.52	0.78
	depth to	depth of
timo	water	water in nit

From graph below:

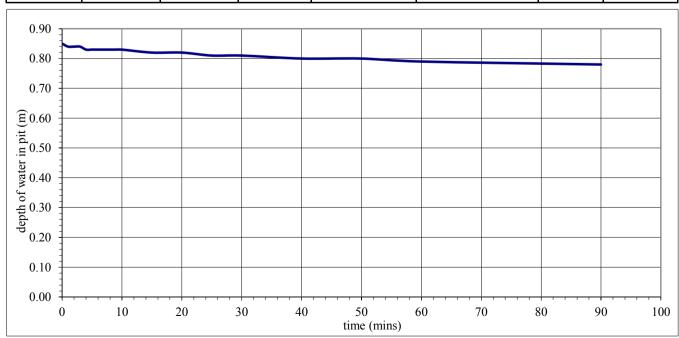
test start - 75% depth at

0.6375 m water depth time is not determined

test end - 25% depth at

0.2125 m water depth time is not determined

70	0.52	0.70					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)



Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP02 - Test 1 **Test Date:** 17 April 2023



width (m) length (m) Analysis using method as described in BRE Digest 365 test pit top dimensions 0.50 2.00 and CIRIA Report C697-The SUDS Manual

test pit base dimensions 0.50 1.80

test pit depth (m) 1.00 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.64	0.36
1	0.68	0.32
2	0.70	0.30
3	0.74	0.26
4	0.77	0.23
5	0.80	0.20
6	0.83	0.17
7	0.86	0.14
8	0.90	0.10
9	0.93	0.07
10	0.99	0.01
11	1.00	0.00
		_
		_

From graph below:

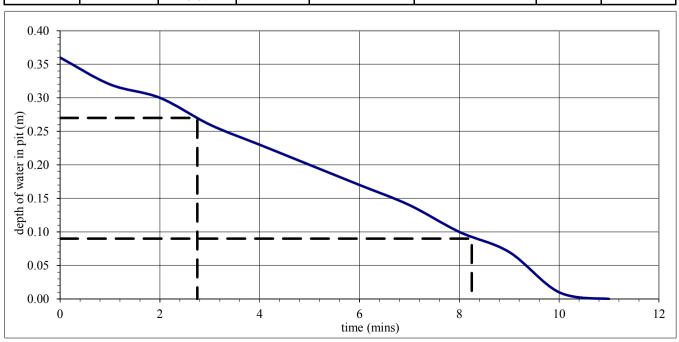
test start - 75% depth at

0.27 m water depth time is 2.8 minutes

test end - 25% depth at 0.09 m water depth time is 8.3 minutes

test infiltration rate (q) = 1.038 m/h

	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
2.75	0.73	0.27	5.5	0.17	1.74	1.7E-02	1.038
8.25	0.91	0.09	5.5	0.17	1./4	1./E-UZ	1.030



Project No.: 23-0237

Site: Laurclavagh **Test Location:** ITP02 - Test 2

Test Date: 17 April 2023



Analysis using method as described in BRE Digest 365 width (m) length (m) and CIRIA Report C697-The SUDS Manual 2.00 test pit top dimensions 0.50

test pit base dimensions 1.80 0.50

> test pit depth (m) 1.00 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.55	0.45
1	0.58	0.42
2	0.62	0.38
3	0.66	0.34
4	0.70	0.30
5	0.74	0.26
6	0.77	0.23
7	0.81	0.19
8	0.84	0.16
9	0.87	0.13
10	0.90	0.10
11	0.93	0.07
12	0.96	0.04
13	1.00	0.00

From graph below:

test start - 75% depth at

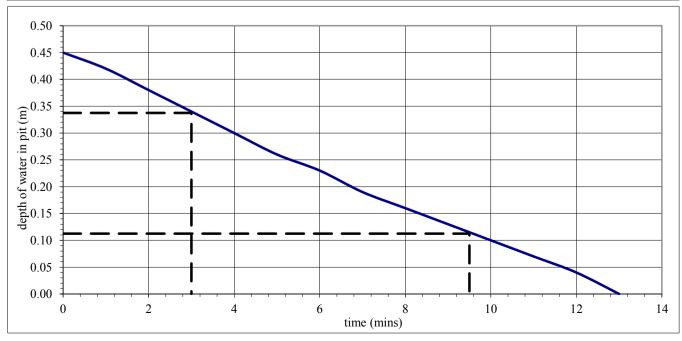
0.3375 m water depth time is 3.0 minutes

test end - 25% depth at

0.1125 m water depth time is 9.5 minutes

test infiltration rate (q) = 0.984 m/h

	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
3	0.66	0.3375	6.5	0.21	1.95	1.6E-02	0.984
9.5	0.89	0.1125	0.5	0.21	1.95	1.0E-UZ	0.964



Project No.: 23-0237
Site: Laurclavagh
Test Location: ITP03 Test 1

Test Date: 23 March 2023



test pit base dimensions 0.50 1.50

test pit depth (m) 1.00 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.60	0.40
1	0.90	0.10
2	1.00	0.00

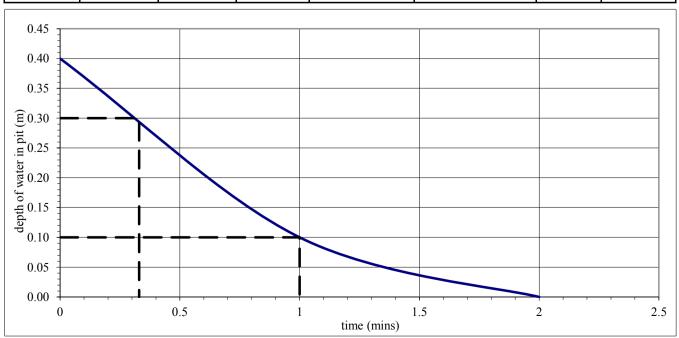
From graph below:

test start - 75% depth at
0.3 m water depth
time is 0.3 minutes

test end - 25% depth at $0.1\,$ m water depth time is $1.0\,$ minutes

test infiltration rate (q) = 9.586 m/h

	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
0.33	0.70	0.3	0.67	0.17	1.58	1.6E-01	9.586
1	0.90	0.1	0.67	0.17	1.50	1.0E-01	9.566



Project No.: 23-0237
Site: Laurclavagh
Test Location: ITP03 Test 2

Test Date: 23 March 2023



width (m) length (m)
Analysis using method as described in BRE Digest 365
test pit top dimensions
0.70
1.80
Analysis using method as described in BRE Digest 365
and CIRIA Report C697-The SUDS Manual

test pit base dimensions 0.50 1.50

test pit depth (m) 1.00 depth to groundwater before adding water (m) = Dry

test j	1100	
time (mins)	depth to water surface (m)	depth of water in pit (m)
0	0.58	0.42
1	0.85	0.15
2	1.00	0.00
	1.00	0.00

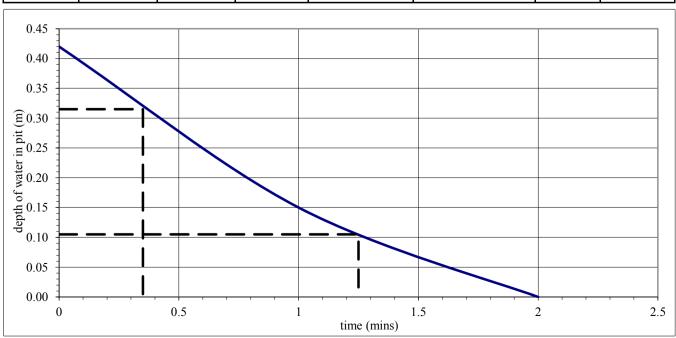
From graph below:

test start - 75% depth at 0.315 m water depth time is 0.4 minutes

test end - 25% depth at 0.105 m water depth time is 1.3 minutes

test infiltration rate (q) = 7.338 m/h

time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m³)	Area of walls and base at 50% drop (m ²)	q (m/min)	q (m/h)
0.35	0.69	0.315	0.9	0.18	1.62	1.2E-01	7.338
1.25	0.90	0.105	0.9	0.10	1.02	1.26-01	7.330



Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP04

Test Date: 23 March 2023



width (m) length (m)
Analysis using method as described in BRE Digest 365
test pit top dimensions
0.55
2.20
Analysis using method as described in BRE Digest 365
and CIRIA Report C697-The SUDS Manual

test pit base dimensions 0.55 1.70

test pit depth (m) 1.40 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.52	0.88
1	0.53	0.87
2	0.54	0.86
3	0.55	0.85
4	0.56	0.84
5	0.57	0.83
6	0.58	0.82
8	0.60	0.80
10	0.62	0.78
15	0.65	0.75
20	0.68	0.72
25	0.71	0.69
30	0.74	0.66
40	0.81	0.59
60	0.93	0.47
75	0.99	0.41
90	1.10	0.30
100	1.20	0.20
110	1.28	0.12
	depth to	depth of

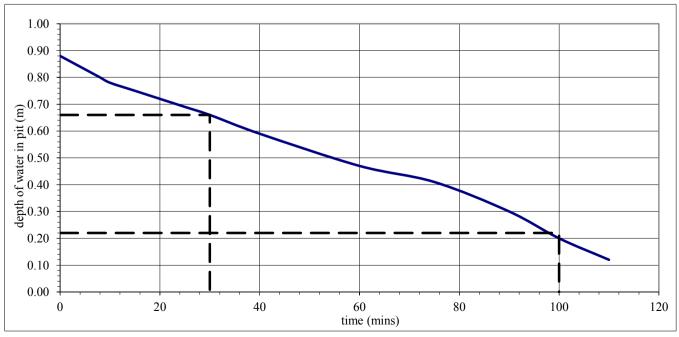
From graph below:

test start - 75% depth at 0.66 m water depth time is 30.0 minutes

test end - 25% depth at 0.22 m water depth time is 100.0 minutes

test infiltration rate (q) = 0.128 m/h

L	110	1.20	0.12					
Γ		depth to	depth of	time	volume of	Area of walls and		
	time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
	(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
	30	0.74	0.66	70	0.45	3.00	2.1E-03	0.128
I	100	1.18	0.22	70	0.45	5.00	2.1E-03	0.120



Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP05

Test Date: 25 April 2023



width (m) length (m) Analysis using method as described in BRE Digest 365 0.60 2.00 and CIRIA Report C697-The SUDS Manual

test pit top dimensions 0.60 2.00 test pit base dimensions 0.60 1.80

test pit depth (m) 0.70 depth to groundwater before adding water (m) = Dry

	pre depen (m)	017 0
	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.30	0.40
1	0.31	0.39
2	0.31	0.39
4	0.32	0.38
5	0.32	0.38
8	0.33	0.37
10	0.34	0.36
15	0.36	0.34
20	0.38	0.32
25	0.39	0.31
30	0.40	0.30
40	0.42	0.28
50	0.44	0.26
60	0.46	0.24
70	0.48	0.22
80	0.50	0.20
90	0.53	0.17
120	0.60	0.10
150	0.70	0.00
	depth to	depth of

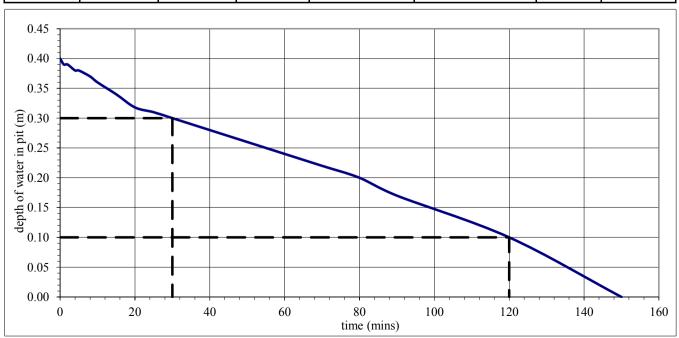
From graph below:

test start - 75% depth at
0.3 m water depth
time is 30.0 minutes

test end - 25% depth at 0.1 m water depth time is 120.0 minutes

test infiltration rate (q) = 0.072 m/h

130	0.70	0.00					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
30	0.40	0.3	90	0.22	2.05	1.2E-03	0.072
120	0.60	0.1	90	0.22	2.03	1.2E-03	0.072



Project No.: 23-0237Site: LaurclavaghTest Location: ITP06 Test 1

Test Date:

on: TP06 Test 1 20 March 2023



width (m) length (m)
Analysis using method as described in BRE Digest 365
and CIRIA Report C697-The SUDS Manual

 $\begin{array}{ccc} \text{test pit top dimensions} & 0.70 & 1.50 \\ \text{test pit base dimensions} & 0.70 & 1.00 \end{array}$

test pit depth (m) 1.30 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.36	0.94
1	0.39	0.91
2	0.42	0.88
3	0.46	0.84
4	0.48	0.82
5	0.51	0.79
6	0.53	0.77
7	0.55	0.75
8	0.57	0.73
9	0.59	0.71
10	0.61	0.69
15	0.73	0.57
20	0.84	0.46
25	0.94	0.36
30	1.04	0.26
40	1.10	0.20

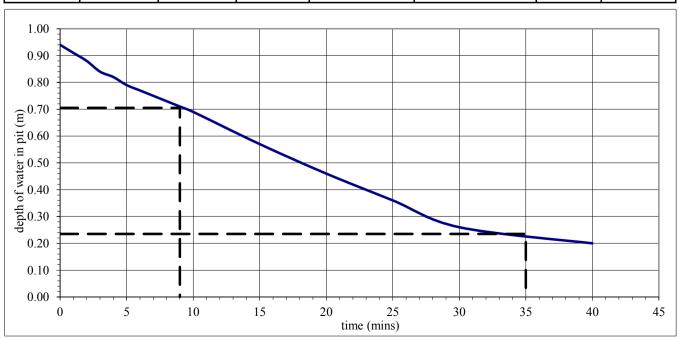
From graph below:

test start - 75% depth at 0.705 m water depth time is 9.0 minutes

test end - 25% depth at 0.235 m water depth time is 35.0 minutes

test infiltration rate (q) = 0.373 m/h

time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m³)	Area of walls and base at 50% drop (m ²)	q (m/min)	q (m/h)
9	0.60	0.705	26	0.39	2.40	6.2E-03	0.373
35	1.07	0.235	20	0.39	2.40	0.21-03	0.373



Project No.: 23-0237
Site: Laurclavagh
Test Location: ITP06 Test 2

Test Date: 20 March 2023



width (m) length (m)

Analysis using method as described in BRE Digest 365

test pit top dimensions

0.70

1.50

and CIRIA Report C697-The SUDS Manual

test pit base dimensions 0.70 1.00

test pit depth (m) 1.30 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.30	1.00
1	0.33	0.97
2	0.36	0.94
3	0.39	0.91
4	0.41	0.89
5	0.43	0.87
6	0.45	0.85
7	0.47	0.83
8	0.49	0.81
9	0.51	0.79
10	0.53	0.77
15	0.64	0.66
20	0.74	0.56
25	0.83	0.47
30	0.92	0.38
40	1.09	0.21
50	1.10	0.20

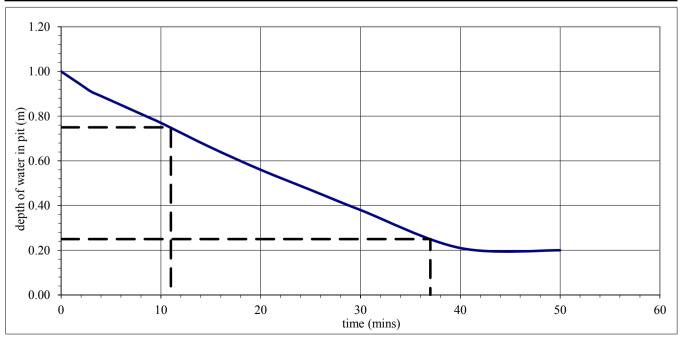
From graph below:

test start - 75% depth at 0.75 m water depth time is 11.0 minutes

test end - 25% depth at 0.25 m water depth time is 37.0 minutes

test infiltration rate (q) = 0.382 m/h

L								
		depth to	depth of	time	volume of	Area of walls and		
	time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
	(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
	11	0.55	0.75	26	0.42	2.52	6.4E-03	0.382
Ī	37	1.05	0.25	20	0.42	2.52	0.4E-03	0.362



Project No.: 23-0237
Site: Laurclavagh

Test Location: ITP07

Test Date: 21 March 2023

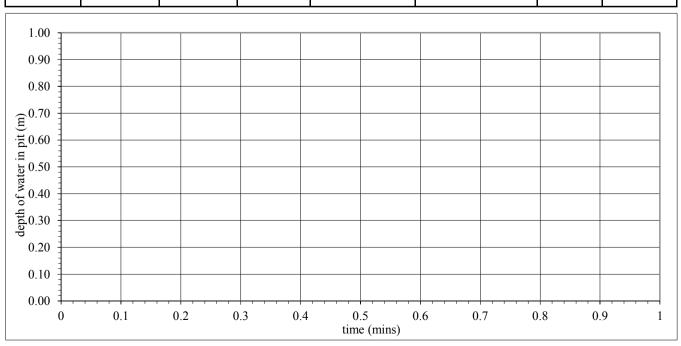


width (m) length (m)
Analysis using method as described in BRE Digest 365
test pit top dimensions
0.60
1.90
Analysis using method as described in BRE Digest 365
and CIRIA Report C697-The SUDS Manual

test pit base dimensions 0.60 1.60

test pit depth (m) 1.20 depth to groundwater before adding water (m) = Dry

					_		-
time (mins)	depth to water surface (m)	depth of water in pit (m)	From g		m water depth		
			time is not determined test end - 25% depth at 0.3 m water depth time is not determined				
				and water instantly, in infiltration i	2000L of water soaked away ndicating that rate (q) is quite igh.		
time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m ³)	Area of walls and base at 50% drop (m ²)	q (m/min)	q (m/h)



Project No.: 23-0237
Site: Laurclavagh

Test Location: ITP08

Test Date: 22 March 2023



width (m) length (m)

test pit top dimensions

0.60

1.80

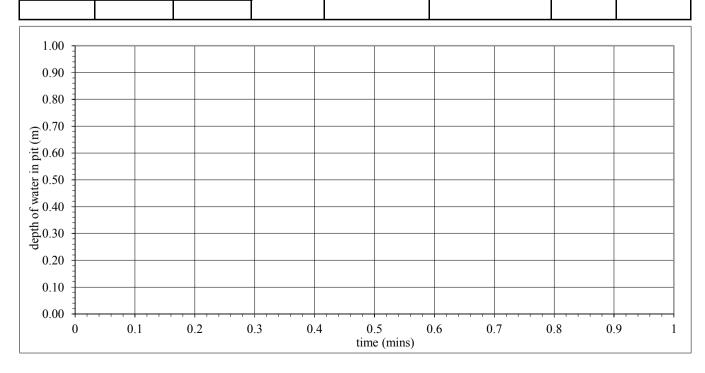
Analysis using method as described in BRE Digest 365

and CIRIA Report C697-The SUDS Manual

test pit base dimensions 0.50 1.00

test pit depth (m) 1.30 depth to groundwater before adding water (m) = Dry

time (mins)	depth to water surface (m)	depth of water in pit (m)	From g		epth at m water depth not determined		
					epth at m water depth not determined		
				and water so seconds, ir infiltration i	a 2000L of water aked away in 30 adicating that rate (q) is quite high.		
time (mins)	depth to water (m)	depth of water in pit (m)	time elapsed (mins)	volume of water lost (m³)	Area of walls and base at 50% drop (m²)	q (m/min)	q (m/h)
			ı				



Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP09

Test Date: 17 April 2023



width (m) length (m) Analysis using method as described in BRE Digest 365 0.50 1.50 and CIRIA Report C697-The SUDS Manual

test pit top dimensions 0.50 1.50 test pit base dimensions 0.50 1.30

test pit depth (m) 1.30 depth to groundwater before adding water (m) = Dry

test	pre depen (m)	1100
	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.31	0.99
1	0.31	0.99
2	0.32	0.98
4	0.32	0.98
5	0.32	0.98
6	0.32	0.98
7	0.33	0.97
8	0.33	0.97
9	0.33	0.97
10	0.33	0.97
15	0.34	0.96
20	0.34	0.96
25	0.35	0.95
30	0.35	0.95
40	0.36	0.94
50	0.37	0.93
60	0.38	0.92
90	0.40	0.90
120	0.42	0.88
	depth to	depth of
time	water	water in nit

From graph below:

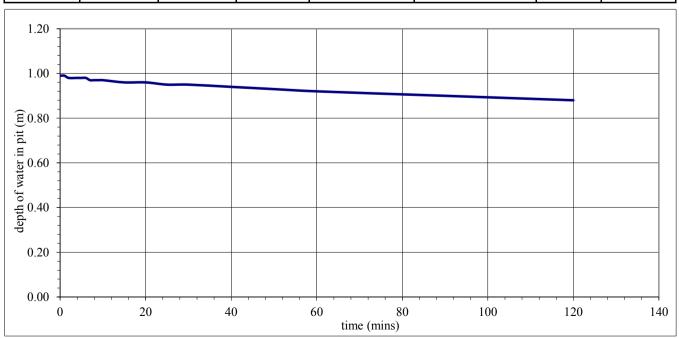
test start - 75% depth at

0.7425 m water depth time is not determined

test end - 25% depth at

0.2475 m water depth time is not determined

120	0.42	0.88					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m ³)	(m^2)	(m/min)	(m/h)



Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP10

Test Date: 28 March 2023



width (m) length (m) Analysis using method as described in BRE Digest 365 0.55 2.50 and CIRIA Report C697-The SUDS Manual

test pit top dimensions 0.55 2.50 test pit base dimensions 0.55 2.00

test pit depth (m) 1.30 depth to groundwater before adding water (m) = Dry

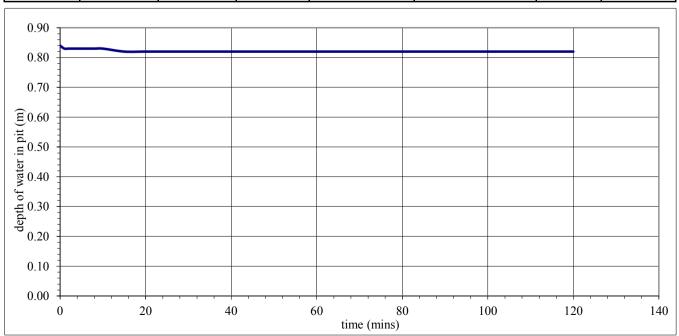
	depth to water surface	depth of water in pit
		-
time (mins)	(m)	(m)
0	0.46	0.84
1	0.47	0.83
2	0.47	0.83
4	0.47	0.83
5	0.47	0.83
6	0.47	0.83
8	0.47	0.83
10	0.47	0.83
15	0.48	0.82
20	0.48	0.82
25	0.48	0.82
30	0.48	0.82
40	0.48	0.82
50	0.48	0.82
60	0.48	0.82
70	0.48	0.82
80	0.48	0.82
90	0.48	0.82
120	0.48	0.82
	depth to	depth of

From graph below:

test start - 75% depth at
0.63 m water depth
time is not determined

test end - 25% depth at 0.21 m water depth time is not determined

120	0.40	0.02					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)



Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP11

Test Date: 22 March 2023



width (m) length (m) Analysis using method as described in BRE Digest 365 test pit top dimensions 0.55 2.10 and CIRIA Report C697-The SUDS Manual

test pit base dimensions 0.55 1.50

test pit depth (m) 1.40 depth to groundwater before adding water (m) = Dry

F ()	
depth to	depth of
water surface	water in pit
(m)	(m)
0.41	0.99
0.41	0.99
0.41	0.99
0.41	0.99
0.41	0.99
0.42	0.98
0.42	0.98
0.42	0.98
0.42	0.98
0.42	0.98
0.42	0.98
0.43	0.97
0.43	0.97
0.43	0.97
0.44	0.96
0.44	0.96
0.44	0.96
0.45	0.95
0.46	0.94
depth to	depth of
	depth to water surface (m) 0.41 0.41 0.41 0.41 0.42 0.42 0.42 0.42 0.42 0.42 0.43 0.43 0.43 0.44 0.44 0.44 0.45 0.46

From graph below:

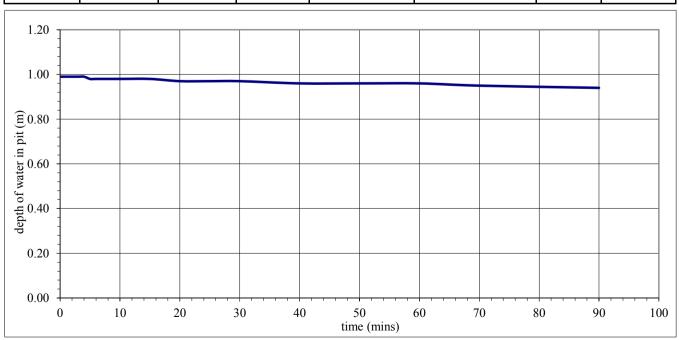
test start - 75% depth at

0.7425 m water depth time is not determined

test end - 25% depth at

0.2475 m water depth time is not determined

70	0.10	0.71					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)



Project No.: 23-0237Site: LaurclavaghTest Location: ITP12 Test 1

Test Date: 21 March 2023



test pit base dimensions 0.60 1.20

test pit depth (m) 0.70 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.30	0.40
1	0.34	0.36
2	0.38	0.32
3	0.42	0.28
4	0.46	0.24
5	0.50	0.20
6	0.53	0.17
7	0.56	0.14
8	0.60	0.10
9	0.64	0.06
10	0.67	0.03
11	0.70	0.00
		_

From graph below:

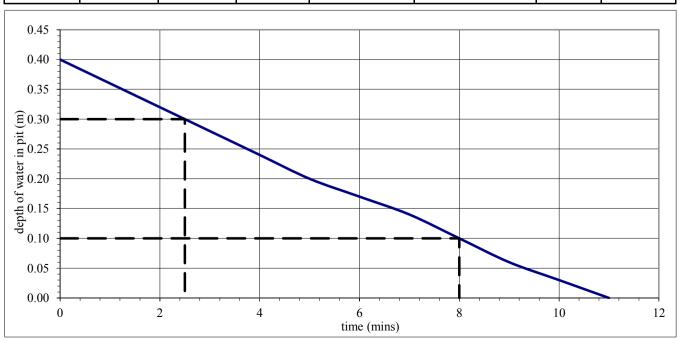
test start - 75% depth at

0.3 m water depth time is 2.5 minutes

test end - 25% depth at 0.1 m water depth time is 8.0 minutes

test infiltration rate (q) = 1.172 m/h

	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
2.5	0.40	0.3	55	0.16	1.47	2.0E-02	1.172
8	0.60	0.1	5.5	0.16	1.47	2.UE-U2	1.1/2



Project No.: 23-0237
Site: Laurclavagh

Test Location: ITP12 Test 2 **Test Date:** 21 March 2023



test pit base dimensions 0.60 1.20

test pit depth (m) 0.70 depth to groundwater before adding water (m) = Dry

	depth to	depth of
	water surface	water in pit
time (mins)	(m)	(m)
0	0.30	0.40
1	0.34	0.36
2	0.37	0.33
3	0.40	0.30
4	0.43	0.27
5	0.46	0.24
6	0.49	0.21
7	0.52	0.18
8	0.55	0.15
9	0.58	0.12
10	0.61	0.09
11	0.64	0.06
12	0.70	0.00

From graph below:

test start - 75% depth at 0.3 m water depth

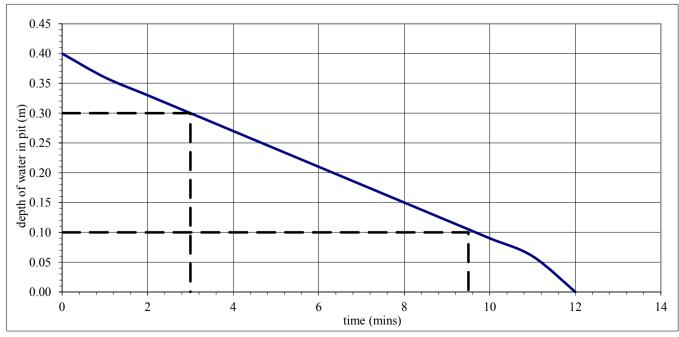
0.3 m water depth time is 3.0 minutes

test end - 25% depth at

0.1 m water depth time is 9.5 minutes

test infiltration rate (q) = 0.991 m/h

	1 11 1	J	4.5	1	A C 11 1		
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)
3	0.40	0.3	6.5	0.16	1.47	1.7E-02	0.991
9.5	0.60	0.1	0.3	0.10	1.47	1./1:-02	0.551



Project No.: 23-0237

Site: Laurclavagh

Test Location: ITP13

Test Date: 24 March 2023



width (m) length (m)

Analysis using method as described in BRE Digest 365

and CIRIA Report C697-The SUDS Manual

test pit top dimensions 0.50 2.10 test pit base dimensions 0.50 2.00

test pit depth (m) 1.30 depth to groundwater before adding water (m) = Dry

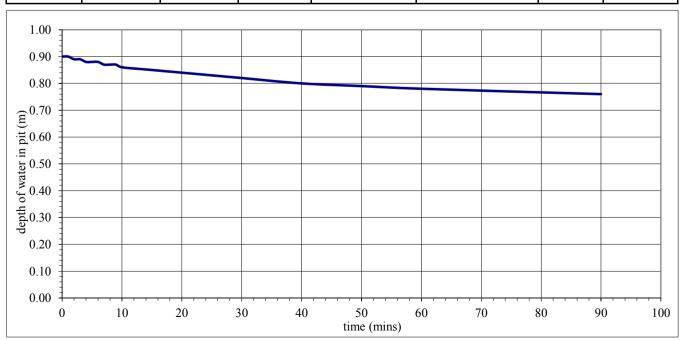
	F F - C - 7	
	depth to water surface	depth of water in pit
		•
time (mins)	(m)	(m)
0	0.40	0.90
1	0.40	0.90
2	0.41	0.89
3	0.41	0.89
4	0.42	0.88
5	0.42	0.88
6	0.42	0.88
7	0.43	0.87
8	0.43	0.87
9	0.43	0.87
10	0.44	0.86
15	0.45	0.85
20	0.46	0.84
25	0.47	0.83
30	0.48	0.82
40	0.50	0.80
50	0.51	0.79
60	0.52	0.78
90	0.54	0.76
	depth to	depth of
I		

From graph below:

test start - 75% depth at
0.675 m water depth
time is not determined

test end - 25% depth at 0.225 m water depth time is not determined

70	0.5 1	0.70					
	depth to	depth of	time	volume of	Area of walls and		
time	water	water in pit	elapsed	water lost	base at 50% drop	q	q
(mins)	(m)	(m)	(mins)	(m^3)	(m^2)	(m/min)	(m/h)





APPENDIX G INDIRECT IN-SITU CBR TEST RESULTS



Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project Number	23-0237
Project Name	Laurclavagh
Site Location	

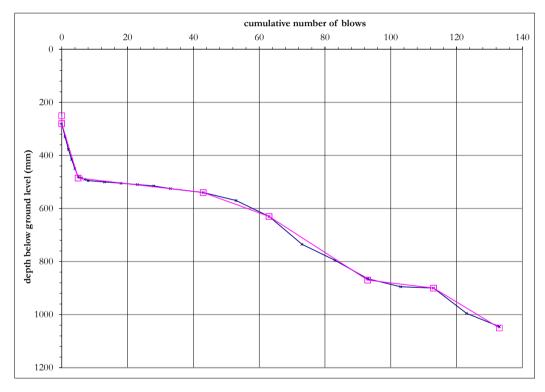


Test Number	DCP01
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
280	,	,
200		
280 485	41	6
485		
485		
540	1.4	>100
540	4.5	62
630	4.5	02
630	8	34
870		٠.
870	1.5	>100
900		
900		
1050	7.5	36

CBR Min: 6
Range Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Observations and comments

Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Dynamic Cone Penetrometer (DCP) test results and estimated CBR

Project Number	23-0237
Project Name	Laurclavagh
Site Location	

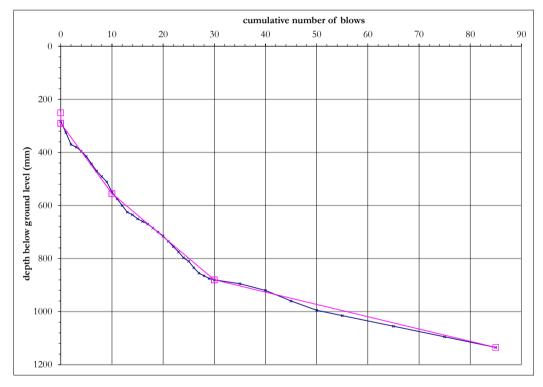


Test Number	DCP02
Depth bgl (m)	0.25

Date Tested	14/03/2023	
Weather	Dry and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 290	N/A	N/A
290		
290		
555	27	9.5
555	16	16
880	10	10
880		
1135	4.6	60
1133		

CBR Range Min: 9.5

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Observations and comments

Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

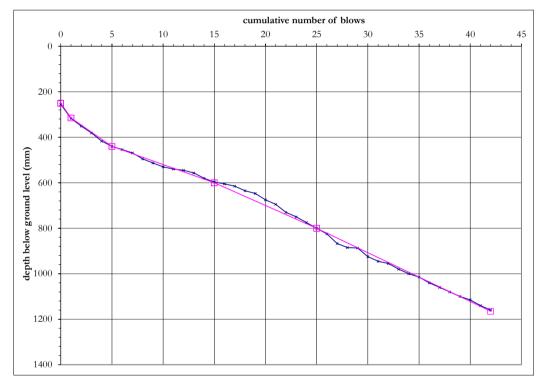


Test Number	DCP03
Depth bgl (m)	0.25

Date Tested	14/03/2023	
Weather	Dry and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth	
N/A	CLAY	



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
250	,	,
250		
250 315	65	3.7
313		
315	24	5 0
440	31	7.9
440	16	16
600	10	10
600	20	13
800		
800		
1165	21	12

CBR Range Min: 3.7

Max: 16

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odran	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

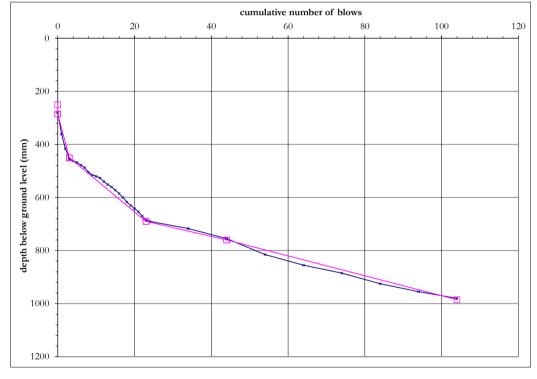


Test Number	DCP04
Depth bgl (m)	0.25

Date Tested	14/03/2023	
Weather	Dry and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
285	,	,
285	55	4.4
450		
450 690	12	22
690	3.3	85
760		
760 985	3.8	75

CBR Range Min: 4.4

Max: 85

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On o'dray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

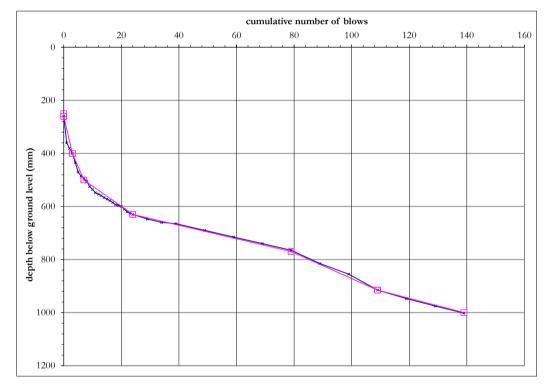


Test Number	DCP05
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



		ı
top / base of layer (mm)	mm/ blow	CBR (%)
250	NY / A	37.74
260	N/A	N/A
260	47	5.2
400	47	J.L
400	25	10
500		
500		
500 630	7.6	35
030		
630	0.5	400
770	2.5	>100
770	4.8	57
915	7.0	37
915	2.8	100
1000		

CBR Range Min: 5.2

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

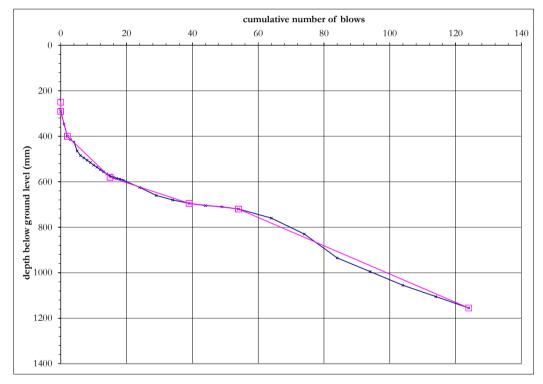


Test Number	DCP06
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
290	N/A	N/A
290	55	4.4
400		
400		
400	14	19
580		
580		
695	4.8	58
695	1.7	>100
720	1./	>100
720	6.2	44
1155		
-		
—		

CBR Range

Min: 4.4

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On o'dray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	



Test Number	DCP07
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
265	11/11	14/11
0.4		
265	31	8
420		
420		
550	19	14
330		
550	7.4	26
840	7.4	36
840	8.6	31
1140	0.0	51

CBR Range

Min: 8

Max: 36

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On ordina	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

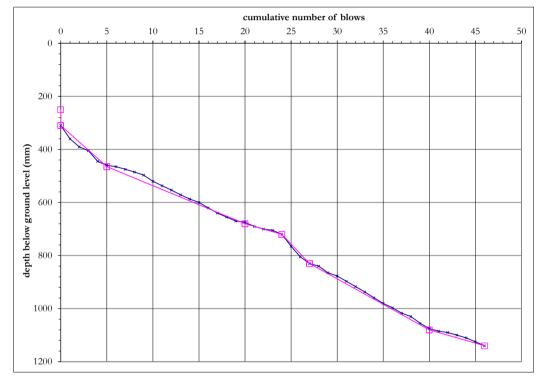


Test Number	DCP08
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
310		,
212		
310	31	8
465		
465		
465	14	18
680		
680		
720	10	26
720	37	6.7
830	37	0.7
830	19	13
1080		
1000		
1080	10	26
1140		
		

CBR Range

Max: 26

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On o'dray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

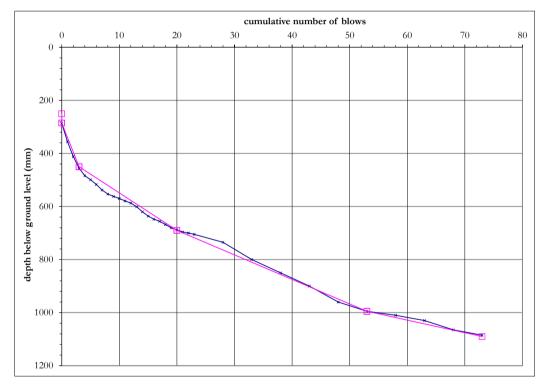


Test Number	DCP09
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 285	N/A	N/A
203		
285 450	55	4.4
450		
450 690	14	18
690	9.2	29
995		
995	4.8	58
1090	1.0	30

CBR Range Min: 4.4

Max: 58

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On ordinay	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

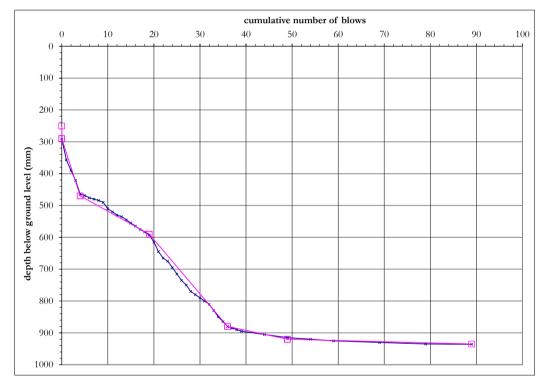


Test Number	DCP10
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
290	14/11	11/11
290	45	5.4
470		
470		
470	8	34
590		
590		
880	17	15
000		
880	2.1	02
920	3.1	92
920	0.4	>100
935	0.1	>100
1	1	l

Min: 5.4 CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On ordray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

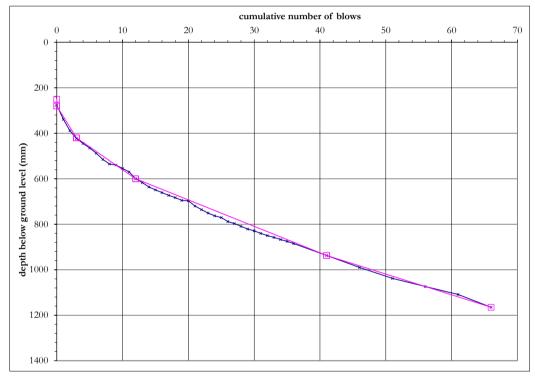


Test Number	DCP11
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
280	,	,
280	477	F 2
420	47	5.2
420	20	13
600		
600	12	23
937		
937 1165	9.1	29

CBR Range Min: 5.2

Max: 29

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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	Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023	



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

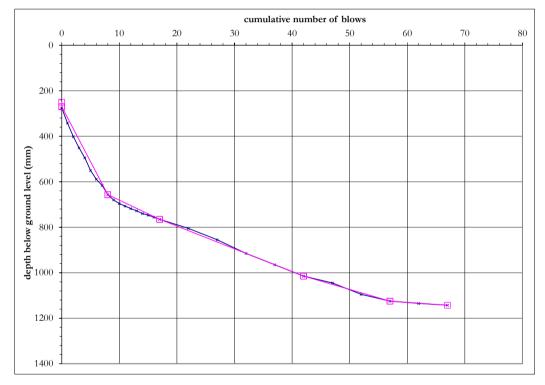


Test Number	DCP12
Depth bgl (m)	0.25

Date Tested	14/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 270	N/A	N/A
270		
270 657	48	5
657 765	12	22
700		
765 1015	10	26
1015 1125	7.3	37
1125		
1125 1143	1.8	>100

Min: 5
CBR
Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

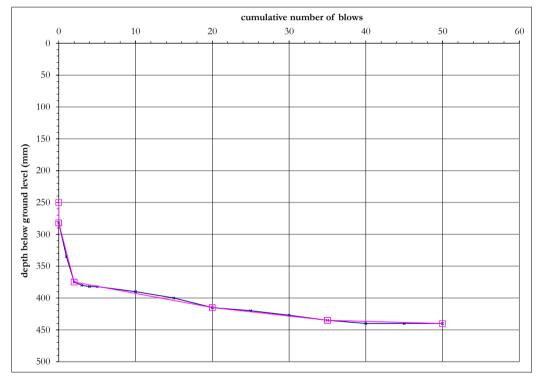


Test Number	DCP13
Depth bgl (m)	0.25

Date Tested	14/03/2023	
Weather	Dry and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 282	N/A	N/A
202		
282 375	47	5.2
375 415	2.2	>100
415	1.3	>100
435		
435 440	0.3	>100

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On ordray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

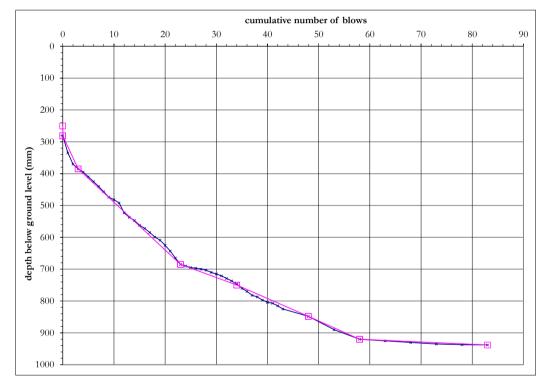


Test Number	DCP13A
Depth bgl (m)	0.25

Date Tested	14/03/2023	
Weather	Dry and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



ton /		
top / base of layer (mm)	mm/ blow	CBR (%)
250	NI / A	NI / A
281	N/A	N/A
281	35	7.1
385	33	7.1
385	15	17
685		
685		
750	5.9	46
, 50		
750	7	39
848	,	39
848	7.2	37
920		
920		
938	0.7	>100
730		

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odrog	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

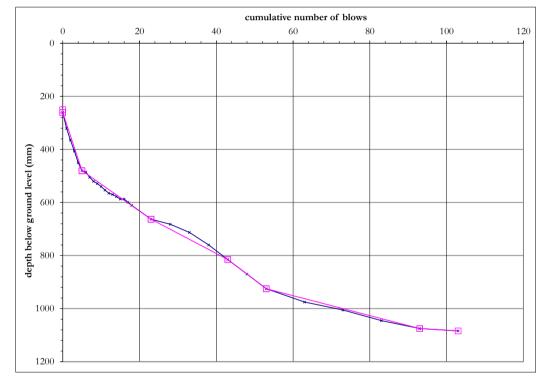


Test Number	DCP14
Depth bgl (m)	0.25

Date Tested	14/03/2023	
Weather	Dry and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 261	N/A	N/A
261		
261 480	44	5.6
480 663	10	26
003		
663	7.6	35
815		
815	11	24
925	***	
025		
925 1075	3.8	75
1075	0.9	>100
1084		

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On ordray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

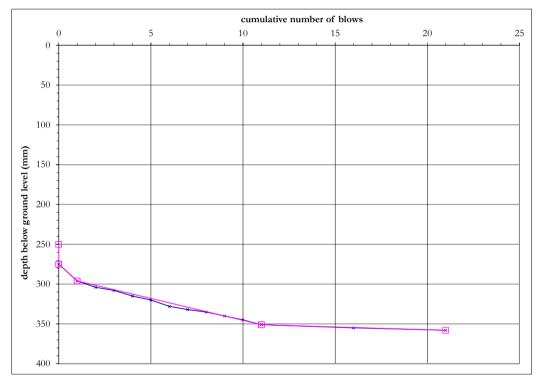


Test Number	DCP15
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Dry and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 275	N/A	N/A
275 296	21	12
296 351	5.5	50
351 358	0.7	>100

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

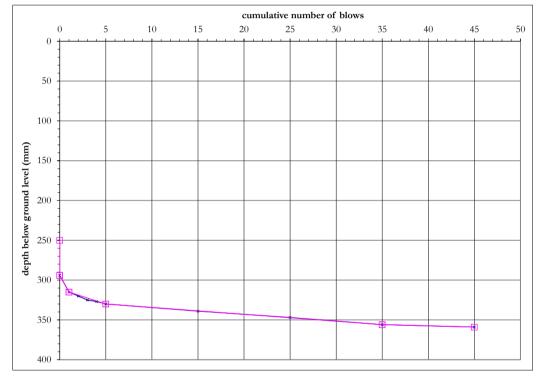


Test Number	DCP15A
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Dry and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 294	N/A	N/A
274		
294 315	21	12
315 330	3.8	75
550		
330	0.9	>100
356		
356 359	0.3	>100
L		

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None

Approved Name and Appointment		
Darren O'Mahony Director	On odray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

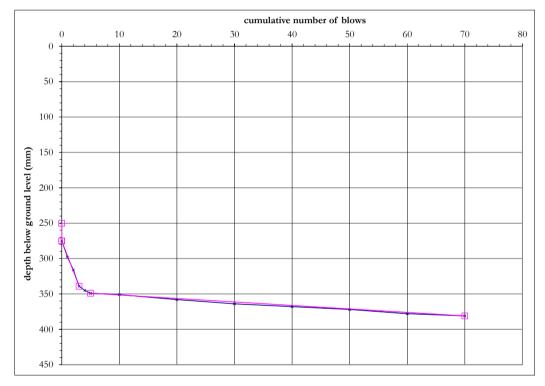


Test Number	DCP16
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 275	N/A	N/A
275 339	21	12
349 381	0.5	>100

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure None	
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Approved Name and Appointment		
Darren O'Mahony Director	On odray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

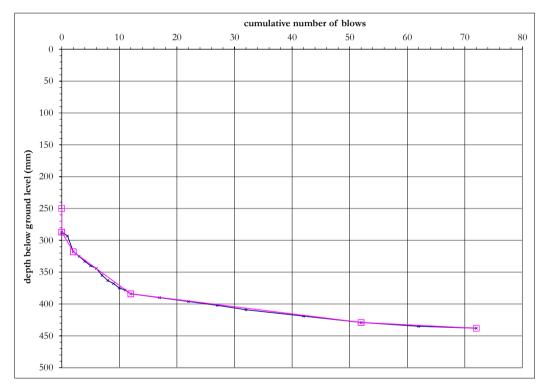


Test Number	DCP16A
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 287	N/A	N/A
287 318	16	17
318 384	6.6	41
384	1.1	>100
429		- 100
429	0.5	>100
438		

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

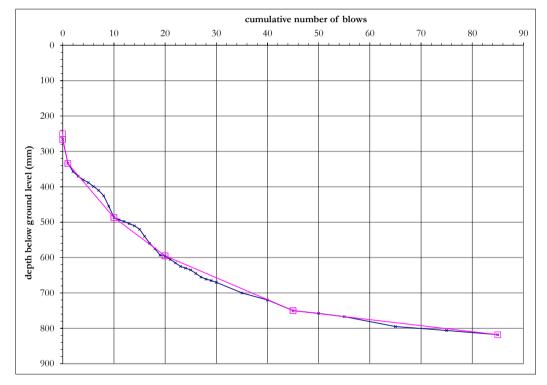


Test Number	DCP17
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 266	N/A	N/A
200		
266	68	3.5
334	00	3.5
334		
487	17	15
487	11	24
595		
595	6.2	44
750	0.2	44
750		
818	1.7	>100

CBR Range Min: 3.5

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

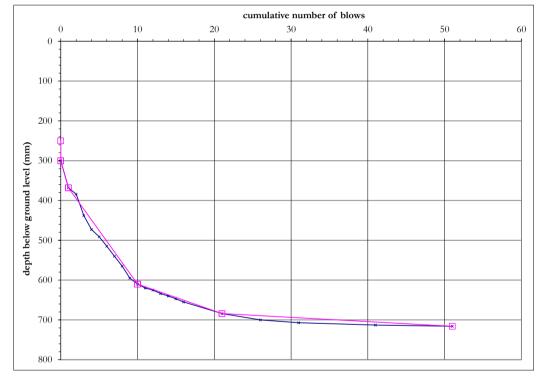


Test Number	DCP18
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
300	,	,
200		
300 368	68	3.5
368		
368		
610	27	9.3
610	6.7	40
684	0.7	40
684	1.1	>100
716		

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

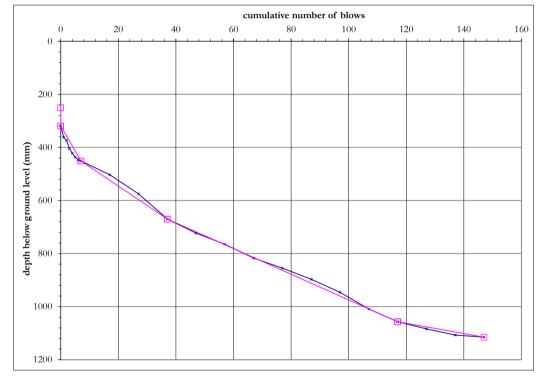


Test Number	DCP19
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 319	N/A	N/A
319 451	19	14
451 670	7.3	37
670 1057	4.8	57
1057 1115	1.9	>100

CBR Range Min: 14

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

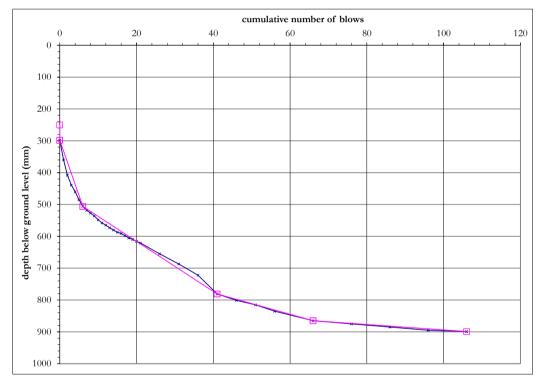


Test Number	DCP20
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 298	N/A	N/A
298		
298	25	7.1
506	35	7.1
506	7.9	34
781		
781	3.4	84
865	3.4	84
865 899	0.9	>100
899		
L		

Min: 7.1 CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

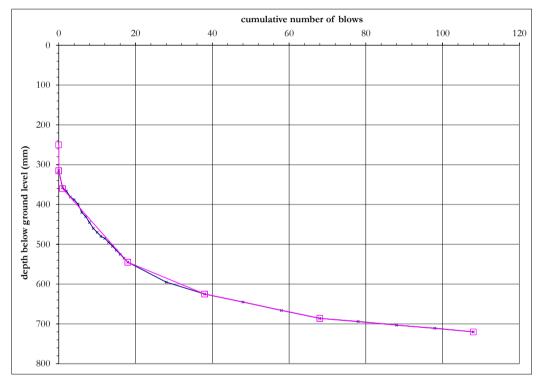


Test Number	DCP21
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
315	,	11,11
315	45	5.4
360		
260		
360 545	11	24
545		
545		
625	4	70
625	2	>100
686	2	>100
686	0.9	>100
720		

CBR Range Min: 5.4

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On o'dray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

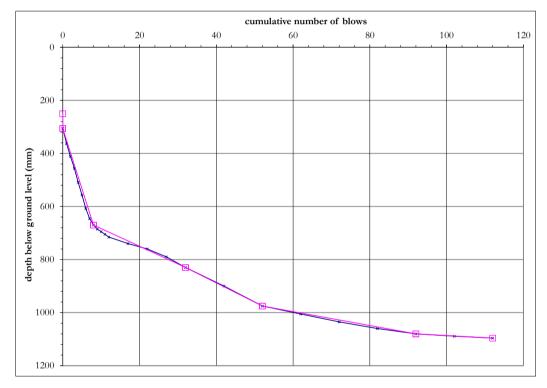


Test Number	DCP22
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



ton /		
top / base of	mm/	CBR
layer	blow	(%)
(mm)	21011	(70)
250	NI / A	NI / A
306	N/A	N/A
306	46	5.3
670	10	5.5
670	6.7	41
830		
830		
975	7.3	37
9/5		
975		
1080	2.6	>100
1080	0.0	>100
1096	0.8	>100

CBR Min: 5.3
Range Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

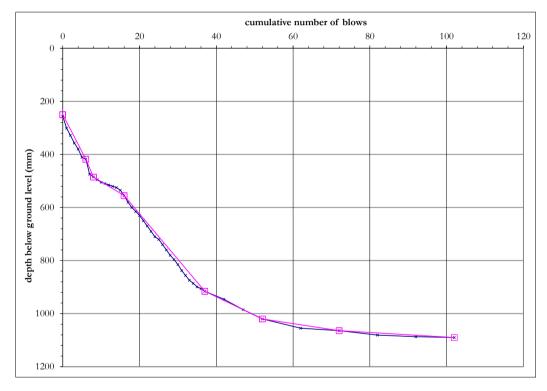


Test Number	DCP23
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
250		
250		
418	28	8.9
418	34	7.4
485	34	7.4
405		
485 555	8.8	30
555		
555	17	15
916	17	15
916	6.9	39
1020		
1020		
1064	2.2	>100
1064	0.9	>100
1090	0.9	>100

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

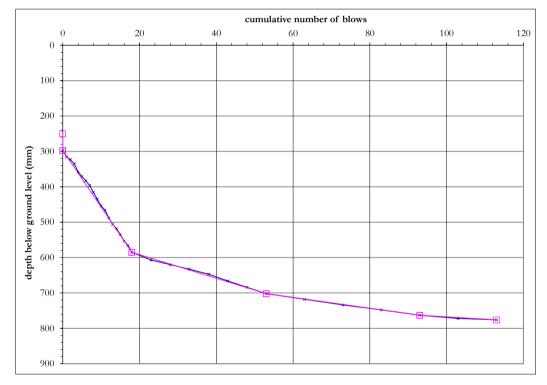


Test Number	DCP24A
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top/		
base of	mm/	CBR
layer	blow	(%)
(mm)		
250	N/A	N/A
297	11/11	11/11
297	16	16
585		
585	3.3	84
702		
702		
763	1.5	>100
700		
763	0.7	. 100
776	0.7	>100

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure None	
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Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

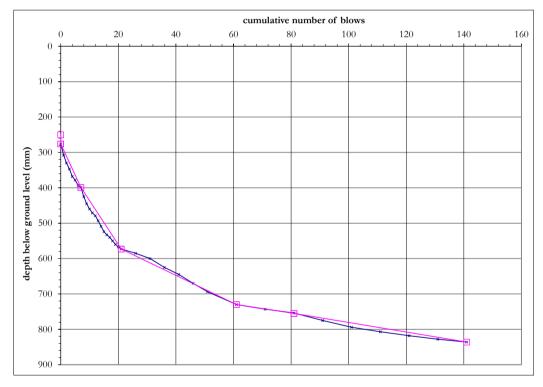


Test Number	DCP25
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet and windy	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
276	.,,	,
276		
276 399	18	15
377		
399	12	21
573	12	21
573	3.9	71
730		
730		
755	1.3	>100
755	1.4	>100
836	1.1	7 100

CBR Min: 15
Range Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

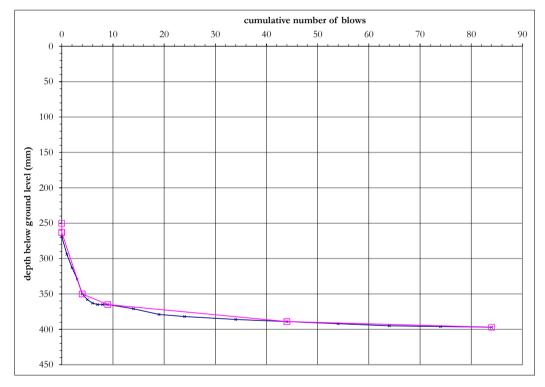


Test Number	DCP26
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



-		
top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
263	14/11	11/11
263	22	12
350		
350		
365	3	95
365	0.7	>100
389	0.7	>100
389 397	0.2	>100
397		

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure None	
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

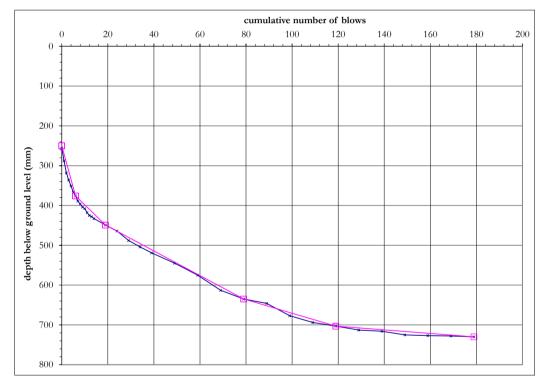


Test Number	DCP26A
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet and windy

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
250	,	
250	24	12
376	21	12
376	5.6	49
449		
449	3.1	91
635	3.1	91
635	1.7	>100
703		
703		
730	0.5	>100

CBR Range Min: 12

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On ordinay	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

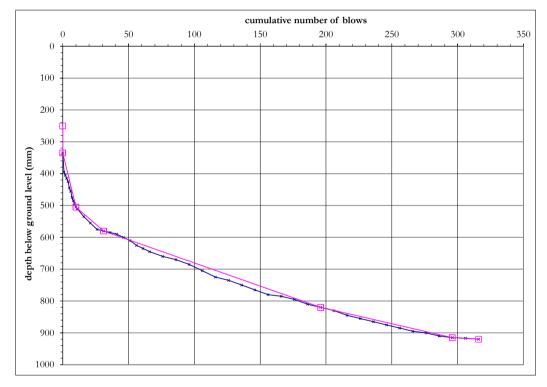


Test Number	DCP27
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
335	14/11	11/11
205		
335	17	15
505		
505		
580	3.6	79
300		
580	1.5	>100
820	1.5	>100
820	1	>100
915	-	- 100
0.1.		
915	0.3	>100
920		

CBR Min: 15
Range Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

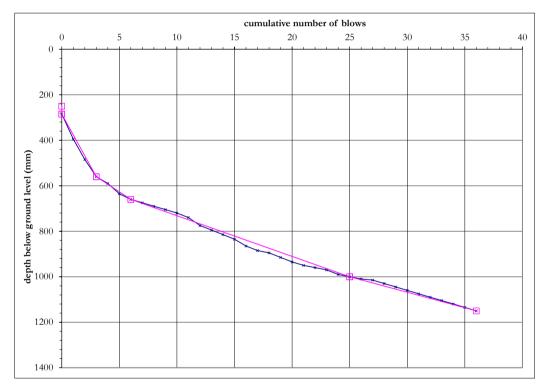


Test Number	DCP28
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
285		
285 560	92	2.5
560 660	33	7.4
660 1000	18	14
1000 1150	14	19

CBR Range Min: 2.5

Max: 19

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On order	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

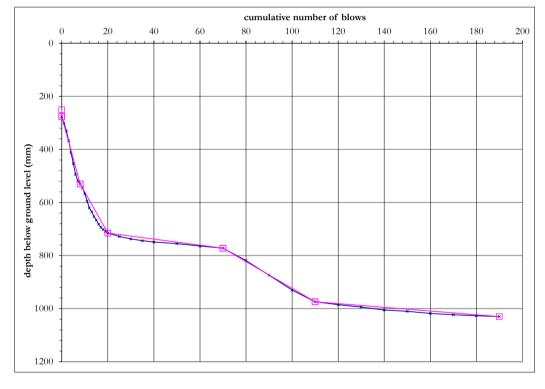


Test Number	DCP29
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



mm/ blow	CBR (%)
N/A	N/A
32	7.8
15	17
1.1	>100
5.1	55
0.7	>100
	N/A 32 15 1.1

CBR Range Min: 7.8

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

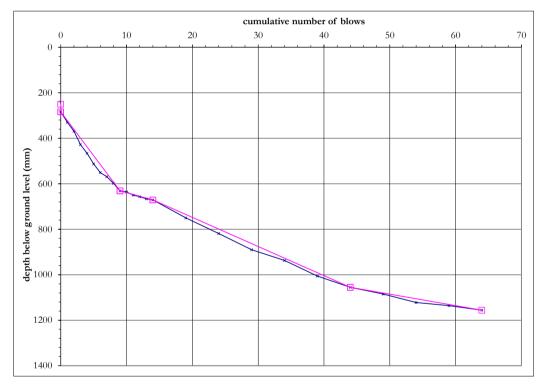


Test Number	DCP30
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 284	N/A	N/A
204		
284 631	39	6.4
40.4		
631 671	8	34
671	13	20
1055	13	
1055	5.1	55
1156	5.1	55

CBR Min: 6.4
Range Max: 55

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

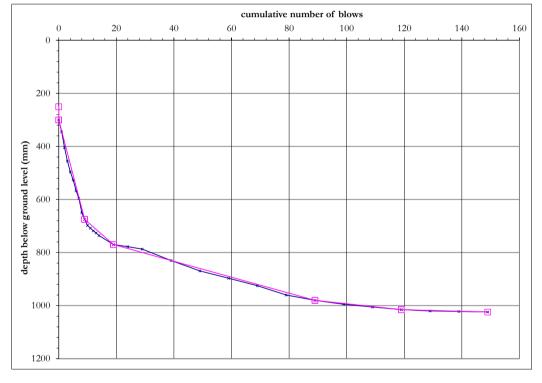


Test Number	DCP31
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 300	N/A	N/A
300		
300 675	42	5.9
675 770	9.5	28
770	3	95
980	3	73
980	4.0	400
1015	1.2	>100
4045		
1015 1024	0.3	>100

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None

Approved Name and Appointment		
Darren O'Mahony Director	On odrog	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

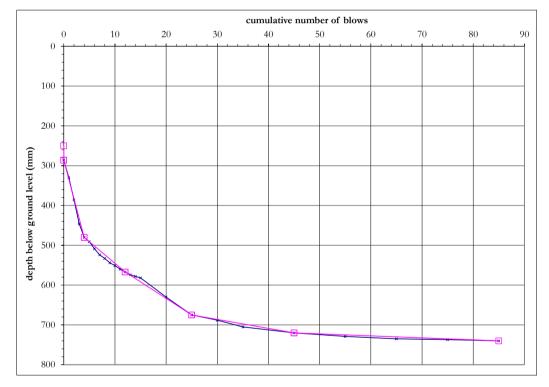


Test Number	DCP32
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top/		
base of	mm/	CBR
layer	blow	(%)
(mm)		
250	N/A	N/A
286	11/11	11/11
286	49	5
480		
400		
480 567	11	24
367		
567	0.0	00
675	8.3	32
675	2.3	>100
720	2.5	7 100
=00		
720 740	0.5	>100
740		

Min: 5 CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On odrog	March 2023

Project Number	23-0237
Project Name	Laurclavagh
Site Location	

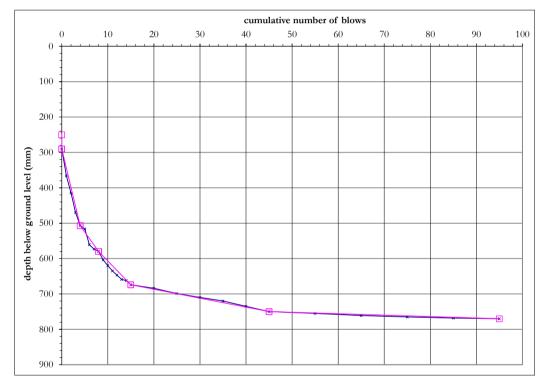


Test Number	DCP32A
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
290	,	,
290		
507	54	4.4
- 507		
507	18	14
580	10	14
580	13	19
674		
674		
750	2.5	>100
750	0.4	>100
770	0.4	>100

CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None

Approved Name and Appointment		
Darren O'Mahony Director	On odray	March 2023

Project Number	23-0237
Project Name	Laurclavagh
Site Location	

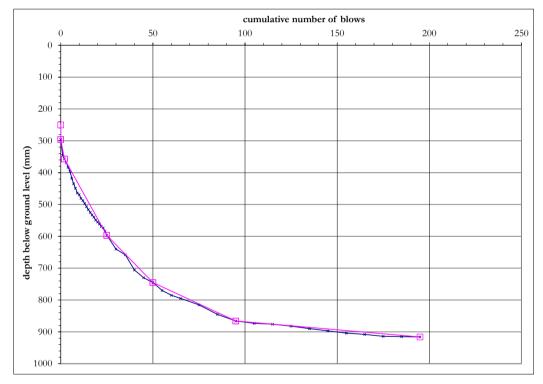


Test Number	DCP33
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
296	,	,
296	24	0.1
357	31	8.1
357	10	25
597		
597	.	4.6
745	5.9	46
745	2.7	>100
866		
866		400
916	0.5	>100

CBR Range Min: 8.1

Min: 8.1

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

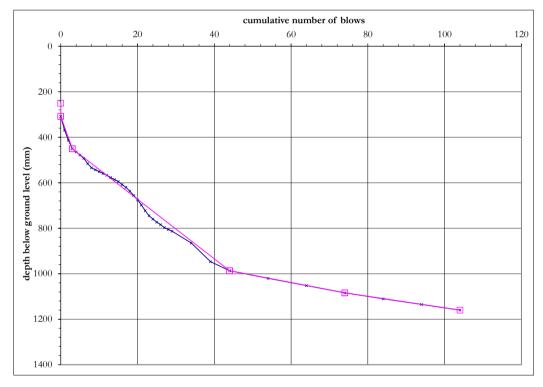


Test Number	DCP34
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top/		
base of	mm/	CBR
layer	blow	(%)
(mm)		
250	N/A	N/A
308	,	,
308	47	5.1
450		
450	13	20
987		
987	3.2	87
1084		
1001		
1084	2.5	>100
1160		

Min: 5.1 CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

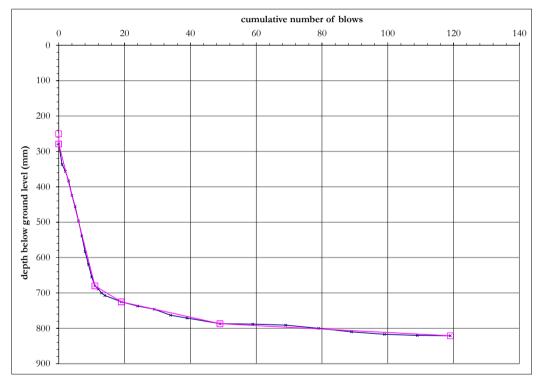


Test Number	DCP35
Depth bgl (m)	0.25

Date Tested	15/03/2023	
Weather	Wet	

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 279	N/A	N/A
279 680	36	6.7
680 725	5.6	49
725 787	2.1	>100
787 821	0.5	>100

Min: 6.7 CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

	Approved Name and Appointment	
Darren O'Mahony Director	On odray	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

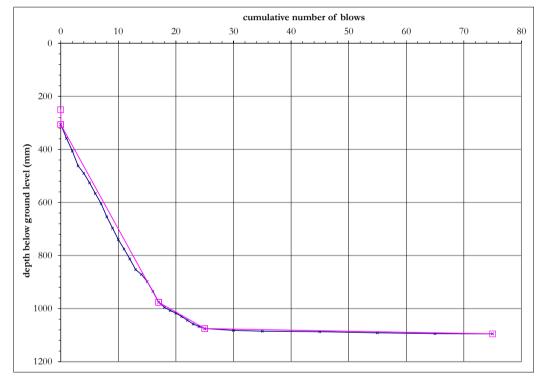


Test Number	DCP36
Depth bgl (m)	0.25

Date Tested	15/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
306	,	,
206		
306 976	39	6.2
976		
976		
1075	12	21
1075		
1075	0.4	>100
1095	0.4	>100

CBR Range Min: 6.2

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On odrog	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

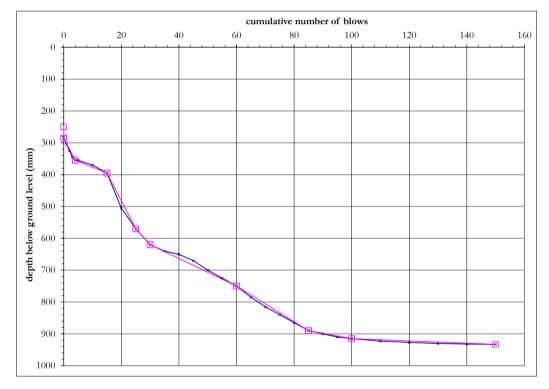


Test Number	DCP37
Depth bgl (m)	0.25

Date Tested	16/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
285	IN/A	N/A
285	18	15
355	10	13
355	3.6	77
395	3.0	//
395	18	15
570	10	15
570	10	26
620	10	20
620	4.3	64
750	1.0	0.
750	5.6	49
890		
890	1.7	>100
915		
915	0.4	>100
933		

Min: 15 CBR Range

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odrey	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

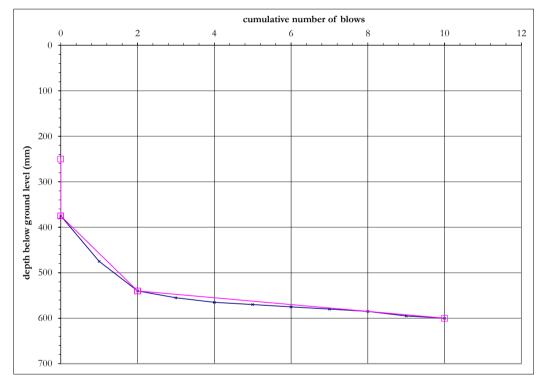


Test Number	DCP38
Depth bgl (m)	0.25

Date Tested	16/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 375	N/A	N/A
375 540	83	2.8
540 600	7.5	36

CBR Range

Max: 36

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

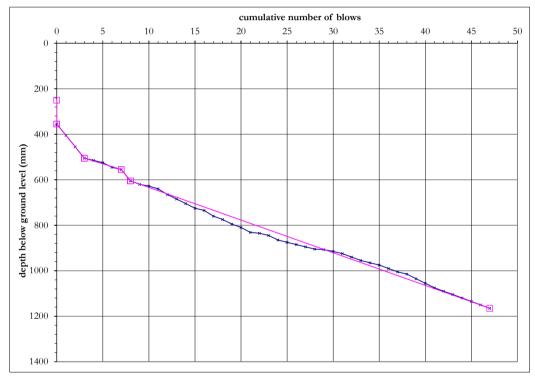


Test Number	DCP38A
Depth bgl (m)	0.25

Date Tested	16/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250 355	N/A	N/A
333		
355 505	50	4.8
505	13	21
555		
555 605	50	4.8
605 1165	14	18

CBR Range Min: 4.8

Max: 21

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
--------------------------------------	------

Approved Name and Appointment		
Darren O'Mahony Director	On odus	March 2023



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

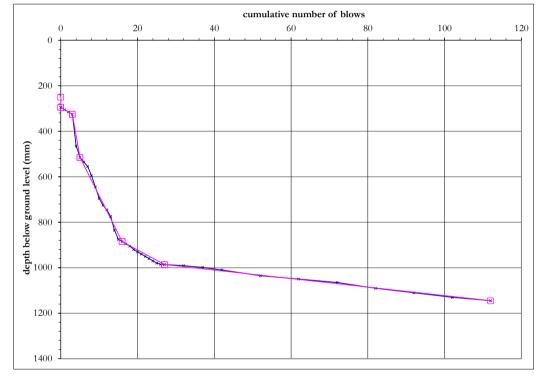


Test Number	DCP39
Depth bgl (m)	0.25

Date Tested	16/03/2023
Weather	Wet

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth
N/A	CLAY



top / base of layer (mm)	mm/ blow	CBR (%)
250	N/A	N/A
295	14/11	14/11
295	10	26
325		
325		
515	95	2.5
313		
515	24	7.0
885	34	7.3
885	9.2	29
986	7.2	27
986	1.9	>100
1145		
<u> </u>		

CBR Range

Min: 2.5

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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	Approved Name and Appointment							
Darren O'Mahony Director	On odran	March 2023						



Project Number	23-0237
Project Name	Laurclavagh
Site Location	

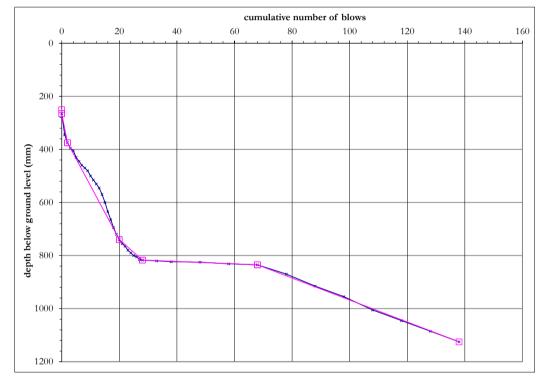


Test Number	DCP40
Depth bgl (m)	0.25

Date Tested	16/03/2023
Weather	Dry and Cold

Test conducted in accordance with Documented In-House Technical Procedure IMS TP7-4 and DMRB CS 229 Rev 0
CBR calculated using the TRRL CBR DCP relationship: log10(CBR) = 2.48 - 1.057 x log10(mm/blow) in accordance with DMRB CS 229 Rev 0

Surface preparation	Description of surface material at test depth					
N/A	CLAY					



top / base of layer (mm)	mm/ blow	CBR (%)				
250 265	N/A	N/A				
200						
265 375	55	4.4				
375 740	20	13				
7 10						
740 817	9.6	28				
817 835	0.5	>100				
835						
835 1125	4.1	67				

CBR Range Min: 4.4

Max: >100

The self-weight penetration at the start of the test (shown above) has not been included in the minimum and maximum values shown to the left. The selection of layers is based on visual interpretation of the data. The insitu DCP reading (mm/blow) and CBR values are valid at the time of testing; variation in moisture content or other factors may affect the insitu value. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. This report should not be reproduced except in full without the written approval of the laboratory.

Deviation(s) from standard procedure	None
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Approved Name and Appointment								
Darren O'Mahony Director	On odrog	March 2023						





APPENDIX H GEOTECHNICAL LABORATORY TEST RESULTS





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ROE +353 000 526 2465

Department of Services

www.causewaygeotech.com

19 May 2023

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

Project Name:	Laurclavagh WF; Ground Investigation
Project No.:	23-0237
Client:	Turnkey Developments
Engineer:	Enerco Energy

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 10/05/2023 and 19/05/2023.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Stephen Watson

Laboratory Manager

Signed for and on behalf of Causeway Geotech Ltd















Project Name: Laurclavagh WF; Ground Investigation

Report Reference: Schedule 1

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report		
SOIL	Moisture Content of Soil	BS 1377-2: 1990: Cl 3.2	20		
SOIL	Liquid and Plastic Limits of soil-1 point cone penetrometer method	BS 1377-2: 1990: Cl 4.4, 5.3 & 5.4	20		
SOIL	Particle size distribution - wet sieving	BS 1377-2: 1990: Cl 9.2	20		
SOIL	Particle size distribution - sedimentation hydrometer method	BS 1377-2: 1990: Cl 9.5	18		

SUB-CONTRACTED TESTS

In agreement with Client, the following tests were conducted by an approved sub-contractor. All sub-contracting laboratories used are UKAS accredited.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183)	pH Value of Soil		15
SOIL – Subcontracted to Eurofins Chemtest Ltd (UKAS 2183)	Sulphate Content water extract		15



Summary of Classification Test Results

Project No. Project Name

23-0237

Laurclavagh

		San	nple			D	4		ъ .		ы	DI	Dartiala	
Hole No.	Ref	Тор	Base	Туре	Specimen Description	Dens bulk	dry	W	Passing 425µm	LL	PL		Particle density	Casagrande Classification
						Mg/m	3	%	%	%	%	%	Mg/m3	
ITP01	3	2.00		В	Brown sandy slightly gravelly silty CLAY.			8.7	71	20 -1pt	10	10		CL
ITP02	1	0.60		В	Brown sandy slightly gravelly silty CLAY.			8.3	57	21 -1pt	12	9		CL
ITP06	2	1.20		В	Brown sandy slightly gravelly clayey SILT.			31	94	58 -1pt	33	25		МН
ITP07	2	1.50		В	Brown sandy slightly gravelly silty CLAY.			12	56	24 -1pt	15	9		CL
ITP08	2	1.50		В	Grey gravelly slightly silty fine to ocarse SAND.			8.4	32	24 -1pt	17	7		CL
ITP09	2	1.00		В	Greyish brown sandy slightly gravelly silty CLAY.			8.6	57	20 -1pt	12	8		CL
ITP09	4	3.00		В	Brown sandy gravelly clayey SILT.			11	58	28 -1pt	23	5		ML
ITP10	1	0.70		В	Greyish brown sandy slightly gravelly silty CLAY.			10	65	20 -1pt	14	6		ML/CL
ITP10	3	2.50			Greyish brown sandy slightly gravelly silty CLAY.			8.4	55	20 -1pt	11	9		CL
ITP11	2	1.00		В	Greyish brown sandy slightly gravelly silty CLAY.			10	60	22 -1pt	13	9		CL
ITP11	4	2.20		В	Greyish brown slightly gravelly silty fine to coarse SAND.			13	67	20 -1pt	15	5		ML
ITP13	3	2.00		В	Greyish brown sandy slightly gravelly silty CLAY.			9.2	58	20 -1pt	12	8		CL

All tests performed in accordance with BS1377:1990 unless specified otherwise

LAB 01R Version 6

Key

Density test

Liquid Limit

Particle density

Approved By

Linear measurement unless:

4pt cone unless :

1pt - single point test

sp - small pyknometer

19/05/2023

Date Printed

10122

wd - water displacement wi - immersion in water

cas - Casagrande method

gj - gas jar

Stephen Watson



Summary of Classification Test Results

Project No. Project Name

23-0237

Laurclavagh

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Llolo No		Sar	nple	I	Chasiman Description	Dens bulk	ity dry	W	Passing 425µm	LL	PL	PI	Particle density	Casagrande
Hole No.	Ref	Тор	Base	Туре	Specimen Description	Mg/m	l	%	%	%	%	%	Mg/m3	Classification
ITP13	4	3.00		В	Greyish brown sandy slightly gravelly silty CLAY.			13	49	21 -1pt	13	8		CL
TP01	4	3.00		В	Greyish brown sandy slightly gravelly clayey SILT.			10	63	20 -1pt	15	5		ML
TP02	2	1.20		В	Greyish brown gravelly slightly silty fine to coarse SAND.			11	39	38 -1pt	27	11		MI
TP03	2	1.30		В	Greyish brown sandy slightly gravelly clayey SILT.			11	57	20 -1pt	15	5		ML
TP06	2	1.50		В	Greyish brown sandy slightly gravelly silty CLAY.			9.3	69	20 -1pt	12	8		CL
TP06	4	3.30		В	Greyish brown sandy slightly gravelly silty CLAY.			7.7	71	20 -1pt	12	8		CL
TP07	1	0.50		В	Greyish brown sandy slightly gravelly clayey SILT.			39	66	51 -1pt	34	17		мн
TP08	2	1.60		В	Greyish brown sandy slightly gravelly silty CLAY.			9.3	61	20 -1pt	13	7		CL
	<u> </u>	<u> </u>	<u>I</u>	<u>I</u>]	<u> </u>				. 0.4.5.) /

All tests performed in accordance with BS1377:1990 unless specified otherwise

LAB 01R Version 6

Key

Density test

Liquid Limit

Particle density

Approved By

Linear measurement unless :

4pt cone unless :

sp - small pyknometer

19/05/2023

Date Printed

UKAS

Stephen Watson 10122

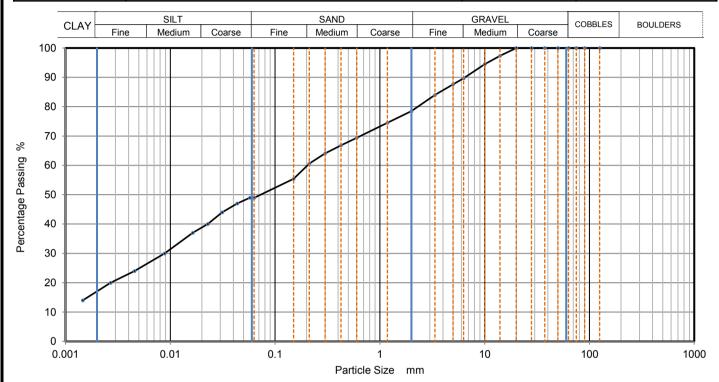
wd - water displacement

cas - Casagrande method

gj - gas jar

wi - immersion in water 1pt - single point test

CAUSEWAY	PARTICLE SIZE DISTRIBUTION				Job Ref		23-0237
- GETTICH	PARII	ARTICLE SIZE DISTRIBUTION				it No.	ITP01
Site Name	Laurclavagh				Sample No.		3
Specimen Description	Brown sandy slightly gravelly silty CLAY.				Sample	Тор	2.00
Specimen Description	brown sandy slightly grav	relly silty CLAT.			Depth (m)	Base	
Specimen Reference	6 Specimen 2 m			Sample Type		В	
Test Method	BS1377:Part 2:1990, clau	S1377:Part 2:1990, clauses 9.2 and 9.5					Caus2023051017



Sion	ving	Sedimentation				
Sie	/ш <u>в</u>	Jedilli	I			
Particle Size mm	% Passing	Particle Size mm	% Passing			
125	100	0.05761	49			
90	100	0.04357	47			
75	100	0.03131	44			
63	100	0.02284	40			
50	100	0.01639	37			
37.5	100	0.00883	30			
28	100	0.00456	24			
20	100	0.00270	20			
14	97	0.00146	14			
10	95					
6.3	90					
5	88					
3.35	84					
2	79					
1.18	75					
0.6	69	Particle density	(assumed)			
0.425	67	2.65	Mg/m3			
0.3	64					
0.212	61	1				
0.15	55	1				
0.063	49	1				

Dry Mass of sample, g	504
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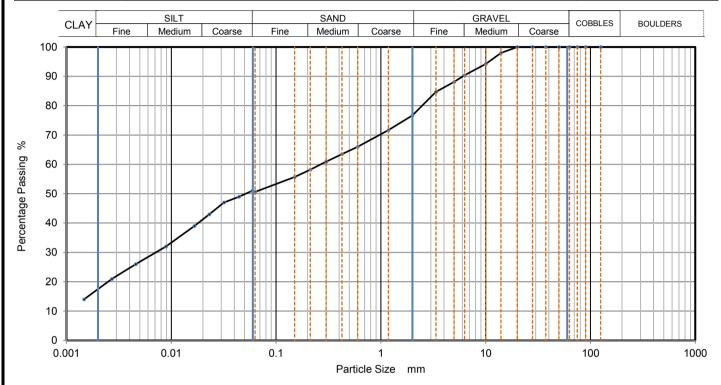
Sample Proportions	% dry mass			
Cobbles	0.0			
Gravel	21.5			
Sand	29.6			
Silt	32.0			
Clay	16.9			

Grading Analysis		
D100	mm	
D60	mm	0.204
D30	mm	0.00856
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	PARTICLE SIZE DISTRIBUTION				Job Ref		23-0237
- CASTICH					Borehole/F	it No.	ITP02
Site Name	aurclavagh				Sample No.		1
Specimen Description	Brown sandy slightly gravelly silty CLAY.				Sample	Тор	0.60
Specimen bescription					Depth (m)	Base	
Specimen Reference	6	6 Specimen 0.6 m			Sample Type		В
Test Method	BS1377:Part 2:1990, claus	51377:Part 2:1990, clauses 9.2 and 9.5					Caus2023051018



Sion	/ing	Codim	entation
316	/ilig	Seulin	T
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05908	51
90	100	0.04428	49
75	100	0.03181	47
63	100	0.02301	43
50	100	0.01663	39
37.5	100	0.00889	32
28	100	0.00459	26
20	100	0.00271	21
14	98	0.00147	14
10	94		
6.3	90		
5	88		
3.35	85		
2	77		
1.18	72		
0.6	66	Particle density	(assumed)
0.425	64	2.65	Mg/m3
0.3	61		_
0.212	58	1	
0.15	56	1	
0.063	51	1	

Dry Mass of sample, g	535
Dry Mass of sample, g	535

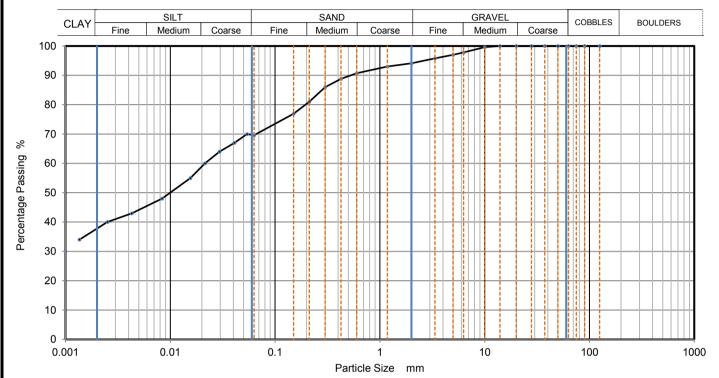
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	23.3
Sand	26.2
Silt	33.0
Clay	17.5

Grading Analysis		
D100	mm	
D60	mm	0.267
D30	mm	0.00693
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	PARTICLE SIZE DISTRIBUTION				Job Ref		23-0237
- GERTICH	PARII	PARTICLE SIZE DISTRIBUTION				it No.	ITP06
Site Name	Laurclavagh				Sample No.		2
Specimen Description	Brown sandy slightly gravelly clayey SILT.				Sample	Тор	1.20
Specimen bescription	brown sandy slightly grav	iigiitiy graveiiy clayey Sici.				Base	
Specimen Reference	6 Specimen 1.2 m			В	Sample Type		В
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5				KeyLAB ID		Caus2023051021



	_	II	_
Sieving		Sedime	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05404	70
90	100	0.04096	67
75	100	0.02950	64
63	100	0.02142	60
50	100	0.01553	55
37.5	100	0.00834	48
28	100	0.00429	43
20	100	0.00251	40
14	100	0.00136	34
10	100		
6.3	98		
5	97		
3.35	96		
2	94		
1.18	93		
0.6	91	Particle density	(assumed)
0.425	89	2.65	Mg/m3
0.3	86		
0.212	81		
0.15	77		
0.063	70		

Dry Mass of sample, g	469
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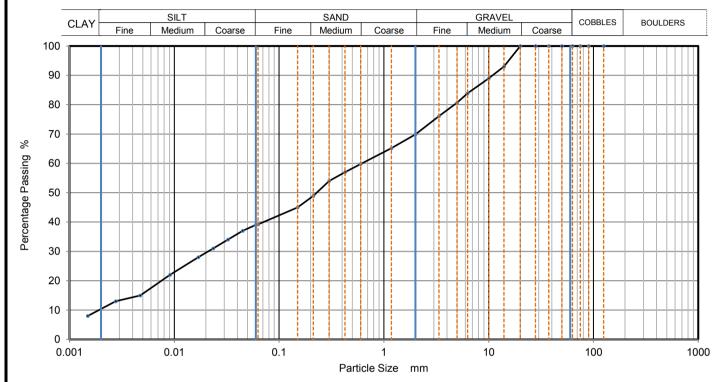
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	5.9
Sand	24.6
Silt	31.8
Clay	37.7

Grading Analysis		
D100	mm	
D60	mm	0.022
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	DADTICLE CIZE DISTRIBUTION		Job Ref		23-0237		
- GETTICH	PARTICLE SIZE DISTRIBUTION			Borehole/Pit No.		ITP07	
Site Name	Laurclavagh	aurclavagh			Sample No.		2
Specimen Description	Brown sandy slightly gravelly silty CLAY.				Sample	Тор	1.50
Specimen Description					Depth (m)	Base	
Specimen Reference	6 Specimen 1.5 m			Ж	Sample Typ	oe	В
Test Method	3S1377:Part 2:1990, clauses 9.2 and 9.5				KeyLAB ID		Caus2023051023



	_	II	_
Sieving		Sedim	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05956	39
90	100	0.04499	37
75	100	0.03255	34
63	100	0.02352	31
50	100	0.01698	28
37.5	100	0.00912	22
28	100	0.00473	15
20	100	0.00276	13
14	93	0.00149	8
10	89		
6.3	84		
5	81		
3.35	76		
2	70		
1.18	65		
0.6	60	Particle density	(assumed)
0.425	57	2.65	Mg/m3
0.3	54		
0.212	49		
0.15	45		
0.063	39	1	

Dry Mass of sample, g	540
	l l

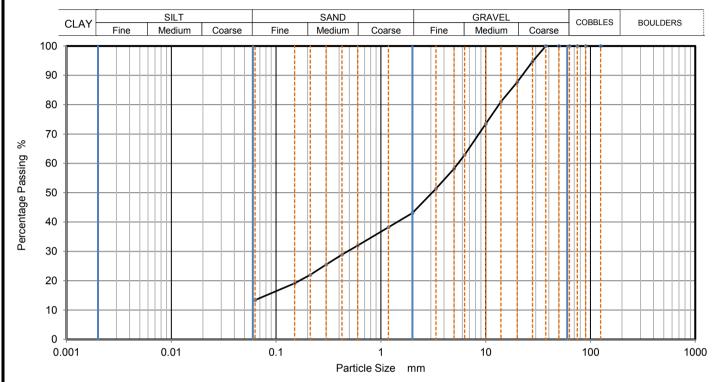
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	30.1
Sand	30.8
Silt	28.4
Clay	10.7

Grading Analysis		
D100	mm	
D60	mm	0.619
D30	mm	0.0213
D10	mm	0.00184
Uniformity Coefficient		340
Curvature Coefficient		0.4





CAUSEWAY	DARTICI E CIZE DISTRIBUTIONI		Job Ref		23-0237		
- GETTICH	PARTICLE SIZE DISTRIBUTION			Borehole/Pit No.		ITP08	
Site Name	Laurclavagh	aurclavagh			Sample No.		2
Specimen Description	Grey gravelly silty fine to ocarse SAND.				Sample	Тор	1.50
Specimen Description				Depth (m)	Base		
Specimen Reference	6 Specimen 1.5 m			Sample Typ	e	В	
Test Method	3S1377:Part 2:1990, clause 9.2				KeyLAB ID		Caus2023051025



Sieving		Sedime	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	95		
20	88		
14	81		
10	74		
6.3	63		
5	58		
3.35	51		
2	43		
1.18	38		
0.6	32		
0.425	29		
0.3	26		
0.212	22		
0.15	19		
0.063	13		

Dry Mass of sample, g	4043
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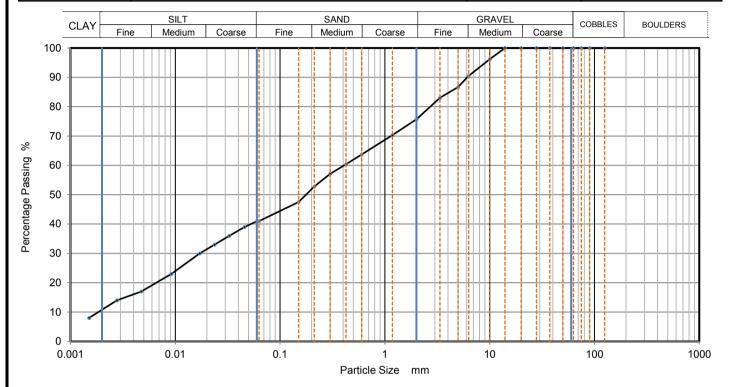
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	56.9
Sand	29.7
Fines < 0.063mm	13.0

Grading Analysis		
D100	mm	
D60	mm	5.48
D30	mm	0.481
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	PARTICLE SIZE DISTRIBUTION -		Job Ref Borehole/Pit No.		23-0237	
- GETTICH					ITP09	
Site Name	Laurclavagh			Sample No		2
Specimen Description	Greyish brown sandy slightly gravelly silty CLAY.		Sample	Тор	1.00	
Specimen Description			Depth (m)	Base		
Specimen Reference	6 Specimen 1 m		Sample Typ	oe	В	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID		Caus2023051027



Sieving		Sedimo	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06050	41
90	100	0.04568	39
75	100	0.03279	36
63	100	0.02369	33
50	100	0.01710	30
37.5	100	0.00918	23
28	100	0.00473	17
20	100	0.00278	14
14	100	0.00150	8
10	96		
6.3	91		
5	87		
3.35	83		
2	76		
1.18	70		
0.6	64	Particle density	(assumed)
0.425	60	2.65	Mg/m3
0.3	57		
0.212	53	1	
0.15	48	1	
0.063	41	1	

Dry Mass of sample, g	537

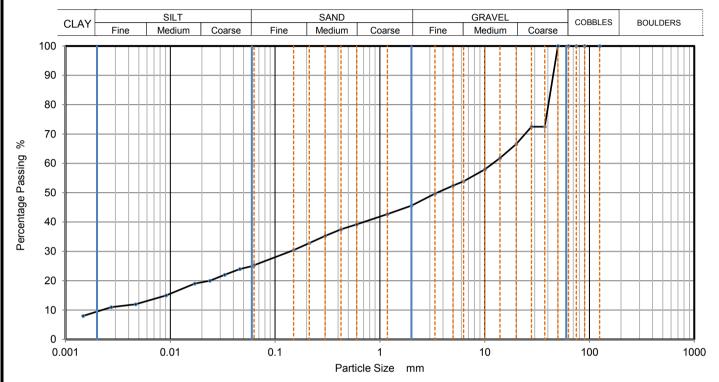
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	24.3
Sand	34.7
Silt	30.4
Clay	10.6

Grading Analysis		
D100	mm	
D60	mm	0.409
D30	mm	0.0177
D10	mm	0.00187
Uniformity Coefficient		220
Curvature Coefficient		0.41





CAUSEWAY	DARTICLE CIZE DISTRIBUTION		Job Ref		23-0237		
- CASTICH	PARII	PARTICLE SIZE DISTRIBUTION -		Borehole/Pit No.		ITP09	
Site Name	Laurclavagh			Sample No		4	
Specimen Description	Brown sandy slightly gravelly clayey SILT.		Sample Depth (m)	Тор	3.00		
Specimen bescription				Base			
Specimen Reference	6 Specimen 3 m			Sample Typ	e	В	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5				KeyLAB ID		Caus2023051028



	_		_
Siev	ving	Sedime	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06097	25
90	100	0.04603	24
75	100	0.03303	22
63	100	0.02385	20
50	100	0.01710	19
37.5	73	0.00912	15
28	73	0.00467	12
20	67	0.00273	11
14	62	0.00147	8
10	58		
6.3	54		
5	52		
3.35	50		
2	46		
1.18	43		
0.6	39	Particle density	(assumed)
0.425	38	2.65	Mg/m3
0.3	35		
0.212	33		
0.15	30		
0.063	25	1	

Dry Mass of sample, g 2544	Dry Mass of sample, g	2544
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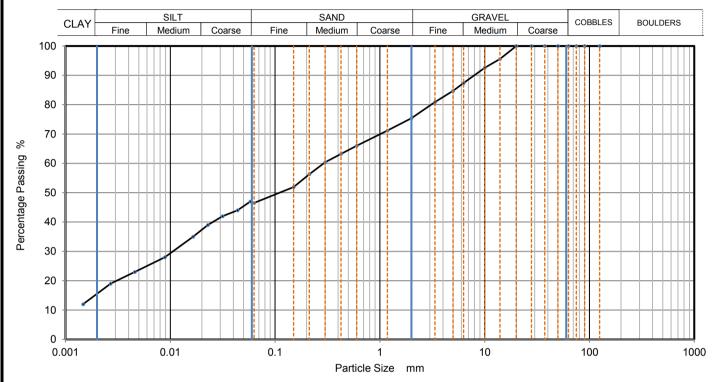
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	54.4
Sand	20.3
Silt	15.9
Clay	9.4

Grading Analysis		
D100	mm	
D60	mm	12
D30	mm	0.141
D10	mm	0.00228
Uniformity Coefficient		5300
Curvature Coefficient		0.73





CAUSEWAY	DARTICI E CIZE DICTRIBUTIONI			Job Ref		23-0237
- CASTICH	PARII	PARTICLE SIZE DISTRIBUTION -			it No.	ITP10
Site Name	Laurclavagh			Sample No.		1
Specimen Description	Casalina a Danasintina Casalinh harrow and alighthy are all, silk, CLAV			Sample Depth (m)	Тор	0.70
Specimen bescription	Specimen Description Greyish brown sandy slightly gravelly silty CLAY.		Base			
Specimen Reference	6 Specimen 0.7 m			Sample Type		В
Test Method	3S1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID		Caus2023051029



		11				
Siev	/ing	Sedimentation				
Particle Size mm	% Passing	Particle Size mm	% Passing			
125	100	0.05810	47			
90	100	0.04393	44			
75	100	0.03156	42			
63	100	0.02284	39			
50	100	0.01651	35			
37.5	100	0.00889	28			
28	100	0.00459	23			
20	100	0.00270	19			
14	96	0.00147	12			
10	93					
6.3	87					
5	85					
3.35	81					
2	75					
1.18	71					
0.6	66	Particle density	(assumed)			
0.425	63	2.65	Mg/m3			
0.3	60		_			
0.212	56					
0.15	52					
0.063	47					

Dry Mass of sample, g	508
Dry Mass of sample, g	508

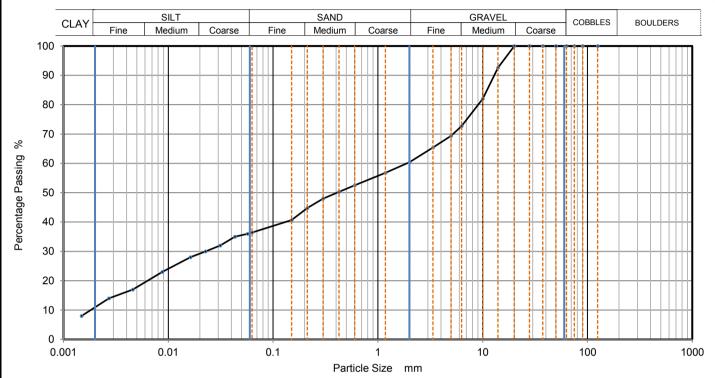
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	24.6
Sand	28.9
Silt	30.6
Clay	15.9

Grading Analysis		
D100	mm	
D60	mm	0.29
D30	mm	0.0103
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	DARTICI E CIZE DICTRIBUTIONI			Jo	Job Ref		23-0237
- CASTICH	PARII	PARTICLE SIZE DISTRIBUTION -			Borehole/Pit No.		ITP10
Site Name	Laurclavagh			Sa	Sample No.		3
Specimen Description	Consider Description Consider Income and adjust the consults of the CLAV			Sa	Sample Depth (m)	Тор	2.50
Specimen bescription	Specimen Description Greyish brown sandy slightly gravelly silty CLAY.		De	Base			
Specimen Reference	6 Specimen 2.5 m			n Sa	Sample Type		В
Test Method	3S1377:Part 2:1990, clauses 9.2 and 9.5			Ke	KeyLAB ID		Caus2023051031



Siev	ving	Sedimo	entation
310	71116	- Scann	T
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05712	36
90	100	0.04320	35
75	100	0.03131	32
63	100	0.02267	30
50	100	0.01627	28
37.5	100	0.00877	23
28	100	0.00459	17
20	100	0.00271	14
14	93	0.00149	8
10	82		
6.3	73		
5	69		
3.35	65		
2	60		
1.18	57		
0.6	53	Particle density	(assumed)
0.425	50	2.65	Mg/m3
0.3	48		
0.212	45	1	
0.15	41	1	
0.063	36	1	

Dry Mass of sample, g	512
Dry Mass of sample, g	512

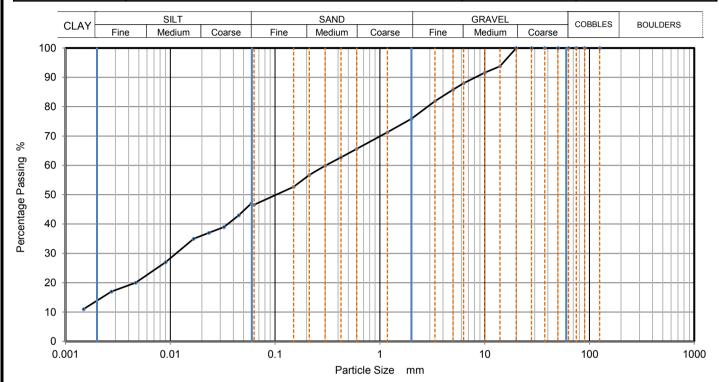
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	39.6
Sand	24.0
Silt	25.9
Clay	10.5

Grading Analysis		
D100	mm	
D60	mm	1.89
D30	mm	0.0238
D10	mm	0.00189
Uniformity Coefficient		1000
Curvature Coefficient		0.16





CAUSEWAY	DARTICI E SIZE DISTRIBUTIONI			Job Ref		23-0237	
- CASTICH	PANII	PARTICLE SIZE DISTRIBUTION -			Borehole/Pit No.		ITP11
Site Name	Laurclavagh			Sample No.		2	
Specimen Description	Specimen Description Greyish brown sandy slightly gravelly silty CLAY.			Sample Depth (m)	Тор	1.00	
Specimen bescription					Base		
Specimen Reference	6 Specimen 1 m			Sample Type		В	
Test Method	3S1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID		Caus2023051032	



	•	II	
Sie	ving	Sedime	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05908	47
90	100	0.04499	43
75	100	0.03255	39
63	100	0.02335	37
50	100	0.01675	35
37.5	100	0.00901	27
28	100	0.00467	20
20	100	0.00275	17
14	94	0.00149	11
10	92		
6.3	88		
5	86		
3.35	82		
2	76		
1.18	71		
0.6	66	Particle density	(assumed)
0.425	63	2.65	Mg/m3
0.3	60		
0.212	57		
0.15	53		
0.063	47		

Dry Mass of sample, g	504
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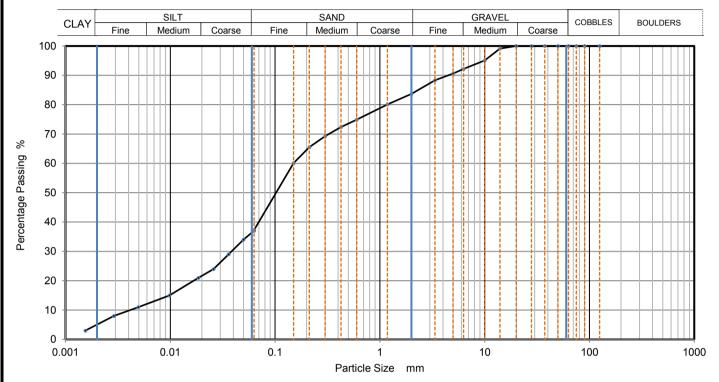
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	24.1
Sand	29.3
Silt	33.0
Clay	13.6

Grading Analysis		
D100	mm	
D60	mm	0.303
D30	mm	0.0112
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	PARTICLE SIZE DISTRIBUTION		Job Ref		23-0237	
- CASTICH			Borehole/Pit No.		ITP11	
Site Name	Laurclavagh		Sample No.		4	
Specimen Description	Greyish brown sandy slightly gravelly clayey SILT.		Sample	Тор	2.20	
Specimen bescription			Depth (m)	Base		
Specimen Reference	6 Specimen 2.2 m			Sample Ty	oe	В
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5		KeyLAB ID		Caus2023051034	



		11	
Sieving		Sedime	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06300	37
90	100	0.04994	34
75	100	0.03599	29
63	100	0.02592	24
50	100	0.01855	21
37.5	100	0.00980	15
28	100	0.00495	11
20	100	0.00289	8
14	99	0.00155	3
10	95		
6.3	92		
5	91		
3.35	88		
2	84		
1.18	80		
0.6	75	Particle density	(assumed)
0.425	72	2.65	Mg/m3
0.3	69		
0.212	66		
0.15	60		
0.063	37		

Dry Mass of sample, g	540

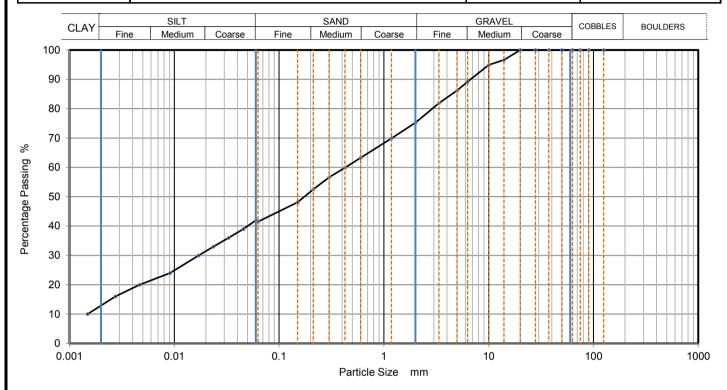
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	16.3
Sand	46.4
Silt	32.1
Clay	5.2

Grading Analysis		
D100	mm	
D60	mm	0.149
D30	mm	0.038
D10	mm	0.00396
Uniformity Coefficient		38
Curvature Coefficient		2.4





CAUSEWAY	DARTICLE SIZE DISTRIBUTION		Job Ref		23-0237		
CASTICH	PARTICLE SIZE DISTRIBUTION			Borehole/Pit No.		ITP13	
Site Name	Laurclavagh	aurclavagh			Sample No.		3
Specimen Description	Cravich braum conductionable granully sitty CLAV			Sample	Тор	2.00	
Specimen bescription	dieyisii biowii saildy s	Greyish brown sandy slightly gravelly silty CLAY.			Depth (m)	Base	
Specimen Reference	6 Specimen 2 m			Sample Typ	oe	В	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID		Caus2023051036	



	_	II	_
Sieving		Sedim	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06028	42
90	100	0.04554	39
75	100	0.03295	36
63	100	0.02364	33
50	100	0.01707	30
37.5	100	0.00912	24
28	100	0.00468	20
20	100	0.00275	16
14	97	0.00149	10
10	95		
6.3	89		
5	86		
3.35	82		
2	75		
1.18	70		
0.6	63	Particle density	(assumed)
0.425	60	2.65	Mg/m3
0.3	57		
0.212	53		
0.15	48		
0.063	42	1	

Dry Mass of sample, g

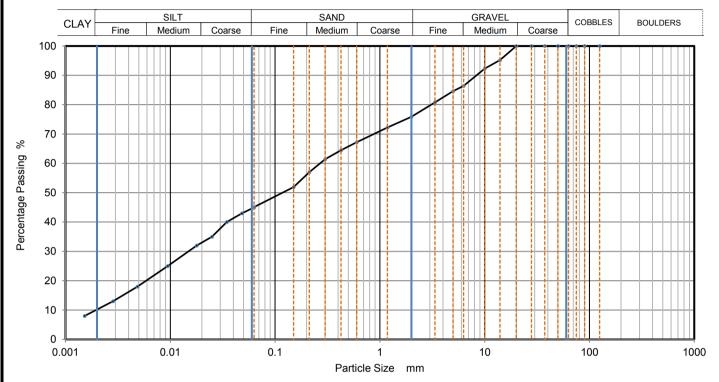
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	24.8
Sand	33.7
Silt	28.4
Clay	13.1

Grading Analysis		
D100	mm	
D60	mm	0.428
D30	mm	0.0171
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	DARTICI E CIZE DICTRIDITIONI			Job Ref		23-0237
- CASTICH	PARII	PARTICLE SIZE DISTRIBUTION -		Borehole/Pit No.		ITP13
Site Name	Laurclavagh			Sample No		4
Specimen Description	Cassiah hasawa sanda slishkh, sanaslla sika CLAV			Sample	Тор	3.00
Specimen bescription	dreyisii browii sandy siigi	n brown sandy slightly gravelly silty CLAY.		Depth (m)	Base	
Specimen Reference	6 Specimen 3 m			Sample Type		В
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID		Caus2023051037



Siev	ving	Sedimentation			
Particle Size mm	% Passing	Particle Size mm	% Passing		
125	100	0.06300	45		
90	100	0.04829	43		
75	100	0.03462	40		
63	100	0.02497	35		
50	100	0.01788	32		
37.5	100	0.00947	25		
28	100	0.00484	18		
20	100	0.00284	13		
14	95	0.00152	8		
10	92				
6.3	86				
5	85				
3.35	81				
2	76				
1.18	72				
0.6	67	Particle density	(assumed)		
0.425	65	2.65	Mg/m3		
0.3	61				
0.212	57				
0.15	52	1			
0.063	45	1			

Dry Mass of sample, g	503
Dry Mass of sample, g	503

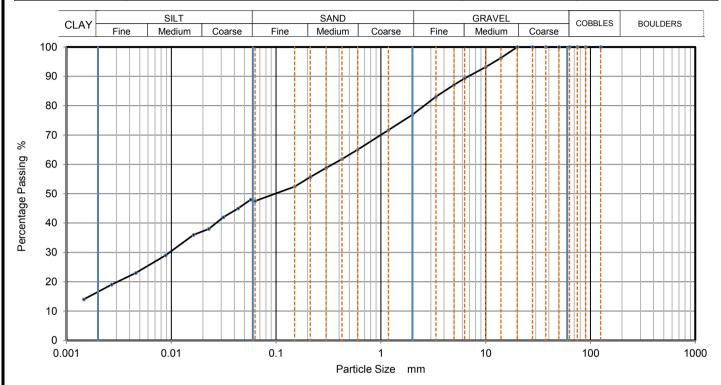
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	24.1
Sand	30.9
Silt	34.5
Clay	10.5

Grading Analysis		
D100	mm	
D60	mm	0.269
D30	mm	0.0152
D10	mm	0.00187
Uniformity Coefficient		140
Curvature Coefficient		0.46





CAUSEWAY	PARTICLE SIZE DISTRIBUTION -			Job Ref		23-0237	
- CASTICH				Borehole/Pit No.		TP01	
Site Name	Laurclavagh			Sample No.		4	
Specimen Description	Conside have an analysis lightly over all sales as CUT			Sample	Тор	3.00	
Specimen bescription	dieyisii biowii sandy siigi	Greyish brown sandy slightly gravelly clayey SILT.			Depth (m)	Base	
Specimen Reference	6 Specimen 3 m			Sample Type		В	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID		Caus2023051039	



	_	II	
Siev	/ing	Sedime	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05730	48
90	100	0.04336	45
75	100	0.03144	42
63	100	0.02277	38
50	100	0.01635	36
37.5	100	0.00882	29
28	100	0.00459	23
20	100	0.00270	19
14	96	0.00146	14
10	93		
6.3	89		
5	87		
3.35	83		
2	77		
1.18	72		
0.6	65	Particle density	(assumed)
0.425	62	2.65	Mg/m3
0.3	59		
0.212	56		
0.15	52		
0.063	48		

Dry Mass of sample, g	515
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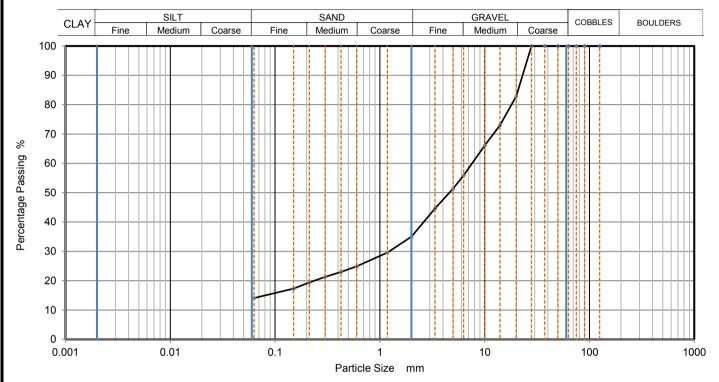
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	23.1
Sand	29.3
Silt	31.1
Clay	16.5

Grading Analysis		
D100	mm	
D60	mm	0.346
D30	mm	0.00931
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	DARTICI E CIZE DICTRIBUTIONI			Job Ref		23-0237
- CASTICH	PARII	PARTICLE SIZE DISTRIBUTION -		Borehole/Pit No.		TP02
Site Name	Laurclavagh			Sample No		2
Specimen Description	Carrish harron and alishth arrowlly already CUT			Sample	Тор	1.20
Specificit Description	dreyisii browii sandy siigi	h brown sandy slightly gravelly clayey SILT.			Base	
Specimen Reference	6 Specimen 1.2 m			Sample Type		В
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID		Caus2023051041



Sieving		Sedime	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	83		
14	73		
10	66		
6.3	56		
5	51		
3.35	45		
2	35		
1.18	30		
0.6	25		
0.425	23		
0.3	21		
0.212	19		
0.15	17		
0.063	14		

Dry Mass of sample, g	1307
Dry Mass of sample, g	1307

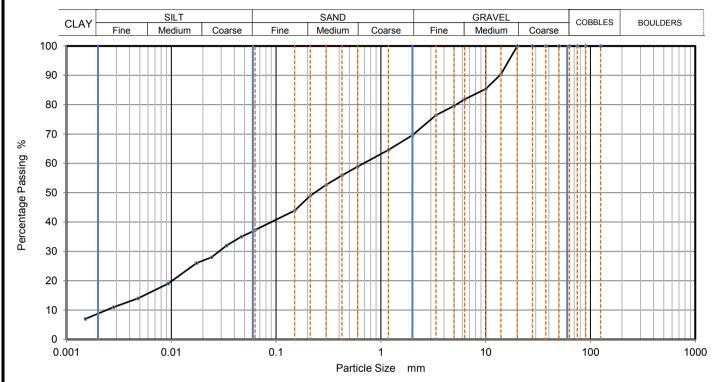
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	65.0
Sand	20.8
Fines < 0.063mm	14.0

Grading Analysis		
D100	mm	
D60	mm	7.59
D30	mm	1.23
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	PARTICLE SIZE DISTRIBUTION -		Job Ref		23-0237	
- CASTICH			Borehole/Pit No.		TP03	
Site Name	Laurclavagh			Sample No.		2
Specimen Description	ion Greyish brown sandy slightly gravelly clayey SILT.		Sample	Тор	1.30	
Specificit Description			Depth (m)	Base		
Specimen Reference	6 Specimen 1.3 m		Sample Ty	oe	В	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5		KeyLAB ID		Caus2023051043	



	_	11	_		
Siev	/ing	Sedimentation			
Particle Size mm	% Passing	Particle Size mm	% Passing		
125	100	0.06172	37		
90	100	0.04659	35		
75	100	0.03367	32		
63	100	0.02431	28		
50	100	0.01743	26		
37.5	100	0.00935	19		
28	100	0.00482	14		
20	100	0.00281	11		
14	90	0.00151	7		
10	85				
6.3	82				
5	80				
3.35	76				
2	70				
1.18	65				
0.6	59	Particle density	(assumed)		
0.425	56	2.65	Mg/m3		
0.3	53				
0.212	49				
0.15	44				
0.063	37				

Dry Mass of sample, g	532

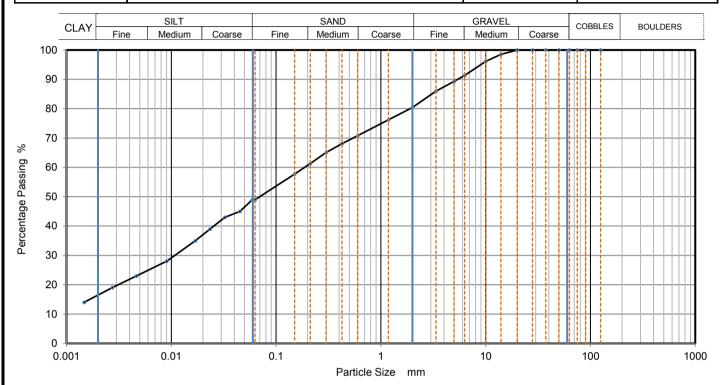
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	30.4
Sand	32.4
Silt	28.4
Clay	8.8

Grading Analysis		
D100	mm	
D60	mm	0.68
D30	mm	0.0287
D10	mm	0.00235
Uniformity Coefficient		290
Curvature Coefficient		0.52





CAUSEWAY	DARTICI E CIZE DISTRIBUITIONI		Job Ref		23-0237		
CASTICH	PARTICLE SIZE DISTRIBUTION			Borehole/Pit No.		ТРО6	
Site Name	Laurclavagh	Laurclavagh			Sample No.		2
Specimen Description	Greyish brown sandy slightly gravelly silty CLAY.		Sample	Тор	1.50		
Specimen bescription				Depth (m)	Base		
Specimen Reference	6 Specimen 1.5 m		m	Sample Typ	oe	В	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5		KeyLAB ID		Caus2023051045		



Siev	/ing	Sedimentation			
Particle Size mm	% Passing	Particle Size mm	% Passing		
125	100	0.05931	49		
90	100	0.04518	45		
75	100	0.03245	43		
63	100	0.02347	39		
50	100	0.01696	35		
37.5	100	0.00906	28		
28	100	0.00465	23		
20	100	0.00273	19		
14	99	0.00147	14		
10	96				
6.3	91				
5	89				
3.35	86				
2	80				
1.18	76				
0.6	71	Particle density	(assumed)		
0.425	68	2.65	Mg/m3		
0.3	65				
0.212	61	1			
0.15	58]			
0.063	49]			

of sample, g 541
of sample, g

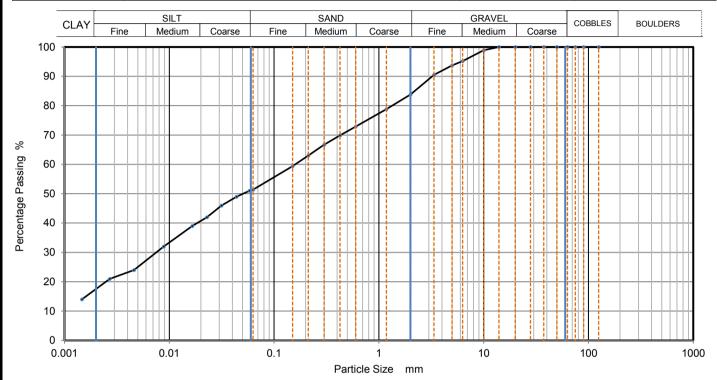
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	19.6
Sand	31.4
Silt	32.3
Clay	16.7

Grading Analysis		
D100	mm	
D60	mm	0.187
D30	mm	0.0106
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	DARTICLE SIZE DISTRIBUTION		Job Ref		23-0237		
- CASTICH	PARII	PARTICLE SIZE DISTRIBUTION -		Borehole/Pit No.		TP06	
Site Name	Laurclavagh			Sample No.		4	
Specimen Description	Greyish brown sandy slightly gravelly silty CLAY.		Sample	Тор	3.30		
Specimen Description			Depth (m)	Base			
Specimen Reference	6 Specimen 3.3 m			Sample Typ	oe	В	
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5				KeyLAB ID		Caus2023051047



Siev	Sieving		entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05805	51
90	100	0.04391	49
75	100	0.03157	46
63	100	0.02286	42
50	100	0.01653	39
37.5	100	0.00885	32
28	100	0.00460	24
20	100	0.00271	21
14	100	0.00147	14
10	99		
6.3	95		
5	94		
3.35	91		
2	84		
1.18	79		
0.6	73	Particle density	(assumed)
0.425	70	2.65	Mg/m3
0.3	67		
0.212	63	1	
0.15	59	1	
0.063	51	1	

Dry Mass of sample, g	568	
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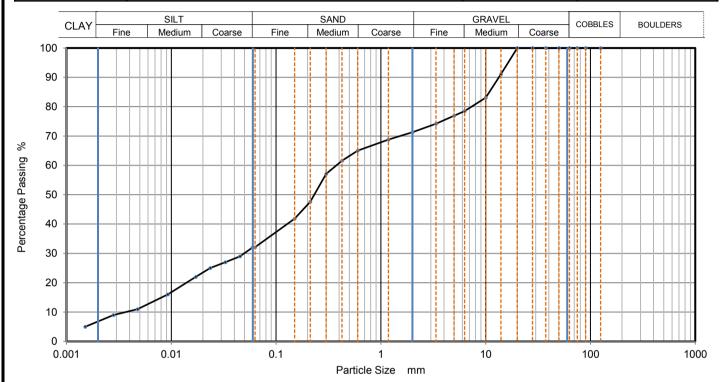
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	16.2
Sand	32.4
Silt	34.0
Clay	17.4

Grading Analysis		
D100	mm	
D60	mm	0.159
D30	mm	0.00739
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		





CAUSEWAY	PARTICLE SIZE DISTRIBUTION		Job Ref Borehole/Pit No.		23-0237	
- CASTICH	PARTICLE SIZE DISTRIBUTION				TP07	
Site Name	Laurclavagh			Sample No		1
Specimen Description	Carrials bearing and aliabeth carrially along CHT			Sample Depth (m)	Тор	0.50
Specimen bescription	Greyish brown sandy slightly gravelly clayey SILT.		Base			
Specimen Reference	6 Specimen 0.5 m			Sample Typ	oe	В
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID		Caus2023051048



Sieving		Sedimo	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.05955	32
90	100	0.04536	29
75	100	0.03282	27
63	100	0.02355	25
50	100	0.01713	22
37.5	100	0.00926	16
28	100	0.00477	11
20	100	0.00281	9
14	91	0.00151	5
10	83		
6.3	79		
5	77		
3.35	74		
2	71		
1.18	69		
0.6	65	Particle density	(assumed)
0.425	62	2.65	Mg/m3
0.3	57		
0.212	48	1	
0.15	42	1	
0.063	32	1	

Dry Mass of sample, g	545
Dry Mass of sample, g	545

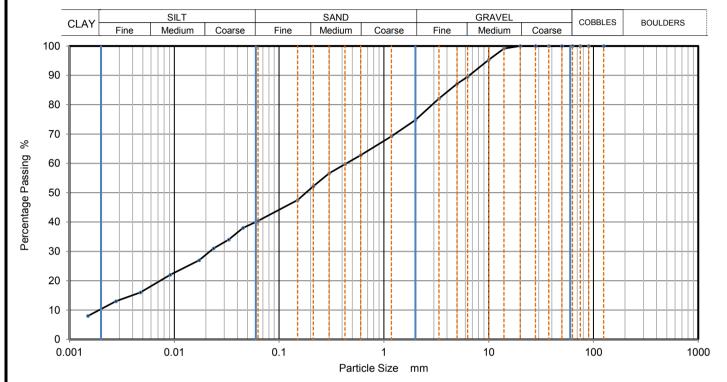
Sample Proportions	% dry mass
Cobbles	0.0
Gravel	28.7
Sand	39.2
Silt	25.3
Clay	6.8

Grading Analysis		
D100	mm	
D60	mm	0.376
D30	mm	0.0478
D10	mm	0.00368
Uniformity Coefficient		100
Curvature Coefficient		1.7





CAUSEWAY	DARTI	CLE SIZE DIST	Job Ref		23-0237		
- GERTICH	PARII	Borehole/I	Pit No.	TP08			
Site Name	Laurclavagh			Sample No).	2	
Specimen Description	Greyish brown sandy sligl	atly gravally silty Cl	A.V.	Sample	Тор	1.60	
Specificit Description	dieyisii biowii sandy siigi	itty graveny sitty CL	AI.	Depth (m)	Base		
Specimen Reference	6	Specimen Depth	1.6 m	Sample Ty	pe	В	
Test Method	BS1377:Part 2:1990, clau:	ses 9.2 and 9.5		KeyLAB ID		Caus2023051050	



Siev	ing	Sedim	entation
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.06003	40
90	100	0.04536	38
75	100	0.03306	34
63	100	0.02372	31
50	100	0.01725	27
37.5	100	0.00915	22
28	100	0.00475	16
20	100	0.00277	13
14	99	0.00150	8
10	95		
6.3	90		
5	87		
3.35	82		
2	75		
1.18	69		
0.6	63	Particle density	(assumed)
0.425	60	2.65	Mg/m3
0.3	57		
0.212	52	1	
0.15	48	1	
0.063	40	1	

51 y 111033 01 30111p1c, 6	Dry Mass of sample, g	562
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Sample Proportions	% dry mass					
Cobbles	0.0					
Gravel	25.2					
Sand	34.4					
Silt	29.9					
Clay	10.5					

Grading Analysis		
D100	mm	
D60	mm	0.438
D30	mm	0.0214
D10	mm	0.0019
Uniformity Coefficient		230
Curvature Coefficient		0.55









Eurofins Chemtest Ltd Depot Road Newmarket CB8 0AL

Tel: 01638 606070 Email: info@chemtest.com

Final Report

Report No.: 23-16004-1

Initial Date of Issue: 19-May-2023

Re-Issue Details:

Client Causeway Geotech Ltd

Client Address: 8 Drumahiskey Road □

Balnamore ☐ Ballymoney ☐ County Antrim ☐ BT53 7QL

Contact(s): Alistair McQuat□

Carin Cornwall Celine Rooney Celine Rooney Colm Hurley Celine Rooney Matriew Closkey Matriella Horan Matthew Gilbert Matthew Graham Neil Haggan Sean Ross Stephen Franey Stephen Watson Stuart Abraham Darren O'Mahony

Neil Patton□ Paul Dunlop□

Project 23-0237 Laurclavagh

Quotation No.: Date Received: 15-May-2023

Order No.: Date Instructed: 15-May-2023

No. of Samples: 15

Turnaround (Wkdays): 5 Results Due: 19-May-2023

Date Approved: 19-May-2023

Approved By:

Details: Stuar

Stuart Henderson, Technical Manager□



Eurofins Chemtest Ltd

Denot Road

CB8 0AL Tel: 01638 606070

Newmarket

Email: info@chemtest.com

Results - Soil

Project: 23-0237 Laurclavagh

Client: Causeway Geotech Ltd	Chemtest Job No.:		23-16004	23-16004	23-16004	23-16004	23-16004	23-16004	23-16004	23-16004		
Quotation No.:	(Chemte	st Sam	ple ID.:	1639216	1639217	1639218	1639219	1639220	1639221	1639222	1639223
Order No.:		Clie	nt Samp	le Ref.:	2	1	1	1	1	1	2	3
	Sample Location:			ITP01	ITP03	ITP06	ITP07	ITP08	ITP09	ITP10	ITP11	
	Sample Type:			SOIL	SOIL							
	Top Depth (m):			1	0.5	0.4	0.8	0.6	0.3	1.7	1.6	
	Date Sampled:		12-May-2023	12-May-2023	12-May-2023	12-May-2023	12-May-2023	12-May-2023	12-May-2023	12-May-2023		
Determinand	Accred.	SOP	Units	LOD								
Moisture	N	2030	%	0.020	17	11	24	13	16	24	12	12
рН	U	2010		4.0	8.1	8.2	8.1	8.5	8.7	7.8	8.7	8.5
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.030	0.030	0.017	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: 23-0237 Laurclavagh

Client: Causeway Geotech Ltd	Chemtest Job No.:		23-16004	23-16004	23-16004	23-16004	23-16004	23-16004	23-16004		
Quotation No.:	(Chemtest Sample ID.:		1639224	1639225	1639226	1639227	1639228	1639229	1639230	
Order No.:		Clier	nt Samp	le Ref.:	2	2	1	1	1	3	1
	Sample Location:		ITP13	TP01	TP02	TP03	TP05	TP06	TP08		
	Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
	Top Depth (m):		1.1	0.9	0.4	0.6	0.5	2.6	0.8		
	Date Sampled:		12-May-2023	12-May-2023	12-May-2023	12-May-2023	12-May-2023	12-May-2023	12-May-2023		
Determinand	Accred.	SOP	Units	LOD							
Moisture	N	N 2030 % 0.020		10	14	11	11	14	8.8	9.9	
рН	U 2010 4.0		8.6	8.5	8.3	8.0	8.2	8.4	8.7		
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	рН	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES

Report Information

Key **UKAS** accredited MCERTS and UKAS accredited M Unaccredited Ν This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for S this analysis This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited SN for this analysis Τ This analysis has been subcontracted to an unaccredited laboratory I/S Insufficient Sample U/S Unsuitable Sample N/E not evaluated "less than" "greater than" > SOP Standard operating procedure LOD Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A Date of sampling not supplied
- B Sample age exceeds stability time (sampling to extraction)
- C Sample not received in appropriate containers
- D Broken Container
- E Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to: <u>customerservices@chemtest.com</u>



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2 May 2023

SOIL AND ROCK SAMPLE ANALYSIS LABORATORY TEST REPORT

Project Name:	Laurclavagh WF; Ground Investigation
Project No.:	23-0237
Client:	Turnkey Developments
Engineer:	Enerco Energy

We are pleased to attach the results of laboratory testing carried out for the above project. This memo and its attachments constitute a report of the results of tests as detailed in the Contents page(s). This testing was performed between 18/04/2023 and 02/05/2023.

The attached results complete the testing requested and we would therefore wish to confirm that samples will be retained without charge for a period of 28 days from the above date after which they will be appropriately disposed of unless we receive written instructions to the contrary prior to that date.

We trust our report meets with your approval but if you have any queries or require additional information, please do not hesitate to contact the undersigned.

Stephen Watson

Laboratory Manager

Signed for and on behalf of Causeway Geotech Ltd















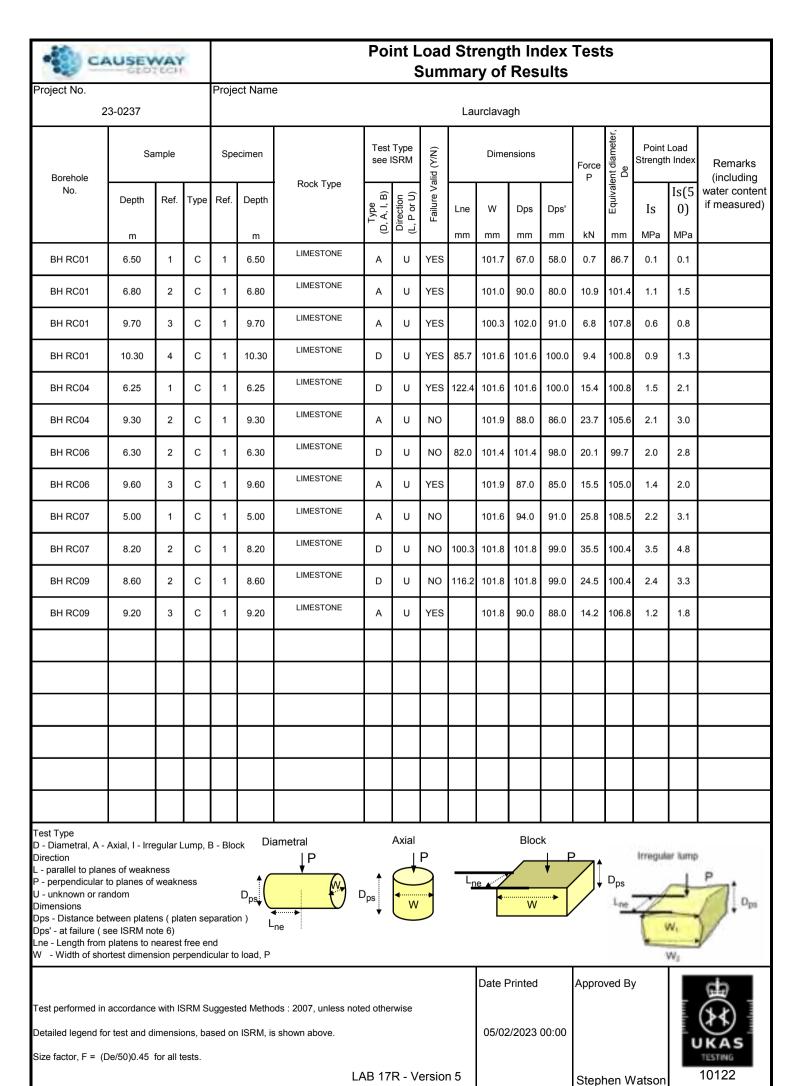
Project Name: Laurclavagh WF; Ground Investigation

Report Reference: Schedule 1

The table below details the tests carried out, the specifications used, and the number of tests included in this report. The results contained in this report relate to the sample(s) as received

Tests marked with* in this report are not United Kingdom Accreditation Service (UKAS) accredited and are not included in Causeway Geotech Limited's scope of UKAS Accreditation Schedule of Tests. Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Material tested	Type of test/Properties measured/Range of measurement	Standard specifications	No. of results included in the report
ROCK	Point load index	ISRM Commission on Testing Methods. Suggested Method for Determining Point Load Strength 1985	12
ROCK	Uniaxial Compressive Strength (UCS)*	ISRM Suggested Methods -Rock Characterization Testing and Monitoring, Ed. E T Brown - 1981	4





UNIAXIAL COMPRESSION TEST ON ROCK - SUMMARY OF RESULTS

Project No.

Project Name

23-0237

Laurclavagh

		Sample			Bulk			Water Content		al Compre				
Hole No.	Ref	Тор	Base	Туре	Rock Type	Dia.	Length mm	H/D	Density2 Mg/m3	1 %	Condition	Mode of failure	UCS MPa	Remarks
BH RC04	3	10.50	10.75	С	LIMESTONE	101.8	200.2	2.0	2.68	0.1	as received	MS	63.4	
BH RC06	1	3.10	3.40	С	LIMESTONE	101.4	201.2	2.0	2.68	0.1	as received	F	95.5	
BH RC07	3	9.55	9.90	С	LIMESTONE	101.7	196.5	1.9	2.73	0.1	as received	F	66.3	
BH RC09	1	6.70	7.10	С	LIMESTONE	101.7	197.7	1.9	2.69	0.4	as received	F	52.2	

1 ISRM p87 test 1, water content at 105 \pm 3 oC, specimen as tested for UCS

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear

MS - multiple shear

AC - Axial cleavage

F - Fragmented

· · · · · · · · · · · · · · · · · · ·				
Test Specification	Date Printed	Approved By	Table	
International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007	05/02/2023 00:00		sheet	1
		Stephen Watson		1



APPENDIX I SPT HAMMER ENERGY MEASUREMENT REPORT



SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3;2005

Southern Testing

Unit 11

Charlwoods Road East Grinstead West Sussex RH19 2HU SPT Hammer Ref: 0208.

Test Date: 18/02/2023

Report Date: 20/02/2023

File Name: 0208..spt

Test Operator: RWS

Instrumented Rod Data

Diameter d_r (mm):

54

Wall Thickness t_f (mm): 6.7

Assumed Modulus Ea (GPa): 208

Accelerometer No.1:

64785

Accelerometer No.2:

64789

SPT Hammer Information

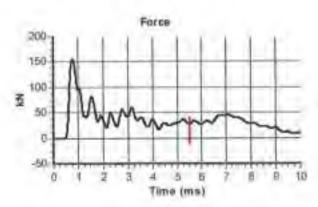
Hammer Mass m (kg): 63,5

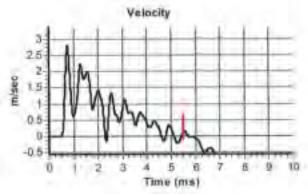
Falling Height h (mm): 760

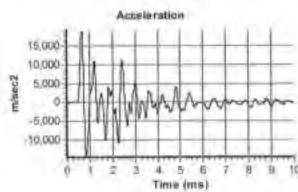
SPT String Length L (m): 10,0

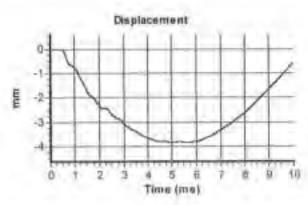
Comments / Location

CAUSEWAY









Calculations

Area of Rod A (mm2):

996

Theoretical Energy Ether (J):

473

Measured Energy Emery (J);

J); 244

Signed: Bob Stewart
Title: Technician

Energy Ratio E, (%):

52

The recommended calibration interval is 12 months