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Ground Investigations Ireland

Scart Mountain-Broemountain

Tobin Consulting Engineers

Ground Investigation Report

April 2024

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APPENDICES

1.0 Preamble

On the instructions of Tobin Consulting Engineering, a site investigation was carried out by Ground Investigations Ireland Ltd., in October 2023 to January 2024 at the site of the proposed Windfarm at Scart Mountain-Broemountain, Co. Waterford.

2.0 Overview

2.1. Background

It is proposed to construct a new Windfarm development with associated services, access roads at the proposed site. The site is currently used by Coillte for forestry and is situated at the eastern end of the Knockmealdown mountains, north of the village of Capoquinn in Co. Waterford. The proposed construction is envisaged to consist of conventional foundations and pavement make up with some local excavations for services and plant.

2.2. Purpose and Scope

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

- Visit project site to observe existing conditions
- Carry out 24 No. Trial Pits to a maximum depth of 3.10m BGL
- Carry out 9 No. Gouge Augers to collect peat samples for testing
- Carry out 6 No. Rotary Core Boreholes to a maximum depth of 23m BGL
- Installation of 5 No. Groundwater monitoring wells
- Geotechnical & Environmental Laboratory testing
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.
The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

3.2. Trial Pits

The trial pits were excavated using a JCB 3CX excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by an Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report.

3.3. In-situ Shear Vane Testing

The shear vanes were carried out at the locations shown in the location plan in Appendix 1. The test were carried out using a Geonor H60 handvane at a depth of 1.0m BGL. The Geonor H60 is used to determine the in-situ shear strength of peaty or cohesive soils. The range of the instrument is from 0 to 260 kPa where three different sizes of vanes can be used. The required vane and extension rods to reach the required depth are connected to the inspection vane instrument. The vane is pushed into the ground to the required depth. Once at the required depth the handle is then turned clockwise until it reached the point of failure. The handle is then allowed to return to its zero position and the reading is taken from the graduated scale. The results for the shear vane testing are provided in on the Trial pit logs shown in Appendix 2 of this Report.

3.4. Gouge Auger

The Gouge Auger is a manually operated stainless-steel corkscrew shaped filling type sampler. The Hand Auger consists of a corkscrew shaped sampler, 1 metre extension bars and a T shaped handle. The corkscrew shaped tip of the sampler is inserted into the ground. The operator then manually turns the T handle while using their body weight to rotate the sampler into the ground. The corkscrew sampler fills with material as it is rotated into the ground. The Hand Auger recovers a 300mm disturbed sample which is recovered from the exploratory hole, logged, sampled and photographed. The process is repeated with the extension bars used to achieve greater depths until the desired strata is sampled or the Hand Auger cannot progress any further. The Hand Auger records are provided in Appendix 3 of this Report.

3.5. Rotary Boreholes

The rotary coring was carried out by a track mounted T41 Beretta rig at the locations shown on the location plan in Appendix 1. The rotary boreholes were completed from the ground surface.

The T41 Beretta is equipped with rubber tracks which allow for short travel on pavement surfaces avoiding any damage to the surface. The T41 Beretta utilises a triple tube core barrel system operated using a wireline drilling process. The outer barrel is rotated by the drill rods and at its lower end, carries the coring bit. The inner barrel is mounted on a swivel so that it does not rotate during the process. The third barrel or liner is placed within the second one to retain the core intact and to preserve as much as possible the fabric of the drilling stratum. The core is cut by the coring bit and passes to the inner liner. The core is brought

up to the surface within the inner barrel on a small diameter wire rope or line attached to the “overshoot” recovery tool which is then placed into a core box in order of recovery. A drilling fluid, typically air mist or water flush is passed from the surface through hollow drill rods to the drill bit and is used to cool the drill bit. Temporary casing is used in some situations to support unstable ground or to seal off fissures or voids. It should be noted that the rotary coring can only achieve limited recovery in overburden, particularly granular or weakly cemented strata due to the flushing medium washing away the cohesive fraction during coring. The recovery achieved, where required is noted on the borehole logs and core photographs are provided to allow assessment of the core recovered. The rotary borehole logs are provided in Appendix 4 of this Report.

3.6. Surveying

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

3.7. Laboratory Testing

Samples were selected from the exploratory holes for a range of geotechnical and environmental testing to assist in the classification of soils and to provide information for the proposed design.
Geotechnical testing consisting of moisture content, Atterberg limits, Particle Size Distribution (PSD), MCV, MCV relationship and MCV Compaction testing were carried out in NMTL’s Geotechnical Laboratory in Carlow.
The results of the laboratory testing are included in Appendix 5 of this Report.

4.0 Ground Conditions

4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results, given the scale of the site and the nature of the ground conditions encountered the site has been split into two separate areas for the purpose of this report. These areas are the northern area consisting of Trial pits TP01, TP02 TP03, TP04, TP05 TP06, TP07, TP09, TP10, TP11, TP12, TP13, TP17, TP19 & TP20, and the southern area consisting of boreholes BH01 to BH05 and trial pits TP14, TP15, TP16, TP21, TP22, TP23, TP24, TP25 & TP26. The outlines of these areas are shown in the location map in Appendix 1. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were reasonably consistent across the northern area of the site and generally comprised:

- Topsoil/Surfacing
- Made Ground
- Peat
- Cohesive Deposits
- Granular Deposits

TOPSOIL: Topsoil where present was recorded to a maximum depth of 0.40m BGL and was typically describes as brown slightly sandy slightly gravelly TOPSOIL.

MADE GROUND: Made Ground deposits were encountered at the following locations TP03, TP04 and TP13 and were present from GL to depths between 0.1m and 1.00m BGL. These deposits were described generally as *grey slightly sandy slightly clayey fine to coarse sub angular to sub rounded Gravel with frequent cobbles and boulders.*

PEAT: PEAT was encountered in TP02, TP05, TP06, TP07 and TP09 and was present to a maximum depth of 1.60m BGL and was typically describes as a *very soft black plastic pseudo-fibrous PEAT.* The peat deposits are generally described as very soft to soft.

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground and again beneath the Topsoil deposits to a maximum depth of 3.10m BGL. These deposits were described typically as a *firm or stiff brown slightly sandy gravelly CLAY* or as *reddish brown gravelly slightly sandy slightly silty CLAY*. The secondary cobble and gravel constituents varied across the site and with depth. These deposits had some, occasional or frequent cobble and boulder content, where noted on the exploratory hole logs. The strengths of the cohesive deposits are generally described as firm or firm to stiff.

GRANULAR DEPOSITS: Occasional lenses of granular deposits were encountered within the cohesive deposits at locations TP10 & TP11 and were typically described as *brown slightly sandy clayey silty sandy sub-rounded to angular fine to coarse GRAVEL with occasional cobbles and boulders* The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs.
It should be noted that many of the trial pits where granular deposits or groundwater were encountered, experienced instability. This was described either as side wall spalling or as side wall collapse in the remarks section at the base of the trial pit logs. A significant groundwater strike was noted in the boreholes on encountering the granular deposits and the driller noted blowing sands or gravels during drilling.

The sequence of strata encountered relatively consistent across the southern area of the site and generally comprised:

- Topsoil/Surfacing
- Made Ground
- Cohesive Deposits
- Granular Deposits
- Weathered Bedrock
- Bedrock

TOPSOIL: Topsoil where present was recorded to a maximum depth of 0.30m BGL and was typically describes as brown slightly sandy slightly gravelly TOPSOIL.

MADE GROUND: Made Ground deposits were encountered in TP15 were present from GL to a depth of 0.1m BGL. These deposits were described as *brown lightly sandy clayey fine to coarse sub-angular to sub-rounded GRAVEL.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground and again beneath the Topsoil deposits to a maximum depth of 3.10m BGL. These deposits were described typically as a *firm or stiff brown slightly sandy gravelly CLAY* or a *reddish brown gravelly slightly sandy slightly silty CLAY*. The secondary cobble and gravel constituents varied across the site and with depth. These deposits had some, occasional or frequent cobble and boulder content, where noted on the exploratory hole logs. The strengths of the cohesive deposits are generally described as firm or firm to stiff, however the SPT N values suggest that at some locations the deposits range from stiff to very stiff.

GRANULAR DEPOSITS: Occasional lenses of granular deposits were encountered within the cohesive deposits at locations, TP14, BH02, BH03, BH04 and BH06 and were typically described as *brown slightly sandy clayey silty sandy sub-rounded to angular fine to coarse GRAVEL with occasional cobbles and boulders* or *Brownish black slightly sandy clayey fine to coarse angular to sub-angular COBBLES with many angular to sub-angular boulders.* The secondary sand/gravel and silt/clay constituents varied across the

site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs.
Based on the SPT N values, where available the deposits are typically dense. It should be noted that many of the trial pits where granular deposits or groundwater were encountered, experienced instability. This was described either as side wall spalling or as side wall collapse in the remarks section at the base of the trial pit logs

WEATHERED BEDROCK: Weathered rock was encountered in BH01. This material was recovered as non-intact core samples of Distinctly weathered SANDSTONE. Some clay and sand were also present with the rock mass either from weathering or as infilling to fractures which were opened upon excavation.

BEDROCK: The rotary core boreholes recovered *Medium strong to strong reddish brown, thinly laminated SILTSTONE* and *Medium strong to strong thinly laminated reddish brown medium grained SANDTONE.* This is consistent with the Ballytrasna formation which has been mapped nearby.
The depth to rock varies from 1.7m BGL in BH04 to a maximum of 7.0m BGL in BH02. The total core recovery is good, typically 100% with some of the uppermost runs dropping to 80 or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in each of the boreholes.

4.2. Groundwater

Groundwater strikes are noted on the exploratory hole logs where they occurred and where possible drilling was suspended for twenty minutes to allow the subsequent rise in groundwater to be recorded. We would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the tide, time of year, rainfall, nearby construction and other factors. For this reason, standpipes were installed in BH02, BH03, BH04, BH05 and BH06 to allow the equilibrium groundwater level to be determined.

4.3. Laboratory Testing

4.3.1. Geotechnical Laboratory Testing

The geotechnical testing carried out on soil samples recovered generally confirm the descriptions on the logs with the primary constituent of the cohesive deposits found to be a CLAY of low to intermediate plasticity. The Particle Size Distribution tests confirm that generally the cohesive deposits are well-graded with percentages of sands and gravels ranging between 4.80% and 50.8% generally with fines contents of 23.5% to 50.8%.

The Particle Size Distribution tests confirm that generally the granular deposits are well-graded with percentages of sands/gravels and silt/clay of 15.60% with a gravel/sand content of typically 12.3% to 72.1%.

The Moisture Content Value (MCV) testing on a single sample yielded a result of 10.80 for the cohesive deposits in TP12 at 2.0m BGL indicative of a stiff cohesive deposit. TP15 at 2.0m BLG had a MCV relationship test carried out, which indicates a good MCV of 13.1 reducing to below 7 at a moisture content in excess of 17%. MCV results of 7% to 8% are considered marginal while MCV results of 8 or higher are considered acceptable.

The results from the completed laboratory testing are included in Appendix 5 of this report.

5.0 Recommendations & Conclusions

5.1. General

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

5.2. Foundations

At the locations of the trial pits, the ground was variable and requires assessment at each location to provide allowable bearing capacities, however a preliminary allowable bearing capacity of 80 kN/m^2 is advised for outline design on the firm cohesive deposits and a higher 150 kN/m^2 for stiff cohesive deposit where noted in the logs.

At the location of the rotary boreholes an allowable bearing capacity of 200 kN/m^2 is recommended for conventional strip or pad foundations on the very stiff cohesive deposits at 2.5m BGL. A higher allowable bearing capacity of 1000 kN/m^2 is recommended for the intact rock at a depth of 4m to 7m BGL.

In any part of the site, should part of the foundation be on rock we would recommend that all the foundations of the unit in question be lowered to the competent rock stratum to avoid differential settlement.

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

Due to the presence of soft and compressible Peat and Cohesive deposits beneath the footprint of the proposed structure and due to the high loading anticipated, piled foundations may be more economically advantageous for the proposed turbines. The type, size and depth of the pile foundations should be confirmed by a specialist piling contractor based on the loading from the proposed structure.

5.3. Excavations

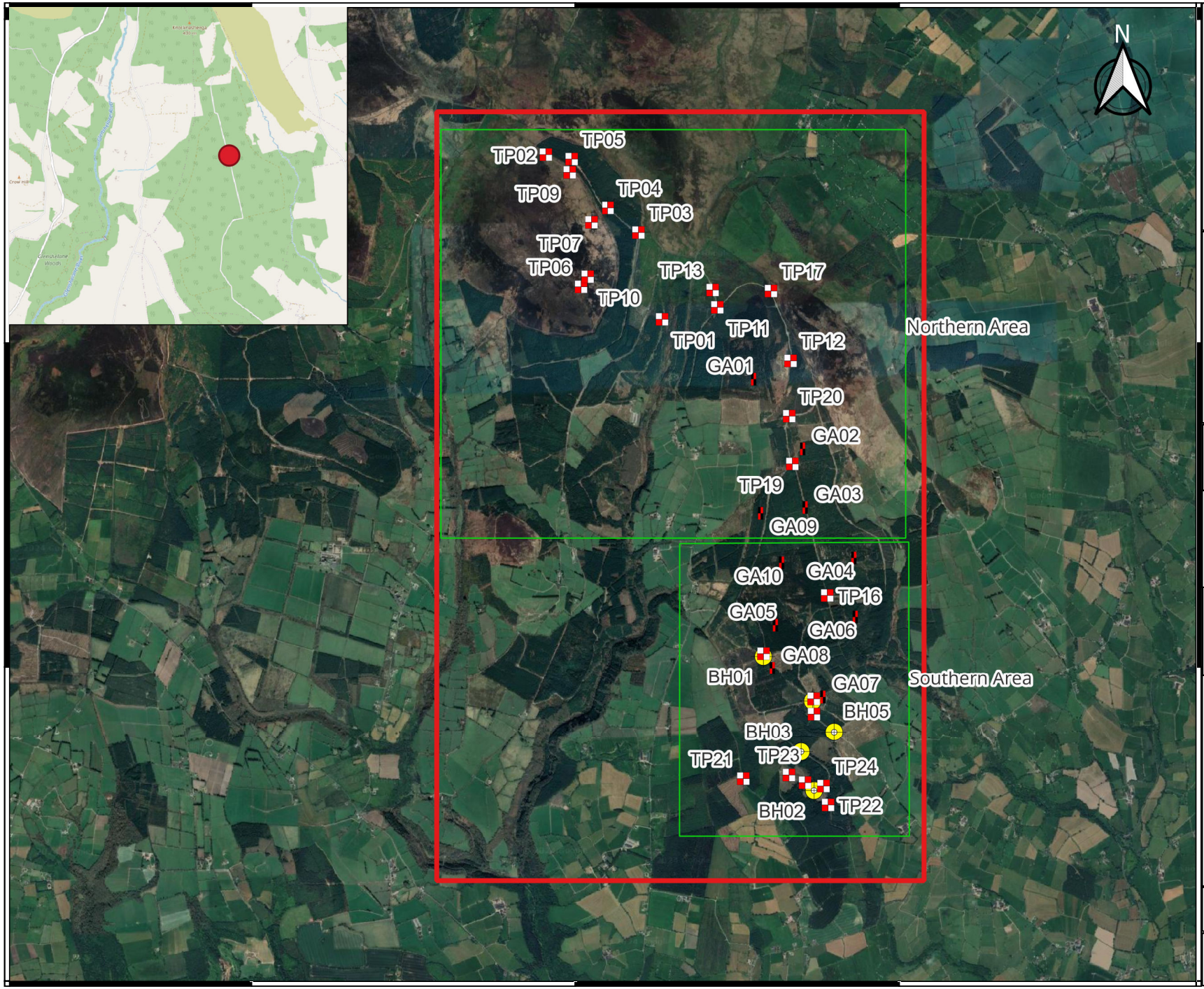
Short term temporary excavations in the cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25m BGL or is required to permit man entry.
Excavations in the Made Ground, Peat or soft Cohesive Deposits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

Any excavations which penetrate the granular deposits will require to be appropriately battered or the sides supported and are likely to require dewatering due to the groundwater seepages noted in the exploratory hole logs in the Appendices of this Report.
The groundwater and stability noted on the trial pit logs should be consulted when determining the most appropriate construction methods for excavations. Generally, where significant excavations are required in water bearing granular deposits a cut-off wall may be more cost effective than extensive dewatering. An assessment by a specialist dewatering contractor is recommended to determine the most cost effective approach to the proposed excavation.

Excavations in the upper cohesive and weathered rock deposits are expected to be excavatable with conventional excavation equipment, with zones of more intact bedrock below this depth requiring rock breaking techniques. Based on the fracture spacing, the rock strength testing and Pettifer & Fookes (1994) Revised Excavatability Graph, the siltstones and sandstones of the Ballytrasna formation range from hard digging to hard ripping, however the zones recovered as non-intact should be easy to hard digging.
Any waste material to be removed off site should be disposed of to a suitably licenced landfill.

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

APPENDIX 1 - Site Location Plan



Boreholes
Gouge Auger
Trial Pit
Site Location
sub-areas

Client:

TOBIN

Project Code:
13014-07-23

Project Title:
Scart Mountain

Drawing Title:
Figure 3 Site Location

Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle,
Co. Dublin
www.gii.ie
01-6015175/5176

0 750 1,500 m

Drawn By:
GGR

Date:
24/01/2024

APPENDIX 2 – Trial Pit Records

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 3.00m (L x W x D)	246.59		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	606208.8 E 612809.1 N	10/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				246.39	0.20	Firm brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
0.50	L 48.67kPa		36,50,60/Av. 48.67		(0.60)			
0.50	B1							
				245.79	0.80	Firm to stiff brown slightly sandy gravelly CLAY with many sub angular to sub rounded cobbles and boulders		
1.00	B2							
					(1.30)			
1.50	L 57.33kPa		62,42,68/Av. 57.33					
2.00	B3			244.49	2.10	Soft to firm reddish brown slightly sandy gravelly silty CLAY with occasional sub angular to sub rounded cobbles and boulders		
					(0.90)			
3.00	B4			243.59	3.00	Complete at 3.00m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP12

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 2..70m (L x W x D)	406.11		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	607732.3 E 611724.7 N	10/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						Black slightly gravelly slightly clayey plastic pseudo-fibrous PEAT		
0.40	L 36.67kPa		30,28,52/Av. 36.67		(0.80)			
0.50	B1							
				405.31	0.80	Black slightly clayey plastic pseudo-fibrous PEAT		
1.00	B2							
1.20	L 22.67kPa		32,18,18/Av. 22.67		(0.80)			
				404.51	1.60	Soft to firm brownish black slightly sandy gravelly peat CLAY		
1.70	L 38.67kPa		36,42,38/Av. 38.67		(0.30)			
				404.21	1.90	Firm to stiff brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
2.00	B3				(0.80)			
				403.41	2.70	OBSTRUCTION: Due to large boulder		
						Complete at 2.70m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP02

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 1.40m x 3.00m (L x W x D)	323.39		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	607011.4 E 612590.1 N	08/09/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.00)	Crushed Rock Fill: Grey slightly sandy slightly clayey fine to coarse sub angular to sub rounded Gravel with many angular to sub angular cobbles and boulders		
1.00	B1			322.39	1.00			
1.15	L 32kPa		32,30,34/Av. 32.00		(0.30)	Soft brown sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulder and organic matter		
				322.09	1.30			
					(0.80)	Soft to firm brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
1.80	L 25kPa		25,21,29/Av. 25.00					
2.00	B2			321.29	2.10			
					(0.90)	Firm brown sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulder		
2.50	L 22kPa		20,24,22/Av. 22.00					
3.00	B3			320.39	3.00			
						Complete at 3.00m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP03

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 1.30m x 3.00m (L x W x D)	362.12		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	607239.3 E 612304.4 N	08/09/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND dark brownish grey slightly sandy clayey fine to coarse sub angular to sub rounded Gravel with many angular to sub angular cobbles and boulders and organic matter		
				361.72	0.40			
0.50	L 30kPa		28,36,26/Av. 30.00		(0.30)	Dark brown slightly sandy gravelly peaty CLAY with some angular to sub angular cobbles and boulder		
0.50	B1							
				361.42	0.70			
					(0.30)	Soft to firm brown slightly sandy gravelly CLAY with many angular to sub angular cobbles and occasional organic matter		
				361.12	1.00			
1.00	L 26kPa		28,20,30/Av. 26.00			Firm brown slightly sandy very gravelly CLAY with many angular to sub angular cobbles and boulders		
1.00	B2							
					(0.90)			
1.50	L 20kPa		15,25,20/Av. 20.00					
				360.22	1.90			
2.00	B3					Firm to stiff brown slightly sandy gravelly CLAY with many angular to sub angular cobbles and boulders		
					(1.10)			
				359.12	3.00			
3.00	B4					Complete at 3.00m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP04

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 1.30m x 3.10m (L x W x D)	378.84		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	607690.9 E 611963.4 N	08/09/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				378.74	(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
						Dark brown slightly clayey plastic pseudo-fibrous PEAT		
					(0.60)			
0.50 0.50	L 40kPa B1		35,45,40/Av. 40.00					
				378.14	0.70	Soft brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
					(0.90)			
1.30	B2							
1.50	L 22kPa		18,24,24/Av. 22.00					
				377.24	1.60	Soft to firm brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles		
2.00	B3							
					(1.50)			
3.00	B4							
				375.74	3.10	Complete at 3.10m		

Plan

Remarks

No groundwater encountered
Trial pit side walls spalling
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP05

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP06

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 2..70m (L x W x D)	399.15		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	606509.5 E 612050.6 N	16/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	L 24kPa		26,18,28/Av. 24.00	398.95	(0.20) 0.20	Dark brown slightly gravelly slightly clayey plastic pseudo-fibrous PEAT with grass and rootlets		
0.20	B1					Dark brown slightly sandy slightly clayey fine to coarse sub angular to sub rounded COBBLES		
0.70	B2		Slow(1) at 0.70m.	398.45	(0.50) 0.70	Firm brown very sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		▽1
1.00	B3							
1.20	L 40.67kPa		50,30,42/Av. 40.67	397.45	(1.00) 1.70	Firm to stiff brown very sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
2.00	B4							
				396.45	(1.00) 2.70	OBSTRUCTION: Due to large boulder		
						Complete at 2.70m		

Plan

Remarks

Groundwater encountered at 0.70m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP06

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP07

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.90m x 0.80m x 1.90m (L x W x D)	396.01		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	607105.9 E 612147.1 N	16/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Black slightly clayey plastic pseudo-fibrous PEAT		
0.10	L 22kPa		28,16,22/Av. 22.00	395.81	0.20			
0.20	B1					Soft to firm dark grey slightly sandy very gravelly CLAY with occasional sub angular to sub rounded cobbles		
0.40	L 44.67kPa		38,42,54/Av. 44.67		(0.50)			
0.70	B2			395.31	0.70			
			Slow(1) at 0.80m.		(0.30)	Brown slightly sandy clayey fine to coarse angular to sub angular COBBLES		▽1
1.00	B3			395.01	1.00			
						Firm brown sandy gravelly CLAY with many angular to sub angular cobbles and boulders		
1.40	L 59.33kPa		56,64,58/Av. 59.33		(0.90)			
				394.11	1.90	OBSTRUCTION: Due to large boulder		
						Complete at 1.90m		

Plan

Remarks

Groundwater encountered at 0.80m BGL
Trial pit side walls collapsing
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP07

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 1.50m (L x W x D)	400.20		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	607568.4 E 611945.4 N	16/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Black slightly clayey plastic pseudo-fibrous PEAT		
0.20	L 20.67kPa		20,16,26/Av. 20.67					
0.20	B1			399.90	0.30			
						Soft to firm brownish grey slightly sandy gravelly CLAY with many angular to sub angular cobbles and boulders		
0.70	L 38.67kPa		32,38,46/Av. 38.67		(0.80)			
1.00	B2			399.10	1.10			
						Firm brown sandy gravelly CLAY with many angular to sub angular cobbles and boulders		
1.30	L 54.67kPa		54,62,48/Av. 54.67		(0.40)			
				398.70	1.50	OBSTRUCTION: Due to large boulder		
						Complete at 1.50m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP09

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP10

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.90m x 0.80m x 3.10m (L x W x D)	402.52		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	606603 E 612111.4 N	16/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				402.42	(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
						Greyish brown slightly sandy clayey fine to coarse sub angular to sub rounded GRAVEL with many sub angular to sub rounded cobbles and boulders		
			Slow(1) at 0.60m.		(0.90)			▽1
1.00	B1			401.52	1.00	Firm brown very sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
1.40	L 55.33kPa		48,62,56/Av. 55.33		(0.90)			
				400.62	1.90	Firm to stiff brown sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
2.00	B2							
					(1.20)			
3.00	B3			399.42	3.10	Complete at 3.10m		

Plan

Remarks

Groundwater encountered at 0.60m BGL
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP10

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP11

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 2.50m (L x W x D)	321.44		13014-07-23

Location	Dates	Engineer	Sheet
606319.8 E 613320.4 N	06/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				321.34	(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
0.50 0.50	L 52.67kPa B1		56,50,52/Av. 52.67		(0.70)	Soft to firm brown slightly sandy gravelly silty CLAY with many angular to sub angular cobbles and boulders		
1.00 1.00	L 44kPa B2		34,50,48/Av. 44.00	320.64	0.80	Firm brown slightly sandy gravelly silty CLAY with many angular to sub angular cobbles and boulders		
			Moderate(1) at 1.40m.		(0.70)			▽1
2.00	B3			319.94	1.50	Brown slightly sandy clayey silty fine to coarse angular to sub angular GRAVEL with many angular to sub rounded cobbles and boulders		
					(1.00)			
				318.94	2.50	OBSTRUCTION: Due to groundwater Complete at 2.50m		

Plan

Remarks

Groundwater encountered at 1.40m BGL
Trial pit side walls collapsing
Trial pit terminated due to groundwater
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP11

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP12

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 3.00m (L x W x D)	339.05		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	605824.6 E 613998.4 N	06/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				338.85	0.20			
0.50	L 46kPa		52,48,38/Av. 46.00		(0.70)	Soft brown slightly sandy slightly gravelly CLAY with occasional sub angular to sub rounded cobbles		
0.50	B1							
				338.15	0.90			
1.00	B2					Soft to firm brown slightly sandy gravelly slightly silty CLAY with some sub angular to sub rounded cobbles		
1.20	L 55.33kPa		48,58,60/Av. 55.33		(0.70)			
				337.45	1.60			
						Firm brown slightly sandy gravelly slightly silty CLAY with occasional sub angular to sub rounded cobbles and boulders		
2.00	B3							
2.10	L 34kPa		30,34,38/Av. 34.00		(1.40)			
				336.05	3.00			
3.00	B4					Complete at 3.00m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP12

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP13

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 2.40m (L x W x D)	305.46		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	606480.1 E 613277.1 N	06/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.70)	POSSIBLE MADE GROUND black slightly sandy gravelly Clay with many sub angular to sub rounded cobbles and boulders and organic matter		
0.50 0.50	L 12.67kPa B1		10,12,16/Av. 12.67					
			Slow(1) at 0.80m.	304.76	0.70	Firm light brown slightly sandy slightly gravelly silty CLAY with occasional sub angular to sub rounded cobbles		▽1
1.00 1.00	L 66.67kPa B2		60,62,78/Av. 66.67		(0.50)			
				304.26	1.20	Stiff light brown slightly sandy gravelly silty CLAY with some sub angular to sub rounded cobbles and boulders		
2.00 2.00	L 43.33kPa B3		30,50,50/Av. 43.33		(1.20)			
				303.06	2.40	OBSTRUCTION: Due to a large boulder Complete at 2.40m		

Plan

Remarks

Groundwater encountered at 0.80m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP13

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP14

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 2.30m (L x W x D)	189.82		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	602693.1 E 614212.2 N	09/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				189.72	(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
0.30	L 84.67kPa		78,98,78/Av. 84.67		(0.30)	Soft to firm orangish black slightly sandy very gravelly CLAY with many angular to sub angular cobbles and boulders and organic matter		
0.50	B1			189.42	0.40	Brownish black slightly sandy clayey fine to coarse angular to sub angular COBBLES with many angular to sub angular boulders		
1.00	B2				(0.90)			
				188.52	1.30	Firm to stiff blackish brown slightly sandy very gravelly CLAY with many angular to sub angular cobbles and boulders		
2.00	B3				(1.00)			
			Slow(1) at 2.30m.	187.52	2.30	OBSTRUCTION: Due to large boulder		▽1
						Complete at 2.30m		

Plan

Remarks

Groundwater encountered at 2.30m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP14

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP15

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	3.40m x 0.80m x 3.10m (L x W x D)	205.64		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	603116.3 E 613748.1 N	09/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				205.54	(0.10) 0.10	MADE GROUND brown slightly sandy clayey fine to coarse sub angular to sub rounded Gravel		
						Soft to firm brown slightly sandy gravelly CLAY with many sub angular to sub rounded cobbles and boulders		
0.50	B1				(1.00)			
0.80	L 49.33kPa		48,48,52/Av. 49.33					
1.00	B2			204.54	1.10			
						Firm to stiff brown slightly sandy gravelly CLAY with many sub angular to sub rounded cobbles and boulders		
					(1.30)			
1.80	L 42.67kPa		50,42,36/Av. 42.67					
2.00	B3							
				203.24	2.40			
						Firm brown slightly sandy very gravelly CLAY with many sub angular to sub rounded cobbles and boulders		
					(0.70)			
3.00	B4	▽1	Slow/ Moderate(1) at 3.00m.	202.54	3.10			
						Complete at 3.10m		

Plan

Remarks

Groundwater encountered at 3.00m BGL
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP15

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP16

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 1.80m (L x W x D)	195.79		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	603654.8 E 614337.4 N	09/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				195.69	(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
					(0.30)	Soft to firm orangish brown slightly sandy slightly gravelly silty CLAY		
0.30	L 84.67kPa		78,98,78/Av. 84.67	195.39	0.40	Firm reddish brown slightly sandy gravelly slightly silty CLAY with occasional sub angular to sub rounded cobbles and boulders		
0.50	B1							
0.60	L 69.33kPa		58,64,86/Av. 69.33		(0.50)			
				194.89	0.90	Stiff reddish brown slightly sandy gravelly slightly silty CLAY with many sub angular to sub rounded cobbles and boulders		
1.00	B2							
					(0.90)			
1.40	L. 58kPa		50,62,62/Av. 58.00					
				193.99	1.80	OBSTRUCTION: Due to large boulder		
						Complete at 1.80m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP16

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP17

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 2.50m (L x W x D)	375.39		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	606470.6 E 613817 N	06/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Black slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				374.99	0.40			
0.50 0.50	L 30kPa B1		28,30,32/Av. 30.00		(0.30)	Soft to firm black slightly sandy very gravelly CLAY with some sub angular to sub rounded cobbles and organic matter		
				374.69	0.70			
			Slow(1) at 0.90m.			Firm brown slightly sandy gravelly slightly silty CLAY with some sub angular to sub rounded cobbles and boulders		▽1
1.00 1.00	L 28.67kPa B2		28,26,32/Av. 28.67		(1.10)			
				373.59	1.80			
2.00	B3				(0.70)	Firm to stiff brown slightly sandy gravelly slightly silty CLAY with some sub angular to sub rounded cobbles and boulders		
				372.89	2.50	OBSTRUCTION: Due to large boulder		
						Complete at 2.50m		

Plan

Remarks

Groundwater encountered at 0.90m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP17

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP19

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 2.30m (L x W x D)	255.71		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	604871.6 E 614014.6 N	09/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				255.61	(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
						Soft to firm orangish light brown slightly sandy slightly gravelly silty CLAY		
0.50	L 60kPa		54,62,64/Av. 60.00		(0.70)			
0.50	B1			254.91	0.80	Firm reddish brown slightly sandy gravelly slightly silty CLAY with some sub angular to sub rounded cobbles and boulders		
1.00	B2							
1.20	L 30kPa		32,28,30/Av. 30.00		(0.90)			
				254.01	1.70	Firm reddish brown slightly sandy gravelly slightly silty CLAY with many sub angular to sub rounded cobbles and boulders		▽1
			Slow(1) at 1.90m.					
2.00	B3				(0.60)			
				253.41	2.30	OBSTRUCTION: Due to large boulder		
						Complete at 2.30m		

Plan

Remarks

Groundwater encountered at 1.90m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP19

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP20

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.90m x 0.80m x 3.10m (L x W x D)	283.14		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	605313.2 E 613985.8 N	06/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				282.94	0.20	Soft black slightly sandy slightly gravelly CLAY with organic matter		
0.50	L 28.67kPa		28,30,28/Av. 28.67		(0.70)			
0.50	B1							
			Slow(1) at 0.90m.	282.24	0.90	Soft brown slightly sandy gravelly slightly silty CLAY with occasional sub angular to sub rounded cobbles		▽1
1.00	B2				(0.50)			
1.20	L 35.33kPa		32,38,36/Av. 35.33					
				281.74	1.40	Soft to firm brown slightly sandy gravelly slightly silty CLAY with some sub angular to sub rounded cobbles and boulders		
1.70	L 46.67kPa		42,48,50/Av. 46.67		(0.50)			
				281.24	1.90	Firm brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
2.00	B3							
2.50	L 34.67kPa		20,38,46/Av. 34.67		(1.20)			
3.00	B4							
				280.04	3.10	Complete at 3.10m		

Plan

Remarks

Groundwater encountered at 0.90m BGL
Trial pit side walls stable
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP20

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP21

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 2.40m (L x W x D)	191.18		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	601952.8 E 613560.9 N	10/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				190.88	0.30			
0.50 0.50	L 31.33kPa B1		28,34,32/Av. 31.33		(0.50)	Soft brown slightly sandy slightly gravelly CLAY with occasional sub angular to sub rounded cobbles and boulders		
				190.38	0.80			
1.00 1.00	L 42.67kPa B2		38,42,48/Av. 42.67		(0.50)	Soft to firm brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
				189.88	1.30			
1.80	L 48kPa		44,52,48/Av. 48.00		(1.10)	Firm to stiff light greyish brown slightly sandy gravelly slightly silty CLAY with many sub angular to sub rounded cobbles and boulders		
2.00	B3		Slow(1) at 2.10m.					▽1
				188.78	2.40	OBSTRUCTION: Due to large boulder		
						Complete at 2.40m		

Plan

Remarks

Groundwater encountered at 2.10m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP21

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP22

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 2.20m (L x W x D)	159.93		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	601710.1 E 614345.4 N	11/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				159.73	0.20	Soft to firm blackish brown slightly sandy gravelly CLAY with many sub angular to sub rounded cobbles and boulders		
0.50	L 75.33kPa		76,82,68/Av. 75.33		(0.60)			▽1
0.50	B1		Slow(1) at 0.60m.					
				159.13	0.80	Firm brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
1.00	B2				(0.60)			
1.10	L 74kPa		66,74,82/Av. 74.00					
				158.53	1.40	Firm to stiff brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
1.80	L 50kPa		54,58,38/Av. 50.00		(0.80)			
2.00	B3							
				157.73	2.20	OBSTRUCTION: Due to large boulder		
						Complete at 2.20m		

Plan

Remarks

Groundwater encountered at 0.60m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP22

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Site	Trial Pit Number
Scart Mountain - Broemountain	TP23

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 2.80m (L x W x D)	174.91		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	601986.2 E 613983.5 N	11/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				174.61	0.30			
						Soft light brown slightly sandy gravelly CLAY with some sub angular to sub rounded cobbles and boulders		
0.50	B1				(0.60)			
0.60	L 24kPa		24,20,28/Av. 24.00					
				174.01	0.90			
1.00	B2					Firm reddish brown slightly sandy gravelly slightly silty CLAY with many sub angular to sub rounded cobbles and boulders		
1.40	L 37.33kPa		34,38,40/Av. 37.33		(1.00)			
				173.01	1.90			
2.00	B3					Firm to stiff reddish brown slightly sandy gravelly slightly silty CLAY with many sub angular to sub rounded cobbles and boulders		
					(0.90)			
				172.11	2.80	OBSTRUCTION: Due to large boulder		
						Complete at 2.80m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP23

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP24

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 1.80m (L x W x D)	164.67		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	601884.3 E 614303.3 N	09/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				164.57	(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
0.50 0.50	L 47.33kPa B1		44,50,48/Av. 47.33		(0.70)	Soft to firm reddish brown slightly sandy gravelly slightly silty CLAY with occasional sub angular to sub rounded cobbles and boulders		
1.00	B2			163.87	0.80	Firm reddish brown slightly sandy gravelly slightly silty CLAY with many sub angular to sub rounded cobbles and boulders		
1.30	L 37.33kPa		36,38,38/Av. 37.33		(1.00)			
				162.87	1.80	OBSTRUCTION: Due to large boulder		
						Complete at 1.80m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP24

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP25

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.80m x 0.80m x 2.40m (L x W x D)	184.77		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	602553.1 E 614215.1 N	09/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				184.57	0.20			
0.50	L 31.33kPa		20,28,46/Av. 31.33			Soft brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles		
0.50	B1				(0.70)			
				183.87	0.90			
1.00	B2					Firm brown slightly sandy gravelly CLAY with many sub angular to sub rounded cobbles and boulders		
					(0.70)			
1.30	L 36kPa		38,28,42/Av. 36.00					
				183.17	1.60			
			Slow(1) at 1.80m.			Stiff brown slightly sandy gravelly CLAY with many sub angular to sub rounded cobbles and boulders		▽1
2.00	B3				(0.80)			
				182.37	2.40	OBSTRUCTION: Due to large boulder		
						Complete at 2.40m		

Plan

Remarks

Groundwater encountered at 1.80m BGL
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP25

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	TP26

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	2.70m x 0.80m x 2.50m (L x W x D)	170.69		13014-07-23
	Location	**Dates**	**Engineer**	**Sheet**
	601915.8 E 614132.1 N	11/10/2023	Tobin	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
				170.49	0.20			
						Soft light brown slightly sandy gravelly CLAY with occasional sub angular to sub rounded cobbles and boulders		
0.50	L 67.33kPa		60,70,72/Av. 67.33		(0.60)			
0.50	B1							
				169.89	0.80			
						Firm reddish brown slightly sandy gravelly slightly silty CLAY with some sub angular to sub rounded cobbles and boulders		
1.00	B2							
					(1.10)			
1.40	L 72.67kPa		38,90,90/Av. 72.67					
				168.79	1.90			
						Firm to stiff reddish brown slightly sandy gravelly slightly silty CLAY with many sub angular to sub rounded cobbles and boulders		
2.00	B3							
					(0.60)			
2.20	L 63.33kPa		86,58,46/Av. 63.33					
				168.19	2.50	OBSTRUCTION: Due to large boulder		
						Complete at 2.50m		

Plan

Remarks

No groundwater encountered
Trial pit side walls stable
Trial pit terminated due to a possible large boulder
Trial pit backfilled upon completion

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.TP26

Scart Mountain - Broemountain

TP01

Scart Mountain - Broemountain

TP02

Scart Mountain - Broemountain

TP03

Scart Mountain - Broemountain

TP04

Scart Mountain - Broemountain

TP05

Scart Mountain - Broemountain

TP06

Scart Mountain - Broemountain

TP07

Scart Mountain - Broemountain

TP09

Scart Mountain - Broemountain

TP10

Scart Mountain - Broemountain

TP11

Scart Mountain - Broemountain

TP12

Scart Mountain - Broemountain

TP13

Scart Mountain - Broemountain

TP14

Scart Mountain - Broemountain

TP15

Scart Mountain - Broemountain

TP16

Scart Mountain - Broemountain

TP17

Scart Mountain - Broemountain

TP19

Scart Mountain - Broemountain

TP20

Scart Mountain - Broemountain

TP21

Scart Mountain - Broemountain

TP22

Scart Mountain - Broemountain

TP23

Scart Mountain - Broemountain

TP24

Scart Mountain - Broemountain

TP25

Scart Mountain - Broemountain

TP26

APPENDIX 3 - Rotary Borehole Records

Ground Investigations Ireland Ltd
www.gii.ie

Site Scart Mountain - Broemountain			**Borehole Number** BH01
Machine : Baretta T41 **Flush :** Water **Core Dia:** 64 mm **Method :** Rotary Cored	**Casing Diameter**	**Ground Level (mOD)** 205.72	**Client**
	Location (dGPS) 613745.4 E 603097.2 N	**Dates** 24/01/2024-25/01/2024	**Engineer** Tobin
			Job Number 13014-07-23
			Sheet 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	68						(2.60)	Stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse with occasional cobbles and boulders.		
2.50 2.50-2.95	70				4,5/5,6,7,7 SPT(C) N=25	203.12	2.60 (1.40)	Stiff brownish grey/grey silty very sandy gravelly CLAY. Gravel is fine to coarse sub angular to rounded with many cobbles and boulders.		
4.00 4.00-4.45	15				6,8/9,9,12,16 SPT(C) N=46	201.72	4.00 (0.50)	Very stiff brownish grey/grey silty very sandy gravelly CLAY. Gravel is fine to coarse sub angular to rounded with many cobbles and boulders.		
4.50	54	0	0	NI		201.22	4.50 (1.10)	Medium strong thinly laminated brownish grey fine SANDSTONE. Distinctly weathered. 4.5m - 5.6m Not intact. 4.9m - 5.0m Clay band.		
5.50 5.50-5.95 5.60	90	83	55	6	6,8/22,28 SPT(C) N=50	200.12	5.60 (0.70)	Medium strong thinly laminated brownish grey fine SANDSTONE. Moderately weathered. 5.5m - 5.6m Clay band. 5.6m - 8.6m BGL Two fracture sets F1 Medium spaced 40-50 degrees planar rough with occasional clay smear. F2: Widely to very widely 20-30 degrees spaced planar rough clean.		
6.60 7.00				15		199.42	6.30 (1.10)	Medium strong thinly laminated reddish brown SILTSTONE. Slightly weathered. 6.4m - 6.6m Clay band.		
7.60	100	88	47	9		198.32	7.40 (1.10)	Medium strong thinly laminated reddish brown SILTSTONE. Fresh.		
8.50						197.22	8.50	Complete at 8.50m		

Remarks
Rotary coring carried out from ground level to 8.5m bGL.
Borehole backfilled on completion.

Scale (approx)	Logged By
1:50	JC

Figure No. 13014-07-23.BH01

Ground Investigations Ireland Ltd
www.gii.ie

Site Scart Mountain - Broemountain			**Borehole Number** BH02
Machine : Baretta T-41 **Flush :** Water **Core Dia:** 64 mm **Method :** Rotary Cored	**Casing Diameter**	**Ground Level (mOD)** 167.85	**Client**
	Location (dGPS) 614214.6 E 601850.9 N	**Dates** 24/01/2024-25/01/2024	**Engineer** Tobin
			Job Number 13014-07-23 **Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	2						(2.50)	Driller Notes: Sand and gravel. Recovery consists of reddish brown sandy fine to medium sub-angular to sub-rounded GRAVEL of sandstone, siltstone, schist and mudstone.			
2.50 2.50-2.95	10				5,6/9,9,10,11 SPT(C) N=39	165.35	2.50 (1.50)	Driller Notes: Dense sand and gravel. Recovery consists of reddish brown sandy fine to medium sub-angular to sub-rounded GRAVEL of sandstone, siltstone, schist and mudstone.			
4.00 4.00-4.45	31				6,7/8,10,12,13 SPT(C) N=43	163.85	4.00 (3.00)	Driller notes: Very stiff boulder CLAY. Recovery consists of reddish brown slightly sandy slightly gravelly CLAY with cobbles and boulders of sandstone .			
5.50 5.50-5.95	60				7,13/19,21,10 SPT(C) N=50						
7.00	100	73	57	13		160.85	7.00 (0.80)	Weak to medium strong thinly to thickly laminated greyish brown fine to medium SANDSTONE. Slightly to moderately weathered. 7.0m - 8.0m BGL Two fracture sets. F1: Very closey to closely spaced 0-20 degrees planar rough, tight to open with occasional clay smear. F2: Closely spaced 60-80 degrees planar rough, incipient to open with a clay smear.			
8.00 8.50				5		160.05	7.80				
9.00	100	100	100	2		157.85	(2.20) 10.00	Medium strong to strong thinly to thickly laminated reddish brown fine grained SILTSTONE. Fresh. 8.0m - 10.0m bGL Two fracture sets. F1: Close to medium spaced 0-20 degrees planar smooth to stepped smooth, tight to open clean. F2: widely spaced 60-80 degrees undulating smooth, tight to open clean.			
10.00											

Remarks
Rotary coring techniques carried out from ground level to 10.0m bGL.
Standpipe installed on completion. Slotted standpipe installed from 10.0m bGL to 1.0m bGL with a pea gravel surround. Plain standpipe installed from 1.0m bGL to GL with a bentonite seal and raised cover.

Scale (approx)	Logged By
1:50	JC

Figure No. 13014-07-23.BH02

Ground Investigations Ireland Ltd
www.gii.ie

Site Scart Mountain - Broemountain			**Borehole Number** BH03
Machine : Baretta T-41 **Flush :** Water **Core Dia :** 64 mm **Method :** Rotary Cored	**Casing Diameter**	**Ground Level (mOD)** 176.73	**Client**
	Location 614094.4 E 602210.4 N	**Dates** 22/01/2024-29/01/2024	**Engineer** Tobin
			Job Number 13014-07-23 **Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	36						(2.50)	Driller notes: Clay. Recovery consists of reddish brown/light brown silty slightly sandy gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded .			
2.50 2.50-2.95	10				4,6/6,8,8,9 SPT(C) N=31	174.23	2.50 (1.50)	Driller notes: Dense gavel. Recovery consists of reddish brown fine to medium angular to sub-angular GRAVEL.			
4.00 4.00-4.45	26				5,7/8,8,10,10 SPT(C) N=36	172.73	4.00 (1.60)	Driller notes: Very stiff boulder clay. Recovery consists of reddish brown sandy very gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded.			
5.00-5.45					9,20/50 SPT(C) N=50						
5.50 5.60	100	93	79	4		171.13	5.60	Medium strong thinly laminated reddish brown SILTSTONE. Fresh. 5.6m - 8.5m BGL 2 fracture sets. F1: Medium to widely spaced 0-20 degrees undulating rough tight to open with clay smear. F2: Closely to widely spaced 80-90 degrees planar rough tight to open with clay smear.			
6.60 7.00				5			(2.90)				
7.60	100	100	93	4							
8.50						168.23	8.50	Complete at 8.50m			

Remarks
Rotary coring techniques carried out from ground level to 8.5m bGL.
Standpipe installed on completion. Slotted standpipe installed from 8.5m bGL to 1.0m bGL with a pea gravel surround. Plain standpipe installed from 1.0m bGL to GL with a bentonite seal and raised cover.

Scale (approx)	Logged By
1:50	JC

Figure No. 13014-07-23.BH03

Ground Investigations Ireland Ltd
www.gii.ie

Site Scart Mountain - Broemountain			**Borehole Number** BH04
Machine : Baretta T-41 **Flush :** Water **Core Dia :** 64 mm **Method :** Rotary Cored	**Casing Diameter**	**Ground Level (mOD)** 188.97	**Client**	**Job Number** 13014-07-23
	Location 614201.1 E 602680.9 N	**Dates** 22/01/2024	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(1.69)	Reddish brown medium to coarse sub-angular to rounded GRAVEL with occasional cobbles.			
1.60 1.69	100	60	28	5		187.28	1.69	Medium strong to strong thinly laminated reddish brown SILTSTONE. Moderately weathered.			
2.50 2.60	100	26	8	6			(2.31)	2.5m - 3.5m BGL. 2 fracture sets. F1: Medium to wide spaced 20-30 degrees undulating rough open soil infill, light brown slightly sandy clayey SILT. F2: Medium to widely spaced 80-90 degrees planar rough open Occasional soil infill. Light brown slightly sandy clayey SILT. 2.8m - 2.9m BGL. Clay band. 3.5m - 4.0m BGL Clay band.			
3.60											
4.00	100	93	90	6		184.97	4.00	Medium strong to strong thinly laminated reddish brown SILTSTONE. Fresh to slightly weathered.			
4.60				5			(1.50)	4.0m - 5.5m BGL 2 fracture sets. F1: Medium to widely spaced 10-20 degrees undulating rough tight to open clean. F2: Medium to widely spaced 40-60 degrees planar smooth tight to open clean.			
5.50						183.47	5.50	Complete at 5.50m			

Remarks
Rotary coring techniques carried out from ground level to 5.5m bGL.
Standpipe installed on completion. Slotted standpipe installed from 5.5m bGL to 1.0m bGL with a pea gravel surround. Plain standpipe installed from 1.0m bGL to GL with a bentonite seal and raised cover.

Scale (approx)	Logged By
1:50	JC

Figure No. 13014-07-23.BH04

Ground Investigations Ireland Ltd
www.gii.ie

Site Scart Mountain - Broemountain			**Borehole Number** BH05
Machine : Baretta T-41 **Flush :** Water **Core Dia :** 64 mm **Method :** Rotary Cored	**Casing Diameter**	**Ground Level (mOD)** 179.54	**Client**
	Location 614400.8 E 602395.9 N	**Dates** 22/01/2024-23/01/2024	**Engineer** Tobin
			Job Number 13014-07-23 **Sheet** 1/1

Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						179.49	0.05	Brown slightly gravelly TOPSOIL.			
	53						(2.25)	Orangish brown slightly sandy gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded.			
2.50 2.50-2.95	90				4,6/6,6,8,9 SPT(C) N=29	177.24	2.30 (1.70)	Stiff reddish brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular with frequent cobbles and boulders.			
4.00 4.00-4.45	73	10	0		6,7/7,8,10,10 SPT(C) N=35	175.54	4.00 (1.20)	Very stiff reddish brown sandy gravelly CLAY. Gravel is fine to coarse sub-angular to angular with frequent cobbles and boulders.			
5.20 5.50				3		174.34	5.20	Medium strong thinly to thickly laminated SILTSTONE. Slightly weathered. 5.2m - 8.5m bGL. 2 Fracture sets. F1: Medium spaced 40-60 degrees planar rough tight to open clean. F2: Medium to widely spaced 0-20 degrees undulating rough tight to open with occasional clay smear.			
6.20	100	45	43	8			(3.30)				
7.00 7.20	86	48	26	5							
8.50						171.04	8.50	Complete at 8.50m			

Remarks
Rotary coring techniques carried out from ground level to 8.5m bGL.
Standpipe installed on completion. Slotted standpipe installed from 8.5m bGL to 1.0m bGL with a pea gravel surround. Plain standpipe installed from 1.0m bGL to GL with a bentonite seal and raised cover.

Scale (approx)	Logged By
1:50	JC

Figure No. 13014-07-23.BH05

Ground Investigations Ireland Ltd
www.gii.ie

Site Scart Mountain - Broemountain			**Borehole Number** BH06
Machine : Baretta T-41 **Flush :** Water **Core Dia :** 64 mm **Method :** Rotary Cored	**Casing Diameter**	**Ground Level (mOD)** 21.31	**Client**	**Job Number** 13014-07-23
	Location 621718.6 E 596517.1 N	**Dates** 25/01/2024	**Engineer** Tobin	**Sheet** 1/1

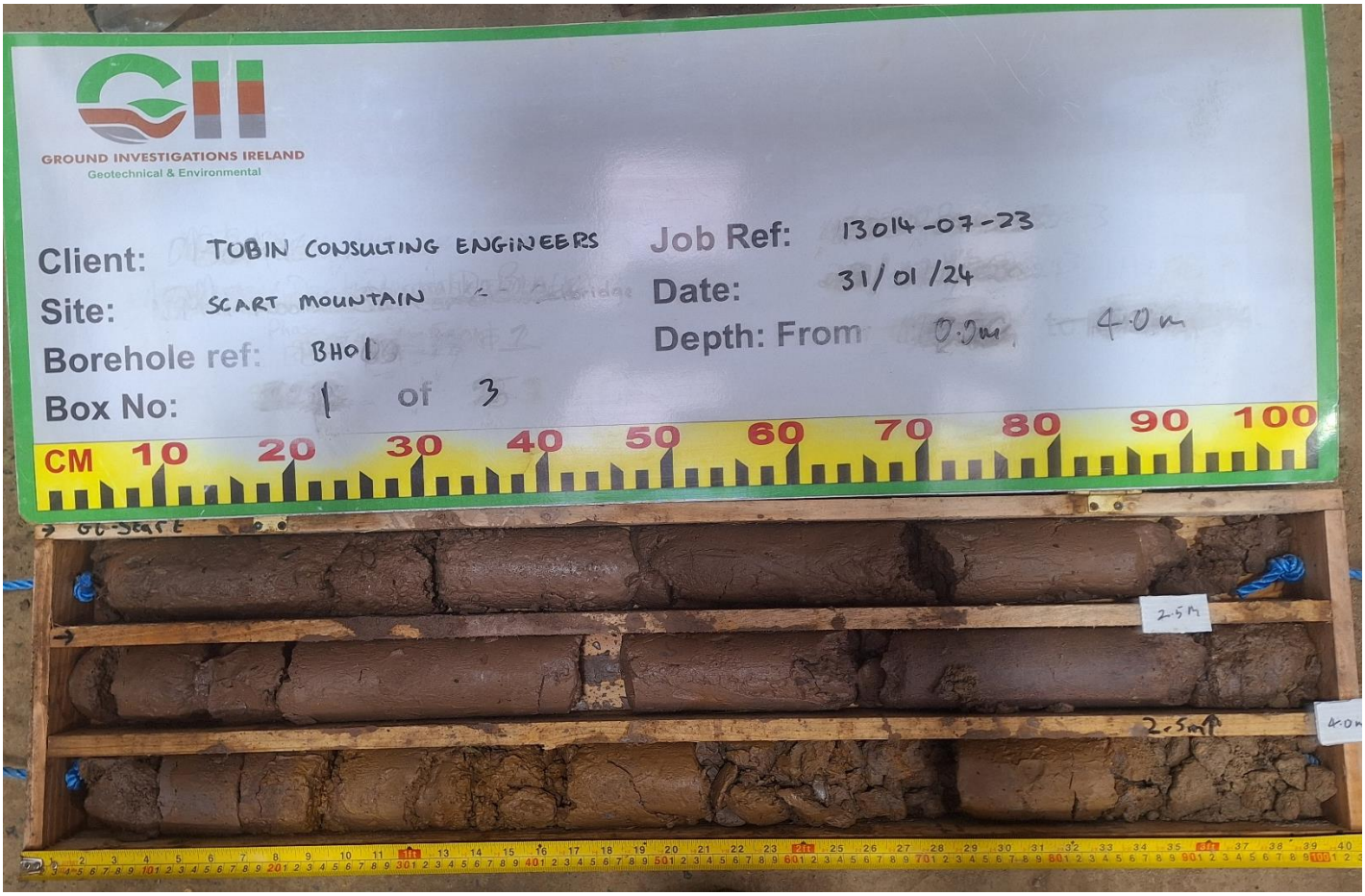
Depth (m)	TCR (%)	SCR (%)	RQD (%)	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	32						(2.50)	Driller notes: Clayey sand. Recovery consists of reddish brown medium to coarse slightly clayey sandy sub-rounded to rounded GRAVEL.			
2.50 2.50-2.95	51	10	10		5,7/6,7,9,10 SPT(C) N=32	18.81	2.50 (1.80)	Driller notes: Dense gravel and boulders. Recovery consists of reddish brown/green fine to coarse sub-rounded to angular GRAVEL with occasional cobbles and boulders.			
4.00 4.00-4.45 4.30	100	37	35	8	7,8/8,10,10,12 SPT(C) N=40	17.01	4.30 (0.60)	Medium strong to strong thinly laminated reddish brown SILTSTONE. Fresh. 4.3m - 7.5m bGL. 2 Fracture sets. F1: Very close to closely spaced 0 - 20 degrees planar rough tight to open some quartz coating. F2: Medium to wide spaced 40 - 60 degrees planar rough tight to open some quartz coating			
5.30 5.50				10		16.41	4.90 (1.60)	Medium strong to strong thinly laminated reddish brown medium grained SANDSTONE. Slightly weathered.			
6.30	72	47	45	12		14.81	6.50 (1.00)	Medium strong to strong thinly laminated light to dark grey medium grained SANDSTONE. Moderately weathered.			
7.50						13.81	7.50	Complete at 8.50m			

Remarks
Rotary coring techniques carried out from ground level to 8.5m bGL.
Standpipe installed on completion. Slotted standpipe installed from 8.5m bGL to 1.0m bGL with a pea gravel surround. Plain standpipe installed from 1.0m bGL to GL with a bentonite seal and raised cover.

Scale (approx)	Logged By
1:50	JC

Figure No. 13014-07-23.BH06

13014-07-23– Rotary Core Photographs



13014-07-23– Rotary Core Photographs

BH01

13014-07-23– Rotary Core Photographs

BH02

13014-07-23– Rotary Core Photographs

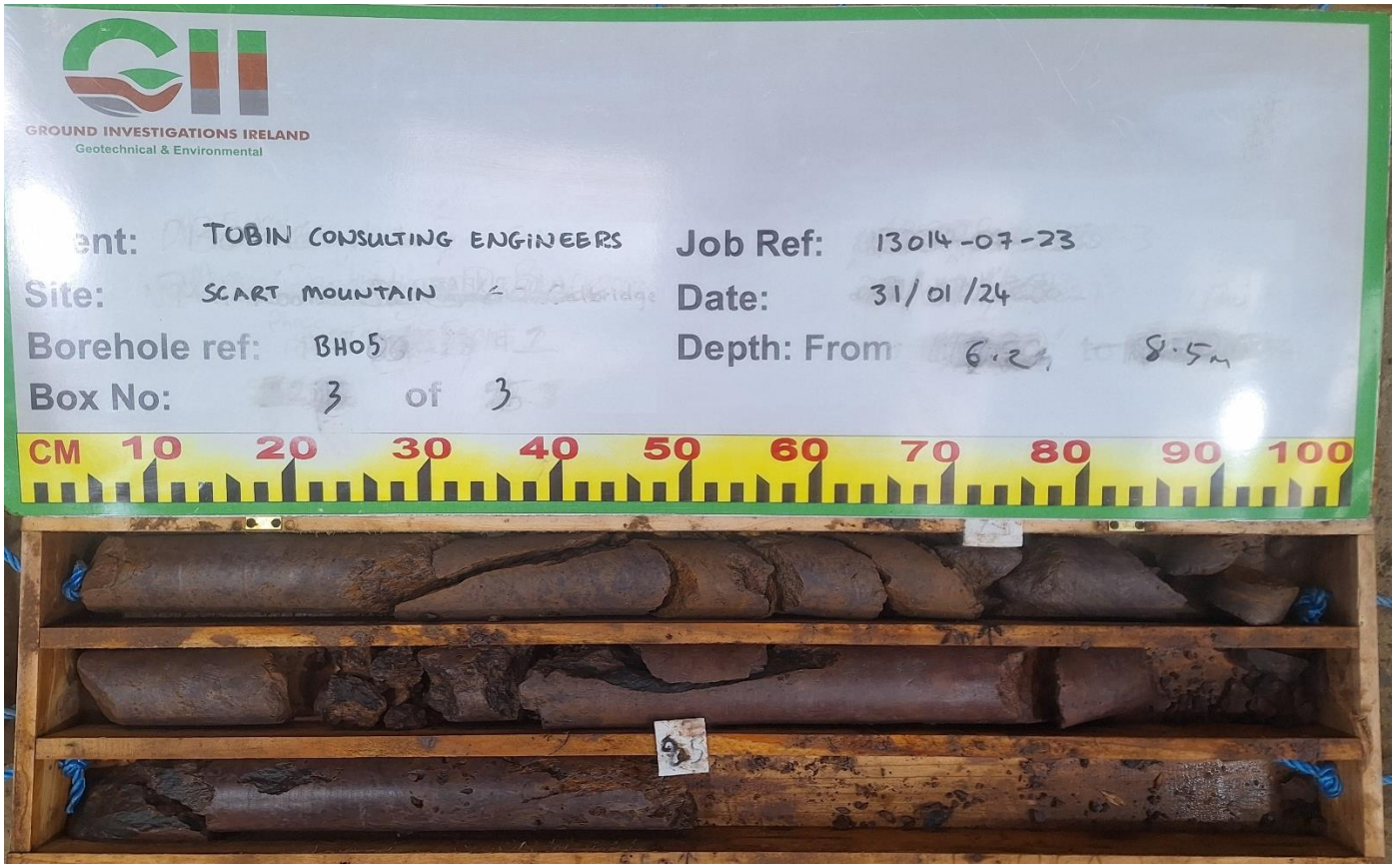
BH03

13014-07-23– Rotary Core Photographs

BH04

13014-07-23– Rotary Core Photographs

13014-07-23– Rotary Core Photographs



BH05

13014-07-23– Rotary Core Photographs

BH06

APPENDIX 4 – Gouge Auger Records

Ground Investigations Ireland Ltd

www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 08/09/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	Dark brown plastic pseduo-fibrous PEAT		
0.25	T1				0.25	Complete at 0.25m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA01

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 11/10/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	No Peat Present Complete at 0.05m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA02

Ground Investigations Ireland Ltd

www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 11/10/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	No Peat Present Complete at 0.05m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA03

Ground Investigations Ireland Ltd

www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 11/10/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	No Peat Present Complete at 0.05m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA04

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 11/10/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	T1				(0.10) 0.10	Very soft brown slightly sandy spongy pseduo-fibrous PEAT with organic matter		
0.40	T2				(0.30) 0.40	Soft light brown slightly sandy slightly gravelly CLAY		
						Complete at 0.40m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA07

Ground Investigations Ireland Ltd

www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA06

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 11/10/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.10) 0.10	Brown slightly sandy slightly gravelly TOPSOIL with grass and rootlets		
					(0.50)	Soft light brown slightly sandy slightly gravelly CLAY		
0.60	T1				0.60	Complete at 0.60m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA07

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA07

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 11/10/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Soft brown slightly sandy spongy pseduo-fibrous PEAT with organic matter and rootlets		
0.20	T1				0.20	Soft light grey brown slightly sandy gravelly CLAY		
					(0.30)			
0.50	T2				0.50	Complete at 0.50m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA07

Ground Investigations Ireland Ltd

www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA08

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 08/09/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05 (0.05)	No Peat Present Complete at 0.05m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA08

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Scart Mountain - Broemountain	GA09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit				13014-07-23
	Location	**Dates** 08/09/2023	**Engineer** Tobin	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Dark brown plastic pseudo fibrous PEAT		
0.40	T1				0.40	Complete at 0.40m		

Plan

Remarks

No groundwater encountered

Scale (approx)	Logged By	Figure No.
1:25	GGR	13014-07-23.GA09

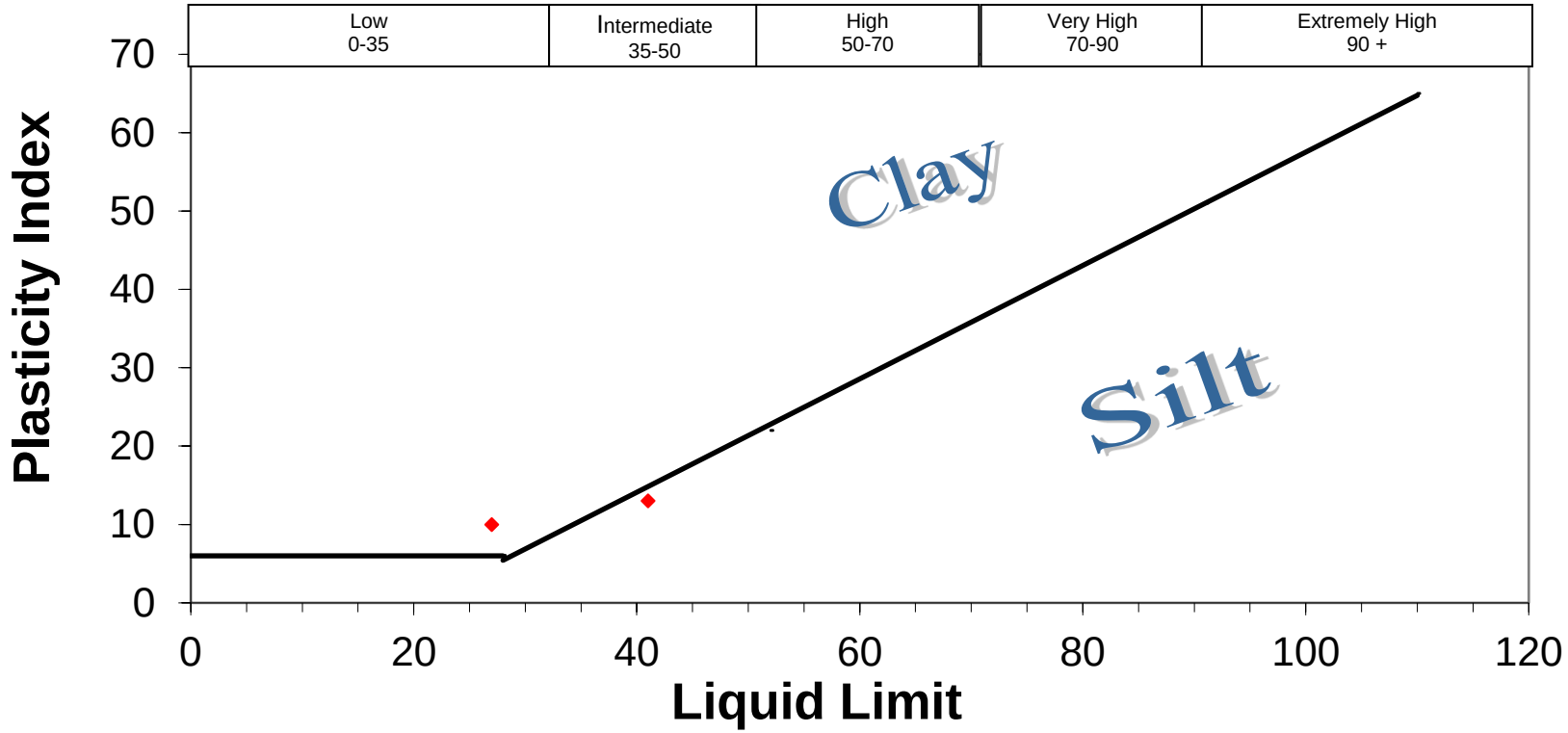
APPENDIX 5 – Laboratory Testing

National Materials Testing Laboratory Ltd.

SUMMARY OF TEST RESULTS

				Particle			Index Properties		Bulk	Cell	Undrained Triaxial Tests		Lab	
BH/TP	Depth	sample	Moisture	Density	<425um	LL	PL	PI	Density	Presssure	Compressive	Strain at	Vane	Remarks
No	m	No.	%	Mg/m3	%	%	%	%	Mg/m3	kPa	Stress kPa	Failure %	kPa	
TP01	0.50	T	17.1											
TP01	1.00	T	13.9											
TP01	2.00	B	16.4		42.9	41	28	13						
TP02	1.00	T	475.5											
TP02	2.00	T	21.3											
TP03	1.00	T	48.6											
TP03	2.00	B	16.3											
TP04	1.00	T	25.8											
TP05	1.00	T	16.9											
TP11	0.50	T	15.3											
TP12	0.50	T	25.2											
TP13	0.50	T	21.5											
TP14	0.50	T	24.1											
TP15	0.50	T	16.2											
TP16	0.50	T	13.1											
TP17	0.50	T	17.6											
TP19	0.50	B	31.5											
TP20	0.50	T	126.4											
TP20	2.00	T	15.6											
TP21	1.00	T	13.4											
TP22	0.50	T	25.8											
TP22	2.00	B	14.3		65.4	27	17	10						
TP23	1.00	T	19.3											
TP24	1.00	B	15.0		69	24	Non Plastic							
TP25	1.00	B	9.3											
TP25	2.00	B	15.6		50.6	28	Non Plastic							
GA01	0.25	T	99.9											
GA05	0.10	T	31.0											
GA05	0.40	T												
GA06	0.60	T	28.6											missing
GA07	0.20	T	60.4											
GA07	0.50	T	32.1											
GA09	0.40	T	62.2											
NMTL		Notes :									Job ref No.	NMTL 3686	GII Project ID:	113014-07-23
		1. All BS tests carried out using preferred (definitive) method unless otherwise stated.									Location	Scart Mountain-Broemountain		

NMTL LTD	**Contract:** Scart Mountain-Broemountain
Unit 18c, Tullow Industrial Estate	**Client:** Ground Investigations Ireland Ltd
Tullow	**Engineer:** Dairmaid Maglochlainn
County Carlow	**GII Project ID** 113014-07-23
Tel: 00353 59 9180822	**Date:** 14/12/2023
Mob: 00353 872575508	**Tested By:** Js **Checked:** Bc
billa@nmtl.ie	**Job ref No.** NMTL 3686



NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	90.0
37.500	79.8
28.000	77.3
20.000	73.9
14.000	70.5
10.000	68.0
6.300	65.7
5.000	64.0
3.350	61.7
2.000	58.2
1.180	55.5
0.600	53.0
0.425	51.5
0.300	48.9
0.212	44.9
0.150	40.0
0.063	23.5

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		23.5			34.7			41.8		0.0	0.0

Sample Description	Red/brown slightly sandy gravelly CLAY/SILT.			Project No.	NMTL 3686
				BH/TP No.	TP03
Project	Scart Mountain, Broemountain		GII PROJECT ID:113014-07-23	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 11/12/2023	Depth	2.00m

NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	98.2
28.000	92.2
20.000	88.3
14.000	82.3
10.000	79.6
6.300	75.1
5.000	71.9
3.350	69.5
2.000	65.1
1.180	61.3
0.600	57.5
0.425	55.5
0.300	53.0
0.212	50.1
0.150	47.1
0.063	39.5

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		39.5			25.7			34.9		0.0	0.0

Sample Description	Brown/red slightly sandy gravelly SILT/CLAY			Project No.	NMTL 3686
				BH/TP No.	TP15
Project	Scart Mountain, Broemountain		GII PROJECT ID:113014-07-23	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 11/12/2023	Depth	1.00m

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Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	93.9
50.000	89.1
37.500	82.0
28.000	77.8
20.000	71.6
14.000	67.6
10.000	64.5
6.300	59.5
5.000	57.6
3.350	54.1
2.000	50.5
1.180	47.4
0.600	44.3
0.425	42.7
0.300	40.5
0.212	37.7
0.150	34.3
0.063	26.8

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		26.8			23.7			43.5		6.1	0.0

Sample Description	Brown/red slightly sandy gravelly SILT/CLAY			Project No.	NMTL 3686
				BH/TP No.	TP15
Project	Scart Mountain, Broemountain		GII PROJECT ID:113014-07-23	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 11/12/2023	Depth	2.00m

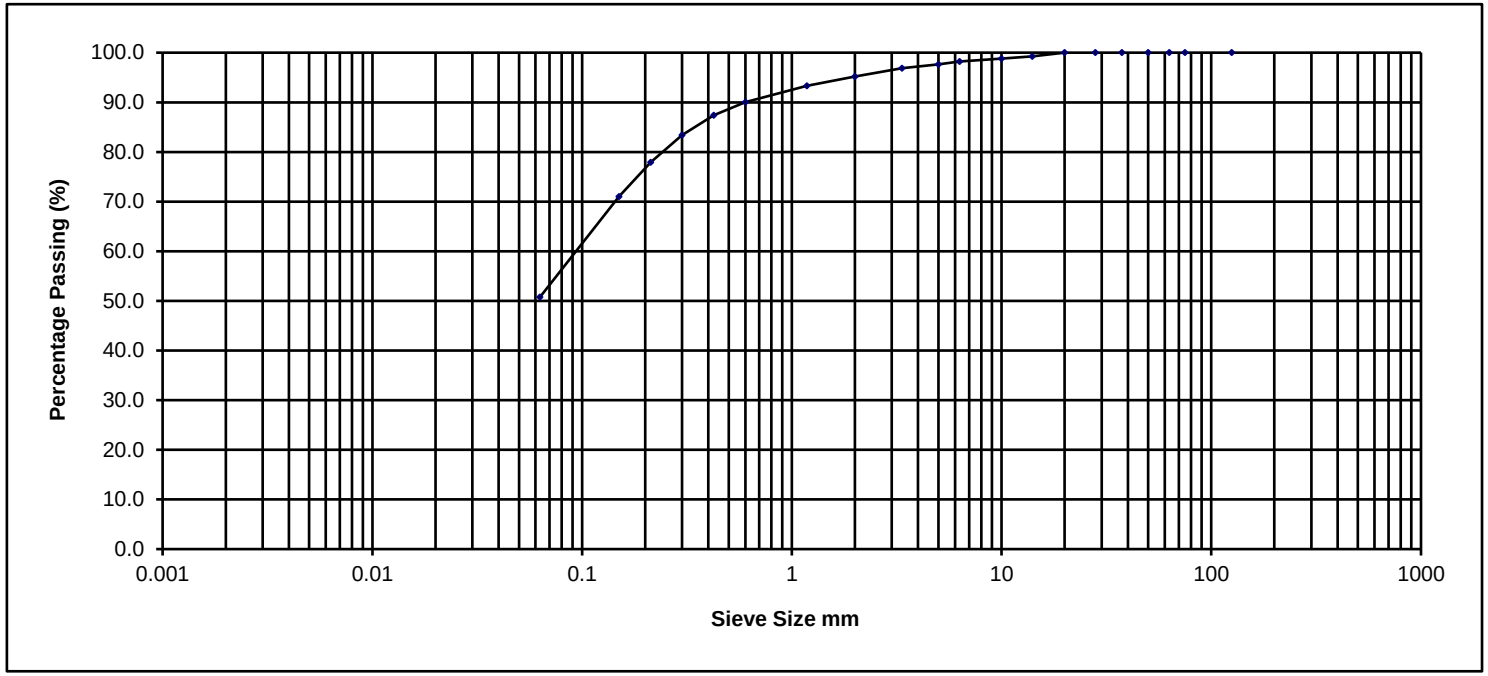
NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	100.0
28.000	100.0
20.000	100.0
14.000	99.2
10.000	98.8
6.300	98.2
5.000	97.7
3.350	96.9
2.000	95.2
1.180	93.3
0.600	90.0
0.425	87.4
0.300	83.4
0.212	77.9
0.150	71.0
0.063	50.8



Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		50.8			44.4			4.8		0.0	0.0

Sample Description	Grey/orange brown slightly gravelly sandy CLAY/SILT.			Project No.	NMTL 3686
				BH/TP No.	TP19
Project	Scart Mountain, Broemountain		GII PROJECT ID:113014-07-23	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 11/12/2023	Depth	0.50m

NMTL Ltd

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Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	95.8
37.500	92.7
28.000	89.2
20.000	86.8
14.000	84.4
10.000	79.6
6.300	74.9
5.000	73.2
3.350	71.2
2.000	67.7
1.180	64.3
0.600	60.2
0.425	57.7
0.300	54.1
0.212	49.6
0.150	44.5
0.063	33.5

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		33.5			34.3			32.3		0.0	0.0

Sample Description	Brown silghtly gravelly slightly sandy SILT/CLAY.			Project No.	NMTL 3686
				BH/TP No.	TP22
Project	Scart Mountain, Broemountain		GII PROJECT ID:113014-07-23	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 11/12/2023	Depth	1.00m

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Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	100.0
28.000	96.9
20.000	92.4
14.000	90.8
10.000	87.5
6.300	83.3
5.000	81.3
3.350	79.3
2.000	75.0
1.180	71.0
0.600	66.1
0.425	63.5
0.300	60.2
0.212	56.6
0.150	52.9
0.063	44.1

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		44.1			30.9			25.0		0.0	0.0

Sample Description	Brown slightly gravelly slightly sandy SILT/CLAY.			Project No.	NMTL 3686
				BH/TP No.	TP23
Project	Scart Mountain, Broemountain		GII PROJECT ID:113014-07-23	Sample No.	B
Operator Sb	Checked Nc	Approved Bc	Date sample tested 11/12/2023	Depth	2.00m

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Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	87.6
37.500	77.3
28.000	66.8
20.000	58.5
14.000	52.2
10.000	46.8
6.300	40.4
5.000	37.4
3.350	32.7
2.000	27.9
1.180	24.4
0.600	21.7
0.425	20.7
0.300	19.7
0.212	18.7
0.150	17.7
0.063	15.6

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		15.6			12.3			72.1		0.0	0.0

Sample Description	Brown/red slightly sandy clayey silty GRAVEL.					Project No.	NMTL 3686
						BH/TP No.	TP25
Project	Scart Mountain, Broemountain			GII PROJECT ID:113014-07-23		Sample No.	B
Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	11/12/2023	Depth	1.00m

NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	93.7
28.000	87.9
20.000	81.4
14.000	76.1
10.000	74.7
6.300	71.0
5.000	68.4
3.350	66.1
2.000	62.7
1.180	59.6
0.600	56.1
0.425	54.1
0.300	51.6
0.212	48.8
0.150	45.7
0.063	38.4

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		38.4			24.3			37.3		0.0	0.0

Sample Description	Brown/red slightly sandy slightly gravelly SILT/CLAY.					Project No.	NMTL 3686
						BH/TP No.	TP26
Project	Scart Mountain, Broemountain			GII PROJECT ID:113014-07-23		Sample No.	B
Operator	Sb	Checked	Nc	Approved	Bc	Date sample tested	11/12/2023	Depth	2.0m

NMTL Ltd

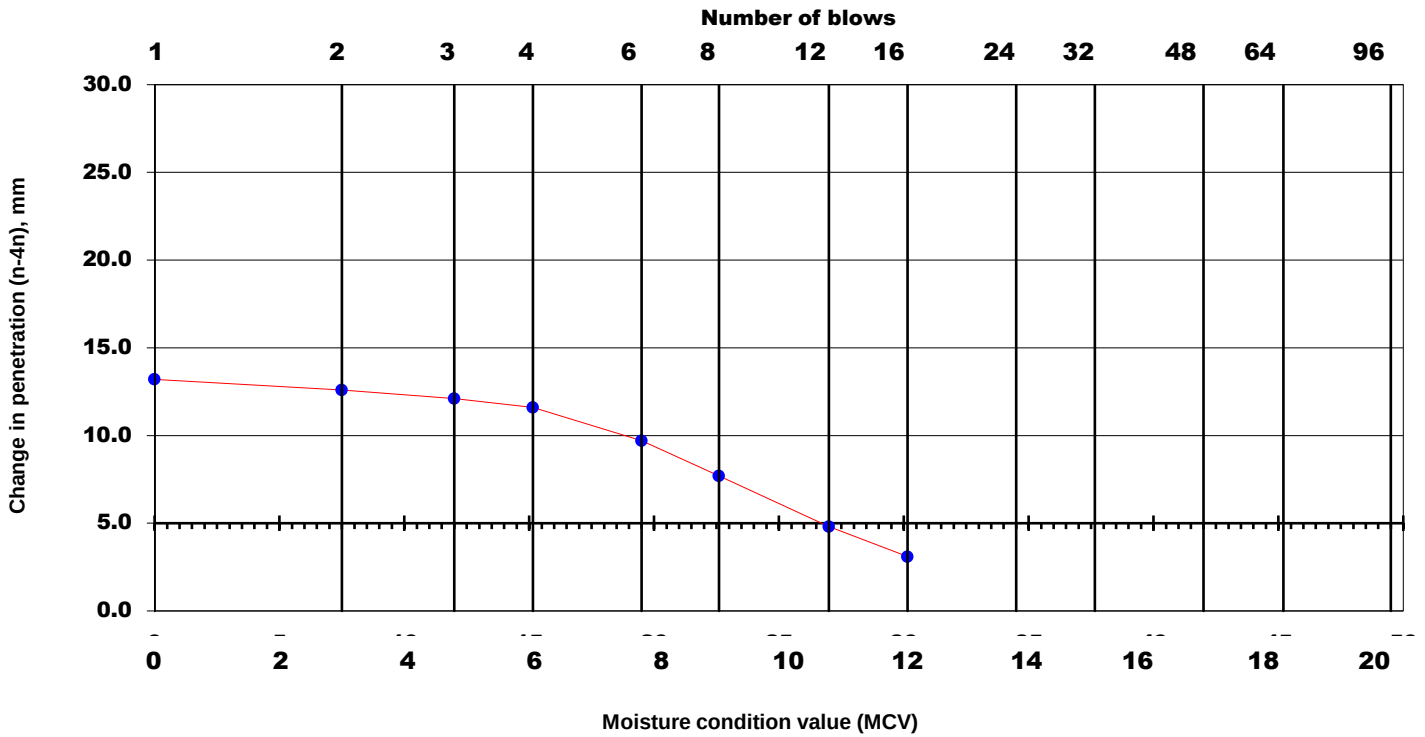
SINGLE POINT MOISTURE CONDITION VALUE TEST

Single sample mass		
Initial sample mass	1605	g
Moisture content	11.7	%
Dry mass	1437.0	g
Mass retained on 20mm sieve	g	23.6 %

* Delete as appropriate

Project Name: Scart Mountain-Broemountain		Job ref.	NMTL_3686
		GII Project ID	113014-07-23
		TP/BH	TP12
Soil description:		Sample no.	B
Brown/red slightly sandy slightly gravelly CLAY/SILT		Depth	2.00m
Test method	BS 1377 : Part 4 : 1990 : 5	Date Tested	13/12/2023
		Date Sampled	N/A
MCV	**10.8** **Natural**	Date Received	29/11/2023

Total number of blows n	Penetration or protrusion mm	Change in penetration n to 4n mm
1	66.6	13.2
2	59.6	12.6
3	55.8	12.1
4	53.4	11.6
6	49.4	9.7
8	47.0	7.7
12	43.7	4.8
16	41.8	3.1
24	39.7	
32	39.3	
48	38.9	
64	38.7	
96		
128		
192		
256		



Operator	Checked	Approved
Dk	Nc	Bc

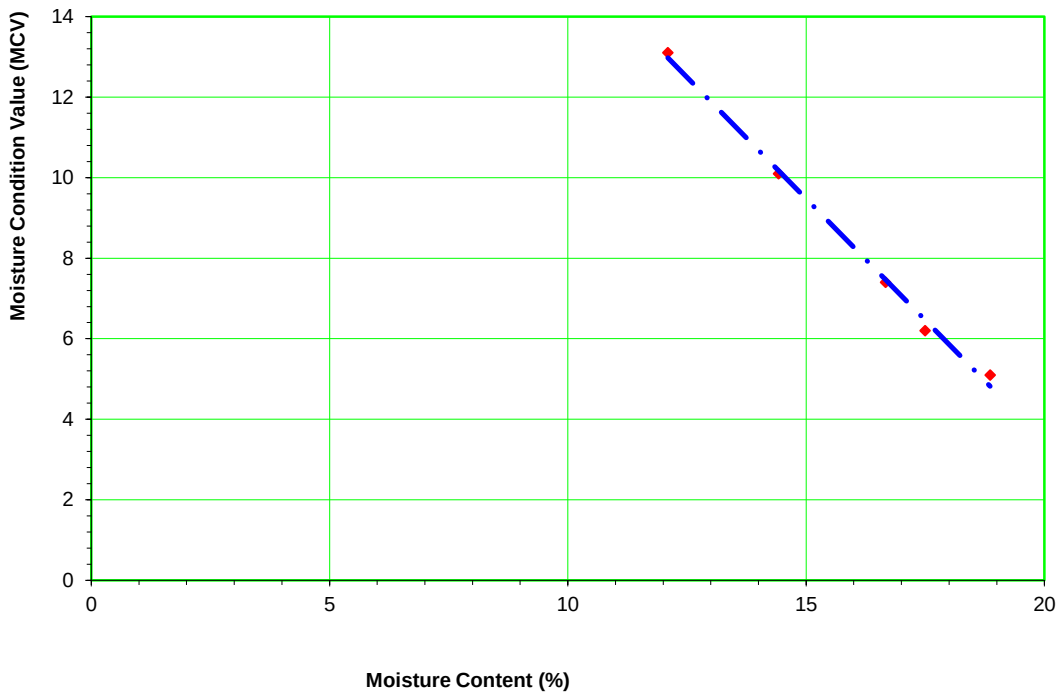
NMTL Ltd

Tested in accordance with BS 1377: Part 4 : 1990.Clause 5.5-Moisture Condition Value

Soil description: **Brown/red slightly sandy gravelly SILT/CLAY**

Mass retained on 20mm sieve 28.4 %

Moisture Content %	MCV
12.10	13.10
14.42	10.10
16.67	7.40
17.50	6.20
18.86	5.10



NM TL Ltd		Project:	Scart Mountain-Brormountain			Job No	NMTL3686
						Trial Pit No.	TP15
						Sample No.	B
Operator	Dk	Checked	Nc	Approved	Bc	14/12/2023	Depth 2.00m

Determination of dry density / moisture content relationship

BS 1377: Part 4: 1990 : Clause 3.4

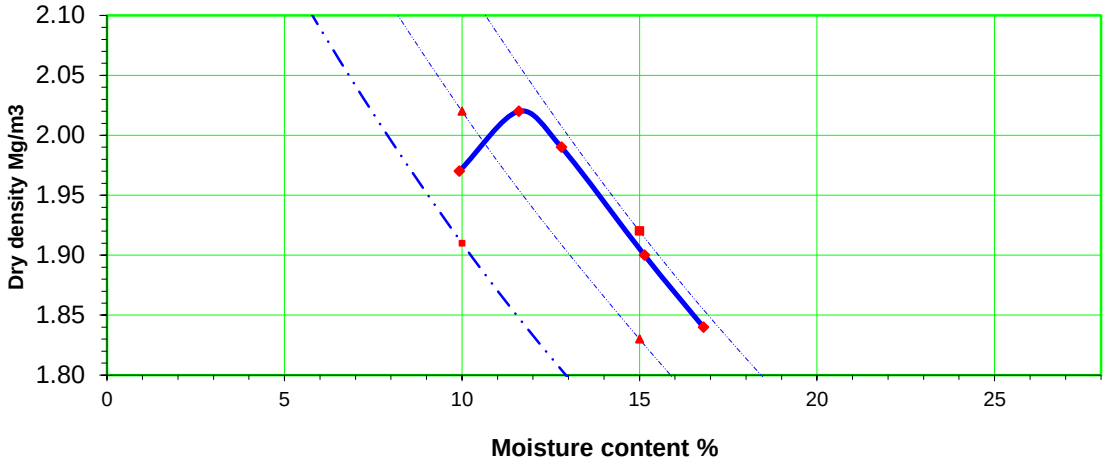
Tested in accordance with BS 1377: Part 4 : 1990.Clause 5.5-Moisture Condition Value

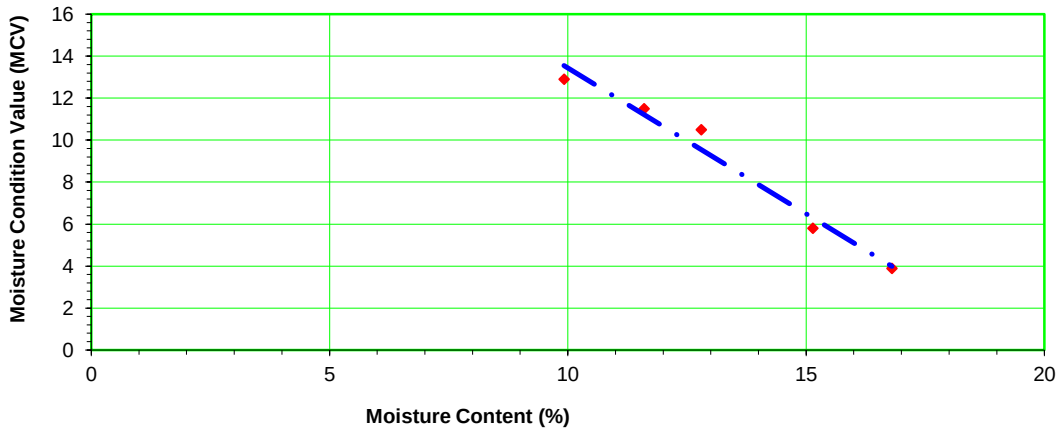
Soil description: **Brown slightly sandy slightly gravelly clayey SILT.**

Optimum Moisture Content 11.6 %

Maximum Dry density 2.01 Mg/m3

Moisture Content %	Dry Density Mg/m3		MCV
9.92	1.97		12.90
11.60	2.02		11.50
12.80	1.99		10.50
15.14	1.90	At natural moisture.	5.80
16.80	1.84		3.90





NM TL Ltd		Project:	Scart Mountain-Broemountain			Job No	NMTL3686
						Trial Pit No.	TP25
						Sample No.	B
Operator	Dk	Checked	Nc	Approved	Bc	14/12/2023	Depth 2.00m

Determination of dry density / moisture content relationship

BS 1377: Part 4: 1990 : Clause 3.4

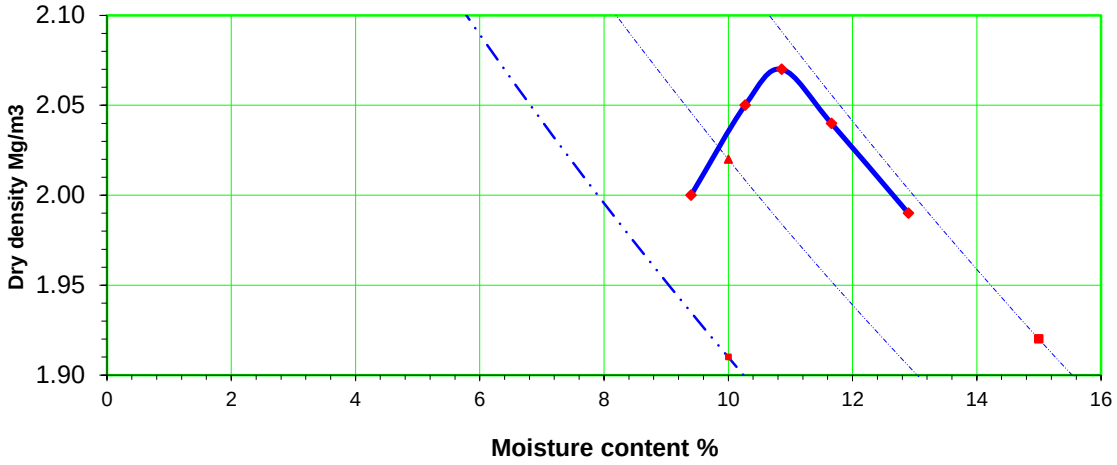
Tested in accordance with BS 1377: Part 4 : 1990.Clause 5.5-Moisture Condition Value

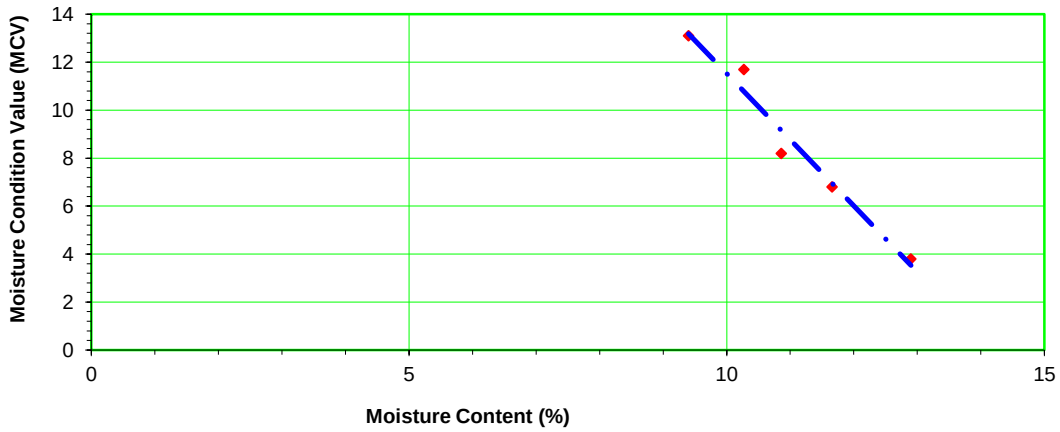
Soil description: **Brown/red slightly sandy slightly gravelly SILT/CLAY.**

Optimum Moisture Content 10.9 %

Maximum Dry density 2.05 Mg/m3

Moisture Content %	Dry Density Mg/m3	MCV
9.40	2.00	13.10
10.27	2.05	11.70
10.86	2.07	8.20
11.66	2.04	6.80
12.90	1.99	3.80





NM TL Ltd		Project:	Scart Mountain-Broemountain			Job No	NMTL3686
						Trial Pit No.	TP26
						Sample No.	B
Operator	Dk	Checked	Nc	Approved	Bc	14/12/2023	Depth 2.00m