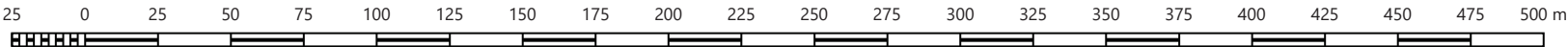


Appendix 12

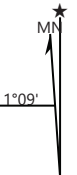
As-Surveyed Site Plan



26458 Old Connaught South Dublin - Phase 1

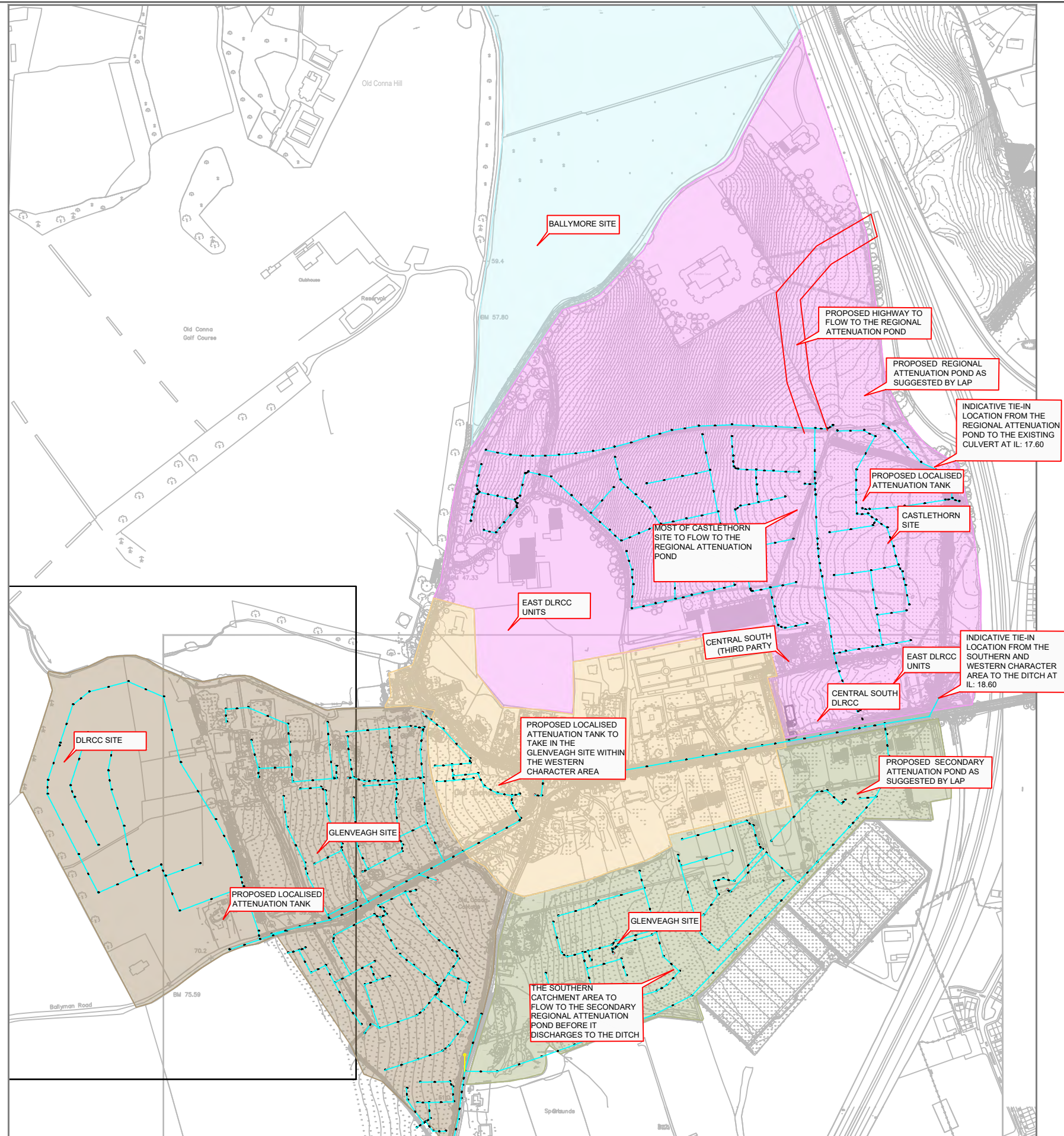


Scale: 1 : 2500.



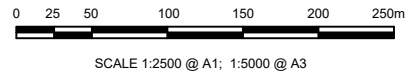
Appendix G. LAP Storm Drainage Design





GENERAL NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
2. ONLY WRITTEN DIMENSIONS SHALL BE USED. NO DIMENSIONS SHALL BE SCALED FROM THE DRAWINGS
3. ALL LEVELS ARE IN METRES AND ARE TO MALIN HEAD DATUM
4. ALL COORDINATES ARE IN METRES AND ARE TO IRISH TRANSVERSE MERCATOR
5. DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATION



DRAFT

Purpose	FOR INFORMATION
---------	-----------------

OLD CONNA LAP
OVERALL STORM DRAINAGE STRATEGY

Original Scale AS SHOWN	Drawn	Checked	Reviewed	Authorised
	PM	IPR	IPR	GH
	Date 20.11.25	Date 20.11.25	Date 20.11.25	Date 20.11.25
Status	Drawing Number			Rev
I				

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	Atkins Sensitive - Medium Risk
	Atkins Private - High Risk
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Fax (+353) 01 810 8001	Fax (+353) 021 429 0360	Fax (+353) 091 779 8300

Appendix H. UK SuDS Output



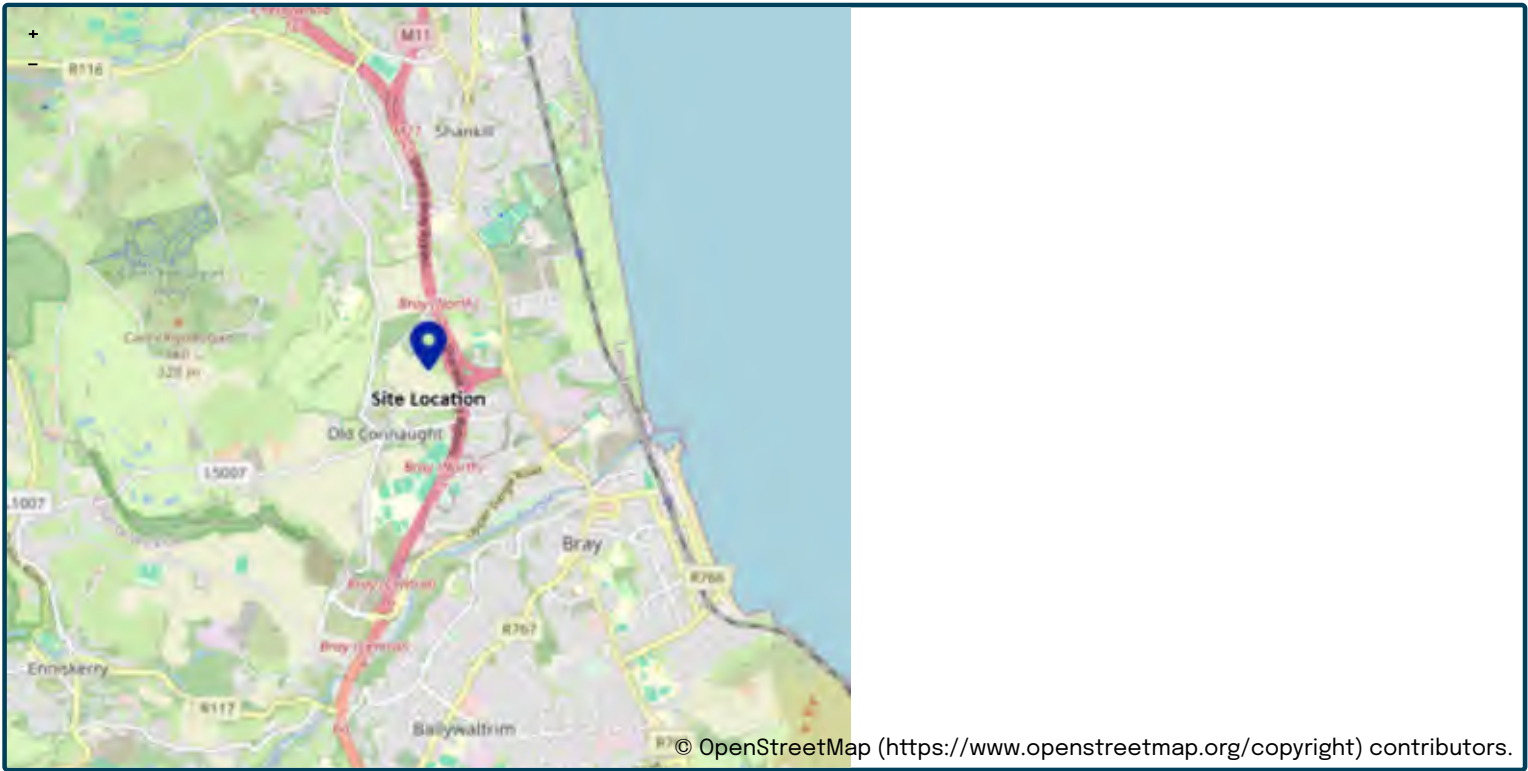
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	13/07/2026
Calculated by	
Reference	
Model version	2.2.3

Location

Site name	Catchment 1A
Site location	



Site easting (Irish Grid)	325088	
Site northing (Irish Grid)	219558	
Site easting (Irish Transverse Mercator)	725011	
Site northing (Irish Transverse Mercator)	719587	

Site details

Total site area (ha)	2.03	ha
----------------------	------	----

Greenfield runoff

Method

Method	IH124	
IH124		
SAAR (mm)	My value 1010mm	Map value 1010
How should SPR be derived?	WRAP soil type	
WRAP soil type	4	2
SPR	0.47	
QBar (IH124) (l/s)	15.1l/s	

Growth curve factors

Hydrological region	12	12
1 year growth factor	0.85	
2 year growth factor	0.95	
10 year growth factor	1.72	
30 year growth factor	2.13	
100 year growth factor	2.61	
200 year growth factor	2.86	

Results

Method	IH124	
Flow rate 1 year (l/s)	12.8l/s	
Flow rate 2 year (l/s)	14.3l/s	
Flow rate 10 years (l/s)	25.9l/s	
Flow rate 30 years (l/s)	32.1l/s	
Flow rate 100 years (l/s)	39.3l/s	
Flow rate 200 years (l/s)	43.0l/s	

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com/) (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	13/07/2026
Calculated by	
Reference	
Model version	2.2.3

Location

Site name	Catchment 1B
Site location	



Site easting (Irish Grid)	325088
Site northing (Irish Grid)	219558
Site easting (Irish Transverse Mercator)	725011
Site northing (Irish Transverse Mercator)	719587

Site details

Total site area (ha)	2.71	ha
----------------------	-----------------	----

Greenfield runoff

Method

Method	IH124	
IH124		
	My value	Map value
SAAR (mm)	1010 mm	☐ 1010
How should SPR be derived?	WRAP soil type	
WRAP soil type	3	☐ 2
SPR	0.37	
QBar (IH124) (l/s)	12 l/s	

Growth curve factors

	My value	Map value
Hydrological region	12	☐ 12
1 year growth factor	0.85	
2 year growth factor	0.95	
10 year growth factor	1.72	
30 year growth factor	2.13	
100 year growth factor	2.61	
200 year growth factor	2.86	

Results

Method	IH124	
Flow rate 1 year (l/s)	10.2	l/s
Flow rate 2 year (l/s)	11.4	l/s
Flow rate 10 years (l/s)	20.6	l/s
Flow rate 30 years (l/s)	25.5	l/s
Flow rate 100 years (l/s)	31.2	l/s
Flow rate 200 years (l/s)	34.2	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent ‘zero’ figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

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Appendix I. Underground Modular Attenuation Tank Designs.



User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	Yes
Project Name:	
Engineer:	Indhu Rajavadivelu
Project Location:	
Measurement Type:	Metric
Required Storage Volume:	1350.00 cubic meters.
Stone Porosity:	40%
Stone Foundation Depth:	339 mm.
Stone Above Chambers:	351 mm.
Design Constraint Dimensions:	(18.01 m. x 71.01 m.)

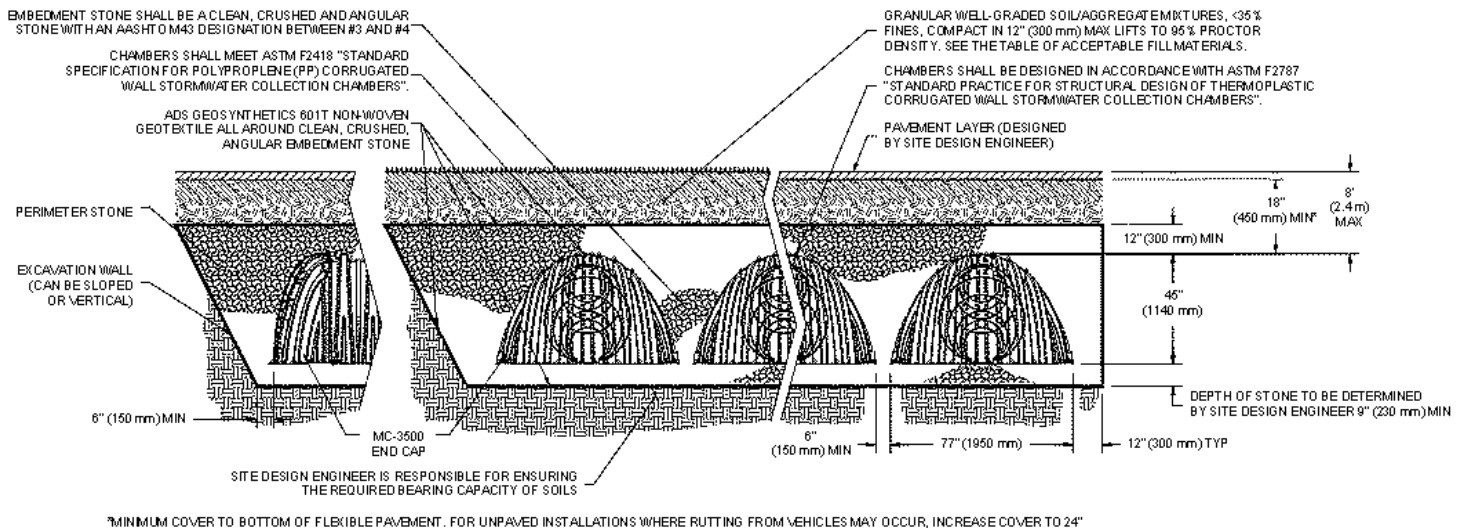
Results

System Volume and Bed Size

Installed Storage Volume:	1362.56 cubic meters.
Storage Volume Per Chamber:	3.12 cubic meters.
Number Of Chambers Required:	247
Number Of End Caps Required:	16
Chamber Rows:	8
Maximum Length:	70.72 m.
Maximum Width:	17.51 m.
Approx. Bed Size Required:	1226.35 square meters.
Average Cover Over Chambers:	N/A .

System Components

Amount Of Stone Required	
(0% Overage):	1471 cubic meters
(Cubic yard to ton factor:1.4):	2692.01 tons
Volume Of Excavation (Not Including Fill):	2246 cubic meters
Total Non-woven Geotextile Required:	3331 square meters
Woven Geotextile Required (excluding Isolator Row):	122 square meters
Woven Geotextile Required (Isolator Row):	221 square meters
Total Woven Geotextile Required:	343 square meters
Impervious Liner Required:	0 square meters



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IGSL Limited

Atkins

**Ground Investigation for
Old Connaught South Dublin
Phase 1**

Factual Report

Report No. 26458

June 2026



Report



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DOCUMENT ISSUE REGISTER

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Atkins	Factual Report	0	11/06/2026	D. Mourdeka BSc MSc Eng Geo	D. Green BA BAI CEng MIEI FGS



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- 2.2 Rotary Coreholes
- 2.3 Trial Pits
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- 2.5 Dynamic Probes
- 2.6 Inspection (Slit) trenches
- 2.7 Plate Bearing Tests
- 2.8 Infiltration Tests
- 2.9 Groundwater Monitoring
- 2.10 As-Built Survey

3.0 Laboratory Testing

4.0 References

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Appendix 3	Trial Pit Records
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FOREWORD

The following conditions and notes on the geotechnical site investigation procedures should be read in conjunction with this report.

Standards

The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930:2015 and BS 1377 (Parts 1 to 9) and the following European Norms:

- EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- EN ISO 14688-1:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- EN ISO 14688-2:2018 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles
- EN ISO 14689-1:2018 Geotechnical Investigation and Testing - Identification & Classification of Rock, Part 1: Identification & Description

Reporting

This report has been prepared for Atkins and the information should not be used without prior written permission of either party. IGSL Ltd accepts no responsibility or liability for this document being used other than for the purposes for which it was intended. No responsibility can be held by IGSL Ltd for ground conditions between exploratory hole locations.

The engineering logs provide ground profiles and configuration of strata relevant to the investigation depths achieved and caution should be taken when extrapolating between exploratory points. No liability is accepted for ground conditions extraneous to the investigation points. Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction, mining works or karstification below or close to the site.

Boring Procedures

Unless otherwise stated, 'shell and auger' or cable percussive boring technique has been employed as defined by Section 6.3 of IS EN ISO 22475-1:2006. The boring operations, sampling and in-situ testing complies with the recommendations of IS EN 1997-2:2007 and BS 1377:1990 and EN ISO 22476-3:2005+A1:2011. The shell and auger boring technique allows for continuous sampling in clay and silt above the water table and sand and gravel below the water table (Table 2 of IS EN ISO 22475-1:2006).

It is highlighted that some disturbance and variations is unavoidable in particular ground (e.g. blowing sands, gravel / cobble dominant glacial deposits etc). Attention is drawn to this condition, whenever it is suspected. Where cobbles and boulders are recorded, no conclusion should be drawn concerning the size, presence, lithological nature, or numbers per unit volume of ground.

Rotary Drilling Procedures

Rotary drilling methods are used to recover very heavily over-consolidated glacial till and bedrock samples in line with Section 3.5 of IS EN 1997-2:2007 and IS EN ISO 22475-1. Open hole drilling methods (odex or symmetrix) are utilized to advance the drillholes through granular dominant superficial deposits, with coring in hard ('cemented') fine grained or cohesive glacial deposits and bedrock.

In-Situ Testing

Standard penetration tests are conducted by IGSL strictly in accordance with Section 4.6 of IS EN 1997-2:2007. The SPT equipment (hammer energy test) has been calibrated in accordance with EN ISO 22476-3:2005+A1:2011 and the Energy Ratio (E_r) is defined as the ratio of the actual energy E_{meas} (measured energy during calibration) delivered to the drive weight assembly into the drive rod below the anvil, to the theoretical energy (E_{theor}) as calculated from the drive weight assembly. The measured number of blows (N) reported on the engineering logs are uncorrected. In sands, the energy losses due to rod length and the effect of the overburden pressure should be taken into account (see IS EN ISO 22476-3:2005+A1:2011).

Groundwater

The depth of entry of any influx of groundwater is recorded during the course of boring or drilling operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level. Groundwater conditions observed in the borings or pits are those appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

Soil Sampling

Three categories of sampling methods are outlined in EN ISO 22475-1:2006. The categories are referenced A, B and C for any given ground conditions and are shown in Tables 1 and 2 of EN ISO 22475-1:2006. Reference should be made to EN 1997-2:2007 for guidelines on sample class and quality for strength and compressibility testing. Samples of quality classes 1 or 2 can only be obtained by using Category A sampling methods.

Where appropriate Class 1 thin wall undisturbed tube samples (UT100) are obtained in fine grained soils and strictly meet the requirements of EN 1997-2:2007 and EN ISO 22475-1:2006. Soil samples for laboratory tests are divided into five classes with respect to the soil properties that are assumed to remain unchanged during sampling, handling transport and storage. The minimum sample quality required for testing purposes to Eurocode 7 compatibility (EN 1997-2:2007) is shown in Table A.

Table A – Details of Sample Quality Requirements

EN 1997 Clause	Test	Minimum Sample Quality Class
5.5.3	Water Content	3
5.5.4	Bulk Density	2
5.5.5	Particle Density	N/S
5.5.6	Particle Size Analysis	N/S
5.5.7	Consistency Limits	4
5.5.8	Density Index	N/S
5.5.9	Soil Dispersivity	N/S
5.5.10	Frost Susceptibility	N/S
5.6.2	Organic Content	4
5.6.3	Carbonate Content	3
5.6.4	Sulphate Content	3
5.6.5	pH	3
5.6.6	Chloride Content	3
5.7	Strength Index	1
5.8	Strength Tests	1
5.9	Compressibility Tests	1
5.10	Compaction Tests	N/S
5.11	Permeability	2

N/S – not stated. Presume a representative sample of appropriate size.

Samples recovered from trial pits or trenches meet the requirements of IS EN ISO 22475-1. It is highlighted that unforeseen circumstances such as variations in geological strata may lead to lower quality sample classes being obtained.

Engineering Logging

Soil and rock identification is based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2018 and IS EN ISO 14689-1:2018. Rock weathering classification conforms to IS EN ISO 14689-1:2018 while discontinuities (bedding planes, joints, cleavages, faults etc) are classified in accordance with 4.3.3 of IS EN ISO 14689-1:2018. Rock mechanical indices (TCR, SCR, RQD) are defined in accordance with IS EN ISO 22475-1:2006.

Retention of Samples

After satisfactory completion of all the scheduled laboratory tests on any sample, the remaining material will be discarded. Unless a period of retention of samples is agreed, it is company policy to discard soil samples one month after submission of our final report.

1.0 Introduction and Objectives

Proposed construction works between Shankill and Bray in Co. Wicklow will include a new overbridge at the M11 motorway and an associated approach road on the western side of the M11. Ground investigation works have been carried out for the project and these have been segregated into two phases as follows:

Phase 1 – Approach Road

Phase 2 – Overbridge at M11

This report relates to the Phase 1 ground investigation that has been undertaken on behalf of Mountclare and Castlethorn in accordance with a technical specification prepared by Atkins. The objectives of the investigation were to ascertain the ground and groundwater conditions, and to produce a report which will assist in the geotechnical design of the project.

The site location is shown in Figure 1 with the area of the Phase 1 investigation approximately outlined in red.



Figure 1 – Site Location

This report presents the fieldwork data and the results of laboratory testing.

2.0 Scope of Works

The programme of exploratory works included the following:

- 3 no. cable percussive boreholes
- 3 no. rotary coreholes at borehole locations
- 5 no. mechanically excavated trial pits
- 2 no. window samples
- 2 no. dynamic probes at window sample locations
- 7 no. plate bearing tests
- 7 no. infiltration tests
- 1 no. inspection (slit) trench
- Groundwater monitoring of standpipes
- A programme of geotechnical, chemical and environmental laboratory testing

The exploratory hole locations are shown on the as-surveyed aerial plan in Appendix 12 of this report.

2.1 Cable Percussive Boreholes

Boreholes were constructed in 3 locations (BH01 to BH03) using a Dando 2000 rig equipped with 200 mm casing. The bored depths ranged from 7.9 to 11.8 metres below existing ground level (m BGL).

A hand dug inspection pit was excavated at each location prior to commencing drilling works and the locations were scanned for services using a CAT detection tool.

During the course of boring, in-situ Standard Penetration Tests (SPT) were undertaken at metre intervals. Samples were also recovered to assist in the visual description of recovered soils and to provide specimens for laboratory testing. In low strength soils, driven tube samples (U100) were obtained. Instances of groundwater ingress were recorded and monitored for a further 20 minutes to permit the water to rise.

The borehole records are presented in Appendix 1 of this report.

2.2 Rotary Coreholes

Rotary drilling was carried out at 3 locations (RC01 to RC03) adjacent to the cable percussive boreholes, using a Beretta T44 tracked rig. Symmetrex drilling was utilized in the soil deposits, with coring techniques used in the bedrock. The rotary drilling produced 78mm diameter cores. The holes extended to depths of 15 to 25 m BGL, with bedrock reached in RC01.

The retrieved cores were placed in 3m capacity timber boxes and transported to IGSL's laboratory in Naas, Co. Kildare.

The cores were then logged by an engineering geologist, including photography of the cores with a digital camera. Where rock is recovered, a graphic fracture log is also presented alongside the mechanical indices. This illustrates the fracture state of the rock cores and allows easy identification of highly fractured / non-intact zones and discontinuity spacings. It should be noted that no correction for dip of the joints has been made and that the spacings shown are successive joint / core intersections within the core.

Groundwater monitoring standpipes were installed in RC02 and RC03. The standpipes consisted of 50mm diameter pipe and incorporated pea gravel filter pack and bentonite seal. Standup covers were concreted in place and timber fence posts were placed around them.

The core log records are presented in Appendix 2, including the engineering geological descriptions, details of the bedding / discontinuities and mechanical indices (TCR, SCR and RQD's) for each core run and details of the installation. Core photographs are also presented in Appendix 2 and they illustrate the structure and fracture state of the bedrock.

2.3 Trial Pits

Trial pitting was performed at 5 locations (TP01 to TP05) using an 8.5-tonne tracked excavator. The trial pits were logged and sampled by an IGSL geotechnical engineer in accordance with BS 5930:2015 +A1:2020.

Hand shear vane tests (set of 3) were performed within the upper soils to permit an assessment of the in-situ shear strengths.

Pit sidewalls were assessed in terms of their short-term stability and any instances of groundwater ingress were recorded. Bulk soil samples were also recovered to provide specimens for laboratory testing.

The samples were placed in heavy duty polyethene bags and sealed before being transported to Naas for laboratory testing. For this project, environmental samples were obtained and placed in appropriate containers (tubs, jars and vials).

The trial pits were backfilled with the as-dug arisings and reinstated to the satisfaction of IGSL's site geotechnical engineer. The trial pit logs in Appendix 3 include descriptions of the soils encountered, groundwater conditions and stability of the pit sidewalls. Photographs of the open pits and spoil are also presented in Appendix 3.

2.4 Window Samples

Window samples were undertaken in 2 locations (WS01 and WS02) in order to obtain undisturbed samples of the upper soils for detailed examination and logging.

Window samples are advanced by driving a steel sampling tube under constant percussive effort. The soils enter the tube within a protective plastic liner, which is withdrawn after every metre of progress. The liners are then placed in wooden channel boxes.

The window sample records and photographs are presented in Appendix 4.

2.5 Dynamic Probes

Dynamic probes DP01 and DP02 were undertaken adjacent to corresponding window samples. The dynamic probe utilised by IGSL Ltd complies with the requirements of BS 1377, Part 9 (1990) and Eurocode 7: Part 3.

The super-heavy probe (DPSH) probe was used, comprising a 63.5 kg drop weight, 500mm drop height and a 45 mm diameter (90°) cone. In accordance with the standards, the number of blows required to drive the probe through each 100mm increment of penetration was recorded. Probing was terminated when blow counts, N_{100} values, exceeded 25, in order to avoid damage to equipment.

Detailed probe records are provided in Appendix 5 on which the blow counts are recorded both numerically and graphically.

2.6 Inspection (Slit) Trenches

Inspection trench ST01 was excavated towards the south of the site to investigate for the presence of buried utilities or services. Excavation comprised a combination of mini-digger and hand digging methods.

A photograph of the open trench and a detailed geological description of the soils encountered are included on the record in Appendix 6, although no buried services or utilities were encountered.

2.7 Plate Bearing Tests

Plate bearing tests were performed in 7 locations to obtain a measure of the moduli of subgrade reaction and equivalent in-situ CBR values. A 450 mm diameter plate was used in 5 locations (adjacent to the trial pits) and tests were performed in accordance with BS 1377 Part 9: 1990. "In-situ Tests". In 2 locations (marked CBR01 and CBR02 on site plan), the test was performed using a 300 mm diameter plate.

The maximum applied load was estimated on the basis of obtaining an accumulative displacement of at least 1.25 mm. The load was then applied in five approximately equal increments to the design load. To measure recovery the load was removed in three increments. A second phase of loading and unloading was performed to assess the benefits of further compaction.

The settlement under each increment was measured against time until movement had effectively ceased and the results are presented as graphs of applied pressure against settlement. Calculation of Modulus of Sub-grade Reaction (k) and CBR values are in accordance with NRA HD25-26/10 Volume7: Pavement Design and Maintenance.

The plate bearing test records are presented in Appendix 7.

2.8 Infiltration Tests

Infiltration tests were performed in seven locations (SA01 to SA07) to investigate the soakage characteristics of the overburden soils. Testing was performed in each test pit in accordance with BRE Digest 365 'Soakaway Design'.

To obtain a measure of the infiltration rate, water was poured into the test pit to ensure total saturation of the sub-soils. The infiltration rate is the volume of water dispersed per unit exposed area per unit of time, and is generally expressed as metres/minute or metres/second.

Two monitored stages were typically performed, during which records were taken of the fall in water level against time. The exceptions were tests SA01, 04, 05 and 07, where very low or negligible egress was measured during the initial test stage and further test stages were both impractical and unnecessary.

The infiltration test results are presented in numerical and graphical format in Appendix 8.

2.9 Groundwater Monitoring

Groundwater was recorded in all five trial pits and in six infiltration test locations. The depths ranged between 0.9 and 2.2m BGL. In the trial pits, water strikes were mostly rapid with strikes in the infiltration tests observed as seepage.

The boreholes and coreholes reported deeper strikes in the range 9.30m to 19.70m BGL, and the rate of ingress was reported as slow. Standpipes were installed in two of the coreholes (RC02 and RC03) and the site was revisited to measure the water levels.

The groundwater readings are presented in Appendix 9.

2.10 As-Built Survey

On completion of fieldworks, the location (x,y) and elevation (z) of each exploratory location was determined by detailed survey using GPS Realtime Kinetic survey instrument.

The Irish Transverse Mercator (ITM) survey co-ordinates and ground levels related to Malin Head Datum are presented on the exploratory hole records and these were used to plot the as-built locations on the site plans in Appendix 12 of this report.

3.0 Laboratory Testing

Geotechnical laboratory testing was performed at IGSL'S INAB accredited laboratory in accordance with BS1377; British Standard Methods of Test for Soils for Civil Engineering Purposes; British Standards Institute:1990. The schedule of the geotechnical testing contained:

- Moisture Content
- Atterberg Limits (Plasticity Index)
- Particle Size Distribution (PSD)
- Unconsolidated Undrained (UU) Triaxial
- Irregular Point Loads on rock core specimens

Chemical and environmental testing were performed by Eurofins Chemtest with the schedule including:

- BRE SD1 Sulphate Suite (Acid-Soluble Sulphate, Water-Soluble Sulphate, Total Sulphur, Water-Soluble Magnesium, Water-Soluble Chloride, Water-Soluble Nitrate, Water-Soluble Ammonium and pH)
- RILTA (WAC) Suite

Laboratory, chemical and environmental test results are segregated and presented as follows:

- Appendix 10 – Geotechnical Laboratory Testing
- Appendix 11 – Chemical and Environmental Testing

4.0 References

1. BS 5930:2015+A1:2020 Code of Practice for Site Investigations; British Standards Institute
2. Manual of Contract Documents for Highway Works, Volume 5, Section 3, Ground Investigation, Part 4: Specification
3. BRE Special Digest 1: 2005 – Concrete in aggressive ground
4. EN 1997-3; Eurocode 7: Geotechnical Design – Part 3: Design assisted by field testing; 1997
5. BS1377; British Standard Methods of Test for Soils for Civil Engineering Purposes; British Standards Institute;1990.
6. BRE Digest 365, September 1991, British Research Establishment
7. Manual of Contract Documents for Road Works, Volume 1: Specification for Road Works (March 2007)
8. Manual of Soil Laboratory Testing, Volume 3; K.H. Head
9. ISRM – Suggested Methods for Determining Point Load Strength
10. ISRM – Suggested Methods for Determining the Uniaxial Compressive Strength and Deformability of Rock Materials
11. TRL Report 447- Sulfate specification for structural backfills
12. CIRIA C580
13. Specification for Roadworks Series 600 – Specification for Roadworks

Appendix 1

Cable Percussive Borehole Records

 GEOTECHNICAL BORING RECORD REPORT NUMBER 26458										
CONTRACT Phase 1 - M11 - Old Connaught							BOREHOLE NO. BH01 SHEET Sheet 1 of 1			
CO-ORDINATES 725,011.71 E 719,700.87 N			RIG TYPE Dando 2000 BOREHOLE DIAMETER (mm) 200 BOREHOLE DEPTH (m) 7.90		DATE COMMENCED 10/03/2026 DATE COMPLETED 11/03/2026					
GROUND LEVEL (mOD) 20.80										
CLIENT ENGINEER Castlethorne Construction Atkins			SPT HAMMER REF. NO. ENERGY RATIO (%)		BORED BY A.Delaney PROCESSED BY F.C					
Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		20.60	0.20						
1	Firm brown sandy SILT/CLAY with occasional gravel				AA260236	B	1.00		N = 11 (2, 1, 2, 3, 3, 3)	
2			18.40	2.40	AA260237	B	2.00		N = 10 (3, 3, 4, 3, 2, 1)	
	Very soft grey/brown very sandy SILT/CLAY		17.80	3.00	AA260238	B	2.50			
3	Soft brown sandy SILT/CLAY with occasional gravel				AA260239	B	3.00		N = 5 (1, 0, 1, 0, 2, 2)	
4					AA260240	B	4.00		N = 7 (1, 1, 2, 1, 2, 2)	
5	Medium dense grey/brown clayey GRAVEL (Possibly very gravelly Clay)		15.90	4.90	AA260241	B	5.00		N = 28 (3, 4, 5, 7, 7, 9)	
6	Dense grey/brown fine to coarse clayey GRAVEL with some angular cobbles and boulders		15.00	5.80	AA260242	B	6.00		N = 46 (5, 7, 9, 10, 12, 15)	
7					AA260243	B	7.00		N = 50/225 mm (7, 9, 12, 17, 21)	
					AA260244	B	7.50			
8	Obstruction End of Borehole at 7.90 m		12.90	7.90					N = 50/75 mm (25, 50)	
9										
HARD STRATA BORING/CHISELLING				WATER STRIKE DETAILS						
From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments	
7.20	7.40	1		2.50	2.50	No	2.00	20	Slow	
7.70	7.90	1.5		5.40	5.40	No	1.20	20	Rapid	
INSTALLATION DETAILS					GROUNDWATER PROGRESS					
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments	

IGSL BH LOG 26458.GPJ IGSL GDT 2/4/26



GEOTECHNICAL BORING RECORD

REPORT NUMBER

26458

CONTRACT Phase 1 - M11 - Old Connaught

BOREHOLE NO. BH02

SHEET Sheet 1 of 2

CO-ORDINATES 725,111.89 E
719,781.91 NRIG TYPE Dando 2000
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 11.80

DATE COMMENCED 18/03/2026

DATE COMPLETED 19/03/2026

GROUND LEVEL (mOD) 20.87

CLIENT Castlethorne Construction
ENGINEER AtkinsSPT HAMMER REF. NO.
ENERGY RATIO (%)BORED BY A.Delaney
PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		20.67	0.20						
	Soft brown sandy SILT/CLAY with occasional gravel				AA265207 AA265208	B U	1.00 1.00	70%rec	N = 6 (2, 1, 1, 2, 2, 1)	
1										
	Medium dense grey/grey brown fine to coarse sandy silty/clayey GRAVEL with occasional cobbles		19.07	1.80	AA265209	B	2.00		N = 17 (6, 4, 5, 3, 4, 5)	
2					AA265210	B	3.00		N = 17 (5, 5, 4, 6, 3, 4)	
3					AA265211	B	4.00		N = 16 (3, 4, 4, 3, 5, 4)	
4					AA265212	B	5.00		N = 23 (2, 3, 3, 8, 6, 6)	
5					AA265213	B	6.00		N = 20 (3, 5, 4, 5, 5, 6)	
6					AA265214	B	7.00		N = 26 (6, 5, 6, 7, 6, 7)	
7										
	Very stiff to hard brown very gravelly CLAY with some cobbles		13.07	7.80	AA265215	B	8.00		N = 56 (7, 13, 14, 16, 14, 12)	
8					AA265216	B	9.00		N = 48 (6, 8, 10, 13, 13, 12)	
9										
			11.17	9.70						

HARD STRATA BORING/CHISELLING

WATER STRIKE DETAILS

From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
11.10	11.30	1		2.50	2.50	3.80	1.60		Moderate
11.60	11.80	1.5		6.10	6.10	No	1.80	20	Rapid

GROUNDWATER PROGRESS

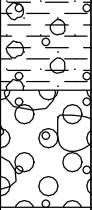
INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS 4 hrs standing on Landowner to move horses .CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

 GEOTECHNICAL BORING RECORD REPORT NUMBER 26458										
CONTRACT Phase 1 - M11 - Old Connaught							BOREHOLE NO. BH02 SHEET Sheet 2 of 2			
CO-ORDINATES 725,111.89 E 719,781.91 N			RIG TYPE Dando 2000 BOREHOLE DIAMETER (mm) 200 BOREHOLE DEPTH (m) 11.80		DATE COMMENCED 18/03/2026 DATE COMPLETED 19/03/2026					
GROUND LEVEL (mOD) 20.87										
CLIENT ENGINEER Castlethorne Construction Atkins			SPT HAMMER REF. NO. ENERGY RATIO (%)		BORED BY A.Delaney PROCESSED BY F.C					
Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
10	Very stiff brown sandy gravelly CLAY with occasional cobbles (<i>continued</i>)		10.07	10.80	AA265217	B	10.00		N = 50 (9, 13, 5, 15, 16, 14) N = 50/150 mm (6, 11, 18, 32) N = 50/75 mm (25, 50)	
11	Dense grey fine to coarse angular GRAVEL with broken angular cobbles and boulders				AA265218	B	11.00			
12	Obstruction End of Borehole at 11.80 m									
13										
14										
15										
16										
17										
18										
19										
HARD STRATA BORING/CHISELLING					WATER STRIKE DETAILS					
From (m)	To (m)	Time (h)	Comments		Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
11.10	11.30	1								
11.60	11.80	1.5								
					GROUNDWATER PROGRESS					
INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type						
REMARKS 4 hrs standing on Landowner to move horses .CAT scanned location and hand dug inspection pit was carried out .					Sample Legend D - Small Disturbed (tub) B - Bulk Disturbed LB - Large Bulk Disturbed Env - Environmental Sample (Jar + Vial + Tub) UT - Undisturbed 100mm Diameter Sample P - Undisturbed Piston Sample W - Water Sample					

IGSL BH LOG 26458.GPJ IGSL GDT 2/4/26



GEOTECHNICAL BORING RECORD

REPORT NUMBER

26458

CONTRACT Phase 1 - M11 - Old Connaught

BOREHOLE NO. BH03

SHEET Sheet 1 of 2

CO-ORDINATES 725,120.17 E
719,441.67 NRIG TYPE Dando 2000
BOREHOLE DIAMETER (mm) 200
BOREHOLE DEPTH (m) 9.90

DATE COMMENCED 12/03/2026

DATE COMPLETED 13/03/2026

GROUND LEVEL (mOD) 20.02

CLIENT Castlethorne Construction
ENGINEER AtkinsSPT HAMMER REF. NO.
ENERGY RATIO (%)BORED BY A.Delaney
PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
0	TOPSOIL		19.72	0.30						
1	Soft brown sandy SILT/CLAY with occasional fine gravel				AA260245	B	1.00		N = 7 (1, 0, 1, 2, 2, 2)	
					AA260246	U	1.50			
2					AA260247	B	2.00		N = 8 (2, 2, 1, 2, 3, 2)	
3					AA260248	B	3.00			
4	Medium dense grey fine to medium silty sandy GRAVEL with large cobbles		15.92	4.10	AA260249	B	4.00		N = 9 (1, 2, 2, 2, 2, 3)	
5					AA260250	B	5.00		N = 12 (1, 2, 3, 2, 3, 4)	
6					AA260251	B	6.00		N = 11 (1, 2, 1, 2, 2, 6)	
7	Stiff brown sandy gravelly CLAY with some cobbles		13.22	6.80	AA260252	B	7.00		N = 30 (2, 4, 5, 7, 8, 10)	
8	Stiff reddish brown laminated SILT/CLAY		12.32	7.70	AA260253	B	8.00		N = 23 (4, 4, 4, 6, 6, 7)	
9					AA260254	B	9.00		N = 19 (2, 3, 3, 4, 4, 8)	
	Dense grey fine to coarse angular GRAVEL with some clayey bands		10.82	9.20	AA260254	B	9.00		N = 50/75 mm (25, 50)	
				10.12	9.90	AA260255	B	9.80		

HARD STRATA BORING/CHISELLING

WATER STRIKE DETAILS

From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
9.40	9.60	0.75		1.80	1.80	6.50	1.00	20	Slow
9.70	9.90	1.5		8.50	8.50	No	6.30	20	Rapid

GROUNDWATER PROGRESS

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS 3hrs manouvering rig into position .CAT scanned location and hand dug inspection pit was carried out . Blowing sands noted 6.80-4.90m

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample



GEOTECHNICAL BORING RECORD

REPORT NUMBER

26458

CONTRACT Phase 1 - M11 - Old Connaught

BOREHOLE NO. BH03

SHEET Sheet 2 of 2

CO-ORDINATES 725,120.17 E
719,441.67 N

RIG TYPE Dando 2000

BOREHOLE DIAMETER (mm) 200

DATE COMMENCED 12/03/2026

GROUND LEVEL (mOD) 20.02

BOREHOLE DEPTH (m) 9.90

DATE COMPLETED 13/03/2026

CLIENT Castlethorne Construction
ENGINEER Atkins

SPT HAMMER REF. NO.

ENERGY RATIO (%)

BORED BY A.Delaney

PROCESSED BY F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples				Field Test Results	Standpipe Details
					Ref. Number	Sample Type	Depth (m)	Recovery		
10	Obstruction End of Borehole at 9.90 m									
11										
12										
13										
14										
15										
16										
17										
18										
19										

HARD STRATA BORING/CHISELLING

WATER STRIKE DETAILS

From (m)	To (m)	Time (h)	Comments	Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
9.40	9.60	0.75							
9.70	9.90	1.5							

GROUNDWATER PROGRESS

INSTALLATION DETAILS					Date	Hole Depth	Casing Depth	Depth to Water	Comments
Date	Tip Depth	RZ Top	RZ Base	Type					

REMARKS 3hrs manouvering rig into position .CAT scanned location and hand dug inspection pit was carried out . Blowing sands noted 6.80-4.90m

Sample Legend

D - Small Disturbed (tub)

B - Bulk Disturbed

LB - Large Bulk Disturbed

Env - Environmental Sample (Jar + Vial + Tub)

UT - Undisturbed 100mm Diameter

Sample

P - Undisturbed Piston Sample

W - Water Sample

Appendix 2

Rotary Coreholes Records

										GEOTECHNICAL CORE LOG RECORD										REPORT NUMBER 26458	
CONTRACT Phase 1 - M11 - Old Connaught												DRILLHOLE NO RC01									
CO-ORDINATES 725,011.71 E 719,700.87 N						RIG TYPE Beretta T-44						SHEET Sheet 1 of 2									
GROUND LEVEL (mOD) 20.80						FLUSH Air/Mist						DATE DRILLED 30/05/2026									
CLIENT Castlethorne Construction						INCLINATION (deg) -90						DATE LOGGED 30/05/2026									
ENGINEER Atkins						CORE DIAMETER (mm) 78						DRILLED BY IGSL - DH									
												LOGGED BY D. O' Shea									
Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)									
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of TOPSOIL	0.20	20.60											
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy SILT/CLAY with occasional gravel													
2									2.40	18.40											
3								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey/brown very sandy SILT/CLAY	3.00	17.80											
4								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy SILT/CLAY with occasional gravel													
5									4.90	15.90											
6								SYMMETRIX DRILLING: No recovery, observed by driller as returns of dense grey/brown clayey GRAVEL	5.80	15.00											
7								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey/brown fine to coarse clayey GRAVEL with some cobbles													
8									7.60	13.20											
9								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown gravelly CLAY													
9.80									9.80	11.00		N = 31 (7, 9, 5, 8, 9, 9)									
REMARKS Hole cased from 0.0-9.80m.								WATER STRIKE DETAILS													
								Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments								
								9.30	9.30	N/S			Slow								
								GROUNDWATER DETAILS													
INSTALLATION DETAILS								Date	Hole Depth	Casing Depth	Depth to Water	Comments									
Date	Tip Depth	RZ Top	RZ Base	Type																	

IGSL RC Fl 10M 26458.GPJ IGSL GDT 8/6/26

										GEOTECHNICAL CORE LOG RECORD										REPORT NUMBER 26458	
CONTRACT Phase 1 - M11 - Old Connaught												DRILLHOLE NO RC01									
CO-ORDINATES 725,011.71 E 719,700.87 N						RIG TYPE Beretta T-44 FLUSH Air/Mist						SHEET Sheet 2 of 2									
GROUND LEVEL (mOD) 20.80						INCLINATION (deg) -90 CORE DIAMETER (mm) 78						DATE DRILLED 30/05/2026 DATE LOGGED 30/05/2026									
CLIENT Castlethorne Construction ENGINEER Atkins						DRILLED BY IGSL - DH LOGGED BY D. O' Shea															

Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10		100	14	0				Weak to moderately weak, medium bedded to thinly laminated, light to dark blueish/grey, fine-grained interbedded SILTSTONE/MUDSTONE (possibly metamorphosed, graphitic appearance on surfaces), slightly to locally moderately/highly weathered (at 10.12-10.17m, 11.07-11.31m & 12.53-12.57m) Frequent incipient fractures - core predominantly non-intact				
11	11.30											
12		100	19	0				Discontinuities are medium to closely spaced, smooth to rough, fractures are planar to irregular. Apertures are tight to locally moderately open, locally clay smeared, locally moderately iron-oxide stained. Dips are subhorizontal to 20-30° & irregular. (continued)				
13	12.80											
13		75	9	0				Highly weathered ROCK - recovered as green very sandy clay	13.30	7.50		
14	13.80								13.40	7.40		
14		100	24	11				Weak to moderately weak, medium to thinly bedded, light greenish grey, fine-grained interbedded SILTSTONE/SANDSTONE, slightly weathered. Frequent incipient fractures - core predominantly non-intact				
15	14.80											
16								Discontinuities are medium to closely spaced, smooth to rough, fractures are planar to irregular. Apertures are tight to locally moderately open, locally clay smeared, locally moderately iron-oxide stained, locally quartz-veined (1-8mm thick). Dips are subhorizontal to 20-40° & irregular. End of Borehole at 14.80 m	14.80	6.00		
17												
18												
19												

REMARKS Hole cased from 0.0-9.80m.					WATER STRIKE DETAILS					
					Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					9.30	9.30	N/S			Slow
INSTALLATION DETAILS					GROUNDWATER DETAILS					
					Date	Hole Depth	Casing Depth	Depth to Water	Comments	
					30-05-26	14.80	9.80	7.40	Water level recorded 5mins after end of drilling	

IGSL RC FI 10M 26458.GPJ IGSL GDT 8/6/26

 GEOTECHNICAL CORE LOG RECORD REPORT NUMBER 26458													
CONTRACT Phase 1 - M11 - Old Connaught							DRILLHOLE NO RC02 SHEET Sheet 1 of 3						
CO-ORDINATES 725,111.89 E 719,781.91 N GROUND LEVEL (mOD) 20.87				RIG TYPE Beretta T-44 FLUSH Air/Mist INCLINATION (deg) -90 CORE DIAMETER (mm)			DATE DRILLED 27/05/2026 DATE LOGGED 27/05/2026						
CLIENT Castlethorne Construction ENGINEER Atkins							DRILLED BY IGSL - DH/JK LOGGED BY D. O' Shea						
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)	
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of TOPSOIL SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy SILT/CLAY with occasional gravel	0.20	20.67			
1									1.80	19.07			
2								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey/grey brown fine to coarse sandy silty/clayey GRAVEL with occasional cobbles					
3													
4													
5													
6													
7													
8								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown very gravelly CLAY with some cobbles	7.80	13.07			
9									9.70	11.17			
REMARKS Hole cased from 0.0-25.00m.								WATER STRIKE DETAILS					
								Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
													No water strike recorded
								GROUNDWATER DETAILS					
INSTALLATION DETAILS								Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type									
27-05-26	15.00	1.00	15.00	50mm SP									

IGSL RC FI 10M 26458.GPJ IGSL_GDT 8/6/26

 GEOTECHNICAL CORE LOG RECORD REPORT NUMBER 26458													
CONTRACT Phase 1 - M11 - Old Connaught							DRILLHOLE NO RC02 SHEET Sheet 2 of 3						
CO-ORDINATES 725,111.89 E 719,781.91 N GROUND LEVEL (mOD) 20.87				RIG TYPE Beretta T-44 FLUSH Air/Mist INCLINATION (deg) -90 CORE DIAMETER (mm)			DATE DRILLED 27/05/2026 DATE LOGGED 27/05/2026						
CLIENT Castletown Construction ENGINEER Atkins							DRILLED BY IGSL - DH/JK LOGGED BY D. O' Shea						
Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)	
10					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly CLAY with occasional cobbles (<i>continued</i>)	10.80	10.07			
11								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey fine to coarse angular GRAVEL with cobbles and boulders	11.80	9.07			
12								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey/brown silty sandy gravelly CLAY					
13													
14									14.90	5.97			
15								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown clayey sandy GRAVEL					
16													
17													
18												N = 26 (2, 6, 4, 8, 7, 7)	
19									19.70	1.17		N = 32 (5, 9, 7, 8, 8, 9)	
REMARKS								WATER STRIKE DETAILS					
Hole cased from 0.0-25.00m.								Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
													No water strike recorded
								GROUNDWATER DETAILS					
INSTALLATION DETAILS								Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type									
27-05-26	15.00	1.00	15.00	50mm SP									

IGSL RC FI 10M 26458.GPJ IGSL GDT 8/6/26

 GEOTECHNICAL CORE LOG RECORD REPORT NUMBER 26458													
CONTRACT Phase 1 - M11 - Old Connaught							DRILLHOLE NO RC02						
CO-ORDINATES 725,111.89 E 719,781.91 N					RIG TYPE Beretta T-44		SHEET Sheet 3 of 3						
GROUND LEVEL (mOD) 20.87					FLUSH Air/Mist		DATE DRILLED 27/05/2026						
CLIENT Castlethorne Construction					INCLINATION (deg) -90		DATE LOGGED 27/05/2026						
ENGINEER Atkins					CORE DIAMETER (mm)		DRILLED BY IGSL - DH/JK						
							LOGGED BY D. O' Shea						
Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)	
20					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown gravelly CLAY (continued)					
21								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly CLAY	21.30	-0.43		N = 34 (3, 5, 8, 9, 8, 9)	
22												N = 27 (2, 4, 6, 6, 7, 8)	
23												N = 36 (3, 6, 7, 9, 9, 11)	
24													
25								End of Borehole at 25.00 m	25.00	-4.13			
26													
27													
28													
29													
REMARKS								WATER STRIKE DETAILS					
Hole cased from 0.0-25.00m.								Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
													No water strike recorded
								GROUNDWATER DETAILS					
INSTALLATION DETAILS								Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type				27-05-26	25.00	25.00	14.20	Water level recorded 5mins after end of drilling	
27-05-26	15.00	1.00	15.00	50mm SP									

 GEOTECHNICAL CORE LOG RECORD REPORT NUMBER 26458														
CONTRACT Phase 1 - M11 - Old Connaught							DRILLHOLE NO RC03							
CO-ORDINATES 725,120.17 E 719,441.67 N					RIG TYPE Beretta T-44		SHEET Sheet 1 of 3							
GROUND LEVEL (mOD) 20.02					FLUSH Air/Mist		DATE DRILLED 02/05/2026							
CLIENT Castlethorne Construction					INCLINATION (deg) -90		DATE LOGGED 03/05/2026							
ENGINEER Atkins					CORE DIAMETER (mm)		DRILLED BY IGSL - JK							
							LOGGED BY D. O' Shea							
Downhole Depth (m)	Core Run Depth (m)	T.C.R. %	S.C.R. %	R.Q.D. %	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)		
0					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of TOPSOIL	0.30	19.72				
1								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy SILT/CLAY with occasional fine gravel						
2														
3														
4								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey fine to medium silty sandy GRAVEL with large cobbles	4.10	15.92				
5														
6														
7								SYMMETRIX DRILLING: No recovery, observed by driller as returns of brown sandy gravelly CLAY with some cobbles	6.80	13.22				
8								SYMMETRIX DRILLING: No recovery, observed by driller as returns of reddish brown laminated SILT/CLAY	7.70	12.32				
9									9.20	10.82				
								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey fine to coarse angular GRAVEL with some clayey bands	9.90	10.12				
REMARKS Hole cased from 0.0-20.00m.									WATER STRIKE DETAILS					
									Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
									11.40	11.40	16.50			Slow Slow
									19.70	19.70	N/S			
									GROUNDWATER DETAILS					
INSTALLATION DETAILS									Date	Hole Depth	Casing Depth	Depth to Water	Comments	
Date	Tip Depth	RZ Top	RZ Base	Type										
04-06-26	16.50	8.50	16.50	50mm SP										

IGSL RC FI 10M 26458.GPJ IGSL_GDT 8/6/26

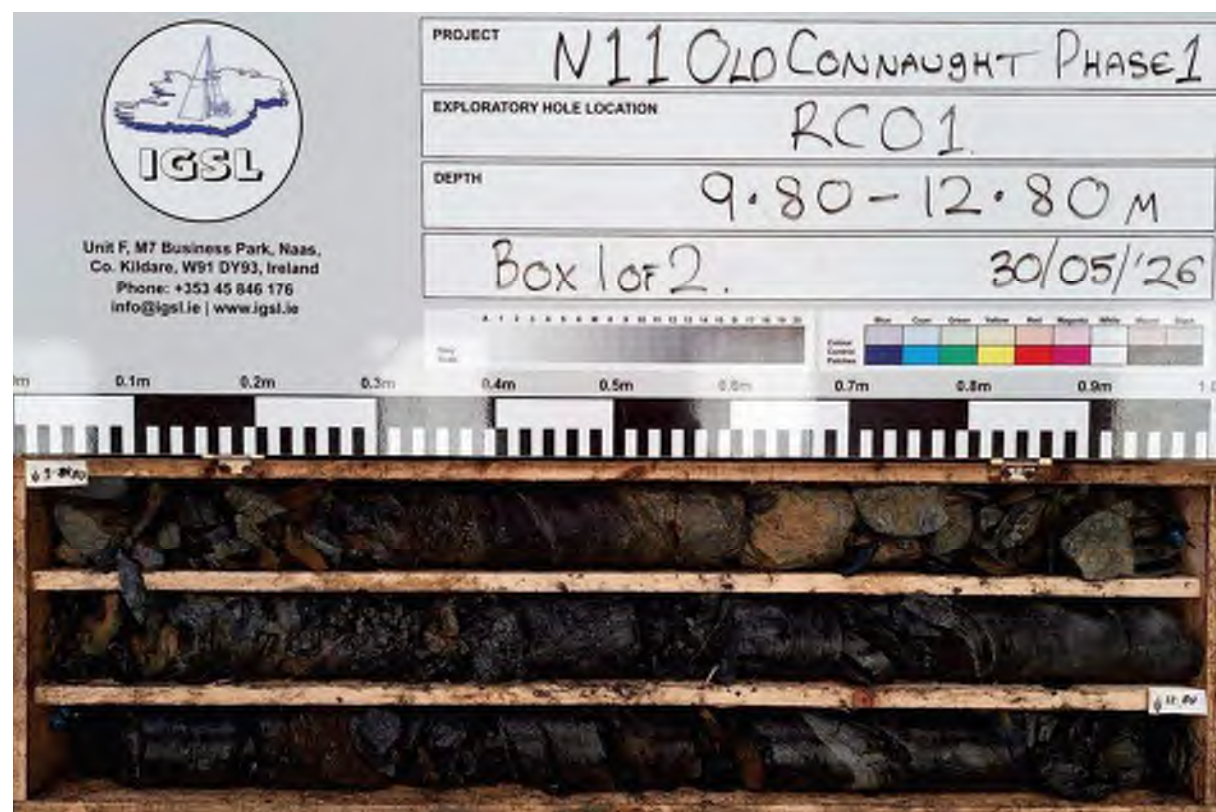
 GEOTECHNICAL CORE LOG RECORD REPORT NUMBER 26458														
CONTRACT Phase 1 - M11 - Old Connaught							DRILLHOLE NO RC03 SHEET Sheet 2 of 3							
CO-ORDINATES 725,120.17 E 719,441.67 N GROUND LEVEL (mOD) 20.02				RIG TYPE Beretta T-44 FLUSH Air/Mist INCLINATION (deg) -90 CORE DIAMETER (mm)			DATE DRILLED 02/05/2026 DATE LOGGED 03/05/2026							
CLIENT Castlethorne Construction ENGINEER Atkins							DRILLED BY IGSL - JK LOGGED BY D. O' Shea							
Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm)	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)		
10					0 250 500			SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey/brown sandy gravelly CLAY with occasional cobbles <i>(continued)</i>				N = 40/230 mm (4, 5, 8, 11, 16, 5)		
11									11.40	8.62				
12								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey/brown clayey sandy GRAVEL Driller notes gravels blowing				N = 50/105 mm (6, 12, 21, 29)		
13												N = 50/155 mm (5, 10, 21, 22, 7)		
14												N = 50/90 mm (11, 19, 27, 23)		
15														
16									16.50	3.52		N = 10/5 mm (40, 10)		
17								SYMMETRIX DRILLING: No recovery, observed by driller as returns of grey/brown gravelly CLAY				N = 15/10 mm (35, 15)		
18														
19									19.70	0.32		N = 22/10 mm (17, 25, 22)		
								SYMMETRIX DRILLING: No recovery, observed by driller	20.00	0.02				
REMARKS Hole cased from 0.0-20.00m.									WATER STRIKE DETAILS					
									Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
									11.40 19.70	11.40 19.70	16.50 N/S			Slow Slow
INSTALLATION DETAILS									GROUNDWATER DETAILS					
									Date	Hole Depth	Casing Depth	Depth to Water	Comments	
									04-06-26	20.00	20.00	12.20	Water level recorded 5mins after end of drilling	
Date	Tip Depth	RZ Top	RZ Base	Type										
04-06-26	16.50	8.50	16.50	50mm SP										

IGSL RC FI 10M 26458.GPJ IGSL GDT 8/6/26

										GEOTECHNICAL CORE LOG RECORD										REPORT NUMBER 26458											
CONTRACT Phase 1 - M11 - Old Connaught												DRILLHOLE NO RC03																			
CO-ORDINATES 725,120.17 E 719,441.67 N												SHEET Sheet 3 of 3																			
GROUND LEVEL (mOD) 20.02												DATE DRILLED 02/05/2026																			
CLIENT Castlethorne Construction												DATE LOGGED 03/05/2026																			
ENGINEER Atkins												DRILLED BY IGSL - JK																			
RIG TYPE Beretta T-44												LOGGED BY D. O' Shea																			
FLUSH Air/Mist																															
INCLINATION (deg) -90																															
CORE DIAMETER (mm)																															
Downhole Depth (m) Core Run Depth (m) T.C.R. % S.C.R. % R.Q.D. % Fracture Spacing Log (mm) Non-intact Zone Legend														Description														Depth (m)	Elevation	Standpipe Details	SPT (N Value)
20														as returns of grey/brown clayey sandy GRAVEL																	N = 5/5 mm (45, 5)
21																															
22																															
23																															
24																															
25																															
26																															
27																															
28																															
29																															
REMARKS														WATER STRIKE DETAILS																	
Hole cased from 0.0-20.00m.														Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments												
														11.40	11.40	16.50			Slow Slow												
INSTALLATION DETAILS														GROUNDWATER DETAILS																	
Date	Tip Depth	RZ Top	RZ Base	Type	Date	Hole Depth	Casing Depth	Depth to Water	Comments																						
04-06-26	16.50	8.50	16.50	50mm SP																											

IGSL RC FI 10M 26458.GPJ IGSL GDT 8/6/26

RC01 – Box 1 of 2 – 9.80-12.80m



RC01 – Box 2 of 2 – 12.80-14.80m



Appendix 3

Trial Pit Records

		TRIAL PIT RECORD						REPORT NUMBER		
CONTRACT		Phase 1 - M11 - Old Connaught				TRIAL PIT NO.		ST01		
LOGGED BY		DM				SHEET		Sheet 1 of 1		
CO-ORDINATES		725,059.15 E 719,433.57 N				DATE STARTED		23/03/2026		
GROUND LEVEL (m)		20.77				DATE COMPLETED		23/03/2026		
CLIENT ENGINEER		Castlethorne Construction Atkins				EXCAVATION METHOD		TB280FR		
	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft brown sandy CLAY.		0.10	20.67	 (Seepage)	260166	B	1.40-1.50		
	MADE GROUND: Firm brown slightly gravelly sandy CLAY with rare plastic and red brick fragments (<2%). Gravel is subangular fine to medium.		1.20	19.57						
1.0	Medium dense dark grey sandy GRAVEL. Gravel is subangular fine to medium.		1.30	19.47						
	Firm brown slightly gravelly sandy CLAY. Gravel is subangular fine to medium.		1.60	19.17						
2.0	End of Trial Pit at 1.60m									
3.0										
4.0										

Groundwater Conditions
Seepage at 1.20m

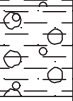
Stability
Good

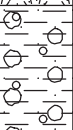
General Remarks
Location CAT scanned prior to excavation.

		TRIAL PIT RECORD						REPORT NUMBER 26458	
CONTRACT Phase 1 - M11 - Old Connaught							TRIAL PIT NO. TP/SA01		
LOGGED BY DM							CO-ORDINATES 724,989.66 E 719,517.55 N		
CLIENT ENGINEER Castlethorne Construction Atkins							GROUND LEVEL (m) 21.11		
							SHEET Sheet 1 of 1		
							DATE STARTED 25/03/2026 DATE COMPLETED 25/03/2026		
							EXCAVATION METHOD TB280FR		

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft brown sandy CLAY.									
	Soft to firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.20	20.91						
1.0	End of Trial Pit at 1.10m		1.10	20.01		260181	B	1.00		
2.0										
3.0										
4.0										

Groundwater Conditions Seepage at 0.90m										
Stability Slight instability - Sidewall collapse from 0.90m										
General Remarks Location CAT scanned prior to excavation.										

 TRIAL PIT RECORD REPORT NUMBER 26458										
CONTRACT Phase 1 - M11 - Old Connaught						TRIAL PIT NO. TP/SA02 SHEET Sheet 1 of 1				
LOGGED BY DM		CO-ORDINATES 724,977.32 E 719,583.42 N		DATE STARTED 23/03/2026 DATE COMPLETED 23/03/2026						
CLIENT ENGINEER Castlethorne Construction Atkins		GROUND LEVEL (m) 21.54		EXCAVATION METHOD TB280FR						
	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft brown sandy CLAY.									
	Firm brown slightly silty sandy gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.20	21.34						
1.0	Firm greyish brown slightly sandy gravelly CLAY with a low cobble content. Gravel is subangular fine to medium of limestone. Cobbles are subangular of limestone.		1.00	20.54		260167	B	0.80-0.90	18 20 14	
	End of Trial Pit at 1.40m		1.40	20.14	 (Slow)	260168	B	1.30-1.40		
2.0										
3.0										
4.0										
Groundwater Conditions Slow ingress at 1.40m										
Stability Slight instability - Sidewall collapse from 1.00m										
General Remarks Location CAT scanned prior to excavation.										

 TRIAL PIT RECORD REPORT NUMBER 26458										
CONTRACT Phase 1 - M11 - Old Connaught						TRIAL PIT NO. TP/SA03 SHEET Sheet 1 of 1				
LOGGED BY DM		CO-ORDINATES 724,990.34 E 719,640.37 N		DATE STARTED 24/03/2026 DATE COMPLETED 24/03/2026						
CLIENT ENGINEER Castlethorne Construction Atkins		GROUND LEVEL (m) 21.10		EXCAVATION METHOD TB280FR						
	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft brown sandy CLAY.									
	Firm brown sandy gravelly CLAY with a low cobble content. Gravel is subangular fine to medium. Cobbles are subangular of limestone.		0.20	20.90						
1.0	Medium dense grey slightly clayey sandy GRAVEL with a medium cobble content. Gravel is subangular fine to medium. Cobbles are subangular to subrounded of limestone.		1.10	20.00		260169	B	0.80-0.90		
	End of Trial Pit at 1.40m		1.40	19.70	 (Seepage)	260170	B	1.30-1.40		
2.0										
3.0										
4.0										
Groundwater Conditions Seepage at 1.40m										
Stability Slight instability - Sidewall collapse from 1.20m										
General Remarks Location CAT scanned prior to excavation.										

		TRIAL PIT RECORD						REPORT NUMBER 26458		
CONTRACT Phase 1 - M11 - Old Connaught							TRIAL PIT NO. TP/SA04			
LOGGED BY DM							CO-ORDINATES 724,976.54 E 719,681.11 N		SHEET Sheet 1 of 1	
CLIENT ENGINEER Castlethorne Construction Atkins							GROUND LEVEL (m) 21.10		DATE STARTED 24/03/2026 DATE COMPLETED 24/03/2026	
							EXCAVATION METHOD TB280FR			

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft brown sandy CLAY.									
	Firm brown slightly gravelly sandy CLAY. Gravel is subangular fine of limestone.		0.20	20.90						
	Stiff light brown mottled light grey slightly sandy slightly gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.60	20.50		260171	B	0.50-0.60	20 22 18	
1.0					↓ (Seepage)					
						260172	B	1.50-1.60		
2.0	End of Trial Pit at 2.00m		2.00	19.10						
3.0										
4.0										

Groundwater Conditions
 Seepage at 0.90m

Stability
 Good

General Remarks
 Location CAT scanned prior to excavation.

 TRIAL PIT RECORD							REPORT NUMBER 26458			
CONTRACT Phase 1 - M11 - Old Connaught						TRIAL PIT NO. TP/SA06		SHEET Sheet 1 of 1		
LOGGED BY DM			CO-ORDINATES 725,100.45 E 719,754.40 N			DATE STARTED 25/03/2026		DATE COMPLETED 25/03/2026		
CLIENT ENGINEER Castlethorne Construction Atkins			GROUND LEVEL (m) 20.87			EXCAVATION METHOD TB280FR				
	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft brown sandy CLAY.									
	MADE GROUND: Soft to firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.20	20.67						
	MADE GROUND: Soft to firm brown sandy gravelly CLAY with occasional red brick and concrete fragments.		0.50	20.37		260183	B	0.50		
	Medium dense grey/brown sandy GRAVEL.		0.70	20.17						
1.0										
	End of Trial Pit at 1.60m		1.60	19.27		260184	B	1.60		
2.0										
3.0										
4.0										
Groundwater Conditions Seepage at 1.40m										
Stability Poor Stability - Sidewall collapse from 1.0m										
General Remarks Location CAT scanned prior to excavation.										

		TRIAL PIT RECORD						REPORT NUMBER 26458		
CONTRACT Phase 1 - M11 - Old Connaught							TRIAL PIT NO. TP/SA07 SHEET Sheet 1 of 1			
LOGGED BY DM		CO-ORDINATES 725,111.95 E 719,530.93 N				DATE STARTED 25/03/2026 DATE COMPLETED 25/03/2026				
CLIENT ENGINEER Castlethorne Construction Atkins		GROUND LEVEL (m) 19.16				EXCAVATION METHOD TB280FR				
	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft brown sandy CLAY.									
	Soft to firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.20	18.96						
1.0	Firm to stiff greyish brown slightly sandy gravelly CLAY with a low cobble content. Gravel is subangular fine to medium of limestone. Cobbles are subangular of limestone.		1.00	18.16		260182	B	1.00		
	End of Trial Pit at 1.40m		1.40	17.76						
2.0										
3.0										
4.0										
Groundwater Conditions Seepage at 1.40m										
Stability Slight instability - Sidewall collapse from 1.10m										
General Remarks Location CAT scanned prior to excavation.										

		TRIAL PIT RECORD						REPORT NUMBER 26458	
CONTRACT Phase 1 - M11 - Old Connaught							TRIAL PIT NO. TP01		
LOGGED BY O.A				CO-ORDINATES 724,951.97 E 719,714.15 N			SHEET Sheet 1 of 1		
CLIENT ENGINEER Castlethorne Construction Atkins				GROUND LEVEL (m) 21.93			DATE STARTED 20/03/2026 DATE COMPLETED 20/03/2026		
							EXCAVATION METHOD TB280FR		

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)	
						Sample Ref	Type	Depth			
0.0	TOPSOIL: Soft grey very sandy CLAY with rootlets					ENV01	Env	0.00-1.00			
	Soft brown silty sandy CLAY		0.40	21.53							
	Soft to firm greyish brown sandy gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.60	21.33		258592	B	0.50-0.50	9	11	
1.0											
	Firm grey silty CLAY		1.20	20.73		258593	B	1.00-1.00			
						258594	B	1.50-1.50			
2.0					 (Rapid)						
3.0											
	End of Trial Pit at 3.20m		3.20	18.73							
4.0											

Groundwater Conditions Rapid at 2.0m										
Stability Poor Stability - Sidewall collapse from 2.00m										
General Remarks Location CAT scanned prior to excavation. Pit ended due to sidewall instability and water ingress.										



TRIAL PIT RECORD

REPORT NUMBER

26458

CONTRACT Phase 1 - M11 - Old Connaught

TRIAL PIT NO. TP02

SHEET Sheet 1 of 1

LOGGED BY O.A

CO-ORDINATES 724,975.07 E
719,615.58 N

DATE STARTED 20/03/2026

DATE COMPLETED 20/03/2026

CLIENT Castlethorne Construction
ENGINEER Atkins

GROUND LEVEL (m) 21.48

EXCAVATION METHOD TB280FR

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft grey very sandy CLAY with rootlets					ENV01	Env	0.00-1.00		
	Soft to firm brown sandy gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.60	20.88		258589	B	0.80-1.00	19 18 16	
1.0	Firm to stiff grey sandy gravelly CLAY. Gravel is subangular fine to medium of limestone.		1.30	20.18		258590	B	1.50-1.50		
2.0										
	Grey very silty fine SAND		2.60	18.88		258591	B	2.70-2.70		
3.0	End of Trial Pit at 2.90m		2.90	18.58						
4.0										

Groundwater Conditions

Seepage at 1.90m

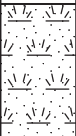
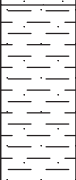
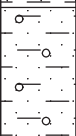
Stability

Poor Stability - Sidewall collapse from 1.80m

General Remarks

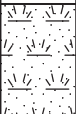
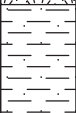
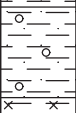
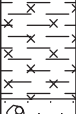
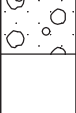
Location CAT scanned prior to excavation. Pit ended due to sidewall instability.

		TRIAL PIT RECORD						REPORT NUMBER 26458	
CONTRACT Phase 1 - M11 - Old Connaught							TRIAL PIT NO. TP03 SHEET Sheet 1 of 1		
LOGGED BY O.A		CO-ORDINATES 725,000.87 E 719,498.06 N		DATE STARTED 20/03/2026 DATE COMPLETED 20/03/2026					
CLIENT ENGINEER Castlethorne Construction Atkins		GROUND LEVEL (m) 20.83		EXCAVATION METHOD TB280FR					

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft dark grey slightly sandy CLAY (planted arable field)					ENV01	Env	0.00-1.00		
	Soft to firm brown sandy CLAY		0.60	20.23					18 24 22	
1.0						258583	B	1.10-1.20		
	Brownish grey slightly clayey gravelly SAND. Gravel is subangular fine to medium of limestone.		1.40	19.43	↓ (Rapid)	258584	B	1.80-1.90		
2.0	End of Trial Pit at 2.00m		2.00	18.83						
3.0										
4.0										

Groundwater Conditions Rapid ingress at 1.70m										
Stability Poor Stability - Sidewall collapse from 1.50m										
General Remarks Location CAT scanned prior to excavation. Pit ended due to sidewall instability and water ingress.										

		TRIAL PIT RECORD						REPORT NUMBER 26458	
CONTRACT Phase 1 - M11 - Old Connaught							TRIAL PIT NO. TP04		
LOGGED BY O.A							CO-ORDINATES 725,014.08 E 719,583.19 N		
CLIENT ENGINEER Castlethorne Construction Atkins							GROUND LEVEL (m) 20.56		
							SHEET Sheet 1 of 1		
							DATE STARTED 20/03/2026 DATE COMPLETED 20/03/2026		
							EXCAVATION METHOD TB280FR		

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TOPSOIL: Soft dark grey slightly sandy CLAY (planted arable field)					ENV01	Env	0.00-1.00		
	Soft to firm brown sandy CLAY		0.50	20.06					20 25 28	
1.0						258585	B	1.00-1.00		
	Soft to firm dark grey very sandy gravelly CLAY. Gravel is subangular fine to medium of limestone.		1.30	19.26	 1 (Rapid)	258586	B	1.50-1.50		
	Firm grey silty CLAY		1.70	18.86		258587	B	1.80-1.80		
2.0										
	Grey gravelly fine to coarse SAND with a low cobble content. Gravel is subangular to subrounded fine to medium of limestone.		2.20	18.36		258588	B	2.30-2.30		
	End of Trial Pit at 2.50m		2.50	18.06						
3.0										
4.0										

Groundwater Conditions Rapid ingress at 1.50m										
Stability Poor Stability - Sidewall collapse from 1.50m										
General Remarks Location CAT scanned prior to excavation. Pit ended due to sidewall instability and water ingress.										

		TRIAL PIT RECORD						REPORT NUMBER		
CONTRACT		Phase 1 - M11 - Old Connaught						TRIAL PIT NO. TP05		
LOGGED BY		O.A						SHEET Sheet 1 of 1		
CO-ORDINATES		725,028.90 E 719,727.04 N						DATE STARTED 20/03/2026		
GROUND LEVEL (m)		20.73						DATE COMPLETED 20/03/2026		
CLIENT ENGINEER		Castlethorne Construction Atkins						EXCAVATION METHOD TB280FR		
	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples			Vane Test (KPa)	Hand Penetrometer (KPa)
						Sample Ref	Type	Depth		
0.0	TPOSOIL: Soft grey very sandy CLAY					ENV01	Env	0.00-1.00		
	Soft to firm brown silty sandy gravelly CLAY. Gravel is subangular fine to medium of limestone.		0.40	20.33		258595	B	0.60-0.60	15 18 19	
1.0	Firm grey silty sandy gravelly CLAY. Gravel is subangular fine to medium of limestone.		1.20	19.53		258596	B	1.50-1.50		
2.0					 (Moderate)					
	End of Trial Pit at 2.80m		2.80	17.93						
3.0										
4.0										
Groundwater Conditions Flow at 2.20m										
Stability Poor Stability - Sidewall collapse from 2.00m										
General Remarks Location CAT scanned prior to excavation. Pit ended due to sidewall instability and water ingress.										

TP01 – 1 of 2



TP01 – 2 of 2



TP02 – 1 of 2



TP02 – 2 of 2



TP03 – 1 of 2



TP03 – 2 of 2



TP04 – 1 of 2



TP04 – 2 of 2



TP05 – 1 of 2



TP05 – 2 of 2



Appendix 4

Window Sample Records



WINDOW SAMPLE RECORD

REPORT NUMBER

26458

CONTRACT Phase 1 - M11 - Old Connaught

PROBE NO. **WS01**CO-ORDINATES 724,973.71 E
719,703.63 N

SHEET Sheet 1 of 1

GROUND LEVEL (mOD) 21.35

DATE DRILLED 23/03/2026

DATE LOGGED 23/03/2026

CLIENT Castlethorne Construction
ENGINEER Atkins

SAMPLED BY IGSL

LOGGED BY HM

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Blowcount	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL									
	Soft to firm brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to subangular fine to coarse.		0.20	21.15						
1.0	Soft to firm brown sandy slightly gravelly CLAY. Gravel is subrounded to subangular fine to coarse.		0.90	20.45		0.00-1.00	70			
			2.00	19.35		1.00-2.00	100			
2.0	Soft brown sandy slightly gravelly CLAY. Gravel is subrounded to subangular fine to coarse									
						2.00-3.00	70			
3.0										
			3.50	17.85						
	Soft to firm brown sandy slightly gravelly CLAY. Gravel is subrounded to subangular fine to coarse.									
4.0	Final Depth 4.00m		4.00	17.35		3.00-4.00	80			
5.0										

General Remarks

Installations



WINDOW SAMPLE RECORD

REPORT NUMBER

26458

CONTRACT Phase 1 - M11 - Old Connaught

PROBE NO. **WS02**

SHEET Sheet 1 of 1

CO-ORDINATES 724,948.87 E
719,539.85 N

DATE DRILLED 23/03/2026

DATE LOGGED 23/03/2026

GROUND LEVEL (mOD) 22.30

CLIENT Castlethorne Construction
ENGINEER Atkins

SAMPLED BY IGSL
LOGGED BY HM

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Depth of Sample Run (m)	Recovery (%)	Blowcount	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL		0.20	22.10						
	Soft to firm brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to subangular fine to coarse.		0.50	21.80						
	Firm to stiff brown sandy gravelly CLAY. Gravel is subrounded to subangular fine to coarse					0.00-1.00	90			
1.0						1.00-2.00	60			
2.0	Final Depth 2.00m		2.00	20.30						
3.0										
4.0										
5.0										

General Remarks

Installations

Project Number: 26458

Phase 1 Old Connaught – Window Sample Photographs



WS01

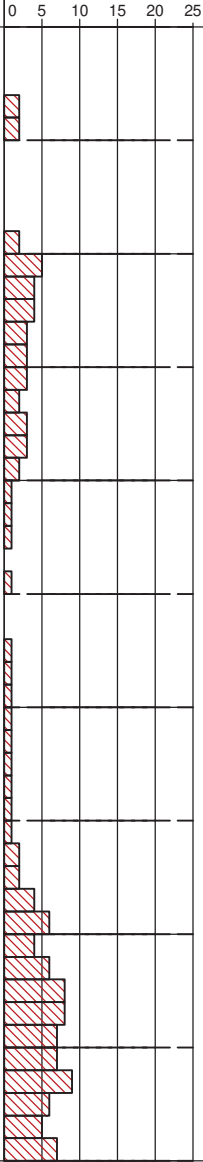


WS02



Appendix 5

Dynamic Probe Records

		DYNAMIC PROBE RECORD					REPORT NUMBER 26458	
CONTRACT Phase 1 - M11 - Old Connaught						PROBE NO. DP01		
CO-ORDINATES 724,973.71 E 719,703.63 N						SHEET Sheet 1 of 2		
GROUND LEVEL (mOD) 21.35						DATE DRILLED 23/03/2024		
CLIENT Castlethorne Construction						DATE LOGGED 23/03/2024		
ENGINEER Atkins						PROBE TYPE DPH		
HAMMER MASS (kg) 64								
INCREMENT SIZE (mm) 100								
FALL HEIGHT (mm) 750								
Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record
0.0			0.00			0.00	0	
			0.10			0		
			0.20			0		
			0.30			2		
			0.40			2		
			0.50			0		
			0.60			0		
			0.70			0		
			0.80			0		
			0.90			2		
			1.00			5		
			1.10			4		
			1.20			4		
			1.30			3		
			1.40			3		
			1.50			3		
			1.60			2		
			1.70			3		
			1.80			3		
			1.90			2		
	2.00	1						
	2.10	1						
	2.20	1						
	2.30	0						
	2.40	1						
	2.50	0						
	2.60	0						
	2.70	1						
	2.80	1						
	2.90	1						
	3.00	1						
	3.10	1						
	3.20	1						
	3.30	1						
	3.40	1						
	3.50	1						
	3.60	2						
	3.70	2						
	3.80	4						
	3.90	6						
	4.00	4						
	4.10	6						
	4.20	8						
	4.30	8						
	4.40	7						
	4.50	7						
	4.60	9						
	4.70	6						
	4.80	5						
	4.90	7						
GROUNDWATER OBSERVATIONS								
REMARKS								



DYNAMIC PROBE RECORD

REPORT NUMBER
26458

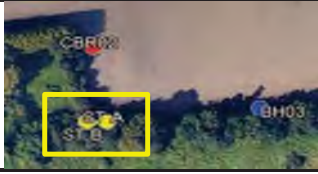
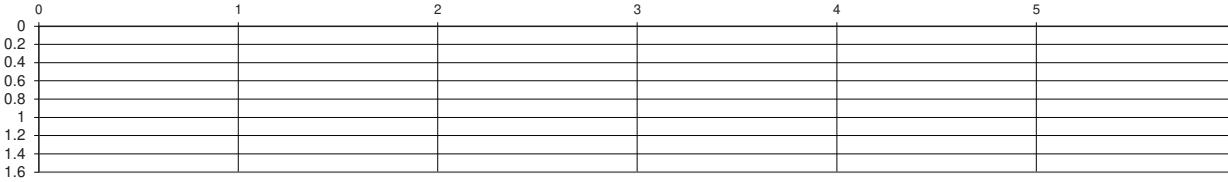
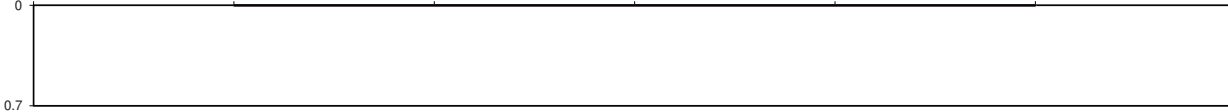
CONTRACT Phase 1 - M11 - Old Connaught				PROBE NO. DP01	
CO-ORDINATES 724,973.71 E 719,703.63 N				SHEET Sheet 2 of 2	
GROUND LEVEL (mOD) 21.35		HAMMER MASS (kg) 64		DATE DRILLED 23/03/2024	
CLIENT Castlethorne Construction		INCREMENT SIZE (mm) 100		DATE LOGGED 23/03/2024	
ENGINEER Atkins		FALL HEIGHT (mm) 750		PROBE TYPE DPH	

Depth (m)	Geotechnical Description	Legend	Depth (m)	Elevation (mOD)	Water	Depth (m)	Probe Readings (Blows/Increment)	Graphic Probe Record
5.0	. (continued)					5.00 5.10 5.20 5.30	13 21 25 25	
	End of Probe at 5.40 m			15.95				
6.0								
7.0								
8.0								
9.0								

GROUNDWATER OBSERVATIONS								
REMARKS								

Appendix 6

Inspection (Slit) Trench Record

Report No. 26458		SLIT TRENCH RECORD			FACING DIRECTION: N W E S				
Project: Phase 1 - M11 Old Connaught		Start of Trench		Survey		Slit Trench No. ST01			
Engineer: Mountclare				Easting (m)	Northing (m)	Elevation (mOD)	Sheet 1 of 1		
Crew: DM				End of Trench		725059.147	719433.573	20.77	Date Commenced 23/03/2026
				725051.064	719433.287	21.036	Date Completed 23/03/2026		
Ground Conditions									
From (m)		To (m)		Soil Description			Photograph		
0.00		0.10		TOPSOIL					
0.1		1.2		MADE GROUND: Firm brown slightly gravelly sandy CLAY with rare plastic and red brick fragments (<2%). Gravel is subangular fine to medium.					
1.2		1.3		Medium dense dark grey sandy GRAVEL. Gravel is subangular fine to medium.					
1.3		1.6		Firm brown slightly gravelly sandy CLAY. Gravel is subangular fine to medium.					
Trench Dimensions				Location		Excavation Quantities			
LHS of Trench (m)		0.0				Surface		Length (m)	Material
RHS of Trench (m)		6.0				Road			
Trench Depth (m)		1.6				Path (LHS)			
Trench Width (m)		0.7				Path (RHS)			
						Grass Verge (LHS)			
						Grass Verge (RHS)			
Facing Direction		South		SAMPLES		Other			
Facing Features		Stream		sample 1: 1.4-1.5 (260166)		Total Length		6.0	
Groundwater		Seepage at 1.20m				Zero Metres Taken As:			
X-Section									
									
Plan									
									
Diameter (mm)MaterialDescriptionDistance (m)Depth to crown (m)Angle (deg.)									
Service A									
Service B									
Service C									
Service D									
Service E									
Service F									
Service G									
Service H									
Service I									
Service J									
Service K									
Service L									
Service M									

Appendix 7

Plate Bearing Test Records

PLATE TEST REPORT SHEET (F3.1)		Applied Pressure/Settlement Curve	
Reference No.	R178005	Description of soil under test (natural soil, placed fill, sub-base)	
Contract	Phase 1 - M11 - Old Connaught		
Test No.	PBT01 - Load	Brown slightly gravelly sandy CLAY	
Location	E:724963.445 N:719733.331 L:21.874		
Depth	0.5 BGL	Sample Ref No. _____ Depth _____ m bgl	
Client	Castlethorne		
Plate Diameter:	300 mm		
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test		
Technician	DM		
Authorised by	<i>JA Ryan</i>		
Date	20/03/2026		

Pressure / Settlement

Pressure (kN/m ²)	Settlement (mm) - Series 1	Settlement (mm) - Series 2
0	0.00	-4.00
50	-1.00	-4.50
100	-2.00	-5.00
150	-2.50	-5.50
200	-3.00	-5.50
250	-3.50	-5.50
300	-4.00	-5.50
350	-4.50	-5.50
400	-5.00	-5.50

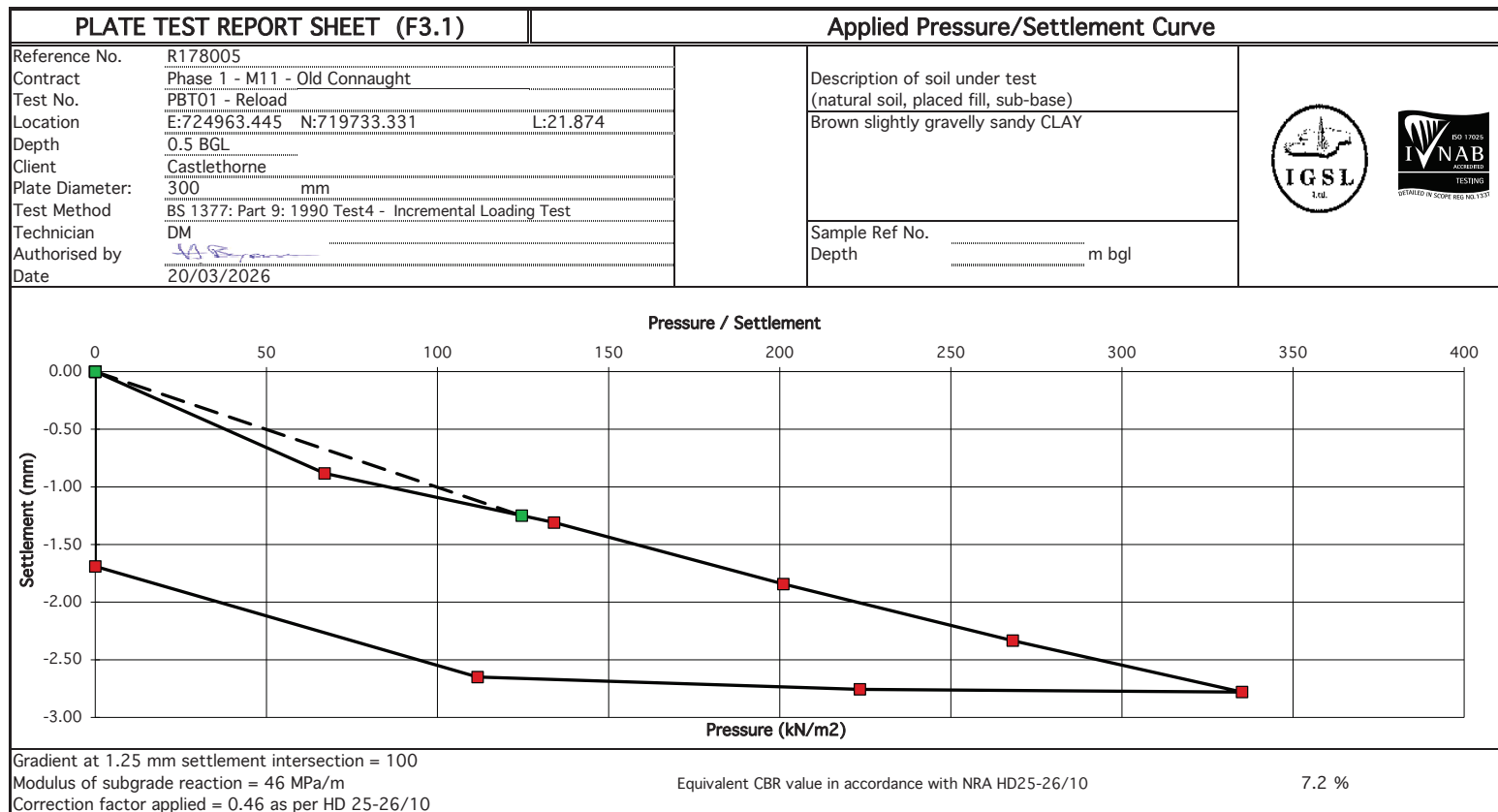
Gradient at 1.25 mm settlement intersection = 55

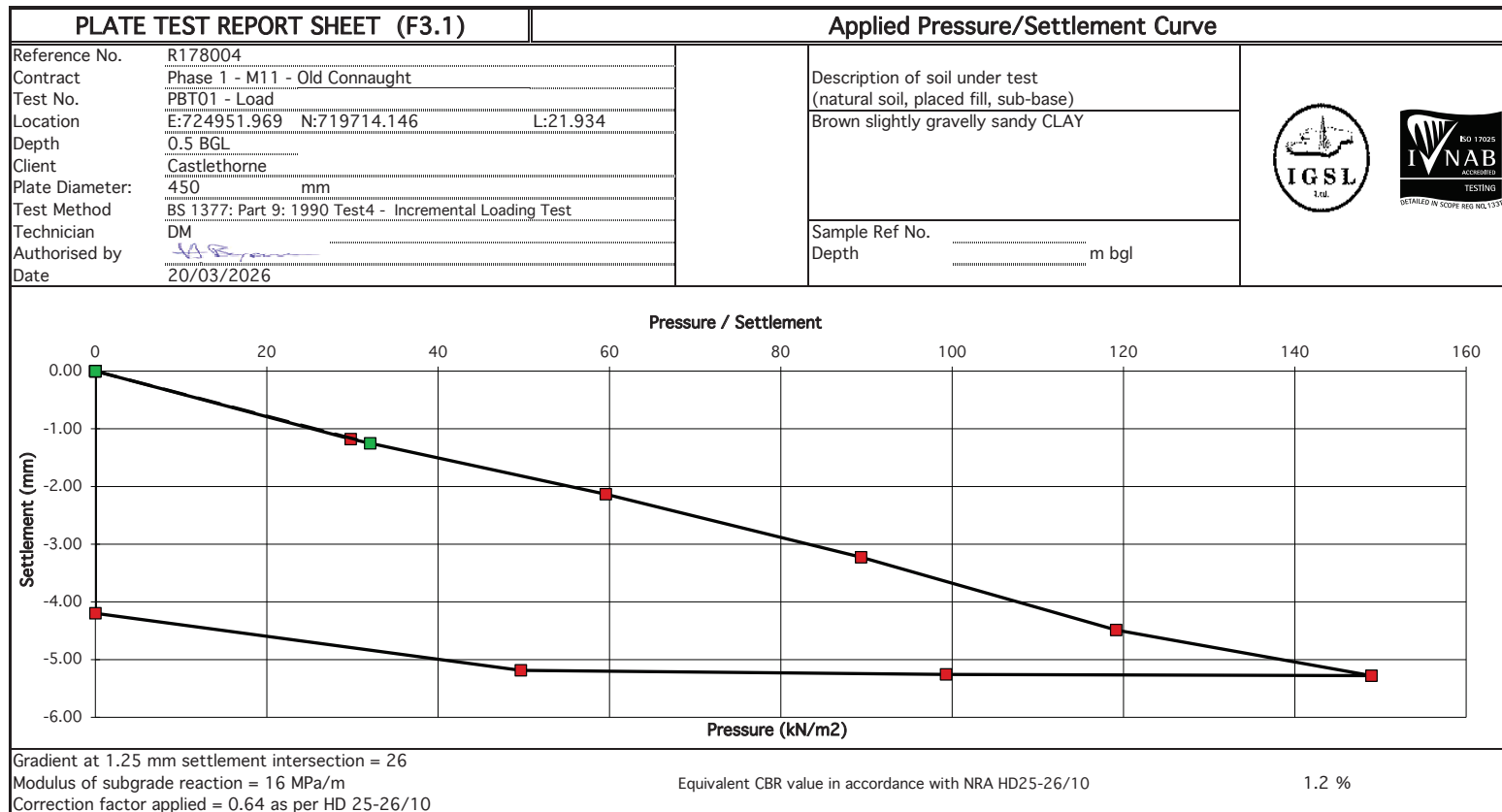
Modulus of subgrade reaction = 25 MPa/m

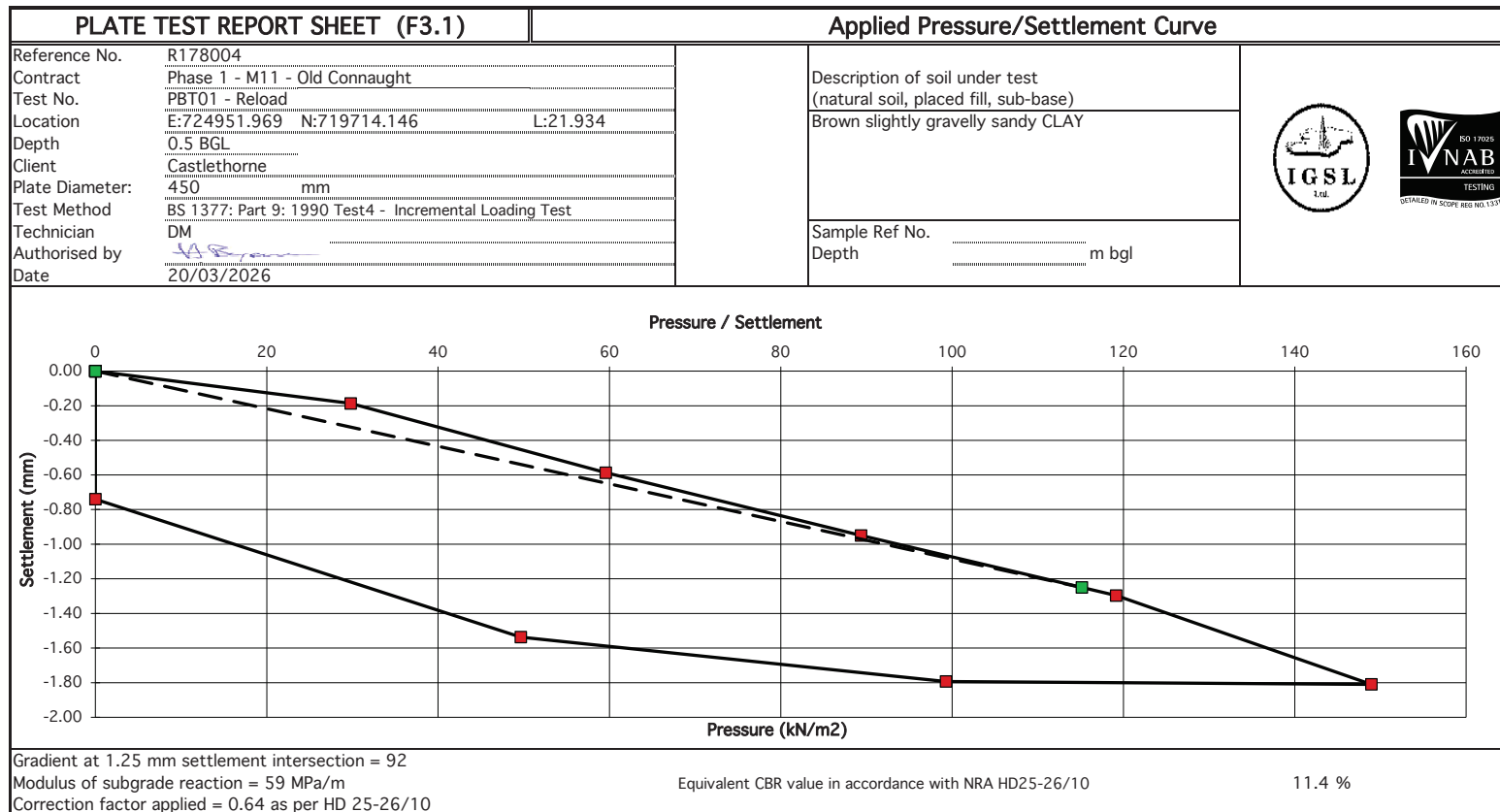
Correction factor applied = 0.46 as per HD 25-26/10

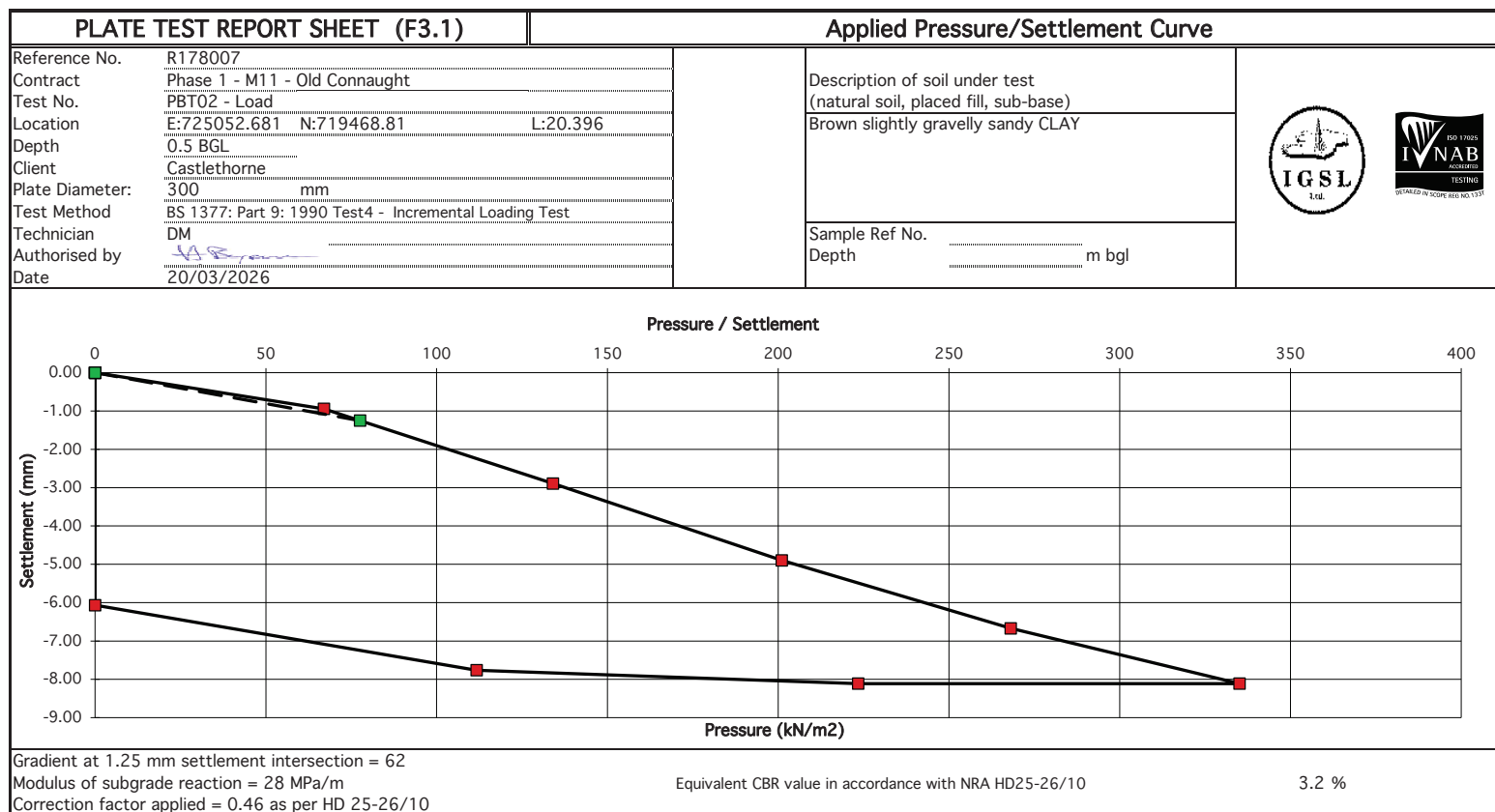
Equivalent CBR value in accordance with NRA HD25-26/10

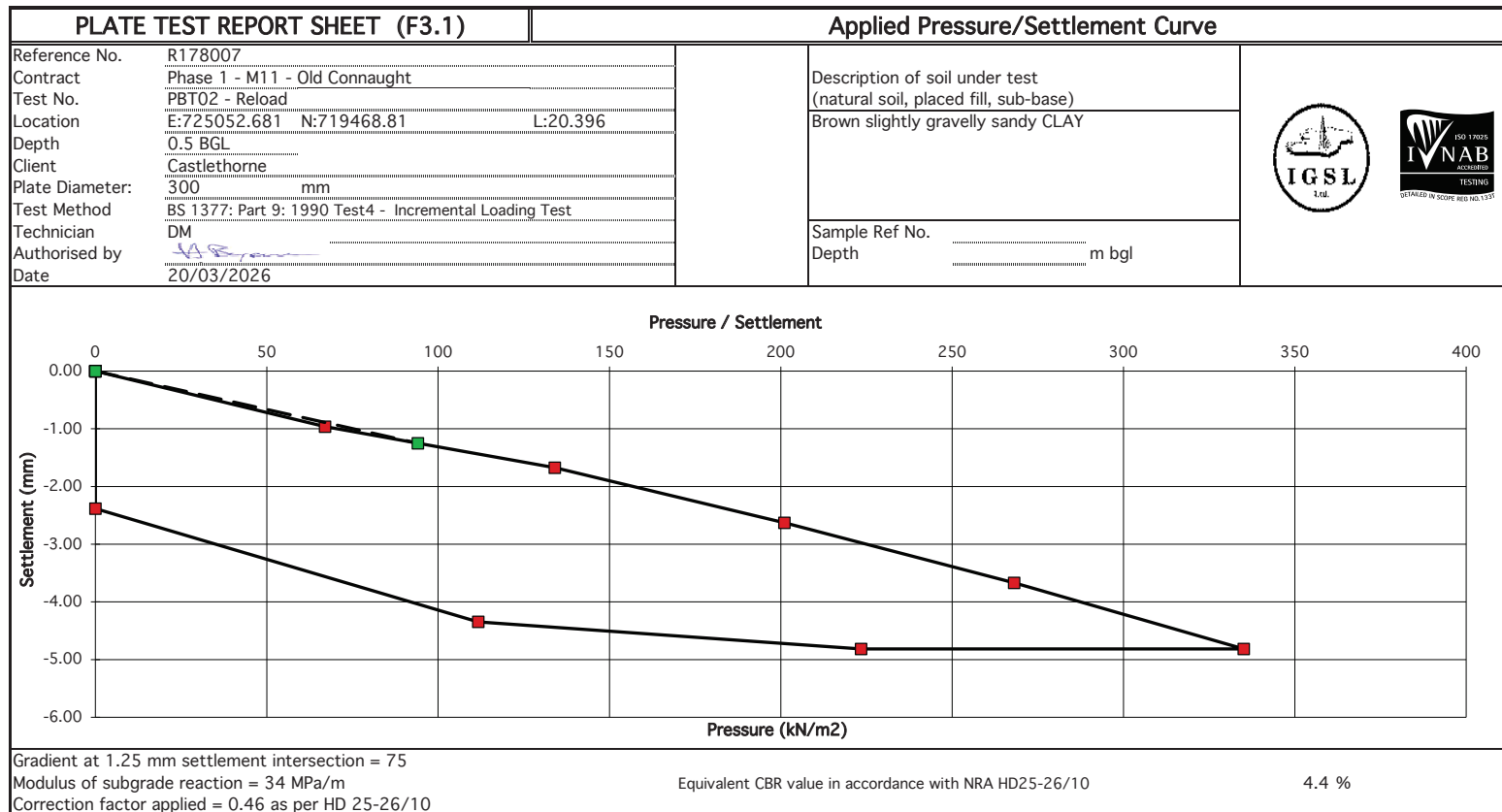
2.6 %

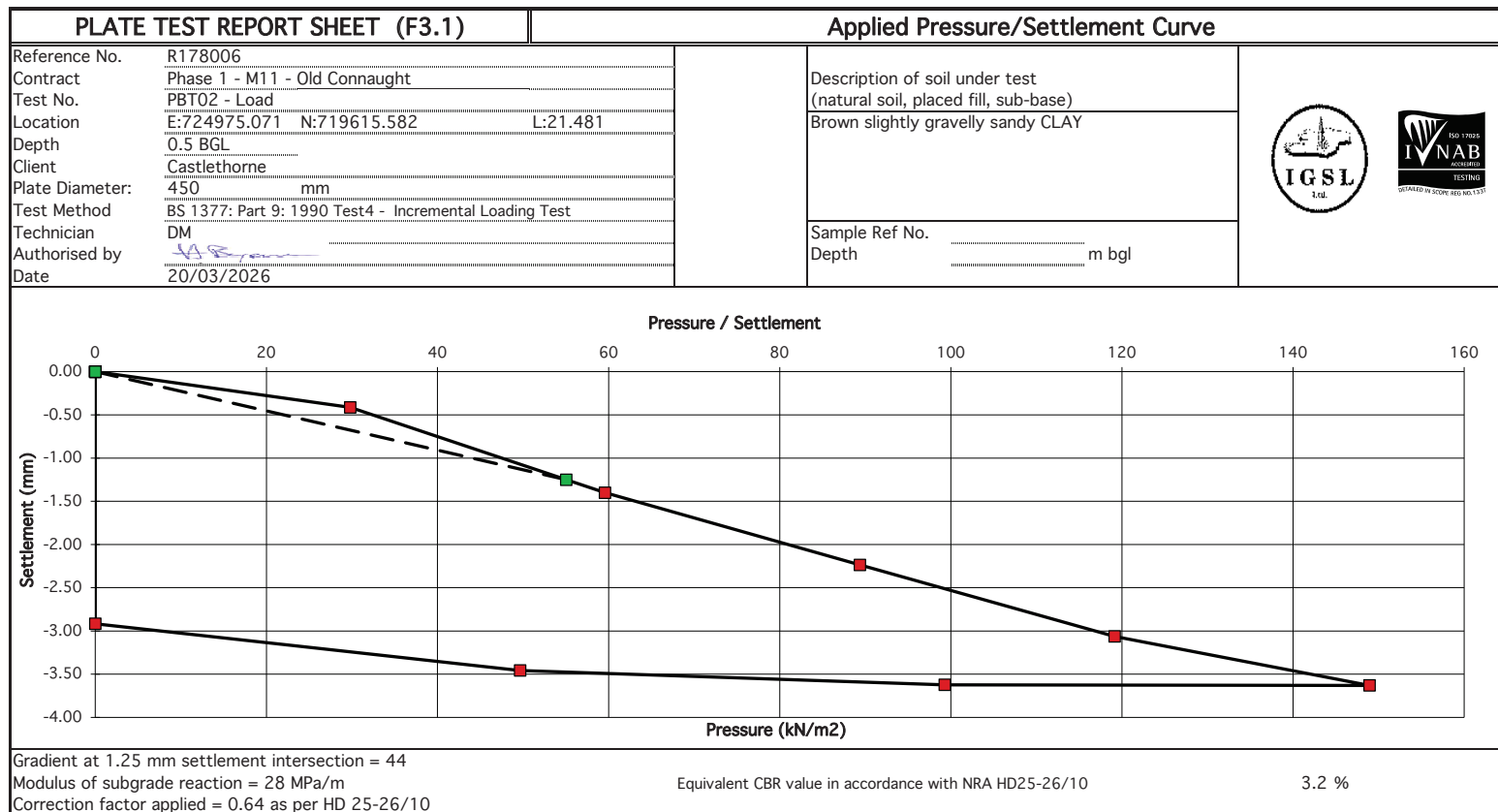












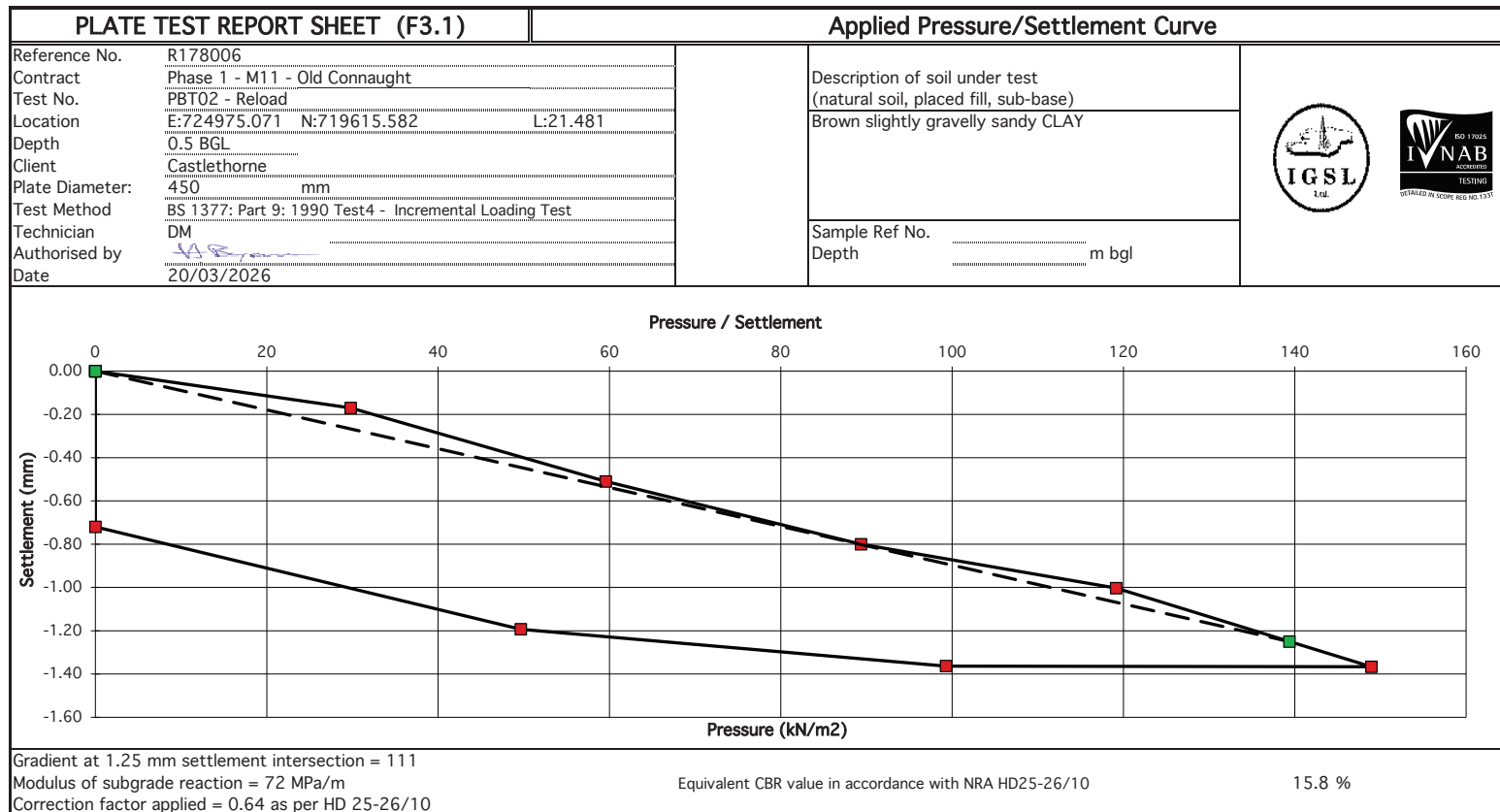
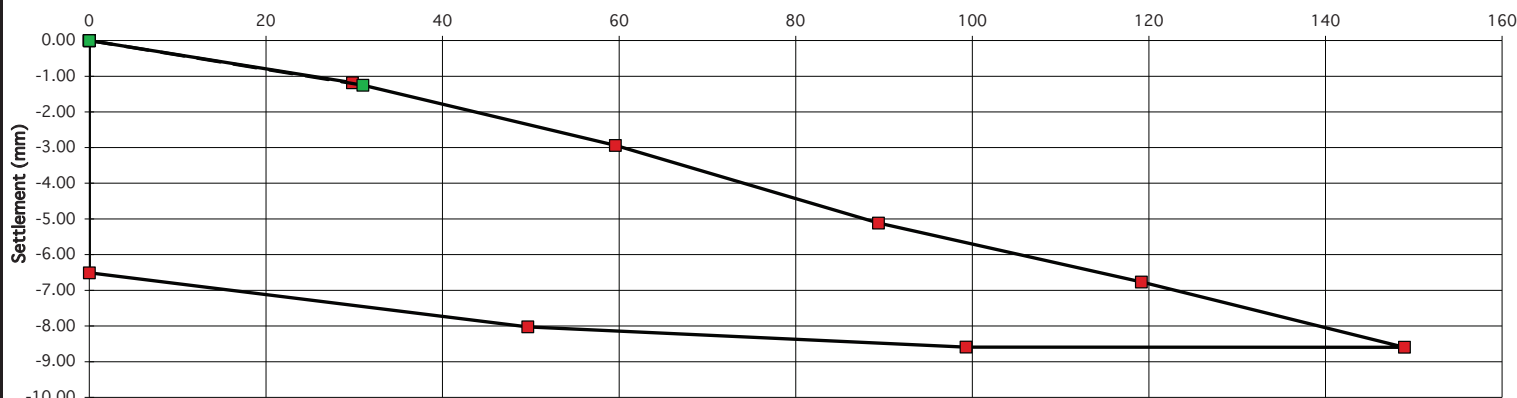


PLATE TEST REPORT SHEET (F3.1)			Applied Pressure/Settlement Curve	
Reference No.	R178008		Description of soil under test (natural soil, placed fill, sub-base)	 
Contract	Phase 1 - M11 - Old Connaught			
Test No.	PBT03 - Load		Brown slightly gravelly sandy CLAY	
Location	E:725000.87 N:719498.059 L:20.833			
Depth	0.5 BGL		Sample Ref No. _____	
Client	Castlethorne			
Plate Diameter:	450 mm		Depth _____ m bgl	
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test			
Technician	DM			
Authorised by	<i>HA Ryan</i>			
Date	20/03/2026			

Pressure / Settlement

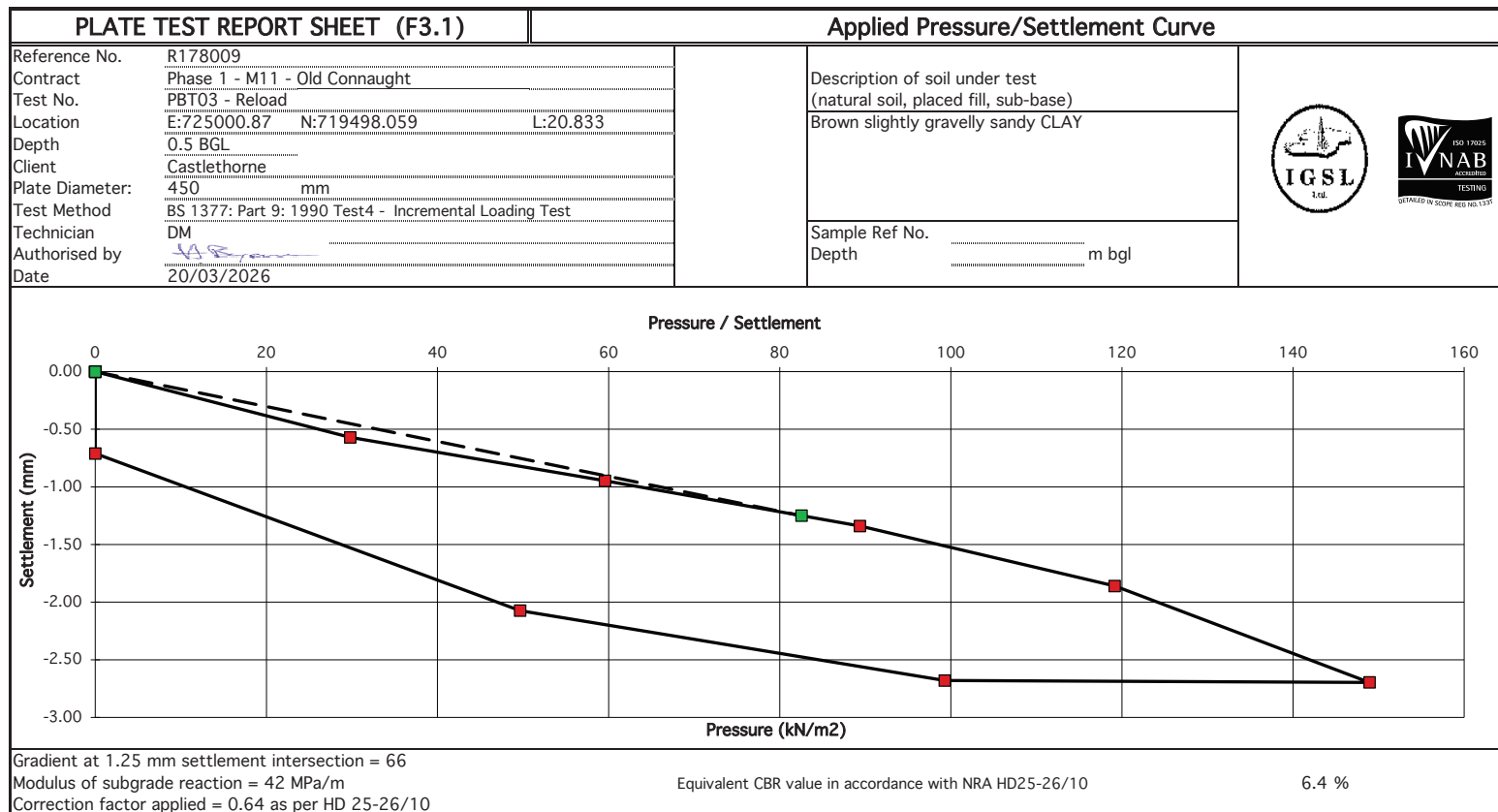


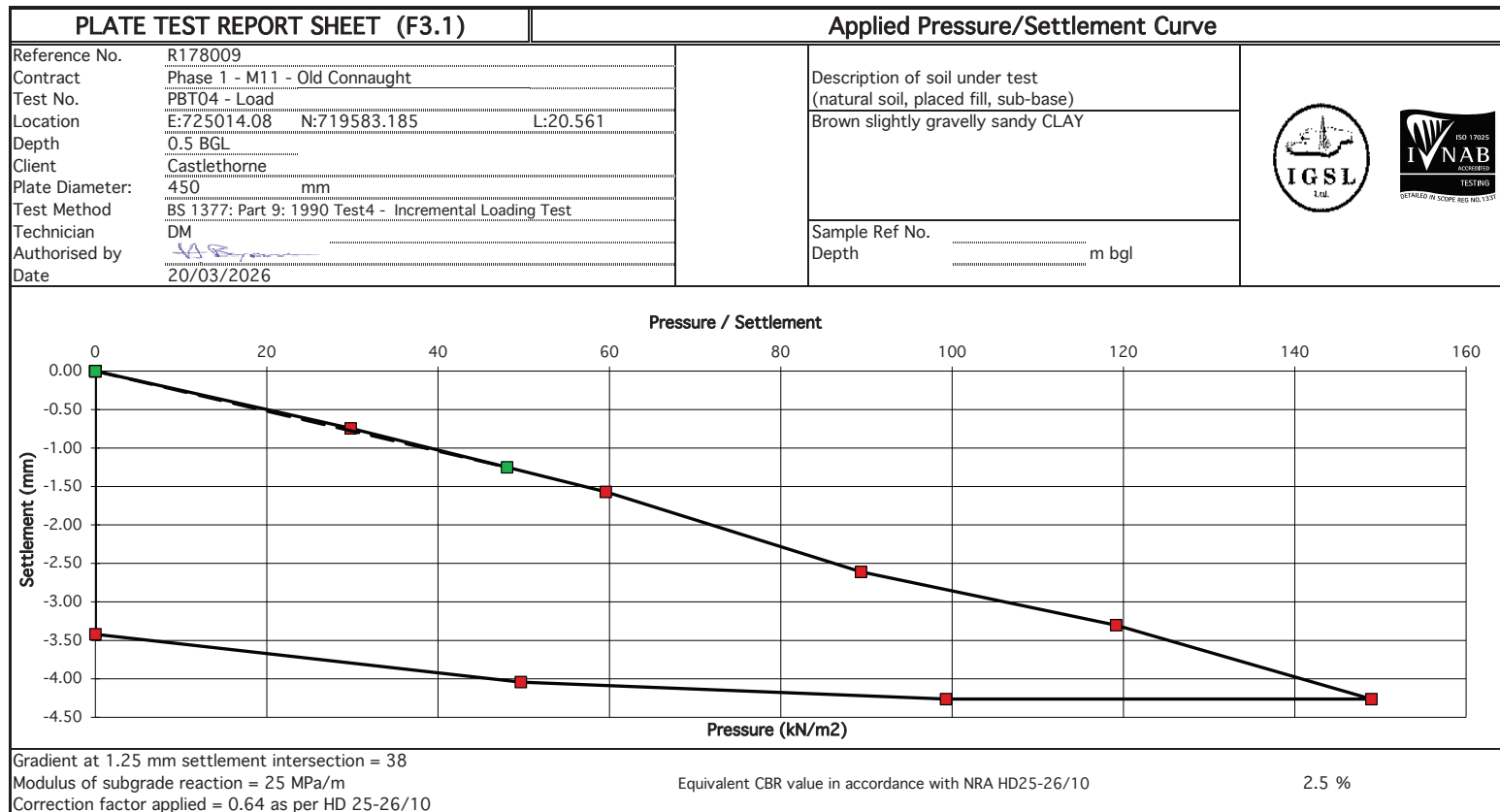
Pressure (kN/m ²)	Settlement (mm) - Top Curve	Settlement (mm) - Bottom Curve
0	0.00	-6.50
30	-1.20	-7.50
50	-2.50	-8.00
60	-3.00	-8.10
90	-5.20	-8.60
100	-6.00	-8.80
120	-6.80	-8.80
150	-8.80	-8.80

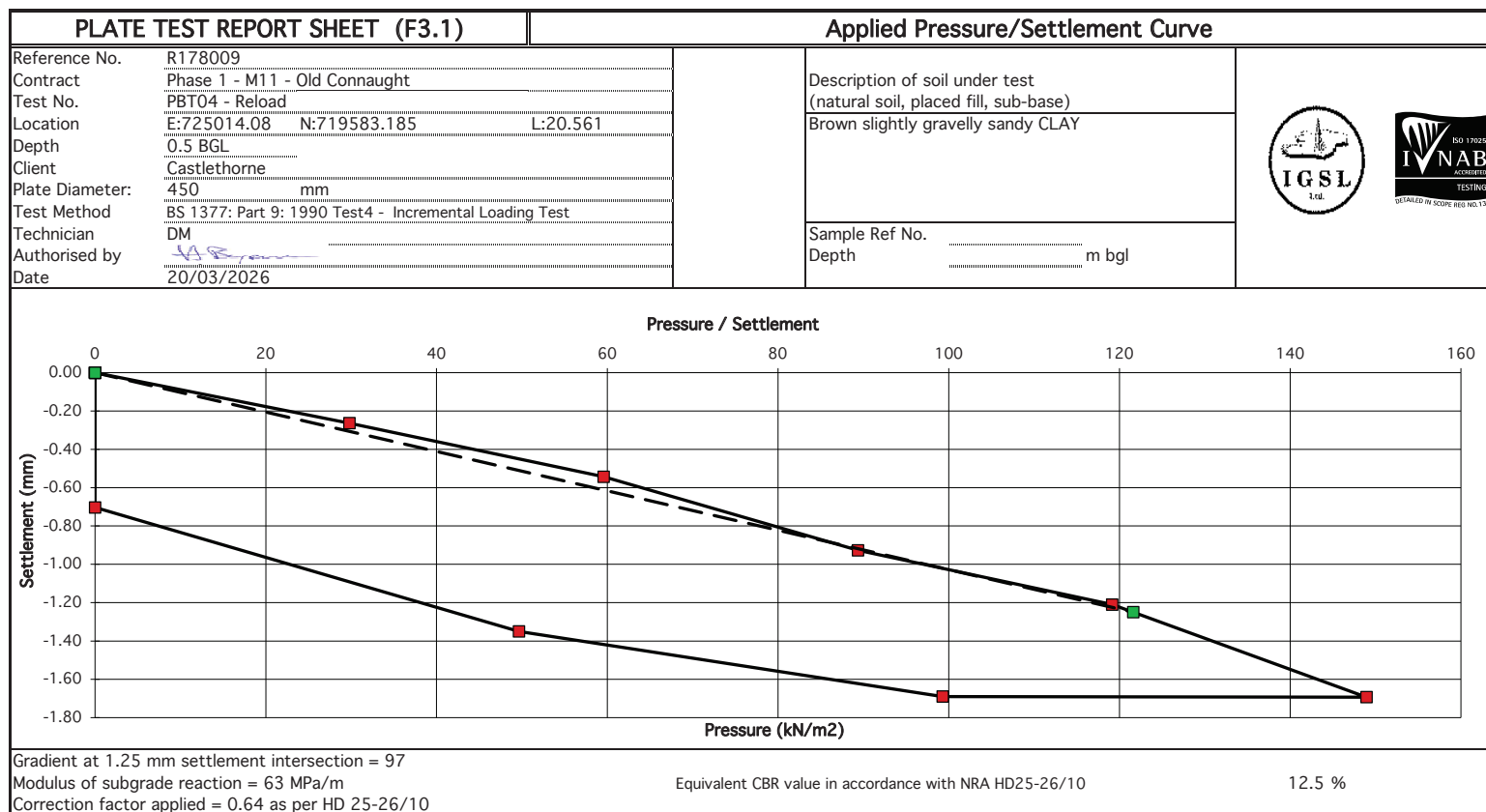
Gradient at 1.25 mm settlement intersection = 25
 Modulus of subgrade reaction = 16 MPa/m
 Correction factor applied = 0.64 as per HD 25-26/10

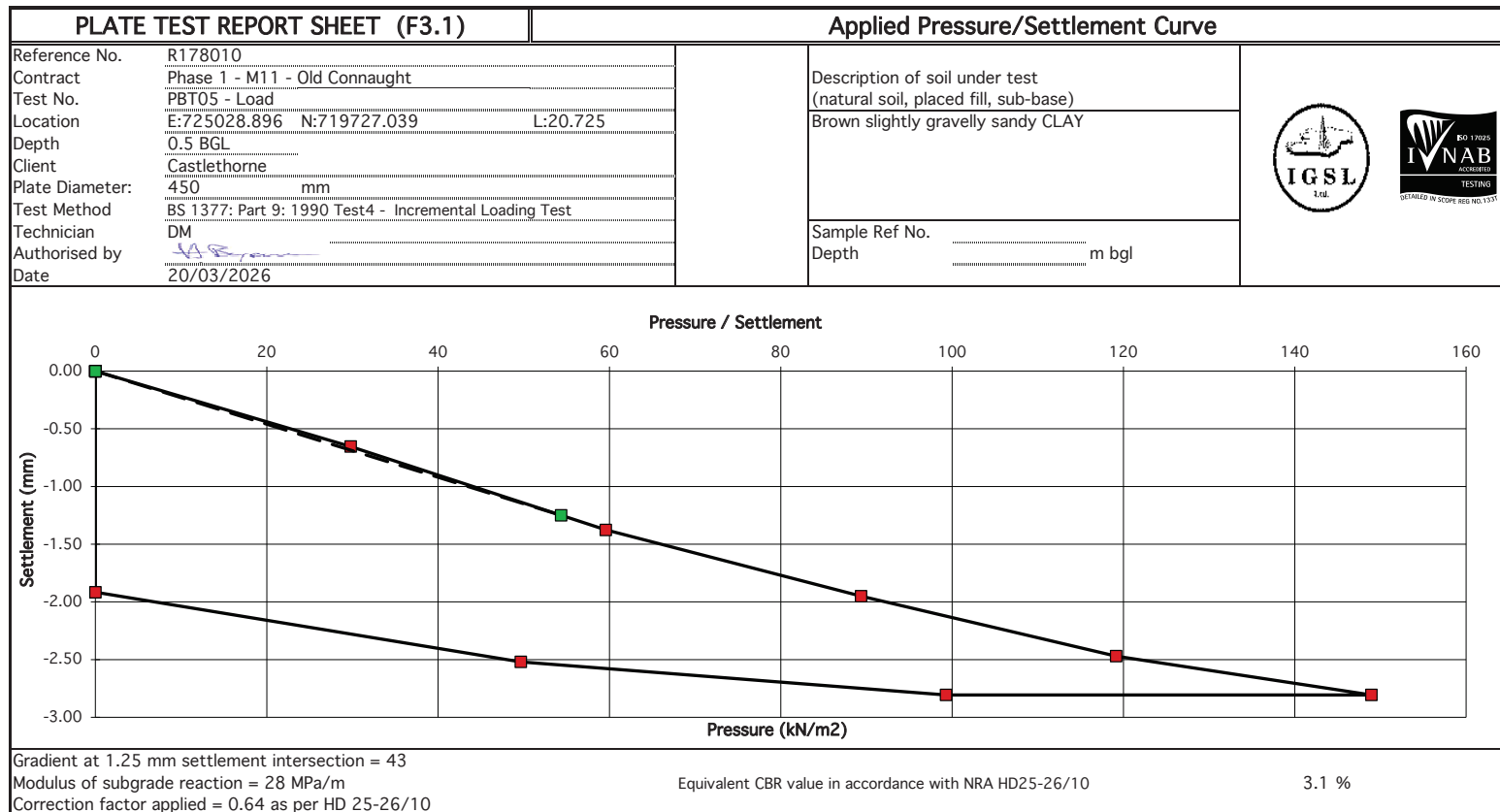
Equivalent CBR value in accordance with NRA HD25-26/10

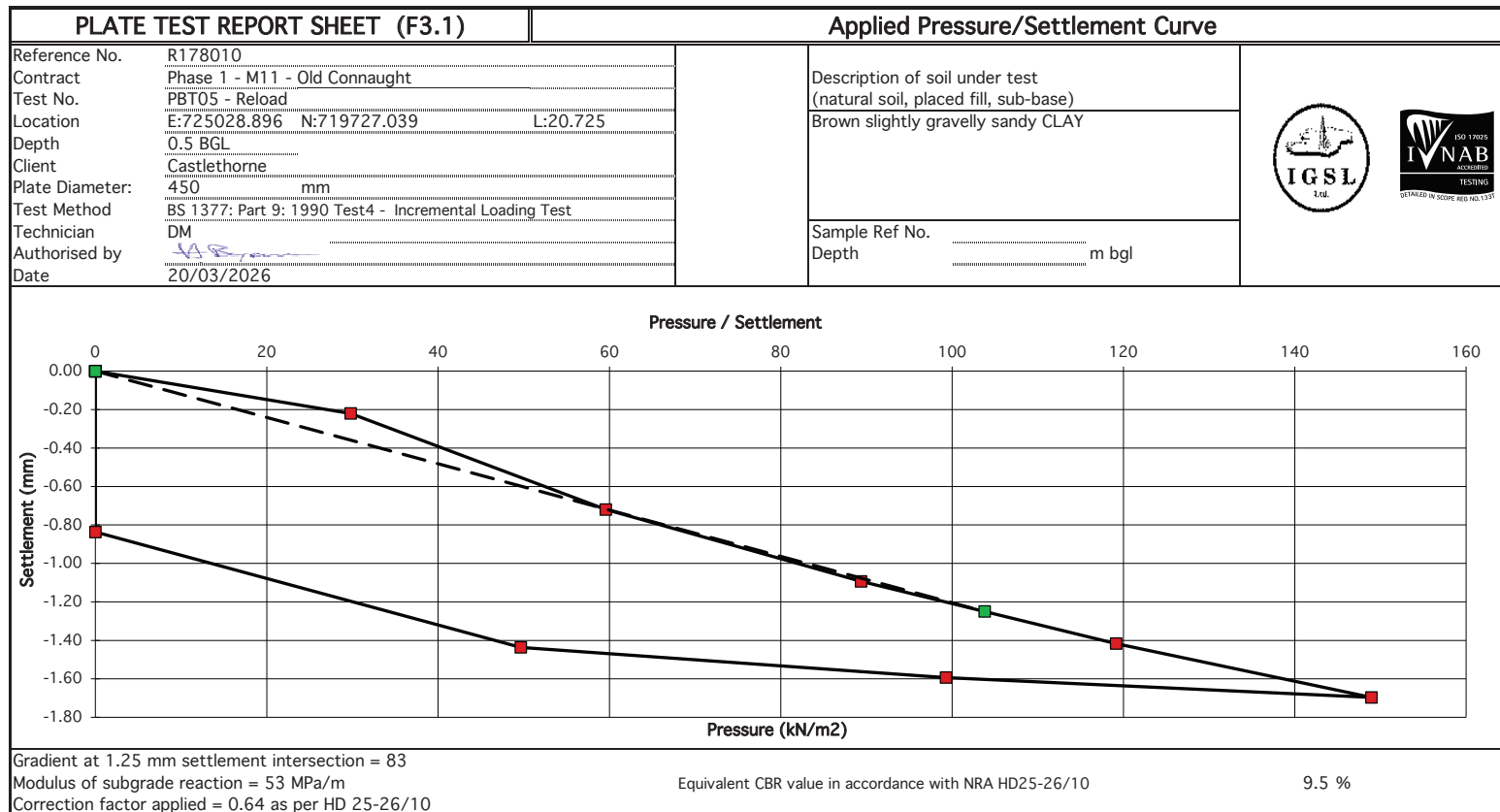
1.2 %











Appendix 8

Infiltration Test Records

Soakaway Design f -value from field tests

IGSL

Contract: Old Connaught, Phase 1
Test No. SA01
Engineer NP
Date: 25/03/2026

Contract No. 26458

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	1.10	Soft to firm brown slightly sandy slightly gravelly CLAY.	

Notes: For all trial pit information, see TP/SA01.

Field Data

Depth to Water (m)	Elapsed Time (min)
0.580	0.00
0.580	1.00
0.580	2.00
0.580	3.00
0.590	4.00
0.590	5.00
0.590	6.00
0.600	7.00
0.600	8.00
0.600	9.00
0.610	10.00
0.610	12.00
0.610	14.00
0.610	16.00
0.610	18.00
0.620	20.00
0.630	25.00
0.630	30.00
0.630	40.00
0.630	50.00
0.640	60.00

Field Test

Depth of Pit (D)	1.10	m
Width of Pit (B)	0.40	m
Length of Pit (L)	1.50	m

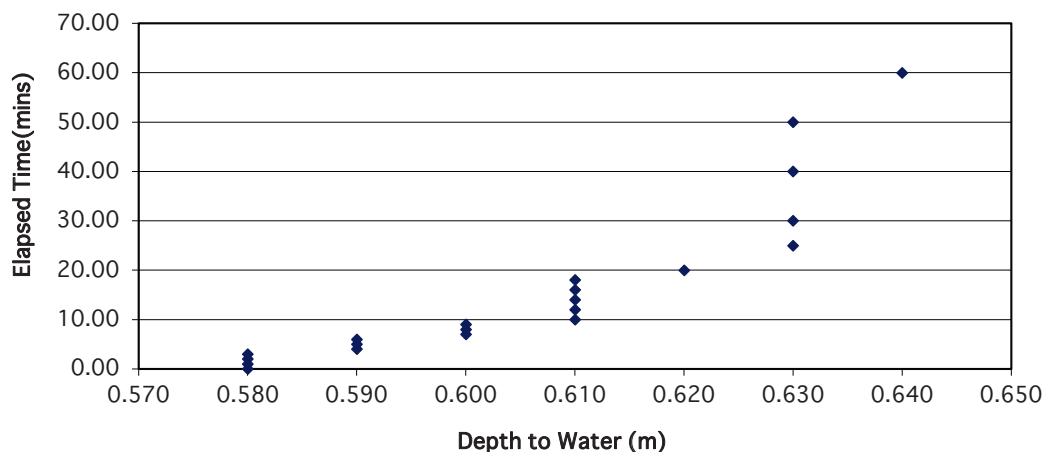
Initial depth to Water =	0.58	m
Final depth to water =	0.64	m
Elapsed time (mins)=	60.00	

Top of permeable soil		m
Base of permeable soil		m

Base area=	0.6	m ²
*Av. side area of permeable stratum over test period	1.862	m ²
Total Exposed area =	2.462	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |
f= 0.00024 m/min or 4.06174E-06 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design f -value from field tests

IGSL

Contract: Old Connaught, Phase 1
Test No. SA02 (Stage 1)
Engineer DM
Date: 23/03/2026

Contract No. 26458

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	1.00	Firm brown slightly silty sandy gravelly CLAY.	
1.00	1.40	Firm greyish brown slightly sandy gravelly CLAY with cobbles.	

Notes: For all trial pit information, see TP/SA02.

Field Data

Depth to Water (m)	Elapsed Time (min)
0.650	0.00
0.670	1.00
0.700	2.00
0.720	3.00
0.740	4.00
0.760	5.00
0.770	6.00
0.780	7.00
0.790	8.00
0.800	9.00
0.810	10.00
0.840	12.00
0.860	14.00
0.870	16.00
0.880	18.00
0.900	20.00
0.930	25.00
0.960	30.00
0.990	40.00
1.030	50.00
1.070	60.00

Field Test

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.50	m

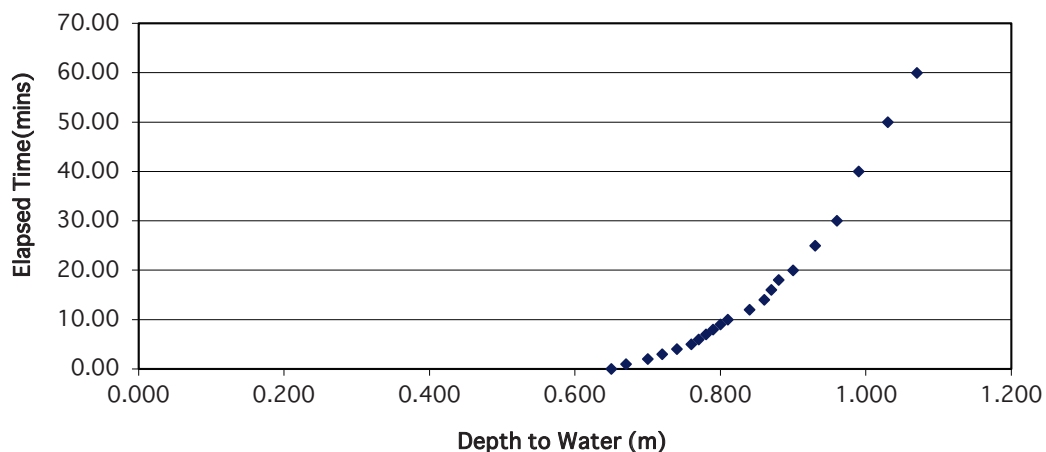
Initial depth to Water =	0.65	m
Final depth to water =	1.07	m
Elapsed time (mins)=	60.00	

Top of permeable soil		m
Base of permeable soil		m

Base area=	0.75	m ²
*Av. side area of permeable stratum over test period	2.16	m ²
Total Exposed area =	2.91	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |
f= 0.0018 m/min or 3.00687E-05 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design f -value from field tests

IGSL

Contract: Old Connaught, Phase 1
Test No. SA02 (Stage 2)
Engineer DM
Date: 23/03/2026

Contract No. 26458

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	1.00	Firm brown slightly silty sandy gravelly CLAY.	
1.00	1.40	Firm greyish brown slightly sandy gravelly CLAY with cobbles.	

Notes: For all trial pit information, see TP/SA02.

Field Data

Depth to Water (m)	Elapsed Time (min)
0.630	0.00
0.640	1.00
0.650	2.00
0.660	3.00
0.670	4.00
0.680	5.00
0.690	6.00
0.700	7.00
0.710	8.00
0.720	9.00
0.730	10.00
0.740	12.00
0.750	14.00
0.750	16.00
0.760	18.00
0.770	20.00
0.780	25.00
0.790	30.00
0.810	40.00
0.820	50.00
0.830	60.00

Field Test

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.50	m

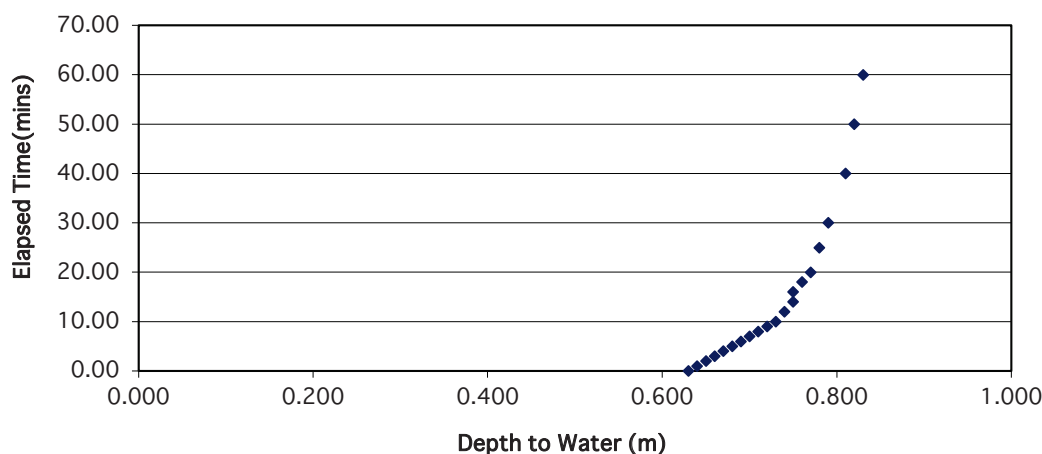
Initial depth to Water =	0.63	m
Final depth to water =	0.830	m
Elapsed time (mins)=	60.00	

Top of permeable soil		m
Base of permeable soil		m

Base area=	0.75	m ²
*Av. side area of permeable stratum over test period	2.68	m ²
Total Exposed area =	3.43	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |
f= 0.00073 m/min or 1.21477E-05 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design

f -value from field tests

IGSL

Contract: Old Connaught, Phase 1

Contract No. 26458

Test No. SA03 (Stage 1)

Engineer DM

Date: 23/03/2026

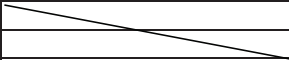
Summary of ground conditions			
from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	1.10	Firm brown sandy gravelly CLAY with cobbles.	
1.10	1.40	Medium dense grey slightly clayey sandy GRAVEL with cobbles.	

Notes: For all trial pit information, see TP/SA03.

Field Data

Depth to Water (m)	Elapsed Time (min)
0.850	0.00
0.870	1.00
0.900	2.00
0.920	3.00
0.940	4.00
0.950	5.00
0.970	6.00
0.980	7.00
0.990	8.00
1.000	9.00
1.020	10.00
1.030	12.00
1.050	14.00
1.070	16.00
1.100	18.00
1.120	20.00
1.150	25.00
1.190	30.00
1.200	40.00
1.210	50.00
1.220	60.00

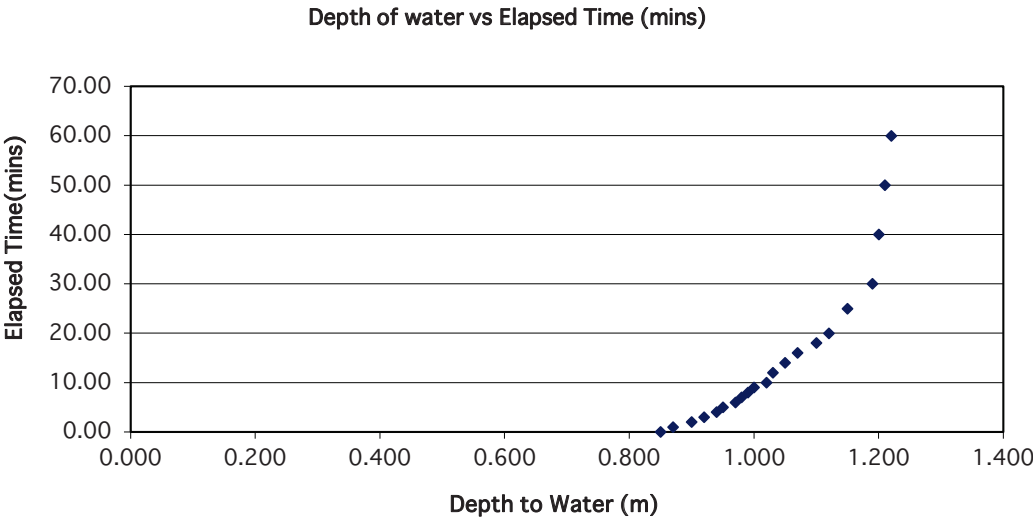
Field Test

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.60	m
Length of Pit (L)	1.70	m
Initial depth to Water =	0.85	m
Final depth to water =	1.220	m
Elapsed time (mins)=	60.00	
Top of permeable soil		
Base of permeable soil		

Base area=	1.02	m2
*Av. side area of permeable stratum over test period	1.679	m2
Total Exposed area =	2.699	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |

f= 0.00233 m/min or 3.88415E-05 m/sec



Soakaway Design

f -value from field tests

IGSL

Contract: Old Connaught, Phase 1

Contract No. 26458

Test No. SA03 (Stage 2)

Engineer DM

Date: 23/03/2026

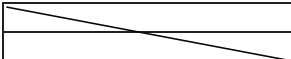
Summary of ground conditions			
from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	1.10	Firm brown sandy gravelly CLAY with cobbles.	
1.10	1.40	Medium dense grey slightly clayey sandy GRAVEL with cobbles.	

Notes: For all trial pit information, see TP/SA03.

Field Data

Depth to Water (m)	Elapsed Time (min)
0.800	0.00
0.800	1.00
0.810	2.00
0.820	3.00
0.830	4.00
0.850	5.00
0.860	6.00
0.870	7.00
0.890	8.00
0.900	9.00
0.910	10.00
0.920	12.00
0.940	14.00
0.950	16.00
0.960	18.00
0.970	20.00
0.990	25.00
1.000	30.00
1.020	40.00
1.040	50.00
1.060	60.00

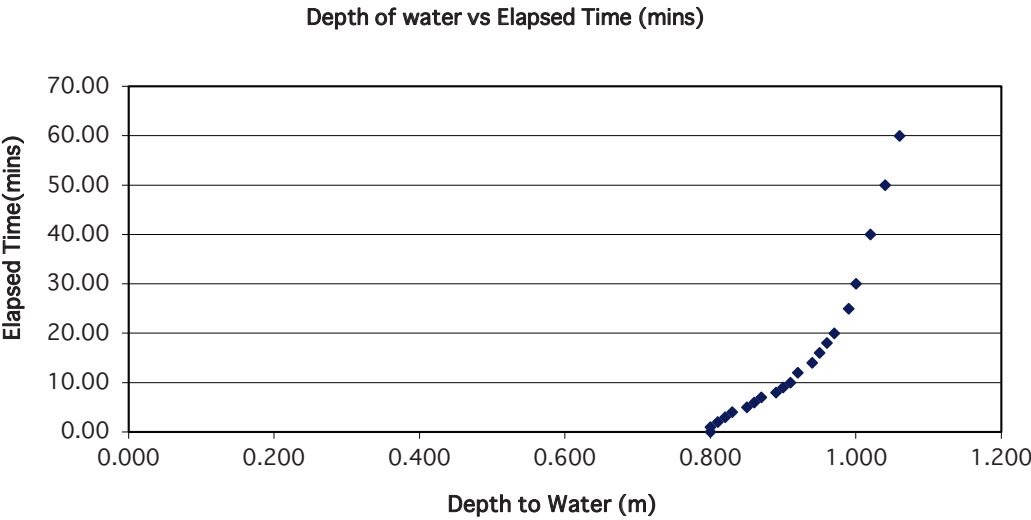
Field Test

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.60	m
Length of Pit (L)	1.70	m
Initial depth to Water =	0.80	m
Final depth to water =	1.060	m
Elapsed time (mins)=	60.00	
Top of permeable soil		
Base of permeable soil		

Base area=	1.02	m2
*Av. side area of permeable stratum over test period =	2.162	m2
Total Exposed area =	3.182	m2

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |

f= 0.00139 m/min or 2.31511E-05 m/sec



Soakaway Design f -value from field tests

IGSL

Contract: Old Connaught, Phase 1

Contract No. 26458

Test No. SA04

Engineer DM

Date: 23/03/2026

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	0.60	Firm brown slightly gravelly sandy CLAY.	
0.60	2.00	Stiff light brown mottled light grey slightly sandy slightly gravelly CLAY.	

Notes: For all trial pit information, see TP/SA04.

Field Data

Depth to Water (m)	Elapsed Time (min)
0.780	0.00
0.780	1.00
0.780	2.00
0.780	3.00
0.780	4.00
0.780	5.00
0.780	6.00
0.780	7.00
0.780	8.00
0.780	9.00
0.780	10.00
0.780	12.00
0.780	14.00
0.780	16.00
0.780	18.00
0.780	20.00
0.780	25.00
0.780	30.00
0.780	40.00
0.780	50.00
0.780	60.00

Field Test

Depth of Pit (D)	2.00	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.50	m

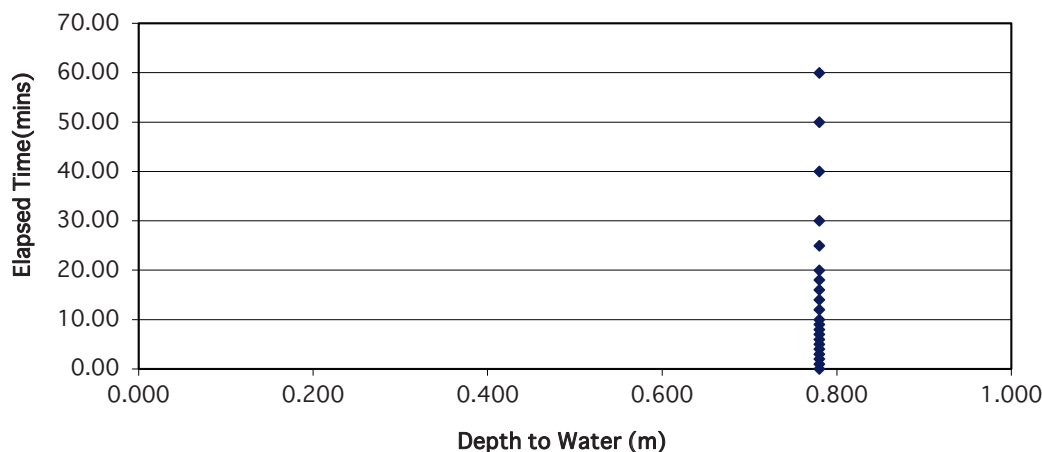
Initial depth to Water =	0.78	m
Final depth to water =	0.78	m
Elapsed time (mins)=	60.00	

Top of permeable soil		m
Base of permeable soil		m

Base area=	0.75	m ²
*Av. side area of permeable stratum over test period	4.88	m ²
Total Exposed area =	5.63	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |
f= 0 m/min or 0 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design f -value from field tests

IGSL

Contract: Old Connaught, Phase 1

Contract No. 26458

Test No. SA05

Engineer DM

Date: 23/03/2026

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	0.90	Firm brown slightly gravelly sandy CLAY.	
0.90	1.80	Firm to stiff greyish brown slightly sandy slightly gravelly silty CLAY.	

Notes: For all trial pit information, see TP/SA05.

Field Data

Field Test

Depth to Water (m)	Elapsed Time (min)
0.600	0.00
0.600	1.00
0.600	2.00
0.600	3.00
0.600	4.00
0.600	5.00
0.600	6.00
0.600	7.00
0.600	8.00
0.600	9.00
0.600	10.00
0.600	12.00
0.600	14.00
0.610	16.00
0.610	18.00
0.610	20.00
0.610	25.00
0.610	30.00
0.610	40.00
0.610	50.00
0.610	60.00

Depth of Pit (D)	1.80	m
Width of Pit (B)	0.60	m
Length of Pit (L)	1.70	m

Initial depth to Water =	0.60	m
Final depth to water =	0.61	m
Elapsed time (mins)=	60.00	

Top of permeable soil		m
Base of permeable soil		m

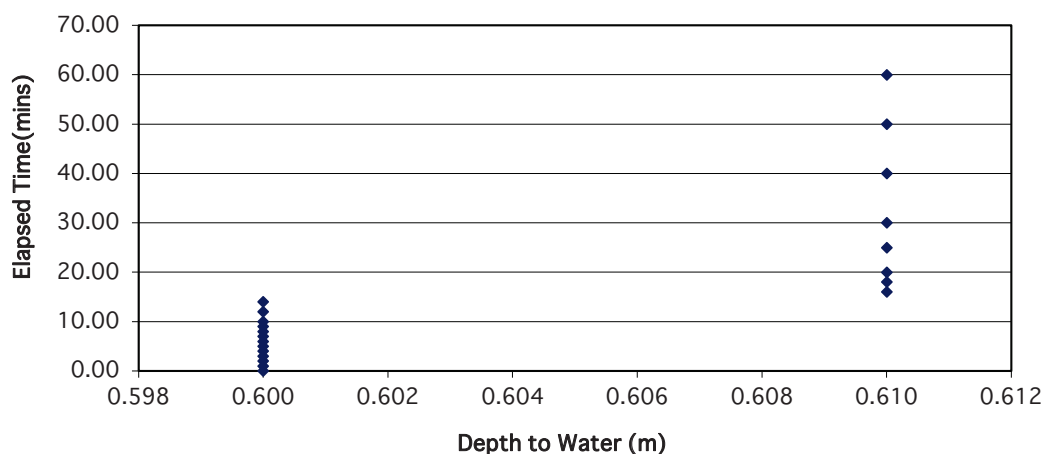
Base area=	1.02	m ²
*Av. side area of permeable stratum over test period	5.497	m ²
Total Exposed area =	6.517	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |

f= 0 m/min or 0 m/sec

No fall in water after 16 mins

Depth of water vs Elapsed Time (mins)



IGSL

Contract No. 26458

Engineer NP

Date: 25/03/2026

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	0.50	MADE GROUND: Soft to firm brown slightly sandy slightly gravelly CLAY.	
0.50	0.70	MADE GROUND	
0.70	1.60	Medium dense grey/brown sandy GRAVEL.	

Field Data

Field Test

[illegible]

Depth of Pit (D)	1.60	m
Width of Pit (B)	0.40	m
Length of Pit (L)	1.50	m

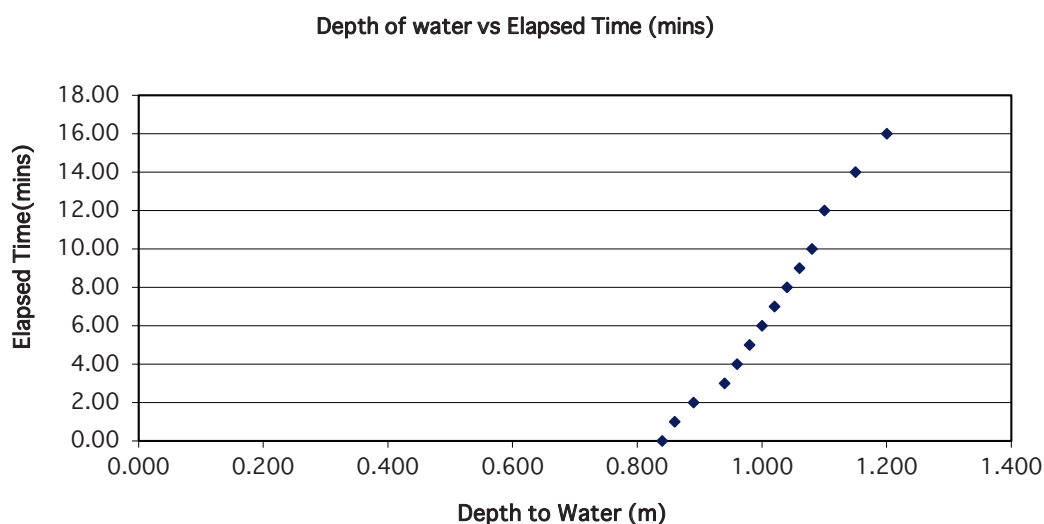
Initial depth to Water =	0.84	m
Final depth to water =	1.20	m
Elapsed time (mins)=	16.00	

Top of permeable soil
Base of permeable soil

Base area=	0.6	m ²
e stratum over test period	2.204	m ²
Total Exposed area =	2.804	m ²

^aAv. side area of permeable stratum over test period
$$\text{Infiltration rate (f)} = \frac{\text{Volume of water used/unit}}{\text{exposed area / unit time}}$$

f= 0.00481 m/min or 8.02425E-05 m/sec



Soakaway Design f -value from field tests

IGSL

Contract: Old Connaught, Phase 1
Test No. SA06 (Stage 2)
Engineer NP
Date: 25/03/2026

Contract No. 26458

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	0.50	MADE GROUND: Soft to firm brown slightly sandy slightly gravelly CLAY.	
0.50	0.70	MADE GROUND	
0.70	1.60	Medium dense grey/brown sandy GRAVEL.	

Notes: For all trial pit information, see TP/SA06. Pit was dry after 25min.

Field Data

Field Test

Depth to Water (m)	Elapsed Time (min)
1.050	0.00
1.050	1.00
1.080	2.00
1.100	3.00
1.110	4.00
1.130	5.00
1.150	6.00
1.160	7.00
1.190	8.00
1.200	9.00
1.220	10.00
1.240	12.00
1.260	14.00
1.280	16.00
1.300	18.00
1.320	20.00
1.400	25.00

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.40	m
Length of Pit (L)	1.50	m

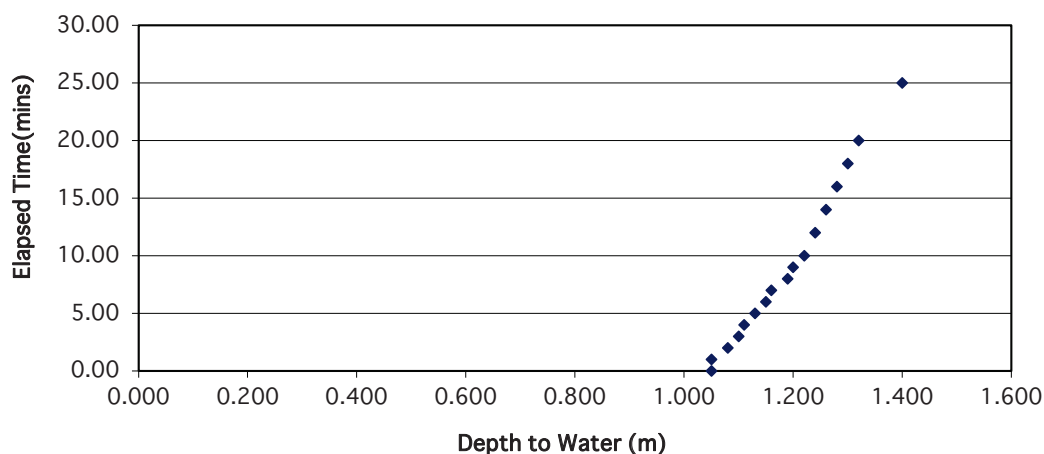
Initial depth to Water =	1.05	m
Final depth to water =	1.400	m
Elapsed time (mins)=	25.00	

Top of permeable soil		m
Base of permeable soil		m

Base area=	0.6	m ²
*Av. side area of permeable stratum over test period	0.665	m ²
Total Exposed area =	1.265	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |
f= 0.00664 m/min or 0.000110672 m/sec

Depth of water vs Elapsed Time (mins)



Soakaway Design f -value from field tests

IGSL

Contract: Old Connaught, Phase 1

Contract No. 26458

Test No. SA07

Engineer NP

Date: 25/03/2026

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	1.00	Soft to firm brown slightly sandy slightly gravelly CLAY.	
1.00	1.40	Firm to stiff greyish brown slightly sandy gravelly CLAY with cobbles.	

Notes: For all trial pit information, see TP/SA07.

Field Data

Field Test

Depth to Water (m)	Elapsed Time (min)
0.710	0.00
0.710	1.00
0.710	2.00
0.710	3.00
0.710	4.00
0.710	5.00
0.710	6.00
0.710	7.00
0.710	8.00
0.710	9.00
0.710	10.00
0.710	12.00
0.710	14.00
0.710	16.00
0.710	18.00
0.710	20.00
0.710	25.00
0.710	30.00
0.710	40.00
0.710	50.00
0.710	60.00

Depth of Pit (D)	1.40	m
Width of Pit (B)	0.40	m
Length of Pit (L)	1.60	m

Initial depth to Water =	0.71	m
Final depth to water =	0.71	m
Elapsed time (mins)=	60.00	

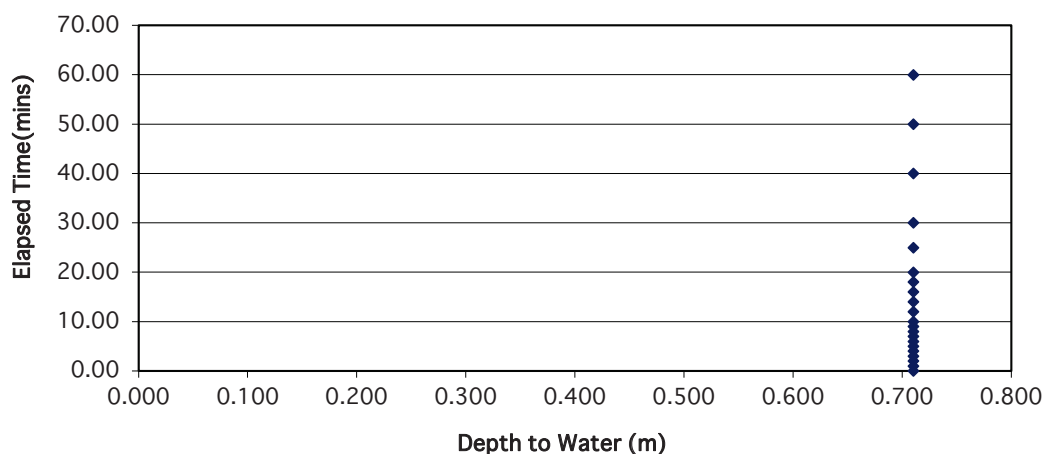
Top of permeable soil		m
Base of permeable soil		m

Base area=	0.64	m ²
*Av. side area of permeable stratum over test period	2.76	m ²
Total Exposed area =	3.4	m ²

Infiltration rate (f) = Volume of water used/unit exposed area / unit time |

f= 0 m/min or 0 m/sec

Depth of water vs Elapsed Time (mins)



Appendix 9

Groundwater Monitoring Records

Appendix 10

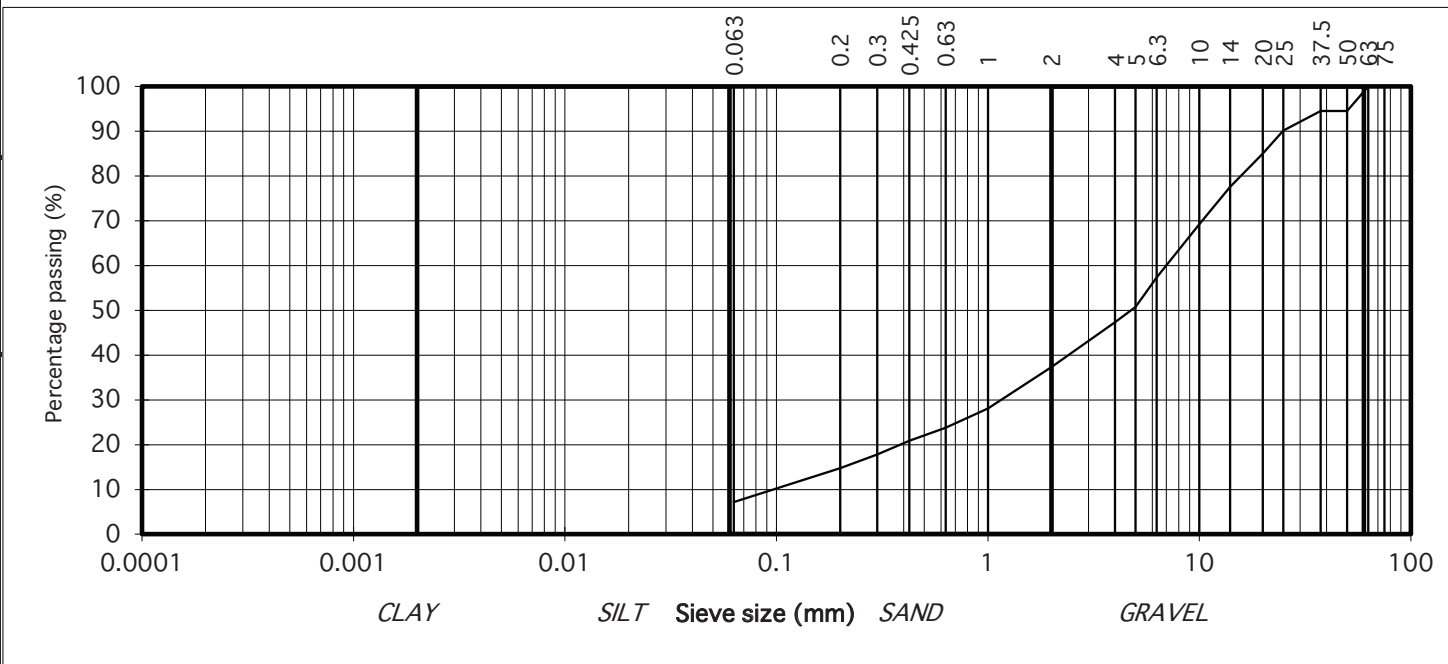
Geotechnical Laboratory Testing

IGSL Ltd Materials Laboratory Unit J5, M7 Business Park Newhall, Naas Co. Kildare 045 846176				Test Report										
				Determination of Water Content, Liquid & Plastic Limits Tested in accordance with BS1377-2-2022/EN17892-1 and EN17892-12										
Report No. R180387				Contract No. 26458		Contract Name: Old Connaught Bray Phase 1 Castlethorne								
Customer Atkins CE														
Samples Received: 14/05/26		Date Tested: 14/05/26												
BH/TP*	Sample No.	Depth* (m)	Lab. Ref	Sample Type*	Water Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description	
BH01	AA260236	1.0	A26/1040	B	14	30	16	14	88	WS	5.3	C L	Brown sandy gravelly CLAY	
BH01	AA260240	4.0	A26/1041	B	9.8	32	15	17	56	WS	5.3	C L	Brown sandy gravelly CLAY	
BH02	AA265208	1.0	A26/1043	B	19	30	NP	NP	94	WS	5.3		Brown sandy gravelly SILT	
BH02	AA265216	9.0	A26/1046	B	16.2	35	15	20	59	WS	5.3	C L	Brown slightly sandy, slightly gravelly, CLAY	
BH03	AA260246	1.5	A26/1047	B	15.7	37	18	19	47	WS	5.3	C I	Brown sandy gravelly CLAY	
BH03	AA260252	7.0	A26/1049	B	17.1	31	12	19	76	WS	5.3	C L	Brown sandy gravelly CLAY	
TP01	AA258594	1.5	A26/1051	B	21.2	39	18	21	98	WS	5.3	C I	Brown sandy gravelly CLAY	
TP02	AA258590	1.5	A26/1052	B	16.4	28	15	13	86	WS	5.3	C L	Brown sandy gravelly CLAY	
TP04	AA258585	1.0	A26/1055	B	17.3	33	NP	NP	47	WS	5.3		Brown sandy gravelly SILT	
TP05	AA258596	1.5	A26/1057	B	18.1	35	17	18	87	WS	5.3	C L	Brown slightly sandy, slightly gravelly, CLAY	
Preparation: WS - Wet sieved AR - As received NP - Non plastic Liquid Limit 5.2 Cone Penetrometer definitive method Clause: 5.3 Cone Penetrometer single point method				Sample Type: B - Bulk Disturbed U - Undisturbed				Remarks: Results relate only to the specimen tested, in as received condition unless otherwise noted. Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information. This report shall not be reproduced except in full without written approval from the Laboratory.						
IGSL Ltd Materials Laboratory				Persons authorized to approve reports H Byrne (Laboratory Manager)					Approved by		Date		Page	
											03/06/26		1 of 1	

TEST REPORT
Determination of Particle Size Distribution
 Tested in accordance with: BS1377-2:2022 Clause 10
 (note: Sedimentation stage not accredited)



particle size	% passing		Contract No. 26458	Report No. R180388	
75	100	COBBLES	Contract Name : Old Connaught Bray Phase 1 Castlethorne		Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.
63	100		BH/TP No. BH01		
50	95		Sample No.* AA260241	Lab. Sample No. A26/1042	
37.5	95		Sample Type: B		
25	90		Depth* (m) 5.00	Customer: Atkins CE	
20	85	GRAVEL	Date Received 14/05/2026	Date Testing started 14/05/2026	
14	78		Description: Brown clayey/silty, very sandy, GRAVEL		
10	69		Remarks		
6.3	57				
5.0	51				
4.0	47				
2.0	37				
1.0	28				
0.63	24				
0.425	21	SAND			
0.3	18				
0.2	15				
0.063	7				
		SILT/CLAY			

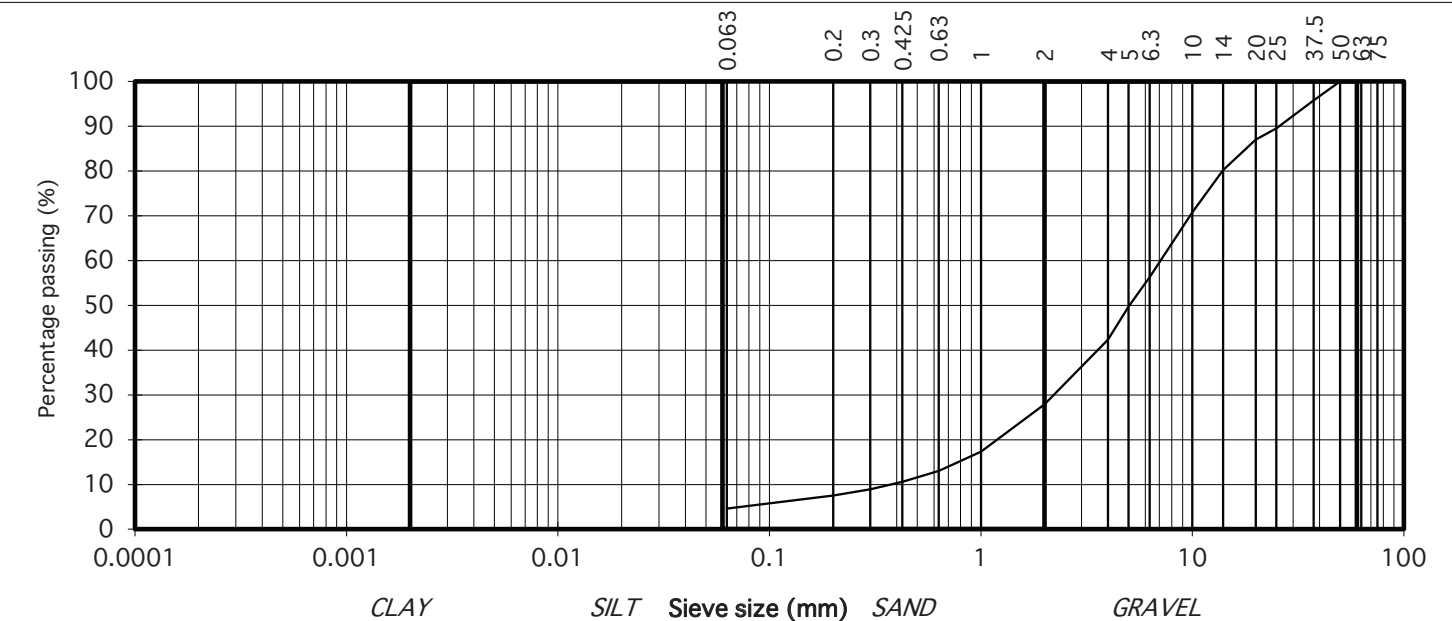


IGSL Ltd Materials Laboratory	Approved by:	Date:	Page no:
		29/05/26	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
 Tested in accordance with: BS1377-2:2022 Clause 10
 (note: Sedimentation stage not accredited)



particle size	% passing		Contract No.	26458	Report No.	R180503			
75	100	COBBLES	Contract Name :	Old Connaught Bray Phase 1 Castlethorne				Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.	
63	100		BH/TP No.	BH02					
50	100	GRAVEL	Sample No.*	AA265213	Lab. Sample No.	A26/1045			
37.5	96		Sample Type:	B					
25	90		Depth* (m)	6.00	Customer:	Atkins CE			
20	87		Date Received	14/05/2026	Date Testing started	14/05/2026			
14	80		Description:	Brown slightly clayey/silty, very sandy, GRAVEL					
10	71		SAND	Remarks					
6.3	56								
5.0	50								
4.0	42								
2.0	28								
1.0	17	SILT/CLAY							
0.63	13								
0.425	11								
0.3	9								
0.2	8								
0.063	5								

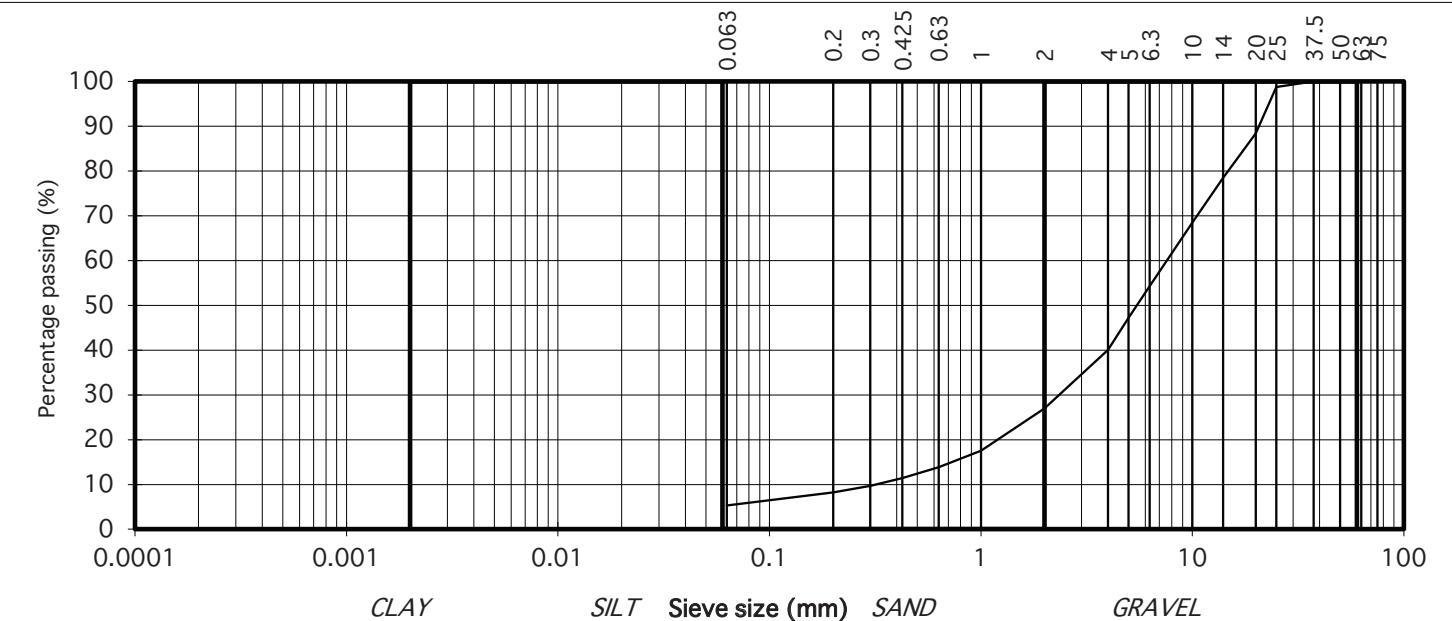
IGSL Ltd Materials Laboratory

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	29/05/26	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
 Tested in accordance with: BS1377-2:2022 Clause 10
 (note: Sedimentation stage not accredited)



particle size	% passing		Contract No.	26458	Report No.	R180500				
			Contract Name :	Old Connaught Bray Phase 1 Castlethorne			Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.			
75	100	COBBLES	BH/TP No.	BH02						
63	100		Sample No.*	AA265210	Lab. Sample No.	A26/1044				
50	100	GRAVEL	Sample Type:	B						
37.5	100		Depth* (m)	3.00	Customer:	Atkins CE				
25	99		Date Received	14/05/2026	Date Testing started	14/05/2026				
20	88		Description:	Brown clayey/silty, very sandy, GRAVEL						
14	78		SAND	Remarks						
10	69									
6.3	54									
5.0	47									
4.0	40									
2.0	27									
1.0	18									
0.63	14									
0.425	11									
0.3	10	SILT/CLAY								
0.2	8									
0.063	5									

IGSL Ltd Materials Laboratory

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
 Tested in accordance with: BS1377-2:2022 Clause 10
 (note: Sedimentation stage not accredited)



particle size	% passing		Contract No.	26458	Report No.	R180501	
			Contract Name :	Old Connaught Bray Phase 1 Castlethorne			Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.
			BH/TP No.	BH02			
			Sample No.*	AA265216	Lab. Sample No.	A26/1046	
			Sample Type:	B			
			Depth* (m)	9.00	Customer:	Atkins CE	
75	100	COBBLES	Date Received	14/05/2026	Date Testing started	14/05/2026	
63	100		Description:	Brown slightly sandy, slightly gravelly, CLAY			
50	100						
37.5	100						
25	96						
20	95						
14	90						
10	85						
6.3	81						
5.0	79						
4.0	77	GRAVEL	Remarks				
2.0	72						
1.0	65						
0.63	61						
0.425	57						
0.3	53						
0.2	49						
0.063	37						
0.038	32						
0.027	29						
0.017	26	SAND					
0.010	22						
0.007	19						
0.005	17						
0.002	11						

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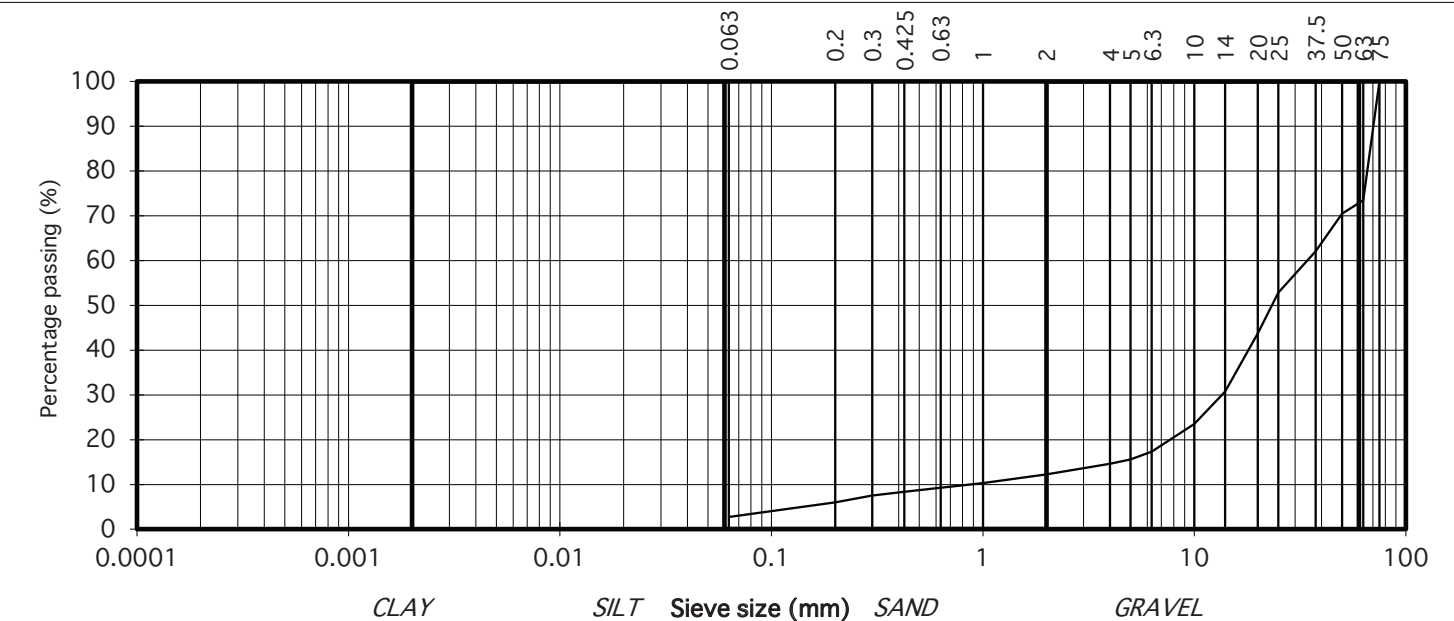
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377-2:2022 Clause 10
(note: Sedimentation stage not accredited)



particle size	% passing		Contract No.	26458	Report No.	R180389			
75	100	COBBLES	Contract Name :	Old Connaught Bray Phase 1 Castlethorne				Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.	
63	73		BH/TP No.	BH03					
50	70		Sample No.*	AA260250	Lab. Sample No.	A26/1048			
37.5	62		Sample Type:	B					
25	53		Depth* (m)	5.00	Customer:	Atkins CE			
20	44	GRAVEL	Date Received	14/05/2026	Date Testing started	14/05/2026			
14	31		Description:	Brown slightly clayey/silty, sandy, GRAVEL with many cobbles					
10	23		Remarks	Sample size did not meet the requirements of BS1377					
6.3	17								
5.0	16								
4.0	15	SAND							
2.0	12								
1.0	10								
0.63	9								
0.425	8								
0.3	8	SILT/CLAY							
0.2	6								
0.063	3								

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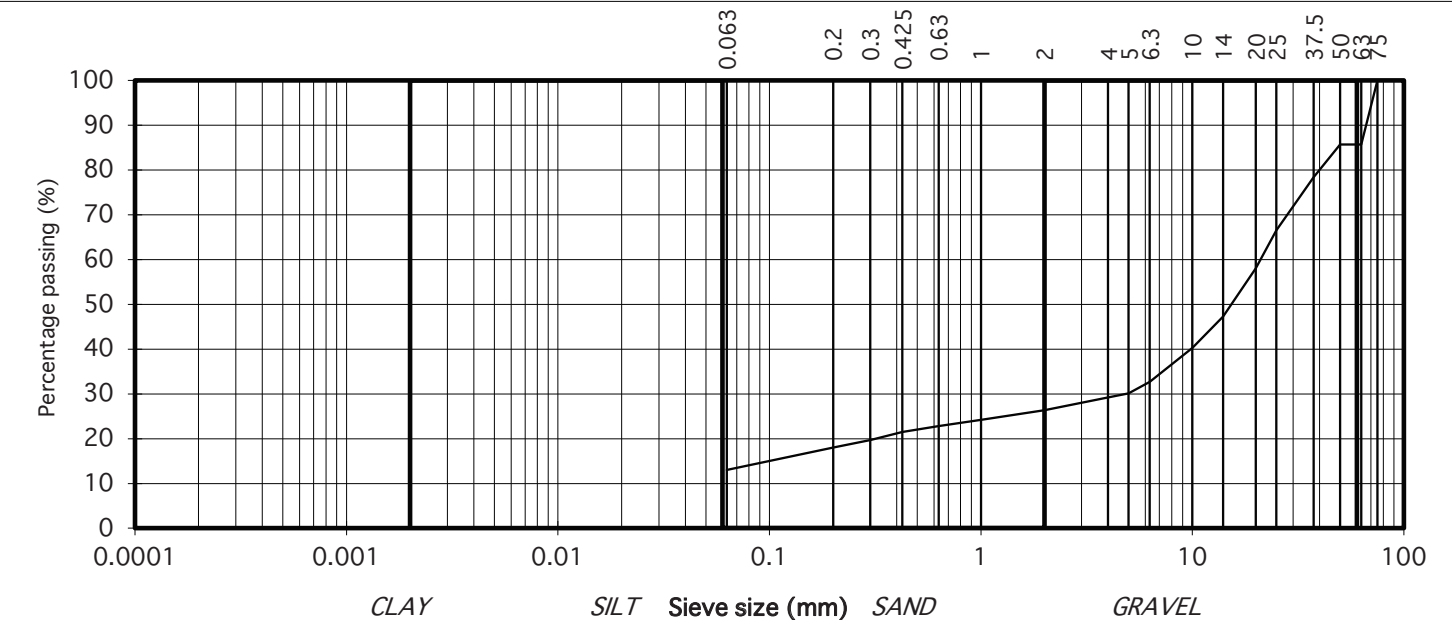
Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377-2:2022 Clause 10
(note: Sedimentation stage not accredited)



particle size	% passing		Contract No.	26458	Report No.	R180390				
			Contract Name :	Old Connaught Bray Phase 1 Castlethorne				Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.		
75	100	COBBLES	BH/TP No.	BH03						
63	86		Sample No.*	AA260254	Lab. Sample No.	A26/1050				
50	86	GRAVEL	Sample Type:	B						
37.5	78		Depth* (m)	9.00	Customer:	Atkins CE				
25	67		Date Received	14/05/2026	Date Testing started	14/05/2026				
20	58		Description:	Brown clayey/silty, sandy, GRAVEL with some cobbles						
14	47		SAND	Remarks	Sample size did not meet the requirements of BS1377					
10	40									
6.3	33									
5.0	30									
4.0	29									
2.0	26									
1.0	24									
0.63	23									
0.425	21									
0.3	20	SILT/CLAY								
0.2	18									
0.063	13									

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	03/06/26	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

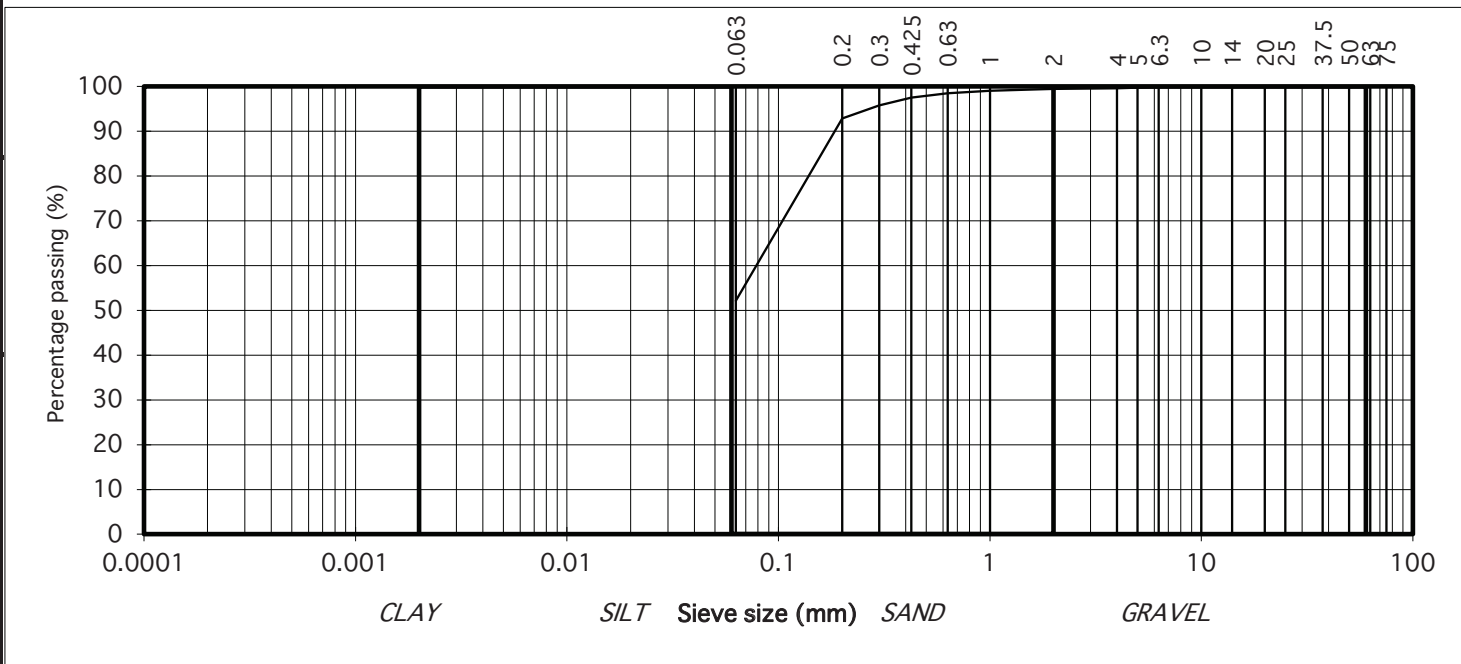
TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377-2:2022 Clause 10
(note: Sedimentation stage not accredited)



particle size	% passing		Contract No. 26458	Report No. R180391	
75	100	COBBLES	Contract Name : Old Connaught Bray Phase 1 Castlethorne		Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.
63	100		BH/TP No. TP02		
50	100		Sample No.* AA258591	Lab. Sample No. A26/1053	
37.5	100		Sample Type: B		
25	100		Depth* (m) 2.70	Customer: Atkins CE	
20	100	GRAVEL	Date Received 14/05/2026	Date Testing started 14/05/2026	
14	100		Description: Brown sandy, slightly gravelly, SILT/CLAY		
10	100		Remarks		
6.3	100				
5.0	100				
4.0	100	SAND			
2.0	99				
1.0	99				
0.63	98				
0.425	98				
0.3	96	SILT/CLAY			
0.2	93				
0.063	52				



IGSL Ltd Materials Laboratory

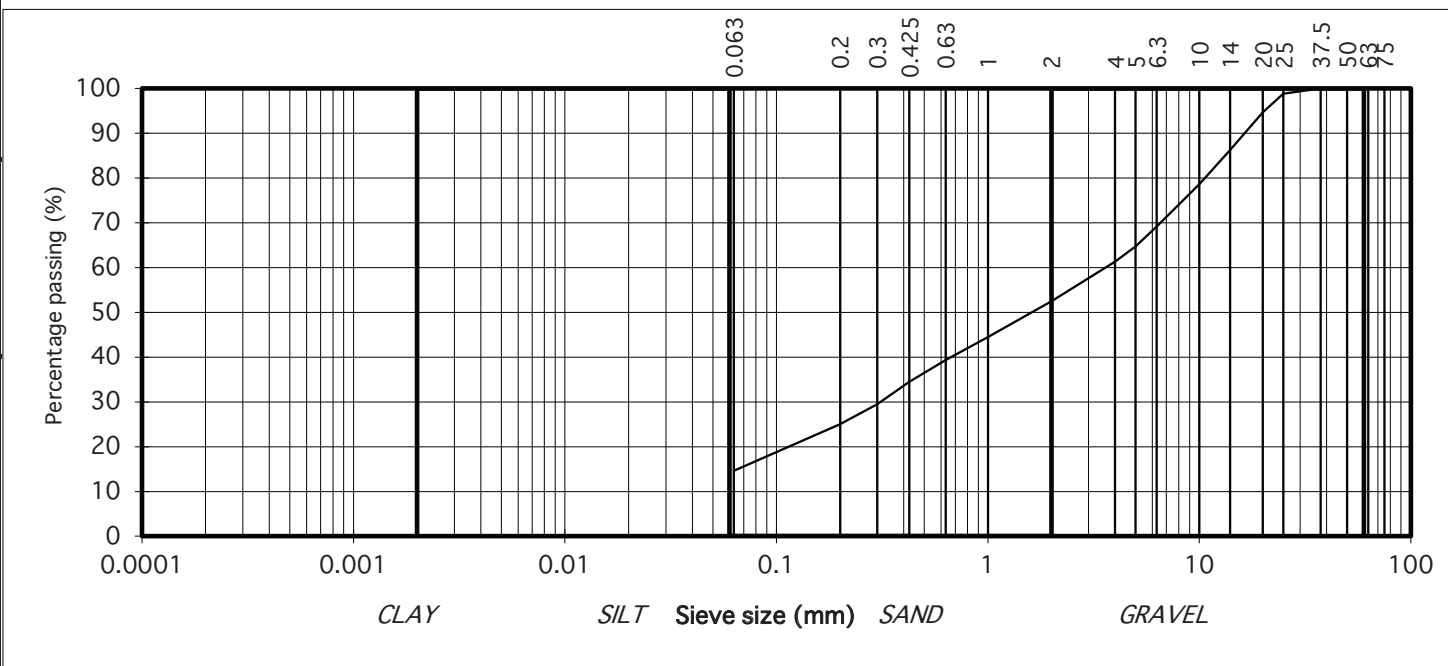
Approved by:	Date:	Page no:
<i>H Byrne</i>	03/06/26	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
 Tested in accordance with: BS1377-2:2022 Clause 10
 (note: Sedimentation stage not accredited)



particle size	% passing		Contract No. 26458	Report No. R180502	
75	100	COBBLES	Contract Name : Old Connaught Bray Phase 1 Castlethorne		Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.
63	100		BH/TP No. TP03		
50	100		Sample No.* AA258584	Lab. Sample No. A26/1054	
37.5	100		Sample Type: B		
25	99		Depth* (m) 1.80	Customer: Atkins CE	
20	95	GRAVEL	Date Received 14/05/2026	Date Testing started 14/05/2026	
14	86		Description: Brown clayey/silty, very sandy, GRAVEL		
10	79		Remarks		
6.3	69				
5.0	65				
4.0	61				
2.0	52				
1.0	45				
0.63	39				
0.425	34	SAND			
0.3	29				
0.2	25				
0.063	15				
		SILT/CLAY			



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
<i>H Byrne</i>	29/05/26	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
 Tested in accordance with: BS1377-2:2022 Clause 10
 (note: Sedimentation stage not accredited)



particle size	% passing		Contract No.	26458	Report No.	R180392	
			Contract Name :	Old Connaught Bray Phase 1 Castlethorne			Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.
75	100	COBBLES	BH/TP No.	TP04			
63	100		Sample No.*	AA258588	Lab. Sample No.	A26/1056	
50	90		Sample Type:	B			
37.5	84		Depth* (m)	2.30	Customer:	Atkins CE	
25	83		Date Received	14/05/2026	Date Testing started	14/05/2026	
20	78	GRAVEL	Description:	Brown clayey/silty, very sandy, GRAVEL			
14	77						
10	75						
6.3	71						
5.0	67						
4.0	62	SAND					
2.0	45						
1.0	26						
0.63	19						
0.425	16						
0.3	15	SILT/CLAY					
0.2	14						
0.063	10						

Remarks

Percentage passing (%)

0.0001

0.001

0.01

0.1

1

10

100

CLAY

SILT

Sieve size (mm)

SAND

GRAVEL

0.063

0.2

0.3

0.425

0.63

1

2

4

5

6.3

10

14

20

25

37.5

50

75

Sieve size (mm)	Percentage passing (%)
0.075	10
0.15	15
0.3	18
0.6	25
1.2	45
2.5	65
5.0	75
10	80
20	85
40	85
75	100

IGSL Ltd Materials Laboratory

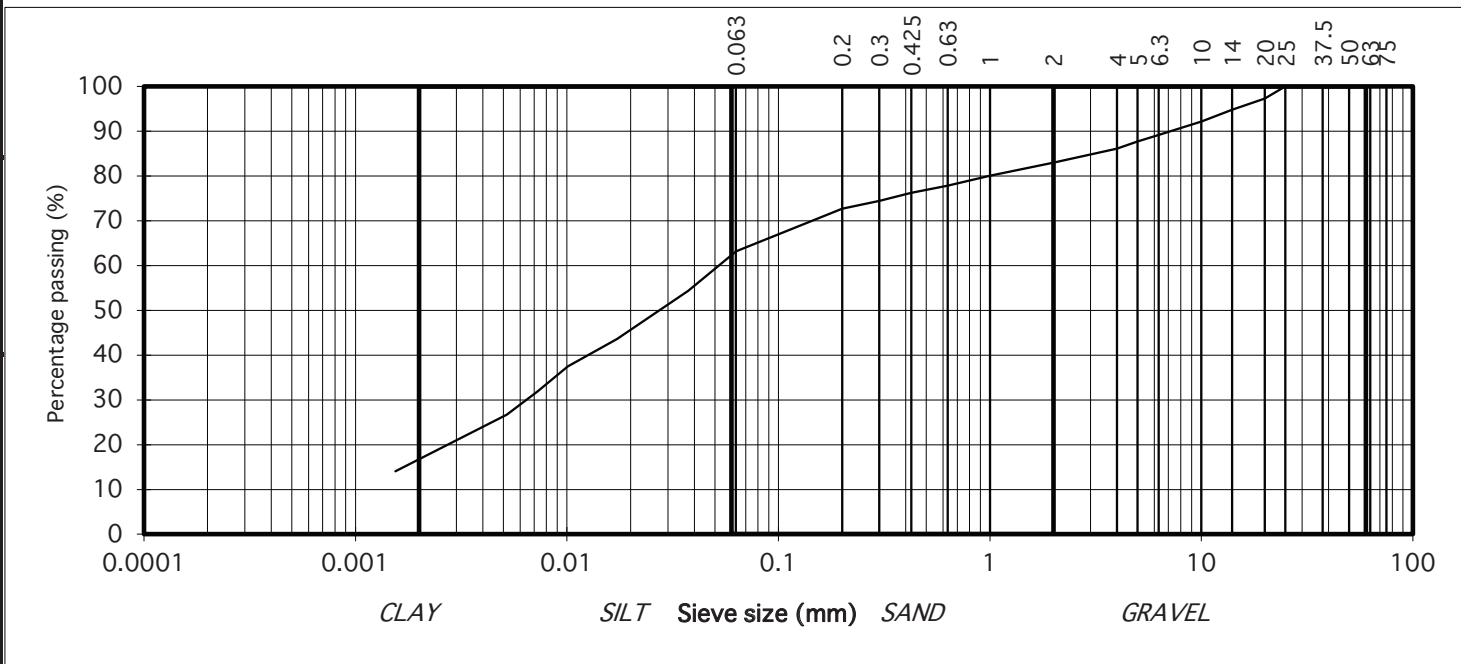
Approved by:	Date:	Page no:
	03/06/26	1 of 1

Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution
 Tested in accordance with: BS1377-2:2022 Clause 10
 (note: Sedimentation stage not accredited)



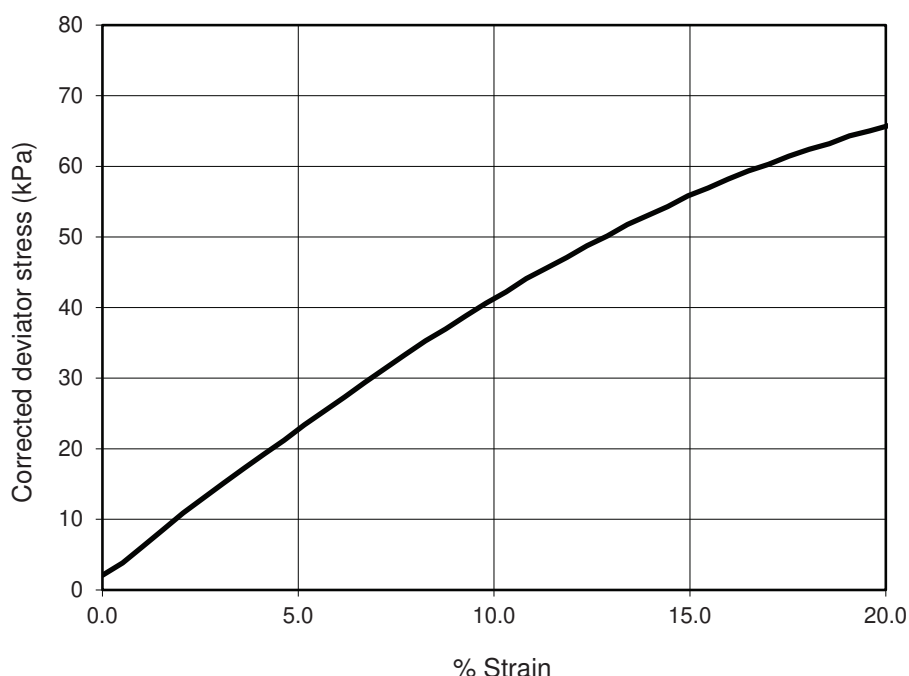
particle size	% passing		Contract No. 26458	Report No. R180393	
75	100	COBBLES	Contract Name : Old Connaught Bray Phase 1 Castlethorne		Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory.
63	100		BH/TP No. TP05		
50	100		Sample No.* AA258596	Lab. Sample No. A26/1057	
37.5	100		Sample Type: B		
25	100		Depth* (m) 1.50	Customer: Atkins CE	
20	97	GRAVEL	Date Received 14/05/2026	Date Testing started 14/05/2026	
14	95		Description: Brown slightly sandy, slightly gravelly, CLAY		
10	92		Remarks		
6.3	89				
5.0	88				
4.0	86				
2.0	83				
1.0	80				
0.63	78				
0.425	76				
0.3	74	SAND			
0.2	73				
0.063	63				
0.037	54				
0.027	50				
0.017	44	SILT/CLAY			
0.010	38				
0.007	32				
0.005	27				
0.002	14				



IGSL Ltd Materials Laboratory Unit F, M7 Business Park Naas Co. Kildare 045-899324	Test Report		
	Unconsolidated Undrained Triaxial Test Tested in accordance with BS EN ISO 17892 - 8 : 2018		

Report no: R179299
 Contract Name: Old Connaught Bray Phase 1 Contract No: 26458
 Location*: BH2 1.0m Sample No*: 265208
 Description: Grey mottled brown sandy SILT/CLAY
 Customer: Atkins

Height (mm)	194.0	Diameter	104.0	Cell pressure(kPa)	20
Water Content %	19.4	Bulk density (Mg/m ³)	2.11	Dry density (Mg/m ³)	1.77

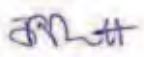


Strain at failure %	20.6	Cohesion C _u (kPa)	33
		(Undrained shear strength kPa)	
Rate of strain (%/minute)	2.0		
Thickness of membrane	0.48	Membrane correction (at failure)	5.155
Date received	-	Date tested	18/05/26

Results relate only to the specimen tested, in as received condition unless otherwise noted. Opinions and interpretations are outside the scope of accreditation.

* denotes Customer supplied information

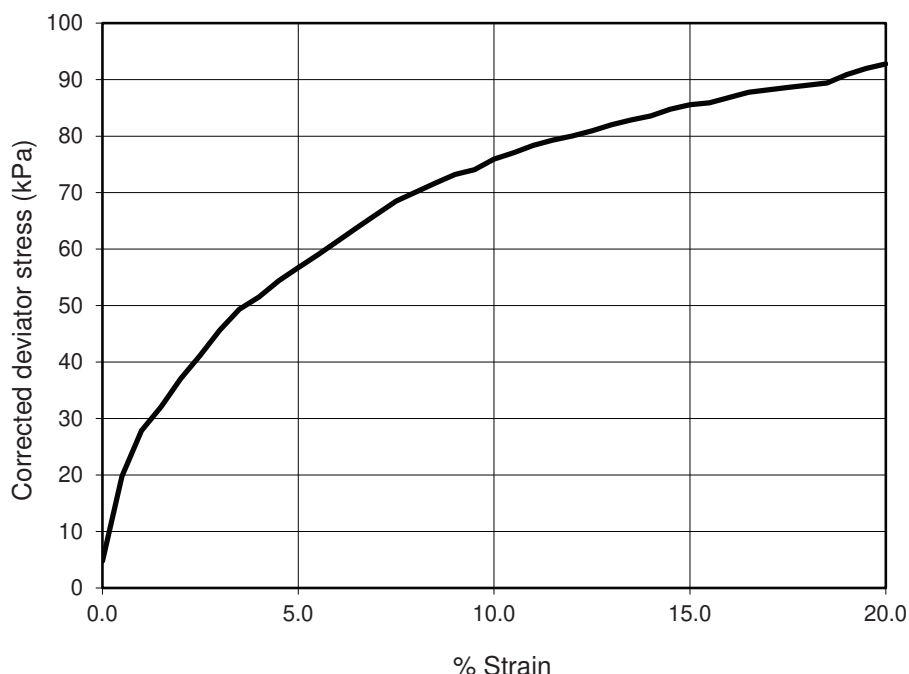
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Person authorised to approve report: J Barrett (Quality Manager)				
	IGSL Materials Laboratory	Approved by	Date	Page
			21/05/26	1 of 1

IGSL Ltd Materials Laboratory Unit F, M7 Business Park Naas Co. Kildare 045-899324	Test Report		
	Unconsolidated Undrained Triaxial Test Tested in accordance with BS EN ISO 17892 - 8 : 2018		

Report no: R179300
 Contract Name: Old Connaught Bray Phase 1 Contract No: 26458
 Location*: BH3 1.5m Sample No*: 260246
 Description: Brown silty sandy GRAVEL with cobbles
 Customer: Atkins

Height (mm)	200.0	Diameter	103.0	Cell pressure(kPa)	30
Water Content %	16.8	Bulk density (Mg/m ³)	2.19	Dry density (Mg/m ³)	1.87

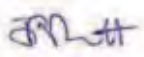


Strain at failure %	20.0	Cohesion C _u (kPa)	46
		(Undrained shear strength kPa)	
Rate of strain (%/minute)	2.0		
Thickness of membrane	0.48	Membrane correction (at failure)	5.000
Date received	-	Date tested	19/05/26

Results relate only to the specimen tested, in as received condition unless otherwise noted. Opinions and interpretations are outside the scope of accreditation.

* denotes Customer supplied information

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Person authorised to approve report: J Barrett (Quality Manager)				
	IGSL Materials Laboratory	Approved by	Date	Page
			21/05/26	1 of 1

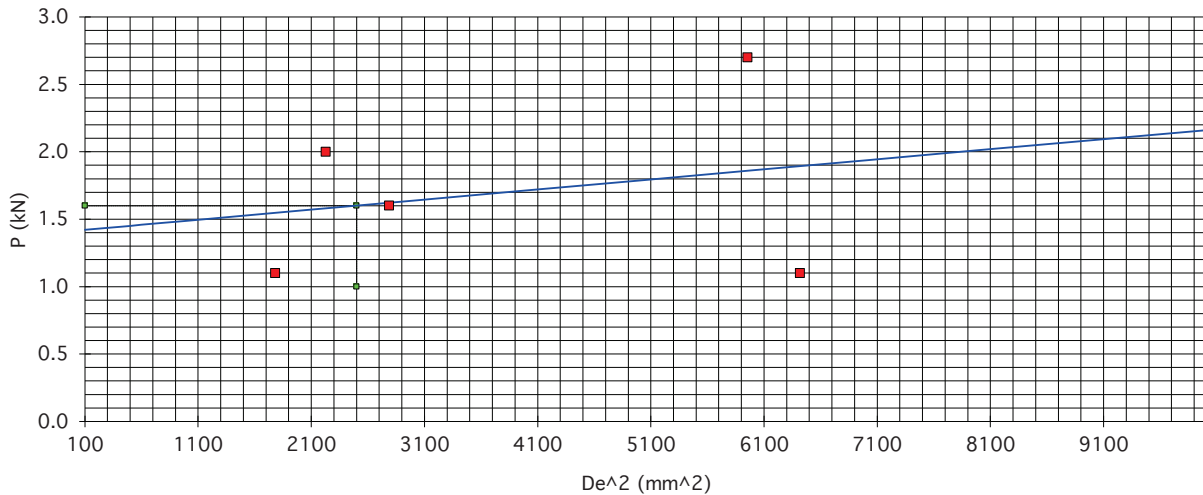
Point Load Irregular - Test Results

Contract: Phase 1 - M11 - Old Connaught

Sample Type: Irregular Core Pieces	
------------------------------------	---

Contract No.: 26458

Tested by: D. O'Shea

[illegible]

Calculation of Is(50)

P = 7.5E-05 De^2 + 1.413485609

1.60 kN

0.6 MN/m²

12.802546 MPa

Appendix 11

Chemical & Environmental Laboratory Testing (Eurofins Chemtest Laboratory)



Final Report

Report No.: 26-10992-1

Initial Date of Issue: 22-Apr-2026

Re-Issue Details:

Client IGSL

Client Address: M7 Business Park
Naas
County Kildare
Ireland

Contact(s): Darren Keogh

Project 26458 Old Conna (Phase 1)

Quotation No.: Q26-41264

Date Received: 08-Apr-2026

Order No.:

Date Instructed: 09-Apr-2026

No. of Samples: 4

Turnaround (Wkdays): 7

Results Due: 17-Apr-2026

Date Approved: 22-Apr-2026

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: 26458 Old Conna (Phase 1)

Client: IGSL		Chemtest Job No.:							
Quotation No.: Q26-41264		Chemtest Sample ID.:							
		<i>Client Reference:</i>							
		<i>Sample Type:</i>							
		<i>Top Depth (m):</i>							
		<i>Date Sampled:</i>							
Determinand	HWOL Code	Accred.	SOP	Units	LOD				
Moisture		N	2030	%	0.020	16	17	15	18
Soil Colour		N	2030		N/A	Brown	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones	Stones	Stones	Roots
Soil Texture		N	2030		N/A	Clay	Clay	Clay	Clay
pH (2.5:1) at 20C		N	2010		4.0	8.2	8.1	8.0	7.6
Magnesium (Water Soluble)		N	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	< 0.010	0.010	< 0.010	< 0.010
Total Sulphur		U	2175	%	0.010	0.014	0.017	0.019	0.037
Chloride (Water Soluble)		M	2220	g/l	0.010	< 0.010	< 0.010	< 0.010	0.016
Nitrate (Water Soluble)		N	2220	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Ammonium (Water Soluble)		N	2220	g/l	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate (Acid Soluble)		U	2430	%	0.010	0.019	0.018	0.032	0.042

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	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 <30°C.	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	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

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

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 EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ 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.

Where analysis is performed on a dried and crushed sample, it has been prepared by crushing all of the sample. If material has been removed prior to crushing, or by request of the client, this will be stated on the report.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

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 - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

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.

Report Information

Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

DW - Drinking Water (Non-Regulatory)
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
cs@etuki.eurofins.com



Final Report

Report No.: 26-09996-1

Initial Date of Issue: 29-Apr-2026

Re-Issue Details:

Client IGSL

Client Address: M7 Business Park
Naas
County Kildare
Ireland

Contact(s): Darren Keogh

Project Old Conna Phase 1

Quotation No.: **Date Received:** 31-Mar-2026

Order No.: **Date Instructed:** 02-Apr-2026

No. of Samples: 5

Turnaround (Wkdays): 7 **Results Due:** 14-Apr-2026

Date Approved: 29-Apr-2026

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Leachate

Project: Old Conna Phase 1

Client: IGSL	Chemtest Job No.:					26-09996	26-09996	26-09996	26-09996	26-09996
Quotation No.:	Chemtest Sample ID.:					2103258	2103259	2103260	2103261	2103262
	<i>Client Sample ID.:</i>					<i>TP01</i>	<i>TP02</i>	<i>TP03</i>	<i>TP04</i>	<i>TP05</i>
	<i>Sample Type:</i>					<i>SOIL</i>	<i>SOIL</i>	<i>SOIL</i>	<i>SOIL</i>	<i>SOIL</i>
	<i>Top Depth (m):</i>					<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>
	<i>Bottom Depth (m):</i>					<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>	<i>1.00</i>
	<i>Date Sampled:</i>					<i>20-Mar-2026</i>	<i>20-Mar-2026</i>	<i>20-Mar-2026</i>	<i>20-Mar-2026</i>	<i>20-Mar-2026</i>
Determinand	Accred.	SOP	Type	Units	LOD					
Ammonium	U	1220	10:1	mg/l	0.050	0.21	0.14	0.23	0.16	0.20
Ammonium	N	1220	10:1	mg/kg	0.10	2.2	1.8	2.3	2.0	2.1

Results - Soil

Project: Old Conna Phase 1

Client: IGSL		Chemtest Job No.:		26-09996	26-09996	26-09996	26-09996	26-09996
Quotation No.:		Chemtest Sample ID.:		2103258	2103259	2103260	2103261	2103262
		Client Sample ID.:		TP01	TP02	TP03	TP04	TP05
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.00	0.00	0.00	0.00	0.00
		Bottom Depth (m):		1.00	1.00	1.00	1.00	1.00
		Date Sampled:		20-Mar-2026	20-Mar-2026	20-Mar-2026	20-Mar-2026	20-Mar-2026
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
ACM Type		N	2192		N/A	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture		N	2030	%	0.020	21	19	16
Soil Colour		N	2030		N/A	Brown	Brown	Brown
Other Material		N	2030		N/A	Stones	Stones	Stones
Soil Texture		N	2030		N/A	Sand	Clay	Clay
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	0.65	0.55	< 0.40
Sulphur (Elemental)		M	2180	mg/kg	1.0	< 1.0	< 1.0	< 1.0
Cyanide (Total)		M	2300	mg/kg	0.50	0.80	0.80	< 0.50
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	2.7	4.0	5.0
Sulphate (Total)		U	2430	%	0.010	0.085	0.056	0.042
Arsenic		M	2455	mg/kg	0.5	18	17	21
Barium		M	2455	mg/kg	0.5	61	38	39
Cadmium		M	2455	mg/kg	0.10	0.95	0.53	0.65
Chromium		M	2455	mg/kg	0.5	26	25	29
Molybdenum		M	2455	mg/kg	0.5	1.2	0.7	0.8
Antimony		N	2455	mg/kg	2.0	< 2.0	< 2.0	< 2.0
Copper		M	2455	mg/kg	0.50	19	15	17
Mercury		M	2455	mg/kg	0.05	0.07	< 0.05	0.06
Nickel		M	2455	mg/kg	0.50	25	24	26
Lead		M	2455	mg/kg	0.50	57	29	23
Selenium		M	2455	mg/kg	0.25	0.83	0.54	0.40
Zinc		M	2455	mg/kg	0.50	85	67	74
Chromium (Trivalent)		N	2490	mg/kg	1.0	26	25	29
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25	< 0.25	< 0.25	< 0.25
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Aliphatic EPH >C10-C12	EH_2D_AL_#1	M	5002	mg/kg	2.00	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C12-C16	EH_2D_AL_#1	M	5002	mg/kg	2.00	< 2.0	< 2.0	< 2.0
Aliphatic EPH >C16-C21	EH_2D_AL_#1	M	5002	mg/kg	2.00	130	< 2.0	< 2.0
Aliphatic EPH >C21-C35	EH_2D_AL_#1	M	5002	mg/kg	3.00	46	< 3.0	< 3.0
Aliphatic EPH >C35-C40	EH_2D_AL_#1	N	5002	mg/kg	10.00	< 10	< 10	< 10

Results - Soil

Project: Old Conna Phase 1

Client: IGS		Chemtest Job No.:		26-09996	26-09996	26-09996	26-09996	26-09996
Quotation No.:		Chemtest Sample ID.:		2103258	2103259	2103260	2103261	2103262
		Client Sample ID.:		TP01	TP02	TP03	TP04	TP05
		Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):		0.00	0.00	0.00	0.00	0.00
		Bottom Depth (m):		1.00	1.00	1.00	1.00	1.00
		Date Sampled:		20-Mar-2026	20-Mar-2026	20-Mar-2026	20-Mar-2026	20-Mar-2026
		Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	HWOL Code	Accred.	SOP	Units	LOD			
Total Aliphatic EPH >C10-C35	EH_2D_AL_#1	M	5002	mg/kg	7.00	180	< 7.0	< 7.0
Aromatic EPH >C10-C12	EH_2D_AR_#1	U	5002	mg/kg	2.00	< 2.0	< 2.0	< 2.0
Aromatic EPH >C12-C16	EH_2D_AR_#1	U	5002	mg/kg	2.00	19	< 2.0	< 2.0
Aromatic EPH >C16-C21	EH_2D_AR_#1	U	5002	mg/kg	2.00	< 2.0	< 2.0	< 2.0
Aromatic EPH >C21-C35	EH_2D_AR_#1	U	5002	mg/kg	2.00	2.7	< 2.0	2.4
Aromatic EPH >C35-C40	EH_2D_AR_#1	N	5002	mg/kg	1.00	< 1.0	< 1.0	< 1.0
Total Aromatic EPH >C10-C35	EH_2D_AR_#1	U	5002	mg/kg	4.00	22	< 4.0	5.7
Total EPH >C10-C35	EH_2D_Total_#1	U	5002	mg/kg	10.00	200	< 10	12
Mineral Oil EPH	EH_2D_AL_#1	N	5002	mg/kg	10	180	< 10	< 10
Benzene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Toluene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
o-Xylene		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0	< 1.0	< 1.0
Naphthalene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Acenaphthene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Fluorene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Phenanthrene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Anthracene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Fluoranthene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Pyrene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Benzo[a]anthracene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Chrysene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Benzo[b]fluoranthene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Benzo[k]fluoranthene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Benzo[a]pyrene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-c,d)Pyrene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)Anthracene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Benzo[g,h,i]perylene		M	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Coronene		N	5003	mg/kg	0.05	< 0.05	< 0.05	< 0.05
PCB 28		U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 52		U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 101		U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 118		U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 153		U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 138		U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
PCB 180		U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010
Tot PCBs Low (7 Congeners)		N	2815	mg/kg	0.05	< 0.05	< 0.05	< 0.05
Total Phenols		M	2920	mg/kg	0.10	0.16	< 0.10	< 0.10

Results - Single Stage WAC

Project: Old Conna Phase 1

Chemtest Job No: 26-09996						Landfill Waste Acceptance Criteria		
Chemtest Sample ID: 2103258						Inert Waste Landfill	Limits	
Sample Ref:							Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID: TP01								
Client Reference:								
Top Depth(m): 0.00								
Bottom Depth(m): 1.00								
Sampling Date: 20-Mar-2026								
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	1.7	3	5	6
Loss On Ignition	2610		M	%	6.2	--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
WAC Total C10-C40	5002	EH 2D Total #1	N	mg/kg	180	500	--	--
Total (Of 17) PAH's	5003		N	mg/kg	< 0.1	100	--	--
pH at 20C	2010		M		7.2	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	0.020	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0055	0.055	0.5	2	25
Barium	1455		U	0.033	0.33	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	0.0017	0.017	0.5	10	70
Copper	1455		U	0.0040	0.040	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0055	0.056	0.5	10	30
Nickel	1455		U	0.0037	0.037	0.4	10	40
Lead	1455		U	0.0042	0.042	0.5	10	50
Antimony	1455		N	0.0014	0.014	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.015	0.15	4	50	200
Chloride	1220		U	< 1.0	< 10	800	15000	25000
Fluoride	1220		U	0.38	3.8	10	150	500
Sulphate	1220		U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020		N	53	530	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	5.4	54	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.1
WAC Sample Weight	646.7

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Old Conna Phase 1

Chemtest Job No: 26-09996 Chemtest Sample ID: 2103259 Sample Ref: Sample ID: TP02 Client Reference: Top Depth(m): 0.00 Bottom Depth(m): 1.00 Sampling Date: 20-Mar-2026						Landfill Waste Acceptance Criteria Limits		
						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	1.0	3	5	6
Loss On Ignition	2610		M	%	4.9	--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
WAC Total C10-C40	5002	EH_2D_Total_#1	N	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	5003		N	mg/kg	< 0.1	100	--	--
pH at 20C	2010		M		7.2	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	< 0.0020	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0035	0.035	0.5	2	25
Barium	1455		U	< 0.005	< 0.050	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	< 0.0005	< 0.0050	0.5	10	70
Copper	1455		U	0.0041	0.041	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0009	0.0090	0.5	10	30
Nickel	1455		U	0.0018	0.018	0.4	10	40
Lead	1455		U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455		N	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	< 0.003	< 0.025	4	50	200
Chloride	1220		U	< 1.0	< 10	800	15000	25000
Fluoride	1220		U	0.26	2.6	10	150	500
Sulphate	1220		U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020		N	120	1200	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	4.0	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	7.1
WAC Sample Weight	683.6

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Old Conna Phase 1

Chemtest Job No: 26-09996 Chemtest Sample ID: 2103260 Sample Ref: Sample ID: TP03 Client Reference: Top Depth(m): 0.00 Bottom Depth(m): 1.00 Sampling Date: 20-Mar-2026						Landfill Waste Acceptance Criteria Limits		
						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	0.69	3	5	6
Loss On Ignition	2610		M	%	3.3	--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
WAC Total C10-C40	5002	EH_2D_Total_#1	N	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	5003		N	mg/kg	< 0.1	100	--	--
pH at 20C	2010		M		7.6	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	0.014	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0028	0.028	0.5	2	25
Barium	1455		U	< 0.005	< 0.050	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	0.0021	0.021	0.5	10	70
Copper	1455		U	0.0030	0.030	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0006	0.0062	0.5	10	30
Nickel	1455		U	0.0012	0.012	0.4	10	40
Lead	1455		U	0.0018	0.018	0.5	10	50
Antimony	1455		N	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.007	0.073	4	50	200
Chloride	1220		U	< 1.0	< 10	800	15000	25000
Fluoride	1220		U	0.21	2.1	10	150	500
Sulphate	1220		U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020		N	30	300	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	5.3	53	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	11
WAC Sample Weight	805.7

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Old Conna Phase 1

Chemtest Job No: 26-09996 Chemtest Sample ID: 2103261 Sample Ref: Sample ID: TP04 Client Reference: Top Depth(m): 0.00 Bottom Depth(m): 1.00 Sampling Date: 20-Mar-2026						Landfill Waste Acceptance Criteria Limits		
						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	1.4	3	5	6
Loss On Ignition	2610		M	%	4.5	--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
WAC Total C10-C40	5002	EH_2D_Total_#1	N	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	5003		N	mg/kg	< 0.1	100	--	--
pH at 20C	2010		M		7.3	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	< 0.0020	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0009	0.0095	0.5	2	25
Barium	1455		U	< 0.005	< 0.050	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	0.0009	0.0087	0.5	10	70
Copper	1455		U	0.0016	0.016	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0011	0.011	0.5	10	30
Nickel	1455		U	0.0009	0.0086	0.4	10	40
Lead	1455		U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455		N	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.005	0.047	4	50	200
Chloride	1220		U	1.3	13	800	15000	25000
Fluoride	1220		U	0.25	2.5	10	150	500
Sulphate	1220		U	1.3	13	1000	20000	50000
Total Dissolved Solids	1020		N	82	810	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	2.9	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	9.4
WAC Sample Weight	748.0

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: Old Conna Phase 1

Chemtest Job No: 26-09996 Chemtest Sample ID: 2103262 Sample Ref: Sample ID: TP05 Client Reference: Top Depth(m): 0.00 Bottom Depth(m): 1.00 Sampling Date: 20-Mar-2026						Landfill Waste Acceptance Criteria Limits		
						Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Determinand	SOP	HWOL Code	Accred.	Units				
Total Organic Carbon	2625		M	%	2.3	3	5	6
Loss On Ignition	2610		M	%	6.5	--	--	10
Total BTEX	2760		M	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815		M	mg/kg	< 0.05	1	--	--
WAC Total C10-C40	5002	EH_2D_Total_#1	N	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	5003		N	mg/kg	< 0.1	100	--	--
pH at 20C	2010		M		7.6	--	>6	--
Acid Neutralisation Capacity	2015		N	mol/kg	< 0.0020	--	To evaluate	To evaluate
Eluate Analysis				10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1455		U	0.0024	0.024	0.5	2	25
Barium	1455		U	< 0.005	< 0.050	20	100	300
Cadmium	1455		U	< 0.00011	< 0.0011	0.04	1	5
Chromium	1455		U	0.0019	0.019	0.5	10	70
Copper	1455		U	0.0030	0.030	2	50	100
Mercury	1455		U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455		U	0.0008	0.0078	0.5	10	30
Nickel	1455		U	0.0015	0.015	0.4	10	40
Lead	1455		U	0.0012	0.012	0.5	10	50
Antimony	1455		N	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455		U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455		U	0.006	0.057	4	50	200
Chloride	1220		U	< 1.0	< 10	800	15000	25000
Fluoride	1220		U	0.34	3.4	10	150	500
Sulphate	1220		U	1.0	10	1000	20000	50000
Total Dissolved Solids	1020		N	45	450	4000	60000	100000
Phenol Index	1920		U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610		U	4.1	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	10
WAC Sample Weight	781.1

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1010	pH Value of Waters	pH at 20°C	pH Meter	
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	PL GW
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
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 <30°C.	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection	
2192	Asbestos Quantification in Soils Sediments Ballast & Aggregate Crushed Concrete & Demolition Rubble	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8–C10 Aromatics: >C5–C7,>C7–C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	
5002	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Hexane extraction / GCxGC FID detection	
5003	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Hexane / Acetone extraction GC-MS	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching C2,C8,C10,WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	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

Text example All items indicated in italic font represent customer-supplied information that may not be independently verified by the laboratory

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

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 EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at $\leq 30^{\circ}\text{C}$ 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.

Where analysis is performed on a dried and crushed sample, it has been prepared by crushing all of the sample. If material has been removed prior to crushing, or by request of the client, this will be stated on the report.

NEW_ASB Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL

DURHAM Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

- 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 - The required amount of sample for analysis was not received
- H - Appropriate cooling measures were not taken for sample transportation

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.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water (Non-Regulatory)
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

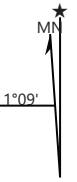
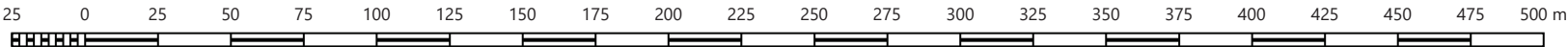
If you require extended retention of samples, please email your requirements to:
cs@etuki.eurofins.com

Appendix 12

As-Surveyed Site Plan



26458 Old Connaught South Dublin - Phase 1





AtkinsRéalis



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AtkinsRéalis Ireland Limited

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