PROPOSED DEVELOPMENT
NEW CIVIC CENTRE
MONAGHAN
MONAGHAN CO. COUNCIL

CORA
CONSULTING ENGINEERS

CONTENTS

APPENDICES

FOREWORD

The following Conditions and Notes on Site Investigation Procedures should be read in conjunction with this report.

General.

Recommendations made, and opinions expressed in the report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. No responsibility can be held for conditions which have not been revealed by exploratory work, or which occur between exploratory hole locations. Whilst the report may suggest the likely configuration of strata, both between exploratory hole locations, or below the maximum depth of the investigation, this is only indicative, and liability cannot be accepted for its accuracy.

Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction below or close to the site.

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 (1999), BS 1377 (Parts 1 to 9) and Engineers Ireland Specification & Related Documents for Ground Investigation in Ireland (2006). The following Irish (IS) and European Standards or Norms are referenced:

- IS EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- IS EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- IS EN ISO 14688-1:2002 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- IS EN ISO 14688-2:2004 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles

Routine Sampling.

Undisturbed samples of soils, predominantly cohesive in nature are obtained unless otherwise stated by a 104mm diameter open-drive tube sampler or Piston Sampler. In granular soils, and where undisturbed sampling is inappropriate, disturbed samples are collected. Smaller disturbed samples are also recovered at intervals to allow a visual examination of the full strata section.

In-Situ Testing.

Standard penetration tests were conducted 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 to obtain the Energy Ratio (E_r) of each hammer. A calibration certificate is available upon request. The 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 recorded 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).

Groundwater

The depth of entry of any influx of groundwater is recorded during the course of boring 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.

Engineering Logging

Soil and rock identification has been based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2002 and IS EN ISO 14689-1:2004.

Where peat has been encountered during site works, samples have been logged in accordance with the Von Post Classification (ref. Von Post, L. 1992. Sveriges Gologiska Undersoknings torvinventering och nogra av dess hittils vunna resultat (SGU peat inventory and some preliminary results) Svenska Mosskulturforeningens Tidskrift, Jonkoping, Swedden, 36, 1-37 & Hobbs N. B. Mire morphology and the properties of some British and foreign peats. QJEG, Vol. 19, 1986).

Retention of Samples.

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

Reporting

Recommendations made and opinions expressed in this report are based on the strata observed in the exploratory holes, together with the results of in-situ and laboratory tests. 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.

This report has been prepared for the project client and the information should not be used without prior written permission. Any recommendations developed in this report specifically relate to the proposed development. IGSL Ltd accepts no responsibility or liability for this document being used other than for the purposes for which it was intended.

REPORT ON A SITE INVESTIGATION

NEW CIVIC OFFICES
FOR
MONAGHAN COUNTY COUNCIL

CORA
CONSULTING ENGINEERS

Report No. 24665 **July 2023**

I Introduction

A major new development is proposed for a site in Monaghan where new Civic Offices are to be located.

An investigation of sub soil conditions in the area of the new development has been carried out by IGSL for CORA, Consulting Engineers, on behalf of Monaghan County Council.

The scheduled site investigation included the following elements.

*	Cable Percussion Boreholes	8 nr.
•	Rotary Core Holes	3 nr.
•	Standpipe Installations	1 nr.
•	Trial Pits	14 nr.
•	BRE Digest 365 Infiltration Tests	4 nr.
•	Geotechnical Laboratory Tests	
*	Chemical and Environmental Tests	

This report includes all factual data from field and laboratory operations and discusses these findings relative to foundation and infrastructural design for the proposed new development.

II Fieldwork

This development is to take place on an undulating greenfield site in Monaghan Town.

The exploratory locations are noted on the drawing enclosed in Appendix VI and were marked out by IGSL on site. All locations have been referenced to national grid and ground levels established.

The various elements of the investigation are detailed in the following paragraphs. All field works were supervised by an experienced geotechnical engineer who carefully recorded stratification, took photographs as necessary, recovered samples and prepared detailed records.

Close liaison was maintained throughout with CORA Consulting Engineers and Monaghan County Council personnel.

All appropriate documentation was submitted and approved prior to site commencement. Each location was scanned electronically (CAT) to ensure that existing services were not damaged. A shallow trial pit was also opened by hand at borehole / corehole locations to confirm this.

Drawings from the various utilities were also examined to ensure that major services were avoided.

Statutory HSE safety precautions relating to general safety and COVID 19 were strictly observed, with working areas restricted to IGSL personnel only, to ensure safety of the general public.

Boreholes

Boreholes were 200mm diameter and were constructed using conventional cable percussion equipment. Holes were referenced BH01 to BH08. A trial pit was opened at each borehole location to 1.00 metre deep to ensure that underground services were not damaged.

Shallow refusal was recorded on boulder obstructions at two locations (BH04 and BH06). Following a period of abortive chiselling, the equipment was moved by about 3 metres and re-bores were taken. These are referenced BH04A and BH06A.

Detailed geotechnical records are contained in Appendix I to this report - the records give details of stratification, sampling, in-situ testing and groundwater. Note is also taken of any obstructions to normal boring requiring the use of the heavy chisel for advancement. It was not possible to recover undisturbed samples because of the hard and granular nature of the strata encountered.

The findings are fairly consistent, with topsoil generally overlying a1.50 stratum of soft to firm brown sandy SILT /CLAY.

Stiff brown sandy gravelly CLAY , typically containing cobble and boulder material, is encountered at shallow depth (generally 0.50 to 1.00 metres). This stratum continues to about 2.50 metres where very stiff to hard dark grey gravelly CLAY is noted. This stratum also contains significant cobbles and boulder.

Boreholes were terminated on boulder obstructions in all locations at varying depths. Chiselling techniques were used in all locations in an attempt to advance borehole depths without success.

The stiff brown and grey gravelly CLAY encountered on this site is a GLACIAL TILL or BOULDER CLAY with the high percentage of coarse material typical of the stratum.

The increasing strength with depth pattern particularly in the base grey boulder clay is also noted. The final refusal depths are **NOT** indicative of rock horizon.

The borehole findings are summarised in the following **TABLE A:**

TABLE A

Ref	Sandy Clay	Stiff brown BC	Stiff grey BC	Refusal Depth
BH01	0.30 – 1.20	1.20 – 3.00		3.00
BH02	0.30 – 0.70	0.70 – 2.50	2.50 – 4.50	4.50
BH03	0.30 – 1.50	1.50 – 3.70		3.70
BH04	0.30 – 1.20			1.20
BH04A	0.30 – 0.50	0.50 – 2.50	2.50 – 4.50	4.50
BH05	0.30 – 1.50	1.50 – 2.00	2.00 – 4.50	4.50
BH06	0.30 – 0.50	0.50 – 1.00		1.00
BH06A	0.30 – 0.50	0.50 – 1.00		1.00
BH07	0.20 – 0.50	0.50 – 1.00		1.00
BH08	0.30 – 1.00	1.00 – 1.80	1.80 – 3.40	3.40

Ground water ingress was note in two locations, at 3.00 metre BGL in BH01 and at 4.50 metres BGL in BH05. The remaining boreholes were DRY.

Rotary Core Drilling

Rotary core drilling was employed at three of the borehole locations to advance investigation depth, establish bedrock horizon and recover representative rock core if practical.

A BT-44 drilling rig was used to drill in each location using triple tube core drilling technique and an air-mist coolant. Symmetrix open hole drilling (100mm diameter) was used through the overburden deposits.

Detailed drilling records are presented in Appendix II with accompanying core photographs. The records note Total and Solid Core Recovery (TCR / SCR) and provide a detailed geological description of the rock.

Drilling continued in each location to depths between 10.50 and 15.00 metres, penetrating very stiff to hard GLACIAL TILL consisting of brown or grey gravelly CLAY with extensive boulder presence.

Some core was recovered in the hard base till. The enclosed core photographs clearly indicate the significant boulder presence.

The strength of the boulder clay was established by standard penetration tests taken at 1.50 metre intervals during the drilling operation. Results are noted in the right hand column of the records. SPT values typically exceed N=40 with numerous test refusals recorded.

A slotted PVC standpipe was installed in RC02 to facilitate on-going monitoring of ground water level. The installation was sealed at surface and protected by a steel cover.

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The rotary core findings are summarised in the following table.

TABLE B

Hole No.	**Overburden**	**Core Recovered**	**Standpipe**
RC02	0 – 10.50		0 – 10.50
RC03	0 – 10.50	8.10 – 10.50	
RC06	0 – 15.00	13.5 – 15.00	

Trial Pits

Trial Pits were scheduled in fourteen specified locations and referenced TP01 to TP14. A tracked excavator was used under engineering supervision. Detailed records for each location are presented in Appendix III. These records note the soil stratification and record sampling and ground water details.

Topsoil surface was noted in each location generally overlying a zone of soft SILT/CLAY. Firm to stiff brown or grey gravelly CLAY was then encountered, this stratum typically containing cobbles and boulders.

The findings are consistent with the stratification noted in the boreholes.

Several trial pits were terminated on large boulders. The findings are summarised and presented as follows:

TABLE C

Ref No.	Topsoil	Soft SILT- CLAY	Stiff gravelly CLAY	Water
TP01	0 – 0.25	0.25 – 0.90	0.90 – 1.80	Dry
TP02	0 – 0.25	0.25 - 0.55	0.55 – 1.40	Dry
TP03	0 – 0.20	0.20 – 0.80	0.80 – 1.70	Dry
TP04	0 – 0.10	0.10 – 0.60	0.60 – 1.80	Dry
TP05	0 – 0.20	0.20 – 0.50	0.50 – 2.10	Dry
TP06	0 – 0.25	0.25 – 0.80	0.80 – 1.50	1.00
TP07	0 – 0.25	0.25 – 1.50	1.50 – 1.90	Dry
TP08	0 – 0.25	0.25 – 0.50	0.50 – 2.20	Dry
TP09	0 – 0.25	0.25 – 0.50	0.50 – 1.50	Dry
TP10	0 – 0.30	0.30 – 0.50	0.50 – 2.50	Dry
TP11	0 – 0.20	0.20 – 1.10	1.10 – 2.30	Dry
TP12	0 – 0.30	0.30 – 1.00	1.00 – 1.80	Dry
TP13	0 – 0.20	0.20 – 0.50	0.50 – 1.40	Dry
TP14	0 – 0.20	0.20 – 0.50	0.50 – 2.10	Dry

Trial Pits were backfilled with the excavated spoil, compacted in layers, the disturbed areas were levelled and coarse material was removed.

BRE Digest 365 Test

Infiltration testing was performed at four locations as specified in accordance with BRE Digest 365 'Soakaway Design'. Tests are referenced SA01 to SA04. Detailed data is presented in Appendix IV.

To obtain a measure of the infiltration rate of the sub-soils, water is poured into the test pit, and records taken of the fall in water level against time. The test is carried out over two cycles following initial soakage.

The infiltration rate is the volume of water dispersed per unit exposed area per unit of time, and is generally expressed as metres/minute. In these calculations the exposed area is the sum of the base area and the average internal area of the permeable stratum over the test duration. Design is based on the slowest infiltration rate, which has been calculated from the final cycle.

The stratification in the test area comprised Topsoil over gravelly sandy SILT/ CLAY.

Results are summarised as follows:

TABLE D

Test No.	Depth	Soil Type	Infiltration Rate (f) (Metres/ Minute)
SA 01	1.30	Gravelly CLAY	0.00173
SA02	1.60	Gravelly CLAY	0.00023
SA03	1.60	Gravelly CLAY	5.3E-05
SA04	1.30	Gravelly CLAY	0.0000

The results confirm low to very low permeability for the cohesive gravelly clay soils present on the site.

III. Testing

In Situ

Standard penetration tests were carried out at approximate 1.00 metre intervals in the geotechnical boreholes and at 1.50 metres in the Rotary Core Holes to measure relative in-situ soil strength. N values are noted in the right hand column of the individual records, representing the blow count required to drive the standard sampler 300mm into the soil, following initial seating blows. Where full test penetration was not achieved the blow count for a specific penetration is recorded, or refusal is indicated where appropriate. The results of the tests are summarised as follows:

STRATUM	N VALUE RANGE	COMMENT
Gravelly CLAY (Boulder Clay)		
1.00 m BGL	6 to 13	Soft to Firm
2.00 m BGL	10 to 29	Firm to Stiff
3.00 m BGL	26 to 50	Stiff to Hard
4.00 m BGL	> 50	Hard
4.00 to 15.00 m BGL (Rotary Holes)	40 to >50	Hard

Limited penetration SPT tests with refusal were recorded on numerous occasions, reflecting a high concentration of cobble / boulder material in the glacial till

Laboratory

A programme of laboratory testing was scheduled following completion of site operations. Geotechnical testing was carried out by IGSL in it's INAB-Accredited laboratory. Chemical and environmental testing was carried out in the UK by EUROFINS / CHEMTEST Ltd. The test programme included the following elements:

Liquid and Plastic Limits / Moisture Content	IGSL
PSD Grading by Wet Sieve and Hydrometer	IGSL
MCV	IGSL
CBR	IGSL
Compaction	IGSL
Organic Content	EUROFINS
Sulphate / Chloride / pH	EUROFINS
RILTA Suite Environmental	EUROFINS

All laboratory data is presented in Appendices Va and Vb and individual tests are discussed briefly as follows:

Index Properties / Natural Moisture Content

Classification tests have been carried out on samples of the cohesive soils from borehole and trial pit locations.

The glacial tills plot generally in the CI/CL zone of the standard Classification chart indicative of low plasticity gravelly CLAY matrix material. Natural Moisture Content ranges from 14 to 19 %.

Grading

Wet sieve and hydrometer analysis has been carried out on samples of the cohesive soils from both boreholes and trial pits. The graphs are typically straight line, grading from the fine clay to coarse gravel fraction. The pattern is very typical of glacial till or boulder clay deposition.

Organic Content

Six samples of the soils from the site had organic contents established. Samples were generally taken from shallow depths below the topsoil. Values of 1.0 to 2.5% were determined indicative of very low to negligible organic content.

MCV/CBR/Compaction

Six large composite samples were selected from Trial Pits 01 / 03 / 05 / 09 / 12 and 14 and a series of tests were scheduled to establish the soil characteristics relative to possible re-use during the new development.

The tests carried out included MCV (Moisture Condition Value), Natural Moisture Content, CBR (California Bearing Ratio), Dry Density / Moisture Content relationship.

The results are summarised as follows:

Ref No.	**TP01**	**TP03**	**TP05**	**TP09**	**TP12**	**TP14**
Depth	0.70	0.6	0.7	0.7	0.8	1.5
Natural MC (%)	15	13	13	13	10	14
MCV	6.6	7.3	6.8	6.8	6.7	7.8
CBR (%)	5.6	4.6	4.1	2.0	7.7	3.0
Max.Dry Density (mg/cu.m.)	1.90	1.86	1.86	1.88	1.89	1.85
Optimum Moisture (%)	11	12	12	12	12	14

Chemical Suite (Sulphate Chloride pH)

Six samples were sent for analysis to BRE Chemical Suite parameters.

Sulphate concentrations (SO4 2:1 extract) of <0.010 to 0.240 g/l were established with pH values ranging from 7.8 to 8.6. Chloride concentrations (<0.010 to 0.24 g/l) were also determined.

The results indicate a design class of DS-1 (ACEC Classification for Concrete) for sulphate concentrations below 0.5 g/l. No special precautions are necessary to protect below ground foundation concrete.

RILTA Environmental Suite

Six samples of the sub soils were sent to specialist environmental laboratory EUROFINS and testing was carried out in accordance with RILTA requirements to establish Landfill Waste Acceptance Criteria (WAC).

Detailed results are presented in Appendix V o. All samples tested fall into the INERT category with no elevated contaminant levels recorded.

Material excavated from this site can be safely disposed of either within the site boundary or off site to a suitably licensed Landfill Facility

Asbestos screening was carried out on all RILTA samples with no traces of Asbestos noted.

A comprehensive Waste Characterisation Assessment may be required by landfill operators. This can be prepared by specialist environmental consultants using the factual data from field and laboratory as presented in this report.

IV. Discussion:

A major development is being undertaken at this site in Monaghan. A new CIVIC CENTRE is to be constructed for Monaghan County Council.

A detailed investigation of subsoil and bedrock has been carried out under the direction of CORA Consulting Engineers in the area of development.

The exploratory locations are detailed on the site plan in Appendix VI.

The factual data from the field and laboratory is presented in Sections 1 to III of this report.

The site is grassed with some significant variation in ground level.

SUMMARY STRATIFICATION

TOPSOIL overlies soft to firm sandy SILT/CLAY. This upper material extends to depth between 0.50 and 1.50 metres as shown in TABLE A and TABLE B.

Stiff brown gravelly CLAY (brown BOULDER CLAY) is then encountered and continues to about 2.00 metres where it changes to very stiff to hard grey gravelly CLAY (grey black BOULDER CLAY). Proof core drilling confirmed that the GLACIAL TILL continues to at least 15 metres BGL. Bedrock was not established.

UPPER SILT/CLAY

The soils extending from surface to depths up to 1.50 metre are described as soft to firm sandy slightly gravelly SILT/CLAY. SPT values of N=6 to N=10 have been recorded at a depth of 1.00 metre.

BOULDER CLAY

GLACIAL TILL or BOULDER CLAY has been confirmed below approximately 1.50 metres, the stratum continues to at least 15.00 metres BGL. Visual inspection of trial pit excavations and results of in-situ Standard Penetration Tests are indicative of stiff to hard consistency.

The characteristics of the regional boulder clay or glacial till are very well documented and the findings from this detailed investigation are consistent with extensive published data.

ALLOWABLE BEARING PRESSURES

The soil strength has been assessed visually in the trial pits and confirmed by Standard Penetration Tests in boreholes and core holes. The allowable bearing pressures indicated by the field data are summarised as follows:

Depth	**Average N Value**	**Allowable Bearing Pressure**	
1.00	7	75 kPa	(Upper Silt/Clay)
2.00	20	200 kPa	(Boulder Clay)
3.00	35	300 kPa	
4.00	>50	400 kPa	

FOUNDATION RECOMMENDATIONS

The use of traditional reinforced foundations for the new Civic Offices development is proposed. Foundations to be placed on the stiff brown or grey boulder CLAY using the allowable bearing pressures indicated above.

We strongly recommend visual inspection of foundation excavations by experienced personnel to ensure uniformity and suitability of the founding medium. Any soft or suspect material should be removed and where necessary replaced with low-grade concrete. The glacial till soils are sensitive to moisture variation and should be protected by blinding following excavation.

The presence of extensive boulders should also be noted with possible over-break in excavation occurring.

The majority of boreholes and trial pits were dry with only occasional water seepages recorded. This may indicate isolated water bearing gravelly zones, typical of the heterogeneous nature of the regional Glacial Till.

SETTLEMENT

Settlement of the order of 5 to 10mm can be expected under the foundation loadings indicated above. Settlement should be quite uniform and differential movement is not anticipated.

EXCAVATION

Given the variations in site levels it is likely that significant cut and fill operations will be required. No major issues will arise with excavation, other than the presence of boulder obstructions and possibly water ingress if gravel zones are encountered.

A detailed programme of laboratory testing has been carried out to establish soil parameters relative to the suitability of excavated material for re-use as engineered fill.

The results reflect a high degree of consistency in the boulder clay over the site area and will allow the appointed contractor to design a suitable programme for earthworks on this site.

BRE DIGEST 365 TESTS

The test results reflect very low permeability characteristics in the gravelly CLAY soils. This is very typical of the cohesive material. Clay matrix material is generally unsuited to dispersion of storm or surface water and consideration should be given to the use of the Local Authority Drainage System for this development.

FOUNDATION CONCRETE

No special precautions are necessary for protection of below ground concrete.

ENVIRONMENTAL

Six samples have been tested to RILTA Suite Parameters and the results confirm an INERT classification for the soils. Excavated material can be safely used on the site or can be disposed of to a suitably licensed Landfill.

A waste Characterisation Assessment (WCA) may be necessary and should be carried out by environmental specialists. This WCA should be submitted to the relevant waste management facility, to confirm suitability for acceptance.

IGSL/JC
July 2023

Appendix I Boring Records

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	BOREHOLE NO.	BH01
		SHEET	Sheet 1 of 1
CO-ORDINATES		RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		BOREHOLE DEPTH (m)	3.00
		DATE COMMENCED	13/05/2023
		DATE COMPLETED	13/05/2023
CLIENT	Monaghan Co.Co.	SPT HAMMER REF. NO.	
ENGINEER	DBFL	ENERGY RATIO (%)	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Firm brown sandy SILT/CLAY with occasional gravel			1.00	AA192931	B	0.50			
1	Firm grey sandy SILT/CLAY			1.20	AA192932	B	1.00		N = 13 (2, 3, 2, 3, 4, 4)	
	Brown sandy gravelly CLAY with occasional cobbles			2.70	AA192933	B	2.00		N = 17 (2, 2, 2, 4, 5, 6)	
2	Brown sandy gravelly CLAY with some cobble			3.00						
3	Obstruction End of Borehole at 3.00 m								N = 50/75 mm (25, 25, 50)	
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.8	3	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
3.00	3.00	No	1.50	20	Moderate

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
11-05-23	3.00	Nil	1.50	End of BH

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	BOREHOLE NO.	BH02
		SHEET	Sheet 1 of 1
CO-ORDINATES		RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		BOREHOLE DEPTH (m)	4.50
		DATE COMMENCED	13/05/2023
		DATE COMPLETED	14/05/2023
CLIENT	Monaghan Co.Co.	SPT HAMMER REF. NO.	
ENGINEER	DBFL	ENERGY RATIO (%)	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Soft brown sandy SILT/CLAY with occasional gravel			0.70	AA197801	B	0.50			
1	Stiff brown sandy SILT/CLAY with some gravel				AA197802	B	1.00		N = 6 (1, 0, 1, 1, 2, 2)	
2					AA197803	B	2.00		N = 26 (2, 3, 6, 8, 5, 7)	
				2.50						
3	Stiff to very stiff grey sandy gravelly CLAY with occasional cobbles				AA197804	B	3.00		N = 50/225 mm (4, 5, 9, 15, 26)	
4					AA197805	B	4.00		N = 50/150 mm (6, 10, 20, 30)	
				4.50						
5	Obstruction End of Borehole at 4.50 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
0.7	0.9	1	
4.3	4.5	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	BOREHOLE NO.	BH03
		SHEET	Sheet 1 of 1
CO-ORDINATES		RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		BOREHOLE DEPTH (m)	3.70
		DATE COMMENCED	12/05/2023
		DATE COMPLETED	12/05/2023
CLIENT	Monaghan Co.Co.	SPT HAMMER REF. NO.	
ENGINEER	DBFL	ENERGY RATIO (%)	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Soft to firm brown sandy SILT/CLAY with occasional gravel				AA192934	B	0.50			
1					AA192935	B	1.00		N = 7 (1, 2, 1, 2, 2, 2)	
2				2.30	AA192936	B	2.00		N = 10 (2, 2, 2, 3, 2, 3)	
	Very brown sandy gravelly CLAY with occasional cobbles									
3					AA192937	B	3.00		N = 50 (6, 6, 10, 10, 20, 10)	
				3.70					N = 50/75 mm (25, 50)	
4	Obstruction End of Borehole at 3.70 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.7	2.9	1	
3.5	3.7	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	BOREHOLE NO.	BH04
		SHEET	Sheet 1 of 1
CO-ORDINATES		RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		BOREHOLE DEPTH (m)	1.20
		DATE COMMENCED	12/05/2023
		DATE COMPLETED	12/05/2023
CLIENT	Monaghan Co.Co.	SPT HAMMER REF. NO.	
ENGINEER	DBFL	ENERGY RATIO (%)	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Grey SILT/CLAY with some gravel and occasional cobbles				AA192938	B	0.50		N = 50/75 mm (25, 50)	
1				1.20						
	Obstruction End of Borehole at 1.20 m									
2										
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.1	1.2	1	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out . Obstruction encountered . Moved to BH04A and attempted rebore .

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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	BOREHOLE NO.	BH04A
		SHEET	Sheet 1 of 1
CO-ORDINATES		RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		BOREHOLE DEPTH (m)	4.50
		DATE COMMENCED	13/05/2023
		DATE COMPLETED	13/05/2023
CLIENT	Monaghan Co.Co.	SPT HAMMER REF. NO.	
ENGINEER	DBFL	ENERGY RATIO (%)	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Stiff bown sandy SILT/CLAY with some gravel				AA192939	B	1.00			
1										
					AA192940	B	2.00		N = 21 (2, 2, 3, 6, 8, 4)	
2				2.50						
	Very stiff grey sandy gravelly CLAY with some cobbles				AA192941	B	3.00		N = 50 (4, 4, 5, 10, 20, 15)	
3										
					AA192942	B	4.00		N = 40/150 mm (6, 10, 19, 21)	
4				4.50					N = 50/75 mm (25, 50)	
	Obstruction End of Borehole at 4.50 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.1	1.3	1	
4.4	4.5	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**BOREHOLE NO.**	**BH05**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	4.50
		DATE COMMENCED	15/05/2023
		DATE COMPLETED	15/05/2023
CLIENT	Monaghan Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	DBFL	**ENERGY RATIO (%)**	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Soft to firm brown sandy SILT/CLAY with occasional gravel				AA192946	B	0.50			
1					AA192947	B	1.00		N = 6 (2, 6, 1, 1, 2, 2)	
				2.00						
2	Stiff to very stiff grey sandy gravelly CLAY with occasion cobbles Firm to stiff brown sandy gravelly CLAY with some cobbles				AA192948	B	2.00		N = 19 (2, 2, 3, 4, 5, 7)	
3	Stiff to very stiff grey sandy gravelly CLAY with occasion cobbles Firm to stiff brown sandy gravelly CLAY with some cobbles				AA192949	B	3.00		N = 26 (2, 3, 4, 6, 8, 8)	
4					AA192950	B	4.00		N = 50/150 mm (6, 8, 20, 30)	
				4.50					N = 50/75 mm (17, 8, 50)	
	Obstruction End of Borehole at 4.50 m									
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
3.7	3.9	1	
4.3	4.5	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.50	4.50	No	3.50	0	Moderate

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**BOREHOLE NO.**	**BH06**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	1.00
		DATE COMMENCED	16/05/2023
		DATE COMPLETED	16/05/2023
CLIENT	Monaghan Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	DBFL	**ENERGY RATIO (%)**	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Very stiff brown sandy SILT/CLAY with some gravel and occasional cobbles			1.00	AA197914	B	0.80		N = 50/75 mm (25, 50)	
1	Obstruction End of Borehole at 1.00 m									
2										
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
0.9	1	1	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out . Obstruction encountered . Moved to BH06A and attempted rebore.

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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**BOREHOLE NO.**	**BH06A**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	1.00
		DATE COMMENCED	16/05/2023
		DATE COMPLETED	16/05/2023
CLIENT	Monaghan Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	DBFL	**ENERGY RATIO (%)**	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Very stiff brown sandy SILT/CLAY with some gravel and occasional cobbles			1.00	AA171709	B	0.80		N = 50/75 mm (25, 50)	
1	Obstruction End of Borehole at 1.00 m									
2										
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
0.9	1	1	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	BOREHOLE NO.	BH07
		SHEET	Sheet 1 of 1
CO-ORDINATES		RIG TYPE	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		BOREHOLE DEPTH (m)	1.00
		DATE COMMENCED	16/05/2023
		DATE COMPLETED	16/05/2023
CLIENT	Monaghan Co.Co.	SPT HAMMER REF. NO.	
ENGINEER	DBFL	ENERGY RATIO (%)	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.20						
	Very stiff brown sandy SILT/CLAY with some gravel and occasional cobbles			1.00	AA171710	B	0.80		N = 50/75 mm (25, 50)	
1	Obstruction End of Borehole at 1.00 m									
2										
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
0.9	1	1	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**BOREHOLE NO.**	**BH08**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	200
GROUND LEVEL (m AOD)		**BOREHOLE DEPTH (m)**	3.40
		DATE COMMENCED	14/05/2023
		DATE COMPLETED	14/05/2023
CLIENT	Monaghan Co.Co.	**SPT HAMMER REF. NO.**	
ENGINEER	DBFL	**ENERGY RATIO (%)**	
		BORED BY	P.Allan
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	TOPSOIL			0.30						
	Firm brown sandy SILT/CLAY with occasional gravel				AA192945	B	0.50			
1					AA192946	B	1.00		N = 12 (1, 2, 2, 2, 3, 5)	
				1.80						
2	Stiff to very stiff grey sandy gravelly CLAY with occasional cobbles				AA192947	B	2.00		N = 29 (2, 3, 3, 10, 10, 6)	
3				3.40					N = 50/150 mm (10, 15, 25, 25)	
	Obstruction End of Borehole at 3.40 m								N = 50/75 mm (34, 25, 50)	
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.6	2.8	0.75	
3.2	3.4	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS 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 24665M.GPJ IGSL.GDT 26/5/23

Appendix II Rotary Core Logs Photographs

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**DRILLHOLE NO**	**RC02**
		SHEET	Sheet 1 of 2
CO-ORDINATES		**DATE DRILLED**	25/05/2023
GROUND LEVEL (mOD)		**DATE LOGGED**	25/05/2023
CLIENT	Monaghan Co.Co.	**DRILLED BY**	IGSL - JK
ENGINEER	CORA	**LOGGED BY**	D.O'Shea
RIG TYPE	Beretta T44		
FLUSH	Air/Mist		
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0												
1	1.50	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of soft CLAY.				
2		0	0	0								
3	3.00	0	0	0								N = 24 (3, 2, 4, 7, 7, 6)
4	4.50								4.50			
5		0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY with occasional cobbles				N = 53 (7, 7, 11, 10, 15, 17)
6	6.00	0	0	0								N = 43 (4, 6, 10, 10, 10, 13)
7	7.50	0	0	0								
8		0	0	0								N = 51 (17, 9, 11, 13, 13, 14)
9	9.00	0	0	0								N = 51/102 mm (7, 18, 33, 18)

REMARKS

Hole cased from 0.00-10.50m

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
25-05-23	10.50	1.00	10.50	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

IGSL RC FI 10M 24665 - MAIN SITE.GPJ IGSL.GDT 6/8/23

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**DRILLHOLE NO**	**RC02**
		SHEET	Sheet 2 of 2
CO-ORDINATES		**DATE DRILLED**	25/05/2023
GROUND LEVEL (mOD)		**DATE LOGGED**	25/05/2023
CLIENT	Monaghan Co.Co.	**DRILLED BY**	IGSL - JK
ENGINEER	CORA	**LOGGED BY**	D.O'Shea
RIG TYPE	Beretta T44		
FLUSH	Air/Mist		
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10	10.50							SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY with occasional cobbles *(continued)*	10.50			N = 48 (6, 8, 11, 12, 12, 13)
								End of Borehole at 10.50 m				
11												
12												
13												
14												
15												
16												
17												
18												
19												

REMARKS

Hole cased from 0.00-10.50m

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
25-05-23	10.50	1.00	10.50	50mm SP

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site
CO-ORDINATES	
GROUND LEVEL (mOD)	
CLIENT	Monaghan Co.Co.
ENGINEER	CORA
RIG TYPE	Beretta T44
FLUSH	Air/Mist
INCLINATION (deg)	-90
CORE DIAMETER (mm)	78
DRILLHOLE NO	RC03
SHEET	Sheet 1 of 2
DATE DRILLED	26/05/2023
DATE LOGGED	28/05/2023
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) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY with occasional cobbles				
1												
2												
3												N = 57 (9, 13, 17, 11, 15, 14)
4		0	0	0								
5												N = 50 (5, 11, 10, 17, 11, 12)
6												
7												N = 47 (4, 7, 9, 9, 14, 15)
8	8.10								8.10			
		100	0	0				Returns of stiff to very stiff, dark brown, slightly sandy, gravelly CLAY, with occasional cobbles. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are of limestone.			N = 53 (4, 11, 11, 13, 13, 16)
9	9.10											
		71	0	0								N = 50 (8, 11, 12, 13, 10, 15)

REMARKS

Hole cased from 0.00-8.00m

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**DRILLHOLE NO**	**RC03**
		SHEET	Sheet 2 of 2
CO-ORDINATES		**DATE DRILLED**	26/05/2023
GROUND LEVEL (mOD)		**DATE LOGGED**	28/05/2023
CLIENT	Monaghan Co.Co.	**DRILLED BY**	IGSL - JK
ENGINEER	CORA	**LOGGED BY**	D.O'Shea
RIG TYPE	Beretta T44		
FLUSH	Air/Mist		
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10	10.50							End of Borehole at 10.50 m	10.50			
11												
12												
13												
14												
15												
16												
17												
18												
19												

REMARKS

Hole cased from 0.00-8.00m

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
29-05-23	10.50	8.00	10.40	Water levels recorded 5 mins after end of drilling.

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**DRILLHOLE NO**	**RC06**
		SHEET	Sheet 1 of 2
CO-ORDINATES		**DATE DRILLED**	23/05/0223
GROUND LEVEL (mOD)		**DATE LOGGED**	23/05/2023
RIG TYPE	Beretta T44		
FLUSH	Air/Mist		
CLIENT	Monaghan Co.Co.	**DRILLED BY**	IGSL - JK
ENGINEER	CORA	**LOGGED BY**	D.O'Shea
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
0												
1	1.50	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of CLAY.	1.50			
2	2.60	73	0	0				Returns of stiff to very stiff, dark brown, slightly sandy, gravelly CLAY, with occasional cobbles. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are of limestone.	2.60			
3	4.00	0	0	0				SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY with occasional cobbles				N = 57 (13, 12, 27, 11, 9, 10)
4												
5	5.50	100	0	0								N = 55 (6, 17, 18, 11, 12, 14)
6	7.00	0	0	0								N = 44 (5, 7, 10, 11, 10, 13)
7												
8	8.50	0	0	0								N = 46 (8, 9, 8, 14, 13, 11)
9												
	10.00	0	0	0								N = 10/75 mm (7, 14, 10)

REMARKS

Hole cased from 0.00-15.00m

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

GEOTECHNICAL CORE LOG RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel - Main Site	**DRILLHOLE NO**	**RC06**
		SHEET	Sheet 2 of 2
CO-ORDINATES		**DATE DRILLED**	23/05/0223
GROUND LEVEL (mOD)		**DATE LOGGED**	23/05/2023
CLIENT	Monaghan Co.Co.	**DRILLED BY**	IGSL - JK
ENGINEER	CORA	**LOGGED BY**	D.O'Shea
RIG TYPE	Beretta T44		
FLUSH	Air/Mist		
INCLINATION (deg)	-90		
CORE DIAMETER (mm)	78		

Downhole Depth (m)	Core Run Depth (m)	T.C.R.%	S.C.R.%	R.Q.D.%	Fracture Spacing Log (mm) 0 250 500	Non-intact Zone	Legend	Description	Depth (m)	Elevation	Standpipe Details	SPT (N Value)
10								SYMMETRIX DRILLING: No recovery, observed by driller as returns of gravelly CLAY with occasional cobbles *(continued)*				
11	11.50	0	0	0								N = 46 (4, 11, 12, 9, 11, 14)
12	13.00	0	0	0								N = 55 (15, 16, 19, 11, 12, 13)
13	13.50	0	0	0					13.50			
14	15.00	100	0	0				Returns of stiff to very stiff, dark brown, slightly sandy, gravelly CLAY, with occasional cobbles. Sand is fine. Gravel is angular to subrounded fine to coarse of limestone. Cobbles are of limestone.	15.00			N = 50/32 mm (25, 50)
15								End of Borehole at 15.00 m				
16												
17												
18												
19												

REMARKS

Hole cased from 0.00-15.00m

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike recorded

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER DETAILS

Date	Hole Depth	Casing Depth	Depth to Water	Comments
23-05-23	15.00	15.00	13.40	Water levels recorded 5 mins after end of drilling.

RC03 – Box 1 of 1 – 8.10-10.50m

RC06 – Box 1 of 1 – 1.50-15.00m

Appendix III Trial Pit Records
Photographs

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP01**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,406.85 E 833,817.07 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	72.34
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Firm, greyish brown to brown, slightly sandy gravelly CLAY with medium cobbles content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are small to coarse subangular to subrounded		0.25	72.09		AA200193	B	0.70		
1.0 Firm to stiff, grey, slightly sandy gravelly slightly silty CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.		0.90	71.44		AA200194	B	1.60		
TP terminated at 1.8m due to many boulders End of Trial Pit at 1.80m		1.80	70.54						
2.0									
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP02**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,417.94 E 833,782.52 N
		DATE STARTED	27/04/2023
		DATE COMPLETED	27/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	69.34
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL		0.25	69.09						
Soft to firm, brown, slightly sandy slighlty gravelly CLAY with low cobbles content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are small subangular to subrounded.		0.55	68.79						
Dense, brownish grey, very clayey very sandy fine to coarse subrounded to subangular GRAVEL with high subangular to angular cobbles and boulders content.					AA200181	B	0.80		
TP terminated at 1.4m due to many boulders End of Trial Pit at 1.40m		1.40	67.94						

0.0
1.0
2.0
3.0
4.0

Groundwater Conditions
TP dry

Stability
TP slightly unstable from 0.55m

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP03**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,451.08 E 833,766.18 N
		DATE STARTED	27/04/2023
		DATE COMPLETED	27/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	72.15
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	TOPSOIL									
	Soft, brown, sandy slighlty gravelly CLAY with low cobbles content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are small subangular to subrounded.		0.20	71.95		AA200179	B	0.60		
1.0	Firm to stiff, greyish brown, slightly sandy gravelly slightly silty CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.		0.80	71.35		AA200180	B	1.50		
	TP terminated at 1.7m due to many boulders End of Trial Pit at 1.70m		1.70	70.45						
2.0										
3.0										
4.0										

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP04**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,481.57 E 833,781.44 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	73.74
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.10	73.64						
Firm, brown, slightly sandy very gravelly CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular. (POSSIBLE FILL)		0.60	73.14		AA200184	B	0.50		
1.0 Firm to stiff, greyish brown, sandy gravelly slightly silty CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.					AA200185	B	1.30		
TP terminated at 1.8m due to many boulders End of Trial Pit at 1.80m		1.80	71.94						
2.0									
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP05**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,507.95 E 833,782.70 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	69.54
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.20	69.34						
Soft, brown, slightly sandy slightly gravelly CLAY. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded.		0.50	69.04						
Firm to stiff, brownish grey, slightly sandy gravelly slightly silty CLAY with high cobbles and low boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to subrounded.					AA200182	B	0.70		
1.0									
					AA200183	B	1.70		
2.0									
TP terminated at 2.1m due to many boulders End of Trial Pit at 2.10m		2.10	67.44						
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP06**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,474.33 E 833,810.79 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	74.34
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.25	74.09						
Firm, brown, slightly sandy slightly gravelly CLAY with low cobbles content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are subangular to subrounded.		0.80	73.54	1 (Seepage)	AA200186	B	0.70		
Firm to stiff, greyish brown, slightly sandy gravelly slightly silty CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.		1.50	72.84		AA200187	B	1.40		
TP terminated at 1.5m due to many boulders End of Trial Pit at 1.50m									

1.0
2.0
3.0
4.0

Groundwater Conditions
Seepage flow at 1.0m

Stability
TP stable

General Remarks
TP done for civic offices project

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP07**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,458.22 E 833,833.25 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	75.79
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
Soft, brown, slightly sandy slighlty gravelly CLAY with some hair roots. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded.		0.25	75.54						
Soft to firm, greyish brown, very sandy gravelly CLAY with medium cobbles content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are small subangular to angular. (Possible very clayey gravelly sand).		0.60	75.19		AA200188	B	0.50		
1.0					AA200189	B	1.30		
Firm to stiff, brown, slightly sandy gravelly CLAY with high cobbles and low boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.		1.50	74.29						
TP terminated at 1.9m due to many boulders End of Trial Pit at 1.90m		1.90	73.89		AA200190	B	1.80		
2.0									
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP08**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,426.80 E 833,858.25 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	79.90
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.25	79.65						
Soft to firm, brown, slightly sandy gravelly CLAY with low cobbles and hair roots content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are small subangular to subrounded.		0.50	79.40						
Firm to stiff, greyish brown, slightly sandy gravelly CLAY with high cobbles and low boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.					AA200195	B	0.80		
1.0									
2.0					AA200196	B	1.80		
TP terminated at 2.2m due to many boulders End of Trial Pit at 2.20m		2.20	77.70						
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP09**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,477.14 E 833,842.01 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	75.17
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.25	74.92						
Soft, brown, slightly sandy slightly gravelly CLAY with hair roots content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded.		0.50	74.67						
Firm to stiff, greyish brown, slightly sandy gravelly slightly silty CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.					AA200191	B	0.70		
1.0									
TP terminated at 1.5m due to many boulders End of Trial Pit at 1.50m		1.50	73.67		AA200192	B	1.50		
2.0									
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP10**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,449.28 E 833,875.03 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	81.69
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
		0.30	81.39						
Soft, brown, slightly sandy slightly gravelly CLAY with hair roots content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded.		0.50	81.19						
Stiff to very stiff, greyish brown to brown, slightly sandy gravelly CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.					AA200197	B	0.60		
1.0									
					AA200198	B	1.60		
2.0									
End of Trial Pit at 2.50m		2.50	79.19		AA200199	B	2.50		
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP11**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,482.17 E 833,886.75 N
		DATE STARTED	28/04/2023
		DATE COMPLETED	28/04/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	76.84
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.20	76.64						
Soft to firm, brown/grey mottled, slightly sandy slightly gravelly CLAY with low cobbles content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are small subangular to subrounded.					AA205152	B	0.70		
1.0 Firm to stiff, greyish brown, slightly sandy gravelly CLAY with medium cobbles and low boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to angular.		1.10	75.74		AA205153	B	1.50		
2.0 TP terminated at 2.3m due to many boulders End of Trial Pit at 2.30m		2.30	74.54		AA205154	B	2.20		
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP12**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,491.71 E 833,909.43 N
		DATE STARTED	04/05/2023
		DATE COMPLETED	04/05/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	77.46
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.30	77.16						
Soft, brown, slightly sandy slightly slightly gravelly CLAY with hair roots content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded.		0.55	76.91						
Soft to firm, greyish brown , slightly sandy slightly gravelly CLAY with low cobbles content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles are small subangular to subrounded.		1.00	76.46		AA205178	B	0.80		
1.0 Soft to firm, greyish brown , slightly sandy very gravelly CLAY with high cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to angular, cobbles and boulders are subangular to angular. (possible very clayey angular gravel and cobbles)									
TP terminated at 1.8m due to boulders or rock End of Trial Pit at 1.80m		1.80	75.66		AA205179	B	1.70		
2.0									
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP13**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,464.88 E 833,929.00 N
		DATE STARTED	04/05/2023
		DATE COMPLETED	04/05/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	83.28
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
TOPSOIL		0.20	83.08						
Soft, brown, slightly sandy slightly slightly gravelly CLAY with hair roots content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded.		0.50	82.78						
Firm to stiff, greyish brown, slightly sandy slightly gravelly CLAY with low cobbles and boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to subrounded.					AA205173	B	0.60		
TP terminated at 1.4m due to many boulders End of Trial Pit at 1.40m		1.40	81.88		AA205174	B	1.40		

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

TRIAL PIT RECORD

REPORT NUMBER 24665

CONTRACT	Monaghan Active Travel	**TRIAL PIT NO.**	**TP14**
		SHEET	Sheet 1 of 1
LOGGED BY	I.Reder	**CO-ORDINATES**	667,490.90 E 833,949.34 N
		DATE STARTED	04/05/2023
		DATE COMPLETED	04/05/2023
CLIENT	Monaghan Co.Co.	**GROUND LEVEL (m)**	80.90
ENGINEER	DBFL/Cora	**EXCAVATION METHOD**	3T Tracked machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL		0.20	80.70						
Soft to firm, brown, slightly sandy slightly slightly gravelly CLAY with hair roots content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded.		0.50	80.40						
Firm to stiff, greyish brown, slightly sandy gravelly CLAY with low cobbles and low boulders content. Sand is fine to coarse, gravel is fine to coarse subangular to subrounded, cobbles and boulders are subangular to subrounded.					AA205175	B	0.70		
1.0					AA205176	B	1.50		
2.0 TP terminated at 2.1m due to many boulders End of Trial Pit at 2.10m		2.10	78.80		AA105177	B	2.10		
3.0									
4.0									

Groundwater Conditions
TP dry

Stability
TP stable

General Remarks
TP done for civic offices project

IGSL TP LOG 24665.GPJ IGSL.GDT 10/5/23

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 01

TP 01 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 02

TP 02 – spoil

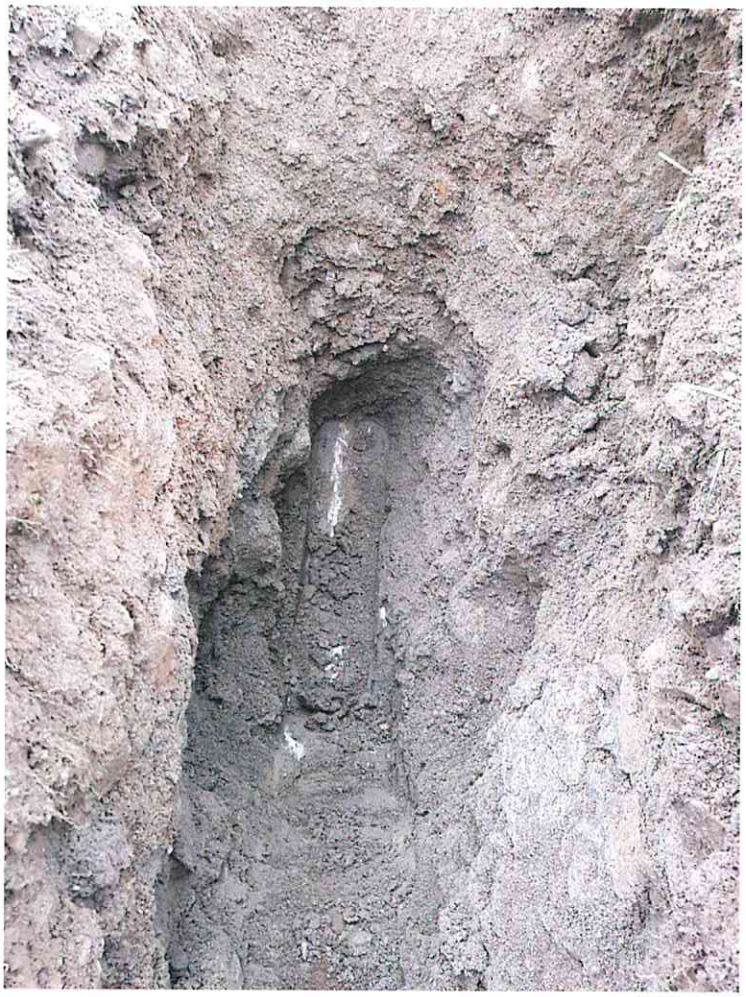
Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 03

TP 03 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 04



TP 04 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 05

TP 05 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 06

TP 06 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 07

TP 07 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 08

TP 08 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 09

TP 09 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 10

TP 10 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 11

TP 11 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 12

TP 12 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 13

TP 13 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
TP 14

TP 14 – spoil

Appendix IV BRE Digest 365 Test

Soakaway Design f -value from field tests

IGSL

Contract: Monaghan, Active Travel 24665
Test No. SA01
Engineer CORA
Date: 04/05/2023

Summary of ground conditions

from	to	Description	Ground water
0.00	0.25	TOPSOIL	DRY
0.25	0.50	Soft, brown, slightly sandy slightly gravelly CLAY with low hair roots content	
0.50	1.30	Soft to firm, brown/grey mottled, slightly sandy gravelly slightly silty CLAY with high subangular to angular cobbles and boulders content	
1.30		Obstruction - boulders	

Location: E:667491.477; N:833784.047; G.L. 71.944mOD
Notes: SA01 done for Civic Offices project

Field Data

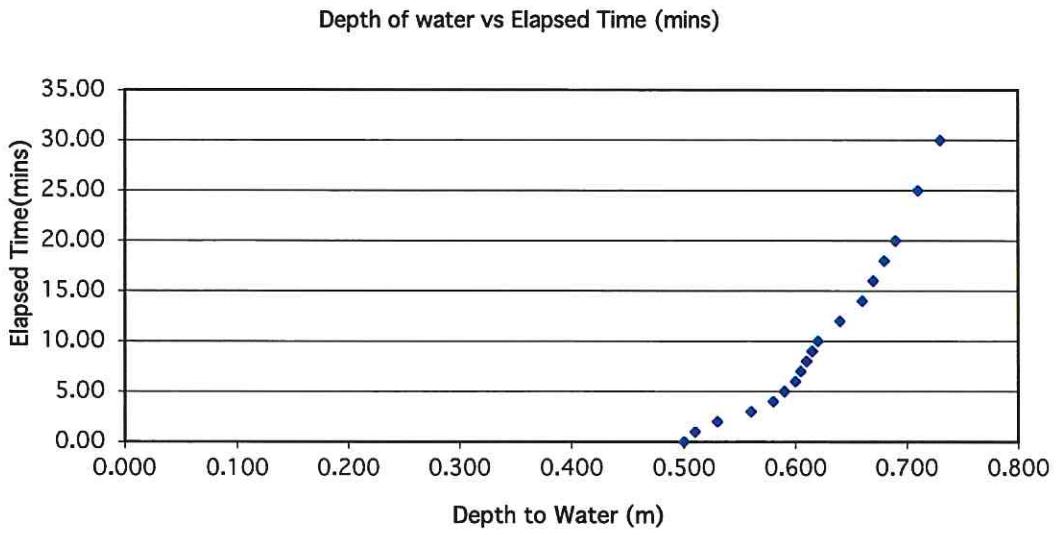
Depth to Water (m)	Elapsed Time (min)
0.500	0.00
0.510	1.00
0.530	2.00
0.560	3.00
0.580	4.00
0.590	5.00
0.600	6.00
0.605	7.00
0.610	8.00
0.615	9.00
0.620	10.00
0.640	12.00
0.660	14.00
0.670	16.00
0.680	18.00
0.690	20.00
0.710	25.00
0.730	30.00

Field Test

Depth of Pit (D)	1.30	m
Width of Pit (B)	0.50	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.50	m
Final depth to water =	0.73	m
Elapsed time (mins)=	30.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	1	m2
*Av. side area of permeable stratum over test perio	3.425	m2
Total Exposed area =	4.425	m2

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

f= 0.00173 m/min or 2.88763E-05 m/sec



Soakaway Design f -value from field tests

IGSL

Contract: Monaghan, Active Travel
Test No. SA02
Engineer CORA
Date: 04/05/2023

24665

Summary of ground conditions

from	to	Description	Ground water
0.00	0.20	TOPSOIL	DRY
0.20	0.70	Soft to firm, brown, slightly sandy slightly gravelly CLAY with medium cobbles	
0.70	1.60	Firm to stiff, greyish brown, slightly sandy gravelly slightly silty CLAY with low subangular to angular cobbles and boulders content	

Location: E:667480.695; N:833861.983; G.L. 75.647mOD
Notes: SA02 done for Civic Offices project

Field Data

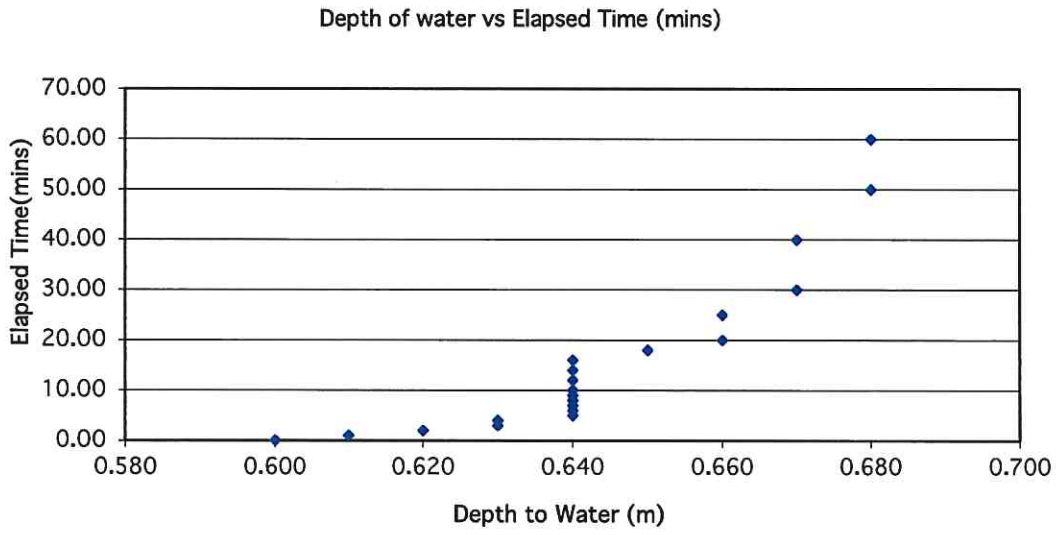
Depth to Water (m)	Elapsed Time (min)
0.600	0.00
0.610	1.00
0.620	2.00
0.630	3.00
0.630	4.00
0.640	5.00
0.640	6.00
0.640	7.00
0.640	8.00
0.640	9.00
0.640	10.00
0.640	12.00
0.640	14.00
0.640	16.00
0.650	18.00
0.660	20.00
0.660	25.00
0.670	30.00
0.670	40.00
0.680	50.00
0.680	60.00

Field Test

Depth of Pit (D)	1.60	m
Width of Pit (B)	0.50	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.60	m
Final depth to water =	0.68	m
Elapsed time (mins)=	60.00	
Top of permeable soil		m
Base of permeable soil		m
Base area=	1	m2
*Av. side area of permeable stratum over test perio	4.8	m2
Total Exposed area =	5.8	m2

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

f= 0.00023 m/min or 3.83142E-06 m/sec



Soakaway Design f -value from field tests

IGSL

Contract: Monaghan, Active Travel
Test No. SA03
Engineer CORA
Date: 04/05/2023

24665

Summary of ground conditions

from	to	Description	Ground water
0.00	0.30	TOPSOIL	DRY
0.30	1.60	Firm to stiff, greyish brown, slightly sandy gravelly slightly silty CLAY with high cobbles and low boulders content	

Location: E:667448.448; N:833888.586; G.L. 83.582mOD
Notes: SA03 done for Civic Offices project

Field Data

Depth to Water (m)	Elapsed Time (min)
0.540	0.00
0.540	1.00
0.540	2.00
0.540	3.00
0.550	4.00
0.550	5.00
0.550	6.00
0.550	7.00
0.550	8.00
0.550	9.00
0.550	10.00
0.550	12.00
0.550	14.00
0.550	16.00
0.550	18.00
0.550	20.00
0.550	25.00
0.550	30.00

Field Test

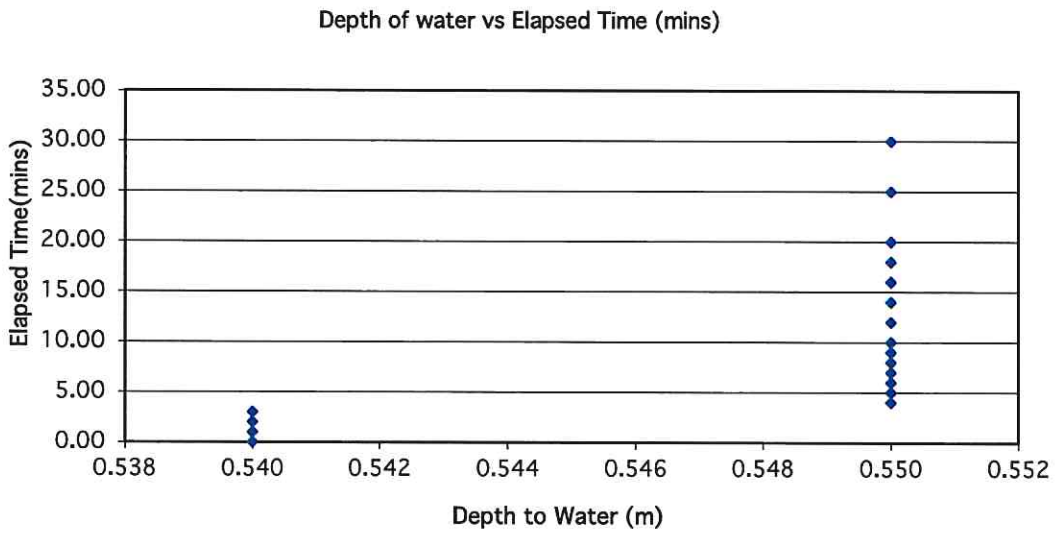
Depth of Pit (D)	1.60	m
Width of Pit (B)	0.50	m
Length of Pit (L)	2.00	m
Initial depth to Water =	0.54	m
Final depth to water =	0.55	m
Elapsed time (mins)=	30.00	
Top of permeable soil		m
Base of permeable soil		m

Water movement stoped at 0.55m

Base area=	1	m2
*Av. side area of permeable stratum over test perio	5.275	m2
Total Exposed area =	6.275	m2

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

f= 5.3E-05 m/min or 8.85347E-07 m/sec



Soakaway Design f -value from field tests

IGSL

Contract: Monaghan, Active Travel
Test No. SA04
Engineer CORA
Date: 04/05/2023

24665

Summary of ground conditions

from	to	Description	Ground water
0.00	0.25	TOPSOIL	
0.25	0.50	Soft, brown, sl. sandy sl. gravelly CLAY with low cobbles and hair rrots content	
0.50	1.30	Firm to stiff, brown, slightly sandy gravelly CLAY with high subangular to subrour	DRY
		cobbles and low boulders content	
1.30		Obstruction - boulders	

Location: E:667494.53; N:833936.177; G.L. 79.506mOD
Notes: SA04 done for Civic Offices project

Field Data

Depth to Water (m)	Elapsed Time (min)
0.480	0.00
0.480	1.00
0.480	2.00
0.480	3.00
0.480	4.00
0.480	5.00
0.480	6.00
0.480	7.00
0.480	8.00
0.480	9.00
0.480	10.00
0.480	12.00
0.480	14.00
0.480	16.00
0.480	18.00
0.480	20.00
0.480	25.00
0.480	30.00

Field Test

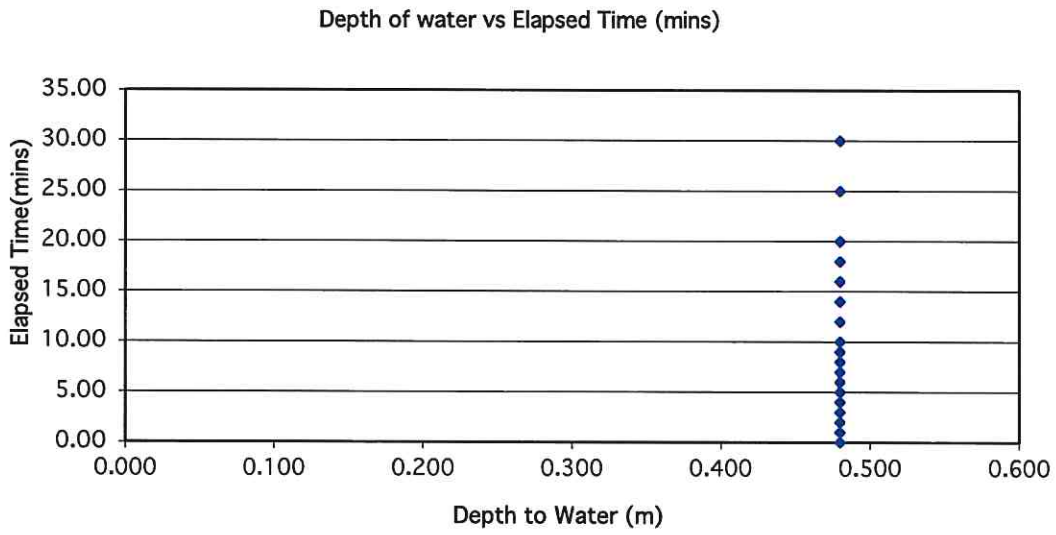
Depth of Pit (D)	1.30	m
Width of Pit (B)	0.50	m
Length of Pit (L)	1.50	m
Initial depth to Water =	0.48	m
Final depth to water =	0.48	m
Elapsed time (mins)=	30.00	
Top of permeable soil		m
Base of permeable soil		m

No Water Movement

Base area=	0.75	m2
*Av. side area of permeable stratum over test perio	3.28	m2
Total Exposed area =	4.03	m2

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

f= 0 m/min or 0 m/sec



Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
SA 01

SA 01 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
SA 02

SA 02 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
SA 03

SA 03 – spoil

Project Number: 24665
Site: Monaghan Active Travel
Project Engineer: DBFL/CORA

TRIAL PIT PHOTOGRAPHY RECORD
SA 04

SA 04 – spoil

Appendix Va Geotechnical Laboratory Data

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2, 4.3, 4.4 & 5.3**

Report No. **R147891** Contract No. 24665/1 Contract Name: Monaghan Town Active Travel Development Site

Customer Cora

Samples Received: 09/06/23 Date Tested: 09/06/23

BH/TP*	Sample No.	Depth* (m)	Lab. Ref	Sample Type*	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
BH01	AA192933	2.0	A23/1710	B	18	28	14	14	67	WS	4.4	C L	Brown sandy gravelly CLAY
BH02	AA197802	1.0	A23/1711	B	14	33	17	16	56	WS	4.4	C L	Brown sandy gravelly CLAY
BH03	AA192935	1.0	A23/1712	B	16	36	19	17	71	WS	4.4	C I	Brown sandy gravelly CLAY
BH05	AA192947	1.0	A23/1714	B	19	32	NP	NP	82	WS	4.4		Brown sandy gravelly SILT
TP01	AA200193	0.7	A23/1716	B	14	30	16	14	61	WS	4.4	C L	Grey brown sandy gravelly CLAY
TP03	AA200179	0.6	A23/1717	B	14	33	19	14	72	WS	4.4	C L	Grey brown sandy gravelly CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.

IGSL Ltd Materials Laboratory

Persons authorized to approve reports
H Byrne (Laboratory Manager)

Approved by | Date: 18/07/23 | Page: 1 of 1

TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	97	
28	92	
20	91	
14	88	
10	86	
6.3	83	
5	81	
3.35	78	
2	73	
1.18	70	SAND
0.6	65	
0.425	62	
0.3	59	
0.15	52	
0.063	43	SILT/CLAY
0.037	35	
0.027	32	
0.017	29	
0.010	25	
0.007	22	
0.005	19	
0.002	11	

Contract No. 24665/1 Report No. R147892
Contract Name : Monaghan Town Active Travel Development Site
BH/TP No. BH04A
Sample No.* AA192941 Lab. Sample No. A23/1713
Sample Type: B
Depth* (m) 3.00 Customer: CORA
Date Received 09/06/2023 Date Testing started 09/06/2023
Description: Grey slightly sandy, slightly gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

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.
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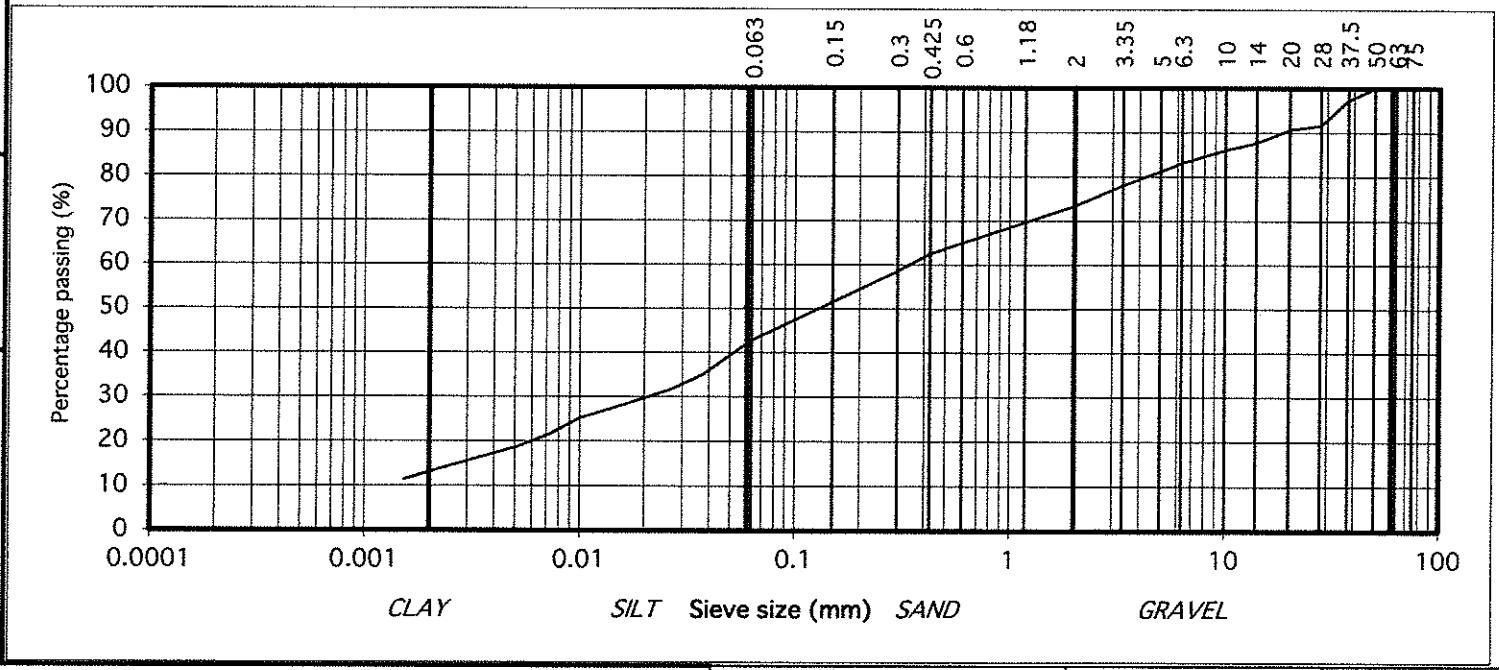

IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	18/07/23	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:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	94	GRAVEL
37.5	94	
28	89	
20	88	
14	86	
10	85	
6.3	82	
5	80	
3.35	77	
2	74	
1.18	72	SAND
0.6	67	
0.425	64	
0.3	58	
0.15	48	
0.063	38	SILT/CLAY
0.037	31	
0.027	28	
0.017	25	
0.010	22	
0.007	19	
0.005	17	
0.002	10	

Contract No. 24665/1 Report No. R147893
Contract Name : Monaghan Town Active Travel Development Site
BH/TP No. BH08
Sample No.* AA192947 Lab. Sample No. A23/1715
Sample Type: B
Depth* (m) 2.00 Customer: CORA
Date Received 09/06/2023 Date Testing started 09/06/2023
Description: Grey sandy, slightly gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

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.
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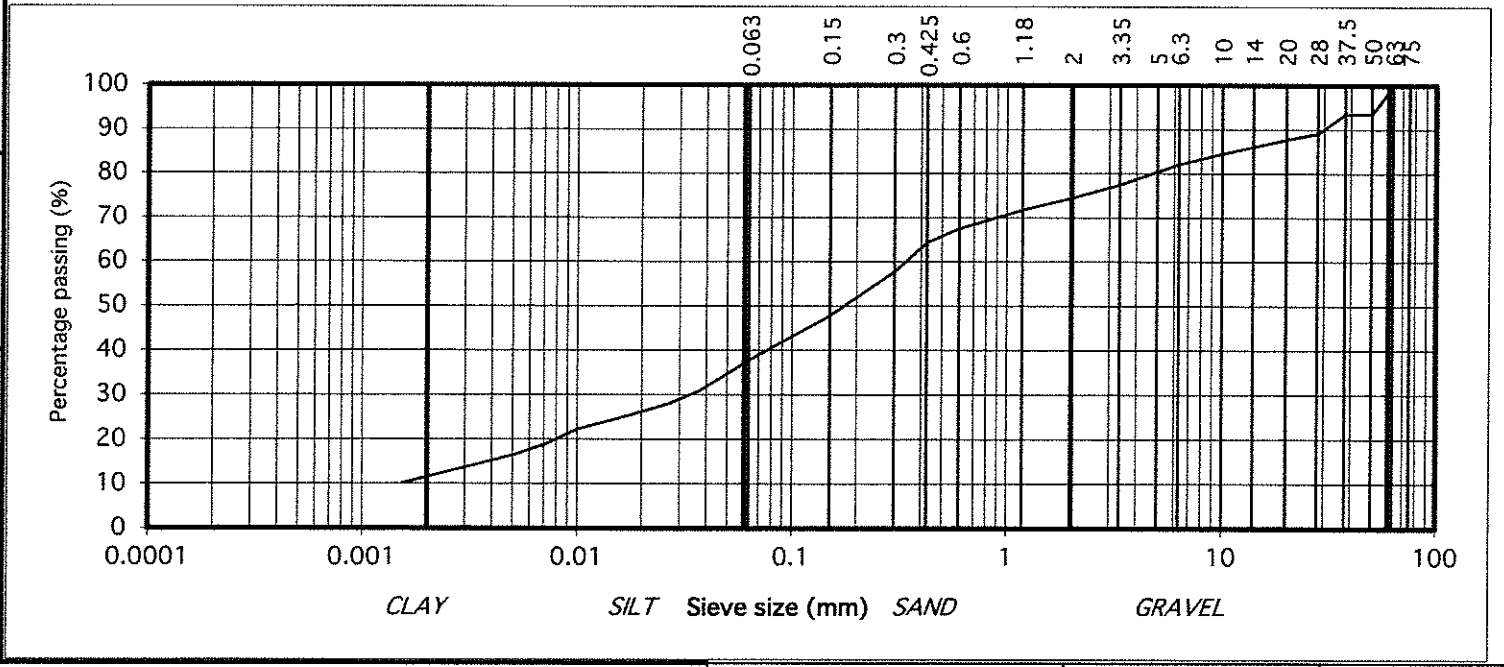

IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	18/07/23	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:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO.133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	99	
20	98	
14	96	
10	95	
6.3	93	
5	92	
3.35	90	
2	87	
1.18	84	SAND
0.6	81	
0.425	79	
0.3	75	
0.15	66	
0.063	55	SILT/CLAY
0.037	46	
0.027	41	
0.017	35	
0.010	29	
0.007	26	
0.005	21	
0.002	14	

Contract No. 24665/1 Report No. R147894

Contract Name : Monaghan Town Active Travel Development Site

BH/TP No. TP05

Sample No.* AA200182 Lab. Sample No. A23/1718

Sample Type: B

Depth* (m) 0.70 Customer: CORA

Date Received 09/06/2023 Date Testing started 09/06/2023

Description: Brown slightly sandy, slightly gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

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.

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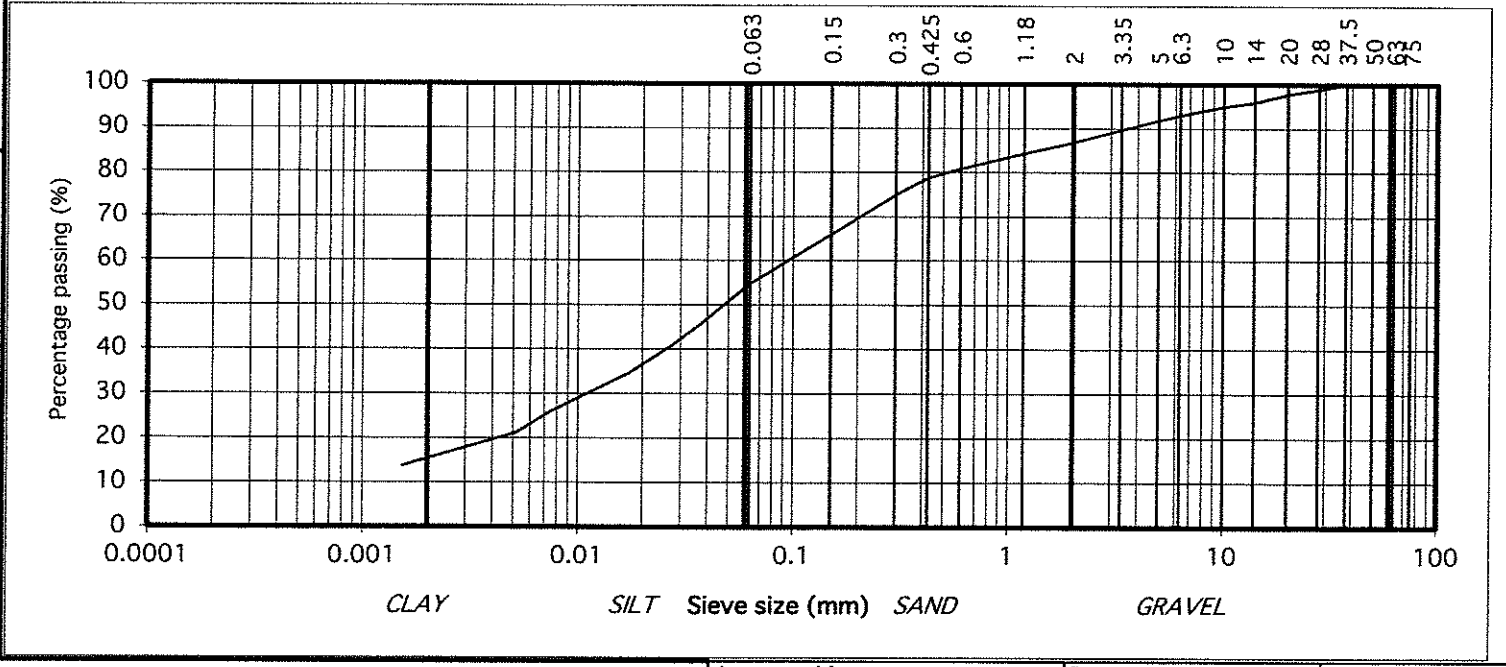


IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	18/07/23	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:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO.1331

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	96	
28	92	
20	91	
14	88	
10	85	
6.3	81	
5	78	
3.35	74	
2	69	
1.18	65	SAND
0.6	60	
0.425	56	
0.3	51	
0.15	39	
0.063	28	SILT/CLAY
0.038	23	
0.027	21	
0.017	18	
0.010	16	
0.007	15	
0.005	12	
0.002	9	

Contract No. 24665/1 Report No. R147895

Contract Name : Monaghan Town Active Travel Development Site

BH/TP No. TP09

Sample No.* AA200191 Lab. Sample No. A23/1719

Sample Type: B

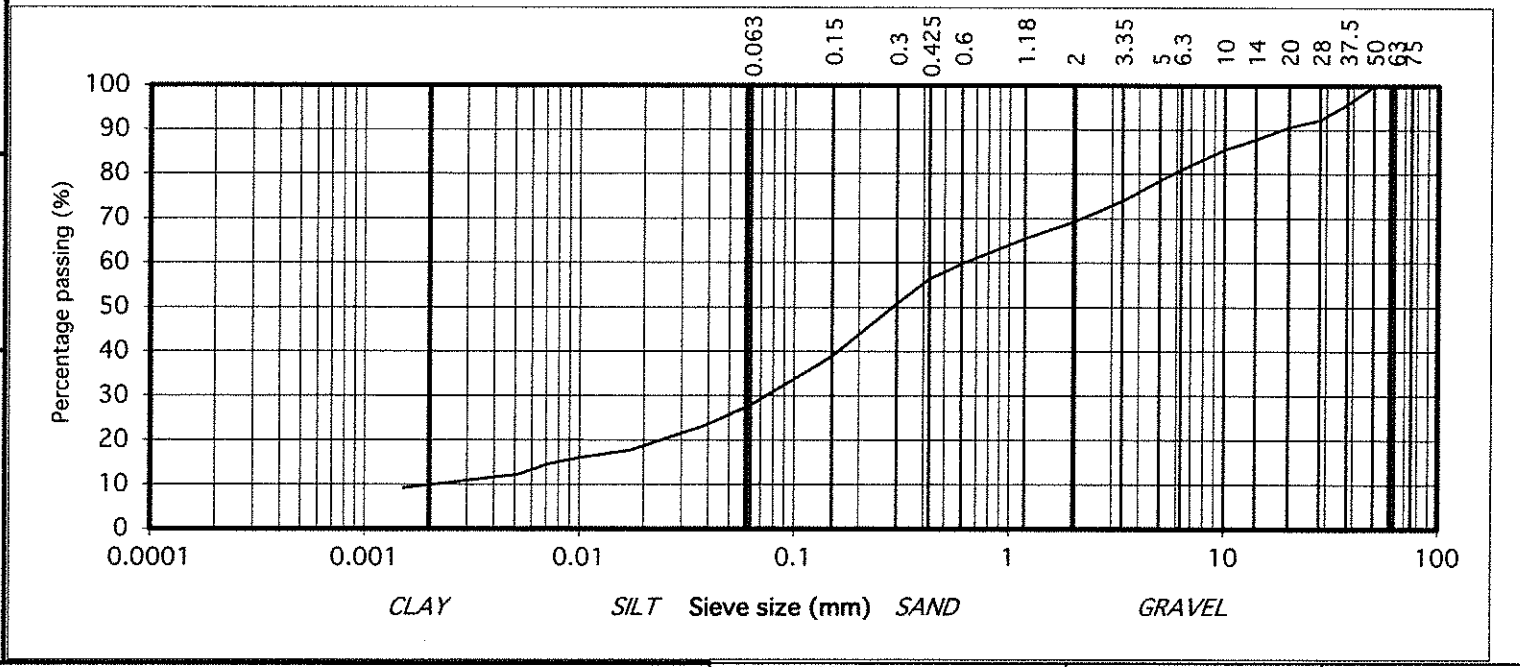
Depth* (m) 0.70 Customer: CORA

Date Received 09/06/2023 Date Testing started 09/06/2023

Description: Grey brown sandy, slightly gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

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.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	18/07/23	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:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

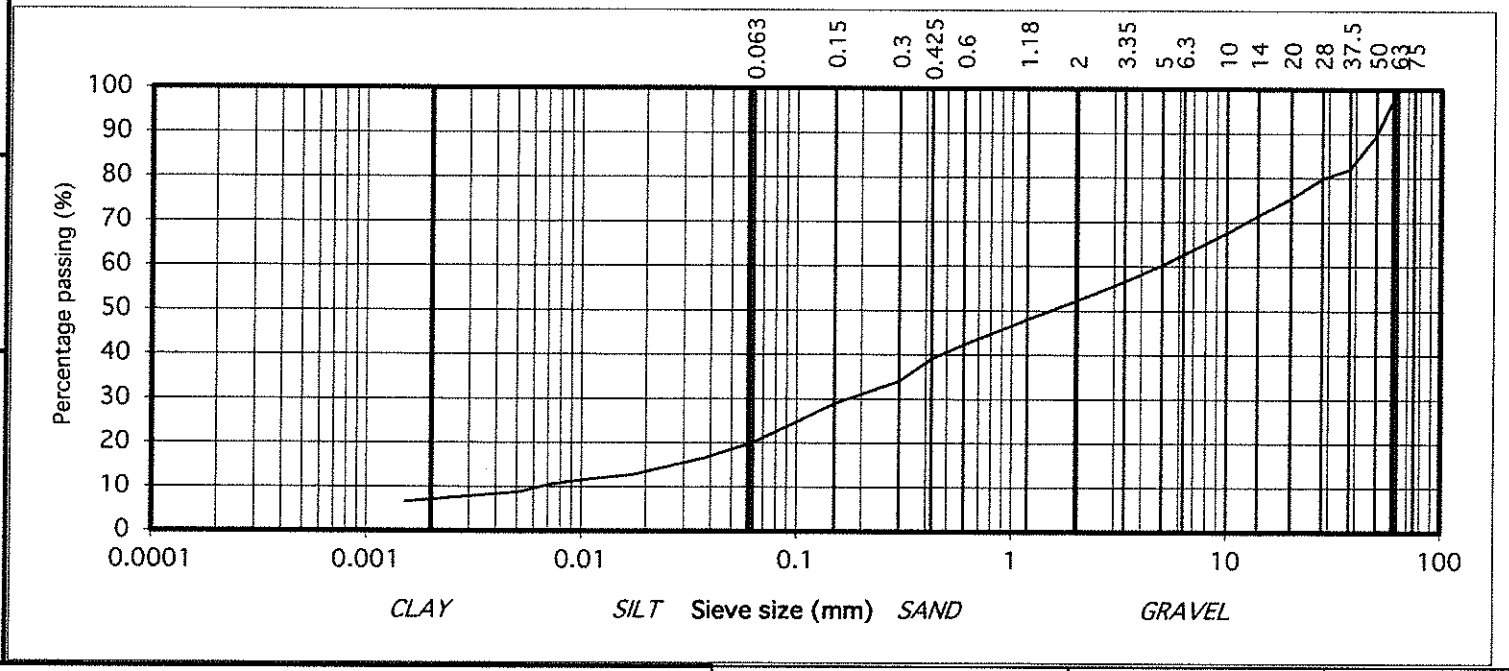
ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	90	GRAVEL
37.5	82	
28	80	
20	75	
14	71	
10	68	
6.3	63	
5	60	
3.35	57	
2	52	
1.18	48	SAND
0.6	42	
0.425	39	
0.3	34	
0.15	29	
0.063	20	SILT/CLAY
0.038	17	
0.027	15	
0.017	13	
0.010	12	
0.007	11	
0.005	9	
0.002	7	

Contract No. 24665/1 Report No. R147896
Contract Name : Monaghan Town Active Travel Development Site
BH/TP No. TP12
Sample No.* AA205178 Lab. Sample No. A23/1720
Sample Type: B
Depth* (m) 0.80 Customer: CORA
Date Received 09/06/2023 Date Testing started 09/06/2023
Description: Brown slightly sandy, gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

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.



IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
	18/07/23	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:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO.133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	93	
28	89	
20	86	
14	82	
10	77	
6.3	72	
5	69	
3.35	60	
2	53	
1.18	49	SAND
0.6	45	
0.425	43	
0.3	40	
0.15	34	
0.063	26	SILT/CLAY
0.038	23	
0.027	21	
0.017	19	
0.010	17	
0.007	15	
0.005	13	
0.002	10	

Contract No. 24665/1 Report No. R147897

Contract Name : Monaghan Town Active Travel Development Site

BH/TP No. TP14

Sample No.* AA205176 Lab. Sample No. A23/1721

Sample Type: B

Depth* (m) 1.50 Customer: CORA

Date Received 09/06/2023 Date Testing started 09/06/2023

Description: Grey brown slightly sandy, gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

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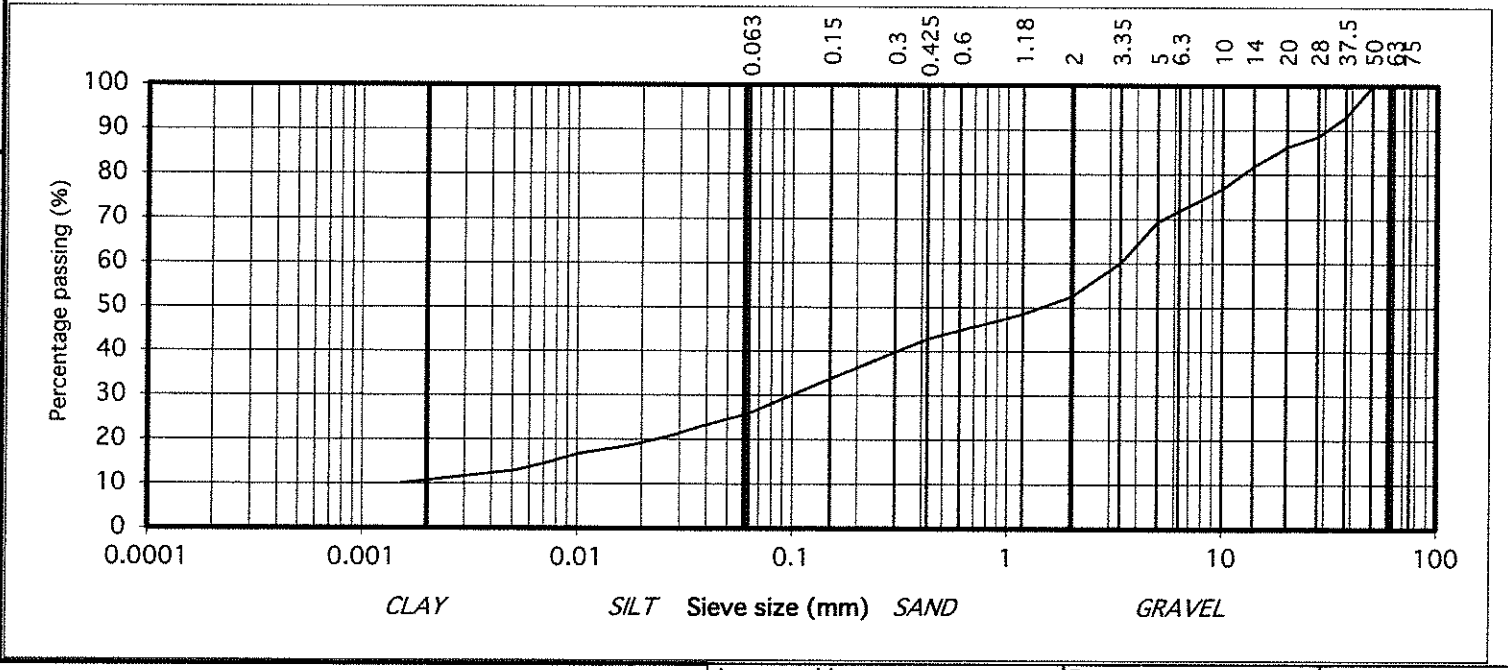

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

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Naas
Co. Kildare
045 899324

Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1331

Report No.	**R147898**
Contract No.	24665/1
Contract Name:	Monaghan Town Active Travel Development Site
Customer:	CORA
BH/TP*	TP01
Sample No.*	AA200193
Depth* (m)	0.70
Sample Type:	B
Lab Sample No.	A23/1716
Source* (if applicable)	N/A
Material Type* (if applicable):	B
Sample Received:	09/06/23
Date Tested:	09/06/23
Sample Cert:	Not Provided
Moisture Content (%):	15
% Particles > 20mm (By dry mass):	16
MCV:	6.6
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Grey brown sandy gravelly CLAY

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	**R147899**
Contract No.	24665/1
Contract Name:	Monaghan Town Active Travel Development Site
Customer:	CORA
BH/TP*	TP03
Sample No.*	AA200179
Depth* (m)	0.60
Sample Type:	B
Lab Sample No.	A23/1717
Source* (if applicable)	N/A
Material Type* (if applicable):	B
Sample Received:	09/06/23
Date Tested:	09/06/23
Sample Cert:	Not Provided
Moisture Content (%):	13
% Particles > 20mm (By dry mass):	15
MCV:	7.3
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Grey brown sandy gravelly CLAY

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	**R147900**
Contract No.	24665/1
Contract Name:	Monaghan Town Active Travel Development Site
Customer:	CORA
BH/TP*	TP05
Sample No.*	AA200182
Depth* (m)	0.70
Sample Type:	B
Lab Sample No.	A23/1718
Source* (if applicable)	N/A
Material Type* (if applicable):	B
Sample Received:	09/06/23
Date Tested:	09/06/23
Sample Cert:	Not Provided
Moisture Content (%):	13
% Particles > 20mm (By dry mass):	11
MCV:	6.8
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown slightly sandy, slightly gravelly, SILT/CLAY

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	**R147901**
Contract No.	24665/1
Contract Name:	Monaghan Town Active Travel Development Site
Customer:	CORA
BH/TP*	TP09
Sample No.*	AA200191
Depth* (m)	0.70
Sample Type:	B
Lab Sample No.	A23/1719
Source* (if applicable)	N/A
Material Type* (if applicable):	B
Sample Received:	09/06/23
Date Tested:	09/06/23
Sample Cert:	Not Provided
Moisture Content (%):	13
% Particles > 20mm (By dry mass):	11
MCV:	6.8
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Grey brown sandy, slightly gravelly, SILT/CLAY

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	**R147902**
Contract No.	24665/1
Contract Name:	Monaghan Town Active Travel Development Site
Customer:	CORA
BH/TP*	TP12
Sample No.*	AA205178
Depth* (m)	0.80
Sample Type:	B
Lab Sample No.	A23/1720
Source* (if applicable)	N/A
Material Type* (if applicable):	B
Sample Received:	09/06/23
Date Tested:	09/06/23
Sample Cert:	Not Provided
Moisture Content (%):	10
% Particles > 20mm (By dry mass):	21
MCV:	6.7
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Brown slightly sandy, gravelly, SILT/CLAY

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Test Report

Determination of Moisture Condition Value at Natural Moisture Content

Tested in accordance with BS1377:Part 4:1990, clause 5.4

Report No.	**R147903**
Contract No.	24665/1
Contract Name:	Monaghan Town Active Travel Development Site
Customer:	CORA
BH/TP*	TP14
Sample No.*	AA205176
Depth* (m)	1.50
Sample Type:	B
Lab Sample No.	A23/1721
Source* (if applicable)	N/A
Material Type* (if applicable):	B
Sample Received:	09/06/23
Date Tested:	09/06/23
Sample Cert:	Not Provided
Moisture Content (%):	14
% Particles > 20mm (By dry mass):	15
MCV:	7.8
Interpretation of Plot:	Steepest Straight Line
Description of Soil:	Grey brown slightly sandy, gravelly, SILT/CLAY

Results relate only to the specimen tested, in as received condition unless otherwise noted.
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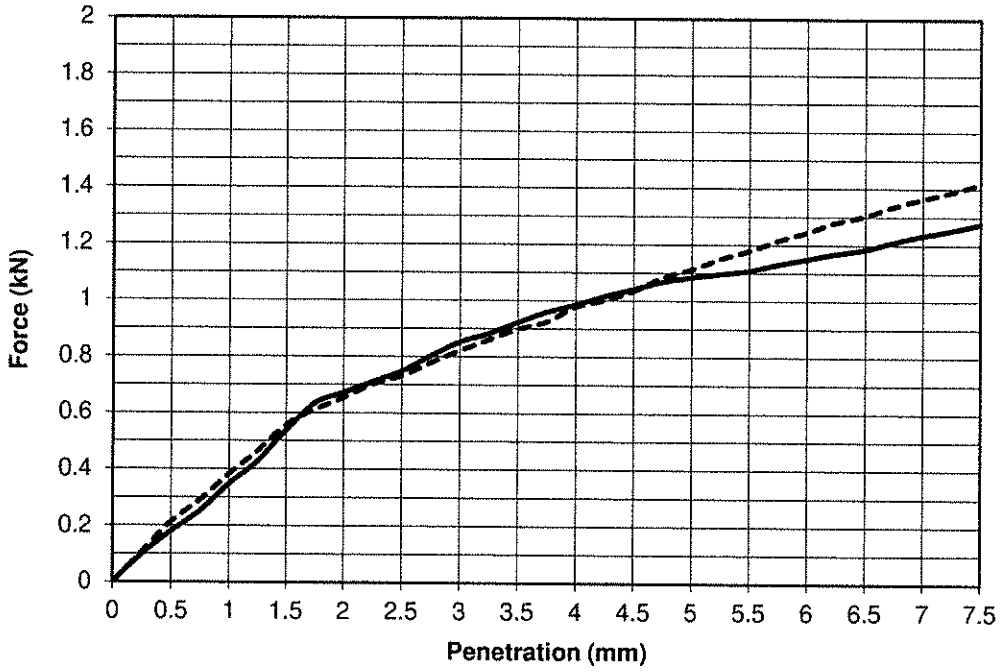
IGSL Ltd Materials Laboratory Unit J5,M7 Business Park Naas Co.Kildare 045 899324	TEST REPORT Determination of California Bearing Ratio (CBR) Tested in accordance with BS1377:Part 4:1990, clause 7	ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

Report No.	R147904	Contract	Monaghan Town Active Travel Development Site
Contract No.	24665/1	Customer	Cora
Date received	09/06/23	Date Tested	15/06/23
BH/TP No.*	TP01	Sample No.*	AA200193 Type: B
Depth* (m)	0.70	Lab sample No.	A23/1716



Key: ———— Top ---------- Base

Description:	Grey brown sandy gravelly CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	14	Bulk Density (Mg/m^3):	2.01
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.76
% Material >20mm:	13		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**5.7**	**5.6**
Moisture Content %	14	14

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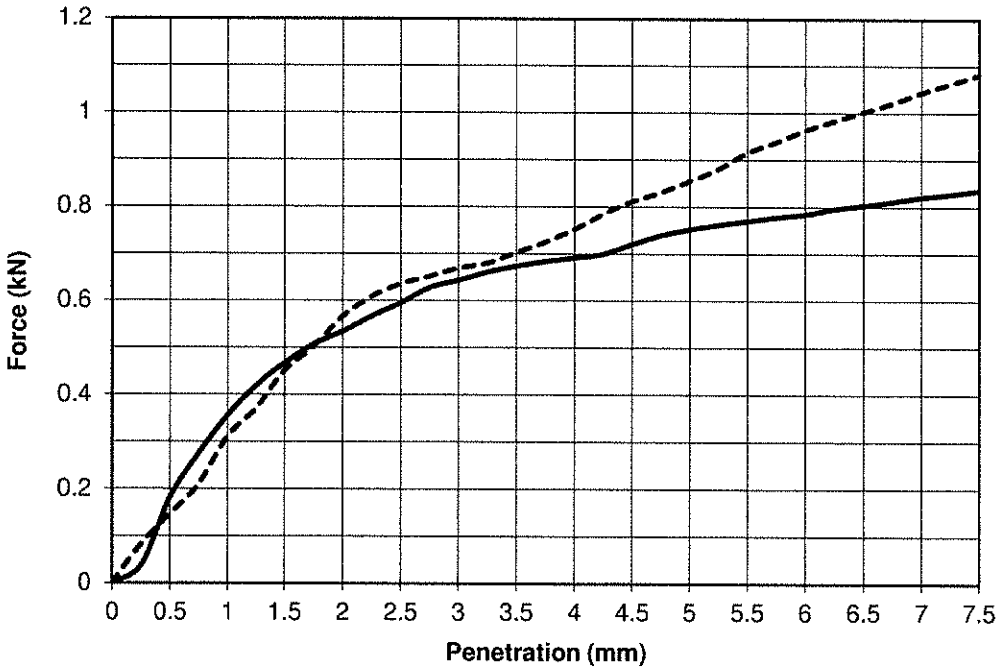
Report No.	R147905	Contract	Monaghan Town Active Travel Development Site
Contract No.	24665/1	Customer	Cora
Date received	09/06/23	Date Tested	15/06/23
BH/TP No.*	TP03	Sample No.*	AA200179 Type: B
Depth* (m)	0.60	Lab sample No.	A23/1717



Key: ———— Top ---------- Base

Description:	Grey brown sandy gravelly CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	12	Bulk Density (Mg/m^3):	2.03
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.82
% Material >20mm:	10		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**4.5**	**4.8**
Moisture Content %	12	11

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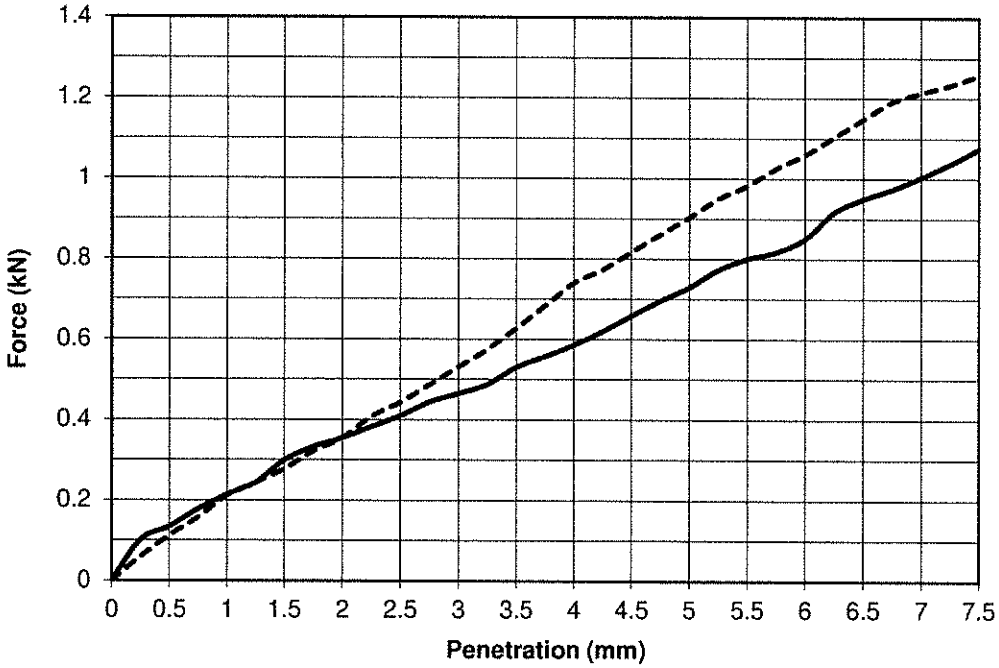
Report No.	R147906	Contract	Monaghan Town Active Travel Development Site
Contract No.	24665/1	Customer	Cora
Date received	09/06/23	Date Tested	15/06/23
BH/TP No.*	TP05	Sample No.*	AA200182 Type: B
Depth* (m)	0.70	Lab sample No.	A23/1718



Key: ———— Top ---------- Base

Description:	Brown slightly sandy, slightly gravelly, SILT/CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	13	Bulk Density (Mg/m^3):	2.08
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.83
% Material >20mm:	10		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**3.7**	**4.5**
Moisture Content %	14	13

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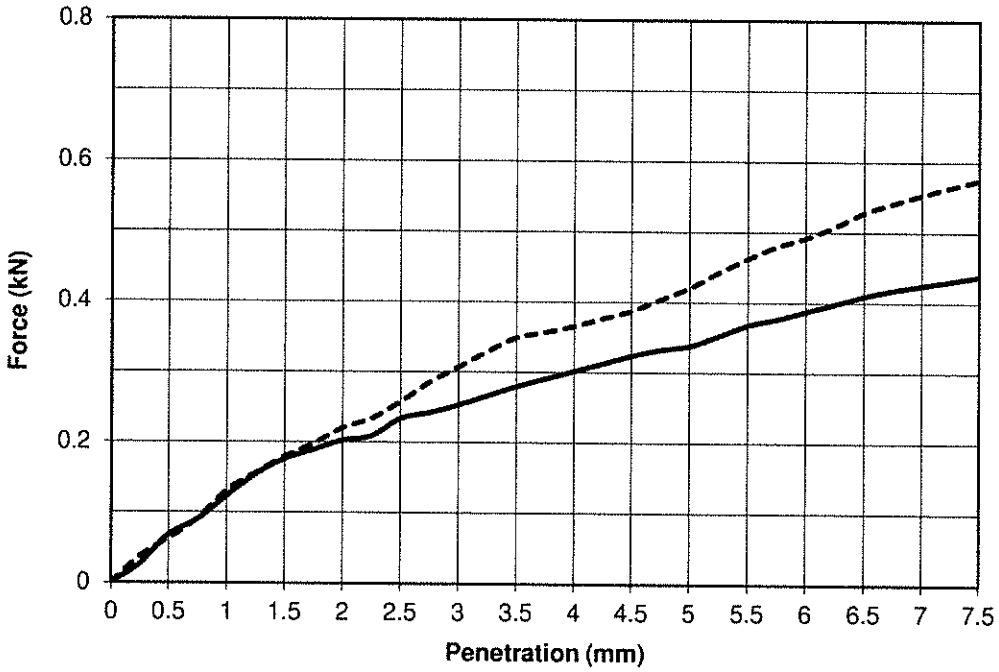
IGSL Ltd Materials Laboratory Unit J5,M7 Business Park Naas Co.Kildare 045 899324	TEST REPORT Determination of California Bearing Ratio (CBR) Tested in accordance with BS1377:Part 4:1990, clause 7	ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

Report No.	R147907	Contract	Monaghan Town Active Travel Development Site
Contract No.	24665/1	Customer	Cora
Date received	09/06/23	Date Tested	15/06/23
BH/TP No.*	TP09	Sample No.*	AA200191 Type: B
Depth* (m)	0.70	Lab sample No.	A23/1719



Key: ———— Top ---------- Base

Description:	Grey brown sandy, slightly gravelly, SILT/CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	14	Bulk Density (Mg/m^3):	2.11
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.85
% Material >20mm:	13		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**1.8**	**2.1**
Moisture Content %	14	14

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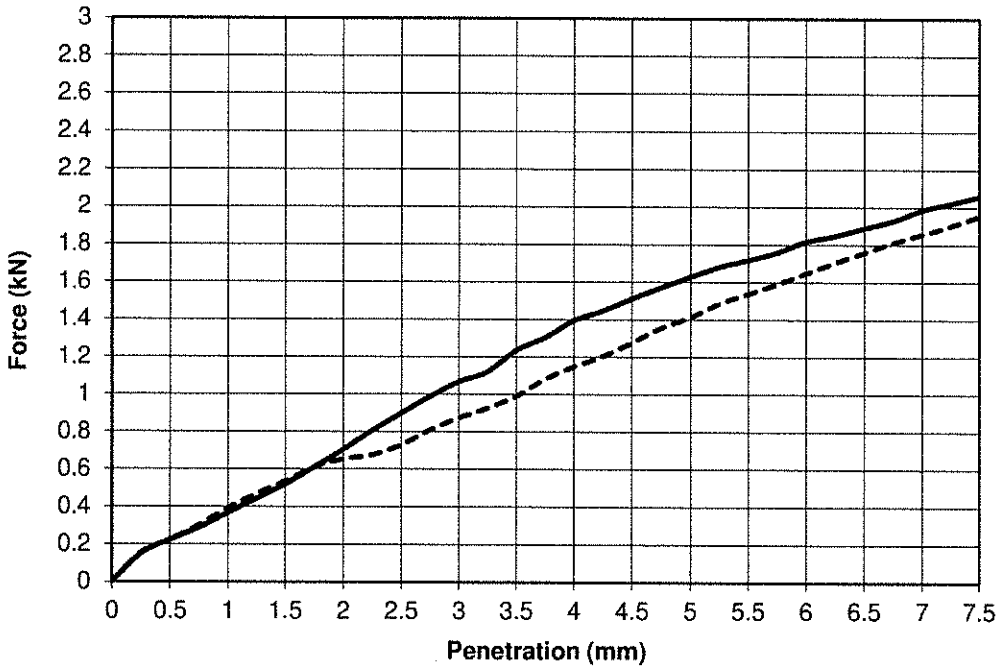
IGSL Ltd Materials Laboratory Unit J5,M7 Business Park Naas Co.Kildare 045 899324	TEST REPORT Determination of California Bearing Ratio (CBR) Tested in accordance with BS1377:Part 4:1990, clause 7	ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO.1331

Report No.	R147908	Contract	Monaghan Town Active Travel Development Site
Contract No.	24665/1	Customer	Cora
Date received	09/06/23	Date Tested	15/06/23
BH/TP No.*	TP12	Sample No.*	AA205178 Type: B
Depth* (m)	0.80	Lab sample No.	A23/1720



Key: ———— Top ---------- Base

Description:	Brown slightly sandy, gravelly, SILT/CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	10	Bulk Density (Mg/m^3):	2.15
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.95
% Material >20mm:	21		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**8.2**	**7.1**
Moisture Content %	10	10

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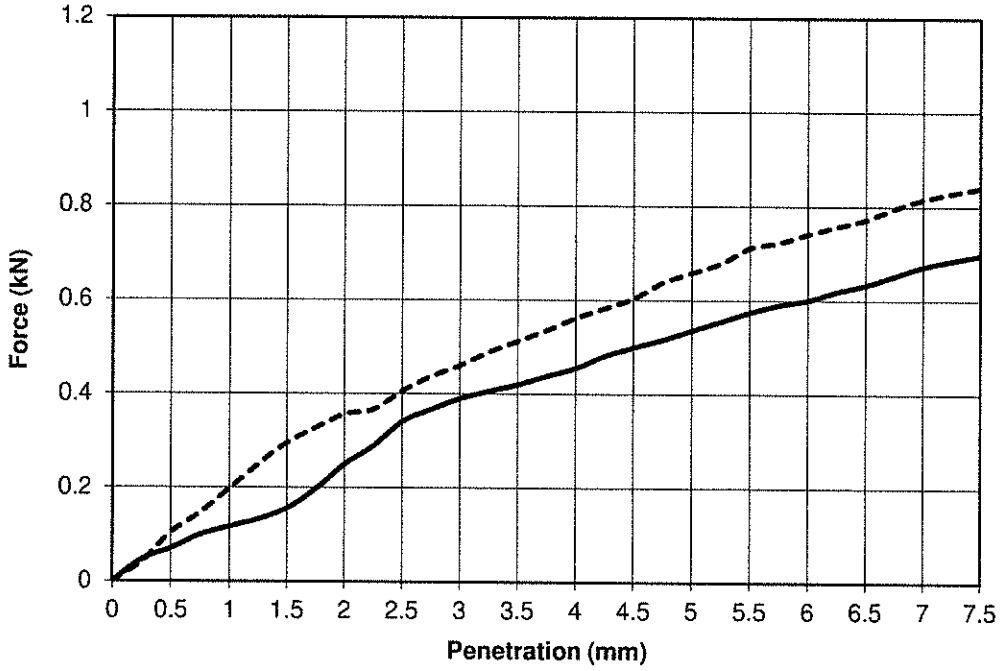
Report No.	R147909	Contract	Monaghan Town Active Travel Development Site
Contract No.	24665/1	Customer	Cora
Date received	09/06/23	Date Tested	15/06/23
BH/TP No.*	TP14	Sample No.*	AA205176 Type: B
Depth* (m)	1.50	Lab sample No.	A23/1721



Key: ———— Top ---------- Base

Description:	Grey brown slightly sandy, gravelly, SILT/CLAY		
Initial Condition:	Unsoaked		
Moisture Content (%):	14	Bulk Density (Mg/m^3):	2.04
Surcharge (kg):	4	Dry Density (Mg/m^3):	1.79
% Material >20mm:	15		
Method of compaction:	Static Compaction Method 2		

Test Result	Top	Base
CBR %	**2.7**	**3.3**
Moisture Content %	14	13

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Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

Report No. R147910 Contract No. 24665/1

Contract Name: Monaghan Town Active Travel Development Site

Location*: TP01

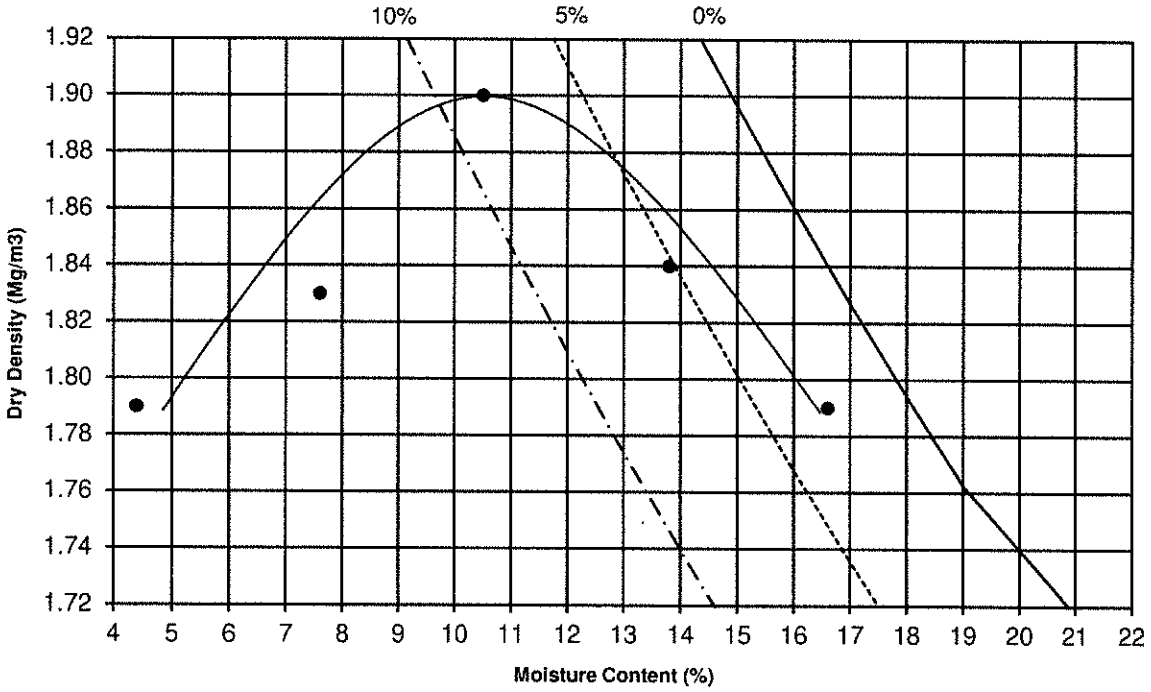
Sample No*. AA200193 Depth* (m) 0.7 Material Type B

Lab sample no. A23/1716 Customer: CORA

Date Received: 09/06/2023 Test Method: 2.5 Kg Rammer

Date Tested: 03/07/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.90	1.79	1.83	1.84	1.79		
Moisture Content (%)	11	4.4	7.6	14	17	0	



Maximum Dry Density (Mg/m^3): 1.90 Optimum Moisture Content (%): 11

Description: Brown sandy gravelly SILT/CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 13

Results relate only to the specimen tested, in as received condition unless otherwise noted.
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Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

Report No. R147911 Contract No. 24665/1

Contract Name: Monaghan Town Active Travel Development Site

Location*: TP03

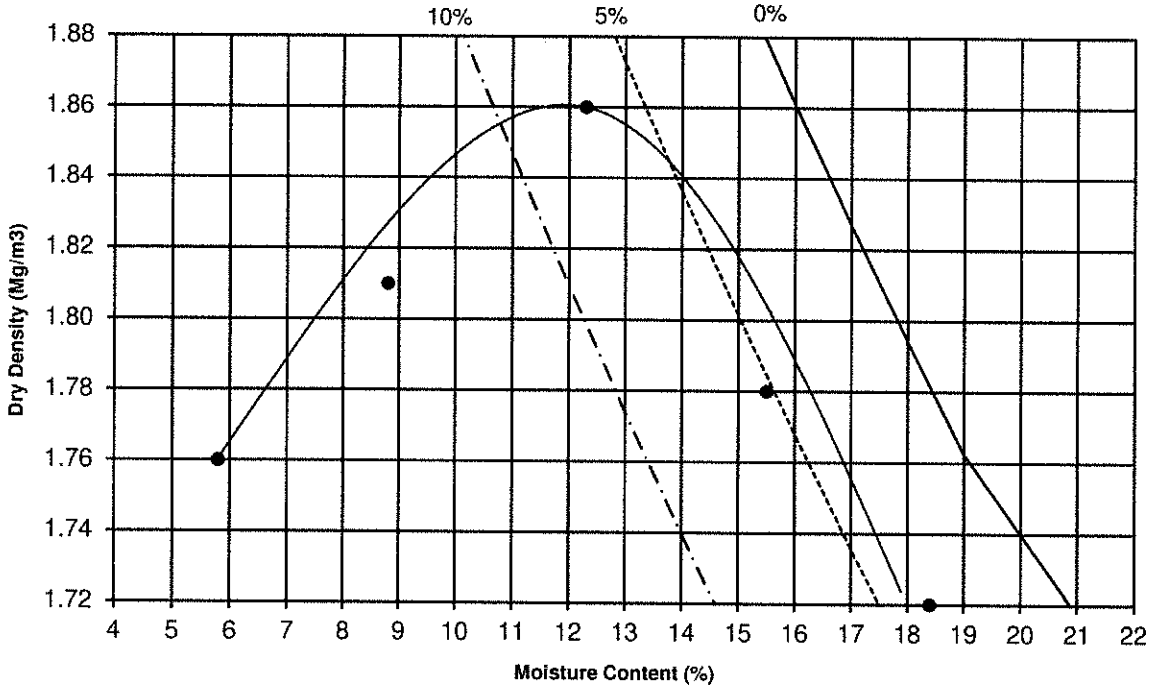
Sample No*. AA200179 Depth* (m) 0.7 Material Type B

Lab sample no. A23/1717 Customer: CORA

Date Received: 09/06/2023 Test Method: 2.5 Kg Rammer

Date Tested: 03/07/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.86	1.76	1.81	1.78	1.72		
Moisture Content (%)	12	5.8	8.8	16	18	0	



Maximum Dry Density (Mg/m^3): 1.86 Optimum Moisture Content (%): 12

Description: Brown sandy gravelly SILT/CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 10

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Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1331

Report No. R147912 Contract No. 24665/1

Contract Name: Monaghan Town Active Travel Development Site

Location*: TP05

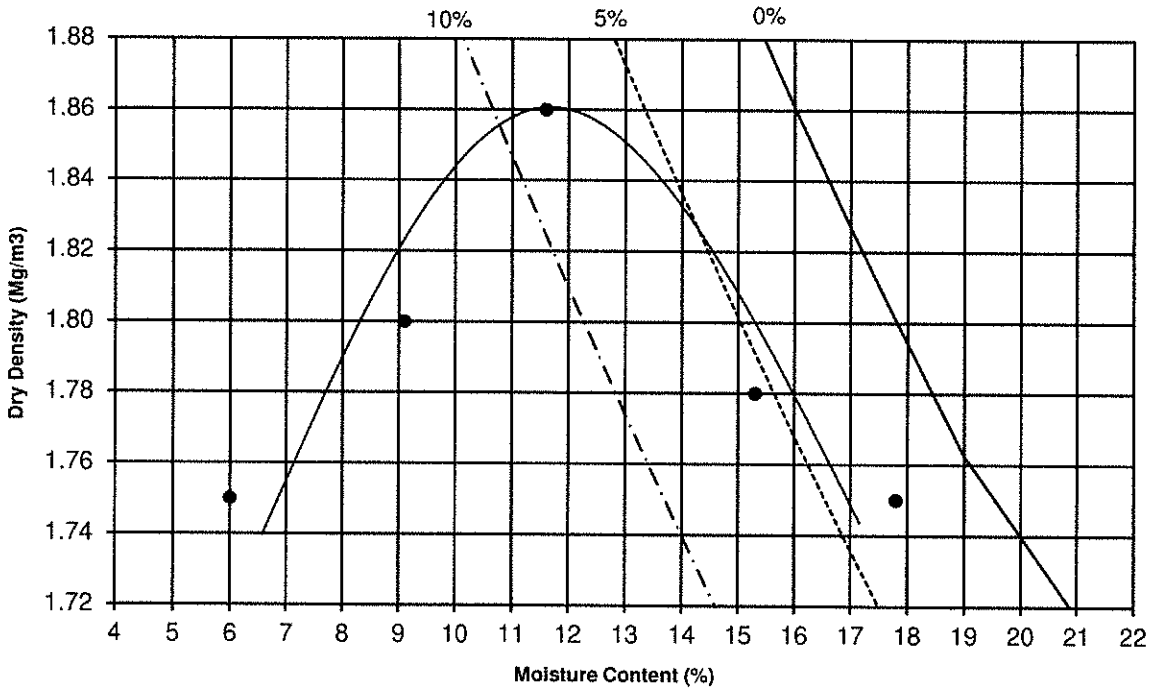
Sample No*. AA200182 Depth* (m) 0.7 Material Type B

Lab sample no. A23/1718 Customer: CORA

Date Received: 09/06/2023 Test Method: 2.5 Kg Rammer

Date Tested: 03/07/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.86	1.75	1.80	1.78	1.75		
Moisture Content (%)	12	6.0	9.1	15	18	0	



Maximum Dry Density (Mg/m^3): 1.86 Optimum Moisture Content (%): 12

Description: Brown slightly sandy, slightly gravelly, SILT/CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 10

Results relate only to the specimen tested, in as received condition unless otherwise noted.
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Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1337

Report No. R147913 Contract No. 24665/1

Contract Name: Monaghan Town Active Travel Development Site

Location*: TP09

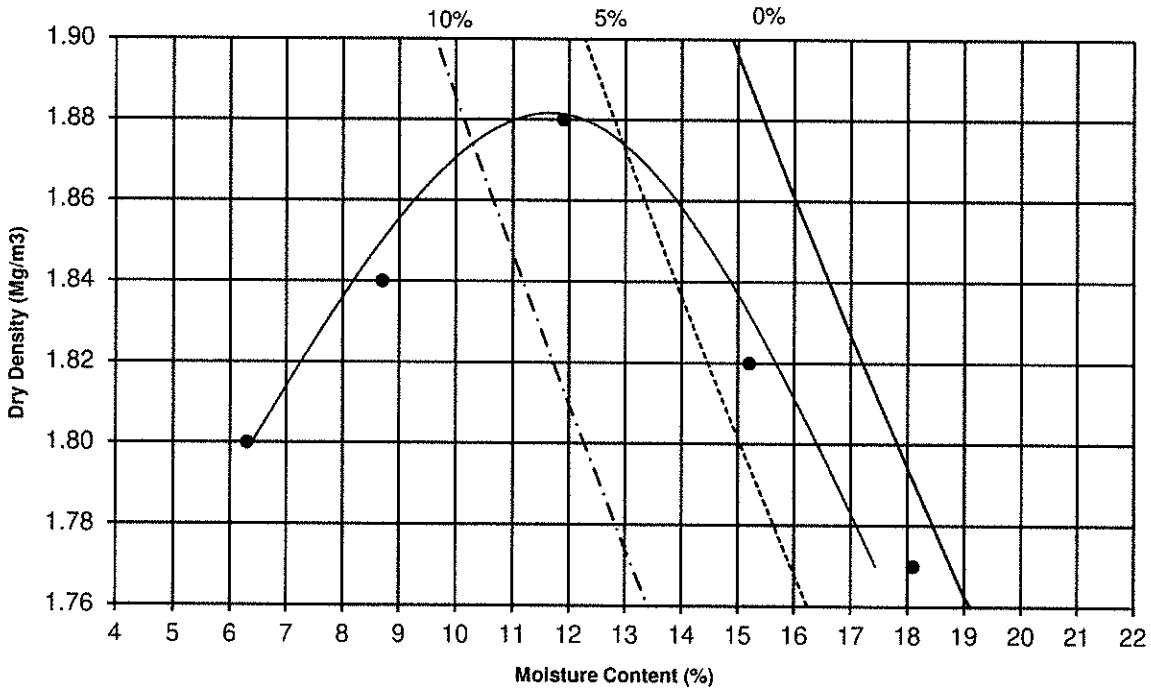
Sample No*. AA200191 Depth* (m) 0.7 Material Type B

Lab sample no. A23/1719 Customer: CORA

Date Received: 09/06/2023 Test Method: 2.5 Kg Rammer

Date Tested: 03/07/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.88	1.80	1.84	1.82	1.77		
Moisture Content (%)	12	6.3	8.7	15	18	0	



Maximum Dry Density (Mg/m^3): 1.88 Optimum Moisture Content (%): 12

Description: Grey brown sandy, slightly gravelly, SILT/CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 13

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

IGSL Materials Laboratory	Approved by	Date	Page
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IGSL Ltd
Materials Laboratory
M7 Business Park
Naas
Co. Kildare

Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1331

Report No. R147914 Contract No. 24665/1

Contract Name: Monaghan Town Active Travel Development Site

Location*: TP12

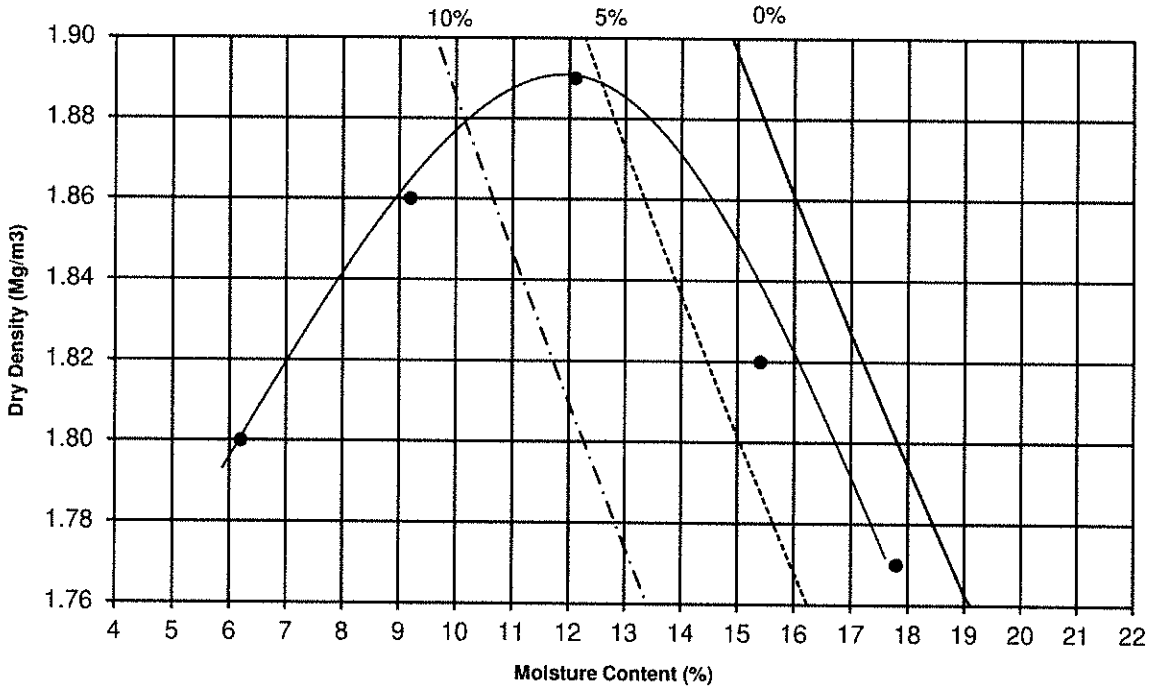
Sample No*. AA205179 Depth* (m) 0.8 Material Type B

Lab sample no. A23/1720 Customer: CORA

Date Received: 09/06/2023 Test Method: 2.5 Kg Rammer

Date Tested: 03/07/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.89	1.80	1.86	1.82	1.77		
Moisture Content (%)	12	6.2	9.2	15	18	0	



Maximum Dry Density (Mg/m^3): 1.89 Optimum Moisture Content (%): 12

Description: Brown slightly sandy, gravelly, SILT/CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 19

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

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

IGSL Materials Laboratory	Approved by	Date	Page
		18/07/23	1 of 1

IGSL Ltd
Materials Laboratory
M7 Business Park
Naas
Co. Kildare

Test Report

Dry Density/Moisture Content Relationship

Tested in accordance with BS1377:Part 4:1990

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 131T

Report No. R147915 Contract No. 24665/1

Contract Name: Monaghan Town Active Travel Development Site

Location*: TP14

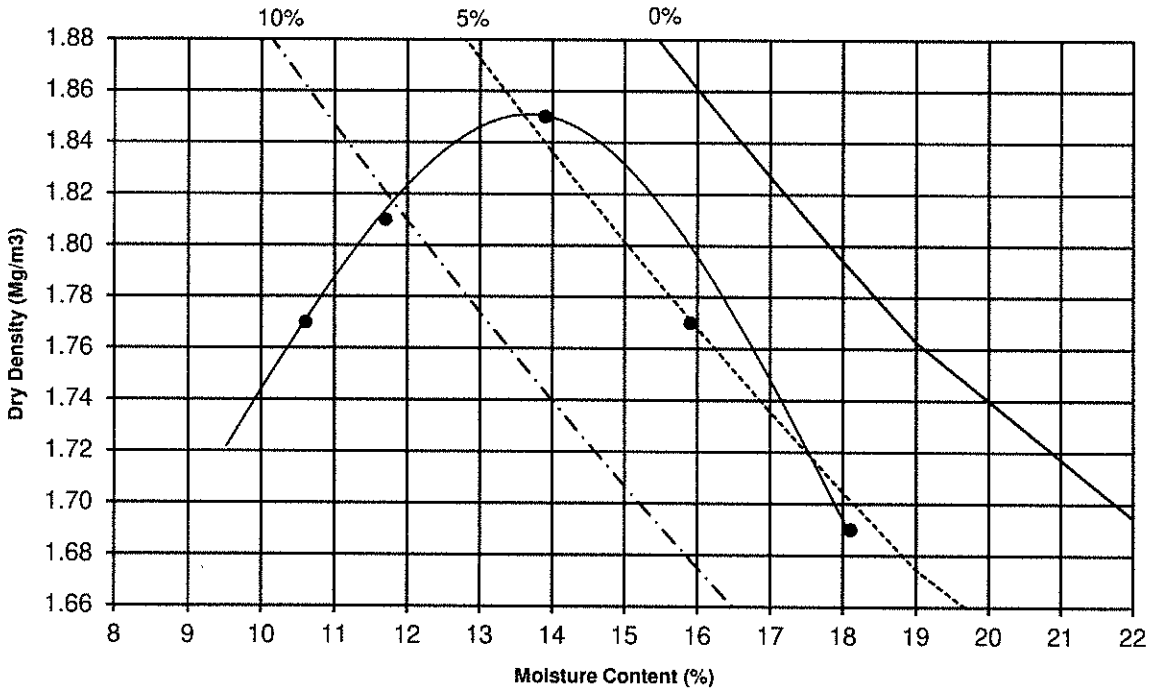
Sample No*. AA205176 Depth* (m) 1.5 Material Type B

Lab sample no. A23/1721 Customer: CORA

Date Received: 09/06/2023 Test Method: 2.5 Kg Rammer

Date Tested: 03/07/2023 BS1377:Part 4:1990 3.3

Dry Density (Mg/m^3)	1.77	1.69	1.85	1.81	1.77		
Moisture Content (%)	11	18	14	12	16	0	



Maximum Dry Density (Mg/m^3): 1.85 Optimum Moisture Content (%): 14

Description: Grey brown slightly sandy, gravelly, SILT/CLAY

Sample Preparation: Material passing 20mm ~~Single~~ / Separate samples used

Particle Density (Mg/m^3): 2.65 Particle Density: Assumed

% retained on 20/37.5mm sieve: 14

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

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

IGSL Materials Laboratory	Approved by	Date	Page
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Appendix Vb Chemical / Environmental Laboratory Data

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	23-19446-1
Initial Date of Issue:	19-Jun-2023
Re-Issue Details:	
Client	IGSL
Client Address:	M7 Business Park Naas County Kildare Ireland
Contact(s):	Darren Keogh
Project	24665 / 1 Monaghan Town Active Travel Development Site(CORA)
Quotation No.:	Q20-19951
Order No.:	
No. of Samples:	18
Turnaround (Wkdays):	7
Date Approved:	19-Jun-2023
Approved By:	
Details:	Stuart Henderson, Technical Manager

Date Received:	08-Jun-2023
Date Instructed:	08-Jun-2023
Results Due:	16-Jun-2023

Results - Leachate

Project: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

Client: IGSL				Chemtest Job No.:		23-19446	23-19446	23-19446	23-19446	23-19446	23-19446
Quotation No.: Q20-19951				Chemtest Sample ID.:		1653387	1653389	1653392	1653395	1653398	1653402
Order No.:				Client Sample Ref.:		AA192931	AA192934	AA171710	AA200184	AA200195	AA205173
				Sample Location:		BH01	BH03	BH07	TP04	TP08	TP13
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.50	0.50	0.80	0.50	0.80	0.60
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**						
pH	U	1010	10:1		N/A	8.4	8.1	8.8	8.9	8.9	8.2
Ammonium	U	1220	10:1	mg/l	0.050	0.22	0.13	0.11	0.11	0.12	0.15
Ammonium	N	1220	10:1	mg/kg	0.10	2.5	1.4	1.5	1.6	1.7	1.6
Boron (Dissolved)	U	1455	10:1	mg/kg	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo[j]fluoranthene	N	1800	10:1	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: 24665 / 1 Monaghan Town Active Travel Development
Site(CORA)

Client: IGSL			Chemtest Job No.:	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446
Quotation No.: Q20-19951			Chemtest Sample ID.:	1653387	1653388	1653389	1653390	1653391	1653392	1653393	1653394	1653395
Order No.:			Client Sample Ref.:	AA192931	AA197802	AA192934	AA192939	AA192947	AA171710	AA200193	AA200179	AA200184
			Sample Location:	BH01	BH02	BH03	BH04A	BH05	BH07	TP01	TP03	TP04
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	0.50	1.00	0.50	1.00	1.00	0.80	0.70	0.60	0.50
			Asbestos Lab:	DURHAM		DURHAM			NEW-ASB			NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
ACM Type	U	2192		N/A	-		-			-			-
Asbestos Identification	U	2192		N/A	No Asbestos Detected		No Asbestos Detected			No Asbestos Detected			No Asbestos Detected
Moisture	N	2030	%	0.020	25	7.0	22	11	11	6.8	10	16	10
pH (2.5:1)	N	2010		4.0		[A] 8.6		[A] 8.5	[A] 8.5				
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	[A] < 0.40		[A] < 0.40			[A] < 0.40			[A] < 0.40
Magnesium (Water Soluble)	N	2120	g/l	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010				
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		[A] < 0.010		[A] < 0.010	[A] < 0.010				
Total Sulphur	U	2175	%	0.010		[A] 0.032		[A] 0.015	[A] 0.019				
Sulphur (Elemental)	U	2180	mg/kg	1.0	[A] 2.7		[A] 3.2			[A] 2.3			[A] 2.2
Chloride (Water Soluble)	U	2220	g/l	0.010		[A] 0.11		[A] < 0.010	[A] < 0.010				
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010		< 0.010	< 0.010				
Cyanide (Total)	U	2300	mg/kg	0.50	[A] < 0.50		[A] < 0.50			[A] < 0.50			[A] < 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	[A] 14		[A] 4.7			[A] 2.5			[A] 4.6
Ammonium (Water Soluble)	U	2220	g/l	0.01		< 0.01		< 0.01	< 0.01				
Sulphate (Acid Soluble)	U	2430	%	0.010	[A] 0.024	[A] 0.057	[A] 0.018	[A] 0.029	[A] 0.031	[A] 0.014			[A] 0.053
Arsenic	U	2455	mg/kg	0.5	3.3		3.6			3.3			5.1
Barium	U	2455	mg/kg	0	28		39			38			34
Cadmium	U	2455	mg/kg	0.10	< 0.10		< 0.10			< 0.10			< 0.10
Chromium	U	2455	mg/kg	0.5	15		16			15			18
Molybdenum	U	2455	mg/kg	0.5	< 0.5		< 0.5			< 0.5			< 0.5
Antimony	N	2455	mg/kg	2.0	< 2.0		< 2.0			< 2.0			< 2.0
Copper	U	2455	mg/kg	0.50	10		13			11			13
Mercury	U	2455	mg/kg	0.05	< 0.05		< 0.05			0.05			0.07
Nickel	U	2455	mg/kg	0.50	23		31			21			28
Lead	U	2455	mg/kg	0.50	8.1		12			14			20
Selenium	U	2455	mg/kg	0.25	< 0.25		< 0.25			< 0.25			< 0.25
Zinc	U	2455	mg/kg	0.50	29		38			37			62
Chromium (Trivalent)	N	2490	mg/kg	1.0	15		16			15			18
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50			< 0.50			< 0.50
Organic Matter	U	2625	%	0.40							[A] 2.5	[A] 1.8	
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10	< 10		< 10			< 10			< 10
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0

Results - Soil

Project: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

Client: IGSL				Chemtest Job No.:	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446
Quotation No.: Q20-19951				Chemtest Sample ID.:	1653387	1653388	1653389	1653390	1653391	1653392	1653393	1653394	1653395
Order No.:				Client Sample Ref.:	AA192931	AA197802	AA192934	AA192939	AA192947	AA171710	AA200193	AA200179	AA200184
				Sample Location:	BH01	BH02	BH03	BH04A	BH05	BH07	TP01	TP03	TP04
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.50	1.00	0.50	1.00	1.00	0.80	0.70	0.60	0.50
				Asbestos Lab:	DURHAM		DURHAM			NEW-ASB			NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0			[A] < 5.0			[A] < 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	[A] < 5.0		[A] < 5.0			[A] < 5.0			[A] < 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	[A] < 10		[A] < 10			[A] < 10			[A] < 10
Benzene	U	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Toluene	U	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Ethylbenzene	U	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
m & p-Xylene	U	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
o-Xylene	U	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0	[A] < 1.0		[A] < 1.0			[A] < 1.0			[A] < 1.0
Naphthalene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Acenaphthylene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Acenaphthene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Fluorene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Phenanthrene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Anthracene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Fluoranthene	N	2800	mg/kg	0.010	[A] 0.17		[A] < 0.010			[A] < 0.010			[A] < 0.010
Pyrene	N	2800	mg/kg	0.010	[A] 0.18		[A] < 0.010			[A] < 0.010			[A] < 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Chrysene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Coronene	N	2800	mg/kg	0.010	[A] < 0.010		[A] < 0.010			[A] < 0.010			[A] < 0.010
Total Of 17 PAH's	N	2800	mg/kg	0.20	[A] 0.35		[A] < 0.20			[A] < 0.20			[A] < 0.20
PCB 28	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010

Results - Soil

Project: 24665 / 1 Monaghan Town Active Travel Development
Site(CORA)

Client: IGSL			Chemtest Job No.:	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446
Quotation No.: Q20-19951			Chemtest Sample ID.:	1653387	1653388	1653389	1653390	1653391	1653392	1653393	1653394	1653395
Order No.:			Client Sample Ref.:	AA192931	AA197802	AA192934	AA192939	AA192947	AA171710	AA200193	AA200179	AA200184
			Sample Location:	BH01	BH02	BH03	BH04A	BH05	BH07	TP01	TP03	TP04
			Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):	0.50	1.00	0.50	1.00	1.00	0.80	0.70	0.60	0.50
			Asbestos Lab:	DURHAM		DURHAM			NEW-ASB			NEW-ASB
Determinand	**Accred.**	**SOP**	**Units**	**LOD**								
PCB 52	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010
PCB 90+101	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010
PCB 118	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010
PCB 153	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010
PCB 138	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010
PCB 180	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010	[A] < 0.0010		[A] < 0.0010			[A] < 0.0010			[A] < 0.0010
Total Phenols	U	2920	mg/kg	0.10	< 0.10		< 0.10			< 0.10			< 0.10

Results - Soil

Project: 24665 / 1 Monaghan Town Active Travel Development
Site(CORA)

Client: IGSL					Chemtest Job No.:	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446
Quotation No.: Q20-19951					Chemtest Sample ID.:	1653396	1653397	1653398	1653399	1653400	1653401	1653402	1653403	1653404
Order No.:					Client Sample Ref.:	AA200182	AA200188	AA200195	AA200196	AA200191	AA205178	AA205173	AA205175	AA205176
					Sample Location:	TP05	TP07	TP08	TP08	TP09	TP12	TP13	TP14	TP14
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.70	0.50	0.80	1.80	0.70	0.80	0.60	0.70	1.50
					Asbestos Lab:			COVENTRY				NEW-ASB		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
ACM Type	U	2192		N/A				-				-		
Asbestos Identification	U	2192		N/A				No Asbestos Detected				No Asbestos Detected		
Moisture	N	2030	%	0.020	13	12	10	7.8	11	11	19	17	13	
pH (2.5:1)	N	2010		4.0		[A] 8.0		[A] 8.6				[A] 7.8		
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40			[A] < 0.40				[A] 0.52			
Magnesium (Water Soluble)	N	2120	g/l	0.010		[A] < 0.010		[A] < 0.010				[A] < 0.010		
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010		[A] < 0.010		[A] < 0.010				[A] 0.24		
Total Sulphur	U	2175	%	0.010		[A] 0.034		[A] 0.027				[A] 0.077		
Sulphur (Elemental)	U	2180	mg/kg	1.0			[A] 2.6				[A] 3.8			
Chloride (Water Soluble)	U	2220	g/l	0.010		[A] 0.028		[A] < 0.010				[A] < 0.010		
Nitrate (Water Soluble)	N	2220	g/l	0.010		0.017		< 0.010				< 0.010		
Cyanide (Total)	U	2300	mg/kg	0.50			[A] < 0.50				[A] < 0.50			
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50			[A] 3.3				[A] 3.3			
Ammonium (Water Soluble)	U	2220	g/l	0.01		< 0.01		< 0.01				< 0.01		
Sulphate (Acid Soluble)	U	2430	%	0.010		[A] 0.065	[A] 0.033	[A] 0.045			[A] 0.040	[A] 0.075		
Arsenic	U	2455	mg/kg	0.5			4.5				5.3			
Barium	U	2455	mg/kg	0			48				43			
Cadmium	U	2455	mg/kg	0.10			< 0.10				< 0.10			
Chromium	U	2455	mg/kg	0.5			27				28			
Molybdenum	U	2455	mg/kg	0.5			< 0.5				< 0.5			
Antimony	N	2455	mg/kg	2.0			< 2.0				< 2.0			
Copper	U	2455	mg/kg	0.50			21				18			
Mercury	U	2455	mg/kg	0.05			< 0.05				< 0.05			
Nickel	U	2455	mg/kg	0.50			43				37			
Lead	U	2455	mg/kg	0.50			16				13			
Selenium	U	2455	mg/kg	0.25			< 0.25				< 0.25			
Zinc	U	2455	mg/kg	0.50			48				41			
Chromium (Trivalent)	N	2490	mg/kg	1.0			27				28			
Chromium (Hexavalent)	N	2490	mg/kg	0.50			< 0.50				< 0.50			
Organic Matter	U	2625	%	0.40	[A] 1.1				[A] 1.1	[A] 1.0			[A] 1.1	
Mineral Oil (TPH Calculation)	N	2670	mg/kg	10			< 10				< 10			
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aliphatic TPH >C8-C10	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aliphatic TPH >C10-C12	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aliphatic TPH >C12-C16	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aliphatic TPH >C16-C21	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			

Results - Soil

Project: 24665 / 1 Monaghan Town Active Travel Development
Site(CORA)

Client: IGSL					Chemtest Job No.:	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446
Quotation No.: Q20-19951					Chemtest Sample ID.:	1653396	1653397	1653398	1653399	1653400	1653401	1653402	1653403	1653404
Order No.:					Client Sample Ref.:	AA200182	AA200188	AA200195	AA200196	AA200191	AA205178	AA205173	AA205175	AA205176
					Sample Location:	TP05	TP07	TP08	TP08	TP09	TP12	TP13	TP14	TP14
					Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
					Top Depth (m):	0.70	0.50	0.80	1.80	0.70	0.80	0.60	0.70	1.50
					Asbestos Lab:			COVENTRY				NEW-ASB		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**										
Aliphatic TPH >C21-C35	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0			[A] < 5.0				[A] < 5.0			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aromatic TPH >C8-C10	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aromatic TPH >C10-C12	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aromatic TPH >C12-C16	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aromatic TPH >C16-C21	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aromatic TPH >C21-C35	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0			[A] < 1.0				[A] < 1.0			
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0			[A] < 5.0				[A] < 5.0			
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0			[A] < 10				[A] < 10			
Benzene	U	2760	µg/kg	1.0			[A] < 1.0				[A] < 1.0			
Toluene	U	2760	µg/kg	1.0			[A] < 1.0				[A] < 1.0			
Ethylbenzene	U	2760	µg/kg	1.0			[A] < 1.0				[A] < 1.0			
m & p-Xylene	U	2760	µg/kg	1.0			[A] < 1.0				[A] < 1.0			
o-Xylene	U	2760	µg/kg	1.0			[A] < 1.0				[A] < 1.0			
Methyl Tert-Butyl Ether	U	2760	µg/kg	1.0			[A] < 1.0				[A] < 1.0			
Naphthalene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Acenaphthylene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Acenaphthene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Fluorene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Phenanthrene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Anthracene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Fluoranthene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Pyrene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Benzo[a]anthracene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Chrysene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Benzo[b]fluoranthene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Benzo[k]fluoranthene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Benzo[a]pyrene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Coronene	N	2800	mg/kg	0.010			[A] < 0.010				[A] < 0.010			
Total Of 17 PAH's	N	2800	mg/kg	0.20			[A] < 0.20				[A] < 0.20			
PCB 28	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010			

Results - Soil

Project: 24665 / 1 Monaghan Town Active Travel Development
Site(CORA)

Client: IGSL				Chemtest Job No.:	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446	23-19446
Quotation No.: Q20-19951				Chemtest Sample ID.:	1653396	1653397	1653398	1653399	1653400	1653401	1653402	1653403	1653404
Order No.:				Client Sample Ref.:	AA200182	AA200188	AA200195	AA200196	AA200191	AA205178	AA205173	AA205175	AA205176
				Sample Location:	TP05	TP07	TP08	TP08	TP09	TP12	TP13	TP14	TP14
				Sample Type:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):	0.70	0.50	0.80	1.80	0.70	0.80	0.60	0.70	1.50
				Asbestos Lab:			COVENTRY				NEW-ASB		
Determinand	**Accred.**	**SOP**	**Units**	**LOD**									
PCB 52	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010		
PCB 90+101	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010		
PCB 118	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010		
PCB 153	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010		
PCB 138	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010		
PCB 180	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010		
Total PCBs (7 congeners)	N	2815	mg/kg	0.0010			[A] < 0.0010				[A] < 0.0010		
Total Phenols	U	2920	mg/kg	0.10			< 0.10				< 0.10		

Results - Single Stage WAC

Project: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-19446						
Chemtest Sample ID:	1653387						
Sample Ref:	AA192931						
Sample ID:							
Sample Location:	BH01						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.4	3	5	6
Loss On Ignition	2610	U	%	5.0	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] 0.35	100	--	--
pH	2010	U		7.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0080	--	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	0.0002	0.0023	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	0.0011	0.011	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0006	0.0058	0.5	10	30
Nickel	1455	U	0.0007	0.0066	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 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	0.046	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.15	1.5	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	4.8	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	25

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: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-19446						
Chemtest Sample ID:	1653389						
Sample Ref:	AA192934						
Sample ID:							
Sample Location:	BH03						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 2.0	3	5	6
Loss On Ignition	2610	U	%	1.5	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.012	--	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	0.0003	0.0031	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	0.0011	0.011	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0008	0.0079	0.5	10	30
Nickel	1455	U	0.0005	0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 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	0.033	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.10	1.0	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	47	470	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 (%)	22

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: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-19446						
Chemtest Sample ID:	1653392						
Sample Ref:	AA171710						
Sample ID:							
Sample Location:	BH07						
Top Depth(m):	0.80						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 1.3	3	5	6
Loss On Ignition	2610	U	%	10	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.011	--	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	0.0003	0.0030	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	0.0016	0.016	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	0.0008	0.0077	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 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	0.035	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	2.3	23	1000	20000	50000
Total Dissolved Solids	1020	N	40	400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	4.4	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	6.8

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: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-19446						
Chemtest Sample ID:	1653395						
Sample Ref:	AA200184						
Sample ID:							
Sample Location:	TP04						
Top Depth(m):	0.50						
Bottom Depth(m):							
Sampling Date:					**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Determinand	**SOP**	**Accred.**	**Units**				
Total Organic Carbon	2625	U	%	[A] 1.3	3	5	6
Loss On Ignition	2610	U	%	3.1	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0060	--	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	0.0003	0.0029	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	0.0010	0.010	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0008	0.0081	0.5	10	30
Nickel	1455	U	0.0005	0.0053	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 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	0.055	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.12	1.2	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	31	310	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	3.5	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	10

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: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-19446						
Chemtest Sample ID:	1653398						
Sample Ref:	AA200195						
Sample ID:							
Sample Location:	TP08						
Top Depth(m):	0.80						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.77	3	5	6
Loss On Ignition	2610	U	%	2.8	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.017	--	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	0.0006	0.0061	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	0.0006	0.0060	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0008	0.0076	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0050	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0050	0.5	10	50
Antimony	1455	U	< 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	0.034	4	50	200
Chloride	1220	U	< 1.0	< 10	800	15000	25000
Fluoride	1220	U	0.096	< 1.0	10	150	500
Sulphate	1220	U	< 1.0	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	31	310	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	3.0	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	10

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: 24665 / 1 Monaghan Town Active Travel Development Site(CORA)

					Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	23-19446						
Chemtest Sample ID:	1653402						
Sample Ref:	AA205173						
Sample ID:							
Sample Location:	TP13						
Top Depth(m):	0.60						
Bottom Depth(m):							
Sampling Date:							
Determinand	**SOP**	**Accred.**	**Units**		**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	U	%	[A] 0.34	3	5	6
Loss On Ignition	2610	U	%	4.7	--	--	10
Total BTEX	2760	U	mg/kg	[A] < 0.010	6	--	--
Total PCBs (7 congeners)	2815	N	mg/kg	[A] < 0.0010	1	--	--
TPH Total WAC	2670	U	mg/kg	[A] < 10	500	--	--
Total Of 17 PAH's	2800	N	mg/kg	[A] < 0.20	100	--	--
pH	2010	U		7.8	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0090	--	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	0.0019	0.019	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	0.0036	0.036	0.5	10	70
Copper	1455	U	0.0058	0.058	2	50	100
Mercury	1455	U	< 0.00005	< 0.00050	0.01	0.2	2
Molybdenum	1455	U	0.0004	0.0043	0.5	10	30
Nickel	1455	U	0.0056	0.056	0.4	10	40
Lead	1455	U	0.0013	0.013	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0050	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0050	0.1	0.5	7
Zinc	1455	U	0.010	0.10	4	50	200
Chloride	1220	U	1.1	11	800	15000	25000
Fluoride	1220	U	0.12	1.2	10	150	500
Sulphate	1220	U	2.0	20	1000	20000	50000
Total Dissolved Solids	1020	N	13	130	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	5.7	57	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	19

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.

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1653387	AA192931		BH01		A	Amber Glass 250ml
1653387	AA192931		BH01		A	Plastic Tub 500g
1653388	AA197802		BH02		A	Amber Glass 250ml
1653388	AA197802		BH02		A	Plastic Tub 500g
1653389	AA192934		BH03		A	Amber Glass 250ml
1653389	AA192934		BH03		A	Plastic Tub 500g
1653390	AA192939		BH04A		A	Amber Glass 250ml
1653390	AA192939		BH04A		A	Plastic Tub 500g
1653391	AA192947		BH05		A	Amber Glass 250ml
1653391	AA192947		BH05		A	Plastic Tub 500g
1653392	AA171710		BH07		A	Amber Glass 250ml
1653392	AA171710		BH07		A	Plastic Tub 500g
1653393	AA200193		TP01		A	Amber Glass 250ml
1653393	AA200193		TP01		A	Plastic Tub 500g
1653394	AA200179		TP03		A	Amber Glass 250ml
1653394	AA200179		TP03		A	Plastic Tub 500g
1653395	AA200184		TP04		A	Amber Glass 250ml
1653395	AA200184		TP04		A	Plastic Tub 500g
1653396	AA200182		TP05		A	Amber Glass 250ml
1653396	AA200182		TP05		A	Plastic Tub 500g
1653397	AA200188		TP07		A	Amber Glass 250ml
1653397	AA200188		TP07		A	Plastic Tub 500g

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1653398	AA200195		TP08		A	Amber Glass 250ml
1653398	AA200195		TP08		A	Plastic Tub 500g
1653399	AA200196		TP08		A	Amber Glass 250ml
1653399	AA200196		TP08		A	Plastic Tub 500g
1653400	AA200191		TP09		A	Amber Glass 250ml
1653400	AA200191		TP09		A	Plastic Tub 500g
1653401	AA205178		TP12		A	Amber Glass 250ml
1653401	AA205178		TP12		A	Plastic Tub 500g
1653402	AA205173		TP13		A	Amber Glass 250ml
1653402	AA205173		TP13		A	Plastic Tub 500g
1653403	AA205175		TP14		A	Amber Glass 250ml
1653403	AA205175		TP14		A	Plastic Tub 500g
1653404	AA205176		TP14		A	Amber Glass 250ml
1653404	AA205176		TP14		A	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity 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.
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).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters 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	Pentane extraction / GCMS detection
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.
2010	pH Value of Soils	pH	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 <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline 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.

Test Methods

SOP	Title	Parameters included	Method summary
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.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
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.
2800	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*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
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.
640	Characterisation of Waste (Leaching C10)	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

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

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

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

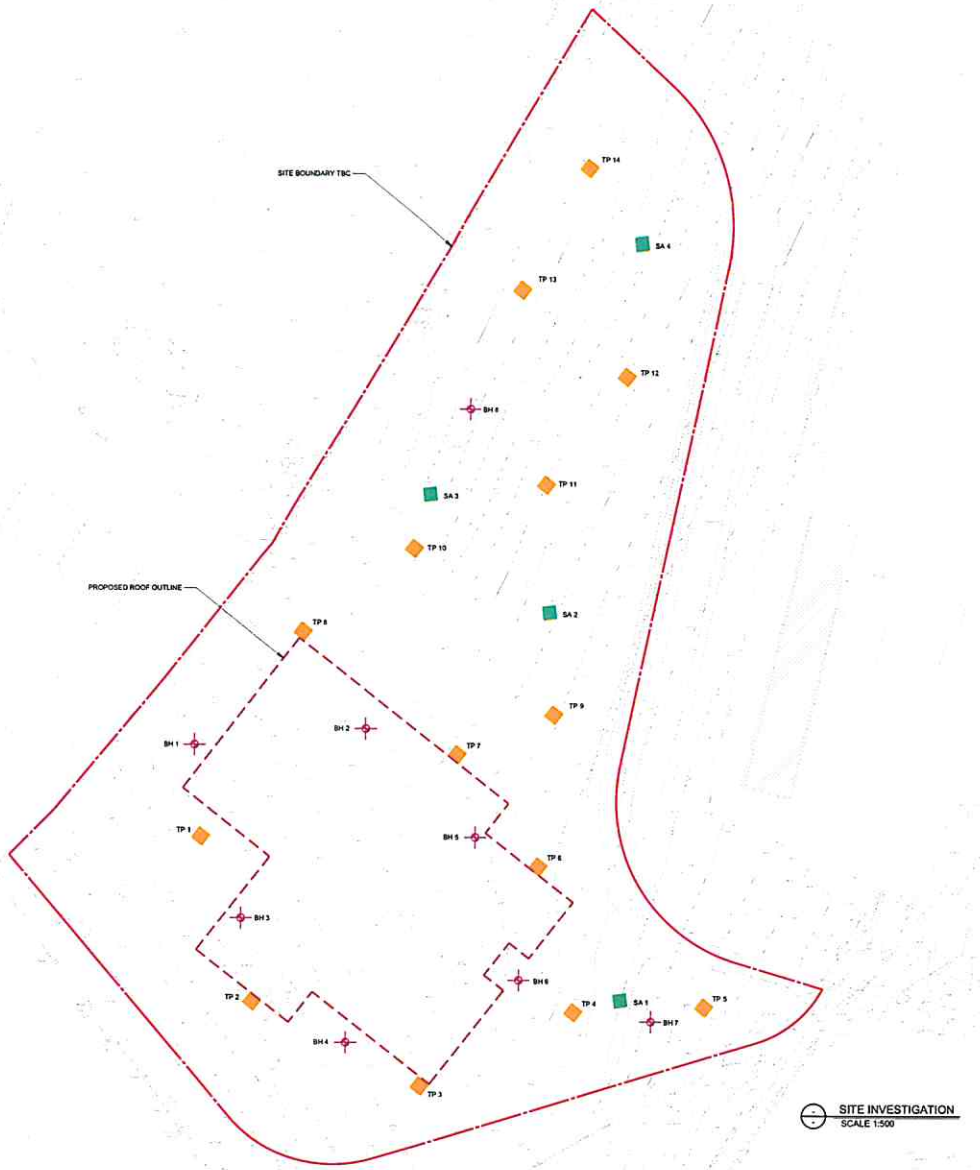
A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

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

Appendix VI Site Plans



SITE INVESTIGATION
SCALE 1:500

REVISION SCHEDULE

REV. NO.	REV. DESCRIPTION	REV. DATE	DRAWN	CHECKED
PL1	ISSUED FOR PLANNING	24/02/2023	BF	JFC

LEGEND

TP # — TRIAL PIT TO 2m BELOW EX GROUND LEVEL
SA # — SOAKAWAY TEST TO BRE 365
BH # — BOREHOLE ESTIMATED AT 6-9m DEEP

IMPORTANT NOTE:

TAKE SAMPLES AT 1m INTERVALS FOR WAC ANALYSIS IN BOREHOLES (BH) AND TRIAL PITS (TP)

Drawing Stage:	PLANNING
Project Details:	
Site Address:	-
Client:	MONAGHAN COUNTY COUNCIL
Architect:	HENRY J LYONS ARCHITECTS
M&E Designer:	-
Contractor:	-

Notes

Drawn by: BF	Checked by: KO'M	Approved by: JFC	Date: FEB '23
Project Name: MONAGHAN CIVIC OFFICES		Scale: 1:500 @ A1	Project Number: 2223
Drawing Title: SITE INVESTIGATION			

Project:	Originator:	Zone:	Level:	Type:	Discipline:	Drawing No:	Stage:	Revision:
2223	CORA	ZZ	ZZ	DR	SK	20	PL	PL1

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