IGSL Limited

Donnachadh O' Brien
And Associates

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**St. Evins Park**
**Monasterevin**

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Geotechnical Report

**Report No. 24737**

**August 2023**

Report


**M7 Business Park**
**Naas**
**Co. Kildare**
**Ireland**

**T: +353 (45) 846176**
**E: info @igsl.ie**
**W: www.igsl.ie**

Project: St. Evins Park, Monasterevin

Project No. 24737

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**FOREWORD**

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

**Standards**

The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930 (1999), BS 1377 (Parts 1 to 9) and Engineers Ireland Specification & Related Documents for Ground Investigation in Ireland (2006). A new National Annex for use in the Republic of Ireland is currently in circulation for comment and will be adopted in the near future. In the meantime, 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
- IS EN ISO 14689-1:2004 Geotechnical Investigation and Testing - Identification & Classification of Rock, Part 1: Identification & Description

**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.

This report has been prepared for DOBA Consulting Engineers and the information should not be used without prior written permission. The 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.

**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 and the Energy Ratio ($E_r$). 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 measured number of blows (N) reported on the engineering logs are uncorrected. In sands, the energy losses due to rod length and the effect of the overburden pressure should be taken into account (see IS EN ISO 22476-3:2005).

**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. Rock weathering classification conforms to IS EN ISO 14689-1:2003 while discontinuities (bedding planes, joints, cleavages, faults etc) are classified in accordance with 4.3.3 of IS EN ISO 14689-1:2003. Rock mechanical indices (TCR, SCR, RQD) are defined in accordance with IS EN ISO 22475-1:2006.

**Retention of Samples**

Samples shall be retained for a period of 60 days following approval of the final factual report, as detailed in the Scope of Works.

## 1.0 Introduction

An investigation of ground conditions in St. Evins Park Monasterevin was carried out ascertain foundation requirements for the proposed 15 social houses. Also required was an indication of the suitability of the sub-soils for soakaway purposes. In addition, environmental testing was scheduled on selected soil samples in order to screen for inherent contamination and to assess their suitability for disposal to an inert landfill.

Fieldwork for this investigation entailed the following:

- Boreholes were constructed in 3 locations to ascertain the sub-soil stratification.
- Trial pits were excavated in 4 locations in association with infiltration tests.
- Dynamic probing was performed in 9 locations to obtain soil resistance profiles.
- Infiltration testing was performed in 4 locations to assess the suitability of the sub-soils for soakaway purposes
- Plate Bearing Tests were performed in 3 locations to provide information for pavement design purposes.
- Slit trenches were excavated between stipulated coordinates to locate buried utilities.

This report presents an assessment of the ground conditions with respect to the proposed development.

## 2.0 Ground Conditions

### 2.1 Boreholes

Boreholes were constructed in the locations indicated on the site plan enclosed in Appendix 10, while the descriptions and depths of the various soils encountered are shown on the boring records enclosed in Appendix 1. Also shown on these records are the depths at which samples were recovered, the results of in-situ Standard Penetration Tests, and the groundwater conditions observed during the course of boring operations.

The boreholes revealed Made Ground, present to depths of 0.9 to 1.0 metres. The Made Ground consisted of brown sandy gravelly clay with occasional brick and concrete fragments. Underlying this material was stiff brown sandy gravelly clay which extended to depths ranging from 1.4 to 2.1 metres. Further boring revealed medium dense to dense sandy gravel with cobbles in which the boreholes were terminated on obstructions at depths of between 2.9 and 3.8 metres.

Groundwater ingress was observed at depths ranging from 2.1 to 2.6 metres, rising as shallow as 1.5 metres below existing ground level (m BGL) in BH01. Since the relatively short duration of boring operations does not permit an accurate measurement of the standing water level, standpipes were installed in BH01 and BH03 to facilitate long-term monitoring. The borehole information is summarised in Table 1.

| Location | Depth of Made Ground (m) | Firm/stiff sandy gravelly silt/clay | Medium dense to dense sandy gravel | Water Strike (m/bgl) | Water rose to (m/bgl) |
|---|---|---|---|---|---|
| BH01 | 1.00 | 1.00 to 1.40 | 1.40 to 2.90 | 2.10 | 1.50 |
| BH02 | 1.00 | 1.00 to 2.10 | 2.10 to 3.10 | 2.60 | No rise |
| BH03 | 0.90 | 0.90 to 1.70 | 1.70 to 3.80 | 2.60 | 2.50 |

Table 1

### 2.2 Trial Pits

Trial pits were excavated to facilitate the performance of infiltration tests. These pits revealed soft to firm sandy silty clay, grading to stiff sandy gravelly silty clay at depths of 0.8 to 0.9 m BGL. While TP01 and TP04 were terminated in this material, TP02 and TP03 encountered underlying deposits of sandy gravel. Ground water strikes were noted at depths of 2.1 to 2.2 metres. The trial pit findings are summarised in Table 2.

| Location | Topsoil | soft/firm sandy silt/clay | Firm/stiff sandy gravelly silt/clay | sandy gravel | Water strike (m bgl) |
|---|---|---|---|---|---|
| TP01 | 0.30 | 0.30 to 0.90 | 0.90 to 2.5 | | 2.00 |
| TP02 | 0.25 | 0.25 to 0.80 | 0.80 to 1.5 | 1.50 to 2.10 | 2.10 |
| TP03 | 0.25 | 0.25 to 0.80 | 0.80 to 2.00 | 2.00 to 2.20 | 2.20 |
| TP04 | 0.25 | 0.25 to 0.70 | 0.70 to 2.30 | | 2.20 |

Table2

## 2.3 Window Samples

Window samples WS01 and WS02 were recovered in order to obtain undisturbed samples of the subsoils.

Window samples are advanced by driving a steel sampling tube under constant percussive effort. The soils enter the tube within a protective plastic liner, which is withdrawn after every metre of progress. The liners are then placed in wooden channel boxes and transported to the IGSL offices where they are logged and sub-sampled as required.

The window sample record is presented in Appendix 3 of this report.

## 2.4 Dynamic Probing

Dynamic probing techniques were employed in 9 locations as shown on the site plan.

The dynamic probe utilised by IGSL Ltd complies with the requirements of ISO 22476-2: 2005+A1: 2011 – Geotechnical Investigation and testing – Field testing - Part 2: Dynamic probing. DPH probing comprises a 50 kg drop weight, 500mm drop height and a 43.7mm diameter (90°) cone.

In accordance with the standards, the number of blows required to drive the probe through each 100mm increment of penetration is recorded. Probing is generally terminated when blow counts, $N_{100}$ values, exceed 25, in order to avoid damage to equipment. Detailed probe records are provided on which the blow counts are recorded both numerically and graphically.

Probe results are used primarily in conjunction with known information on soil composition and stratification, to define more accurately the soil profile, and to detect any soft or loose zones.

While the probes generally showed increasing resistance with depth some of them recorded high resistance from surface level, reducing with depth to zones of very low resistance, before rising again to the probed depths. For reporting purposes, the depths below which sustained $N_{100}$ values exceeded 3 have been presented in Table 3. Also shown are the depths below which $N_{100}$ values exceeded 10.

| Location | $N_{100} > 3$ | $N_{100} > 10$ | Refusal | Remarks |
|---|---|---|---|---|
| DP01 | 0.80 | 0.80 | 1.30 | initially high resistance |
| DP02 | 0.80 | 1.00 | 1.70 | |
| DP03 | 0.50 | 0.50 | 1.60 | |
| DP04 | 2.00 | 2.00 | 2.20 | initially high resistance |
| DP05 | 0.10 | 2.50 | 2.70 | |
| DP06 | 0.10 | 1.60 | 1.80 | initially high resistance |
| DP07 | 0.30 | 1.50 | 1.80 | |
| DP08 | 0.30 | 0.80 | 1.40 | |
| DP09 | 0.20 | 0.80 | 2.60 | initially high resistance |

Table 3

## 2.5 Infiltration Test

The infiltration tests were performed at TP01 to TP04, and are numbered SA01 to SA04. Tests were performed in accordance with BRE Digest 365 ‘Soakaway Design’.

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. This procedure is repeated twice more to ensure saturation of the sub-soils. Normally the results for the final stage of testing, following the saturation periods, are used for soakaway design purposes. The infiltration rate is the volume of water dispersed per unit exposed area per unit of time, and is generally expressed as metres/minute or metres/second.

The records for the monitored stages, following the initial saturation stages, are enclosed in Appendix 5.

The tests recorded no discernible fall in water level in all but SA01, where a very low infiltration rate was recorded.

## 2.6 Plate Bearing Tests

Plate bearing tests were performed in three locations to obtain a measure of the CBR values. A 300 mm diameter plate was used, and tests were performed at a depth of 0.5 metres below existing ground level. Tests were performed in accordance with BS 1377 Part 9: 1990. “In-situ Tests”. The incremental loading test (4.1.6.4.2) was used.

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

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

The test records from the initial and reload stages are enclosed in Appendix 6, while the calculated CBR values are shown in Table 3.

| Location | Depth (m bgl) | CBR% | |
|---|---|---|---|
| | | First Cycle | Reload Cycle |
| PBT1 | 0.5 | 3.0 | 18.2 |
| PBT2 | 0.5 | 1.2 | 7.3 |
| PBT3 | 0.5 | 1.1 | 1.6 |

Table 3

## 2.7 Slit Trenches

Slit trenches were excavated in two areas to locate any services over the stipulated four metre lengths. For health and safety reasons, trench depths were limited to 1.2 metres.

The slit trench records show the coordinates of the beginning and end of each trench, and details of any services encountered. No services were encountered in the trenches. However, some flat stones in ST01 had the appearance of a disused land drain.

The slit trench records are presented in Appendix 7.

## 3.0 Laboratory Testing (Geotechnical)

### 3.1 Particle Size Distributions

Grading curves for selected samples show variations in soil composition, with fines content values varying from 3 to 50%.

### 3.2 Index Properties

The results of plastic and liquid limit tests generally classify the sub-soils as non-plastic.

### 3.3 Chemical analysis

The results of chemical testing showed very low concentrations of water-soluble sulphates (< 0.01 g/l). In addition, the pH values of 8.9 to 9.0 indicated near neutral conditions.

## 4.0 Laboratory Testing (Environmental)

Environmental testing was scheduled on selected soil samples in order to screen for inherent contamination and to assess their suitability for disposal to an inert landfill.

Samples were tested in accordance with the RILTA Suite, which is used to determine the suitability of soils for disposal to a landfill. The RILTA suite includes Heavy Metals, Polycyclic Aromatic Hydrocarbons (PAH), TPH-CWG, BTEX, PCB and Total Organic Carbon (TOC) carried out on dry soil samples. Also included are leachate analyses, whereby leachate is generated in accordance with CEN 10:1 specification and this is tested for the presence of recognised contaminants including Heavy Metals, Dissolved Organic Carbon (DOC) and Total Dissolved Solids (TDS). An Asbestos Screen is also included in the RILTA Suite.

## 5.0 Discussion

An investigation of ground conditions in St. Evins Park Monasterevin was carried out ascertain foundation requirements for the proposed 15 social houses. Also required was an indication of the suitability of the sub-soils for soakaway purposes. In addition, environmental testing was scheduled on selected soil samples in order to screen for inherent contamination and to assess their suitability for disposal to an inert landfill

Boreholes revealed Made Ground, present to depths of 0.9 to 1.0 metres. Underlying this material was firm to stiff brown sandy gravelly clay, which extended to depths ranging from 1.4 metres to 2.1 metres. Further boring revealed medium dense to dense sandy gravel with cobbles.

Groundwater ingress was observed at depths ranging from 2.1 metres to 2.6 metres, rising to 1.5 metres in BH01.

The trial pits revealed a soil stratification similar to that encountered in the boreholes, while the dynamic probe records show the resistance profiles with depth.

### 5.1 Structural Foundations

From the aspect of structural foundations, the firm to stiff sandy silty clay directly underlying the Made Ground in the boreholes will provide a stable founding medium with a presumed bearing resistance of approximately 150 kN/m$^2$. This implies a founding depth of approximately 1.0 metres. Interpreting sustained $N_{100}$ dynamic probe values in excess of 3 as indicating a similar bearing resistance, the probes also confirm that foundations can be placed within a metre of current ground level.

Careful visual inspection of excavations will be of importance to ensure that foundations are placed below Made Ground and any organic material. Particular care will be required in the vicinity of probe DP04, where a zone of low soil resistance between 1.6 and 2.0 m BGL could indicate deeper deposits of Made Ground. Foundations in this area should be deepened as necessary.

The underlying gravel soils were shown by SPT's to be in a medium dense to dense condition, and the presumed bearing resistance can be increased to circa 200 to 250 kN/m$^2$. However, this implies founding depths in excess of 2 metres in places, which would likely entail excavation below the water table. While consideration can be given to trench-fill techniques, provision should be made for control of groundwater ingress, which can result in instability of side walls.

### 5.2 Groundwater and Trench Stability

Standpipes were installed in BH01 and BH03 to facilitate long-term groundwater monitoring. Monitoring of these standpipes should continue until the construction period so that a better understanding of the true groundwater table can be gained. As observed in the boreholes, the groundwater levels in open excavations could rise to at least 1.5 metres of current ground level, given sufficient time.

Some instability was noted in the trial pits during the excavation period (typically 45 minutes). Therefore, allowance should be made for trench support measures in open excavations as required. It is noted that where groundwater ingress occurs, this is likely to accelerate the collapse of open trenches, particularly where excavations extend into the gravel soils.

### 5.3 Infiltration

The field tests recorded very low infiltration rates. In addition, reference is made to the groundwater table, which appears to be present within the upper 1.5 to 2 metres.

In view of the test results and the possible presence of shallow groundwater, the design of a conventional soakaway system could be deemed impractical. It may, therefore, be necessary to discharge storm water to an existing surface water system, using attenuation techniques to regulate the flow.

### 5.4 Chemical Attack on Buried Concrete

The results of Sulphate and pH testing showed very low Water-Soluble Sulphate and near-neutral pH levels.

With reference to Table C1 of BRE Special Digest 1: 2005, the level of Sulphate suggests a design Sulphate Class of DS-1. Assuming a static groundwater table, an ACEC (Aggressive Chemical Environment for Concrete) Classification of AC-1s is applicable, since the pH levels are greater than 5.5.

In terms of concrete to I.S. EN 206-1:2013, the chemical testing demonstrates that concrete could be manufactured to Class XA1.

### 5.5 Landfill Disposal of Excavated Soils

The results of WAC analyses showed that all samples satisfied the criteria for inert waste as set out in the European Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.

It is therefore anticipated that any excavated soils would be accepted by an inert landfill if removed from site.

If required, the environmental test results can be used to produce a Waste Characterisation Assessment (WCA), which is generally undertaken by an environmental specialist.

It should be noted that the chosen landfill should be furnished with the WAC results in advance of any soils being removed from site. Depending on the extent and depth of excavation, the landfill may require additional testing to achieve the frequency of analysis (i.e. number of samples per unit volume of excavation) that meets their license requirements.

# Appendix 1 Borehole Records

# GEOTECHNICAL BORING RECORD

**REPORT NUMBER** 24737

| | | | |
|---|---|---|---|
| **CONTRACT** | St.Evins Park , Monasterevin , Co.Kildare | **BOREHOLE NO.** | **BH01** |
| | | **SHEET** | Sheet 1 of 1 |
| **CO-ORDINATES** | 662,880.91 E<br>710,994.30 N | **RIG TYPE** | Dando 2000 |
| | | **BOREHOLE DIAMETER (mm)** | 200 |
| **GROUND LEVEL (m AOD)** | 63.87 | **BOREHOLE DEPTH (m)** | 2.90 |
| | | **DATE COMMENCED** | 31/05/2023 |
| | | **DATE COMPLETED** | 31/05/2023 |
| **CLIENT** | Kildare Co.Co. | **SPT HAMMER REF. NO.** | |
| | | **BORED BY** | P.Thomas |
| **ENGINEER** | DOBA | **ENERGY RATIO (%)** | |
| | | **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 | | 63.77 | 0.10 | | | | | | |
| | MADE GROUND (Comprised of brown sandy gravelly CLAY with brick and concrete pieces) | | 62.87 | 1.00 | | | | | | |
| 1 | Firm to stiff brown sandy slightly gravelly SILT/CLAY | | 62.47 | 1.40 | AA199363 | B | 1.00 | | N = 18<br>(2, 2, 3, 3, 5, 7) | |
| | Medium dense to dense grey fine to coarse slightly silty sandy GRAVEL with some cobble | | | | | | | | | |
| 2 | | | | | AA199364 | B | 2.00 | | N = 50<br>(4, 5, 6, 8, 15, 21) | |
| | | | | | AA199365 | B | 2.50 | | | |
| | | | 60.97 | 2.90 | | | | | N = 50/150 mm<br>(18, 21, 29) | |
| 3 | Obstruction<br>End of Borehole at 2.90 m | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |

**HARD STRATA BORING/CHISELLING**

| From (m) | To (m) | Time (h) | Comments |
|---|---|---|---|
| 2.3 | 2.5 | 0.75 | |
| 2.7 | 2.9 | 1 | |

**WATER STRIKE DETAILS**

| Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
|---|---|---|---|---|---|
| 2.10 | 2.10 | No | 1.50 | 20 | Moderate |

**INSTALLATION DETAILS**

| Date | Tip Depth | RZ Top | RZ Base | Type |
|---|---|---|---|---|
| 31-05-23 | 3.10 | 1.00 | 3.10 | 50mm SP |

**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 24737.GPJ IGSL.GDT 31/8/23

# GEOTECHNICAL BORING RECORD

**REPORT NUMBER** 24737

| | | | |
|---|---|---|---|
| **CONTRACT** | St.Evins Park , Monasterevin , Co.Kildare | **BOREHOLE NO.** | **BH02** |
| | | **SHEET** | Sheet 1 of 1 |
| **CO-ORDINATES** | 662,956.12 E<br>711,016.66 N | **RIG TYPE** | Dando 2000 |
| | | **BOREHOLE DIAMETER (mm)** | 200 |
| **GROUND LEVEL (m AOD)** | 63.74 | **BOREHOLE DEPTH (m)** | 3.10 |
| | | **DATE COMMENCED** | 31/05/2023 |
| | | **DATE COMPLETED** | 31/05/2023 |
| **CLIENT** | Kildare Co.Co. | **SPT HAMMER REF. NO.** | |
| | | **BORED BY** | P.Thomas |
| **ENGINEER** | DOBA | **ENERGY RATIO (%)** | |
| | | **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 | | 63.64 | 0.10 | | | | | | |
| | MADE GROUND comprising soft to firm brown sandy slightly gravelly SILT/CLAY | | 62.74 | 1.00 | | | | | | |
| 1 | Stiff grey/brown sandy gravelly SILT/CLAY | | | | AA199366 | B | 1.00 | | N = 20<br>(3, 3, 5, 4, 5, 6) | |
| 2 | | | 61.64 | 2.10 | AA199367 | B | 2.00 | | N = 35<br>(4, 6, 6, 8, 9, 12) | |
| | Dense grey fine to coarse slightly clayey GRAVEL with some cobbles and occasional boulders | | | | | | | | | |
| 3 | | | 60.64 | 3.10 | AA199368 | B | 3.00 | | N = 50/150 mm<br>(15, 10, 23, 27) | |
| | Obstruction<br>End of Borehole at 3.10 m | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |

**HARD STRATA BORING/CHISELLING**

| From (m) | To (m) | Time (h) | Comments |
|---|---|---|---|
| 2.6 | 2.8 | 1 | |
| 3 | 3.1 | 1.5 | |

**WATER STRIKE DETAILS**

| Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
|---|---|---|---|---|---|
| 2.60 | 2.60 | 2.70 | No | 20 | Slow |

**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 24737.GPJ IGSL.GDT 31/8/23

# GEOTECHNICAL BORING RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**BOREHOLE NO.** **BH03**
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 663,013.58 E
711,034.31 N
**GROUND LEVEL (m AOD)** 64.19

**RIG TYPE** Dando 2000
**BOREHOLE DIAMETER (mm)** 200
**BOREHOLE DEPTH (m)** 3.80

**DATE COMMENCED** 01/06/2023
**DATE COMPLETED** 01/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**SPT HAMMER REF. NO.**
**ENERGY RATIO (%)**

**BORED BY** P.Thomas
**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 | | 64.09 | 0.10 | | | | | | |
| | MADE GROUND (Comprised of brown sandy gravelly CLAY with plastic fragments) | | 63.29 | 0.90 | | | | | | |
| 1 | Stiff grey brown sandy gravelly SILT/CLAY | | 62.49 | 1.70 | AA199369 | B | 1.00 | | N = 24 (2, 3, 5, 5, 7, 7) | |
| 2 | Medium dense to dense grey fine to coarse silty sandy GRAVEL with frequent cobbles and boulders | | | | AA199370 | B | 2.00 | | N = 27 (4, 5, 6, 6, 7, 8) | |
| 3 | | | | | AA199371 | B | 3.00 | | N = 50 (6, 7, 9, 9, 14, 18) | |
| | | | 60.39 | 3.80 | AA199372 | B | 3.70 | | N = 50/75 mm (25, 31, 50) | |
| 4 | Obstruction<br>End of Borehole at 3.80 m | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |

**HARD STRATA BORING/CHISELLING**

| From (m) | To (m) | Time (h) | Comments |
|---|---|---|---|
| 3.3 | 3.5 | 1 | |
| 3.7 | 3.8 | 1.5 | |

**WATER STRIKE DETAILS**

| Water Strike | Casing Depth | Sealed At | Rise To | Time (min) | Comments |
|---|---|---|---|---|---|
| 2.60 | 2.60 | 2.80 | 2.50 | 20 | Slow |

**INSTALLATION DETAILS**

| Date | Tip Depth | RZ Top | RZ Base | Type |
|---|---|---|---|---|
| 01-06-23 | 3.80 | 1.00 | 2.80 | 50mm SP |

**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 24737.GPJ IGSL.GDT 31/8/23

# Appendix 2 Trial Pit Records

# TRIAL PIT RECORD

**REPORT NUMBER** 24737

| | | | |
|---|---|---|---|
| **CONTRACT** | St.Evins Park , Monasterevin , Co.Kildare | **TRIAL PIT NO.** | **TP/SA01** |
| | | **SHEET** | Sheet 1 of 1 |
| **LOGGED BY** | I.Reder | **CO-ORDINATES** | 662,947.91 E<br>710,988.82 N |
| | | **DATE STARTED** | 02/06/2023 |
| | | **DATE COMPLETED** | 02/06/2023 |
| **CLIENT** | Kildare Co.Co. | **GROUND LEVEL (m)** | 63.79 |
| **ENGINEER** | DOBA | **EXCAVATION METHOD** | 6T 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 | 63.49 | | | | | | |
| Soft to firm, brown/grey mottled, very sandy slightly gravelly SILT | | | | | AA196569 | B | 0.70 | | |
| Stiff, brown/grey mottled, sandy gravelly SILT with high subangular to subrounded cobbles content | | 0.90 | 62.89 | | | | | | |
| | | | | | AA196570 | B | 1.60 | | |
| Firm, grey, very sandy very gravelly SILT/CLAY with low subangular cobbles content (possible very clayey/silty gravelly sand) | | 1.80 | 61.99 | 1 (Moderate) | | | | | |
| | | | | | AA196571 | B | 2.40 | | |
| End of Trial Pit at 2.50m | | 2.50 | 61.29 | | | | | | |

1.0
2.0
3.0
4.0

**Groundwater Conditions**
Moderate water flow at 2.0m

**Stability**
TP slightly unstable form 1.8m

**General Remarks**
SA01 done in location - for all details see SA01 log

# TRIAL PIT RECORD

**REPORT NUMBER** 24737

| | | | |
|---|---|---|---|
| **CONTRACT** | St.Evins Park , Monasterevin , Co.Kildare | **TRIAL PIT NO.** | **TP/SA02** |
| | | **SHEET** | Sheet 1 of 1 |
| **LOGGED BY** | I.Reder | **CO-ORDINATES** | 662,996.28 E 711,008.95 N |
| | | **DATE STARTED** | 02/06/2023 |
| | | **DATE COMPLETED** | 02/06/2023 |
| **CLIENT** | Kildare Co.Co. | **GROUND LEVEL (m)** | 63.81 |
| | | **EXCAVATION METHOD** | 6T Tracked machine |
| **ENGINEER** | DOBA | | |

| 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 | 63.56 | | | | | | |
| Soft to firm, brown/grey mottled, very sandy slightly gravelly SILT | | | | | AA196572 | B | 0.50 | | |
| Stiff, brown/grey mottled, sandy gravelly SILT with high subangular to subrounded cobbles and low boulders content | | 0.80 | 63.01 | | | | | | |
| 1.0 | | | | | | | | | |
| Dense, grey, very silty sandy fine to coarse GRAVEL with high subangular to subrounded cobbles and low boulders content | | 1.50 | 62.31 | | AA196573 | B | 1.40 | | |
| 2.0 | | | | | | | | | |
| End of Trial Pit at 2.10m | | 2.10 | 61.71 | 1 (Slow) | AA196574 | B | 2.00 | | |
| 3.0 | | | | | | | | | |
| 4.0 | | | | | | | | | |

**Groundwater Conditions**
Slow water flow at 2.1m

**Stability**
TP unstable form 1.5m

**General Remarks**
SA02 done in location - for all details see SA02 log

# TRIAL PIT RECORD

**REPORT NUMBER** 24737

| | | | |
|---|---|---|---|
| **CONTRACT** | St.Evins Park , Monasterevin , Co.Kildare | **TRIAL PIT NO.** | **TP/SA03** |
| | | **SHEET** | Sheet 1 of 1 |
| **LOGGED BY** | I.Reder | **CO-ORDINATES** | 663,031.87 E 710,995.67 N |
| | | **DATE STARTED** | 02/06/2023 |
| | | **DATE COMPLETED** | 02/06/2023 |
| **CLIENT** | Kildare Co.Co. | **GROUND LEVEL (m)** | 63.97 |
| | | **EXCAVATION METHOD** | 6T Tracked machine |
| **ENGINEER** | DOBA | | |

| Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Samples: Sample Ref | Samples: Type | Samples: Depth | Vane Test (KPa) | Hand Penetrometer (KPa) |
|---|---|---|---|---|---|---|---|---|---|
| TOPSOIL | | 0.25 | 63.72 | | | | | | |
| Soft to irm, brown/grey mottled, very sandy slightly gravelly SILT/CLAY | | | | | AA196575 | B | 0.60 | | |
| Stiff, brown/grey mottled, sandy gravelly SILT/CLAY with high subangular to subrounded cobbles and low boulders content | | 0.80 | 63.17 | | AA196576 | B | 1.40 | | |
| Firm, grey, sandy very gravelly SILT/CLAY with low subangular cobbles content (possible very clayey/silty gravel) | | 2.00 | 61.97 | | | | | | |
| End of Trial Pit at 2.20m | | 2.20 | 61.77 | 1 (Slow) | AA196577 | B | 2.20 | | |

**Groundwater Conditions**
Slow water flow at 2.2m

**Stability**
TP unstable form 2.0m

**General Remarks**
SA03 done in location - for all details see SA03 log

# TRIAL PIT RECORD

**REPORT NUMBER** 24737

| | | | |
|---|---|---|---|
| **CONTRACT** | St.Evins Park , Monasterevin , Co.Kildare | **TRIAL PIT NO.** | **TP/SA04** |
| | | **SHEET** | Sheet 1 of 1 |
| **LOGGED BY** | I.Reder | **CO-ORDINATES** | 663,041.34 E 710,945.46 N |
| | | **DATE STARTED** | 02/06/2023 |
| | | **DATE COMPLETED** | 02/06/2023 |
| **CLIENT** | Kildare Co.Co. | **GROUND LEVEL (m)** | 63.88 |
| | | **EXCAVATION METHOD** | 6T Tracked machine |
| **ENGINEER** | DOBA | | |

| 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 | 63.63 | | | | | | |
| Soft to firm, brown/grey mottled, very sandy slightly gravelly SILT/CLAY with some plastic rubbish and hair roots (possible FILL) | | 0.70 | 63.18 | | AA196578 | B | 0.50 | | |
| Firm to stiff, brown/grey mottled, sandy gravelly SILT/CLAY with high subangular to subrounded cobbles and low boulders content | | 1.70 | 62.18 | | AA196579 | B | 1.30 | | |
| Firm, brownish grey, slightly sandy gravelly SILT/CLAY with high subangular to subrounded cobbles and boulders content | | | | 1 (Seepage) | AA196580 | B | 2.00 | | |
| End of Trial Pit at 2.30m | | 2.30 | 61.58 | | | | | | |

1.0
2.0
3.0
4.0

**Groundwater Conditions**
Seepage flow at 2.2m

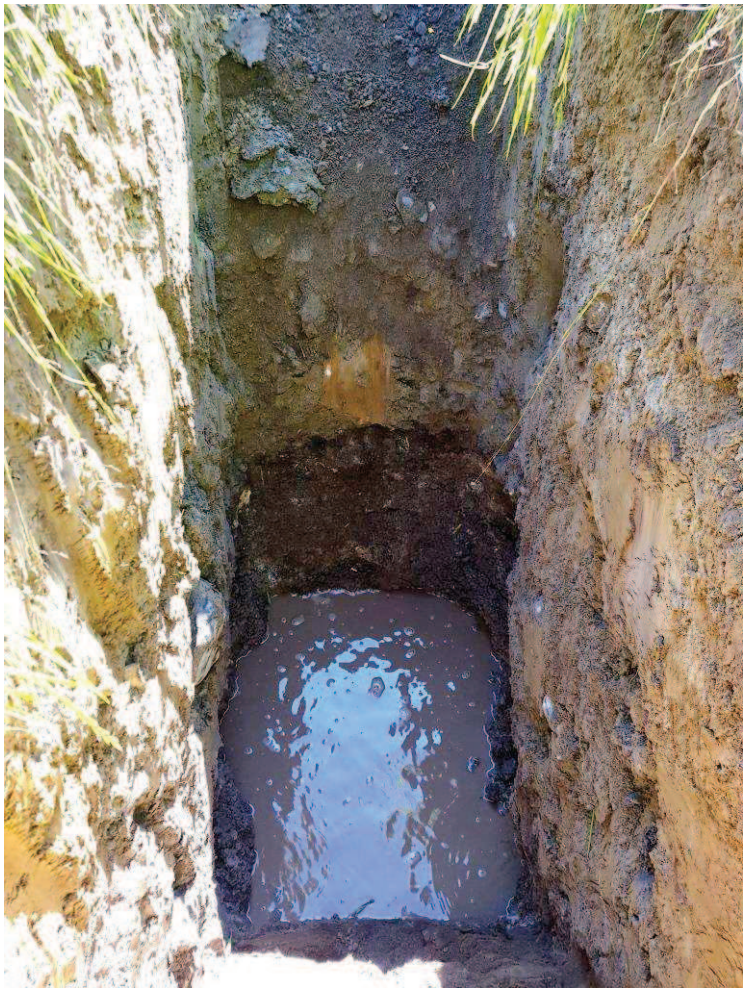
**Stability**
TP stable

**General Remarks**
SA04 done in location - for all details see SA04 log

IGSL TP LOG 24737.GPJ IGSL.GDT 31/8/23

**Project Number: 24737**
**Site: St.Evin's Park, Monasterevin**
**Project Engineer: DOBA**

# TRIAL PIT PHOTOGRAPHY RECORD
## TP-SA 01



## TP-SA 01 – spoil

**Project Number: 24737**
**Site: St.Evin's Park, Monasterevin**
**Project Engineer: DOBA**

## TRIAL PIT PHOTOGRAPHY RECORD
## TP-SA 02

## TP-SA 02 – spoil

**Project Number: 24737**
**Site: St.Evin's Park, Monasterevin**
**Project Engineer: DOBA**

IGSL Ltd.

# TRIAL PIT PHOTOGRAPHY RECORD
## TP-SA 03

**TP-SA 03 – spoil**

**Project Number: 24737**
**Site: St.Evin's Park, Monasterevin**
**Project Engineer: DOBA**

IGSL Ltd.

## TRIAL PIT PHOTOGRAPHY RECORD
## TP-SA 04

**TP-SA 04 – spoil**

# Appendix 3 Window Sample Records

# WINDOW SAMPLE RECORD

**REPORT NUMBER** 24737

| | |
|---|---|
| **CONTRACT** | St. Evin's Park Monasterevin |
| **PROBE NO.** | **WS01** |
| **SHEET** | Sheet 1 of 1 |
| **CO-ORDINATES** | 662,997.47 E<br>711,025.74 N |
| **GROUND LEVEL (mOD)** | 64.02 |
| **DATE DRILLED** | 09/06/2023 |
| **DATE LOGGED** | 09/06/2023 |
| **CLIENT** | |
| **ENGINEER** | DOBA |
| **SAMPLED BY** | CK |
| **LOGGED BY** | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Depth of Sample Run (m) | Recovery (%) | Blowcount | Vane Test (KPa) | Hand Penetrometer (KPa) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | Topsoil | | 0.10 | 63.92 | | | | | | |
| | Firm brown sandy gravelly silty CLAY | | | | | 0.00-1.00 | 100 | | | |
| 1.0 | | | | | | | | | | |
| | Grey-brown very sandy GRAVEL. Gravel is fine to medium. | | 1.50 | 62.52 | | | | | | |
| | Grey-brown sandy GRAVEL. Gravel is medium to coarse | | 1.90 | 62.12 | | 1.00-2.00 | 80 | | | |
| 2.0 | | | | | | 2.00-2.50 | 90 | | | |
| | Final Depth 2.50m | | 2.50 | 61.52 | | | | | | |
| 3.0 | | | | | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**General Remarks**

**Installations**

IGSL WS LOG 24737.GPJ IGSL.GDT 31/8/23

# WINDOW SAMPLE RECORD

**REPORT NUMBER** 24737

| | |
|---|---|
| **CONTRACT** | St. Evin's Park Monasterevin |
| **PROBE NO.** | **WS02** |
| **SHEET** | Sheet 1 of 1 |
| **CO-ORDINATES** | 662,925.10 E<br>711,006.64 N |
| **GROUND LEVEL (mOD)** | 63.64 |
| **DATE DRILLED** | 09/06/2023 |
| **DATE LOGGED** | 09/06/2023 |
| **CLIENT** | |
| **ENGINEER** | DOBA |
| **SAMPLED BY** | CK |
| **LOGGED BY** | |

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation | Water Strike | Depth of Sample Run (m) | Recovery (%) | Blowcount | Vane Test (KPa) | Hand Penetrometer (KPa) |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0 | Topsoil | | 0.10 | 63.54 | | | | | | |
| | Firm brown sandy gravelly silty CLAY | | | | | 0.00-1.00 | 100 | | | |
| 1.0 | | | | | | | | | | |
| | Grey-brown very sandy silty GRAVEL. Gravel is fine to medium. | | 1.20 | 62.44 | | 1.00-2.00 | 80 | | | |
| 2.0 | | | | | | | | | | |
| | | | | | | 2.00-3.00 | 70 | | | |
| 3.0 | | | | | | | | | | |
| | | | | | | 3.00-3.60 | 50 | | | |
| | Final Depth 3.60m | | 3.60 | 60.04 | | | | | | |
| 4.0 | | | | | | | | | | |
| 5.0 | | | | | | | | | | |

**General Remarks**

**Installations**

# Appendix 4 Dynamic Probe Records

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** DP01
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 662,899.19 E
710,984.67 N
**GROUND LEVEL (mOD)** 63.83

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

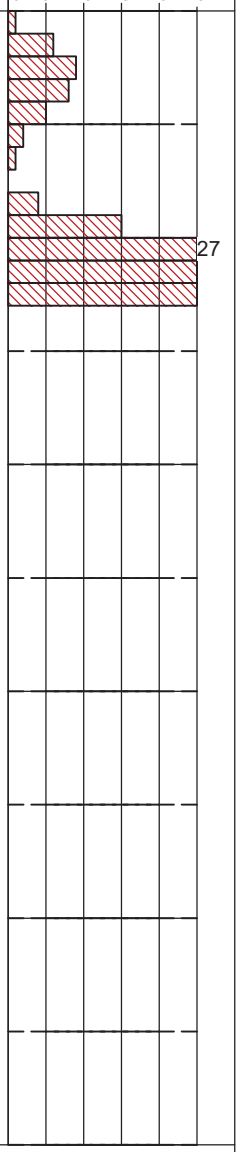
**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 1 |
| | | | | | | 0.10 | 6 |
| | | | | | | 0.20 | 9 |
| | | | | | | 0.30 | 8 |
| | | | | | | 0.40 | 5 |
| | | | | | | 0.50 | 2 |
| | | | | | | 0.60 | 1 |
| | | | | | | 0.70 | 0 |
| | | | | | | 0.80 | 4 |
| | | | | | | 0.90 | 15 |
| 1.0 | | | | | | 1.00 | 27 |
| | | | | | | 1.10 | 25 |
| | | | | | | 1.20 | 25 |
| | End of Probe at 1.30 m | | | 62.53 | | | |
| 2.0 | | | | | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record




**GROUNDWATER OBSERVATIONS**

**REMARKS**

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** DP02
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 662,907.58 E
710,998.59 N
**GROUND LEVEL (mOD)** 63.80

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 1 |
| | | | | | | 0.10 | 3 |
| | | | | | | 0.20 | 3 |
| | | | | | | 0.30 | 2 |
| | | | | | | 0.40 | 5 |
| | | | | | | 0.50 | 4 |
| | | | | | | 0.60 | 4 |
| | | | | | | 0.70 | 2 |
| | | | | | | 0.80 | 5 |
| | | | | | | 0.90 | 5 |
| 1.0 | | | | | | 1.00 | 16 |
| | | | | | | 1.10 | 15 |
| | | | | | | 1.20 | 15 |
| | | | | | | 1.30 | 13 |
| | | | | | | 1.40 | 13 |
| | | | | | | 1.50 | 19 |
| | | | | | | 1.60 | 25 |
| | End of Probe at 1.70 m | | | 62.10 | | | |
| 2.0 | | | | | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record: 0 5 10 15 20 25

**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** DP03
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 662,943.36 E
711,012.64 N
**GROUND LEVEL (mOD)** 63.70

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

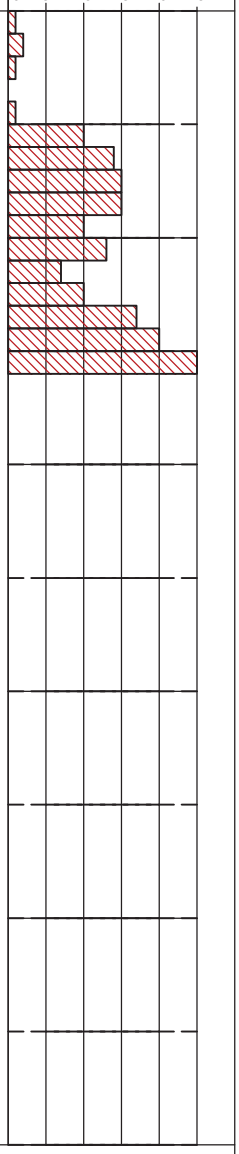
**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 1 |
| | | | | | | 0.10 | 2 |
| | | | | | | 0.20 | 1 |
| | | | | | | 0.30 | 0 |
| | | | | | | 0.40 | 1 |
| | | | | | | 0.50 | 10 |
| | | | | | | 0.60 | 14 |
| | | | | | | 0.70 | 15 |
| | | | | | | 0.80 | 15 |
| | | | | | | 0.90 | 10 |
| 1.0 | | | | | | 1.00 | 13 |
| | | | | | | 1.10 | 7 |
| | | | | | | 1.20 | 10 |
| | | | | | | 1.30 | 17 |
| | | | | | | 1.40 | 20 |
| | | | | | | 1.50 | 25 |
| | End of Probe at 1.60 m | | | 62.10 | | | |
| 2.0 | | | | | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record




**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** DP04
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 662,972.89 E
711,014.91 N
**GROUND LEVEL (mOD)** 63.72

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 1 |
| | | | | | | 0.10 | 2 |
| | | | | | | 0.20 | 3 |
| | | | | | | 0.30 | 4 |
| | | | | | | 0.40 | 6 |
| | | | | | | 0.50 | 8 |
| | | | | | | 0.60 | 9 |
| | | | | | | 0.70 | 8 |
| | | | | | | 0.80 | 8 |
| | | | | | | 0.90 | 7 |
| 1.0 | | | | | | 1.00 | 6 |
| | | | | | | 1.10 | 4 |
| | | | | | | 1.20 | 2 |
| | | | | | | 1.30 | 1 |
| | | | | | | 1.40 | 8 |
| | | | | | | 1.50 | 3 |
| | | | | | | 1.60 | 3 |
| | | | | | | 1.70 | 0 |
| | | | | | | 1.80 | 1 |
| | | | | | | 1.90 | 0 |
| 2.0 | | | | | | 2.00 | 25 |
| | | | | | | 2.10 | 25 |
| | End of Probe at 2.20 m | | | 61.52 | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record: 0 5 10 15 20 25

**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** **DP05**
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 662,983.54 E
711,027.59 N
**GROUND LEVEL (mOD)** 63.89

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 1 |
| | | | | | | 0.10 | 3 |
| | | | | | | 0.20 | 3 |
| | | | | | | 0.30 | 3 |
| | | | | | | 0.40 | 3 |
| | | | | | | 0.50 | 6 |
| | | | | | | 0.60 | 8 |
| | | | | | | 0.70 | 11 |
| | | | | | | 0.80 | 10 |
| | | | | | | 0.90 | 9 |
| 1.0 | | | | | | 1.00 | 6 |
| | | | | | | 1.10 | 5 |
| | | | | | | 1.20 | 7 |
| | | | | | | 1.30 | 2 |
| | | | | | | 1.40 | 4 |
| | | | | | | 1.50 | 10 |
| | | | | | | 1.60 | 14 |
| | | | | | | 1.70 | 13 |
| | | | | | | 1.80 | 8 |
| | | | | | | 1.90 | 4 |
| 2.0 | | | | | | 2.00 | 6 |
| | | | | | | 2.10 | 6 |
| | | | | | | 2.20 | 7 |
| | | | | | | 2.30 | 7 |
| | | | | | | 2.40 | 10 |
| | | | | | | 2.50 | 21 |
| | | | | | | 2.60 | 25 |
| | End of Probe at 2.70 m | | | 61.19 | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record

0 5 10 15 20 25

**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** **DP06**
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 663,022.42 E
711,023.50 N
**GROUND LEVEL (mOD)** 64.19

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 2 |
| | | | | | | 0.10 | 8 |
| | | | | | | 0.20 | 9 |
| | | | | | | 0.30 | 7 |
| | | | | | | 0.40 | 5 |
| | | | | | | 0.50 | 6 |
| | | | | | | 0.60 | 6 |
| | | | | | | 0.70 | 7 |
| | | | | | | 0.80 | 9 |
| | | | | | | 0.90 | 8 |
| 1.0 | | | | | | 1.00 | 8 |
| | | | | | | 1.10 | 6 |
| | | | | | | 1.20 | 7 |
| | | | | | | 1.30 | 7 |
| | | | | | | 1.40 | 7 |
| | | | | | | 1.50 | 6 |
| | | | | | | 1.60 | 20 |
| | | | | | | 1.70 | 25 |
| | End of Probe at 1.80 m | | | 62.39 | | | |
| 2.0 | | | | | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record: 0 5 10 15 20 25

**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** DP07
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 663,005.72 E
711,007.03 N
**GROUND LEVEL (mOD)** 63.89

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 0 |
| | | | | | | 0.10 | 2 |
| | | | | | | 0.20 | 3 |
| | | | | | | 0.30 | 4 |
| | | | | | | 0.40 | 6 |
| | | | | | | 0.50 | 7 |
| | | | | | | 0.60 | 9 |
| | | | | | | 0.70 | 7 |
| | | | | | | 0.80 | 8 |
| | | | | | | 0.90 | 8 |
| 1.0 | | | | | | 1.00 | 10 |
| | | | | | | 1.10 | 12 |
| | | | | | | 1.20 | 9 |
| | | | | | | 1.30 | 6 |
| | | | | | | 1.40 | 7 |
| | | | | | | 1.50 | 16 |
| | | | | | | 1.60 | 21 |
| | | | | | | 1.70 | 25 |
| | End of Probe at 1.80 m | | | 62.09 | | | |
| 2.0 | | | | | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record: 0 5 10 15 20 25

**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** **DP08**
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 662,958.93 E
710,998.93 N
**GROUND LEVEL (mOD)** 63.76

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 1 |
| | | | | | | 0.10 | 3 |
| | | | | | | 0.20 | 2 |
| | | | | | | 0.30 | 5 |
| | | | | | | 0.40 | 4 |
| | | | | | | 0.50 | 5 |
| | | | | | | 0.60 | 6 |
| | | | | | | 0.70 | 7 |
| | | | | | | 0.80 | 13 |
| | | | | | | 0.90 | 14 |
| 1.0 | | | | | | 1.00 | 1 |
| | | | | | | 1.10 | 10 |
| | | | | | | 1.20 | 19 |
| | | | | | | 1.30 | 25 |
| | End of Probe at 1.40 m | | | 62.36 | | | |
| 2.0 | | | | | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record
0 5 10 15 20 25

**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

# DYNAMIC PROBE RECORD

**REPORT NUMBER** 24737

**CONTRACT** St.Evins Park , Monasterevin , Co.Kildare

**PROBE NO.** DP09
**SHEET** Sheet 1 of 1

**CO-ORDINATES** 662,933.50 E
710,976.73 N
**GROUND LEVEL (mOD)** 63.63

**HAMMER MASS (kg)** 50
**INCREMENT SIZE (mm)** 100
**FALL HEIGHT (mm)** 500

**DATE DRILLED** 09/06/2023
**DATE LOGGED** 09/06/2023

**CLIENT** Kildare Co.Co.
**ENGINEER** DOBA

**PROBE TYPE** DPH

| Depth (m) | Geotechnical Description | Legend | Depth (m) | Elevation (mOD) | Water | Depth (m) | Probe Readings (Blows/Increment) |
|---|---|---|---|---|---|---|---|
| 0.0 | . | | 0.00 | | | 0.00 | 1 |
| | | | | | | 0.10 | 3 |
| | | | | | | 0.20 | 4 |
| | | | | | | 0.30 | 5 |
| | | | | | | 0.40 | 5 |
| | | | | | | 0.50 | 4 |
| | | | | | | 0.60 | 6 |
| | | | | | | 0.70 | 7 |
| | | | | | | 0.80 | 10 |
| | | | | | | 0.90 | 6 |
| 1.0 | | | | | | 1.00 | 9 |
| | | | | | | 1.10 | 18 |
| | | | | | | 1.20 | 22 |
| | | | | | | 1.30 | 17 |
| | | | | | | 1.40 | 12 |
| | | | | | | 1.50 | 9 |
| | | | | | | 1.60 | 8 |
| | | | | | | 1.70 | 8 |
| | | | | | | 1.80 | 9 |
| | | | | | | 1.90 | 9 |
| 2.0 | | | | | | 2.00 | 11 |
| | | | | | | 2.10 | 12 |
| | | | | | | 2.20 | 11 |
| | | | | | | 2.30 | 10 |
| | | | | | | 2.40 | 15 |
| | | | | | | 2.50 | 25 |
| | End of Probe at 2.60 m | | | 61.03 | | | |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |

Graphic Probe Record: 0 5 10 15 20 25

**GROUNDWATER OBSERVATIONS**

**REMARKS**

IGSL DP LOG 100MM INCREMENTS 24737.GPJ IGSL.GDT 31/8/23

Appendix 5 Infiltration Test Results

# Soakaway Design f -value from field tests

IGSL

Contract: St.Evins Park, Monasterevin — Contract No. **24737**

Test No. SA01

Engineer DOBA

Date: 02/06/2023

Summary of ground conditions

| from | to | Description | Ground water |
|---|---|---|---|
| 0.00 | 0.30 | TOPSOIL | Moderate water at 2.0m |
| 0.30 | 0.90 | Firm, brown/grey mottled, very sandy slightly gravelly SILT | |
| 0.90 | 1.80 | Stiff to very stiff, brown/grey mottled, sandy gravelly SILT with many cobbles | |
| 1.80 | 2.50 | Firm, grey, very sandy very gravelly SILT/CLAY with occasional cobbles (possible | |
| | | very clayey/silty gravelly sand) | |

Notes: For all excavation details see TP/SA01 log

Field Data

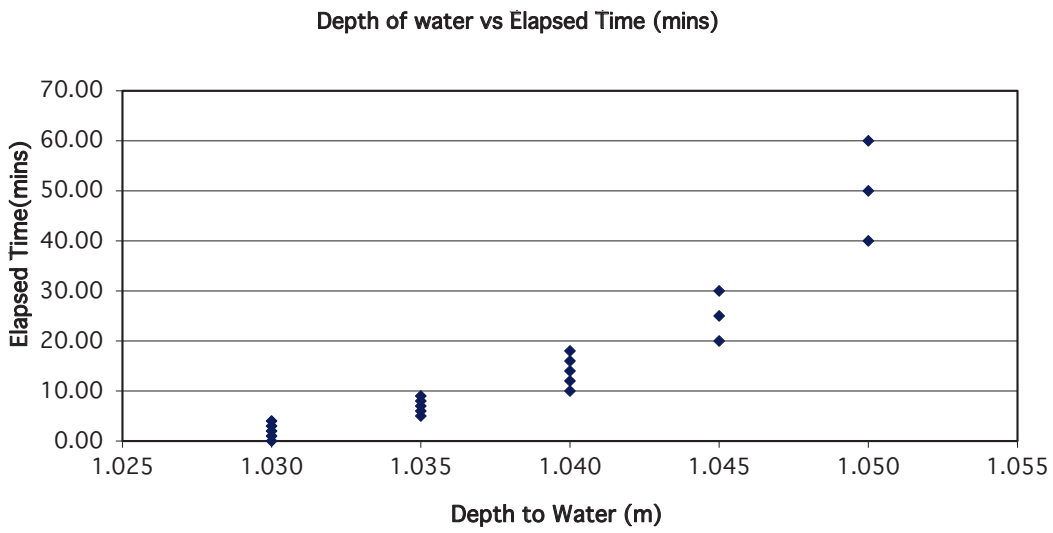
| Depth to Water (m) | Elapsed Time (min) |
|---|---|
| 1.030 | 0.00 |
| 1.030 | 1.00 |
| 1.030 | 2.00 |
| 1.030 | 3.00 |
| 1.030 | 4.00 |
| 1.035 | 5.00 |
| 1.035 | 6.00 |
| 1.035 | 7.00 |
| 1.035 | 8.00 |
| 1.035 | 9.00 |
| 1.040 | 10.00 |
| 1.040 | 12.00 |
| 1.040 | 14.00 |
| 1.040 | 16.00 |
| 1.040 | 18.00 |
| 1.045 | 20.00 |
| 1.045 | 25.00 |
| 1.045 | 30.00 |
| 1.050 | 40.00 |
| 1.050 | 50.00 |
| 1.050 | 60.00 |

Field Test

| | | |
|---|---|---|
| Depth of Pit (D) | 2.50 | m |
| Width of Pit (B) | 0.70 | m |
| Length of Pit (L) | 2.00 | m |
| Initial depth to Water = | 1.03 | m |
| Final depth to water = | 1.05 | m |
| Elapsed time (mins)= | 60.00 | |
| Top of permeable soil | | m |
| Base of permeable soil | | m |
| Base area= | 1.4 | m2 |
| *Av. side area of permeable stratum over test perio | 7.884 | m2 |
| Total Exposed area = | 9.284 | m2 |

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

**f= 5E-05 m/min or 8.37762E-07 m/sec**



# Soakaway Design f -value from field tests IGSL

Contract: St.Evins Park, Monasterevin Contract No. **24737**
Test No. SA02
Engineer DOBA
Date: 02/06/2023

Summary of ground conditions

| from | to | Description | Ground water |
|---|---|---|---|
| 0.00 | 0.25 | TOPSOIL | Slow water at 2.1m |
| 0.25 | 0.80 | Firm, brown/grey mottled, very sandy slightly gravelly SILT | |
| 0.80 | 1.50 | Stiff, brown/grey mottled, sandy gravelly SILT with many cobbles and occ. bould | |
| 1.50 | 2.10 | Dense, grey, very silty sandy fine to coarse GRAVEL with many subangular to | |
| | | subrounded cobbles and occasional boulders | |

Notes: For all excavation details see TP/SA02 log

Field Data

| Depth to Water (m) | Elapsed Time (min) |
|---|---|
| 1.330 | 0.00 |
| 1.330 | 1.00 |
| 1.330 | 2.00 |
| 1.330 | 3.00 |
| 1.330 | 4.00 |
| 1.330 | 5.00 |
| 1.330 | 6.00 |
| 1.330 | 7.00 |
| 1.330 | 8.00 |
| 1.330 | 9.00 |
| 1.330 | 10.00 |
| 1.330 | 12.00 |
| 1.330 | 14.00 |
| 1.330 | 16.00 |
| 1.330 | 18.00 |
| 1.330 | 20.00 |
| 1.330 | 25.00 |
| 1.330 | 30.00 |
| 1.330 | 40.00 |
| 1.330 | 50.00 |
| 1.330 | 60.00 |

Field Test

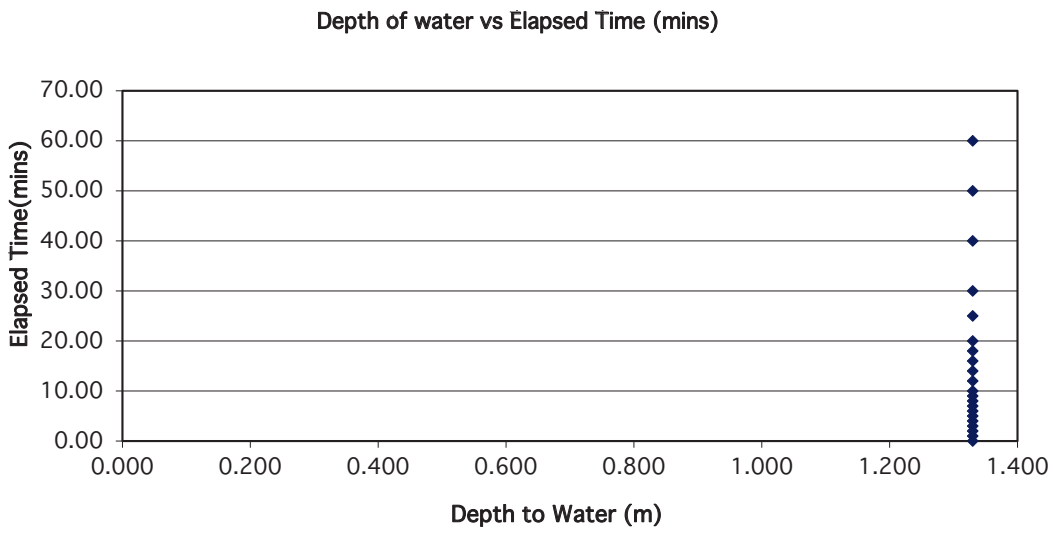
| | | |
|---|---|---|
| Depth of Pit (D) | 2.10 | m |
| Width of Pit (B) | 0.70 | m |
| Length of Pit (L) | 2.00 | m |
| Initial depth to Water = | 1.33 | m |
| Final depth to water = | 1.33 | m |
| Elapsed time (mins)= | 60.00 | |
| Top of permeable soil | | m |
| Base of permeable soil | | m |

No any water movement

| | | |
|---|---|---|
| Base area= | 1.4 | m2 |
| *Av. side area of permeable stratum over test perio | 4.158 | m2 |
| Total Exposed area = | 5.558 | m2 |

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

f= 0 m/min or 0 m/sec



# Soakaway Design f -value from field tests IGSL

Contract: St.Evins Park, Monasterevin Contract No. **24737**
Test No. SA03
Engineer DOBA
Date: 02/06/2023

Summary of ground conditions

| from | to | Description | Ground water |
|---|---|---|---|
| 0.00 | 0.25 | TOPSOIL | Slow water at 2.2m |
| 0.25 | 0.80 | Firm, brown/grey mottled, very sandy slightly gravelly SILT | |
| 0.80 | 2.00 | Stiff, brown/grey mottled, sandy gravelly SILT with many cobbles and occ. bould | |
| 2.00 | 2.20 | Firm, grey, sandy very gravelly SILT/CLAY with high cobbles and low boulders | |
| | | content (possible very silty/clayey gravel) | |

Notes: For all excavation details see TP/SA03 log

Field Data

| Depth to Water (m) | Elapsed Time (min) |
|---|---|
| 1.130 | 0.00 |
| 1.130 | 1.00 |
| 1.130 | 2.00 |
| 1.130 | 3.00 |
| 1.130 | 4.00 |
| 1.130 | 5.00 |
| 1.130 | 6.00 |
| 1.130 | 7.00 |
| 1.130 | 8.00 |
| 1.130 | 9.00 |
| 1.130 | 10.00 |
| 1.130 | 12.00 |
| 1.130 | 14.00 |
| 1.130 | 16.00 |
| 1.130 | 18.00 |
| 1.130 | 20.00 |
| 1.130 | 25.00 |
| 1.130 | 30.00 |
| 1.130 | 40.00 |
| 1.130 | 50.00 |
| 1.130 | 60.00 |

Field Test

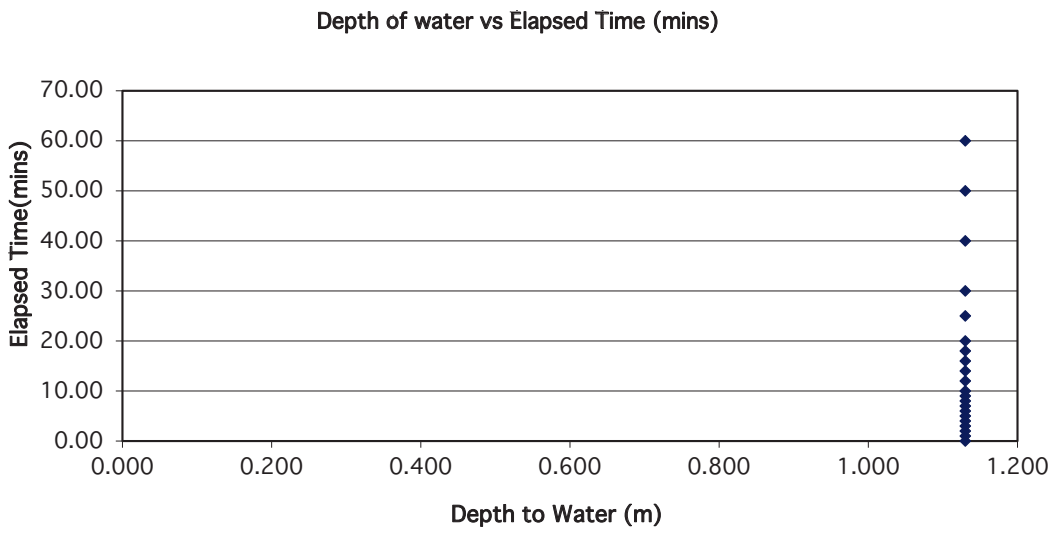
| | | |
|---|---|---|
| Depth of Pit (D) | 2.20 | m |
| Width of Pit (B) | 0.70 | m |
| Length of Pit (L) | 2.20 | m |
| Initial depth to Water = | 1.13 | m |
| Final depth to water = | 1.13 | m |
| Elapsed time (mins)= | 60.00 | |
| Top of permeable soil | | m |
| Base of permeable soil | | m |

No any water movement

| | | |
|---|---|---|
| Base area= | 1.54 | m2 |
| *Av. side area of permeable stratum over test perio | 6.206 | m2 |
| Total Exposed area = | 7.746 | m2 |

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

**f= 0 m/min or 0 m/sec**



# Soakaway Design f -value from field tests IGSL

Contract: St.Evins Park, Monasterevin Contract No. **24737**
Test No. SA04
Engineer DOBA
Date: 02/06/2023

Summary of ground conditions

| from | to | Description | Ground water |
|---|---|---|---|
| 0.00 | 0.25 | TOPSOIL | |
| 0.25 | 0.70 | Firm, brown/grey, very sandy slightly gravelly SILT/CLAY with occ. rubbish (FILL) | |
| 0.70 | 1.70 | Firm to stiff, brown/grey mottled, sandy gravelly SILT/CLAY with many cobbles | Seepage at 2.2m |
| 1.70 | 2.30 | Soft to firm, brownish grey, slightly sandy gravelly SILT/CLAY with many cobbles | |
| | | and occasional boulders | |

Notes: For all excavation details see TP/SA04 log

Field Data

| Depth to Water (m) | Elapsed Time (min) |
|---|---|
| 1.510 | 0.00 |
| 1.510 | 1.00 |
| 1.510 | 2.00 |
| 1.510 | 3.00 |
| 1.510 | 4.00 |
| 1.510 | 5.00 |
| 1.510 | 6.00 |
| 1.510 | 7.00 |
| 1.510 | 8.00 |
| 1.510 | 9.00 |
| 1.510 | 10.00 |
| 1.510 | 12.00 |
| 1.510 | 14.00 |
| 1.510 | 16.00 |
| 1.510 | 18.00 |
| 1.510 | 20.00 |
| 1.510 | 25.00 |
| 1.510 | 30.00 |
| 1.510 | 40.00 |
| 1.510 | 50.00 |
| 1.510 | 60.00 |
| | |
| | |
| | |

Field Test

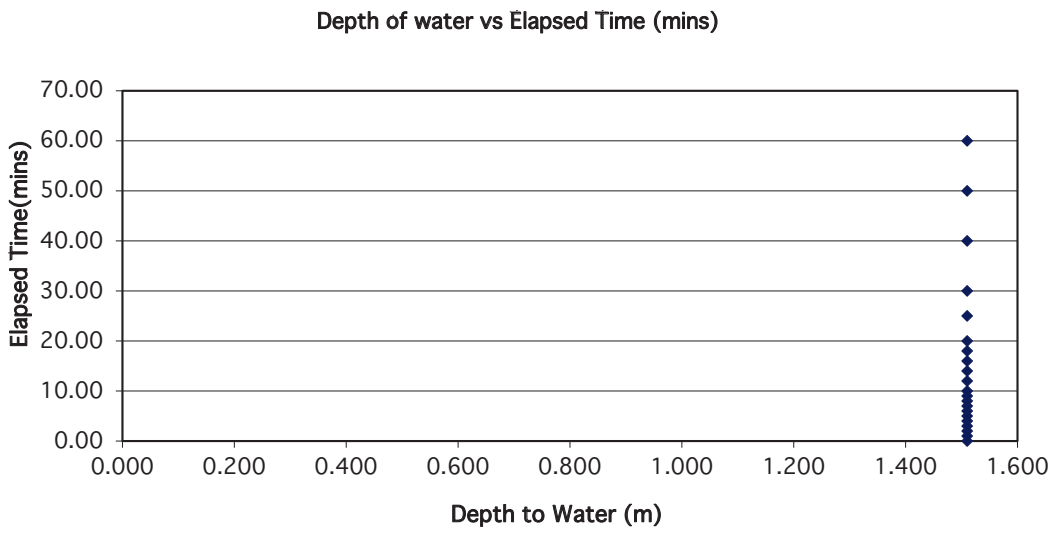
| | | |
|---|---|---|
| Depth of Pit (D) | 2.30 | m |
| Width of Pit (B) | 0.70 | m |
| Length of Pit (L) | 1.80 | m |
| Initial depth to Water = | 1.51 | m |
| Final depth to water = | 1.51 | m |
| Elapsed time (mins)= | 60.00 | |
| Top of permeable soil | | m |
| Base of permeable soil | | m |

No any water movement

| | | |
|---|---|---|
| Base area= | 1.26 | m2 |
| *Av. side area of permeable stratum over test perio | 3.95 | m2 |
| Total Exposed area = | 5.21 | m2 |

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

**f= 0 m/min or 0 m/sec**



Appendix 6 Plate Bearing Test Records

## PLATE TEST REPORT SHEET (F3.1)

## Applied Pressure/Settlement Curve

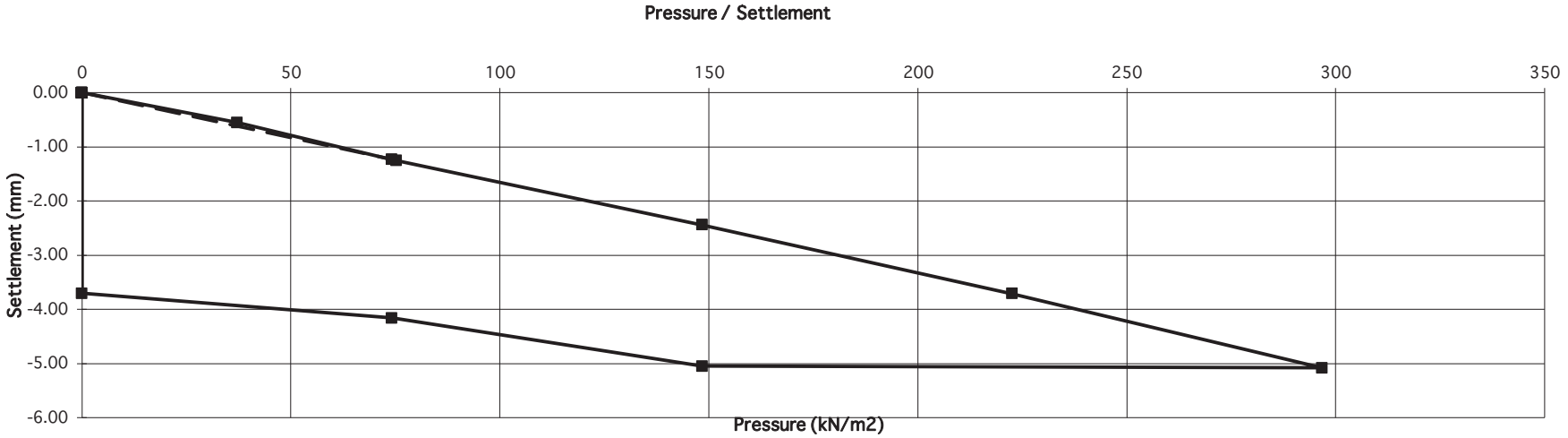
| | |
|---|---|
| Reference No. | R146443 |
| Contract | St. Evin's Park, Monasterevin |
| Test No. | CBR01 (Load) |
| Location | CBR01 |
| Depth | 0.5m bgl |
| Client | DOBA |
| Plate Diameter: | 300 mm |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test |
| Technician | I.Reder |
| Authorised by | |
| Date | 06/06/2023 |

Description of soil under test (natural soil, placed fill, sub-base)

brown, sandy slightly gravelly CLAY

Easting (m)
Northing (m)
Ground Level (mOD)

Sample Ref No. N/A
Depth 0.00 m bgl




Gradient at 1.25 mm settlement intersection = 60
Modulus of subgrade reaction = 27 MPa/m
Correction factor applied = 0.46 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 3.0 %

## PLATE TEST REPORT SHEET (F3.1)

## Applied Pressure/Settlement Curve

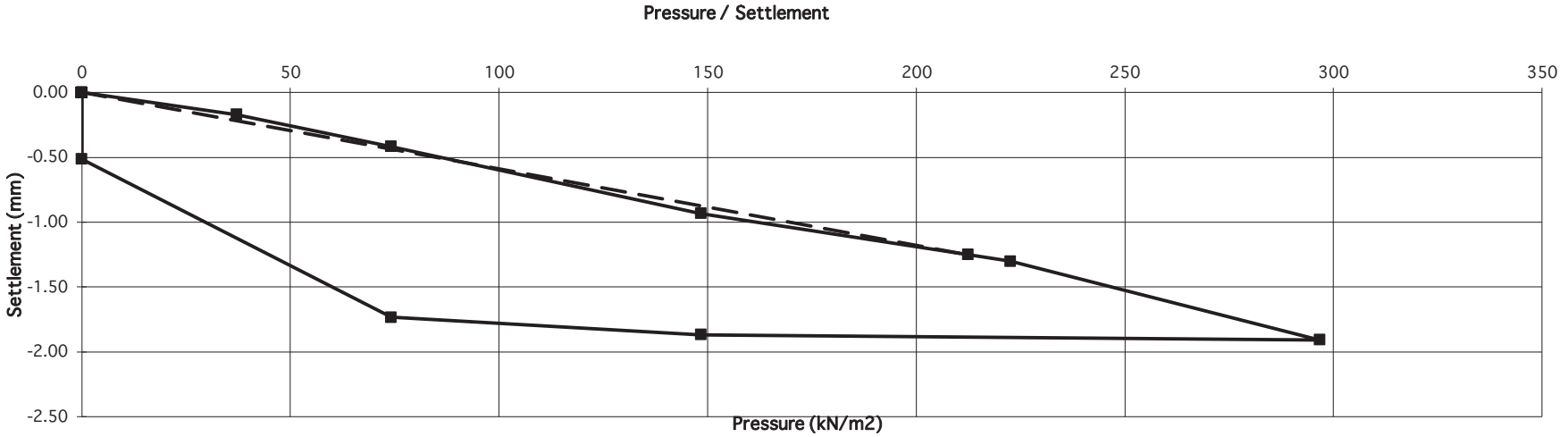
| | |
|---|---|
| Reference No. | R146443 |
| Contract | St. Evin's Park, Monasterevin |
| Test No. | CBR01 (ReLoad) |
| Location | CBR01 |
| Depth | 0.5m bgl |
| Client | DOBA |
| Plate Diameter: | 300 mm |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test |
| Technician | I.Reder |
| Authorised by | |
| Date | 06/06/2023 |

Description of soil under test (natural soil, placed fill, sub-base)

brown, sandy slightly gravelly CLAY

Easting (m)
Northing (m)
Ground Level (mOD)

Sample Ref No. N/A
Depth 0.00 m bgl




Gradient at 1.25 mm settlement intersection = 170
Modulus of subgrade reaction = 78 MPa/m
Correction factor applied = 0.46 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 18.2 %

# PLATE TEST REPORT SHEET (F3.1)

## Applied Pressure/Settlement Curve

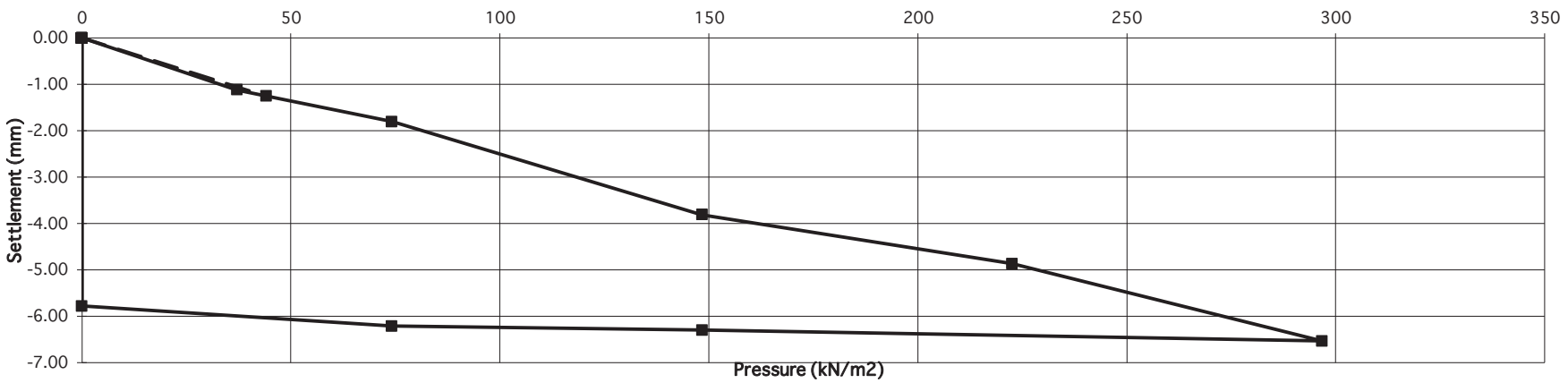
| | |
|---|---|
| Reference No. | R146444 |
| Contract | St. Evin's Park, Monasterevin |
| Test No. | CBR02 (Load) |
| Location | CBR02 |
| Depth | 0.5m bgl |
| Client | DOBA |
| Plate Diameter: | 300 mm |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test |
| Technician | I.Reder |
| Authorised by | |
| Date | 06/06/2023 |

Description of soil under test (natural soil, placed fill, sub-base)

brown, sandy slightly gravelly SIL/CLAY

Easting (m)
Northing (m)
Ground Level (mOD)

Sample Ref No. N/A
Depth 0.00 m bgl




Gradient at 1.25 mm settlement intersection = 35
Modulus of subgrade reaction = 16 MPa/m
Correction factor applied = 0.46 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.2 %

## PLATE TEST REPORT SHEET (F3.1)

## Applied Pressure/Settlement Curve

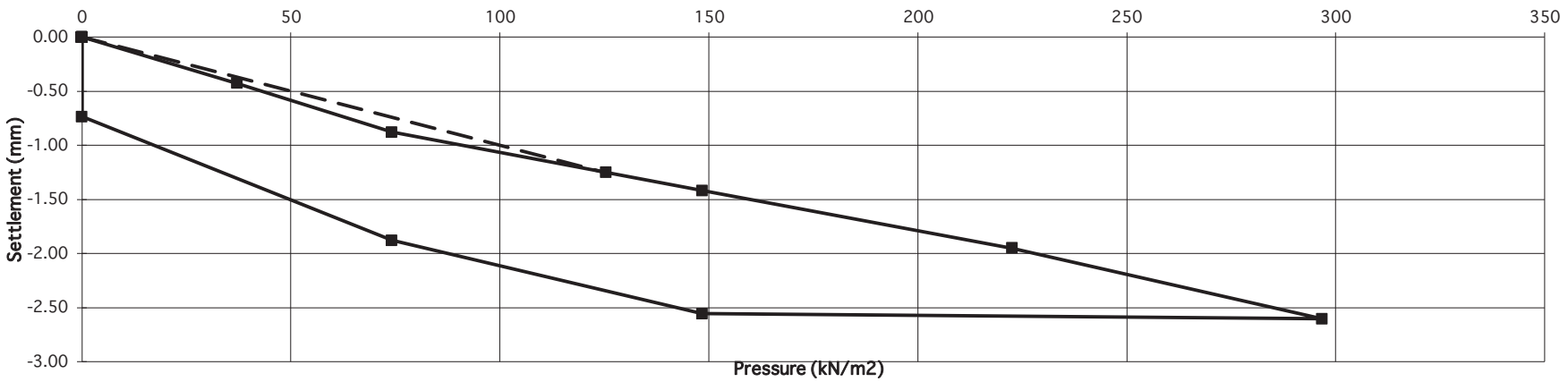
| | |
|---|---|
| Reference No. | R146444 |
| Contract | St. Evin's Park, Monasterevin |
| Test No. | CBR02 (ReLoad) |
| Location | CBR02 |
| Depth | 0.5m bgl |
| Client | DOBA |
| Plate Diameter: | 300 mm |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test |
| Technician | I.Reder |
| Authorised by | |
| Date | 06/06/2023 |

Description of soil under test
(natural soil, placed fill, sub-base)

brown, sandy slightly gravelly SIL/CLAY

Easting (m)
Northing (m)
Ground Level (mOD)

Sample Ref No. N/A
Depth 0.00 m bgl




Gradient at 1.25 mm settlement intersection = 100
Modulus of subgrade reaction = 46 MPa/m
Correction factor applied = 0.46 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 7.3 %

# PLATE TEST REPORT SHEET (F3.1)

## Applied Pressure/Settlement Curve

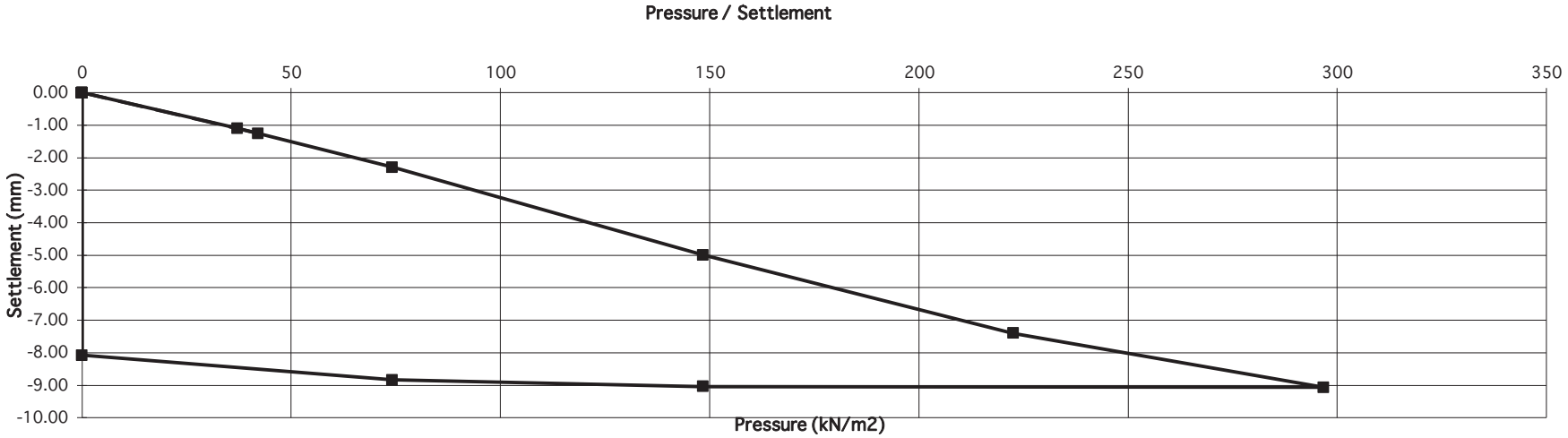
| | |
|---|---|
| Reference No. | R146445 |
| Contract | St. Evin's Park, Monasterevin |
| Test No. | CBR03 (Load) |
| Location | CBR03 |
| Depth | 0.5m bgl |
| Client | DOBA |
| Plate Diameter: | 300 mm |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test |
| Technician | I.Reder |
| Authorised by | |
| Date | 06/06/2023 |

Description of soil under test
(natural soil, placed fill, sub-base)

brown, sandy gravelly CLAY

Easting (m)
Northing (m)
Ground Level (mOD)

Sample Ref No. N/A
Depth 0.00 m bgl




Gradient at 1.25 mm settlement intersection = 34
Modulus of subgrade reaction = 15 MPa/m
Correction factor applied = 0.46 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.1 %

## PLATE TEST REPORT SHEET (F3.1)

## Applied Pressure/Settlement Curve

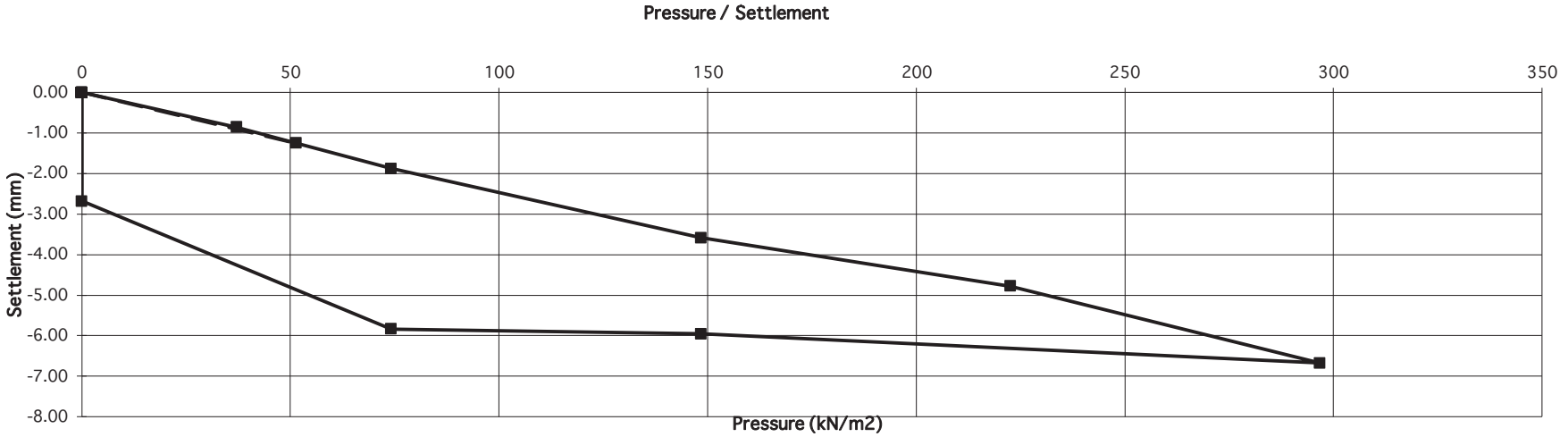
| | |
|---|---|
| Reference No. | R146445 |
| Contract | St. Evin's Park, Monasterevin |
| Test No. | CBR03 (ReLoad) |
| Location | CBR03 |
| Depth | 0.5m bgl |
| Client | DOBA |
| Plate Diameter: | 300 mm |
| Test Method | BS 1377: Part 9: 1990 Test4 - Incremental Loading Test |
| Technician | I.Reder |
| Authorised by | |
| Date | 06/06/2023 |

Description of soil under test
(natural soil, placed fill, sub-base)

brown, sandy gravelly CLAY

Easting (m)
Northing (m)
Ground Level (mOD)

Sample Ref No. N/A
Depth 0.00 m bgl




Gradient at 1.25 mm settlement intersection = 41
Modulus of subgrade reaction = 19 MPa/m
Correction factor applied = 0.46 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 1.6 %

Appendix 7 Slit Trench Records

| Report No. 24737 | SLIT TRENCH RECORD | FACING DIRECTION: N / W / E / S | IGSL |
|---|---|---|---|

| | | Survey | | | | |
|---|---|---|---|---|---|---|
| Project: St.Evins Park, Monasterevin | | Easting (m) | Northing (m) | Elevation (mOD) | Slit Trench No. | ST01 |
| Engineer: DOBA | | | | | Sheet | 1 of 1 |
| Crew: I.R. / Hinch Plant Hire | Start of Trench | 663000.052 | 711012.585 | 63.84 | Date Commenced | 06/06/2023 |
| | End of Trench | 663004.028 | 711013.142 | 63.926 | Date Completed | 06/06/2023 |

**Ground Conditions**

| From (m) | To (m) | Soil Description |
|---|---|---|
| 0.00 | 0.25 | TOPSOIL |
| 0.25 | 0.6 | Firm, brown, sandy slightly gravelly CLAY with flat stones (possible fill) |
| 0.6 | 1.2 | Firm to stiff, brown/grey mottled, sandy gravelly SILT/CLAY with many cobbles |
| | | |
| | | |
| | | |

**Photograph**

| Trench Dimensions | |
|---|---|
| LHS of Trench (m) | 0.0 |
| RHS of Trench (m) | 4.0 |
| Trench Depth (m) | 1.2 |
| Trench Width (m) | 0.7 |
| Facing Direction | 84° East |
| Facing Features | Main Road |
| Groundwater | Dry |

**Location**

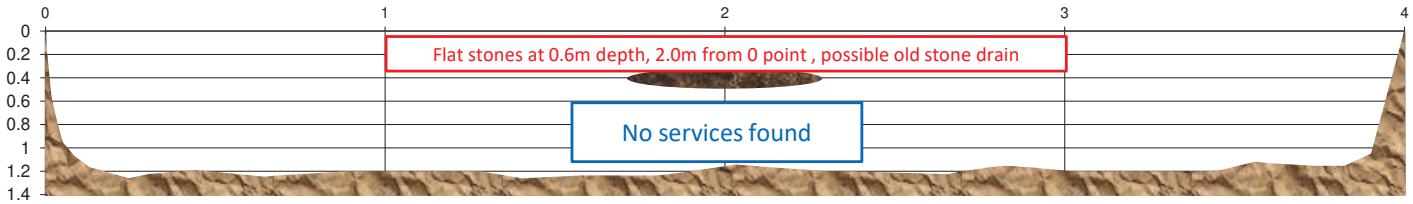
**SAMPLES**

**Excavation Quantities**

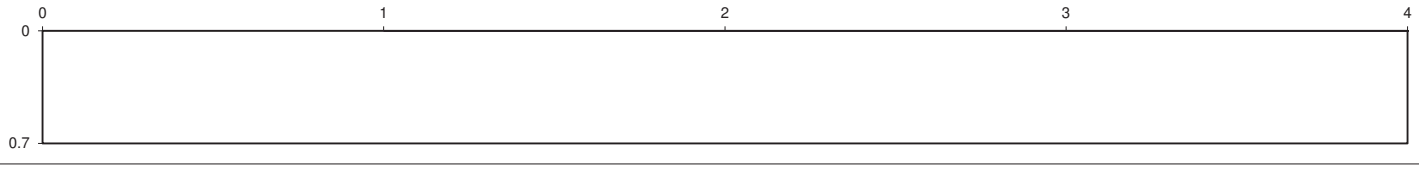
| Surface | Length (m) | Material |
|---|---|---|
| Road | | |
| Path (LHS) | | |
| Path (RHS) | | |
| Grass Verge (LHS) | | |
| Grass Verge (RHS) | | |
| Other | 4 | |
| Total Length | 4.0 | |

Zero Metres Taken As: Pitch Goal side

**X-Section**




**Plan**




| | Diameter (mm) | Material | Description | Distance (m) | Depth to crown (m) | Angle (deg.) |
|---|---|---|---|---|---|---|
| Service A | | | | | | |
| Service B | | | | | | |
| Service C | | | | | | |
| Service D | | | | | | |
| Service E | | | | | | |
| Service F | | | | | | |
| Service G | | | | | | |
| Service H | | | | | | |
| Service I | | | | | | |
| Service J | | | | | | |
| Service K | | | | | | |
| Service L | | | | | | |
| Service M | | | | | | |

| Report No. 24737 | SLIT TRENCH RECORD | FACING DIRECTION: N / W / E / S |
|---|---|---|

| | | Survey | | | | |
|---|---|---|---|---|---|---|
| Project: St.Evins Park, Monasterevin | | Easting (m) | Northing (m) | Elevation (mOD) | Slit Trench No. | ST02 |
| Engineer: DOBA | | | | | Sheet | 1 of 1 |
| Crew: I.R. / Hinch Plant Hire | Start of Trench | 662999.998 | 711029.751 | 64.116 | Date Commenced | 06/06/2023 |
| | End of Trench | 663003.638 | 711030.555 | 64.15 | Date Completed | 06/06/2023 |

**Ground Conditions**

| From (m) | To (m) | Soil Description |
|---|---|---|
| 0.00 | 0.25 | TOPSOIL |
| 0.25 | 0.8 | Firm, brown/grey, sandy slightly gravelly CLAY with occasional cobbles |
| 0.8 | 1.2 | Firm to stiff, brown/grey mottled, sandy gravelly SILT/CLAY with some cobbles |
| | | |
| | | |
| | | |

**Photograph**

| Trench Dimensions | |
|---|---|
| LHS of Trench (m) | 0.0 |
| RHS of Trench (m) | 3.3 |
| Trench Depth (m) | 1.2 |
| Trench Width (m) | 0.7 |
| Facing Direction | 71° East - North East |
| Facing Features | Last house in row |
| Groundwater | Dry |

**Location**

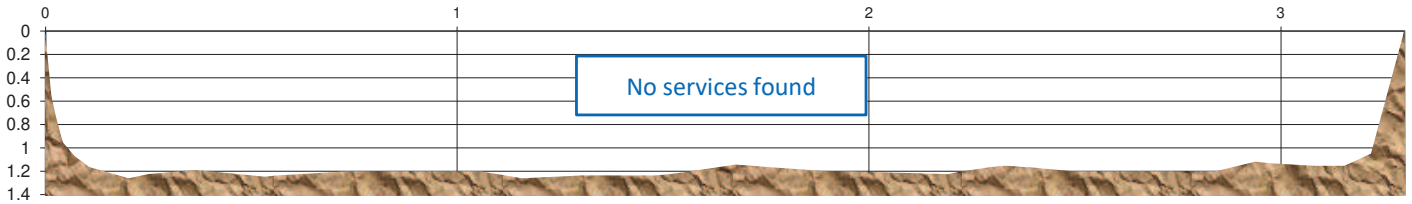
**SAMPLES**

**Excavation Quantities**

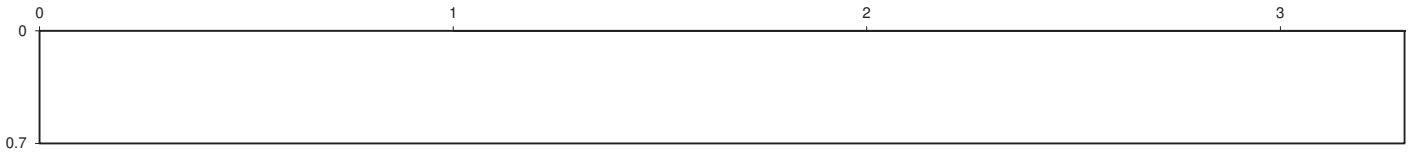
| Surface | Length (m) | Material |
|---|---|---|
| Road | | |
| Path (LHS) | | |
| Path (RHS) | | |
| Grass Verge (LHS) | | |
| Grass Verge (RHS) | | |
| Other | 4 | |
| Total Length | 4.0 | |

Zero Metres Taken As: Pitch Goal side

**X-Section**




**Plan**




| | Diameter (mm) | Material | Description | Distance (m) | Depth to crown (m) | Angle (deg.) |
|---|---|---|---|---|---|---|
| Service A | | | | | | |
| Service B | | | | | | |
| Service C | | | | | | |
| Service D | | | | | | |
| Service E | | | | | | |
| Service F | | | | | | |
| Service G | | | | | | |
| Service H | | | | | | |
| Service I | | | | | | |
| Service J | | | | | | |
| Service K | | | | | | |
| Service L | | | | | | |
| Service M | | | | | | |

Appendix 8 Laboratory Test Results (Geotechnical)

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. **R148127** Contract No. 24737 Contract Name: St Evins Park Monastervin Kildare

Customer DOBA

Samples Received: 07/07/23 Date Tested: 07/07/23

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BH02 | AA199366 | 1.0 | A23/2497 | B | 15 | 24 | 15 | 9 | 84 | WS | 4.4 | C L | Brown sandy gravelly CLAY |
| BH03 | AA199369 | 1.0 | A23/2350 | B | 25 | 39 | 20 | 19 | 89 | WS | 4.4 | C I | Brown sandy gravelly CLAY |
| TPSA01 | AA196570 | 1.6 | A23/2351 | B | 47 | 47 | NP | NP | 76 | WS | 4.4 | | Brown sandy gravelly SILT |
| TP/SA02 | AA196573 | 1.4 | A23/2352 | B | 7.9 | 20 | NP | NP | 80 | WS | 4.4 | | Grey/Brown slightly sandy, slightly gravelly, SILT with many cobbles |
| TP/SA03 | AA196576 | 1.4 | A23/2353 | B | 12 | 18 | NP | NP | 80 | WS | 4.4 | | Brown sandy gravelly SILT |
| TP/SA04 | AA196579 | 1.3 | A23/2354 | B | 9.0 | 18 | NP | NP | 77 | WS | 4.4 | | Brown sandy gravelly SILT |

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 | Page |
|---|---|---|
| H Byrne | 27/07/23 | 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 | 96 | |
| 28 | 89 | |
| 20 | 84 | |
| 14 | 76 | |
| 10 | 74 | |
| 6.3 | 69 | |
| 5 | 67 | |
| 3.35 | 60 | |
| 2 | 55 | |
| 1.18 | 50 | SAND |
| 0.6 | 45 | |
| 0.425 | 42 | |
| 0.3 | 38 | |
| 0.15 | 29 | |
| 0.063 | 18 | SILT/CLAY |

Contract No. 24737 Report No. R148128
Contract Name : St Evins Park Monastervin Kildare
BH/TP No. BH1
Sample No.* AA199364 Lab. Sample No. A23/2496
Sample Type: B
Depth* (m) 2.00 Customer: DOBA
Date Received 07/07/2023 Date Testing started 07/07/2023
Description: Brown clayey/silty, very sandy, GRAVEL

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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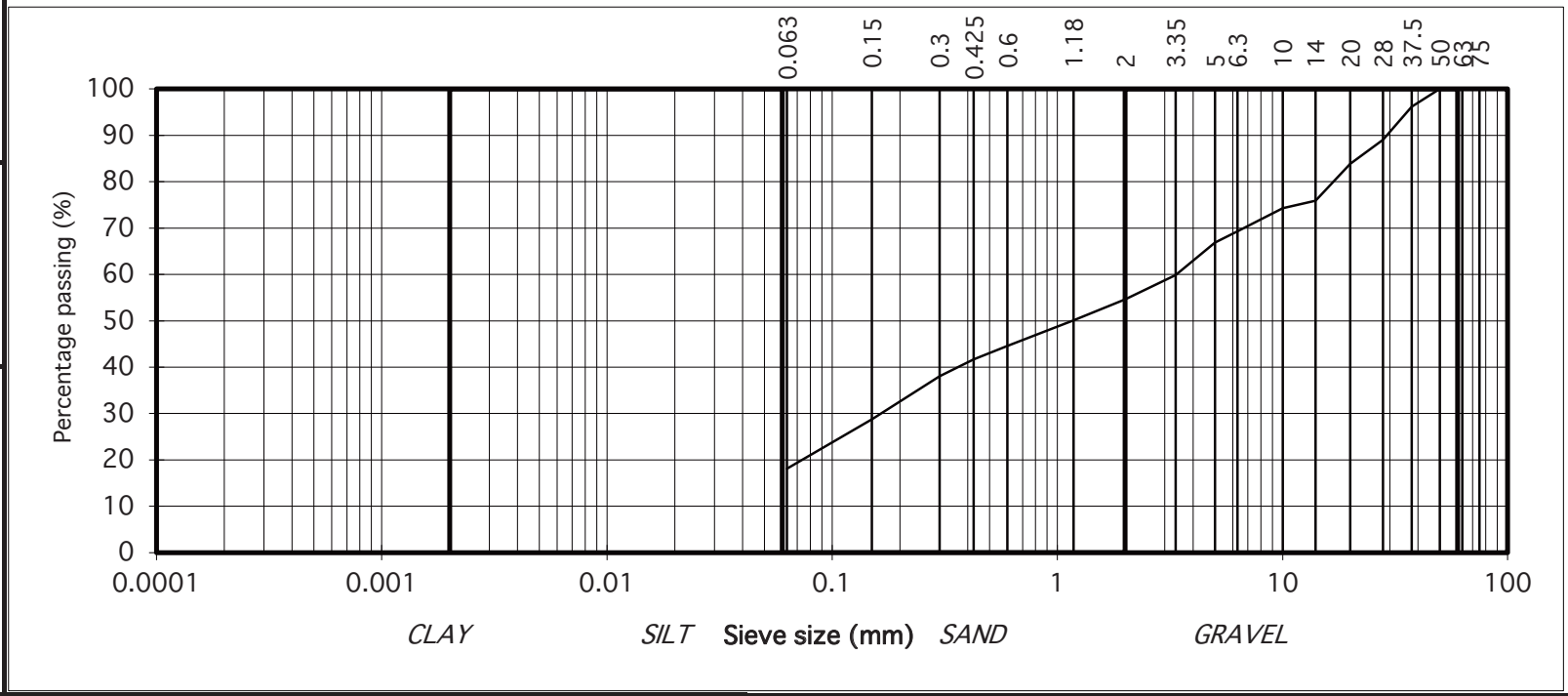


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| Approved by: | Date: | Page no: |
|---|---|---|
| H Byrne | 27/07/23 | 1 of 1 |

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 | 88 | |
| 50 | 88 | GRAVEL |
| 37.5 | 78 | |
| 28 | 77 | |
| 20 | 70 | |
| 14 | 67 | |
| 10 | 63 | |
| 6.3 | 57 | |
| 5 | 55 | |
| 3.35 | 53 | |
| 2 | 49 | |
| 1.18 | 45 | SAND |
| 0.6 | 41 | |
| 0.425 | 39 | |
| 0.3 | 37 | |
| 0.15 | 33 | |
| 0.063 | 27 | SILT/CLAY |

Contract No. 24737 Report No. R148129
Contract Name : St Evins Park Monastervin Kildare
BH/TP No. BH02
Sample No.* AA199368 Lab. Sample No. A23/2498
Sample Type: B
Depth* (m) 3.00 Customer: DOBA
Date Received 07/07/2023 Date Testing started 07/07/2023
Description: Brown slightly sandy, gravelly, SILT/CLAY with some cobbles

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2 Sample size did not meet the requirements of BS1377

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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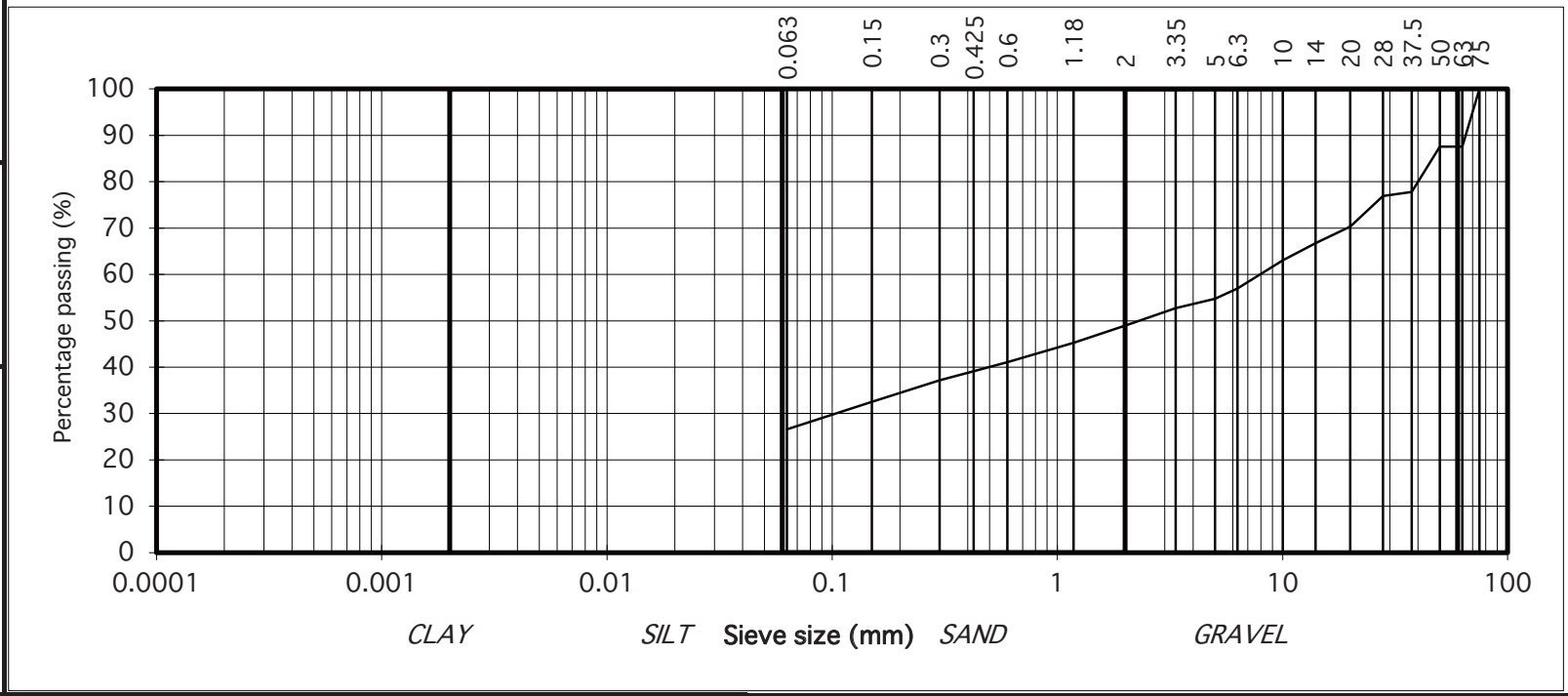


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|---|---|---|
| H Byrne | 27/07/23 | 1 of 1 |

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 | 80 | |
| 50 | 75 | GRAVEL |
| 37.5 | 73 | |
| 28 | 66 | |
| 20 | 54 | |
| 14 | 46 | |
| 10 | 39 | |
| 6.3 | 32 | |
| 5 | 29 | |
| 3.35 | 26 | |
| 2 | 21 | |
| 1.18 | 16 | SAND |
| 0.6 | 9 | |
| 0.425 | 7 | |
| 0.3 | 5 | |
| 0.15 | 4 | |
| 0.063 | 3 | SILT/CLAY |

Contract No. 24737 Report No. R148130
Contract Name : St Evins Park Monastervin Kildare
BH/TP No. BH03
Sample No.* AA199371 Lab. Sample No. A23/2500
Sample Type: B
Depth* (m) 3.00 Customer: DOBA
Date Received 07/07/2023 Date Testing started 07/07/2023
Description: Grey slightly clayey/silty, sandy, GRAVEL with some cobbles

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2 Sample size did not meet the requirements of BS1377

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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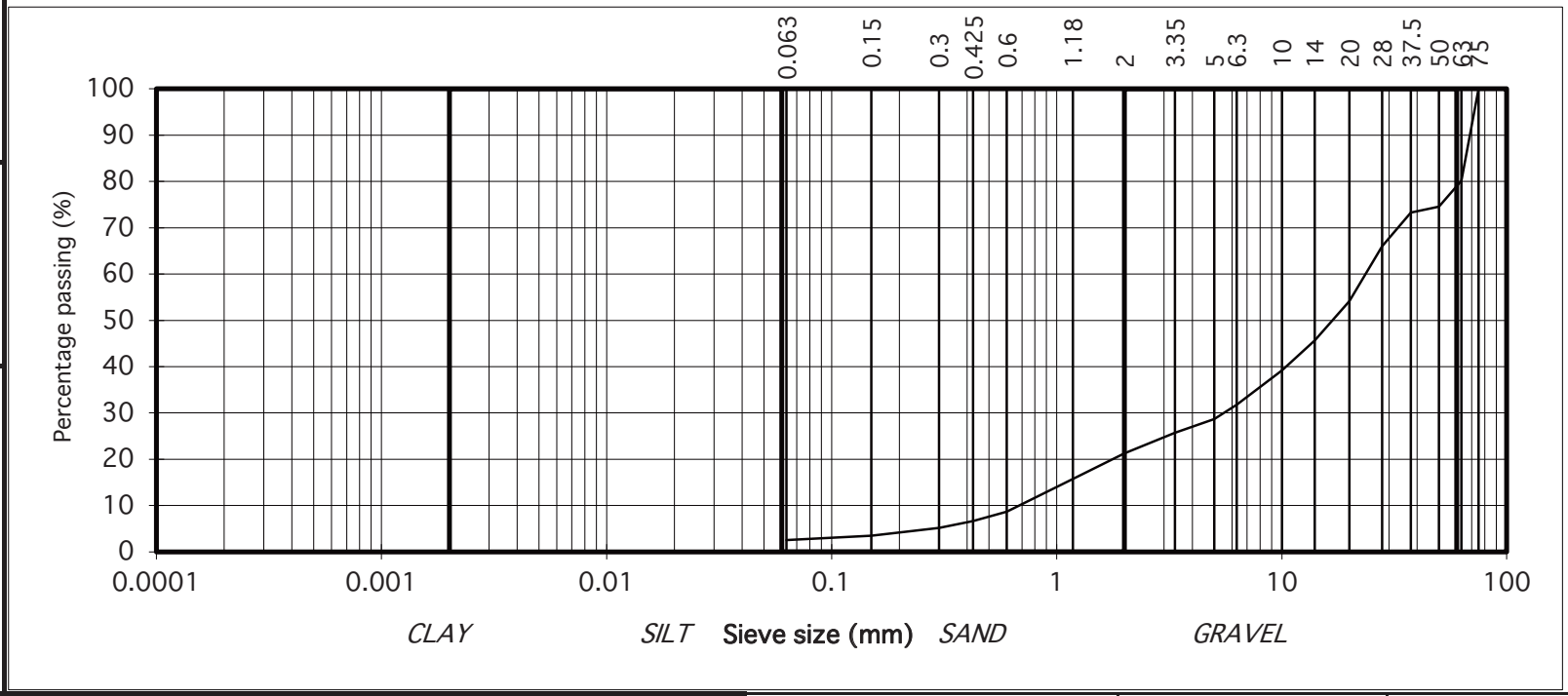


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| H Byrne | 27/07/23 | 1 of 1 |

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 | 83 | COBBLES |
| 63 | 83 | |
| 50 | 83 | GRAVEL |
| 37.5 | 80 | |
| 28 | 70 | |
| 20 | 67 | |
| 14 | 61 | |
| 10 | 58 | |
| 6.3 | 53 | |
| 5 | 51 | |
| 3.35 | 48 | |
| 2 | 46 | |
| 1.18 | 44 | SAND |
| 0.6 | 41 | |
| 0.425 | 40 | |
| 0.3 | 38 | |
| 0.15 | 33 | |
| 0.063 | 21 | SILT/CLAY |
| 0.040 | 16 | |
| 0.028 | 15 | |
| 0.018 | 14 | |
| 0.011 | 11 | |
| 0.008 | 10 | |
| 0.005 | 8 | |
| 0.002 | 5 | |

| | | | | |
|---|---|---|---|---|
| Contract No. | 24737 | Report No. | R148131 | |
| Contract Name : | St Evins Park Monastervin Kildare | | | |
| BH/TP No. | TP/SA01 | | | |
| Sample No.* | AA196571 | Lab. Sample No. | | A23/2500 |
| Sample Type: | B | | | |
| Depth* (m) | 1.60 | Customer: | DOBA | |
| Date Received | 07/07/2023 | Date Testing started | | 07/07/2023 |
| Description: | Brown slightly sandy, gravelly, SILT/CLAY with some cobbles | | | |

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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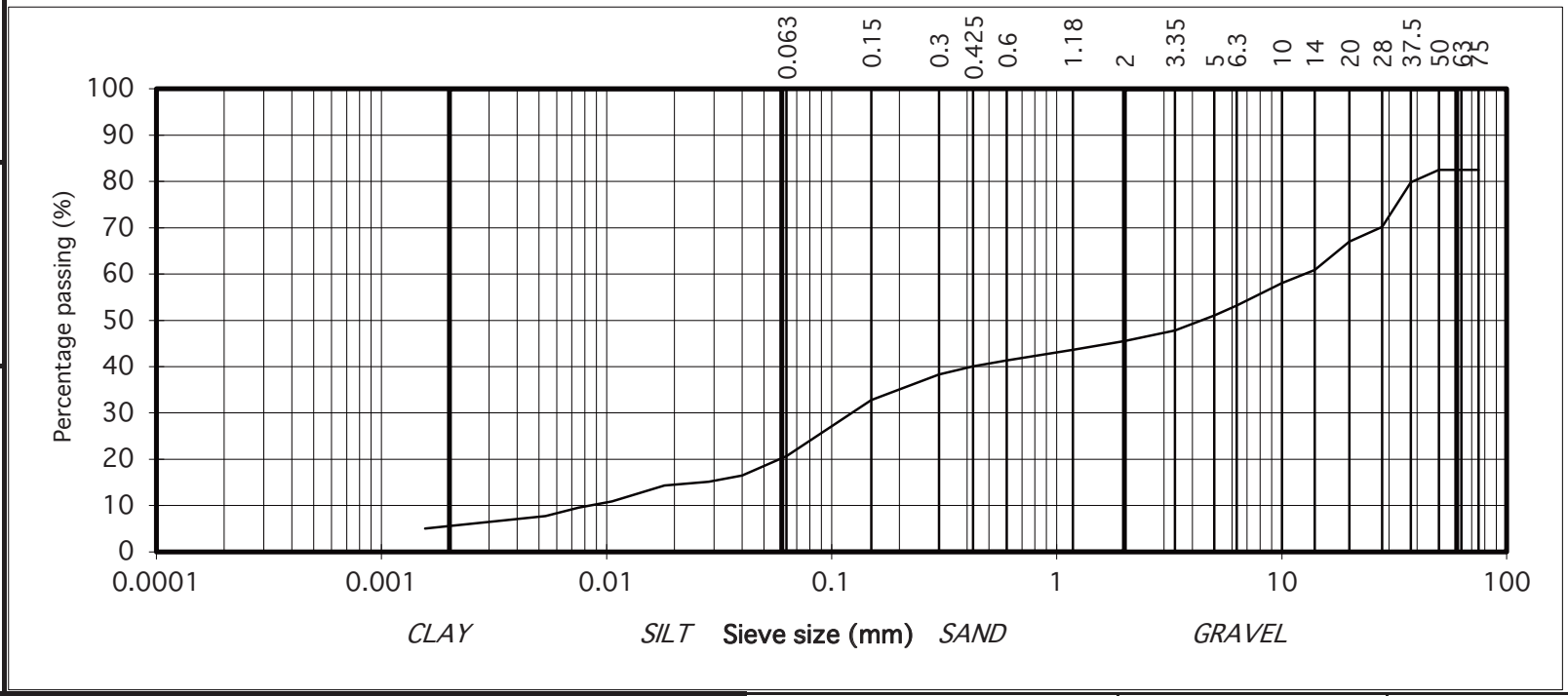
Remarks: Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2 Sample size did not meet the requirements of BS1377

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|---|---|---|
| H Byrne | 27/07/23 | 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 | 71 | COBBLES |
| 63 | 71 | |
| 50 | 71 | GRAVEL |
| 37.5 | 67 | |
| 28 | 67 | |
| 20 | 66 | |
| 14 | 66 | |
| 10 | 65 | |
| 6.3 | 64 | |
| 5 | 63 | |
| 3.35 | 61 | |
| 2 | 60 | |
| 1.18 | 57 | SAND |
| 0.6 | 54 | |
| 0.425 | 53 | |
| 0.3 | 50 | |
| 0.15 | 44 | |
| 0.063 | 35 | SILT/CLAY |
| 0.038 | 28 | |
| 0.027 | 25 | |
| 0.017 | 22 | |
| 0.010 | 19 | |
| 0.007 | 16 | |
| 0.005 | 13 | |
| 0.002 | 8 | |

Contract No. 24737 Report No. R148132
Contract Name : St Evins Park Monastervin Kildare
BH/TP No. TP/SA02
Sample No.* AA196573 Lab. Sample No. A23/2503
Sample Type: B
Depth* (m) 1.40 Customer: DOBA
Date Received 07/07/2023 Date Testing started 07/07/2023
Description: Grey/Brown slightly sandy, slightly gravelly, SILT with many cobbles

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2 Sample size did not meet the requirements of BS1377

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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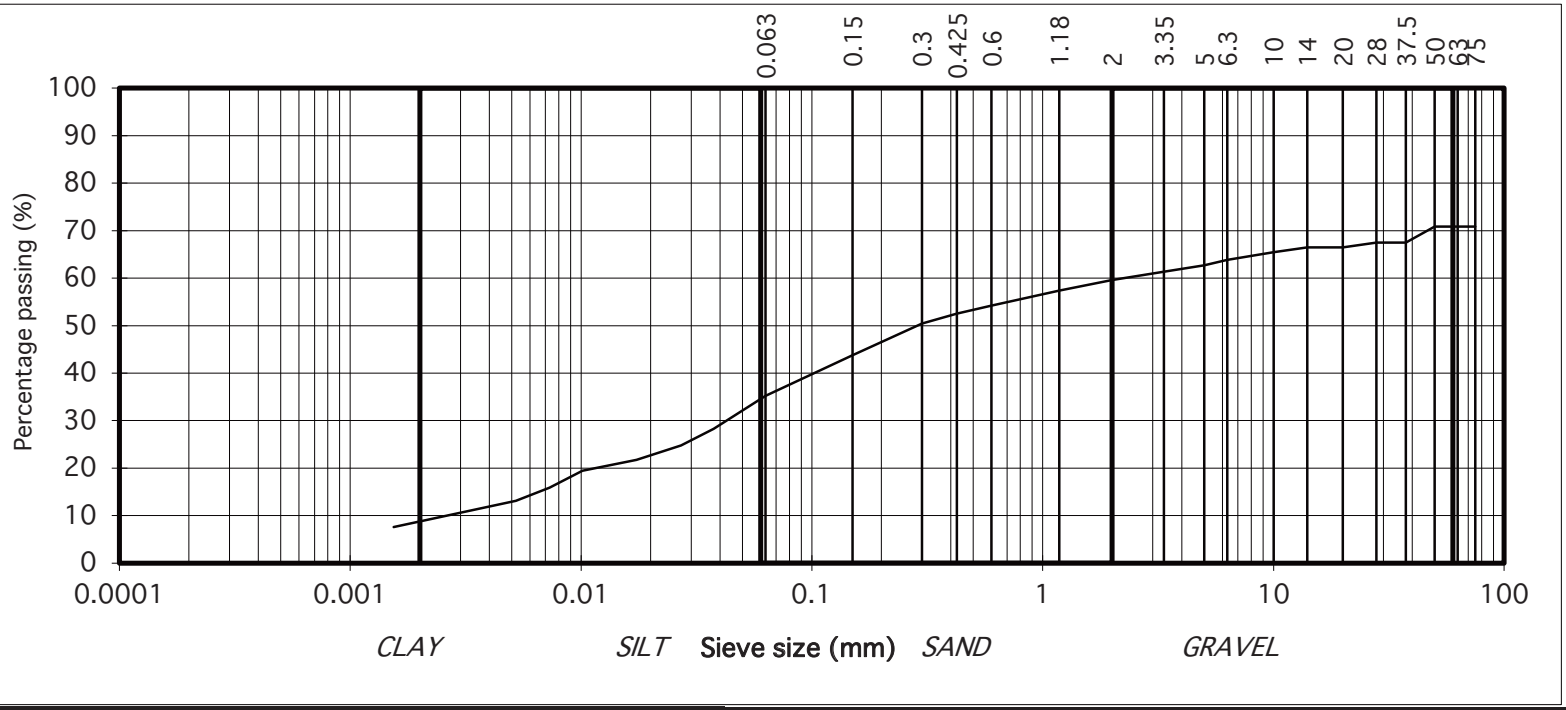


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|---|---|---|
| H Byrne | 27/07/23 | 1 of 1 |

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 | 96 | |
| 28 | 88 | |
| 20 | 81 | |
| 14 | 72 | |
| 10 | 68 | |
| 6.3 | 60 | |
| 5 | 57 | |
| 3.35 | 52 | |
| 2 | 46 | |
| 1.18 | 41 | SAND |
| 0.6 | 35 | |
| 0.425 | 33 | |
| 0.3 | 30 | |
| 0.15 | 23 | |
| 0.063 | 16 | SILT/CLAY |

Contract No. 24737 Report No. R148133
Contract Name : St Evins Park Monastervin Kildare
BH/TP No. TP/SA02
Sample No.* AA196574 Lab. Sample No. A23/2504
Sample Type: B
Depth* (m) 2.00 Customer: DOBA
Date Received 07/07/2023 Date Testing started 07/07/2023
Description: Brown clayey/silty, very sandy, GRAVEL

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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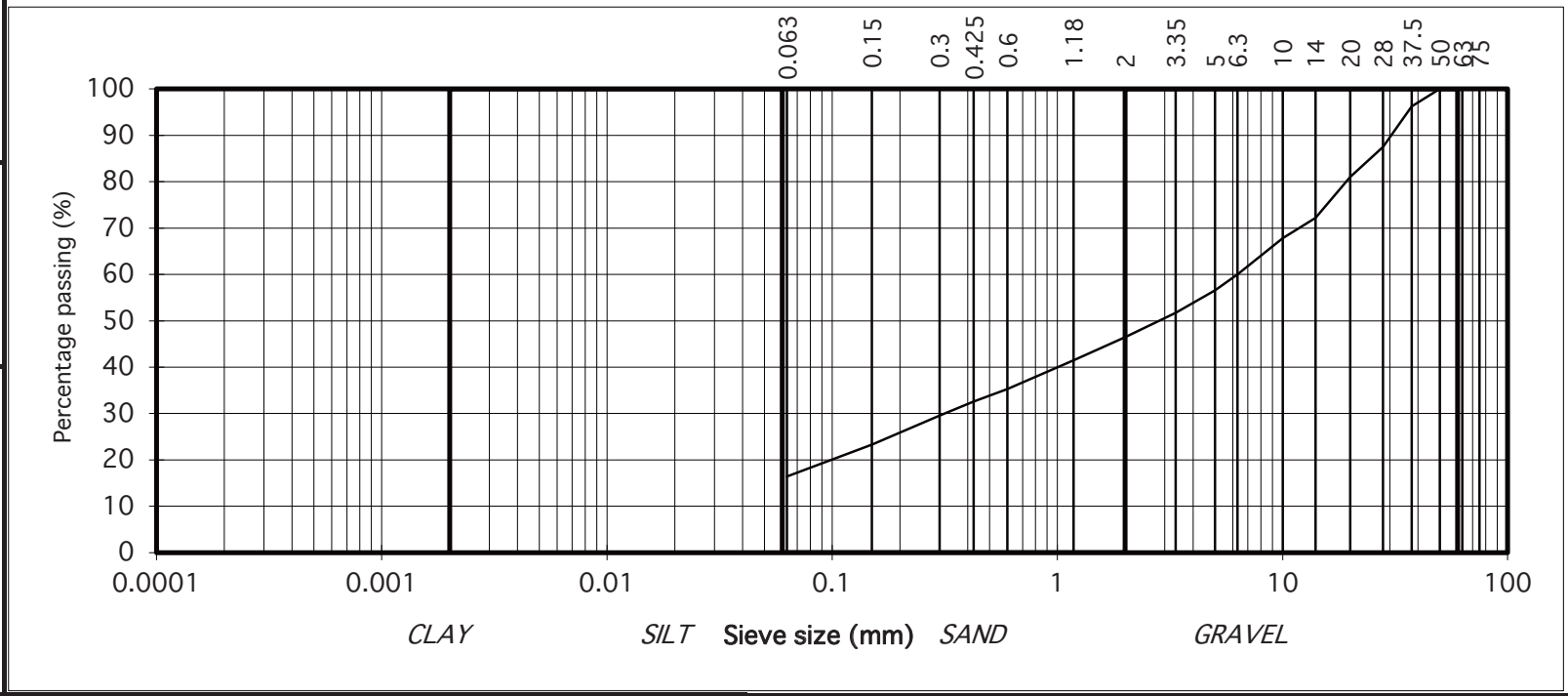


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| Approved by: | Date: | Page no: |
|---|---|---|
| H Byrne | 27/07/23 | 1 of 1 |

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 | 97 | |
| 28 | 95 | |
| 20 | 92 | |
| 14 | 89 | |
| 10 | 87 | |
| 6.3 | 84 | |
| 5 | 83 | |
| 3.35 | 81 | |
| 2 | 78 | |
| 1.18 | 75 | SAND |
| 0.6 | 71 | |
| 0.425 | 69 | |
| 0.3 | 67 | |
| 0.15 | 60 | |
| 0.063 | 50 | SILT/CLAY |
| 0.037 | 41 | |
| 0.026 | 38 | |
| 0.017 | 34 | |
| 0.010 | 29 | |
| 0.007 | 23 | |
| 0.005 | 19 | |
| 0.002 | 11 | |

Contract No. 24737 Report No. R148134
Contract Name : St Evins Park Monastervin Kildare
BH/TP No. TP/SA04
Sample No.* AA196580 Lab. Sample No. A23/2507
Sample Type: B
Depth* (m) 2.00 Customer: DOBA
Date Received 07/07/2023 Date Testing started 07/07/2023
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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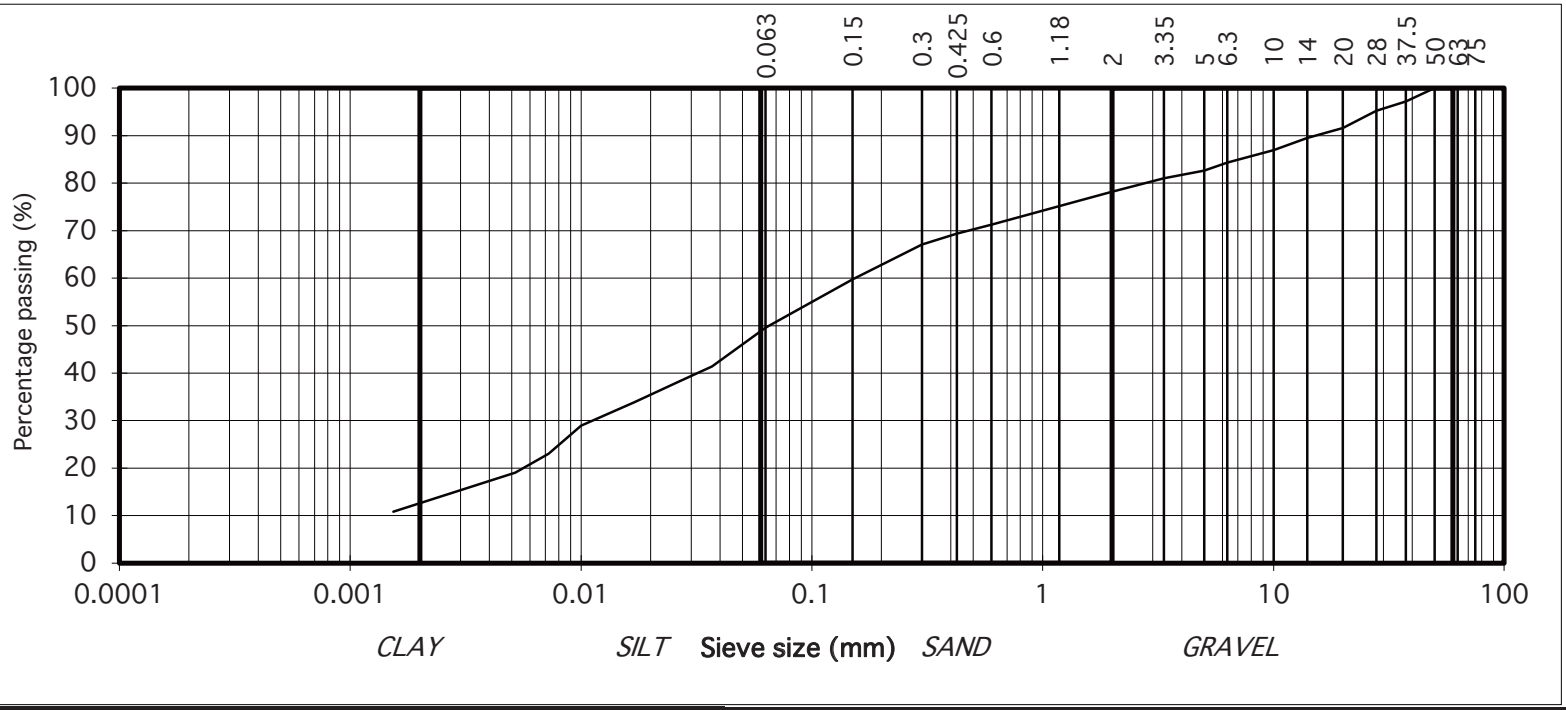


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| Approved by: | Date: | Page no: |
|---|---|---|
| H Byrne | 27/07/23 | 1 of 1 |

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

Appendix 9 Laboratory Test Results (Environmental)

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

UKAS TESTING
2183

# Final Report

| | |
|---|---|
| **Report No.:** | 23-21180-1 |
| **Initial Date of Issue:** | 05-Jul-2023 |
| **Re-Issue Details:** | |
| **Client** | IGSL |
| **Client Address:** | M7 Business Park<br>Naas<br>County Kildare<br>Ireland |
| **Contact(s):** | Darren Keogh |
| **Project** | 24737 St Evins Park Monaservin<br>Kildare |
| **Quotation No.:** | Q20-21693 |
| **Order No.:** | |
| **No. of Samples:** | 8 |
| **Turnaround (Wkdays):** | 7 |
| **Date Approved:** | 05-Jul-2023 |
| **Approved By:** | |

| | |
|---|---|
| **Details:** | Stuart Henderson, Technical Manager |

| | |
|---|---|
| **Date Received:** | 22-Jun-2023 |
| **Date Instructed:** | 22-Jun-2023 |
| **Results Due:** | 30-Jun-2023 |

# Results - Leachate

**Project: 24737 St Evins Park Monaservin Kildare**

| **Client: IGSL** | | | | **Chemtest Job No.:** | | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 |
|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: Q20-21693 | | | | **Chemtest Sample ID.:** | | 1662178 | 1662180 | 1662182 | 1662183 | 1662185 |
| Order No.: | | | | Client Sample Ref.: | | AA199363 | AA196569 | AA196572 | AA196575 | AA196578 |
| | | | | Sample Location: | | BH01 | TP/SA01 | TP/SA02 | TP/SA03 | TP/SA04 |
| | | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | Top Depth (m): | | 1.00 | 0.70 | 0.50 | 0.60 | 0.50 |
| **Determinand** | **Accred.** | **SOP** | **Type** | **Units** | **LOD** | | | | | |
| pH | U | 1010 | 10:1 | | N/A | 8.3 | 8.6 | 8.4 | 8.7 | 8.5 |
| Ammonium | U | 1220 | 10:1 | mg/l | 0.050 | 0.11 | 0.15 | 0.079 | 0.064 | 0.085 |
| Ammonium | N | 1220 | 10:1 | mg/kg | 0.10 | 1.2 | 1.8 | 0.90 | 0.81 | 1.0 |
| Boron (Dissolved) | U | 1455 | 10:1 | mg/kg | 0.01 | < 0.01 | < 0.01 | 0.12 | 0.10 | 0.10 |
| Benzo[j]fluoranthene | N | 1800 | 10:1 | µg/l | 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 | < 0.010 |

# Results - Soil

**Project: 24737 St Evins Park Monaservin Kildare**

| Client: IGSL | | | | Chemtest Job No.: | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: Q20-21693 | | | | Chemtest Sample ID.: | 1662178 | 1662179 | 1662180 | 1662181 | 1662182 | 1662183 | 1662184 | 1662185 |
| Order No.: | | | | Client Sample Ref.: | AA199363 | AA199366 | AA196569 | AA196570 | AA196572 | AA196575 | AA196576 | AA196578 |
| | | | | Sample Location: | BH01 | BH02 | TP/SA01 | TP/SA01 | TP/SA02 | TP/SA03 | TP/SA03 | TP/SA04 |
| | | | | Sample Type: | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | | Top Depth (m): | 1.00 | 1.00 | 0.70 | 1.60 | 0.50 | 0.60 | 1.40 | 0.50 |
| | | | | Asbestos Lab: | COVENTRY | | COVENTRY | | COVENTRY | COVENTRY | | COVENTRY |
| **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 | | No Asbestos Detected |
| Moisture | N | 2030 | % | 0.020 | 14 | 13 | 11 | 11 | 14 | 15 | 10 | 18 |
| pH (2.5:1) | N | 2010 | | 4.0 | | [A] 8.9 | | [A] 9.0 | | | [A] 8.9 | |
| Boron (Hot Water Soluble) | U | 2120 | mg/kg | 0.40 | [A] 0.48 | | [A] < 0.40 | | [A] < 0.40 | [A] < 0.40 | | [A] 0.65 |
| Magnesium (Water Soluble) | N | 2120 | g/l | 0.010 | | [A] < 0.010 | | [A] < 0.010 | | | [A] < 0.010 | |
| Magnesium (Water Soluble) | U | 2120 | mg/kg | 20 | | [A] < 20 | | [A] < 20 | | | [A] < 20 | |
| 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] 0.030 | | [A] 0.020 | | | [A] 0.026 | |
| Sulphur (Elemental) | U | 2180 | mg/kg | 1.0 | [A] < 1.0 | | [A] 1.0 | | [A] 3.6 | [A] 1.2 | | [A] < 1.0 |
| Chloride (Water Soluble) | U | 2220 | g/l | 0.010 | | [A] < 0.010 | | [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 | | [A] 0.70 |
| Sulphide (Easily Liberatable) | N | 2325 | mg/kg | 0.50 | [A] 4.3 | | [A] 5.0 | | [A] 3.5 | [A] 6.4 | | [A] 4.0 |
| Ammonium (Water Soluble) | U | 2220 | g/l | 0.01 | | < 0.01 | | < 0.01 | | | < 0.01 | |
| Sulphate (Acid Soluble) | U | 2430 | % | 0.010 | [A] 0.034 | [A] 0.10 | [A] < 0.010 | [A] 0.069 | [A] < 0.010 | [A] 0.017 | [A] 0.067 | [A] 0.010 |
| Arsenic | U | 2455 | mg/kg | 0.5 | 2.3 | | 3.4 | | 2.9 | 3.6 | | 3.3 |
| Barium | U | 2455 | mg/kg | 0 | 23 | | 38 | | 37 | 36 | | 53 |
| Cadmium | U | 2455 | mg/kg | 0.10 | 0.28 | | 0.62 | | 0.17 | 0.39 | | 0.25 |
| Chromium | U | 2455 | mg/kg | 0.5 | 6.5 | | 8.1 | | 9.4 | 9.0 | | 9.6 |
| Molybdenum | U | 2455 | mg/kg | 0.5 | < 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 | | < 2.0 |
| Copper | U | 2455 | mg/kg | 0.50 | 4.9 | | 7.4 | | 3.5 | 4.9 | | 4.8 |
| Mercury | U | 2455 | mg/kg | 0.05 | < 0.05 | | < 0.05 | | 0.06 | < 0.05 | | 0.07 |
| Nickel | U | 2455 | mg/kg | 0.50 | 11 | | 18 | | 12 | 16 | | 14 |
| Lead | U | 2455 | mg/kg | 0.50 | 8.4 | | 9.4 | | 9.0 | 8.6 | | 13 |
| Selenium | U | 2455 | mg/kg | 0.25 | < 0.25 | | < 0.25 | | < 0.25 | < 0.25 | | 0.27 |
| Zinc | U | 2455 | mg/kg | 0.50 | 32 | | 33 | | 36 | 28 | | 30 |
| Chromium (Trivalent) | N | 2490 | mg/kg | 1.0 | 6.5 | | 8.1 | | 9.4 | 9.0 | | 9.6 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.50 | < 0.50 | | < 0.50 | | < 0.50 | < 0.50 | | < 0.50 |
| Mineral Oil (TPH Calculation) | N | 2670 | mg/kg | 10 | < 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 | | [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 | | [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 | | [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 | | [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 | | [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 | | [A] < 1.0 |
| Aliphatic TPH >C21-C35 | N | 2680 | mg/kg | 1.0 | [A] < 1.0 | | [A] < 1.0 | | [A] < 1.0 | [A] < 1.0 | | [A] < 1.0 |

# Results - Soil

**Project: 24737 St Evins Park Monaservin Kildare**

| Client: IGSL | | | Chemtest Job No.: | | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: Q20-21693 | | | Chemtest Sample ID.: | | 1662178 | 1662179 | 1662180 | 1662181 | 1662182 | 1662183 | 1662184 | 1662185 |
| Order No.: | | | Client Sample Ref.: | | AA199363 | AA199366 | AA196569 | AA196570 | AA196572 | AA196575 | AA196576 | AA196578 |
| | | | Sample Location: | | BH01 | BH02 | TP/SA01 | TP/SA01 | TP/SA02 | TP/SA03 | TP/SA03 | TP/SA04 |
| | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 1.00 | 1.00 | 0.70 | 1.60 | 0.50 | 0.60 | 1.40 | 0.50 |
| | | | Asbestos Lab: | | COVENTRY | | COVENTRY | | COVENTRY | COVENTRY | | COVENTRY |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | |
| Aliphatic TPH >C35-C44 | N | 2680 | mg/kg | 1.0 | [A] < 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 | | [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 | | [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 | | [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 | | [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 | | [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 | | [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 | | [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 | | [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 | | [A] < 1.0 |
| Total Aromatic Hydrocarbons | N | 2680 | mg/kg | 5.0 | [A] < 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 | | [A] < 10 |
| Benzene | U | 2760 | µg/kg | 1.0 | [A] < 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 | | [A] < 1.0 |
| Ethylbenzene | U | 2760 | µg/kg | 1.0 | [A] < 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 | | [A] < 1.0 |
| o-Xylene | U | 2760 | µg/kg | 1.0 | [A] < 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 | | [A] < 1.0 |
| Naphthalene | N | 2800 | mg/kg | 0.010 | [A] < 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 | | [A] < 0.010 |
| Acenaphthene | N | 2800 | mg/kg | 0.010 | [A] < 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 | | [A] < 0.010 |
| Phenanthrene | N | 2800 | mg/kg | 0.010 | [A] < 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 | | [A] < 0.010 |
| Fluoranthene | N | 2800 | mg/kg | 0.010 | [A] < 0.010 | | [A] < 0.010 | | [A] < 0.010 | [A] < 0.010 | | [A] < 0.010 |
| Pyrene | N | 2800 | mg/kg | 0.010 | [A] < 0.010 | | [A] < 0.010 | | [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 | | [A] < 0.010 |
| Chrysene | N | 2800 | mg/kg | 0.010 | [A] < 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 | | [A] < 0.010 |
| Benzo[k]fluoranthene | N | 2800 | mg/kg | 0.010 | [A] < 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 | | [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 | | [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 | | [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 | | [A] < 0.010 |
| Coronene | N | 2800 | mg/kg | 0.010 | [A] < 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] < 0.20 | | [A] < 0.20 | | [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 | | [A] < 0.0010 |
| PCB 52 | N | 2815 | mg/kg | 0.0010 | [A] < 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 | | [A] < 0.0010 |

# Results - Soil

**Project: 24737 St Evins Park Monaservin Kildare**

| **Client: IGSL** | | | **Chemtest Job No.:** | | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 | 23-21180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quotation No.: Q20-21693 | | | **Chemtest Sample ID.:** | | 1662178 | 1662179 | 1662180 | 1662181 | 1662182 | 1662183 | 1662184 | 1662185 |
| Order No.: | | | Client Sample Ref.: | | AA199363 | AA199366 | AA196569 | AA196570 | AA196572 | AA196575 | AA196576 | AA196578 |
| | | | Sample Location: | | BH01 | BH02 | TP/SA01 | TP/SA01 | TP/SA02 | TP/SA03 | TP/SA03 | TP/SA04 |
| | | | Sample Type: | | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL | SOIL |
| | | | Top Depth (m): | | 1.00 | 1.00 | 0.70 | 1.60 | 0.50 | 0.60 | 1.40 | 0.50 |
| | | | Asbestos Lab: | | COVENTRY | | COVENTRY | | COVENTRY | COVENTRY | | COVENTRY |
| **Determinand** | **Accred.** | **SOP** | **Units** | **LOD** | | | | | | | | |
| PCB 118 | N | 2815 | mg/kg | 0.0010 | [A] < 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 | | [A] < 0.0010 |
| PCB 138 | N | 2815 | mg/kg | 0.0010 | [A] < 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 | | [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 | | [A] < 0.0010 |
| Total Phenols | U | 2920 | mg/kg | 0.10 | < 0.10 | | < 0.10 | | < 0.10 | < 0.10 | | < 0.10 |

# Results - Single Stage WAC

**Project: 24737 St Evins Park Monaservin Kildare**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 23-21180 | | | | | | |
| **Chemtest Sample ID:** | 1662178 | | | | | | |
| **Sample Ref:** | AA199363 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | BH01 | | | | | | |
| **Top Depth(m):** | 1.00 | | | | | | |
| **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] 1.6 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 4.1 | -- | -- | 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 | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.015 | -- | 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 | 0.0012 | 0.012 | 0.5 | 2 | 25 |
| Barium | 1455 | U | 0.014 | 0.14 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.0011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0022 | 0.022 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0036 | 0.036 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0031 | 0.031 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0018 | 0.018 | 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 | 0.0054 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | 0.027 | 0.27 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.34 | 3.4 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 1.1 | 11 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 84 | 840 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 8.7 | 87 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 14 |

## 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: 24737 St Evins Park Monaservin Kildare**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 23-21180 | | | | | | |
| **Chemtest Sample ID:** | 1662180 | | | | | | |
| **Sample Ref:** | AA196569 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP/SA01 | | | | | | |
| **Top Depth(m):** | 0.70 | | | | | | |
| **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] < 0.20 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 1.6 | -- | -- | 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 | | 8.9 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.014 | -- | To evaluate | To evaluate |
| **Eluate Analysis** | | | **10:1 Eluate mg/l** | **10:1 Eluate mg/kg** | **Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg** | | |
| Arsenic | 1455 | U | 0.0015 | 0.015 | 0.5 | 2 | 25 |
| Barium | 1455 | U | 0.005 | 0.053 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.0011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0023 | 0.023 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0035 | 0.035 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0014 | 0.014 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0051 | 0.051 | 0.4 | 10 | 40 |
| Lead | 1455 | U | 0.0019 | 0.019 | 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 | 0.028 | 0.28 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.7 | 17 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.51 | 5.1 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 3.9 | 39 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 55 | 550 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 7.1 | 71 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 11 |

## 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: 24737 St Evins Park Monaservin Kildare**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 23-21180 | | | | | | |
| **Chemtest Sample ID:** | 1662182 | | | | | | |
| **Sample Ref:** | AA196572 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP/SA02 | | | | | | |
| **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] 0.25 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 1.7 | -- | -- | 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 | | 8.7 | -- | >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 | 0.0017 | 0.018 | 0.5 | 2 | 25 |
| Barium | 1455 | U | 0.005 | 0.054 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.0011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0025 | 0.025 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0028 | 0.028 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0008 | 0.0077 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0020 | 0.020 | 0.4 | 10 | 40 |
| Lead | 1455 | U | 0.0039 | 0.039 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0050 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | 0.0012 | 0.012 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | 0.046 | 0.46 | 4 | 50 | 200 |
| Chloride | 1220 | U | 2.3 | 23 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.27 | 2.7 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 50 | 490 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 7.9 | 79 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 14 |

## 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: 24737 St Evins Park Monaservin Kildare**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 23-21180 | | | | | | |
| **Chemtest Sample ID:** | 1662183 | | | | | | |
| **Sample Ref:** | AA196575 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP/SA03 | | | | | | |
| **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] < 0.20 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 1.6 | -- | -- | 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 | | 8.7 | -- | >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 | 0.0021 | 0.021 | 0.5 | 2 | 25 |
| Barium | 1455 | U | 0.006 | 0.058 | 20 | 100 | 300 |
| Cadmium | 1455 | U | < 0.00011 | < 0.0011 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0024 | 0.024 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0030 | 0.030 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0013 | 0.013 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.0048 | 0.048 | 0.4 | 10 | 40 |
| Lead | 1455 | U | 0.0028 | 0.028 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | < 0.0005 | < 0.0050 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | 0.0013 | 0.013 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | 0.045 | 0.45 | 4 | 50 | 200 |
| Chloride | 1220 | U | < 1.0 | < 10 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.36 | 3.6 | 10 | 150 | 500 |
| Sulphate | 1220 | U | < 1.0 | < 10 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 49 | 490 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 6.2 | 62 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 15 |

## 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: 24737 St Evins Park Monaservin Kildare**

| | | | | | Landfill Waste Acceptance Criteria Limits | | |
|---|---|---|---|---|---|---|---|
| **Chemtest Job No:** | 23-21180 | | | | | | |
| **Chemtest Sample ID:** | 1662185 | | | | | | |
| **Sample Ref:** | AA196578 | | | | | | |
| **Sample ID:** | | | | | | | |
| **Sample Location:** | TP/SA04 | | | | | | |
| **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] 0.90 | 3 | 5 | 6 |
| Loss On Ignition | 2610 | U | % | 6.1 | -- | -- | 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 | | 8.7 | -- | >6 | -- |
| Acid Neutralisation Capacity | 2015 | N | mol/kg | 0.013 | -- | 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 | 0.0049 | 0.049 | 0.5 | 2 | 25 |
| Barium | 1455 | U | 0.013 | 0.13 | 20 | 100 | 300 |
| Cadmium | 1455 | U | 0.00015 | 0.0015 | 0.04 | 1 | 5 |
| Chromium | 1455 | U | 0.0068 | 0.068 | 0.5 | 10 | 70 |
| Copper | 1455 | U | 0.0054 | 0.054 | 2 | 50 | 100 |
| Mercury | 1455 | U | < 0.00005 | < 0.00050 | 0.01 | 0.2 | 2 |
| Molybdenum | 1455 | U | 0.0015 | 0.015 | 0.5 | 10 | 30 |
| Nickel | 1455 | U | 0.011 | 0.11 | 0.4 | 10 | 40 |
| Lead | 1455 | U | 0.0061 | 0.061 | 0.5 | 10 | 50 |
| Antimony | 1455 | U | 0.0008 | 0.0080 | 0.06 | 0.7 | 5 |
| Selenium | 1455 | U | 0.0025 | 0.025 | 0.1 | 0.5 | 7 |
| Zinc | 1455 | U | 0.052 | 0.52 | 4 | 50 | 200 |
| Chloride | 1220 | U | 1.8 | 18 | 800 | 15000 | 25000 |
| Fluoride | 1220 | U | 0.40 | 4.0 | 10 | 150 | 500 |
| Sulphate | 1220 | U | 4.0 | 40 | 1000 | 20000 | 50000 |
| Total Dissolved Solids | 1020 | N | 59 | 590 | 4000 | 60000 | 100000 |
| Phenol Index | 1920 | U | < 0.030 | < 0.30 | 1 | - | - |
| Dissolved Organic Carbon | 1610 | U | 8.1 | 81 | 500 | 800 | 1000 |

| **Solid Information** | |
|---|---|
| Dry mass of test portion/kg | 0.090 |
| Moisture (%) | 18 |

## 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: |
|---|---|---|---|---|---|---|
| 1662178 | AA199363 | | BH01 | | A | Amber Glass 250ml |
| 1662178 | AA199363 | | BH01 | | A | Plastic Tub 500g |
| 1662179 | AA199366 | | BH02 | | A | Amber Glass 250ml |
| 1662179 | AA199366 | | BH02 | | A | Plastic Tub 500g |
| 1662180 | AA196569 | | TP/SA01 | | A | Amber Glass 250ml |
| 1662180 | AA196569 | | TP/SA01 | | A | Plastic Tub 500g |
| 1662181 | AA196570 | | TP/SA01 | | A | Amber Glass 250ml |
| 1662181 | AA196570 | | TP/SA01 | | A | Plastic Tub 500g |
| 1662182 | AA196572 | | TP/SA02 | | A | Amber Glass 250ml |
| 1662182 | AA196572 | | TP/SA02 | | A | Plastic Tub 500g |
| 1662183 | AA196575 | | TP/SA03 | | A | Amber Glass 250ml |
| 1662183 | AA196575 | | TP/SA03 | | A | Plastic Tub 500g |
| 1662184 | AA196576 | | TP/SA03 | | A | Amber Glass 250ml |
| 1662184 | AA196576 | | TP/SA03 | | A | Plastic Tub 500g |
| 1662185 | AA196578 | | TP/SA04 | | A | Amber Glass 250ml |
| 1662185 | AA196578 | | TP/SA04 | | 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 measurememrnt 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 10 Site Plan


ExpertGPS

# 24737 St. Evins Park Monasterevin

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 m

Scale: 1 : 1000.

MN

2°00'