### 3.5. Groundwater Monitoring Installation

A groundwater monitoring installation was installed upon the completion of BH01 to enable sampling and the determination of the equilibrium groundwater level. The typical groundwater monitoring installation consists of a 50mm uPVC/HDPE slotted pipe with a pea gravel response zone and bentonite seal installed to the Engineers specification. Where required the standpipe is sealed with a gas tap and finished with a durable steel cover fixed in place with a concrete surround. The installation details are provided on the exploratory hole log in the appendices of this Report.

### 3.6. Laboratory Testing

Samples were selected from the exploratory holes for a range of geotechnical and environmental testing to assist in the classification of soils and to provide information for the proposed design.
Environmental & Chemical testing as required by the specification, including the Rilta Suite and pH testing was carried out by Element Materials Technology Laboratory in the United Kingdom (UK). The Rilta suite testing includes both Solid Waste and Leachate Waste Acceptance Criteria.
Geotechnical testing consisting of moisture content, Atterberg limits and Particle Size Distribution (PSD) tests were carried out by Professional Soils Laboratory (PSL) in the UK.
The results of the laboratory testing are included in Appendix 4 of this Report.

## 4.0 Ground Conditions

### 4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were consistent across the site and generally comprised;

- Topsoil/Surfacing
- Made Ground
- Cohesive Deposits

**TOPSOIL:** Topsoil was encountered in all three of the exploratory holes and was present to a maximum depth of 0.40m BGL.

**SURFACING:** Tarmacadam surfacing was encountered in one of the exploratory holes was present typically to a depth of 0.20m BGL.

**MADE GROUND:** Made Ground deposits were encountered beneath the Topsoil/Surfacing and were present to variable depths ranging from 0.80m to 2.20m BGL. The full extent of the made ground deposit

was not determined at TP01. These deposits were described generally as *brown/grey sandy slightly gravelly Clay* and contained *rare fragments of concrete, red brick, fabric and plastic.*

**COHESIVE DEPOSITS:** Cohesive deposits were encountered beneath the Made Ground and were described typically as *brown sandy gravelly CLAY with occasional cobbles and boulders* overlying a *stiff black sandy gravelly CLAY with occasional cobbles and boulders*. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. The strength of the cohesive deposits typically increased with depth and was firm to stiff or stiff below 1.0m BGL in the majority of the exploratory holes. These deposits had occasional (<5%), some (5%-20%) or many (20%-50%) cobble and boulder content, where noted on the exploratory hole logs.

### 4.2. Groundwater

Groundwater strikes are noted on the exploratory hole logs where they occurred and where possible drilling was suspended for twenty minutes to allow the subsequent rise in groundwater to be recorded. We would point out that these exploratory holes did not remain open for sufficiently long periods of time to establish the hydrogeological regime and groundwater levels would be expected to vary with the tide, time of year, rainfall, nearby construction and other factors. For this reason, a standpipe was installed in BH01 to allow the equilibrium groundwater level to be determined.

### 4.3. Laboratory Testing

#### 4.3.1. Geotechnical Laboratory Testing

The geotechnical testing was outstanding at the time of writing this report.

#### 4.3.2. Chemical Laboratory Testing

The pH testing carried out indicate that pH results are near neutral and that the water soluble sulphate results is low when compared to the guideline values from BRE Special Digest 1:2005. The samples tested classify the soil as a Design Sulphate Level DS-1.

#### 4.3.3. Environmental Laboratory Testing

A number of samples were analysed for a suite of parameters which allows for the assessment of the sampled material in terms of total pollutant content for classification of materials as *hazardous* or *non-hazardous*. The suite also allows for the assessment of the sampled material in terms of suitability for placement at licenced landfills (inert, stable non-reactive, hazardous etc.). The parameter list for the suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, cyanide, lead, nickel, mercury, zinc, speciated aliphatic and aromatic petroleum hydrocarbons, pH, sulphate, sulphide, moisture content, soil organic matter and an asbestos screen.

The suite also includes those parameters specified in the EU Council Decision establishing criteria for the acceptance of waste at Landfills (Council Decision 2003/33/EC), which for the solid samples are total organic carbon (TOC), speciated aliphatic and aromatic petroleum hydrocarbons, BTEX, phenol, polychlorinated biphenyls (PCB) and PAH.
As part of the suite a leachate is generated from the solid sample which is analysed for antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, chloride, fluoride, soluble sulphate, sulphide, phenols, dissolved organic carbon (DOC) and total dissolved solids (TDS).
While the laboratory report provides a comparison with the waste acceptance criteria limits it does not provide a waste classification of the material sampled nor does it comment on any potentially hazardous properties of the materials tested. The possibility for contamination, not revealed by the testing undertaken should be borne in mind particularly where Made Ground deposits are present or the previous site use or location indicate a risk of environmental variation. The waste classification report is included under the cover of a sperate report by Ground Investigations Ireland

The results from the completed laboratory testing are included in Appendix 4 of this report.

## 5.0 Recommendations & Conclusions

### 5.1. General

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

### 5.2. Foundations

An allowable bearing capacity of 250 kN/m$^2$ is recommended for conventional strip or pad foundations on the very stiff dark grey cohesive deposits at a depth of 2.00m BGL, where present. The possibility for variation in the depth of the made ground in the vicinity of these foundations should be considered and foundation inspections should be carried out. Any soft spots encountered at the proposed foundation depths should be excavated and replaced with lean mix concrete. In any part of the site, should both a cohesive deposit and granular deposit be encountered at foundation level, it is recommended that all foundations of the unit in question be lowered to the same stratum to avoid differential settlement.

A ground bearing floor slab is recommended to be based on the firm to stiff cohesive deposits, with an appropriate depth of compacted hardcore specified by the consulting engineer and in accordance with the limits and guidelines in SR21:2014 +A1:2016 and/or NRA SRW CL808 Type E granular stone fill. Where

the depth of Made Ground or soft deposits exceeds 0.90m then suspended floor slabs should be considered.

The pH and sulphate testing completed on samples recovered from the exploratory holes indicates the pH results are near neutral and the sulphate results are low, when compared to the guideline values from BRE Special Digest 1:2005. No special precautions are required for concrete foundations to prevent sulphate attack. The samples tested were below the limits of DS1 in the BRE Special Digest 1:2005.

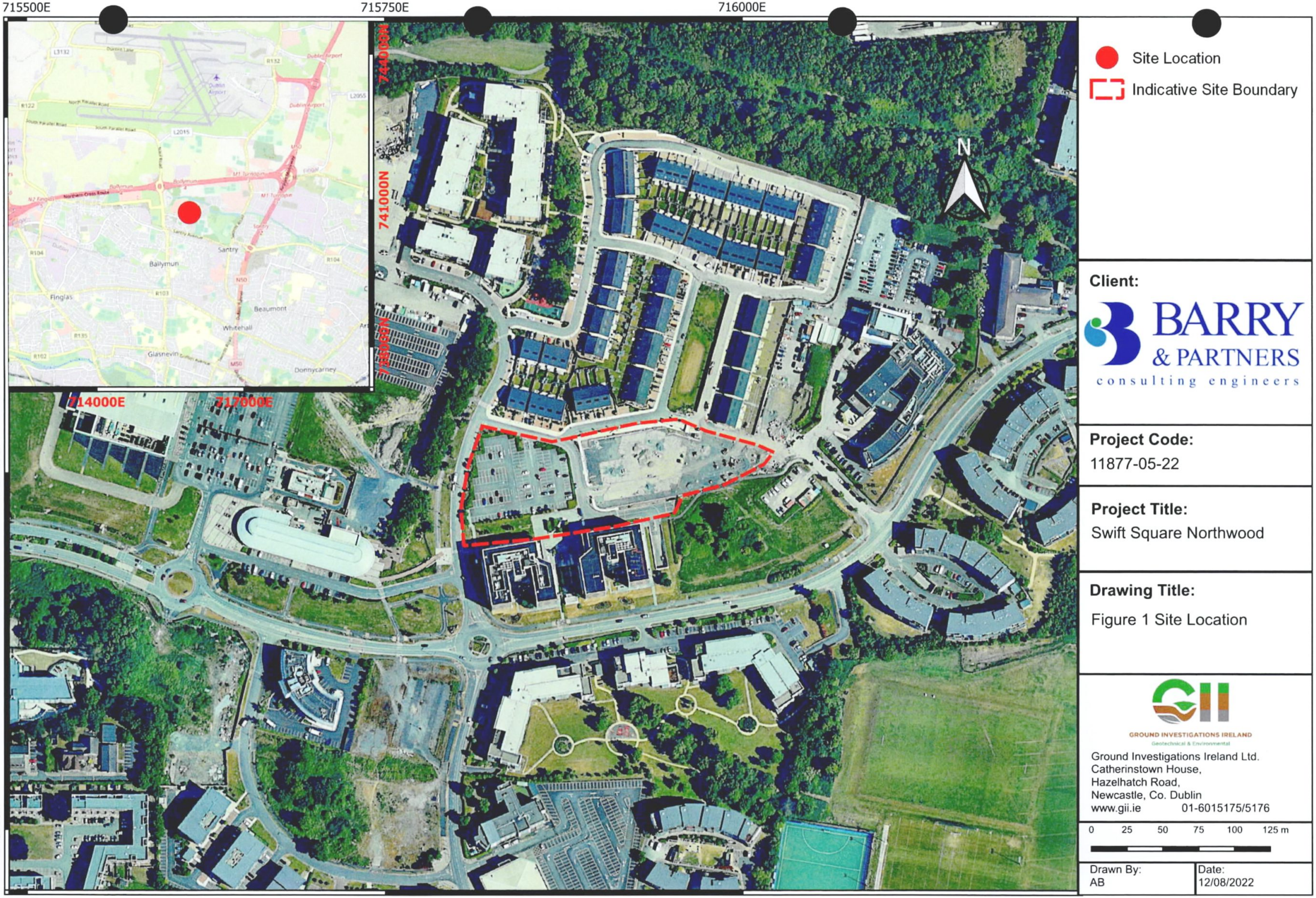
### 5.3. Excavations

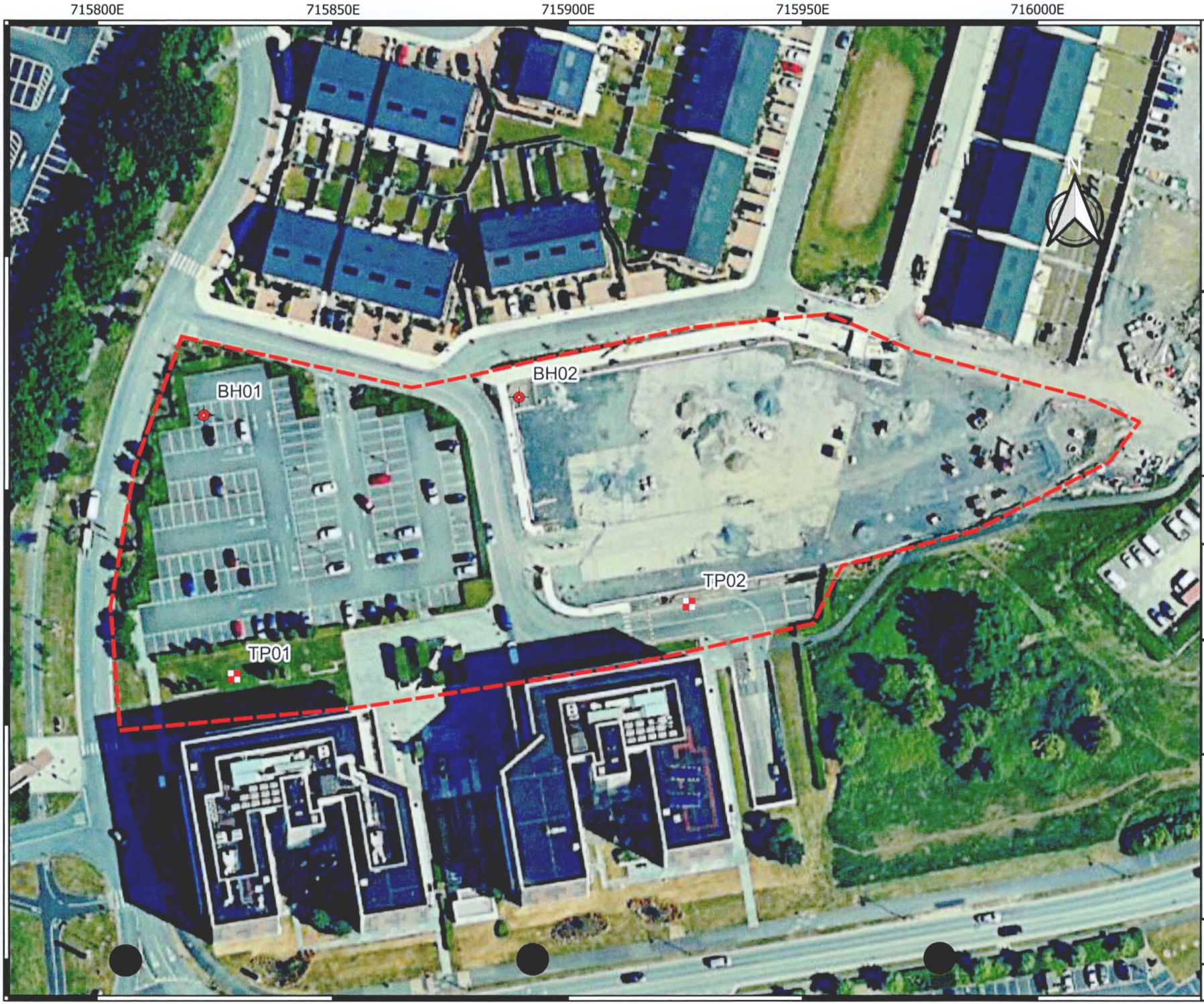
Short term temporary excavations in the cohesive deposits will remain stable for a limited time only and will require to be appropriately battered or the sides supported if the excavation is below 1.25m BGL or is required to permit man entry. Excavations in the Made Ground Deposits will require to be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

Any waste material to be removed off site should be disposed of to a suitably licenced landfill. The environmental testing completed during the ground investigation is reported under the cover of a separate GII Waste Classification Report.

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

# **APPENDIX 1** - Figures


715500E
715750E
716000E
741000N
740750N
740500N
714000E
717000E
741000N
740750N
N
Site Location
Indicative Site Boundary
Client:
BARRY & PARTNERS
consulting engineers
Project Code:
11877-05-22
Project Title:
Swift Square Northwood
Drawing Title:
Figure 1 Site Location
GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental
Ground Investigations Ireland Ltd.
Catherinstown House,
Hazelhatch Road,
Newcastle, Co. Dublin
www.gii.ie 01-6015175/5176
0 25 50 75 100 125 m
Drawn By:
AB
Date:
12/08/2022




Indicative Site Boundary

SI Points

Borehole

Trial Pit

**Client:**

BARRY & PARTNERS
consulting engineers

**Project Code:**

11877-05-22

**Project Title:**

Swift Square Northwood

**Drawing Title:**

Figure 2 Site Investigation Points

GROUND INVESTIGATIONS IRELAND
Geotechnical & Environmental

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

0 10 20 30 40 m

| Drawn By: | Date: |
|---|---|
| AB | 12/08/2022 |

# **APPENDIX 2** – Trial Pit Records

# Ground Investigations Ireland Ltd
www.gii.ie

| | | | |
|---|---|---|---|
| **Site** Swift Square Northwood | | | **Trial Pit Number** TP01 |
| **Machine :** JCB 3CX<br>**Method :** Trial Pit | **Dimensions** 3.70m x 1.10m x 2.20m | **Ground Level (mOD)** 56.51 | **Client** Cosgrave Developments | **Job Number** 11877-05-22 |
| | **Location** 715829 E 740710.1 N | **Dates** 14/07/2022 | **Project Contractor** GII | **Sheet** 1/1 |

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.00-1.10 | ES | | | | (0.20) | TOPSOIL | | |
| | | | | 56.31 | 0.20 | MADE GROUND: Brownish grey slightly sandy gravelly CLAY with rare fragments of red brick, plastic, timber and fabric | | |
| 0.50 | B | | | | (0.60) | Pea gravel located at 0.60m BGL to left of pit | | |
| | | | | 55.71 | 0.80 | MADE GROUND: Dark grey slightly sandy gravelly CLAY with rare fragments of fabric | | |
| | | | | | (0.30) | | | |
| 1.10-2.20 | ES | | | 55.41 | 1.10 | MADE GROUND: Brown mottled grey slightly clayey sandy gravelly CLAY with occassional cobbles and boulders | | |
| 1.50 | B | | | | (1.10) | 20mm chippings surrounding storm water pipe at 1.40m to 2.00m BGL | | |
| | | | | 54.31 | 2.20 | Complete at 2.20m | | |

**Plan**

**Remarks**

No groundwater encountered
Trial pit stable
Complete at 2.20m BGL
Trial pit backfilled upon completion

| Scale (approx) | Logged By | Figure No. |
|---|---|---|
| 1:25 | CMP | 11877-05-22.TP02 |

# Ground Investigations Ireland Ltd
www.gii.ie

| | | | |
|---|---|---|---|
| **Site**<br>Swift Square Northwood | | | **Trial Pit Number**<br>**TP02** |
| **Machine** : JCB 3CX<br>**Method** : Trial Pit | **Dimensions**<br>3.70m x 0.80m x 2.50m | **Ground Level (mOD)**<br>56.46 | **Client**<br>Cosgrave Developments | **Job Number**<br>11877-05-22 |
| | **Location**<br>715925.8 E 740725.5 N | **Dates**<br>14/07/2022 | **Project Contractor**<br>GII | **Sheet**<br>1/1 |

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|
| 0.00-1.10 | ES | | | | (0.20) | TOPSOIL | | |
| | | | | 56.26 | 0.20 | | | |
| | | | | | (0.30) | MADE GROUND: Brown slightly sandy slightly gravelly CLAY with occassional fragments of plastic, red brick and concrete. | | |
| | | | | 55.96 | 0.50 | | | |
| | | | | | (0.20) | MADE GROUND: Grey slightly sandy slightly garvelly angular fine to coarse Gravel (FILL) | | |
| 0.70 | B | | | 55.76 | 0.70 | | | |
| | | | | | (0.40) | MADE GROUND: Dark greyish brown slightly sandy slightly gravelly CLAY with rare fragments of plastic, concrete and taping | | |
| 1.00-2.00 | ES | | | 55.36 | 1.10 | | | |
| | | | | | (0.30) | Firm brown mottled grey slightly sandy slightly gravelly CLAY with occassional cobbles | | |
| | | | | 55.06 | 1.40 | | | |
| 1.50 | B | | | | (0.60) | Firm to stiff brown slightly sandy slightly gravelly CLAY with occassional cobbles | | |
| | | | | 54.46 | 2.00 | | | |
| | | | | | (0.50) | Stiff grey slightly sandy slightly gravelly CLAY with occassional cobbles and boulders | | |
| 2.50 | B | | | 53.96 | 2.50 | Complete at 2.50m | | |

**Plan**

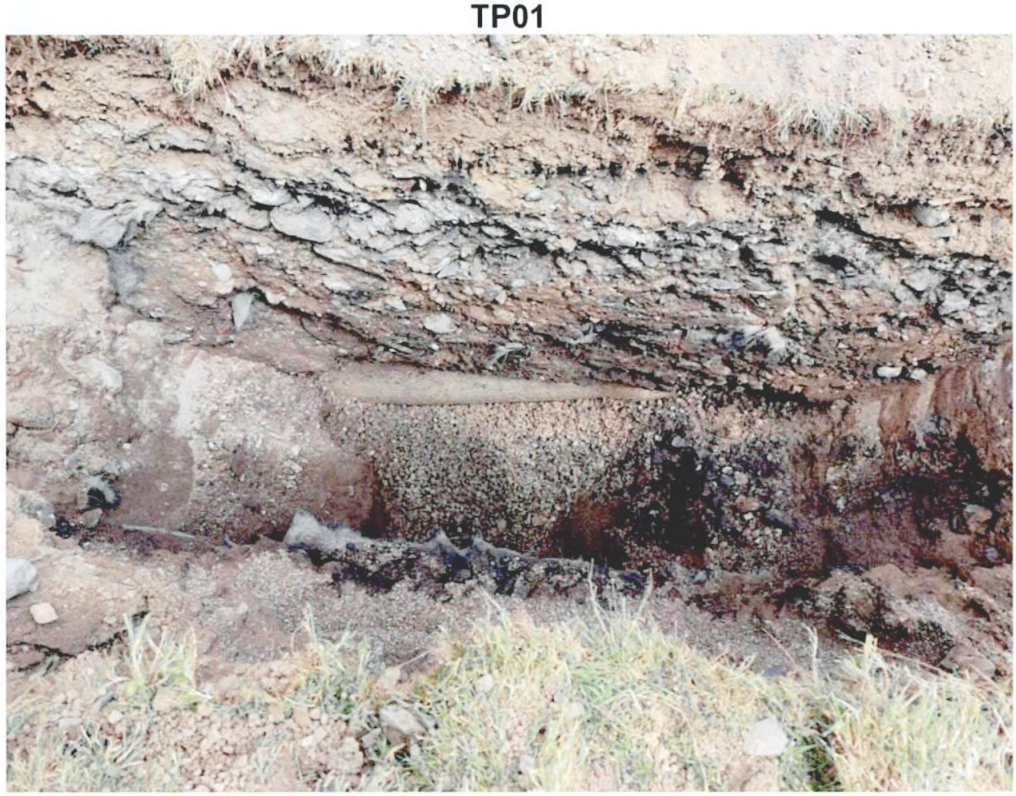
**Remarks**

No groundwater encountered
Trial pit stable
Complete at 2.50m BGL
Trial pit backfilled upon completion

| Scale (approx) | Logged By | Figure No. |
|---|---|---|
| 1:25 | CMP | 11877-05-22.TP01 |

**Swift Square Northwood**
**Trial pit Photographs**
**TP01**

**TP01**



TP01

TP02

TP02

TP02

# **APPENDIX 3** – Cable Percussion Borehole Records

# Ground Investigations Ireland Ltd

www.gii.ie

| | | | |
|---|---|---|---|
| **Site**<br>Swift Square Northwood | | | **Borehole Number**<br>**BH01** |
| **Machine** : Dando 200<br>**Method** : Cable Percussion | **Casing Diameter**<br>200mm cased to 6.30m | **Ground Level (mOD)**<br>56.82 | **Client**<br>Cosgrave Developments | **Job Number**<br>11877-05-22 |
| | **Location**<br>715822.5 E 740765.9 N | **Dates**<br>18/07/2022 | **Project Contractor**<br>GII | **Sheet**<br>1/1 |

| Depth (m) | Sample / Tests | Casing Depth (m) | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water | Instr |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 56.62 | (0.20)<br>0.20 | TARMACADAM | | | |
| 0.50<br>0.50 | B<br>ES | | | | | (0.70) | MADE GROUND: Light grey slightly clayey sandy rounded to subrounded fine to coarse Gravel | | ▼1 | |
| 1.00<br>1.00-1.45 | B<br>SPT(C) N=39 | | | Water strike(1) at 0.70m, rose to 0.30m in 20 mins, sealed at 1.40m.<br>2,7/9,10,10,10 | 55.92<br>55.62 | 0.90<br>(0.30)<br>1.20 | MADE GROUND: Brown slightly sandy slightly gravelly Clay with occasional cobbles and rare fragments of concrete | | ▽1 | |
| 2.00-2.45<br>2.00<br>[illegible] | SPT(C) N=48<br>B<br>ES | | | 7,9/10,12,12,14 | | (2.80) | Very stiff dark grey slightly sandy slightly gravelly CLAY with occasional cobbles | | | |
| 3.00-3.41<br>3.00 | SPT(C) 50/260<br>B | | | 11,11/12,13,15,10 | | | | | | |
| 4.00-4.36<br>4.00 | SPT(C) 50/210<br>B | | | 7,13/14,19,17 | 52.82 | 4.00 | Very stiff dark grey slightly sandy gravelly CLAY with occasional cobbles | | | |
| 5.00-5.36<br>5.00 | SPT(C) 50/210<br>B | | | 8,12/14,20,16 | | (2.30) | | | | |
| 6.00-6.26<br>6.00 | SPT(C) 50/105<br>B | | | 10,17/21,29 | 50.52 | 6.30 | Complete at 6.30m | | | |

**Remarks**

[illegible]oundwater encountered at 0.70m BGL
[illegible]ehole complete at 6.30m BGL
50mm slotted standpipe with pea gravel surround installed from 6.30m BGL to 1.50m BGL. 50mm plain standpipe installed from 1.50m BGL to GL with a flush cover
Chiselling from 6.30m to 6.30m for 1 hour.

| Scale (approx) | Logged By |
|---|---|
| 1:50 | FOD |

**Figure No.**
11877-05-22.BH01

# Ground Investigations Ireland Ltd
www.gii.ie

| | | | | |
|---|---|---|---|---|
| **Machine :** Dando 200<br>**Method :** Cable Percussion | **Casing Diameter**<br>200mm cased to 5.20m | **Ground Level (mOD)**<br>57.00 | **Client**<br>Cosgrave Developments | **Job Number**<br>11877-05-22 |
| | **Location**<br>715889.5 E 740769.8 N | **Dates**<br>19/07/2022 | **Project Contractor**<br>GII | **Sheet**<br>1/1 |

**Site:** Swift Square Northwood

**Borehole Number:** BH02

| Depth (m) | Sample / Tests | Casing Depth (m) | Water Depth (m) | Field Records | Level (mOD) | Depth (m) (Thickness) | Description | Legend | Water |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | (0.40) | TOPSOIL | | |
| | | | | | 56.60 | 0.40 | MADE GROUND: Brownish grey slightly sandy gravelly Clay with some plant rootlets and occasional cobbles | | |
| 0.50<br>0.50 | B<br>ES | | | | | (0.40) | | | |
| | | | | | 56.20 | 0.80 | Grey mottled brown slightly sandy slightly gravelly CLAY with rare plant rootlets | | |
| 1.00-1.45<br>1.00<br>1.00 | SPT(C) N=14<br>B<br>ES | | | 2,3/3,3,4,4 | 56.00 | (0.20)<br>1.00 | Firm to stiff grey mottled brown slightly sandy slightly gravelly CLAY with rare plant rootlets | | |
| | | | | | | (1.00) | | | |
| 2.00-2.45<br>2.00 | SPT(C) N=35<br>B | | | 2,4/7,8,10,10 | 55.00 | 2.00 | Very stiff dark grey slightly sandy gravelly CLAY with occasional cobbles and boulders | | |
| 3.00-3.42<br>3.00<br>3.00 | SPT(C) 50/265<br>B<br>T | | | 4,7/9,12,15,14 | | | | | |
| | | | | | | (3.20) | | | |
| 4.00-4.33<br>4.00 | SPT(C) 50/180<br>B | | | 10,10/17,24,9 | | | | | |
| 5.00-5.17<br>5.00 | SPT(C) 50/20<br>B | | | 17,29/50 | 51.80 | 5.20 | Complete at 5.20m | | |

**Remarks**
No groundwater encountered
Borehole complete at 5.20m BGL
Borehole backfilled upon completion
Chiselling from 5.20m to 5.20m for 1 hour.

**Scale (approx):** 1:50

**Logged By:** FOD

**Figure No.:** 11877-05-22.BH02

# **APPENDIX 4** – Laboratory Testing

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Ground Investigations Ireland
Catherinestown House
Hazelhatch Road
Newcastle
Co. Dublin
Ireland

| | |
|---|---|
| **Attention :** | James Cashen |
| **Date :** | 27th July, 2022 |
| **Your reference :** | 11877-05-22 |
| **Our reference :** | Test Report 22/11741 Batch 1 |
| **Location :** | Swift Square Northwood |
| **Date samples received :** | 18th July, 2022 |
| **Status :** | Final Report |
| **Issue :** | 1 |

Four samples were received for analysis on 18th July, 2022 of which four were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**Authorised By:**

**Liza Klebe**
**Project Co-ordinator**

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/11741

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | TP-01 | TP-01 | TP-02 | TP-02 | | | | | | | | | |
| Depth | 0.00-1.10 | 1.10-2.20 | 0.00-1.10 | 1.10-2.00 | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | | | | | | | | | |
| Sample Date | 14/07/2022 | 14/07/2022 | 14/07/2022 | 14/07/2022 | | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | | | | | | | | | |
| Date of Receipt | 18/07/2022 | 18/07/2022 | 18/07/2022 | 18/07/2022 | | | | | | | | | |
| Antimony | 3 | 3 | 2 | 3 | | | | | | | <1 | mg/kg | TM30/PM15 |
| Arsenic # | 12.9 | 8.7 | 12.0 | 12.2 | | | | | | | <0.5 | mg/kg | TM30/PM15 |
| Barium # | 112 | 94 | 129 | 91 | | | | | | | <1 | mg/kg | TM30/PM15 |
| Cadmium # | 1.7 | 1.6 | 1.5 | 1.9 | | | | | | | <0.1 | mg/kg | TM30/PM15 |
| Chromium # | 67.7 | 56.7 | 50.7 | 52.9 | | | | | | | <0.5 | mg/kg | TM30/PM15 |
| Copper # | 27 | 22 | 31 | 30 | | | | | | | <1 | mg/kg | TM30/PM15 |
| Lead # | 21 | 17 | 19 | 19 | | | | | | | <5 | mg/kg | TM30/PM15 |
| Mercury # | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | <0.1 | mg/kg | TM30/PM15 |
| Molybdenum # | 6.8 | 5.4 | 6.8 | 6.9 | | | | | | | <0.1 | mg/kg | TM30/PM15 |
| Nickel # | 40.0 | 30.3 | 37.7 | 45.7 | | | | | | | <0.7 | mg/kg | TM30/PM15 |
| Selenium # | 3 | <1 | 4 | 2 | | | | | | | <1 | mg/kg | TM30/PM15 |
| Zinc # | 93 | 73 | 82 | 95 | | | | | | | <5 | mg/kg | TM30/PM15 |
| PAH MS | | | | | | | | | | | | | |
| Naphthalene # | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Acenaphthylene | <0.03 | <0.03 | <0.03 | <0.03 | | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Acenaphthene # | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | <0.05 | mg/kg | TM4/PM8 |
| Fluorene # | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Phenanthrene # | <0.03 | <0.03 | 0.06 | <0.03 | | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Anthracene # | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Fluoranthene # | <0.03 | <0.03 | <0.03 | <0.03 | | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Pyrene # | <0.03 | <0.03 | <0.03 | <0.03 | | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Benzo(a)anthracene # | <0.06 | <0.06 | <0.06 | <0.06 | | | | | | | <0.06 | mg/kg | TM4/PM8 |
| Chrysene # | <0.02 | <0.02 | 0.04 | <0.02 | | | | | | | <0.02 | mg/kg | TM4/PM8 |
| Benzo(bk)fluoranthene # | <0.07 | <0.07 | <0.07 | <0.07 | | | | | | | <0.07 | mg/kg | TM4/PM8 |
| Benzo(a)pyrene # | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Indeno(123cd)pyrene # | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Dibenzo(ah)anthracene # | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Benzo(ghi)perylene # | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Coronene | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | <0.04 | mg/kg | TM4/PM8 |
| PAH 6 Total # | <0.22 | <0.22 | <0.22 | <0.22 | | | | | | | <0.22 | mg/kg | TM4/PM8 |
| PAH 17 Total | <0.64 | <0.64 | <0.64 | <0.64 | | | | | | | <0.64 | mg/kg | TM4/PM8 |
| Benzo(b)fluoranthene | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | <0.05 | mg/kg | TM4/PM8 |
| Benzo(k)fluoranthene | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | <0.02 | mg/kg | TM4/PM8 |
| Benzo(j)fluoranthene | <1 | <1 | <1 | <1 | | | | | | | <1 | mg/kg | TM4/PM8 |
| PAH Surrogate % Recovery | 88 | 87 | 95 | 94 | | | | | | | <0 | % | TM4/PM8 |
| Mineral Oil (C10-C40) (EH_CU_1D_AL) | <30 | <30 | <30 | <30 | | | | | | | <30 | mg/kg | TM5/PM8/PM16 |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/11741

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | TP-01 | TP-01 | TP-02 | TP-02 | | | | | | | | | |
| Depth | 0.00-1.10 | 1.10-2.20 | 0.00-1.10 | 1.10-2.00 | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | | | | | | | | | |
| Sample Date | 14/07/2022 | 14/07/2022 | 14/07/2022 | 14/07/2022 | | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | | | | | | | | | |
| Date of Receipt | 18/07/2022 | 18/07/2022 | 18/07/2022 | 18/07/2022 | | | | | | | | | |

Please see attached notes for all abbreviations and acronyms

| | | | | | | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPH CWG | | | | | | | | | | | | | |
| **Aliphatics** | | | | | | | | | | | | | |
| >C5-C6 (HS_1D_AL) # | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >C6-C8 (HS_1D_AL) # | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM |
| >C8-C10 (HS_1D_AL) | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >C10-C12 (EH_CU_1D_AL) # | <0.2 | <0.2 | <0.2 | <0.2 | | | | | | | <0.2 | mg/kg | TM5/PM8/PM16 |
| >C12-C16 (EH_CU_1D_AL) # | <4 | <4 | <4 | <4 | | | | | | | <4 | mg/kg | TM5/PM8/PM16 |
| >C16-C21 (EH_CU_1D_AL) # | <7 | <7 | <7 | <7 | | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >C21-C35 (EH_CU_1D_AL) # | <7 | <7 | <7 | <7 | | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >C35-C40 (EH_1D_AL) | <7 | <7 | <7 | <7 | | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| Total aliphatics C5-40 (EH+HS_1D_AL) | <26 | <26 | <26 | <26 | | | | | | | <26 | mg/kg | TM5/TM36/PM8/PM12/PM16 |
| >C6-C10 (HS_1D_AL) | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >C10-C25 (EH_1D_AL) | <10 | <10 | <10 | <10 | | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| >C25-C35 (EH_1D_AL) | <10 | <10 | <10 | <10 | | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| **Aromatics** | | | | | | | | | | | | | |
| >C5-EC7 (HS_1D_AR) # | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC7-EC8 (HS_1D_AR) # | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC8-EC10 (HS_1D_AR) # | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC10-EC12 (EH_CU_1D_AR) # | <0.2 | <0.2 | <0.2 | <0.2 | | | | | | | <0.2 | mg/kg | TM5/PM8/PM16 |
| >EC12-EC16 (EH_CU_1D_AR) # | <4 | <4 | <4 | <4 | | | | | | | <4 | mg/kg | TM5/PM8/PM16 |
| >EC16-EC21 (EH_CU_1D_AR) # | <7 | <7 | <7 | <7 | | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >EC21-EC35 (EH_CU_1D_AR) # | <7 | <7 | <7 | <7 | | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >EC35-EC40 (EH_1D_AR) | <7 | <7 | <7 | <7 | | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| Total aromatics C5-40 (EH+HS_1D_AR) | <26 | <26 | <26 | <26 | | | | | | | <26 | mg/kg | TM5/TM36/PM8/PM12 |
| Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total) | <52 | <52 | <52 | <52 | | | | | | | <52 | mg/kg | TM5/TM36/PM8/PM12/PM16 |
| >EC6-EC10 (HS_1D_AR) # | <0.1 SV | <0.1 | <0.1 SV | <0.1 | | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC10-EC25 (EH_1D_AR) | <10 | <10 | <10 | <10 | | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| >EC25-EC35 (EH_1D_AR) | <10 | <10 | <10 | <10 | | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| MTBE # | <5 SV | <5 | <5 SV | <5 | | | | | | | <5 | ug/kg | TM36/PM12 |
| Benzene # | <5 SV | <5 | <5 SV | <5 | | | | | | | <5 | ug/kg | TM36/PM12 |
| Toluene # | <5 SV | <5 | <5 SV | <5 | | | | | | | <5 | ug/kg | TM36/PM12 |
| Ethylbenzene # | <5 SV | <5 | <5 SV | <5 | | | | | | | <5 | ug/kg | TM36/PM12 |
| m/p-Xylene # | <5 SV | <5 | <5 SV | <5 | | | | | | | <5 | ug/kg | TM36/PM12 |
| o-Xylene # | <5 SV | <5 | <5 SV | <5 | | | | | | | <5 | ug/kg | TM36/PM12 |
| PCB 28 # | <5 | <5 | <5 | <5 | | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 52 # | <5 | <5 | <5 | <5 | | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 101 # | <5 | <5 | <5 | <5 | | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 118 # | <5 | <5 | <5 | <5 | | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 138 # | <5 | <5 | <5 | <5 | | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 153 # | <5 | <5 | <5 | <5 | | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 180 # | <5 | <5 | <5 | <5 | | | | | | | <5 | ug/kg | TM17/PM8 |
| Total 7 PCBs # | <35 | <35 | <35 | <35 | | | | | | | <35 | ug/kg | TM17/PM |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/11741

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | TP-01 | TP-01 | TP-02 | TP-02 | | | | | | | | | |
| Depth | 0.00-1.10 | 1.10-2.20 | 0.00-1.10 | 1.10-2.00 | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | | | | | | | | | |
| Sample Date | 14/07/2022 | 14/07/2022 | 14/07/2022 | 14/07/2022 | | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | | | | | | | | | |
| Date of Receipt | 18/07/2022 | 18/07/2022 | 18/07/2022 | 18/07/2022 | | | | | | | | | |
| Natural Moisture Content | 9.7 | 10.0 | 7.2 | 11.6 | | | | | | | <0.1 | % | PM4/PM0 |
| Moisture Content (% Wet Weight) | 8.8 | 9.1 | 6.7 | 10.4 | | | | | | | <0.1 | % | PM4/PM0 |
| Hexavalent Chromium # | <0.3 | <0.3 | <0.3 | <0.3 | | | | | | | <0.3 | mg/kg | TM38/PM20 |
| Chromium III | 67.7 | 56.7 | 50.7 | 52.9 | | | | | | | <0.5 | mg/kg | NONE/NONE |
| Total Organic Carbon # | 0.59 | 0.40 | 0.64 | 0.36 | | | | | | | <0.02 | % | TM21/PM24 |
| pH # | 8.64 | 8.61 | 8.49 | 8.80 | | | | | | | <0.01 | pH units | TM73/PM11 |
| Mass of raw test portion | 0.0976 | 0.0997 | 0.1014 | 0.0994 | | | | | | | | kg | NONE/PM17 |
| Mass of dried test portion | 0.09 | 0.09 | 0.09 | 0.09 | | | | | | | | kg | NONE/PM17 |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/11741

**Report : CEN 10:1 1 Batch**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | TP-01 | TP-01 | TP-02 | TP-02 | | | | | | | | | |
| Depth | 0.00-1.10 | 1.10-2.20 | 0.00-1.10 | 1.10-2.00 | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | | | | | | | | | |
| Sample Date | 14/07/2022 | 14/07/2022 | 14/07/2022 | 14/07/2022 | | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | | | | | | | | | |
| Date of Receipt | 18/07/2022 | 18/07/2022 | 18/07/2022 | 18/07/2022 | | | | | | | | | |
| Dissolved Antimony # | <0.002 | <0.002 | <0.002 | <0.002 | | | | | | | <0.002 | mg/l | TM30/PM17 |
| Dissolved Antimony (A10) # | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | <0.02 | mg/kg | TM30/PM17 |
| Dissolved Arsenic # | <0.0025 | <0.0025 | <0.0025 | <0.0025 | | | | | | | <0.0025 | mg/l | TM30/PM17 |
| Dissolved Arsenic (A10) # | <0.025 | <0.025 | <0.025 | <0.025 | | | | | | | <0.025 | mg/kg | TM30/PM |
| Dissolved Barium # | 0.019 | 0.013 | 0.020 | 0.008 | | | | | | | <0.003 | mg/l | TM30/PM17 |
| Dissolved Barium (A10) # | 0.19 | 0.13 | 0.20 | 0.08 | | | | | | | <0.03 | mg/kg | TM30/PM17 |
| Dissolved Cadmium # | <0.0005 | <0.0005 | <0.0005 | <0.0005 | | | | | | | <0.0005 | mg/l | TM30/PM17 |
| Dissolved Cadmium (A10) # | <0.005 | <0.005 | <0.005 | <0.005 | | | | | | | <0.005 | mg/kg | TM30/PM17 |
| Dissolved Chromium # | <0.0015 | <0.0015 | <0.0015 | <0.0015 | | | | | | | <0.0015 | mg/l | TM30/PM17 |
| Dissolved Chromium (A10) # | <0.015 | <0.015 | <0.015 | <0.015 | | | | | | | <0.015 | mg/kg | TM30/PM17 |
| Dissolved Copper # | <0.007 | <0.007 | <0.007 | <0.007 | | | | | | | <0.007 | mg/l | TM30/PM17 |
| Dissolved Copper (A10) # | <0.07 | <0.07 | <0.07 | <0.07 | | | | | | | <0.07 | mg/kg | TM30/PM17 |
| Dissolved Lead # | <0.005 | <0.005 | <0.005 | <0.005 | | | | | | | <0.005 | mg/l | TM30/PM17 |
| Dissolved Lead (A10) # | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | <0.05 | mg/kg | TM30/PM17 |
| Dissolved Molybdenum # | 0.040 | 0.012 | 0.042 | 0.025 | | | | | | | <0.002 | mg/l | TM30/PM17 |
| Dissolved Molybdenum (A10) # | 0.40 | 0.12 | 0.42 | 0.25 | | | | | | | <0.02 | mg/kg | TM30/PM17 |
| Dissolved Nickel # | <0.002 | <0.002 | <0.002 | <0.002 | | | | | | | <0.002 | mg/l | TM30/PM17 |
| Dissolved Nickel (A10) # | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | <0.02 | mg/kg | TM30/PM17 |
| Dissolved Selenium # | <0.003 | <0.003 | <0.003 | <0.003 | | | | | | | <0.003 | mg/l | TM30/PM17 |
| Dissolved Selenium (A10) # | <0.03 | <0.03 | <0.03 | <0.03 | | | | | | | <0.03 | mg/kg | TM30/PM17 |
| Dissolved Zinc # | <0.003 | 0.005 | <0.003 | <0.003 | | | | | | | <0.003 | mg/l | TM30/PM17 |
| Dissolved Zinc (A10) # | <0.03 | 0.05 | <0.03 | <0.03 | | | | | | | <0.03 | mg/kg | TM30/PM17 |
| Mercury Dissolved by CVAF # | <0.00001 | <0.00001 | <0.00001 | <0.00001 | | | | | | | <0.00001 | mg/l | TM61/PM0 |
| Mercury Dissolved by CVAF # | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | | | | | | <0.0001 | mg/kg | TM61/PM |
| Phenol | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | <0.01 | mg/l | TM26/PM0 |
| Phenol | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | <0.1 | mg/kg | TM26/PM0 |
| Fluoride | <0.3 | <0.3 | <0.3 | <0.3 | | | | | | | <0.3 | mg/l | TM173/PM0 |
| Fluoride | <3 | <3 | <3 | <3 | | | | | | | <3 | mg/kg | TM173/PM0 |
| Sulphate as SO4 # | 18.0 | 22.5 | 12.8 | 1.8 | | | | | | | <0.5 | mg/l | TM38/PM0 |
| Sulphate as SO4 # | 180 | 225 | 128 | 18 | | | | | | | <5 | mg/kg | TM38/PM0 |
| Chloride # | 0.4 | 0.5 | 0.9 | 0.4 | | | | | | | <0.3 | mg/l | TM38/PM0 |
| Chloride # | 4 | 5 | 9 | 4 | | | | | | | <3 | mg/kg | TM38/PM0 |
| Dissolved Organic Carbon | 5 | 2 | 6 | 2 | | | | | | | <2 | mg/l | TM60/PM0 |
| Dissolved Organic Carbon | 50 | <20 | 60 | <20 | | | | | | | <20 | mg/kg | TM60/PM0 |
| pH | 7.37 | 7.76 | 8.02 | 8.20 | | | | | | | <0.01 | pH units | TM73/PM0 |
| Total Dissolved Solids # | 90 | 95 | 80 | 53 | | | | | | | <35 | mg/l | TM20/PM0 |
| Total Dissolved Solids # | 900 | 950 | 800 | 530 | | | | | | | <350 | mg/kg | TM20/PM0 |

Please see attached notes for all abbreviations and acronyms

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/11741

**Report : EN12457_2**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | | | | | | | Inert | Stable Non-reactive | Hazardous | LOD LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | TP-01 | TP-01 | TP-02 | TP-02 | | | | | | | | | | | | |
| Depth | 0.00-1.10 | 1.10-2.20 | 0.00-1.10 | 1.10-2.00 | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | | | | | | | | | | | | |
| Sample Date | 14/07/2022 | 14/07/2022 | 14/07/2022 | 14/07/2022 | | | | | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | | | | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | | | | | | | | | | | | |
| Date of Receipt | 18/07/2022 | 18/07/2022 | 18/07/2022 | 18/07/2022 | | | | | | | | | | | | |
| **Solid Waste Analysis** | | | | | | | | | | | | | | | | |
| Total Organic Carbon # | 0.59 | 0.40 | 0.64 | 0.36 | | | | | | | 3 | 5 | 6 | <0.02 | % | TM21/PM24 |
| Sum of BTEX | <0.025 SV | <0.025 | <0.025 SV | <0.025 | | | | | | | 6 | - | - | <0.025 | mg/kg | TM36/PM12 |
| Sum of 7 PCBs # | <0.035 | <0.035 | <0.035 | <0.035 | | | | | | | 1 | - | - | <0.035 | mg/kg | TM17/PM8 |
| Mineral Oil | <30 | <30 | <30 | <30 | | | | | | | 500 | - | - | <30 | mg/kg | TM5/PM8/PM16 |
| PAH Sum of 6 # | <0.22 | <0.22 | <0.22 | <0.22 | | | | | | | - | - | - | <0.22 | mg/kg | TM4/PM8 |
| PAH Sum of 17 | <0.64 | <0.64 | <0.64 | <0.64 | | | | | | | 100 | - | - | <0.64 | mg/kg | TM4/PM8 |
| **2EN 10:1 Leachate** | | | | | | | | | | | | | | | | |
| Arsenic # | <0.025 | <0.025 | <0.025 | <0.025 | | | | | | | 0.5 | 2 | 25 | <0.025 | mg/kg | TM30/PM17 |
| Barium # | 0.19 | 0.13 | 0.20 | 0.08 | | | | | | | 20 | 100 | 300 | <0.03 | mg/kg | TM30/PM17 |
| Cadmium # | <0.005 | <0.005 | <0.005 | <0.005 | | | | | | | 0.04 | 1 | 5 | <0.005 | mg/kg | TM30/PM17 |
| Chromium # | <0.015 | <0.015 | <0.015 | <0.015 | | | | | | | 0.5 | 10 | 70 | <0.015 | mg/kg | TM30/PM17 |
| Copper # | <0.07 | <0.07 | <0.07 | <0.07 | | | | | | | 2 | 50 | 100 | <0.07 | mg/kg | TM30/PM17 |
| Mercury # | <0.0001 | <0.0001 | <0.0001 | <0.0001 | | | | | | | 0.01 | 0.2 | 2 | <0.0001 | mg/kg | TM61/PM0 |
| Molybdenum # | 0.40 | 0.12 | 0.42 | 0.25 | | | | | | | 0.5 | 10 | 30 | <0.02 | mg/kg | TM30/PM17 |
| Nickel # | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | 0.4 | 10 | 40 | <0.02 | mg/kg | TM30/PM17 |
| Lead # | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | 0.5 | 10 | 50 | <0.05 | mg/kg | TM30/PM17 |
| Antimony # | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | 0.06 | 0.7 | 5 | <0.02 | mg/kg | TM30/PM17 |
| Selenium # | <0.03 | <0.03 | <0.03 | <0.03 | | | | | | | 0.1 | 0.5 | 7 | <0.03 | mg/kg | TM30/PM17 |
| Zinc # | <0.03 | 0.05 | <0.03 | <0.03 | | | | | | | 4 | 50 | 200 | <0.03 | mg/kg | TM30/PM17 |
| Total Dissolved Solids # | 900 | 950 | 800 | 530 | | | | | | | 4000 | 60000 | 100000 | <350 | mg/kg | TM20/PM0 |
| Dissolved Organic Carbon | 50 | <20 | 60 | <20 | | | | | | | 500 | 800 | 1000 | <20 | mg/kg | TM60/PM0 |
| Dry Matter Content Ratio | 91.9 | 90.1 | 89.2 | 90.3 | | | | | | | - | - | - | <0.1 | % | NONE/PM4 |
| Moisture Content 105C (% Dry Weight) | 8.8 | 11.0 | 12.1 | 10.7 | | | | | | | - | - | - | <0.1 | % | PM4/PM0 |
| pH # | 8.64 | 8.61 | 8.49 | 8.80 | | | | | | | - | - | - | <0.01 | pH units | TM73/PM11 |
| Phenol | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | 1 | - | - | <0.1 | mg/kg | TM26/PM0 |
| Fluoride | <3 | <3 | <3 | <3 | | | | | | | 10 | 150 | 500 | <3 | mg/kg | TM173/PM0 |
| Sulphate as SO4 # | 180 | 225 | 128 | 18 | | | | | | | 1000 | 20000 | 50000 | <5 | mg/kg | TM38/PM0 |
| Chloride # | 4 | 5 | 9 | 4 | | | | | | | 800 | 15000 | 25000 | <3 | mg/kg | TM38/PM0 |

**Client Name:** Ground Investigations Ireland

**Reference:** 11877-05-22

**Location:** Swift Square Northwood

**Contact:** James Cashen

**Matrix : Soil**

| EMT Job No. | Batch | Sample ID | Depth | EMT Sample No. | EPH Interpretation |
|---|---|---|---|---|---|
| 22/11741 | 1 | TP-01 | 0.00-1.10 | 1-4 | No Interpretation Possible |
| 22/11741 | 1 | TP-01 | 1.10-2.20 | 5-8 | No Interpretation Possible |
| 22/11741 | 1 | TP-02 | 0.00-1.10 | 9-12 | No Interpretation Possible |
| 22/11741 | 1 | TP-02 | 1.10-2.00 | 13-16 | No Interpretation Possible |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen

**Note:**

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

| EMT Job No. | Batch | Sample ID | Depth | EMT Sample No. | Analyst Name | Date Of Analysis | Analysis | Result |
|---|---|---|---|---|---|---|---|---|
| 22/11741 | 1 | TP-01 | 0.00-1.10 | 4 | Rebecca Collins | 21/07/2022 | **General Description (Bulk Analysis)** | brown sandy clay and stone |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos Fibres** | NAD |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos ACM** | NAD |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos Type** | NAD |
| 22/11741 | 1 | TP-01 | 1.10-2.20 | 8 | Rebecca Collins | 21/07/2022 | **General Description (Bulk Analysis)** | brown sandy clay and stone |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos Fibres** | NAD |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos ACM** | NAD |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos Type** | NAD |
| 22/11741 | 1 | TP-02 | 0.00-1.10 | 12 | Rebecca Collins | 21/07/2022 | **General Description (Bulk Analysis)** | brown sandy clay and stone |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos Fibres** | NAD |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos ACM** | NAD |
| | | | | | Rebecca Collins | 21/07/2022 | **Asbestos Type** | NAD |
| 22/11741 | 1 | TP-02 | 1.10-2.00 | 16 | Andrew Alker | 21/07/2022 | **General Description (Bulk Analysis)** | brown soil and stone |
| | | | | | Andrew Alker | 21/07/2022 | **Asbestos Fibres** | NAD |
| | | | | | Andrew Alker | 21/07/2022 | **Asbestos ACM** | NAD |
| | | | | | Andrew Alker | 21/07/2022 | **Asbestos Type** | NAD |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen

| EMT Job No. | Batch | Sample ID | Depth | EMT Sample No. | Analysis | Reason |
|---|---|---|---|---|---|---|
| No deviating sample report results for job 22/11741 | | | | | | |

**Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.**
**Only analyses which are accredited are recorded as deviating if set criteria are not met.**

## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

***EMT Job No.:*** 22/11741

### SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

### WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

### STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

### DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

### DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

### BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

## NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

## REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

### Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

### Customer Provided Information

Sample ID and depth is information provided by the customer.

**ABBREVIATIONS and ACRONYMS USED**

| | |
|---|---|
| # | ISO17025 (UKAS Ref No. 4225) accredited - UK. |
| SA | ISO17025 (SANAS Ref No.T0729) accredited - South Africa |
| B | Indicates analyte found in associated method blank. |
| DR | Dilution required. |
| M | MCERTS accredited. |
| NA | Not applicable |
| NAD | No Asbestos Detected. |
| ND | None Detected (usually refers to VOC and/SVOC TICs). |
| NDP | No Determination Possible |
| SS | Calibrated against a single substance |
| SV | Surrogate recovery outside performance criteria. This may be due to a matrix effect. |
| W | Results expressed on as received basis. |
| + | AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page. |
| >> | Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher. |
| * | Analysis subcontracted to an Element Materials Technology approved laboratory. |
| AD | Samples are dried at 35°C ±5°C |
| CO | Suspected carry over |
| LOD/LOR | Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS |
| ME | Matrix Effect |
| NFD | No Fibres Detected |
| BS | AQC Sample |
| LB | Blank Sample |
| N | Client Sample |
| TB | Trip Blank Sample |
| OC | Outside Calibration Range |

**HWOL ACRONYMS AND OPERATORS USED**

| | |
|---|---|
| HS | Headspace Analysis. |
| EH | Extractable Hydrocarbons - i.e. everything extracted by the solvent. |
| CU | Clean-up - e.g. by florisil, silica gel. |
| 1D | GC - Single coil gas chromatography. |
| Total | Aliphatics & Aromatics. |
| AL | Aliphatics only. |
| AR | Aromatics only. |
| 2D | GC-GC - Double coil gas chromatography. |
| #1 | EH_Total but with humics mathematically subtracted |
| #2 | EU_Total but with fatty acids mathematically subtracted |
| _ | Operator - underscore to separate acronyms (exception for +). |
| + | Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total |
| MS | Mass Spectrometry. |

**EMT Job No:** 22/11741

| Test Method No. | Description | Prep Method No. (if appropriate) | Description | ISO 17025 (UKAS/SANAS) | MCERTS (UK soils only) | Analysis done on As Received (AR) or Dried (AD) | Reported on dry weight basis |
|---|---|---|---|---|---|---|---|
| PM4 | Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990. | PM0 | No preparation is required. | | | AR | |
| TM4 | Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS. | PM8 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required. | | | AR | Yes |
| TM4 | Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS. | PM8 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required. | Yes | | AR | Yes |
| TM5 | Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present. | PM16 | Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE. | | | AR | |
| TM5 | Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present. | PM8/PM16 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE. | | | AR | Yes |
| TM5 | Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present. | PM8/PM16 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE. | Yes | | AR | Yes |
| TM5/TM36 | please refer to TM5 and TM36 for method details | PM8/PM12/PM16 | please refer to PM8/PM16 and PM12 for method details | | | AR | Yes |
| TM17 | Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS. | PM8 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required. | Yes | | AR | Yes |
| TM20 | Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids | PM0 | No preparation is required. | Yes | | AR | Yes |
| TM21 | Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4. | PM24 | Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis. | Yes | | AD | Yes |

**EMT Job No:** 22/11741

| Test Method No. | Description | Prep Method No. (if appropriate) | Description | ISO 17025 (UKAS/SANAS) | MCERTS (UK soils only) | Analysis done on As Received (AR) or Dried (AD) | Reported on dry weight basis |
|---|---|---|---|---|---|---|---|
| TM26 | Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection. | PM0 | No preparation is required. | | | AR | Yes |
| TM30 | Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996 | PM15 | Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground. | | | AD | Yes |
| TM30 | Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996 | PM15 | Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground. | Yes | | AD | Yes |
| TM30 | Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996 | PM17 | Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio. | Yes | | AR | Yes |
| TM36 | Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested. | PM12 | Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis. | | | AR | Yes |
| TM36 | Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested. | PM12 | Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis. | Yes | | AR | Yes |
| TM38 | Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I | PM0 | No preparation is required. | Yes | | AR | Yes |
| TM38 | Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I | PM20 | Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker. | Yes | | AR | Yes |
| TM60 | TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1. | PM0 | No preparation is required. | | | AR | Yes |
| TM61 | Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007 | PM0 | No preparation is required. | Yes | | AR | Yes |

**EMT Job No:** 22/11741

| Test Method No. | Description | Prep Method No. (if appropriate) | Description | ISO 17025 (UKAS/SANAS) | MCERTS (UK soils only) | Analysis done on As Received (AR) or Dried (AD) | Reported on dry weight basis |
|---|---|---|---|---|---|---|---|
| TM65 | Asbestos Bulk Identification method based on HSG 248 Second edition (2021) | PM42 | Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065. | Yes | | AR | |
| TM73 | Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser. | PM0 | No preparation is required. | | | AR | Yes |
| TM73 | Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser. | PM11 | Extraction of as received solid samples using one part solid to 2.5 parts deionised water. | Yes | | AR | No |
| TM173 | Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998) | PM0 | No preparation is required. | | | AR | Yes |
| NONE | No Method Code | NONE | No Method Code | | | AD | Yes |
| NONE | No Method Code | PM17 | Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio. | | | AR | |
| NONE | No Method Code | PM4 | Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990. | | | AR | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

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Newcastle
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Ireland

4225

| | |
|---|---|
| **Attention :** | James Cashen |
| **Date :** | 4th August, 2022 |
| **Your reference :** | 11877-05-22 |
| **Our reference :** | Test Report 22/12292 Batch 1 |
| **Location :** | Swift Square Northwood |
| **Date samples received :** | 28th July, 2022 |
| **Status :** | Final Report |
| **Issue :** | 1 |

Five samples were received for analysis on 28th July, 2022 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

**Authorised By:**

**Liza Klebe**
**Project Co-ordinator**

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/12292

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | 17 | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH01 | BH01 | BH02 | BH02 | BH02 | | | | | | | | |
| Depth | 0.50 | 2.00 | 0.50 | 1.00 | 3.00 | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | T | | | | | | | | |
| Sample Date | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | Soil | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | | |
| Date of Receipt | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | | | | | | | | |
| Antimony | <1 | 2 | 5 | 3 | - | | | | | | <1 | mg/kg | TM30/PM15 |
| Arsenic # | 2.2 | 10.4 | 439.7 $_{AA}$ | 12.2 | - | | | | | | <0.5 | mg/kg | TM30/PM15 |
| Barium # | 38 | 129 | 73 | 150 | - | | | | | | <1 | mg/kg | TM30/PM15 |
| Cadmium # | 0.6 | 1.4 | 0.2 | 2.2 | - | | | | | | <0.1 | mg/kg | TM30/PM15 |
| Chromium # | 13.1 | 32.1 | 79.7 | 48.3 | - | | | | | | <0.5 | mg/kg | TM30/PM15 |
| Copper # | 6 | 26 | 32 | 29 | - | | | | | | <1 | mg/kg | TM30/PM15 |
| Lead # | <5 | 18 | 27 | 25 | - | | | | | | <5 | mg/kg | TM30/PM15 |
| Mercury # | <0.1 | <0.1 | <0.1 | <0.1 | - | | | | | | <0.1 | mg/kg | TM30/PM15 |
| Molybdenum # | 1.0 | 4.7 | 5.8 | 3.9 | - | | | | | | <0.1 | mg/kg | TM30/PM15 |
| Nickel # | 7.0 | 39.8 | 50.8 | 47.6 | - | | | | | | <0.7 | mg/kg | TM30/PM15 |
| Selenium # | <1 | 3 | 2 | 2 | - | | | | | | <1 | mg/kg | TM30/PM15 |
| Zinc # | 9 | 81 | 118 | 162 | - | | | | | | <5 | mg/kg | TM30/PM15 |
| PAH MS | | | | | | | | | | | | | |
| Naphthalene # | <0.04 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Acenaphthylene | <0.03 | <0.03 | <0.03 | <0.03 | - | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Acenaphthene # | <0.05 | <0.05 | <0.05 | <0.05 | - | | | | | | <0.05 | mg/kg | TM4/PM8 |
| Fluorene # | <0.04 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Phenanthrene # | <0.03 | 0.05 | <0.03 | <0.03 | - | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Anthracene # | <0.04 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Fluoranthene # | <0.03 | <0.03 | <0.03 | <0.03 | - | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Pyrene # | 0.20 | <0.03 | <0.03 | <0.03 | - | | | | | | <0.03 | mg/kg | TM4/PM8 |
| Benzo(a)anthracene # | 0.14 | <0.06 | <0.06 | <0.06 | - | | | | | | <0.06 | mg/kg | TM4/PM8 |
| Chrysene # | 0.20 | 0.04 | <0.02 | <0.02 | - | | | | | | <0.02 | mg/kg | TM4/PM8 |
| Benzo(bk)fluoranthene # | <0.07 | <0.07 | <0.07 | <0.07 | - | | | | | | <0.07 | mg/kg | TM4/PM8 |
| Benzo(a)pyrene # | 0.07 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Indeno(123cd)pyrene # | <0.04 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Dibenzo(ah)anthracene # | <0.04 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Benzo(ghi)perylene # | <0.04 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| Coronene | <0.04 | <0.04 | <0.04 | <0.04 | - | | | | | | <0.04 | mg/kg | TM4/PM8 |
| PAH 6 Total # | <0.22 | <0.22 | <0.22 | <0.22 | - | | | | | | <0.22 | mg/kg | TM4/PM8 |
| PAH 17 Total | <0.64 | <0.64 | <0.64 | <0.64 | - | | | | | | <0.64 | mg/kg | TM4/PM8 |
| Benzo(b)fluoranthene | <0.05 | <0.05 | <0.05 | <0.05 | - | | | | | | <0.05 | mg/kg | TM4/PM8 |
| Benzo(k)fluoranthene | <0.02 | <0.02 | <0.02 | <0.02 | - | | | | | | <0.02 | mg/kg | TM4/PM8 |
| Benzo(j)fluoranthene | <1 | <1 | <1 | <1 | - | | | | | | <1 | mg/kg | TM4/PM8 |
| PAH Surrogate % Recovery | 79 | 79 | 74 | 83 | - | | | | | | <0 | % | TM4/PM8 |
| Mineral Oil (C10-C40) (EH_CU_1D_AL) | 54 | <30 | <30 | <30 | - | | | | | | <30 | mg/kg | TM5/PM8/PM16 |

## Element Materials Technology

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/12292

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | 17 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH01 | BH01 | BH02 | BH02 | BH02 | | | | | | | |
| Depth | 0.50 | 2.00 | 0.50 | 1.00 | 3.00 | | | | | | | |
| COC No / misc | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | T | | | | | | | |
| Sample Date | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | Soil | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | |
| Date of Receipt | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | | | | | | | |

Please see attached notes for all abbreviations and acronyms

| | | | | | | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPH CWG | | | | | | | | | | | | | |
| **Aliphatics** | | | | | | | | | | | | | |
| >C5-C6 (HS_1D_AL) # | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >C6-C8 (HS_1D_AL) # | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM |
| >C8-C10 (HS_1D_AL) | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >C10-C12 (EH_CU_1D_AL) # | <0.2 | <0.2 | <0.2 | <0.2 | - | | | | | | <0.2 | mg/kg | TM5/PM8/PM16 |
| >C12-C16 (EH_CU_1D_AL) # | <4 | <4 | <4 | <4 | - | | | | | | <4 | mg/kg | TM5/PM8/PM16 |
| >C16-C21 (EH_CU_1D_AL) # | <7 | <7 | <7 | <7 | - | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >C21-C35 (EH_CU_1D_AL) # | 46 | <7 | <7 | <7 | - | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >C35-C40 (EH_1D_AL) | 8 | <7 | <7 | <7 | - | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| Total aliphatics C5-40 (EH+HS_1D_AL) | 54 | <26 | <26 | <26 | - | | | | | | <26 | mg/kg | TM5/TM36/PM8/PM12/PM16 |
| >C6-C10 (HS_1D_AL) | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >C10-C25 (EH_1D_AL) | <10 | <10 | <10 | <10 | - | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| >C25-C35 (EH_1D_AL) | 46 | <10 | <10 | <10 | - | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| **Aromatics** | | | | | | | | | | | | | |
| >C5-EC7 (HS_1D_AR) # | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC7-EC8 (HS_1D_AR) # | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC8-EC10 (HS_1D_AR) # | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC10-EC12 (EH_CU_1D_AR) # | <0.2 | <0.2 | <0.2 | <0.2 | - | | | | | | <0.2 | mg/kg | TM5/PM8/PM16 |
| >EC12-EC16 (EH_CU_1D_AR) # | <4 | <4 | <4 | <4 | - | | | | | | <4 | mg/kg | TM5/PM8/PM16 |
| >EC16-EC21 (EH_CU_1D_AR) # | <7 | <7 | <7 | <7 | - | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >EC21-EC35 (EH_CU_1D_AR) # | 121 | <7 | <7 | <7 | - | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| >EC35-EC40 (EH_1D_AR) | 29 | <7 | <7 | <7 | - | | | | | | <7 | mg/kg | TM5/PM8/PM16 |
| Total aromatics C5-40 (EH+HS_1D_AR) | 150 | <26 | <26 | <26 | - | | | | | | <26 | mg/kg | TM5/TM36/PM8/PM12 |
| Total aliphatics and aromatics(C5-40) (EH+HS_CU_1D_Total) | 204 | <52 | <52 | <52 | - | | | | | | <52 | mg/kg | TM5/TM36/PM8/PM12/PM16 |
| >EC6-EC10 (HS_1D_AR) # | <0.1 | <0.1 SV | <0.1 SV | <0.1 | - | | | | | | <0.1 | mg/kg | TM36/PM12 |
| >EC10-EC25 (EH_1D_AR) | 27 | <10 | <10 | <10 | - | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| >EC25-EC35 (EH_1D_AR) | 115 | <10 | <10 | <10 | - | | | | | | <10 | mg/kg | TM5/PM8/PM16 |
| | | | | | | | | | | | | | |
| MTBE # | <5 | <5 SV | <5 SV | <5 | - | | | | | | <5 | ug/kg | TM36/PM12 |
| Benzene # | <5 | <5 SV | 16 SV | <5 | - | | | | | | <5 | ug/kg | TM36/PM12 |
| Toluene # | 20 | <5 SV | 46 SV | 11 | - | | | | | | <5 | ug/kg | TM36/PM12 |
| Ethylbenzene # | <5 | <5 SV | <5 SV | <5 | - | | | | | | <5 | ug/kg | TM36/PM12 |
| m/p-Xylene # | <5 | <5 SV | <5 SV | <5 | - | | | | | | <5 | ug/kg | TM36/PM12 |
| o-Xylene # | <5 | <5 SV | <5 SV | <5 | - | | | | | | <5 | ug/kg | TM36/PM12 |
| | | | | | | | | | | | | | |
| PCB 28 # | <5 | <5 | <5 | <5 | - | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 52 # | <5 | <5 | <5 | <5 | - | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 101 # | <5 | <5 | <5 | <5 | - | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 118 # | <5 | <5 | <5 | <5 | - | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 138 # | <5 | <5 | <5 | <5 | - | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 153 # | <5 | <5 | <5 | <5 | - | | | | | | <5 | ug/kg | TM17/PM8 |
| PCB 180 # | <5 | <5 | <5 | <5 | - | | | | | | <5 | ug/kg | TM17/PM8 |
| Total 7 PCBs # | <35 | <35 | <35 | <35 | - | | | | | | <35 | ug/kg | TM17/PM |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/12292

**Report : Solid**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | 17 | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH01 | BH01 | BH02 | BH02 | BH02 | | | | | | | | |
| Depth | 0.50 | 2.00 | 0.50 | 1.00 | 3.00 | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | T | | | | | | | | |
| Sample Date | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | Soil | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | | |
| Date of Receipt | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | | | | | | | | |
| Natural Moisture Content | 3.1 | 9.1 | 15.3 | 26.0 | - | | | | | | <0.1 | % | PM4/PM0 |
| Moisture Content (% Wet Weight) | 3.0 | 8.3 | 13.3 | 20.7 | - | | | | | | <0.1 | % | PM4/PM0 |
| Hexavalent Chromium # | <0.3 | <0.3 | <0.3 | <0.3 | - | | | | | | <0.3 | mg/kg | TM38/PM20 |
| Sulphate as SO4 (2:1 Ext) # | 0.0082 | 0.1790 | - | 0.1498 | 0.1513 | | | | | | <0.0015 | g/l | TM38/PM20 |
| Chromium III | 13.1 | 32.1 | 79.7 | 48.3 | - | | | | | | <0.5 | mg/kg | NONE/NONE |
| Total Organic Carbon # | 0.11 | 0.61 | 0.85 | 1.02 | - | | | | | | <0.02 | % | TM21/PM24 |
| pH # | 9.35 | 8.34 | 7.91 | 8.19 | 8.47 | | | | | | <0.01 | pH units | TM73/PM11 |
| Mass of raw test portion | 0.0937 | 0.1011 | 0.1051 | 0.1121 | - | | | | | | | kg | NONE/PM17 |
| Mass of dried test portion | 0.09 | 0.09 | 0.09 | 0.09 | - | | | | | | | kg | NONE/PM17 |

Please see attached notes for all abbreviations and acronyms



Please include all sections of this report if it is reproduced
All solid results are expressed on a dry weight basis unless stated otherwise.

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/12292

**Report : CEN 10:1 1 Batch**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | | | | | | | LOD/LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH01 | BH01 | BH02 | BH02 | | | | | | | | | |
| Depth | 0.50 | 2.00 | 0.50 | 1.00 | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | | | | | | | | | |
| Sample Date | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | | | | | | | | | |
| Date of Receipt | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | | | | | | | | | |
| Dissolved Antimony # | <0.002 | <0.002 | <0.002 | 0.003 | | | | | | | <0.002 | mg/l | TM30/PM17 |
| Dissolved Antimony (A10) # | <0.02 | <0.02 | <0.02 | 0.03 | | | | | | | <0.02 | mg/kg | TM30/PM17 |
| Dissolved Arsenic # | <0.0025 | <0.0025 | <0.0025 | <0.0025 | | | | | | | <0.0025 | mg/l | TM30/PM17 |
| Dissolved Arsenic (A10) # | <0.025 | <0.025 | <0.025 | <0.025 | | | | | | | <0.025 | mg/kg | TM30/PM |
| Dissolved Barium # | 0.038 | 0.073 | 0.031 | 0.015 | | | | | | | <0.003 | mg/l | TM30/PM17 |
| Dissolved Barium (A10) # | 0.38 | 0.73 | 0.31 | 0.15 | | | | | | | <0.03 | mg/kg | TM30/PM17 |
| Dissolved Cadmium # | <0.0005 | <0.0005 | <0.0005 | <0.0005 | | | | | | | <0.0005 | mg/l | TM30/PM17 |
| Dissolved Cadmium (A10) # | <0.005 | <0.005 | <0.005 | <0.005 | | | | | | | <0.005 | mg/kg | TM30/PM17 |
| Dissolved Chromium # | <0.0015 | <0.0015 | <0.0015 | <0.0015 | | | | | | | <0.0015 | mg/l | TM30/PM17 |
| Dissolved Chromium (A10) # | <0.015 | <0.015 | <0.015 | <0.015 | | | | | | | <0.015 | mg/kg | TM30/PM17 |
| Dissolved Copper # | 0.012 | <0.007 | <0.007 | <0.007 | | | | | | | <0.007 | mg/l | TM30/PM17 |
| Dissolved Copper (A10) # | 0.12 | <0.07 | <0.07 | <0.07 | | | | | | | <0.07 | mg/kg | TM30/PM17 |
| Dissolved Lead # | <0.005 | <0.005 | <0.005 | <0.005 | | | | | | | <0.005 | mg/l | TM30/PM17 |
| Dissolved Lead (A10) # | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | <0.05 | mg/kg | TM30/PM17 |
| Dissolved Molybdenum # | 0.006 | 0.021 | 0.007 | 0.007 | | | | | | | <0.002 | mg/l | TM30/PM17 |
| Dissolved Molybdenum (A10) # | 0.06 | 0.21 | 0.07 | 0.07 | | | | | | | <0.02 | mg/kg | TM30/PM17 |
| Dissolved Nickel # | <0.002 | <0.002 | <0.002 | <0.002 | | | | | | | <0.002 | mg/l | TM30/PM17 |
| Dissolved Nickel (A10) # | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | <0.02 | mg/kg | TM30/PM17 |
| Dissolved Selenium # | <0.003 | 0.029 | <0.003 | <0.003 | | | | | | | <0.003 | mg/l | TM30/PM17 |
| Dissolved Selenium (A10) # | <0.03 | 0.29 | <0.03 | <0.03 | | | | | | | <0.03 | mg/kg | TM30/PM17 |
| Dissolved Zinc # | 0.008 | <0.003 | 0.003 | 0.003 | | | | | | | <0.003 | mg/l | TM30/PM17 |
| Dissolved Zinc (A10) # | 0.08 | <0.03 | 0.03 | 0.03 | | | | | | | <0.03 | mg/kg | TM30/PM17 |
| Mercury Dissolved by CVAF # | <0.00001 | 0.00002 | <0.00001 | <0.00001 | | | | | | | <0.00001 | mg/l | TM61/PM0 |
| Mercury Dissolved by CVAF # | <0.0001 | 0.0002 | <0.0001 | <0.0001 | | | | | | | <0.0001 | mg/kg | TM61/PM |
| Phenol | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | <0.01 | mg/l | TM26/PM0 |
| Phenol | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | <0.1 | mg/kg | TM26/PM0 |
| Fluoride | <0.3 | 0.4 | 0.3 | <0.3 | | | | | | | <0.3 | mg/l | TM173/PM0 |
| Fluoride | <3 | 4 | 3 | <3 | | | | | | | <3 | mg/kg | TM173/PM0 |
| Sulphate as SO4 # | 1.8 | 42.1 | 197.1 | 38.2 | | | | | | | <0.5 | mg/l | TM38/PM0 |
| Sulphate as SO4 # | 18 | 421 | 1971 | 382 | | | | | | | <5 | mg/kg | TM38/PM0 |
| Chloride # | 0.8 | 7.8 | 0.4 | 0.6 | | | | | | | <0.3 | mg/l | TM38/PM0 |
| Chloride # | 8 | 78 | 4 | 6 | | | | | | | <3 | mg/kg | TM38/PM0 |
| Dissolved Organic Carbon | 4 | <2 | 3 | 4 | | | | | | | <2 | mg/l | TM60/PM0 |
| Dissolved Organic Carbon | 40 | <20 | 30 | 40 | | | | | | | <20 | mg/kg | TM60/PM0 |
| pH | 8.16 | 7.92 | 7.88 | 8.09 | | | | | | | <0.01 | pH units | TM73/PM0 |
| Total Dissolved Solids # | 48 | 116 | 382 | 150 | | | | | | | <35 | mg/l | TM20/PM0 |
| Total Dissolved Solids # | 480 | 1160 | 3820 | 1501 | | | | | | | <350 | mg/kg | TM20/PM0 |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen
**EMT Job No:** 22/12292

**Report : EN12457_2**

**Solids:** V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

| EMT Sample No. | 1-4 | 5-8 | 9-12 | 13-16 | | | | | | | Inert | Stable Non-reactive | Hazardous | LOD LOR | Units | Method No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | BH01 | BH01 | BH02 | BH02 | | | | | | | | | | | | |
| Depth | 0.50 | 2.00 | 0.50 | 1.00 | | | | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | | | | |
| Containers | V J T | V J T | V J T | V J T | | | | | | | | | | | | |
| Sample Date | 26/07/2022 | 26/07/2022 | 26/07/2022 | 26/07/2022 | | | | | | | | | | | | |
| Sample Type | Soil | Soil | Soil | Soil | | | | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | | | | | | | | | | | | |
| Date of Receipt | 28/07/2022 | 28/07/2022 | 28/07/2022 | 28/07/2022 | | | | | | | | | | | | |
| **Solid Waste Analysis** | | | | | | | | | | | | | | | | |
| Total Organic Carbon # | 0.11 | 0.61 | 0.85 | 1.02 | | | | | | | 3 | 5 | 6 | <0.02 | % | TM21/PM24 |
| Sum of BTEX | <0.025 | <0.025 SV | 0.062 SV | <0.025 | | | | | | | 6 | - | - | <0.025 | mg/kg | TM36/PM12 |
| Sum of 7 PCBs # | <0.035 | <0.035 | <0.035 | <0.035 | | | | | | | 1 | - | - | <0.035 | mg/kg | TM17/PM8 |
| Mineral Oil | 54 | <30 | <30 | <30 | | | | | | | 500 | - | - | <30 | mg/kg | TM5/PM8/PM16 |
| PAH Sum of 6 # | <0.22 | <0.22 | <0.22 | <0.22 | | | | | | | - | - | - | <0.22 | mg/kg | TM4/PM8 |
| PAH Sum of 17 | <0.64 | <0.64 | <0.64 | <0.64 | | | | | | | 100 | - | - | <0.64 | mg/kg | TM4/PM8 |
| **CEN 10:1 Leachate** | | | | | | | | | | | | | | | | |
| Arsenic # | <0.025 | <0.025 | <0.025 | <0.025 | | | | | | | 0.5 | 2 | 25 | <0.025 | mg/kg | TM30/PM17 |
| Barium # | 0.38 | 0.73 | 0.31 | 0.15 | | | | | | | 20 | 100 | 300 | <0.03 | mg/kg | TM30/PM17 |
| Cadmium # | <0.005 | <0.005 | <0.005 | <0.005 | | | | | | | 0.04 | 1 | 5 | <0.005 | mg/kg | TM30/PM17 |
| Chromium # | <0.015 | <0.015 | <0.015 | <0.015 | | | | | | | 0.5 | 10 | 70 | <0.015 | mg/kg | TM30/PM17 |
| Copper # | 0.12 | <0.07 | <0.07 | <0.07 | | | | | | | 2 | 50 | 100 | <0.07 | mg/kg | TM30/PM17 |
| Mercury # | <0.0001 | 0.0002 | <0.0001 | <0.0001 | | | | | | | 0.01 | 0.2 | 2 | <0.0001 | mg/kg | TM61/PM0 |
| Molybdenum # | 0.06 | 0.21 | 0.07 | 0.07 | | | | | | | 0.5 | 10 | 30 | <0.02 | mg/kg | TM30/PM17 |
| Nickel # | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | 0.4 | 10 | 40 | <0.02 | mg/kg | TM30/PM17 |
| Lead # | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | 0.5 | 10 | 50 | <0.05 | mg/kg | TM30/PM17 |
| Antimony # | <0.02 | <0.02 | <0.02 | 0.03 | | | | | | | 0.06 | 0.7 | 5 | <0.02 | mg/kg | TM30/PM17 |
| Selenium # | <0.03 | 0.29 | <0.03 | <0.03 | | | | | | | 0.1 | 0.5 | 7 | <0.03 | mg/kg | TM30/PM17 |
| Zinc # | 0.08 | <0.03 | 0.03 | 0.03 | | | | | | | 4 | 50 | 200 | <0.03 | mg/kg | TM30/PM17 |
| Total Dissolved Solids # | 480 | 1160 | 3820 | 1501 | | | | | | | 4000 | 60000 | 100000 | <350 | mg/kg | TM20/PM0 |
| Dissolved Organic Carbon | 40 | <20 | 30 | 40 | | | | | | | 500 | 800 | 1000 | <20 | mg/kg | TM60/PM0 |
| Dry Matter Content Ratio | 95.9 | 88.9 | 85.7 | 80.1 | | | | | | | - | - | - | <0.1 | % | NONE/PM4 |
| Moisture Content 105C (% Dry Weight) | 4.3 | 12.5 | 16.7 | 24.9 | | | | | | | - | - | - | <0.1 | % | PM4/PM0 |
| pH # | 9.35 | 8.34 | 7.91 | 8.19 | | | | | | | - | - | - | <0.01 | pH units | TM73/PM11 |
| Phenol | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | 1 | - | - | <0.1 | mg/kg | TM26/PM0 |
| Fluoride | <3 | 4 | 3 | <3 | | | | | | | 10 | 150 | 500 | <3 | mg/kg | TM173/PM0 |
| Sulphate as SO4 # | 18 | 421 | 1971 | 382 | | | | | | | 1000 | 20000 | 50000 | <5 | mg/kg | TM38/PM0 |
| Chloride # | 8 | 78 | 4 | 6 | | | | | | | 800 | 15000 | 25000 | <3 | mg/kg | TM38/PM0 |

**Client Name:** Ground Investigations Ireland

**Reference:** 11877-05-22

**Location:** Swift Square Northwood

**Contact:** James Cashen

**Matrix : Soli**

| EMT Job No. | Batch | Sample ID | Depth | EMT Sample No. | EPH Interpretation |
|---|---|---|---|---|---|
| 22/12292 | 1 | BH01 | 0.50 | 1-4 | possible Lubricating Oil, possible Tarmac/Bitumen, possible Naturally Occurring Compounds |
| 22/12292 | 1 | BH01 | 2.00 | 5-8 | No Interpretation Possible |
| 22/12292 | 1 | BH02 | 0.50 | 9-12 | No Interpretation Possible |
| 22/12292 | 1 | BH02 | 1.00 | 13-16 | No Interpretation Possible |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen

**Note:**

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

| EMT Job No. | Batch | Sample ID | Depth | EMT Sample No. | Analyst Name | Date Of Analysis | Analysis | Result |
|---|---|---|---|---|---|---|---|---|
| 22/12292 | 1 | BH01 | 0.50 | 4 | Charlotte Taylor | 03/08/2022 | **General Description (Bulk Analysis)** | brown soil/stones |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Fibres** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos ACM** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Type** | NAD |
| 22/12292 | 1 | BH01 | 2.00 | 8 | Charlotte Taylor | 03/08/2022 | **General Description (Bulk Analysis)** | brown soil/stones |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Fibres** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos ACM** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Type** | NAD |
| 22/12292 | 1 | BH02 | 0.50 | 12 | Charlotte Taylor | 03/08/2022 | **General Description (Bulk Analysis)** | brown soil/stones |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Fibres** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos ACM** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Type** | NAD |
| 22/12292 | 1 | BH02 | 1.00 | 16 | Charlotte Taylor | 03/08/2022 | **General Description (Bulk Analysis)** | brown soil/stones |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Fibres** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos ACM** | NAD |
| | | | | | Charlotte Taylor | 03/08/2022 | **Asbestos Type** | NAD |

**Client Name:** Ground Investigations Ireland
**Reference:** 11877-05-22
**Location:** Swift Square Northwood
**Contact:** James Cashen

| EMT Job No. | Batch | Sample ID | Depth | EMT Sample No. | Analysis | Reason |
|---|---|---|---|---|---|---|
| No deviating sample report results for job 22/12292 | | | | | | |

**Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.**
**Only analyses which are accredited are recorded as deviating if set criteria are not met.**

## NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

***EMT Job No.:*** 22/12292

### SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

### WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

### STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

### DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

### SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

### DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

### BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

## NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

## REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

### Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

### Customer Provided Information

Sample ID and depth is information provided by the customer.

**ABBREVIATIONS and ACRONYMS USED**

| | |
|---|---|
| # | ISO17025 (UKAS Ref No. 4225) accredited - UK. |
| SA | ISO17025 (SANAS Ref No.T0729) accredited - South Africa |
| B | Indicates analyte found in associated method blank. |
| DR | Dilution required. |
| M | MCERTS accredited. |
| NA | Not applicable |
| NAD | No Asbestos Detected. |
| ND | None Detected (usually refers to VOC and/SVOC TICs). |
| NDP | No Determination Possible |
| SS | Calibrated against a single substance |
| SV | Surrogate recovery outside performance criteria. This may be due to a matrix effect. |
| W | Results expressed on as received basis. |
| + | AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page. |
| >> | Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher. |
| * | Analysis subcontracted to an Element Materials Technology approved laboratory. |
| AD | Samples are dried at 35°C ±5°C |
| CO | Suspected carry over |
| LOD/LOR | Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS |
| ME | Matrix Effect |
| NFD | No Fibres Detected |
| BS | AQC Sample |
| LB | Blank Sample |
| N | Client Sample |
| TB | Trip Blank Sample |
| OC | Outside Calibration Range |
| AA | x5 Dilution |

**HWOL ACRONYMS AND OPERATORS USED**

| | |
|---|---|
| HS | Headspace Analysis. |
| EH | Extractable Hydrocarbons - i.e. everything extracted by the solvent. |
| CU | Clean-up - e.g. by florisil, silica gel. |
| 1D | GC - Single coil gas chromatography. |
| Total | Aliphatics & Aromatics. |
| AL | Aliphatics only. |
| AR | Aromatics only. |
| 2D | GC-GC - Double coil gas chromatography. |
| #1 | EH_Total but with humics mathematically subtracted |
| #2 | EU_Total but with fatty acids mathematically subtracted |
| _ | Operator - underscore to separate acronyms (exception for +). |
| + | Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total |
| MS | Mass Spectrometry. |

**EMT Job No:** 22/12292

| Test Method No. | Description | Prep Method No. (if appropriate) | Description | ISO 17025 (UKAS/SANAS) | MCERTS (UK soils only) | Analysis done on As Received (AR) or Dried (AD) | Reported on dry weight basis |
|---|---|---|---|---|---|---|---|
| PM4 | Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990. | PM0 | No preparation is required. | | | AR | |
| TM4 | Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS. | PM8 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required. | | | AR | Yes |
| TM4 | Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS. | PM8 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required. | Yes | | AR | Yes |
| TM5 | Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present. | PM16 | Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE. | | | AR | |
| TM5 | Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present. | PM8/PM16 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE. | | | AR | Yes |
| TM5 | Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present. | PM8/PM16 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE. | Yes | | AR | Yes |
| TM5/TM36 | please refer to TM5 and TM36 for method details | PM8/PM12/PM16 | please refer to PM8/PM16 and PM12 for method details | | | AR | Yes |
| TM17 | Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS. | PM8 | End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required. | Yes | | AR | Yes |
| TM20 | Modified BS 1377-3:1990/USEPA 160.1/3 (TDS/TS: 1971) Gravimetric determination of Total Dissolved Solids/Total Solids | PM0 | No preparation is required. | Yes | | AR | Yes |
| TM21 | Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4. | PM24 | Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis. | Yes | | AD | Yes |

**EMT Job No:** 22/12292

| Test Method No. | Description | Prep Method No. (if appropriate) | Description | ISO 17025 (UKAS/SANAS) | MCERTS (UK soils only) | Analysis done on As Received (AR) or Dried (AD) | Reported on dry weight basis |
|---|---|---|---|---|---|---|---|
| TM26 | Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection. | PM0 | No preparation is required. | | | AR | Yes |
| TM30 | Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996 | PM15 | Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground. | | | AD | Yes |
| TM30 | Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996 | PM15 | Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground. | Yes | | AD | Yes |
| TM30 | Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996 | PM17 | Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio. | Yes | | AR | Yes |
| TM36 | Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested. | PM12 | Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis. | | | AR | Yes |
| TM36 | Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested. | PM12 | Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis. | Yes | | AR | Yes |
| TM38 | Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I | PM0 | No preparation is required. | Yes | | AR | Yes |
| TM38 | Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I | PM20 | Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker. | Yes | | AD | Yes |
| TM38 | Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013I | PM20 | Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker. | Yes | | AR | Yes |
| TM60 | TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1. | PM0 | No preparation is required. | | | AR | Yes |

**EMT Job No:** 22/12292

| Test Method No. | Description | Prep Method No. (if appropriate) | Description | ISO 17025 (UKAS/SANAS) | MCERTS (UK soils only) | Analysis done on As Received (AR) or Dried (AD) | Reported on dry weight basis |
|---|---|---|---|---|---|---|---|
| TM61 | Determination of Mercury by Cold Vapour Atomic Fluorescence - WATERS: Modified USEPA Method 245.7, Rev 2, Feb 2005. SOILS: Modified USEPA Method 7471B, Rev.2, Feb 2007 | PM0 | No preparation is required. | Yes | | AR | Yes |
| TM65 | Asbestos Bulk Identification method based on HSG 248 Second edition (2021) | PM42 | Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065. | Yes | | AR | |
| TM73 | Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser. | PM0 | No preparation is required. | | | AR | Yes |
| TM73 | Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser. | PM11 | Extraction of as received solid samples using one part solid to 2.5 parts deionised water. | Yes | | AR | No |
| TM173 | Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 9214 - 340.2 (EPA 1998) | PM0 | No preparation is required. | | | AR | Yes |
| NONE | No Method Code | NONE | No Method Code | | | AD | Yes |
| NONE | No Method Code | PM17 | Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio. | | | AR | |
| NONE | No Method Code | PM4 | Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990. | | | AR | |
| | | | | | | | |
| | | | | | | | |