Appendix 7.2

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Ground Investigations Ireland

Cornelscourt

Ground Investigation Report

DOCUMENT CONTROL SHEET

Project Title	Cornelscourt
Engineer	DBFL
Project No	8354-01-19
Document Title	Ground Investigation Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A	Final	T. McIntyre	C Finnerty	C Finnerty	Dublin	10 April 2019

GROUND INVESTIGATIONS IRELAND

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CONTENTS

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APPENDICES

1.0 Preamble

On the instructions of DBFL Consulting Engineers, a site investigation was carried out by Ground Investigations Ireland Ltd., between February and March 2019 at the site of the proposed site in Cornelscourt, Dublin 18.

2.0 Overview

2.1. Background

It is proposed to construct a new residential development with associated services, access roads and car parking at the proposed site. The site is currently greenfield however a portion in one corner of the site is occupied by a temporary car park. The proposed construction is envisaged to consist of conventional foundations and pavement make up with some local excavations for services and plant. A basement is proposed as part of the proposed scheme which will require excavation of approximately 4m BGL on the Bray Road portion of the site reducing to near ground level closer to the N11 side of the site.

2.1. Site Location & Layout

The site, which is the subject of the ground investigation, is located at Cornelscourt, Dublin 18. The site at the time of the investigation was comprised of open grassland. The site is bounded to the to the north and north east by the N11. There is an AIB branch located adjacent to the north west site boundary. The site is bounded by housing on the eastern, southern and south western boundary. There is a filling station located adjacent to the western site boundary. At the time of the Ground investigation there is an area of Japanese Knotweed located on the eastern site boundary. The north western section of the site had been recently covered with a layer of Clay which was soft and not suitable for traffic at the time of the investigation. BH01 was not completed as it was unable to access due to the presence this soft Clay.

The adjacent filling station was located at an elevation higher than the site and was deemed to be upgradient of the site hydraulically.

2.2. Site History

GII carried out a review of the on-line database of historical maps held by the (OSI). These included the 6-inch maps that were produced between 1829 and 1842, the 25-inch maps that were produced between 1888 and 1913 and the 6-inch Cassini Maps that were produced between the 1830's and 1930's.

The historic maps indicate that the site was agricultural land prior to development. On the 6-inch map the village of Cornelscourt is indicated but the site is as yet undeveloped. On the 25-inch map the site is almost entirely undeveloped with a small building on the site footprint adjacent to the present day filling station. The building use is unknown.

GII reviewed the aerial photograph record between 1995 and present day (OSI and Google Imagery). The photos from 1995 onwards indicate that the site has been undeveloped since then with the exception of the development of what appears from the photographs to be a temporary car park in the 2016. Based on the aerial photograph approximately 3,000 square meters of the site in the north western corner was stripped of topsoil to allow the construction of a temporary carpark in that area. A berm appears to have been constructed with the stripped material to the east of the carpark.

At the time of the site inspection this berm and the carpark were absent suggesting that the berm had been respreads across the carpark area.

2.3. Purpose and Scope

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

- Visit project site to observe existing conditions
- Carry out 16 No. Trial Pits to a maximum depth of 4.5m BGL
- Carry out 2 No. Foundation Pits to determine existing foundation details
- Cary out 3 No. Infiltration tests to BRE Digest 365 to determine soil infiltration values
- Carry out 13 No. Window Sample Boreholes to recover soil samples
- Carry out 12 No. Dynamic Probes to determine the soil strength/density characteristics
- Carry out 9 No. Cable Percussion boreholes to a maximum depth of 6.0m BGL
- Carry out 10 No. Rotary Core Boreholes to a maximum depth of 17.4m BGL
- Carry out of 4 No. Plate Bearing Tests to determiner CBR/sub grade modulus parameters
- Installation of 4 No. Groundwater monitoring wells & associated monitoring
- Collection and analysis of subsoil & groundwater samples
- Geotechnical & Environmental Laboratory testing
- Report with recommendations

3.0 Subsurface Exploration

3.1. General

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

3.2. Trial Pits

The trial pits were excavated using a JCB 3CX excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by a Geotechnical Engineer/Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report. TP15, TP18 and TP19 which were foundation pits to determine foundations for the boundary wall along the south western boundary of the site were not completed due to the absence of the boundary wall at these locations. An additional pit TP21 was completed between these locations to get a soil profile along this portion of the site. Foundations for the pits competed at TP05 and TP14 are included with the associated logs in the Appendix 2 of this report.

3.3. Soakaway Testing

The soakaway testing was carried out in selected trial pits at the locations shown in the exploratory hole location plan in Appendix 1. These pits were carefully excavated and filled with water to assess the infiltration characteristics of the proposed site. The pits were allowed to drain and the drop in water level was recorded over time as required by BRE Digest 365. The pits were logged prior to completing the soakaway test and were backfilled with arising's upon completion. The soakaway test results are provided in Appendix 3 of this Report.

3.1. Dynamic Probing

The dynamic probe tests (DPH) were carried out at the locations shown in the location plan in Appendix 1 in accordance with B.S. 1377: Part 9 1990. The test consists of mechanically driving a cone with a 50kg weight in 100mm intervals and monitoring the number of blows required. An equivalent Standard Penetration Test (SPT) 'N' value may be calculated by dividing the total number of blows over a 300mm drive length by 1.5. The dynamic probe logs are provided in Appendix 4 of this Report.

3.2. Window Sampling

The window sampling was carried out at the locations shown in the location plan in Appendix 1 using a Geotec 10 percussion drilling rig. The window sampling consists of a 1m long steel tube with a cutting edge and an internal plastic liner which is mechanically driven into the ground utilising a 63.5kg or 50kg weight falling a height of 760mm (DPSH) or 500mm (DPH). Upon completion of the 1m sample, the tube is withdrawn and the plastic liner removed and sealed for logging and sub sampling by a Geotechnical Engineer/Engineering Geologist. The tube is replaced in the borehole and a subsequent 1m sample can be recovered. Occasionally outer casing or a reduced diameter tube is utilised to enable the window sample to progress in difficult drilling conditions. Geotechnical or environmental soil samples can be recovered

from each of the liners following logging. The window sample records are provided in Appendix 5 of this Report.

3.3. Cable Percussion Boreholes

The Cable Percussion Boreholes were drilled using a Dando 2000 drilling rig with regular in-situ testing and sampling undertaken to facilitate the production of geotechnical logs and laboratory testing.
The standard method of boring in soil for site investigation is known as the Cable Percussion method. It consists of using a Shell in non cohesive soils and a clay cutter in cohesive soils, both operated on a wire cable. Very hard soils, boulders and other hard obstructions are broken up by chiselling and the fragments removed with the Shell. Where ground conditions made it necessary, the borehole was lined with 200mm diameter steel casing. While the use of the Cable Percussion method of boring gives the maximum data on soil conditions, some mixing of laminated soil is inevitable. For this reason, thin lenses of granular material may not be noticed. Disturbed samples were taken from the boring tools at suitable depths, so that there is a representative sample at the top of each change in stratum and thereafter at regular intervals down the borehole until the next stratum was encountered. The disturbed samples were then sealed and sent to the laboratory where they were visually examined to confirm the description of the relevant strata.
Standard Penetration Tests were carried out in the boreholes. The results of these tests, together with the depths at which the tests were taken are shown on the accompanying borehole records. The test consists of a thick wall sampler tube, 50mm external diameter, being driven into the soil by a monkey weighing 63.5kg and with a free drop of 760mm. For gravels and glacial till the driving shoe was replaced by a solid 60º cone. The Standard Penetration Test number referred to as the 'N' value is the number of blows required to drive the tube 300mm, after an initial penetration of 150mm. The number gives a guide to the consistency of the soil and can also be used to estimate the relative strength/density at the depth of the test and also to estimate the bearing capacity and compressibility of the soil. The cable percussion borehole logs are provided in Appendix 6 of this Report.

3.4. Rotary Boreholes

The rotary coring was carried out by a track mounted T44 Beretta rig at the locations shown on the location plan in Appendix 1. The rotary boreholes were completed from the ground surface or alternatively, where noted on the individual borehole log, from the base of the cable percussion borehole where a temporary liner was installed to facilitate follow-on rotary coring.
The T44 Beretta is equipped with rubber tracks which allow for short travel on pavement surfaces avoiding any damage to the surface. The T44 Beretta utilises a triple tube core barrel system operated using a wireline drilling process. The outer barrel is rotated by the drill rods and at its lower end, carries the coring bit. The inner barrel is mounted on a swivel so that it does not rotate during the process. The third barrel or liner is placed within the second one to retain the core intact and to preserve as much as possible the fabric of the drilling stratum. The core is cut by the coring bit and passes to the inner liner. The core is brought up to the surface within the inner barrel on a small diameter wire rope or line attached to the "overshoot" recovery tool which is then placed into a core box in order of recovery. A drilling fluid, typically air mist or

water flush is passed from the surface through hollow drill rods to the drill bit, and is used to cool the drill bit. Temporary casing is used in some situations to support unstable ground or to seal off fissures or voids. It should be noted that the rotary coring can only achieve limited recovery in overburden, particularly granular or weakly cemented strata due to the flushing medium washing away the cohesive fraction during coring. The recovery achieved, where required is noted on the borehole logs and core photographs are provided to allow assessment of the core recovered. Standard Penetration Tests are carried out where instructed or as outlined in the specification in the boreholes. The results of these tests, together with the depths at which the tests were taken are shown on the accompanying borehole records. The test consists of a thick wall sampler tube, 50mm external diameter, being driven into the soil by a monkey weighing 63.5kg and with a free drop of 760mm. For gravels and glacial till the driving shoe was replaced by a solid 60º cone. The Standard Penetration Test number referred to as the 'N' value is the number of blows required to drive the tube 300mm, after an initial penetration of 150mm. The number gives a guide to the consistency of the soil and can also be used to estimate the relative strength/density at the depth of the test and also to estimate the bearing capacity and compressibility of the soil. The rotary borehole logs are provided in Appendix 6 of this Report.

3.5. Insitu Plate Bearing Test

The plate bearing tests were carried out using a 305mm or 450mm diameter plate at the locations shown on the site plan in Appendix 1. The plate was loaded in increments using a hydraulic jack and an excavator to provide a reaction and the displacement was monitored in accordance with BS1377 Part 9 using independently mounted digital strain gauges. The constrained modulus and equivalent CBR are calculated in accordance with HD29/75 and are provided on the test reports in Appendix 7 of this Report.

3.6. Surveying

The exploratory hole locations have been recorded using a Trimble R10 GNSS System which records the coordinates and elevation of the locations to ITM or Irish National Grid as required by the project specification. The coordinates and elevations are provided on the exploratory hole logs in the appendices of this Report.

3.7. Groundwater/Gas Monitoring Installations

Groundwater and or Gas Monitoring Installation were installed upon the completion of the boreholes to enable sampling and the determination of the equilibrium groundwater level. The typical groundwater monitoring installation consists of a 50mm 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 logs in the appendices of this Report.

3.8. 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 testing, the Rialta Suite including Solid Waste and Leachate Waste Acceptance Criteria (WAC) testing, pH and sulphate testing was carried out by Exova's Laboratory in the UK.
Geotechnical testing consisting of moisture content, Atterberg limits, Particle Size Distribution (PSD) tests were carried out in NMTL's Geotechnical Laboratory in Carlow.
Rock strength testing including Point Load (Is_{50}) and Unconfined Compressive Strength (UCS) testing is underway in Trinity College Dublin's Geotechnical Laboratory. The results of the completed laboratory testing are included in Appendix 8 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 variable across the site and are generally comprised;

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

TOPSOIL: Topsoil was encountered in all the exploratory holes and was present to a maximum depth of 0.3m BGL. Tarmac surfacing was present typically to a depth of 0.05m BGL.

MADE GROUND: Made Ground deposits were encountered occasionally beneath the Topsoil and was present to depths of between 0.5m and 1.1m BGL. These deposits were described generally as *brown sandy slightly gravelly Clay with frequent cobbles and boulders and contained occasional fragments of concrete, red brick, glass and plastic.*

COHESIVE DEPOSITS: Cohesive deposits were encountered beneath the Made Ground and were described typically as *brown or brown mottled grey sandy gravelly CLAY with occasional cobbles* overlying a *stiff brown/orange/grey sandy gravelly CLAY with occasional cobbles and boulders*. In TP20 a *stiff to very stiff black slightly sandy gravelly CLAY with rare cobbles and boulders* was encountered below 2.5m BGL. 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 was soft or soft to firm and typically increased with depth and was firm to stiff or stiff below 1.5m to 2.0m BGL in the majority of the exploratory holes. These deposits had some, occasional or frequent cobble and boulder content where noted on the exploratory hole logs.

GRANULAR DEPOSITS: The granular deposits were encountered within the cohesive deposits in TP21 and in BH02 and were typically described as G*rey/brown clayey sandy fine to coarse GRAVEL or gravelly Sand.* The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs. The rotary boreholes cored the overburden deposits where the cable percussion boreholes refused on obstructions at shallower depths than the bedrock. The core recovery ranged from 0% to 50% in the sandy gravelly Clay deposits with the fines material often washed away by the water flush used to cool and remove the cuttings from the drilling bit. The overburden material has been described with the drillers notes of the strata encountered and the Engineers assessment of recovery achieved. There is a possibility of granular lenses present within the cohesive deposits where the rotary coring continued from the base of the cable percussion borehole to the top of rock.

BEDROCK: The rotary core boreholes recovered Granite Bedrock in each of the boreholes at depths of 2.6m to 12.0m BGL. The depth to rock varies from 2.85m BGL (49.65m OD) in BH10 and is deeper towards the north and north eastern portion of the site to a maximum of 12.0m BGL (36.7m OD) in BH02 and 9.7m BGL (38.62m OD) in BH03. The total core recovery is good in the granite bedrock, typically 100% with some of the uppermost runs dropping to 80 or 90%. The SCR and RQD both are relatively poor in the upper weathered zone, often recovered as non-intact, however both indices show an increase with depth in each of the boreholes. The strength of the stratum varies from Extremely weak to strong as noted on the logs with some portions of the core recovered as non-intact. The weathering is noted on the core logs and is typically distinctly weathered to partially weathered with occasional zones of where the granite was unweathered.

4.2. Insitu Strength Testing

The correlated DPH blow counts indicate that the overburden deposits are soft or soft to firm to depth of 1.0m to 1.2m BGL typically and become firm or firm to stiff with depth. DP03, DP06, DP07, DP09 had low blow counts indicating locally deeper soft to firm or firm cohesive deposits to a depth of 1.7m to 2.0m BGL.

4.3. Groundwater

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

standpipes were installed in BH03, BH07, BH08 and BH11 to allow the equilibrium groundwater level to be determined. The groundwater monitoring is included in Appendix 9 of this Report.

4.4. Laboratory Testing

The geotechnical testing carried out on soil samples recovered generally confirm the descriptions on the logs with the primary constituent of the cohesive deposits found to be a CLAY of low to intermediate and intermediate plasticity. The Particle Size Distribution tests confirm that generally the cohesive deposits are well-graded with percentages of sands and gravels ranging between 10% and 40% generally with fines contents of 11 to 65%.

The rock testing carried out on samples recovered from the boreholes reported Unconfined Compressive Strength (UCS) values ranging between 16.9 and 27.7 MPa while the point load testing gave Is50 values ranging between 0.17 to 4.6 MPa. The Is_{50} results correlate to the UCS values using a factor of approximately 20, giving values of 3.4 MPa and 93.2 MPa. These results correlate to the strength descriptions ranging between of Extremely Weak to Strong and confirming the variability of this stratum and the descriptions on the logs. The average of the UCS testing and associated correlated values from the point loading suggest the rock is typically on the border of weak to medium strong.

The pH and sulphate testing carried out indicate that pH results are near neutral and that the water soluble sulphate results are 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.

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. 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 full laboratory report, which includes a section highlighting the waste acceptance criteria, is included in Appendix 8.

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 1000 kN/m^2 is recommended for conventional strip or pad foundations on the intact Granite stratum where present at a shallow depth. For the proposed multi-storey building with a basement, a portion of the building foundations will be on rock while the north eastern portion towards the N11 will be at the level of the cohesive deposits. Piles are recommended to bring the foundations to the same stratum as the southern portion due to the depth to rock increasing from 2.85m BGL (49.56m OD) in BH10 to 5.8m BGL (44.51m OD) in BH05 and 12m BGL (36.7m OD) in BH02. This would avoid problems with differential settlement should the foundations bear on strata of differing stiffness. The type, size and depth of the pile foundations should be confirmed by a specialist piling contractor based on the loading from the proposed building. The floor slab is recommended be suspended and also supported on the building piles.
In any part of the site, should part of the foundation bear on differing strata consisting of either cohesive, granular or bedrock units, we would recommend that all the foundations of the structure in question be lowered to the competent deeper stratum.

Where the shallow foundations are proposed on the cohesive deposits in the western portion of the site, an allowable bearing capacity of 125 kN/m^2 is recommended on the stiff cohesive deposits at a depth of 1.2m BGL, with the exception of the locations of DP03 to DP04 and DP06 to DP10 inclusive where soft or firm cohesive deposits are present to deeper depths. The table below indicates to what depth lean mix trench fill to a is recommended to achieve the recommended allowable bearing capacity. A reduced allowable bearing capacity of 70 kN/m^2 is recommended at shallower depths if appropriate for the foundation design to avoid deeper excavations to the stiff cohesive deposits. The trial pit logs should be consulted to ensure the stability of the proposed excavations will facilitate the excavation to the proposed depth, as some of the trial pits experienced side wall instability during excavation.

Allowable Bearing Capacities (ABC) kN/m2							
Probe No.	ABC kN/m2	Depth m BGL	Comment	Probe No.	ABC kN/m2	Depth m BGL	Comment
DP01	125	1.2		DP07	125	1.8	very soft 1.1m to 1.6m
DP02	125	1.2		DP08	125	2	70kN/m2 @ 1.2m
DP03	125	2	70kN/m2 @ 1.6m	DP09	125	2	Soft to 2.0m
DP04	125	2	70kN/m2 @ 1.0m	DP10	125	1.6	70kN/m2 @ 1.0m
DP05	125	1.2		DP11	125	1.2	
DP06	125	2	70kN/m2 @ 1.0m	DP12	125	1.2	

The possibility for variation in the depth of the firm or stiff cohesive deposits 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.

A ground bearing floor slab is recommended to be based on the firm 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.

The pH and sulphate testing completed on samples recovered from the trial pits 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.

5.3. External Pavements

The proposed pavements are recommended to be designed in accordance with the CBR test results included in the Appendixes of this Report. The low CBR test results (< 2%) in CBR1 to CBR3 indicate that a capping layer or a sufficient depth of crushed stone fill may be required. The test in CBR4 was undertaken on granular fill present at the test location. Plate bearing tests are recommended at the time of construction to verify the design assumptions for the proposed pavement make up and to verify adequate compaction has been achieved.

The use of a geogrid and separation membrane may improve the performance of the proposed pavement and enable a more economical pavement design to be achieved, a specialist supplier is recommended to advise of the required strength, depth and type of geotextile for the proposed design.

5.4. Excavations

Excavations in the Made Ground or soft Cohesive Deposits will require to be appropriately battered or the sides supported due to the low strength of these deposits. Short term temporary excavations in the firm or stiff 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.

Any excavations which penetrate the granular deposits will require to be appropriately battered or the sides supported and are likely to require dewatering due to the groundwater seepages noted in the exploratory hole logs in the Appendices of this Report.
The groundwater and stability noted on the trial pit logs should be consulted when determining the most appropriate construction methods for excavations. The groundwater monitoring undertake indicates the water level is between 1.0m and 2.27m BGL in the boreholes where the standpipes was installed. Generally, where significant excavations are required in water bearing granular deposits a cut-off wall may be more cost effective than extensive dewatering. The proposed basement excavation will require dewatering during construction, particularly where granular lenses are present or where the fractures in the granite bedrock are closely spaced or was recovered as non-intact. An assessment by a specialist dewatering contractor is recommended to determine the most cost effective approach to the proposed excavation.

Excavations in the upper cohesive and weathered rock deposits are expected to be excavatable with conventional excavation equipment, with zones of more intact bedrock below this depth requiring rock breaking techniques. Based on the fracture spacing, the rock strength descriptions and Pettifer & Fookes (1994) Revised Excavatability Graph, the Granite ranges from hard digging to extremely hard ripping with hydraulic breaking (D9), however the zones recovered as non-intact should be easy to hard digging with a CAT345. The JCB excavator was able to excavate to depth of 0.4m below the top of the weathered rock in TP17 only. Due to the depth at which the stratum was encountered elsewhere, the excavator was unable to progress once the granite was encountered as it became difficult to excavate within the confines of the trial pit on encountering this stratum.

Material excavated from the site, if required to be disposed of off-site should be assessed using the environmental testing completed during the ground investigation. This testing is interpreted using the criteria established by the EPA for the classification as waste and is reported under the cover of a separate Waste Classification Report and dig plan by Ground Investigations Ireland.

5.5. Soakaway Design

At the locations of the Infiltration tests IT01, IT02 and IT03 the water level dropped too slowly to allow calculation of ‘f’ the soil infiltration rate. These locations are therefore not recommended as suitable for soakaway design and construction.

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

APPENDIX 1 - Site Location Plan

Site Boundary

Borehole

Dynamic Probe

Client:

Project Code:
8354-01-19

Project Title:
Cornelscourt

Drawing Title:
Figure 15 Borehole Locations

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0 10 20 30 40 50 60 m

Drawn By:	Date:
BS	14/02/2019

Site Boundary

WS Location

Client:

Project Code:
8354-01-19

Project Title:
Cornelscourt

Drawing Title:
Figure 16 Window Sample Locations

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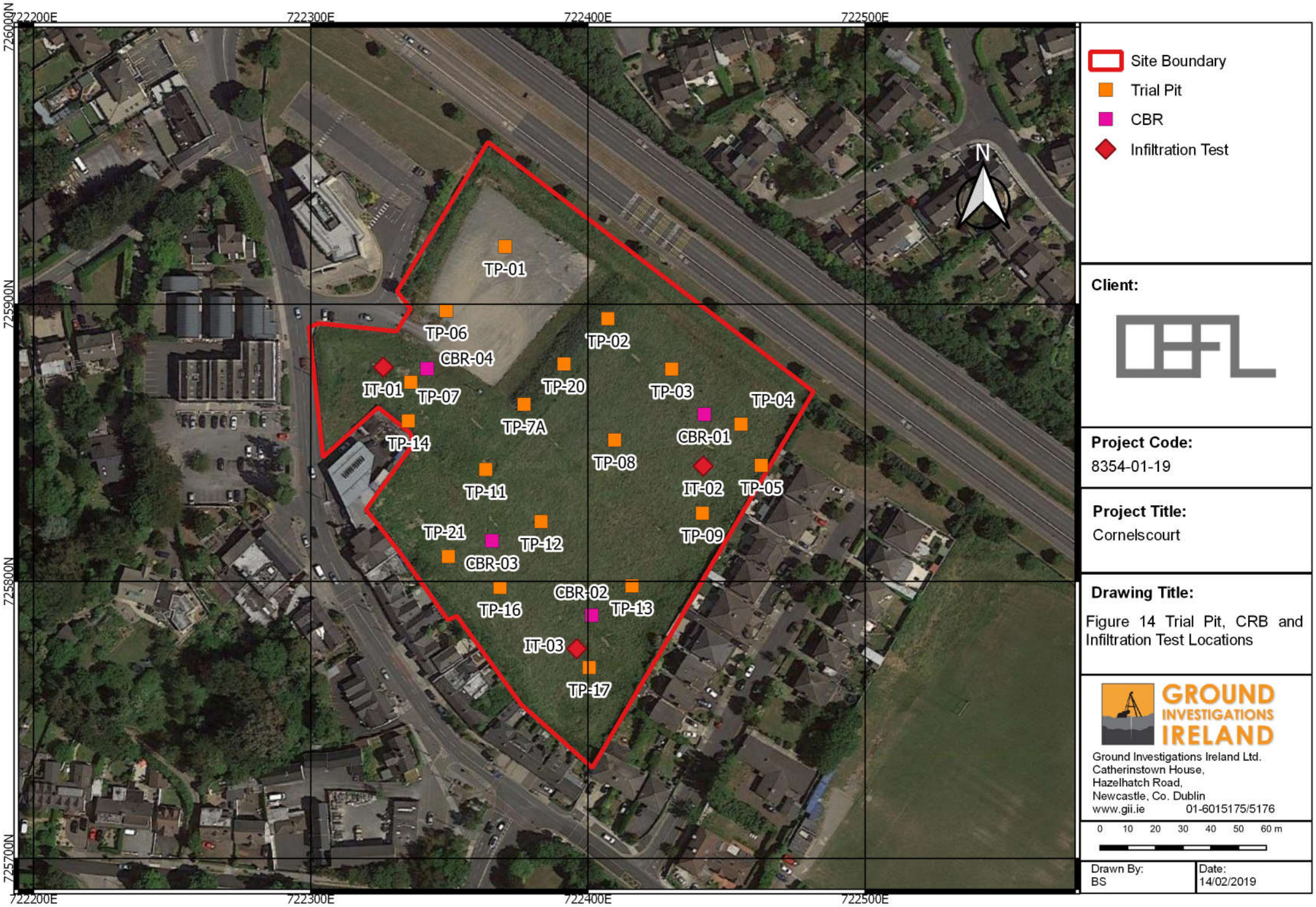
0 10 20 30 m

Drawn By:	Date:
BS	14/02/2019



Site Boundary
Trial Pit
CBR
Infiltration Test

Client:

Project Code:
8354-01-19

Project Title:
Cornelscourt

Drawing Title:
Figure 14 Trial Pit, CRB and Infiltration Test Locations

GROUND INVESTIGATIONS IRELAND
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0 10 20 30 40 50 60 m

Drawn By:	Date:
BS	14/02/2019

APPENDIX 2 – Trial Pit Records

Ground Investigations Ireland Ltd
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Site Cornelscourt			**Trial Pit Number** TP01
Machine : JCB 3CX **Method :** Trial Pit	**Dimensions**	**Ground Level (mOD)** 50.29	**Client**	**Job Number** 8354-01-19
	Location (Handheld GPS) 722370.1 E 725920.8 N	**Dates** 21/01/2019	**Engineer** DBFL	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with fragments of conrete and plastic.		
				50.09	0.20			
					(0.15)	MADE GROUND: Blueish grey slightly sandy CLAY with angular to subangular, fine to coarse gravel.		
				49.94	0.35			
						Firm, brown, slightly sandy slightly gravelly CLAY with rare subangular to subrounded cobbles of granite.		
					(1.35)			
				48.59	1.70			
						Firm, brown, slightly sandy, slightly gravelly CLAY with occasional subangular to subrounded weathered cobbles of granite and limestone. Rare boulders of granite.		
					(1.10)			
				47.49	2.80			
					(0.20)	Firm, brown, very sandy, angular to subangular, fine to coarse gravel with rare cobbles of granite and possible weathered rock.		
				47.29	3.00	Trial pit terminated due to sidewall collapse.		
						Complete at 3.00m		

Plan

Remarks

Groundwater encountered at 1.40m (Slight seepage), 2.10m (medium seepage) and 2.80m (medium seepage).
Trial pit sidewall collapsed between 0.70m and 2.80m BGL.
Trial pit terminated at 3.0m BGL due to sidewall collapse.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP01

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Site	Trial Pit Number
Cornelscourt	TP02

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		49.26		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722407.2 E 725894.8 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.10)	MADE GROUND: Brown slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and rare fragments of plastic, ceramic and metal.		
				48.16	1.10			
					(0.60)	Soft to firm light brown slightly sandy gravelly CLAY with occasional sub-rounded cobbles.		
				47.56	1.70			
					(1.90)	Firm to stiff grey mottled brown slightly sandy gravelly CLAY with occasional sub-rounded cobbles of limestone.		
				45.66	3.60			
				45.56	(0.10) 3.70	Grey sandy very clayey sub-rounded fine to coarse Gravel with rare sub-rounded cobbles. Trial pit terminated due to sidewall collapse.		
						Complete at 3.70m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Infiltration test completed in trial pit.
Trial pit backfilled on completion of infiltration test.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP02

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Site Cornelscourt			**Trial Pit Number** TP03
Machine : JCB **Method :**	**Dimensions**	**Ground Level (mOD)** 48.52	**Client**	**Job Number** 8354-01-19
	Location 722430.2 E 725876.6 N	**Dates** 22/01/2019	**Engineer** DBFL	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Brown slightly sandy slightly gravelly TOPSOIL with fragments of plastic and grass rootetls.		
				48.22	0.30	Firm light brown slightly sandy slightly gravelly CLAY.		
					(0.60)			
				47.62	0.90	Firm to stiff greyish brown slightly sandy gravelly CLAY with occaisonal sub-angular cobbles.		
					(2.10)			
				45.52	3.00	Terminated due to sidewalls collapsing. Complete at 3.00m		

Plan

Remarks

Groundwater encountered at 2.80m BGL (Medium Seepage).
Trial pit sidewall collapsed between 0.90m and 2.30m.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP03

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Site Cornelscourt			**Trial Pit Number** TP04
Machine : JCB **Method :**	**Dimensions**	**Ground Level (mOD)** 47.91	**Client**	**Job Number** 8354-01-19
	Location 722455.2 E 725856.7 N	**Dates** 22/01/2019	**Engineer** DBFL	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootetls.		
				47.61	0.30	Firm light brown slightly sandy slightly gravelly CLAY.		
					(0.30)			
				47.31	0.60	Firm to stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles and rare boulders.		
					(1.50)			
				45.81	2.10	Stiff light orange/brown slightly sandy gravelly CLAY with rare sub-rounded cobbles.		
					(1.40)			
				44.41	3.50	Obstruction: Presumed Rock.		
						Complete at 3.50m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP04

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Site Cornelscourt			**Trial Pit Number** TP05
Machine : JCB **Method :**	**Dimensions**	**Ground Level (mOD)** 48.19	**Client**	**Job Number** 8354-01-19
	Location 722462.5 E 725841.8 N	**Dates** 21/01/2019	**Engineer** DBFL	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.60)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with rare fragments of plastic and metal.		
				47.59	0.60			
					(0.20)	Soft to firm brown slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles.		
				47.39	0.80	Trial pit terminated.		
						Complete at 2.80m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Trial pit completed adjacent to perimeter wall to inspect the walls foundations.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	TMcl	8354-01-19.TP05

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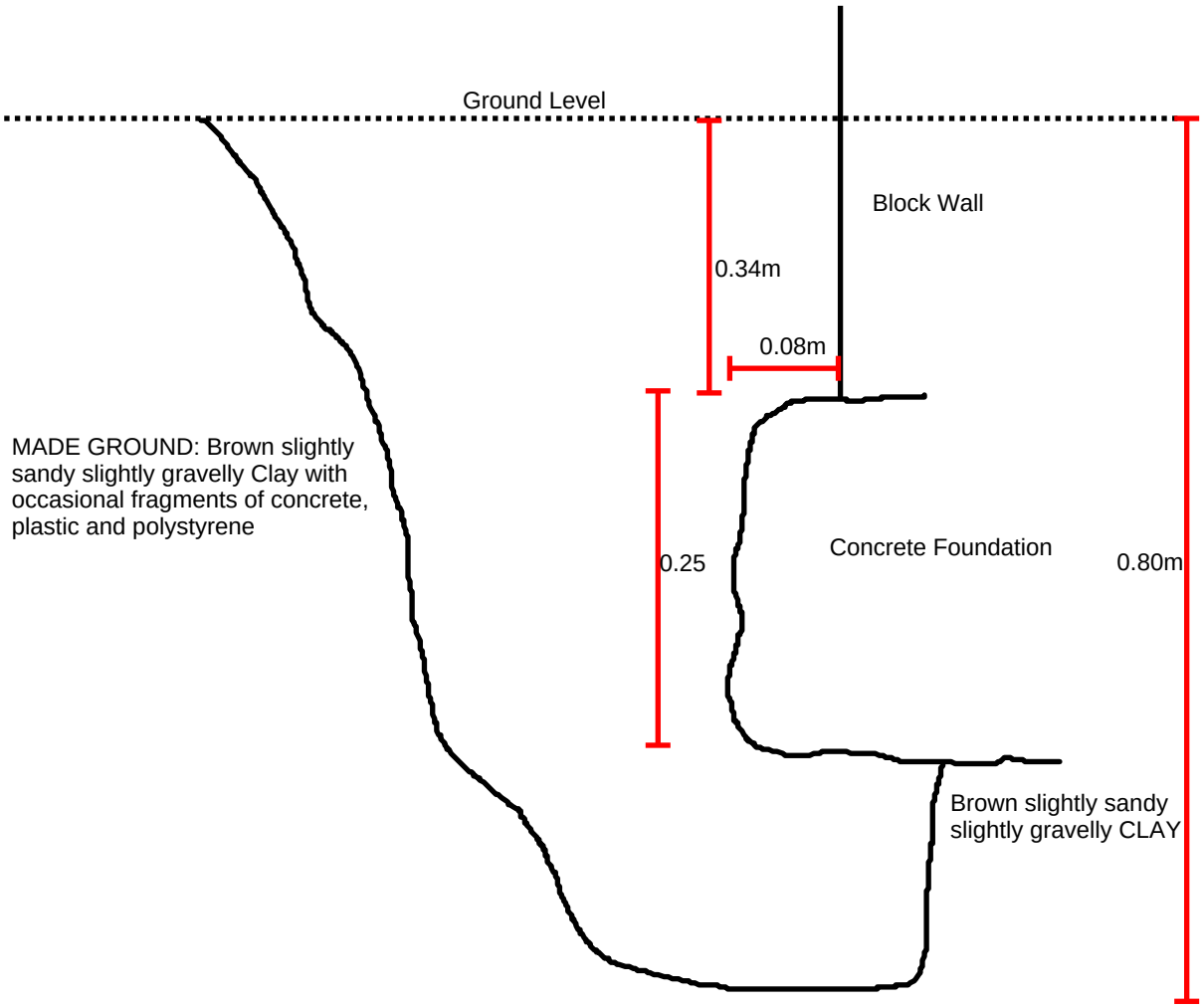
Foundation Pit



Ground Conditions	
0.80m	MADE GROUND: Brown slightly sandy slightly gravelly Clay with occasional fragments of plastic, concrete and polystyrene.

Project:	Cornelscourt	TP05	
Client:	DBFL		
Contractor:	Ground Investigations Ireland	Date	22/01/2019

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Site	Trial Pit Number
Cornelscourt	TP06

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		51.66		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722348.9 E 725897.7 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Topsoil		
				51.46	0.20			
					(0.10)	MADE GROUND: Blueish grey slightly sandy CLAY with angular to subangular fine to coarse gravel.		
				51.36	0.30	Firm brown slightly sandy slightly gravelly CLAY with a piece of concrete slab.		
					(0.80)			
				50.56	1.10	Soft brown slightly sandy slightly gravelly CLAY with rare subangular cobbles of limestone and granite.		
					(1.40)			
				49.16	2.50	Stiff dark brown/grey slightly sandy gravelly CLAY with rare subangular cobbles.		
					(0.40)			
				48.76	2.90	Trial pit terminated.		
						Complete at 2.90m		

Plan

Remarks

Groundwater encountered at 0.70m (Slight seepage).
Trial pit collapsed from 1.20m to 2.40m BGL.
Trial pit terminated due to sidewall collapse.

Scale (approx)	Logged By	Figure No.
1:25	TMcI	8354-01-19.TP06

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Site	Trial Pit Number
Cornelscourt	TP07

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		52.62		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722336.1 E 725871.9 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
				52.42	0.20	Soft to firm brown slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and gravelly lenses.		
					(0.55)			
				51.87	0.75	Firm greyish brown slightly sandy gravelly CLAY with rare sub-rounded cobbles.		
					(0.35)			
				51.52	1.10	Firm to stiff greyish brown slightly sandy gravelly CLAY with rare sub-rounded cobbles.		
					(0.90)			
				50.62	2.00	Stiff greyish brown slightly sandy gravelly CLAY with rare sub-rounded cobbles.		
			Medium Seepage(1) at 2.40m.					▽1
					(1.20)			
				49.42	3.20	Stiff light brown slightly sandy gravelly CLAY with occasional sub-angular cobbles of granite.		
					(0.20)			
				49.22	3.40	Obstruction: Boulder or Rock(Granite).		
						Complete at 3.40m		

Plan

Remarks

Groundwater encountered at 2.40m BGL - Medium Seepage.
Trial pit sidewall collapsed from 1.10m BGL to 2.60m.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	TMcI	8354-01-19.TP07

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Site	Trial Pit Number
Cornelscourt	TP07A

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		51.27		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722376.9 E 725863.9 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.60)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with rare fragments of plastic and metal.		
				50.67	0.60	Firm light brown slightly sandy slightly gravelly CLAY with rare sub-angular cobbles.		
					(0.65)			
				50.02	1.25	Soft to firm greyish brown slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles.		
					(0.25)			
				49.77	1.50	Firm to stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-rounded cobbles.		
					(0.70)			
				49.07	2.20	Stiff grey mottled brown slightly sandy gravelly CLAY with occasional boulders.		
					(0.60)			
				48.47	2.80	Obstruction: Boulder or rock.		
						Complete at 3.30m		

Plan

Remarks

Trial pit stable.
No Groundwater encountered.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP-14

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Site	Trial Pit Number
Cornelscourt	TP08

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		49.97		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722409.6 E 725851 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
				49.57	0.40			
					(0.40)	Firm light brown slightly sandy slightly gravelly CLAY.		
				49.17	0.80			
					(2.10)	Firm to stiff greyish brown slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and sandy gravel lenses.		
				47.07	2.90	Trial pit terminated due to sidewall collapse.		
						Complete at 2.90m		

Plan

Remarks

Groundwater encountered at 2.00m (slight seepage) and 2.30m BGL(fast seepage).
Trial pit sidewalls collapsed.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP08

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Site	Trial Pit Number
Cornelscourt	TP09

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		49.07		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722441.3 E 725824.6 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Brown slightly sandy slightly gravelly CLAY with occasional fragments of concrete and plastic.		
				48.67	0.40			
					(0.40)	Soft to firm light brown slightly sandy slightly gravelly CLAY.		
				48.27	0.80			
					(0.70)	Firm greyish brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
				47.57	1.50			
					(0.50)	Firm to stiff greyish brown slightly sandy gravelly CLAY with rare sub-rounded boulders of limestone.		
				47.07	2.00			
					(1.50)	Stiff greyish brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
				45.57	3.50	Obstruction: Presumed Rock.		
						Complete at 3.50m		

Plan

Remarks

Groundwater encountered at 2.60m BGL.
Trial pit sidewalls collapsed between 1.0m and 1.80m BGL.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP09

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Site	Trial Pit Number
Cornelscourt	TP11

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		52.02		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722363.1 E 725840.4 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.80)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with frequent fragments of concrete, glass, red brick, cloth and plastic.		
				51.22	0.80			
					(0.20)	Soft light brown slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles.		
				51.02	1.00			
					(1.00)	Firm grey slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and a strong hydrocarbon odour.		
				50.02	2.00			
					(1.00)	Firm to stiff grey slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and a hydrocarbon odour.		
				49.02	3.00	Obstruction: Boulders or rock.		
						Complete at 3.00m		

Plan

Remarks

Trial pit stable.
No Groundwater encountered.
Trial pit sidewall collapsed between 0.80m and 2.25m BGL.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP11

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Site Cornelscourt			**Trial Pit Number** TP12
Machine : JCB **Method :**	**Dimensions**	**Ground Level (mOD)** 51.55	**Client**	**Job Number** 8354-01-19
	Location 722383.1 E 725821.6 N	**Dates** 22/01/2019	**Engineer** DBFL	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
				51.35	0.20	Firm light brown slightly sandy slightly gravelly CLAY.		
					(0.30)			
				51.05	0.50	Firm greu mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					(0.20)			
				50.85	0.70	Firm to stiff gey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					(2.20)			
				48.65	2.90	Obstruction: Granite Boulder.		
						Complete at 2.90m		

Plan

Remarks

Groundwater encountered at 2.50m (Medium seepage).
Trial pit sidewalls collapsed from 0.90m to 2.60m
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP12

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Site	Trial Pit Number
Cornelscourt	TP13

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		50.79		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722415.9 E 725798.4 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.40)	MADE GROUND: Brown slightly sandy slightly gravelly CLAY with rare fragments of metal, plastic, concrete and grass rootlets.		
				50.39	0.40	Firm to stiff light brown slightly sandy slightly gravelly CLAY.		
					(0.50)			
				49.89	0.90	Firm to stiff greyish brown slightly sandy gravelly CLAY with rare sub-angular to sub-rounded cobbles.		
					(1.10)			
				48.79	2.00	Stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					(1.20)			
				47.59	3.20	Complete at 3.20m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP13

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Site	Trial Pit Number
Cornelscourt	TP-14

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		53.39		8354-01-19
	Location	Dates	Engineer	Sheet
	722335.2 E 725857.9 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.80)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with frequent fragments of concrete, glass, red brick, cloth and plastic.		
				52.59	0.80			
					(0.20)	Soft light brown slightly sandy slightly gravelly CLAY with rare sub-angular to sub-rounded cobbles.		
				52.39	1.00			
					(1.00)	Firm grey slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and a strong hydrocarbon odour.		
				51.39	2.00			
					(1.30)	Firm to stiff grey slightly sandy slightly gravelly CLAY with rare sub-angular cobbles and a hydrocarbon odour.		
				50.09	3.30	Obstruction: Boulders or rock.		
						Complete at 3.30m		

Plan

Remarks

Trial pit stable.
No Groundwater encountered.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP-14

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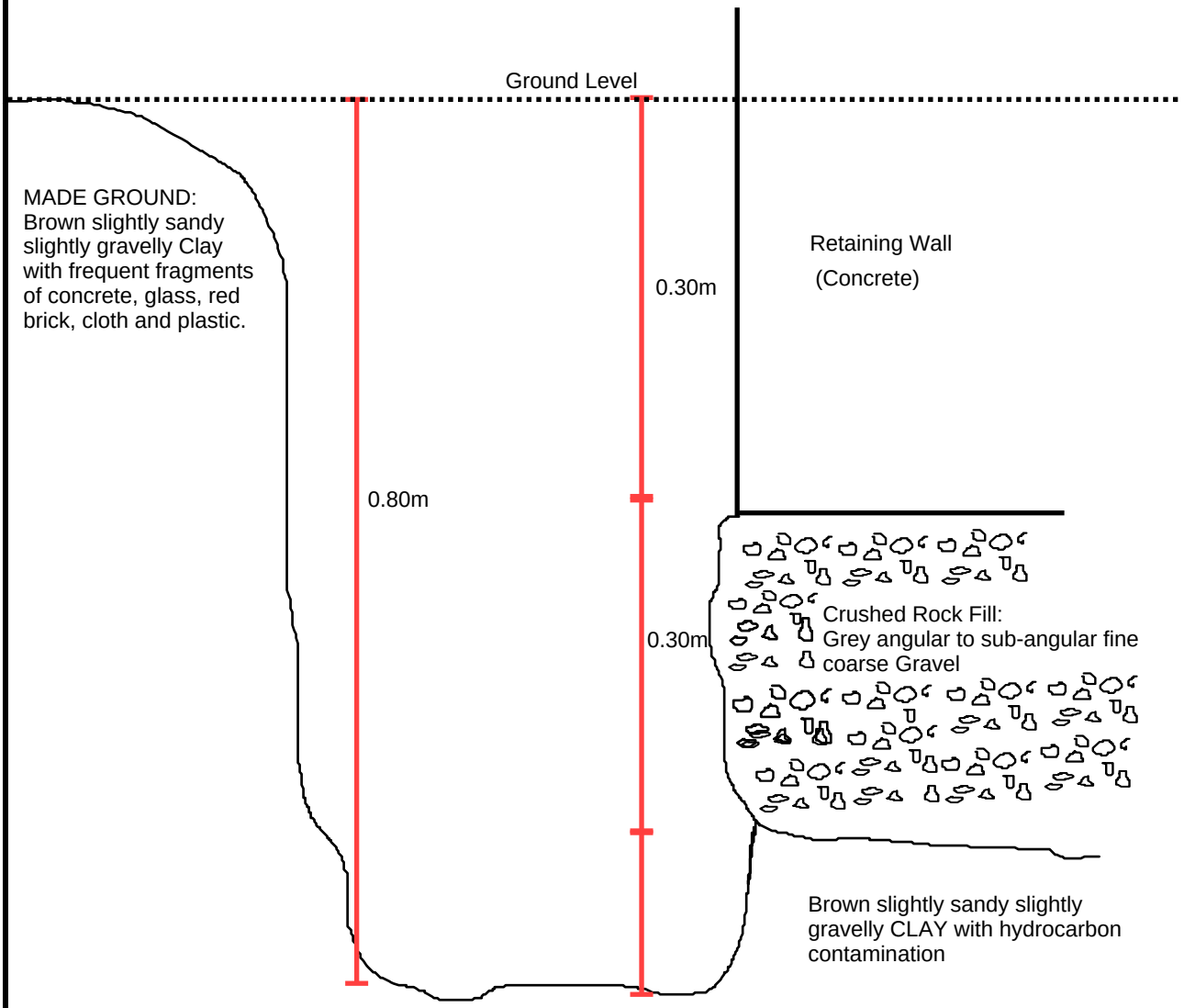
Foundation Pit



Ground Conditions	
0.80m	MADE GROUND: Brown slightly sandy slightly gravelly Clay with fragments of concrete and plastic
1.0m	Soft light brown slightly sandy slightly gravelly CLAY

Project:	Cornelscourt	TP14	
Client:	DBFL		
Contractor:	Ground Investigations Ireland	Date	21/01/2019

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Site Cornelscourt			**Trial Pit Number** TP16
Machine : JCB **Method :**	**Dimensions**	**Ground Level (mOD)** 52.54	**Client**	**Job Number** 8354-01-19
	Location 722368.3 E 725797.8 N	**Dates** 22/01/2019	**Engineer** DBFL	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
				52.29	0.25	Soft to firm light brown slightly sandy slightly gravelly CLAY.		
					(0.55)			
				51.74	0.80	Firm greyish brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					(0.50)			
				51.24	1.30	Firm to stiff greyish brown slightly sandy gravelly CLAY with rare sub-angular cobbles and sandy gravel lenses.		
					(1.40)			
				49.84	2.70	Obstruction: Presumed Rock(granite).		
						Complete at 2.70m		

Plan

Remarks

Groundwater encountered at 2.60m BGL (Medium seepage).
Trial pit stable.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP16

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Site Cornelscourt			**Trial Pit Number** TP17
Machine : JCB **Method :**	**Dimensions**	**Ground Level (mOD)** 51.60	**Client**	**Job Number** 8354-01-19
	Location 722400.4 E 725768.9 N	**Dates** 22/01/2019	**Engineer** DBFL	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
				51.35	0.25	Firm light brown slightly sandy slightly gravelly CLAY.		
					(0.65)			
				50.70	0.90	Firm to stiff greyish brown slightly sandy gravelly CLAY with rare sub-rounded cobbles limestone.		
					(1.90)			
				48.80	2.80	Light yellowish grey very sandy slightly clayey sub-angular to sub-rounded fine to coarse GRAVEL of granite(Weathered Rock).		
					(0.40)			
				48.40	3.20	Obstruction: Rock (Granite).		
						Complete at 3.20m		

Plan

Remarks

Groundwater encountered at 3.10m BGL (Medium seepage).
Trial pit sidewalls spalling.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP16

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Site	Trial Pit Number
Cornelscourt	TP20

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		50.27		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722391.4 E 725878.4 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.50)	MADE GROUND: Brown slightly sandy slightly gravelly Clay with rare fragments of plastic, wire, cloth and glass.		
				49.77	0.50			
					(0.20)	Firm light brown slightly sandy slightly gravelly CLAY.		
				49.57	0.70			
					(0.80)	Stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
				48.77	1.50			
					(1.00)	Firm greyish brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
				47.77	2.50			
					(0.50)	Stiff to very stiff black slightly sandy gravelly CLAY with rare cobbles and boulders.		
				47.27	3.00	Obstruction: Boulder or rock.		
						Complete at 3.00m		

Plan

Remarks

Groundwater encountered at 2.0m BGL(Medium seepage).
Trial pit sidewalls spalling.
Trial pit backfilled on completion.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP20

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Site	Trial Pit Number
Cornelscourt	TP21

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		53.18		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722349.6 E 725808.9 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
				52.93	0.25	Firm light brown slightly sandy slightly gravelly CLAY.		
					(0.35)			
				52.58	0.60	Firm greyish brown slightly sandy gravelly CLAY with rare sub-angular cobbles and lenses of granite.		
					(0.35)			
				52.23	0.95	Grey very sand slightly clayey subrounded to rounded fine to coarse GRAVEL with rare sub-rounded cobbles.		
					(0.25)			
				51.98	1.20	Firm to stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					(1.80)			
				50.18	3.00	Obstruction: Rock (Granite).		
						Complete at 3.00m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Trial pit backfilled on completion.
Strong hydrocarbon odour upon reaching rock.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.TP21

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Cornelscourt – Trial Pit Photographs

TP01

TP02

TP03

TP04

TP05

TP06

TP07

TP07A

TP08

TP09

TP11

TP12

TP13

TP14

TP16

TP17

TP20

TP21

APPENDIX 3 – Soakaway Records

Ground Investigations Ireland Ltd
www.gii.ie

Site	Trial Pit Number
Cornelscourt	IT01

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		53.25		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722326.2 E 725877.3 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.20)	Brown slightly sandy slightly gravelly TOPSOIL.		
				53.05	0.20	MADE GROUND: Brown slightly sandy slightly gravelly CLAY.		
					(0.30)			
				52.75	0.50	Firm brown slightly sandy slightly gravelly CLAY.		
					(1.40)			
				51.35	1.90	Complete at 1.90m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Infiltration test completed in trial pit.
Trial pit backfilled on completion of infiltration test.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.IT01

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Site	Trial Pit Number
Cornelscourt	IT02

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
		48.87		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722441.6 E 725841.6 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.30)	Brown slightly sandy slightly gravelly TOPSOIL.		
				48.57	0.30	Firm to stiff light brown slightly sandy slightly gravelly CLAY.		
					(1.10)			
				47.47	1.40	Stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					(0.50)			
				46.97	1.90	Complete at 1.90m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Infiltration test completed in trial pit.
Trial pit backfilled on completion of infiltration test.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.IT02

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Ground Investigations Ireland Ltd
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Site	Trial Pit Number
Cornelscourt	IT03

Machine : JCB Method :	Dimensions	Ground Level (mOD)	Client	Job Number
				8354-01-19
	Location	Dates 21/01/2019	Engineer DBFL	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(0.25)	Brown slightly sandy slightly gravelly TOPSOIL.		
					0.25			
					(0.25)	Firm to stiff light brown slightly sandy slightly gravelly CLAY with rare sub-angular cobbles.		
					0.50			
					(0.80)	Firm to stiff brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					1.30			
					(0.60)	Firm to stiff grey mottled brown slightly sandy gravelly CLAY with rare sub-angular cobbles.		
					1.90	Complete at 1.90m		

Plan

Remarks

No Groundwater encountered.
Trial pit stable.
Infiltration test completed in trial pit.
Trial pit backfilled on completion of infiltration test.

Scale (approx)	Logged By	Figure No.
1:25	Tmcl	8354-01-19.IT03

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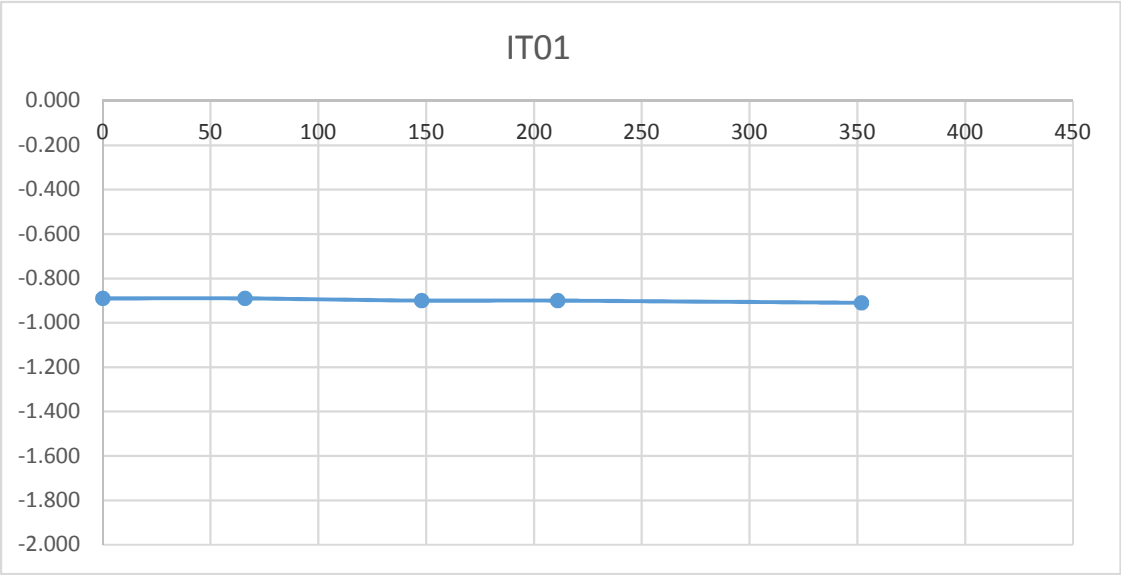
IT01

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 1.50m x 0.40m 1.90m (L x W x D)

Date	Time	Water level (m bgl)
22/01/2019	0	-0.890
22/01/2019	66	-0.890
22/01/2019	148	-0.900
22/01/2019	211	-0.900
22/01/2019	352	-0.910

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.89	1.900	1.010	1.1425	1.6475



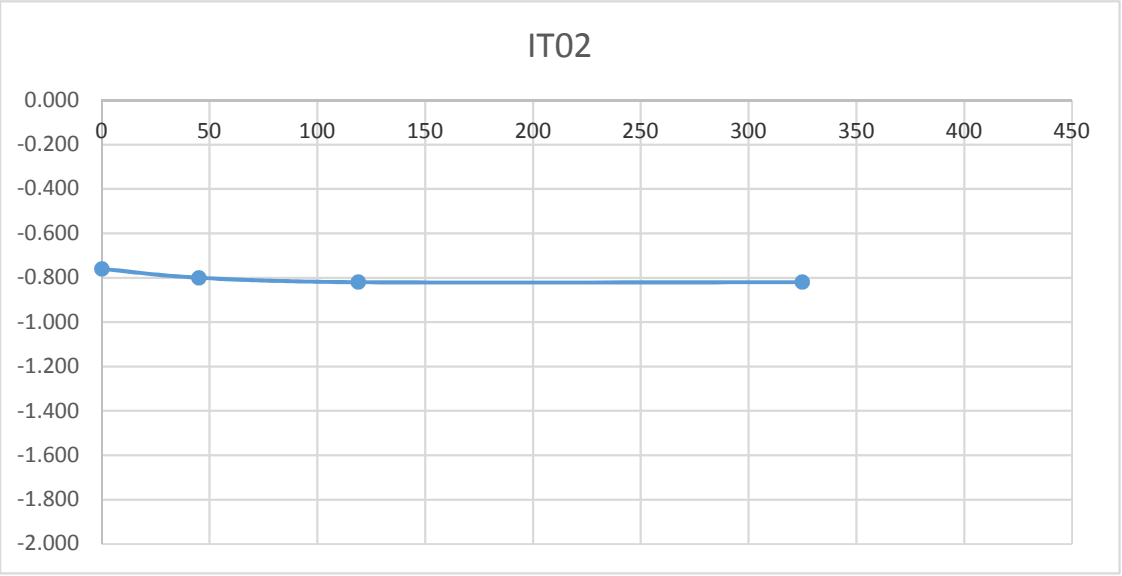
IT02

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 1.90m x 0.40m 1.90m (L x W x D)

Date	Time	Water level (m bgl)
22/01/2019	0	-0.760
22/01/2019	45	-0.800
22/01/2019	119	-0.820
22/01/2019	325	-0.820

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.76	1.900	1.140	1.045	1.615



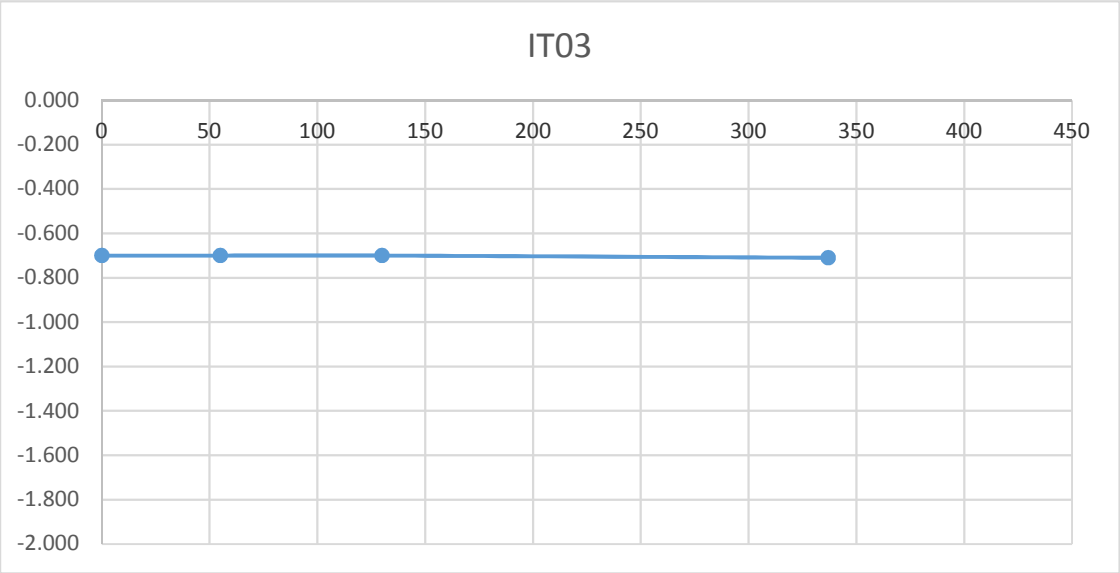
IT03

Soakaway Test to BRE Digest 365
Trial Pit Dimensions: 1.5m x 0.50m 2.0m (L x W x D)

Date	Time	Water level (m bgl)
14/09/2016	0	-0.700
14/09/2016	55	-0.700
14/09/2016	130	-0.700
14/09/2016	337	-0.710

***Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.70	1.900	1.200	1	1.6



APPENDIX 4 – Dynamic Probe Records

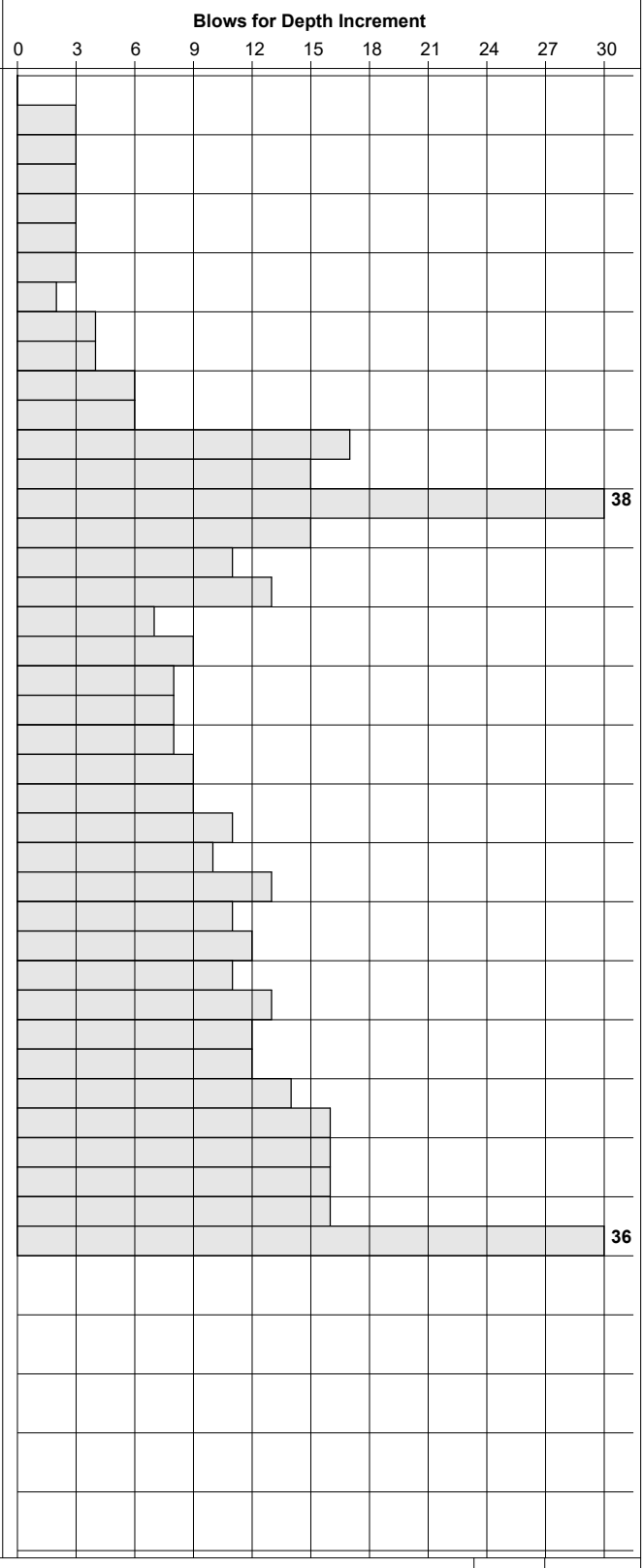
Ground Investigations Ireland Ltd
www.gii.ie

Site	Probe Number
Cornelscourt	DPH01

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	3		
0.20-0.30	3		
0.30-0.40	3		
0.40-0.50	3		
0.50-0.60	3		
0.60-0.70	3		
0.70-0.80	2		
0.80-0.90	4		
0.90-1.00	4		
1.00-1.10	6		
1.10-1.20	6		
1.20-1.30	17		
1.30-1.40	15		
1.40-1.50	38		
1.50-1.60	15		
1.60-1.70	11		
1.70-1.80	13		
1.80-1.90	7		
1.90-2.00	9		
2.00-2.10	8		
2.10-2.20	8		
2.20-2.30	8		
2.30-2.40	9		
2.40-2.50	9		
2.50-2.60	11		
2.60-2.70	10		
2.70-2.80	13		
2.80-2.90	11		
2.90-3.00	12		
3.00-3.10	11		
3.10-3.20	13		
3.20-3.30	12		
3.30-3.40	12		
3.40-3.50	14		
3.50-3.60	16		
3.60-3.70	16		
3.70-3.80	16		
3.80-3.90	16		
3.90-4.00	36		



Remarks
Refusal at 4.00m BGL 25 blows for 10mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH01

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Ground Investigations Ireland Ltd
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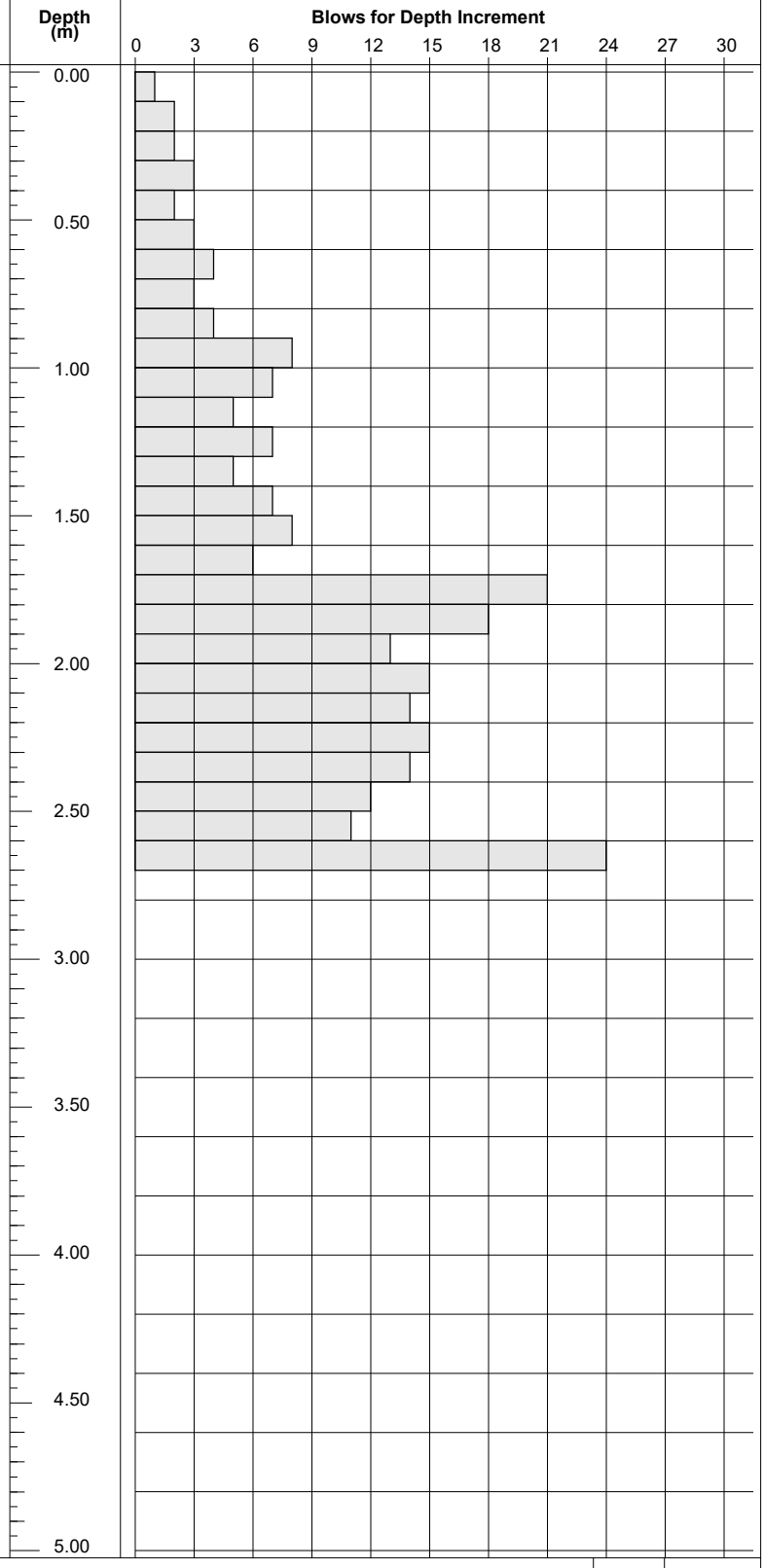
Site	Probe Number
Cornelscourt	DPH02

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	1		
0.10-0.20	2		
0.20-0.30	2		
0.30-0.40	3		
0.40-0.50	2		
0.50-0.60	3		
0.60-0.70	4		
0.70-0.80	3		
0.80-0.90	4		
0.90-1.00	8		
1.00-1.10	7		
1.10-1.20	5		
1.20-1.30	7		
1.30-1.40	5		
1.40-1.50	7		
1.50-1.60	8		
1.60-1.70	6		
1.70-1.80	21		
1.80-1.90	18		
1.90-2.00	13		
2.00-2.10	15		
2.10-2.20	14		
2.20-2.30	15		
2.30-2.40	14		
2.40-2.50	12		
2.50-2.60	11		
2.60-2.70	24		



Remarks
Refusal at 2.70m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH02

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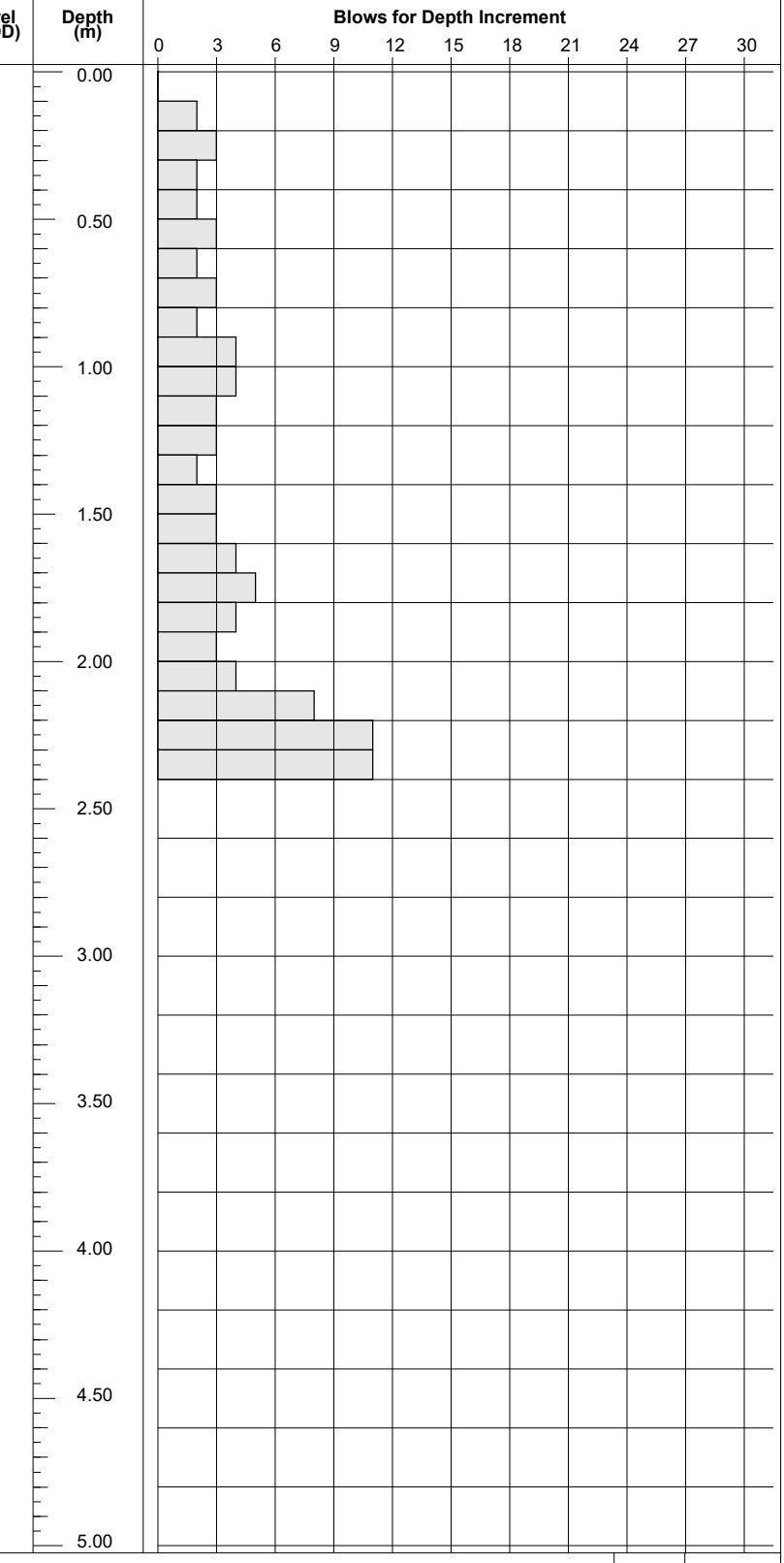
Site	Probe Number
Cornelscourt	DPH03

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
		01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	2		
0.20-0.30	3		
0.30-0.40	2		
0.40-0.50	2		
0.50-0.60	3		
0.60-0.70	2		
0.70-0.80	3		
0.80-0.90	2		
0.90-1.00	4		
1.00-1.10	4		
1.10-1.20	3		
1.20-1.30	3		
1.30-1.40	2		
1.40-1.50	3		
1.50-1.60	3		
1.60-1.70	4		
1.70-1.80	5		
1.80-1.90	4		
1.90-2.00	3		
2.00-2.10	4		
2.10-2.20	8		
2.20-2.30	11		
2.30-2.40	11		



Remarks
Refusal at 2.50m BGL for 25 blows

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH03

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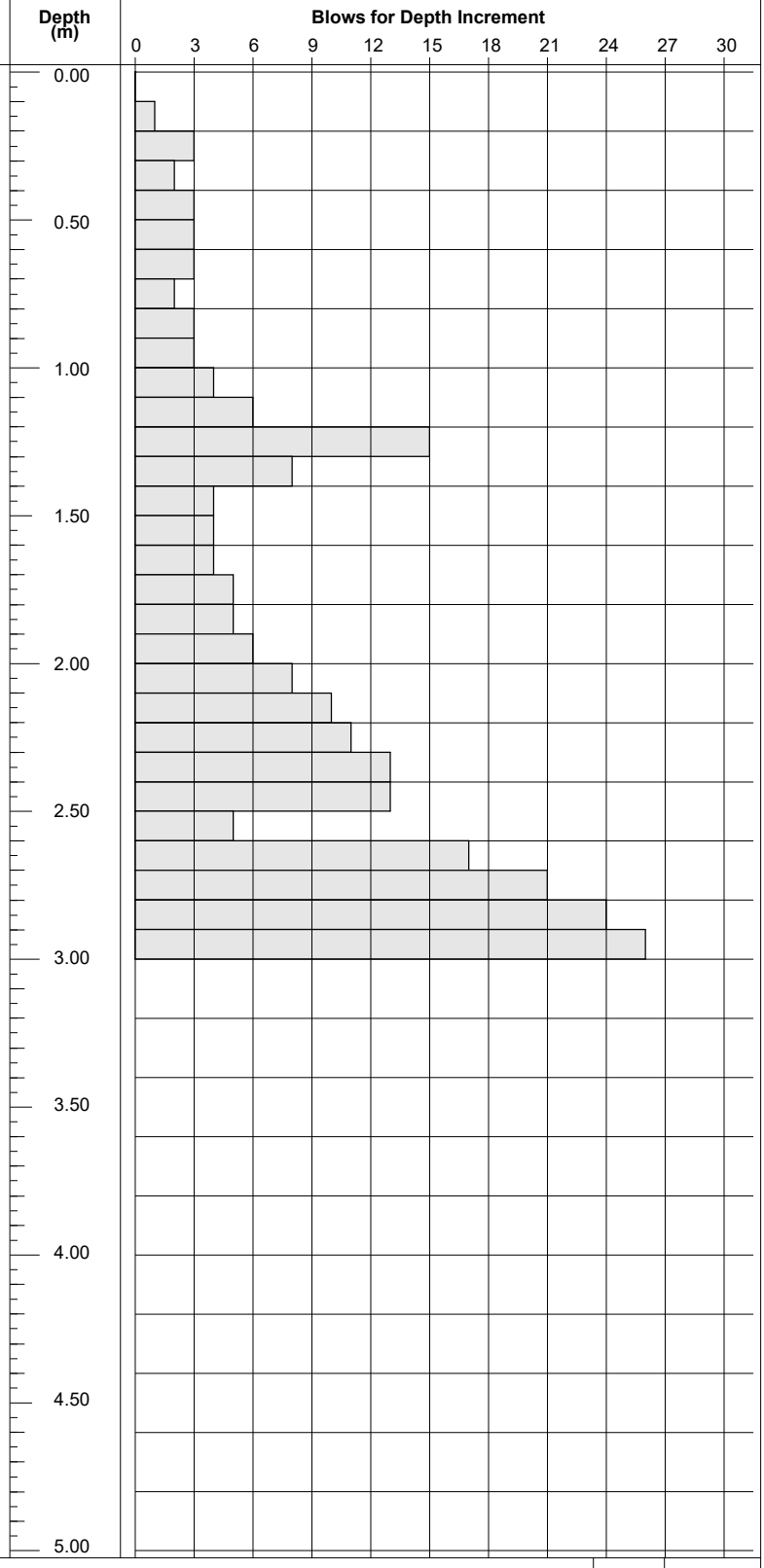
Site	Probe Number
Cornelscourt	DPH04

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	1		
0.20-0.30	3		
0.30-0.40	2		
0.40-0.50	3		
0.50-0.60	3		
0.60-0.70	3		
0.70-0.80	2		
0.80-0.90	3		
0.90-1.00	3		
1.00-1.10	4		
1.10-1.20	6		
1.20-1.30	15		
1.30-1.40	8		
1.40-1.50	4		
1.50-1.60	4		
1.60-1.70	4		
1.70-1.80	5		
1.80-1.90	5		
1.90-2.00	6		
2.00-2.10	8		
2.10-2.20	10		
2.20-2.30	11		
2.30-2.40	13		
2.40-2.50	13		
2.50-2.60	5		
2.60-2.70	17		
2.70-2.80	21		
2.80-2.90	24		
2.90-3.00	26		



Remarks

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH04

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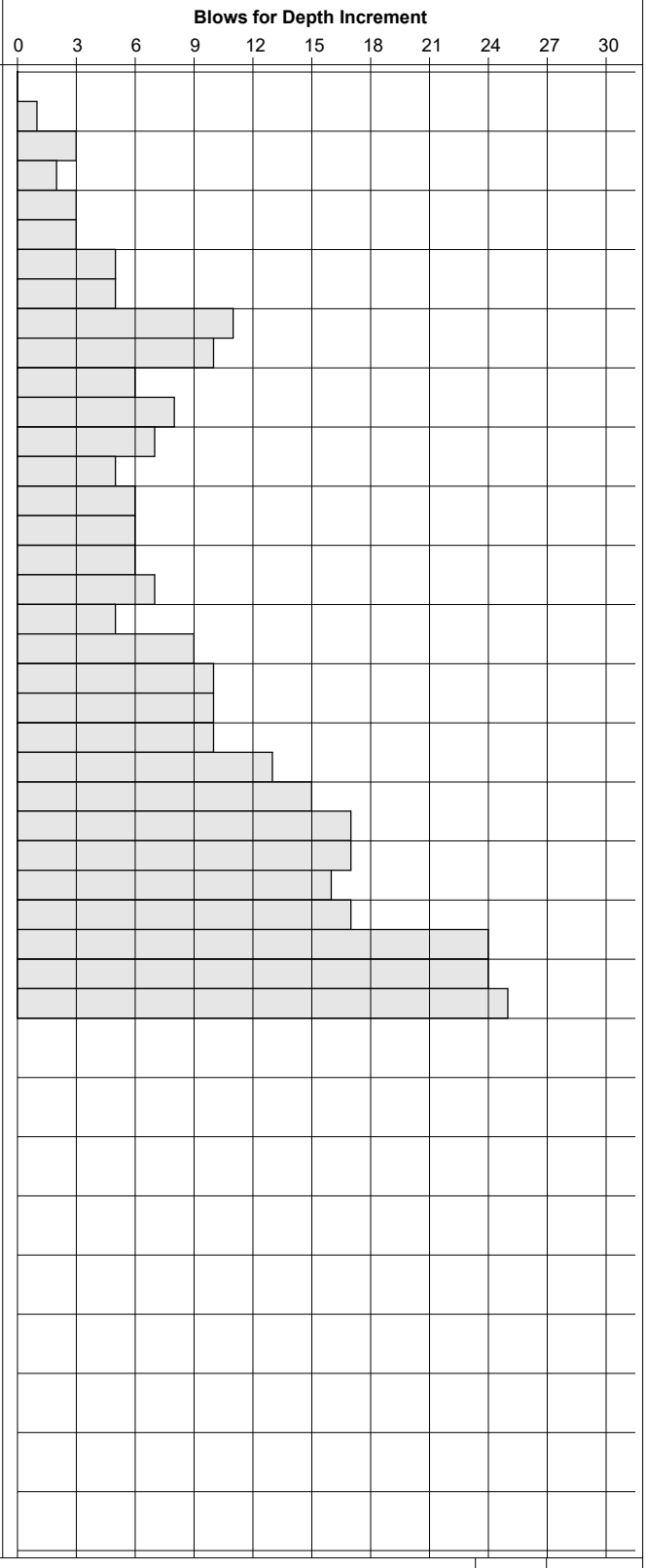
Site	Probe Number
Cornelscourt	DPH05

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	1		
0.20-0.30	3		
0.30-0.40	2		
0.40-0.50	3		
0.50-0.60	3		
0.60-0.70	5		
0.70-0.80	5		
0.80-0.90	11		
0.90-1.00	10		
1.00-1.10	6		
1.10-1.20	8		
1.20-1.30	7		
1.30-1.40	5		
1.40-1.50	6		
1.50-1.60	6		
1.60-1.70	6		
1.70-1.80	7		
1.80-1.90	5		
1.90-2.00	9		
2.00-2.10	10		
2.10-2.20	10		
2.20-2.30	10		
2.30-2.40	13		
2.40-2.50	15		
2.50-2.60	17		
2.60-2.70	17		
2.70-2.80	16		
2.80-2.90	17		
2.90-3.00	24		
3.00-3.10	24		
3.10-3.20	25		



Remarks

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH05

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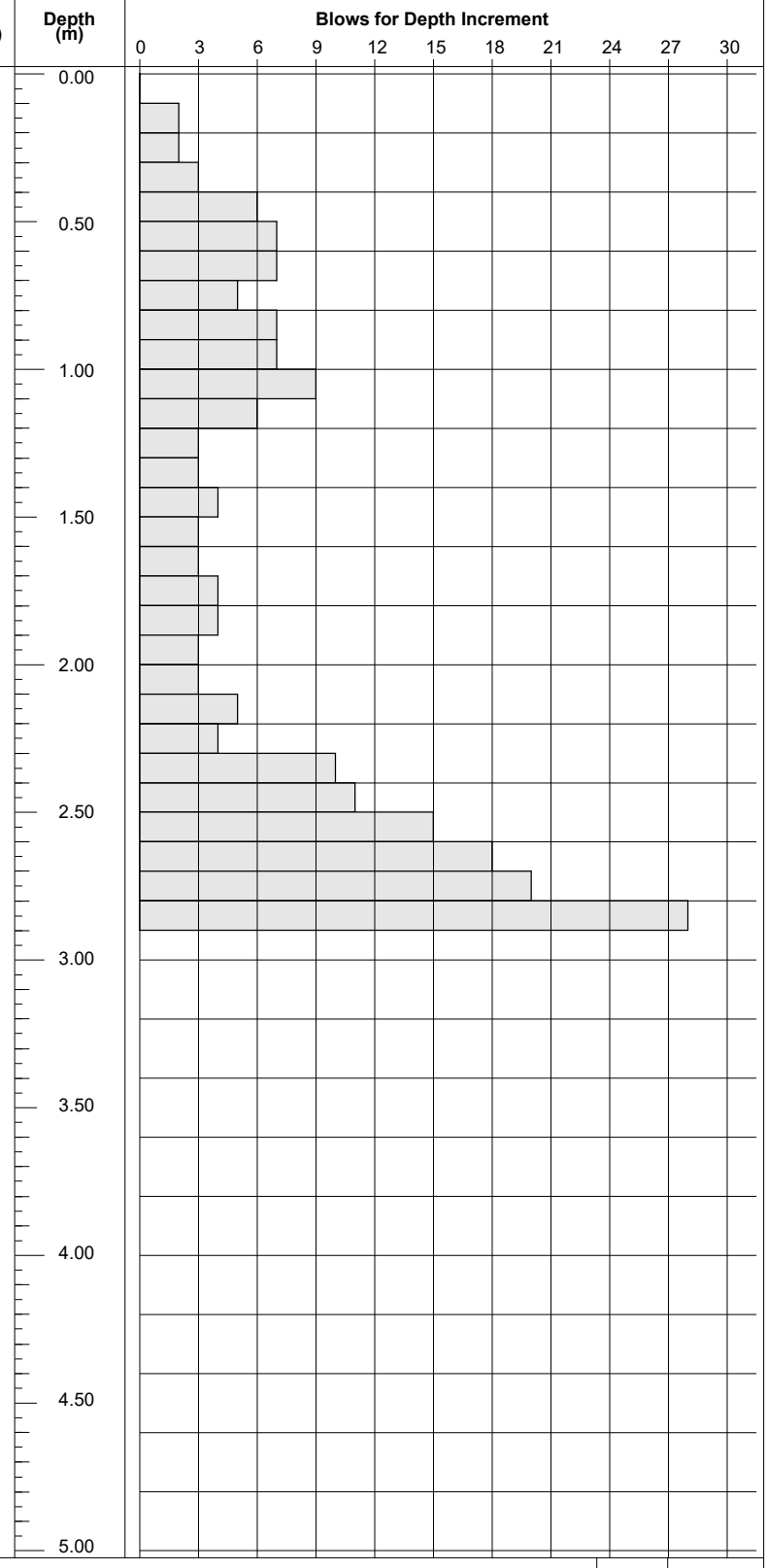
Site	Probe Number
Cornelscourt	DPH06

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	2		
0.20-0.30	2		
0.30-0.40	3		
0.40-0.50	6		
0.50-0.60	7		
0.60-0.70	7		
0.70-0.80	5		
0.80-0.90	7		
0.90-1.00	7		
1.00-1.10	9		
1.10-1.20	6		
1.20-1.30	3		
1.30-1.40	3		
1.40-1.50	4		
1.50-1.60	3		
1.60-1.70	3		
1.70-1.80	4		
1.80-1.90	4		
1.90-2.00	3		
2.00-2.10	3		
2.10-2.20	5		
2.20-2.30	4		
2.30-2.40	10		
2.40-2.50	11		
2.50-2.60	15		
2.60-2.70	18		
2.70-2.80	20		
2.80-2.90	28		



Remarks
Refusal at 2.90m BGL 25 blows for 30mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH06

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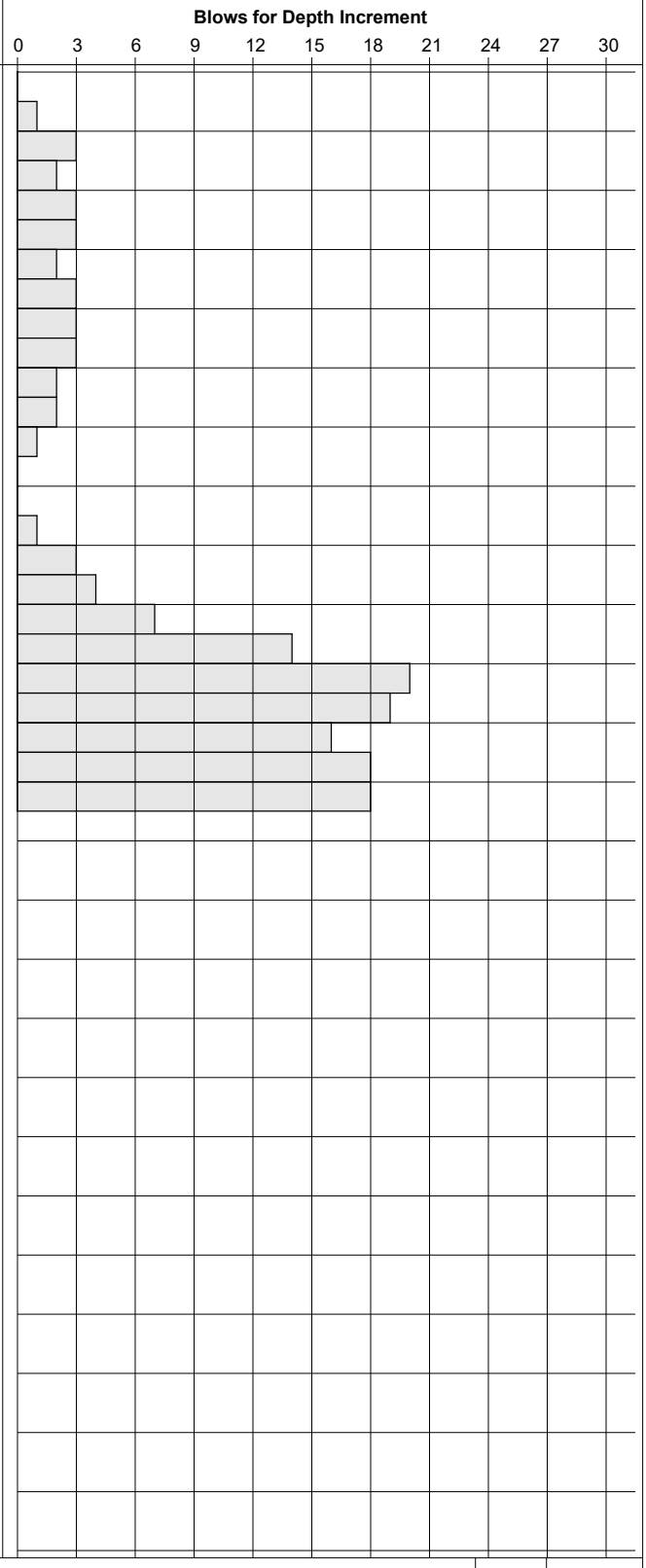
Site	Probe Number
Cornelscourt	DPH07

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	1		
0.20-0.30	3		
0.30-0.40	2		
0.40-0.50	3		
0.50-0.60	3		
0.60-0.70	2		
0.70-0.80	3		
0.80-0.90	3		
0.90-1.00	3		
1.00-1.10	2		
1.10-1.20	2		
1.20-1.30	1		
1.30-1.40	0		
1.40-1.50	0		
1.50-1.60	1		
1.60-1.70	3		
1.70-1.80	4		
1.80-1.90	7		
1.90-2.00	14		
2.00-2.10	20		
2.10-2.20	19		
2.20-2.30	16		
2.30-2.40	18		
2.40-2.50	18		



Remarks
Refusal at 2.50m BGL 25 blows for 75mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH07

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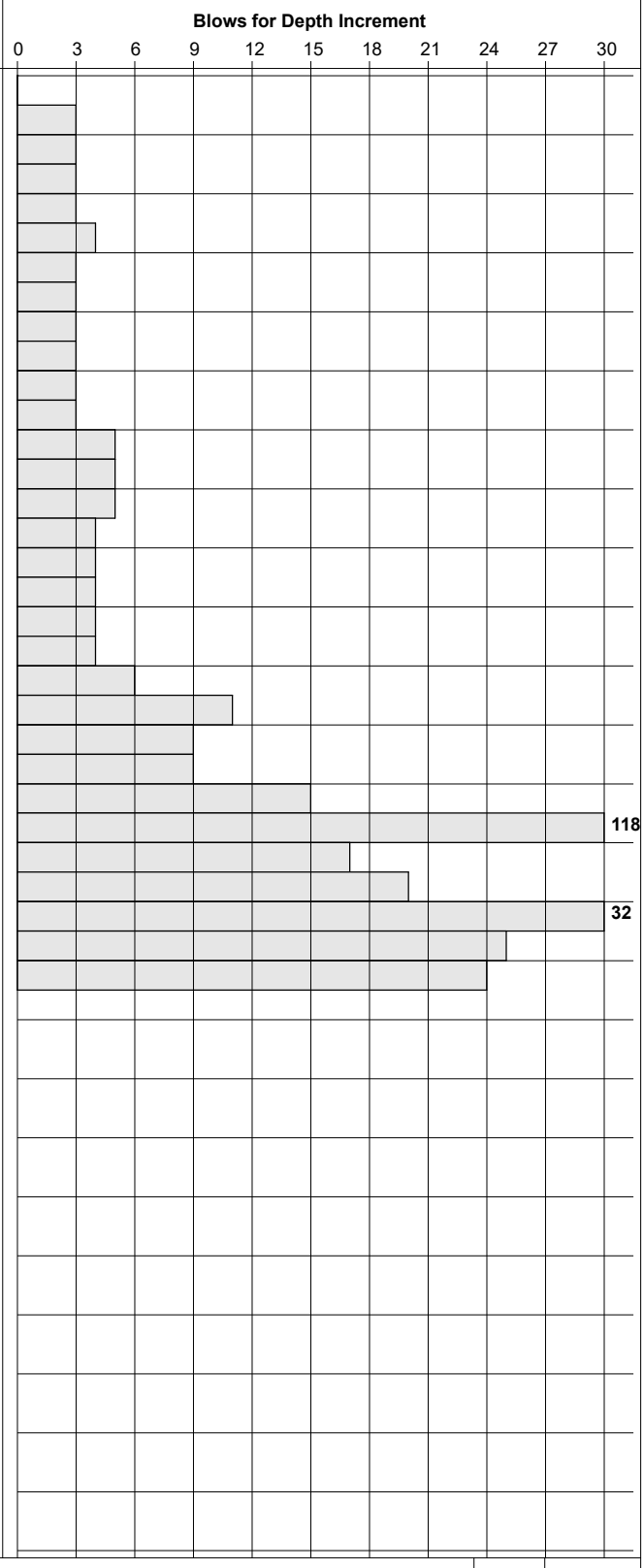
Site	Probe Number
Cornelscourt	DPH08

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	3		
0.20-0.30	3		
0.30-0.40	3		
0.40-0.50	3		
0.50-0.60	4		
0.60-0.70	3		
0.70-0.80	3		
0.80-0.90	3		
0.90-1.00	3		
1.00-1.10	3		
1.10-1.20	3		
1.20-1.30	5		
1.30-1.40	5		
1.40-1.50	5		
1.50-1.60	4		
1.60-1.70	4		
1.70-1.80	4		
1.80-1.90	4		
1.90-2.00	4		
2.00-2.10	6		
2.10-2.20	11		
2.20-2.30	9		
2.30-2.40	9		
2.40-2.50	15		
2.50-2.60	118		
2.60-2.70	17		
2.70-2.80	20		
2.80-2.90	32		
2.90-3.00	25		
3.00-3.10	24		



Remarks

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH08

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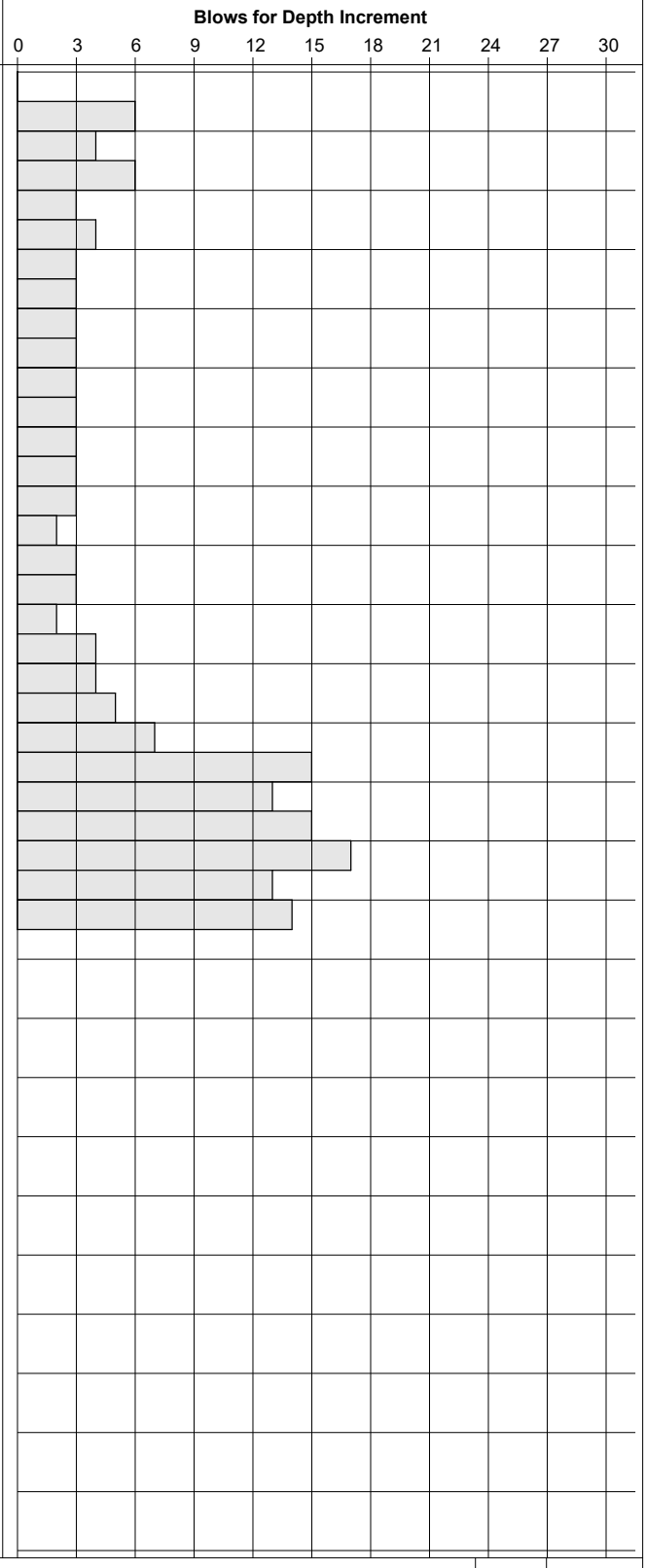
Site	Probe Number
Cornelscourt	DPH09

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	6		
0.20-0.30	4		
0.30-0.40	6		
0.40-0.50	3		
0.50-0.60	4		
0.60-0.70	3		
0.70-0.80	3		
0.80-0.90	3		
0.90-1.00	3		
1.00-1.10	3		
1.10-1.20	3		
1.20-1.30	3		
1.30-1.40	3		
1.40-1.50	3		
1.50-1.60	2		
1.60-1.70	3		
1.70-1.80	3		
1.80-1.90	2		
1.90-2.00	4		
2.00-2.10	4		
2.10-2.20	5		
2.20-2.30	7		
2.30-2.40	15		
2.40-2.50	13		
2.50-2.60	15		
2.60-2.70	17		
2.70-2.80	13		
2.80-2.90	14		



Remarks
Refusal at 2.90m BGL for 25mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH09

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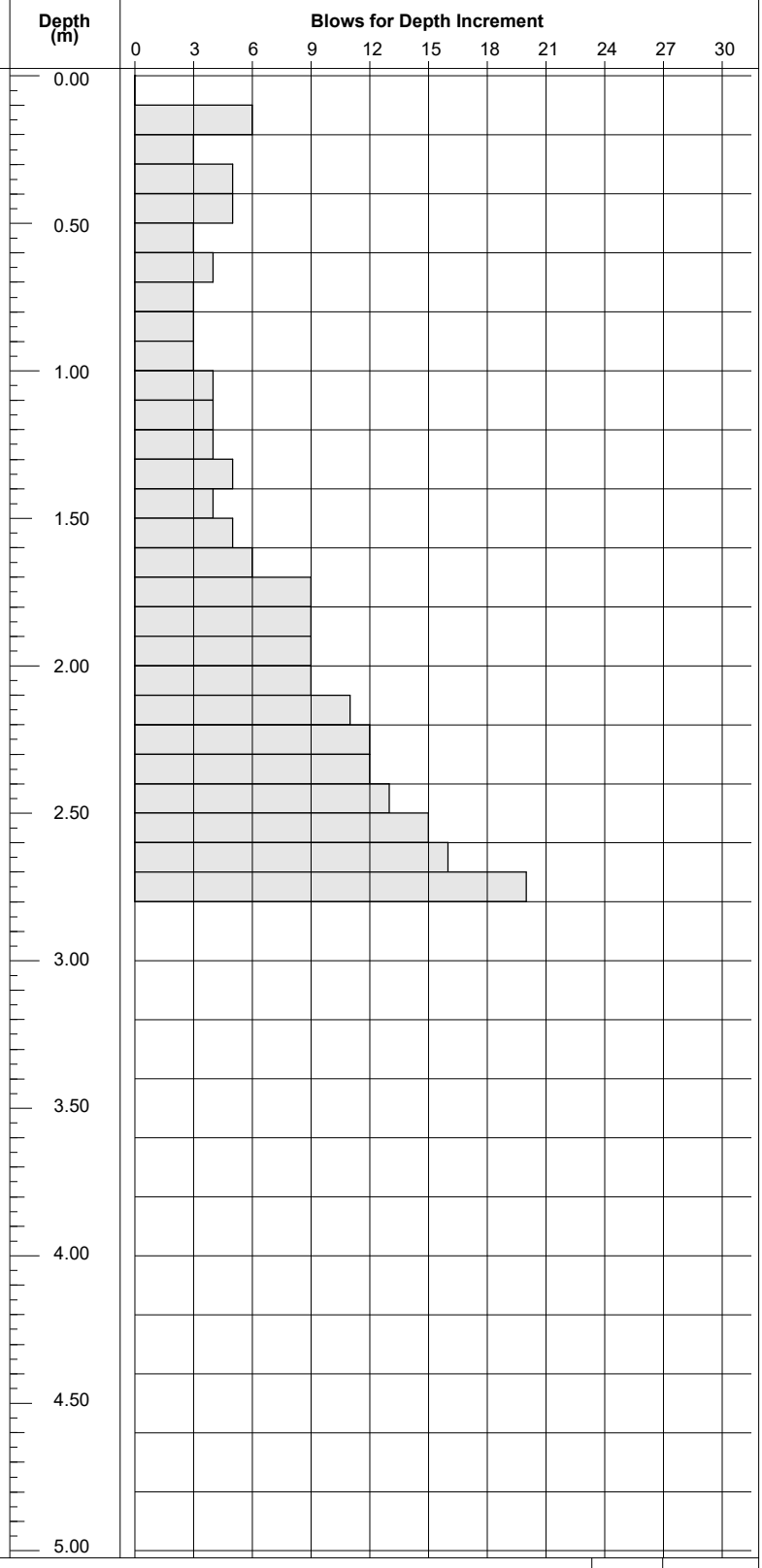
Site	Probe Number
Cornelscourt	DPH10

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	6		
0.20-0.30	3		
0.30-0.40	5		
0.40-0.50	5		
0.50-0.60	3		
0.60-0.70	4		
0.70-0.80	3		
0.80-0.90	3		
0.90-1.00	3		
1.00-1.10	4		
1.10-1.20	4		
1.20-1.30	4		
1.30-1.40	5		
1.40-1.50	4		
1.50-1.60	5		
1.60-1.70	6		
1.70-1.80	9		
1.80-1.90	9		
1.90-2.00	9		
2.00-2.10	9		
2.10-2.20	11		
2.20-2.30	12		
2.30-2.40	12		
2.40-2.50	13		
2.50-2.60	15		
2.60-2.70	16		
2.70-2.80	20		



Remarks
Refusal at 2.80m BGL 25 blows for 20mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH10

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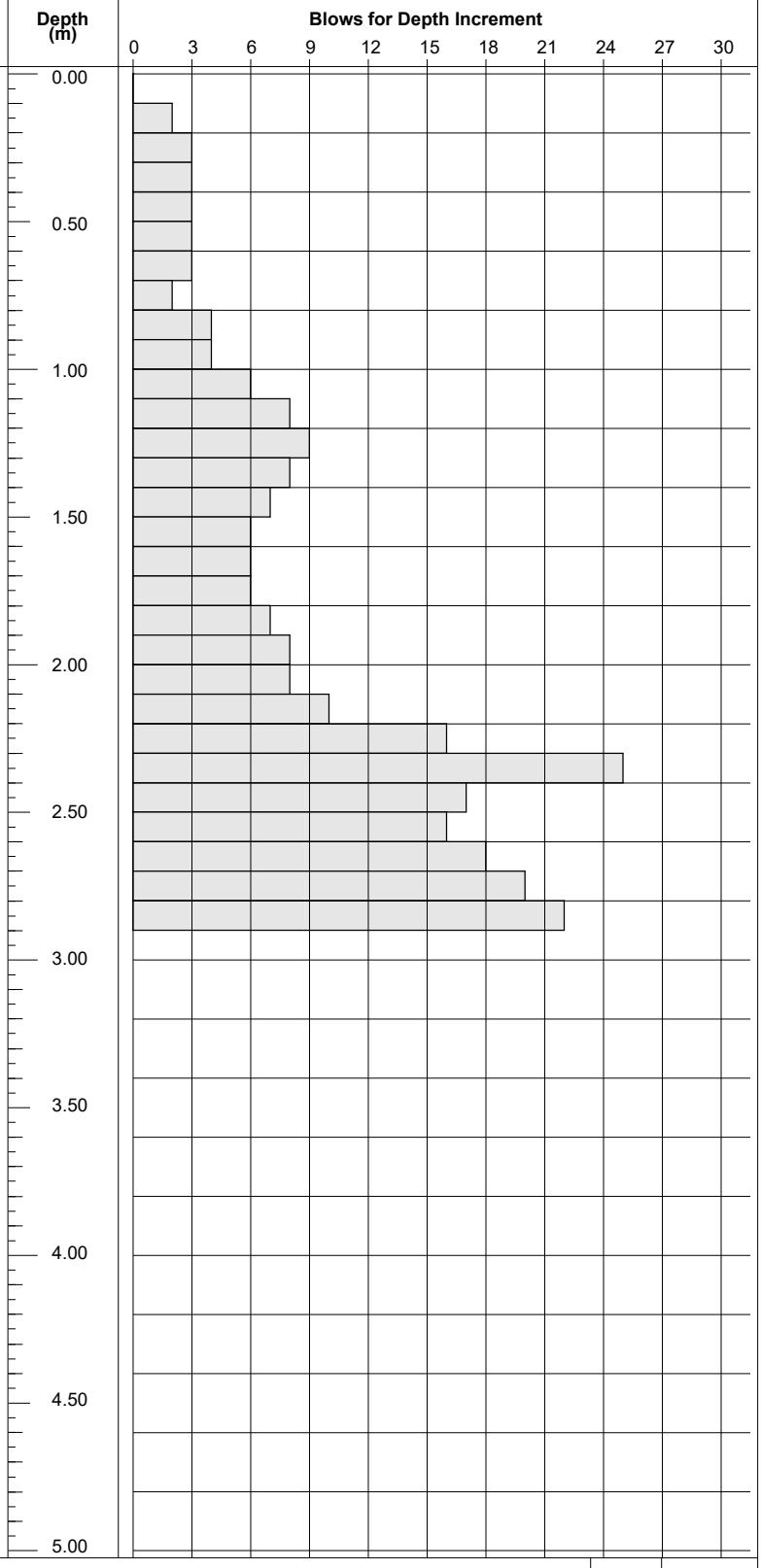
Site	Probe Number
Cornelscourt	DPH11

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
		01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	0		
0.10-0.20	2		
0.20-0.30	3		
0.30-0.40	3		
0.40-0.50	3		
0.50-0.60	3		
0.60-0.70	3		
0.70-0.80	2		
0.80-0.90	4		
0.90-1.00	4		
1.00-1.10	6		
1.10-1.20	8		
1.20-1.30	9		
1.30-1.40	8		
1.40-1.50	7		
1.50-1.60	6		
1.60-1.70	6		
1.70-1.80	6		
1.80-1.90	7		
1.90-2.00	8		
2.00-2.10	8		
2.10-2.20	10		
2.20-2.30	16		
2.30-2.40	25		
2.40-2.50	17		
2.50-2.60	16		
2.60-2.70	18		
2.70-2.80	20		
2.80-2.90	22		



Remarks
Refusal at 2.90m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH11

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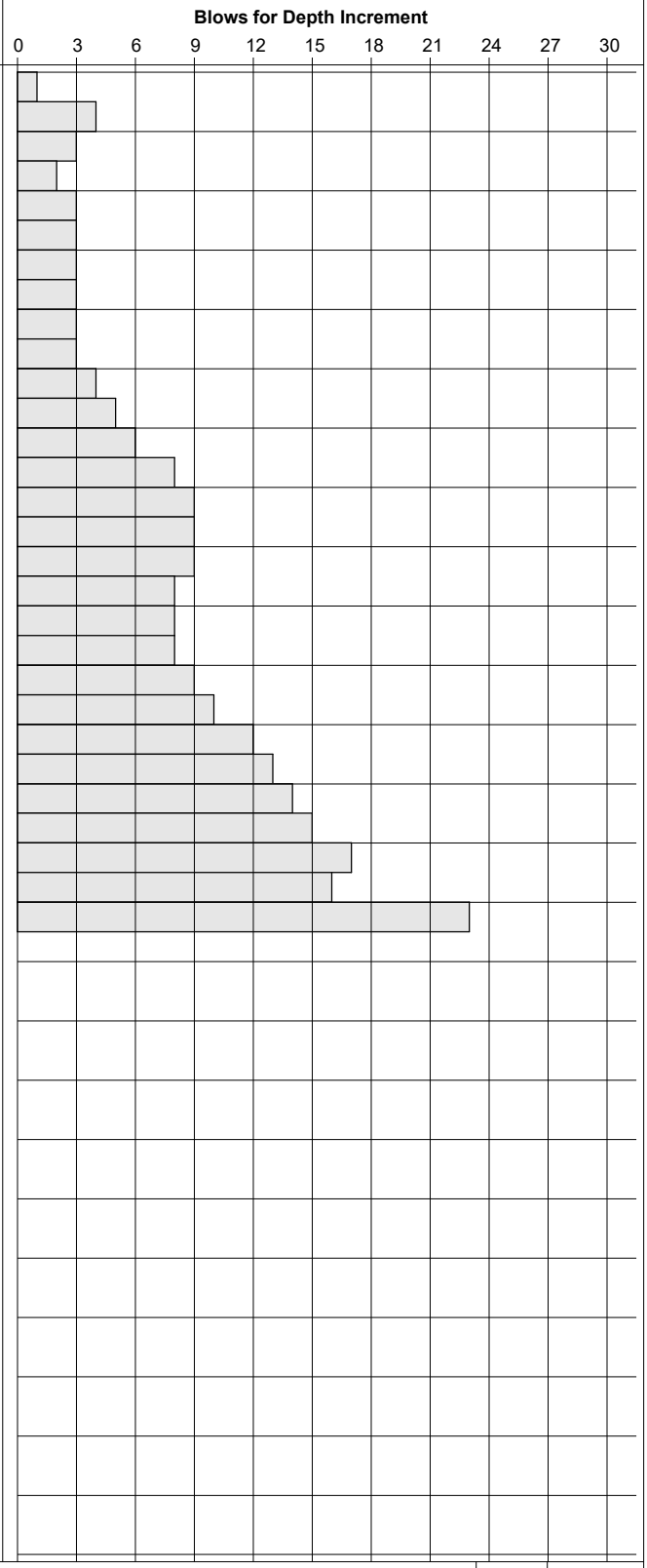
Site	Probe Number
Cornelscourt	DPH12

Method	Cone Dimensions	Ground Level (mOD)	Client	Job Number
Dynamic Probe DPH, Fall height 500mm, hammer wt 50Kg.	43.7mm		DBFL	8354-01-19

Location	Dates	Engineer	Sheet
	01/02/2019		1/1

Depth (m)	Blows for Depth Increment	Field Records	Level (mOD)
0.00-0.10	1		
0.10-0.20	4		
0.20-0.30	3		
0.30-0.40	2		
0.40-0.50	3		
0.50-0.60	3		
0.60-0.70	3		
0.70-0.80	3		
0.80-0.90	3		
0.90-1.00	3		
1.00-1.10	4		
1.10-1.20	5		
1.20-1.30	6		
1.30-1.40	8		
1.40-1.50	9		
1.50-1.60	9		
1.60-1.70	9		
1.70-1.80	8		
1.80-1.90	8		
1.90-2.00	8		
2.00-2.10	9		
2.10-2.20	10		
2.20-2.30	12		
2.30-2.40	13		
2.40-2.50	14		
2.50-2.60	15		
2.60-2.70	17		
2.70-2.80	16		
2.80-2.90	23		



Remarks
Refusal at 2.90m BGL 25 blows for 50mm

Scale (approx)	Logged By
1:25	4.00

Figure No.
8354-01-19.DPH12

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APPENDIX 5 – Window Sample Records

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Site	Number
Cornelscourt	WS-01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		52.77		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722343.8 E 725846.6 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(1.00)	MADE GROUND: Firm, light brown, sandy, slightly gravelly CLAY with occasional granite cobbles. Gravel is medium to coarse and angular to sub-angular. Sand is fine to coarse. Occasional fragments of red brick, coal and wood. Occasional glass and plastic.		
1.00-2.00	EN			51.77	1.00			
					(0.40)	MADE GROUND: Firm, light brown, sandy, slightly gravelly CLAY. Gravel is fine to coarse and angular to sub-angular. Fine to coarse sand. Occasional fragments of red brick and coal. Rootlets.		
				51.37	1.40			
					(0.60)	Firm, light brown, sandy, slightly gravelly CLAY with occasional cobbles. Sand is fine to coarse. Gravel is fine to coarse and angular to sub-angular. Some sub-rounded to rounded mudstones.		
2.00-3.00	EN			50.77	2.00			
					(0.80)	Firm, light brown, sandy, slightly gravelly, CLAY with occasional cobbles of boulder clay. Gravel is fine to coarse and angular to sub-angular.		
				49.97	2.80			
						Complete at 2.80m		

Remarks
Refusal at 2.80m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-01

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Site	Number
Cornelscourt	WS-02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		52.52		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722357.4 E 725828.9 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.25)	TOPSOIL		
				52.27	0.25	Firm, light brown, slightly sandy, slightly gravelly, CLAY. Gravel is fine to coarse and angular to sub-angular.		
					(0.35)			
				51.92	0.60	No recovery		
					(0.40)			
1.00-2.00	EN			51.52	1.00	Firm, light brown, slightly sandy, slightly gravelly, CLAY. Gravel is fine to coarse and angular to sub-angular.		
					(0.60)			
				50.92	1.60	No recovery		
					(0.40)			
2.00-3.00	EN			50.52	2.00	Firm, light brown grading into grey, slightly sandy, slightly gravelly CLAY with occasional cobbles of limestone. Gravel is fine to coarse and angular to sub-angular. Fine to coarse sand. Hydrocarbon odours noted from 2.00m - 2.85m.		
					(0.85)			
				49.67	2.85	Complete at 2.85m		

Remarks
Hydrocarbon odours at 2.0m - 2.85m.
Refusal at 2.85m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-02

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Site	Number
Cornelscourt	WS-03

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		52.36		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722365.3 E 725817.2 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.30)	TOPSOIL		
				52.06	0.30	Firm, light brown, slightly sandy, slightly gravelly CLAY with rare cobbles. Gravel is fine to coarse and of mixed lithologies with angular to sub-angular boulder clay and quartz. Some sub-rounded mudstone.		
					(0.70)			
1.00-2.00	EN			51.36	1.00	Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional sub-angular cobbles of limestone. Sand is fine to coarse. Gravel is fine to coarse and angular to sub-angular.		
					(1.00)			
2.00-3.00	EN			50.36	2.00	Firm, light brown, sandy, slightly gravelly, CLAY with occasional sub-angular to subrounded cobbles. Gravel is fine to coarse and angular to sub-angular with fragments of granite. Fine to medium sand.		
					(0.70)			
				49.66	2.70	Complete at 2.70m		

Remarks
Refusal at 2.70m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-03

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Site	Number
Cornelscourt	WS-04

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler	pM to	53.29		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722337.6 E 725838.9 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.30)	TOPSOIL		
				52.99	0.30	MADE GROUND: Firm, brown, sandy, slightly gravelly, CLAY with occasional sub-angular cobbles of granite and boulder clay. Gravel is fine to coarse and angular to sub-angular. Fragments of red brick. Occasional plastic and rootlets.		
					(0.40)			
				52.59	0.70	No recovery		
					(0.30)			
1.00-2.00	EN			52.29	1.00	Firm, light brown, sandy, slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse and angular to sub-angular. Fine to coarse sand.		
					(0.70)			
				51.59	1.70	Firm, grey, sandy, slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse and angular to sub-angular. Hydrocarbons noted from 1.70m - 3.20m.		
2.00-3.00	EN				(1.00)			
				50.59	2.70	Firm, grey, sandy, gravelly CLAY. Fine to coarse, angular to sub-angular gravel.		
					(0.50)			
3.00-4.00	EN			50.09	3.20	Complete at 3.20m		

Remarks
Hydrocarbon odours from 1.70m - 3.20m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-04

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Site	Number
Cornelscourt	WS-05

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		52.89		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722350.9 E 725825.8 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.30)	TOPSOIL		
				52.59	0.30	Firm, light brown, slightly sandy, slightly gravelly, CLAY with rare subrounded cobbles. Gravel is fine to coarse and angular to sub-angular		
					(0.70)			
1.00-2.00	EN			51.89	1.00	Firm, light brown, slightly sandy, sightly gravelly Clay with occasional cobbles of limestone. Gravel is fine to coarse and of mixed lithologies with subangular boulder clay and subrounded to rounded mudstone.		
					(0.90)			
2.00-3.00	EN			50.99	1.90	Firm, sandy, slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse and angular to sub-angular. Fine to coarse sand. Hydrocarbon odours noted from 1.90m - 2.50m.		
					(0.60)			
				50.39	2.50	Complete at 2.50m		

Remarks
Hydrocarbon odours from 1.90m - 2.50m.
Refusal at 2.50m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-05

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Site	Number
Cornelscourt	WS-06

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		52.59		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722362.4 E 725803.9 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.25)	TOPSOIL		
				52.34	0.25	Firm, light brown, slightly sandy, slightly gravelly, CLAY with rare sub-rounded cobbles of boulder clay. Gravel is fine to medium and angular to sub-angular		
					(0.65)			
				51.69	0.90	Firm, grey, sandy, gravelly CLAY. Gravel is medium to coarse and angular to sub-angular. Fine to coarse sand.		
1.00-2.00	EN							
					(1.10)			
2.00-3.00	EN			50.59	2.00	Firm, sandy, gravelly CLAY. Gravel is medium to coarse and angular to sub-angular. Fine to coarse sand.		
					(0.40)			
				50.19	2.40	Complete at 2.40m		

Remarks
Refusal at 2.40m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-06

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Site	Number
Cornelscourt	WS-07

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		53.95		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722333.1 E 725833.3 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.40)	TOPSOIL		
				53.55	0.40	MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly, CLAY with rare sub-rounded cobbles of boulder clay. Gravel is fine to medium and angular to sub-angular		
					(0.50)			
				53.05	0.90	No recovery		
					(0.10)			
1.00-2.00	EN			52.95	1.00	Firm, slightly sandy, slightly gravelly CLAY with occasional sub-angular cobbles. Gravel is fine to coarse and sub-angular. Medium to coarse sand.		
					(1.00)			
2.00-3.00	EN			51.95	2.00	Firm, grey, sandy, slightly gravelly, CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Sand is medium to coarse. Hydrocarbon odours noted from 2.0m to 2.90m.		
					(0.90)			
				51.05	2.90	Firm, grey, sandy, slightly gravelly CLAY.		
3.00-4.00	EN				(0.30)			
				50.75	3.20	Complete at 3.20m		

Remarks
Hydrocarbon odours from 2.0m - 3.20m.
Refusal at 3.20m

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-07

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Site	Number
Cornelscourt	WS-08

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		53.18		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722343.5 E 725821.1 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.40)	TOPSOIL		
				52.78	0.40	MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY. Fine to coarse gravel of mixed lithologies, sub-angular quartz and boulder clay with sub-rounded to rounded mudstone. Occasional fragments of red brick. Plastic. Rootlets.		
					(0.60)			
1.00-2.00	EN			52.18	1.00	Firm, light brown grading into grey at 1.40m, sandy, slightly gravelly CLAY with occasional sub-angular cobbles. Fine to coarse, sub-angular Gravel. Fine to coarse sand.		
					(0.80)			
				51.38	1.80	No recovery		
					(0.20)			
2.00-3.00	EN			51.18	2.00	Firm, grey, sandy, slightly gravelly, CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Sand is medium to coarse. Hydrocarbon odours noted from 2.00m to 2.80m.		
					(0.80)			
				50.38	2.80	Complete at 2.80m		

Remarks
Hydrocarbon odours from 1.80m - 2.80m.
Refusal at 2.80m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-08

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Site	Number
Cornelscourt	WS-09

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		53.08		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722351.7 E 725808.8 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.35)	TOPSOIL		
				52.73	0.35			
					(0.35)	Firm, light brown, slightly sandy, slightly gravelly CLAY. Fine to coarse, sub-angular to sub-rounded gravel.		
				52.38	0.70			
					(0.30)	Firm, grey, sandy, gravelly CLAY with occasional sub-rounded cobbles of mudstone. Fine to coarse, sub-angular gravel. Fine to coarse sand.		
1.00-2.00	EN			52.08	1.00			
					(0.30)	Firm, brown, sandy, gravelly CLAY. Gravel is fine to coarse and angular to sub-angular.		
				51.78	1.30			
					(0.70)	Firm, brown, slightly sandy, slightly gravelly CLAY. Fine to coarse gravel of mixed lithologies, sub-angular boulder clay with sub-angular to sub-rounded quartz and mudstone.		
2.00-3.00	EN			51.08	2.00			
					(1.00)	Firm, grey, sandy, slightly gravelly CLAY with occasional sub-rounded cobbles of boulder clay. Gravel is fine to coarse and angular to sub angular.		
				50.08	3.00			
						Complete at 3.00m		

Remarks
Refusal at 3.00m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-09

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Site	Number
Cornelscourt	WS-10

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		54.36		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722327.9 E 725827.8 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.30)	TOPSOIL		
				54.06	0.30	MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY with cobbles of subangular granite and subrounded mudstone. Fine to coarse, sub-angular gravel. Occasional fragments of red brick. Occasional plastic. Rootlets.		
					(0.60)			
1.00-2.00	EN			53.46	0.90	Firm, brown, slightly sandy, slightly gravelly CLAY with occasional sub-rounded cobbles. Fine to coarse, sub-angular gravel. Fine to coarse sand.		
					(1.00)			
2.00-3.00	EN			52.46	1.90	Firm, brown grading into grey at 2.60m, slightly sandy, slightly gravelly CLAY. Gravel is fine to coarse and angular to sub-angular.		
					(1.00)			
				51.46	2.90	Firm, grey, slightly sandy, slightly gravelly CLAY. Fine to coarse, angular to sub-angular gravel. Hydrocarbon odours noted from 2.90m - 3.20m		
					(0.30)			
				51.16	3.20	Complete at 3.20m		

Remarks
Hydrocarbon odours noted from 2.90m - 3.20m.
Refusal at 3.20m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-10

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Site	Number
Cornelscourt	WS-11

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		53.70		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722336.8 E 725816.8 N	21/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.40)	TOPSOIL		
				53.30	0.40	MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional cobbles of sub-angular granite. Fine to coarse, sub-angular Gravel. Occasional fragments of red brick. Frequent plastic. Rootlets.		
					(0.30)			
				53.00	0.70	Firm, grey, sandy, slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular Gravel. Fine to coarse sand. Hydrocarbon odours noted from 0.70m to 1.70m.		
1.00-2.00	EN				(1.00)			
				52.00	1.70	Firm, grey, sandy, gravelly CLAY. Fine to coarse, angular to sub-angular Gravel. Medium to coarse sand.		
2.00-3.00	EN				(1.50)			
				50.50	3.20	Complete at 3.20m		

Remarks
Hydrocarbon odours noted from 0.70m - 3.20m.
Refusal at 3.20m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-11

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Site	Number
Cornelscourt	WS-12

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		53.62		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722350.2 E 725796.3 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.45)	TOPSOIL		
				53.17	0.45	MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Frequent fragments of wood and red brick. Frequent plastic and clothing. Rootlets.		
					(0.55)			
1.00-2.00	EN			52.62	1.00	Firm, grey, slightly sandy, slightly gravelly CLAY with occasional sub-rounded cobbles of boulder clay and mudstone. Fine to coarse, angular to sub-angular gravel. Fine to coarse sand.		
					(1.00)			
2.00-3.00	EN			51.62	2.00	Firm, grey, slightly sandy, gravelly CLAY with occasional cobbles. Fine to coarse, angular to sub-angular gravel. Medium to coarse sand.		
					(1.00)			
				50.62	3.00	Complete at 3.00m		

Remarks
Refusal at 3.00m.

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-12

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Site	Number
Cornelscourt	WS-13

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Drive-in Windowless Sampler		52.50		8354-01-19
	Location	**Dates**	**Engineer**	**Sheet**
	722341.8 E 725866.3 N	22/01/2019	DBFL	1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	EN				(0.35)	TOPSOIL		
				52.15	0.35	MADE GROUND: Firm, light brown, slightly sandy, slightly gravelly CLAY with occasional sub-angular cobbles. Fine to coarse, sub-angular gravel. Fragments of wood, red brick and granite. Frequent plastic and clothing. Rootlets.		
					(0.65)			
1.00-2.00	EN			51.50	1.00	Firm, grey, sandy, gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Gravel is fine to coarse and angular to sub-angular. Sand is fine to coarse		
					(1.00)			
2.00-3.00	EN			50.50	2.00	Firm, grey, sandy, gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse, sub-angular gravel. Fine to coarse sand.		
					(1.00)			
				49.50	3.00	Complete at 3.00m		

Remarks
Refusal at 3.00m

Scale (approx)	Logged By
1:25	PM

Figure No.
8354-01-19.WS-13

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APPENDIX 6 – Cable Percussion and Rotary Borehole Records

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Site Cornelscourt			**Borehole Number** BH-02
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 2.05m 100mm to 17.40m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location Cornelscourt	**Dates** 14/02/2019-04/03/2019	**Engineer**	**Sheet** 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.40)	TOPSOIL		
							0.40	MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with rare sub-angular to subrounded cobbles and occasional plastic and ceramics. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
1.00-1.45					1,0/1,1,0,1 SPT(C) N=3		(0.60) 1.00	Very soft to soft light brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded granite.		
							(1.00)			▼1
2.00	50				25/50 Water strike(1) at 2.00m, rose to 1.60m in 20 mins.		2.00	Driller notes sandy Silt and Gravel. Recovery consists of grey subrounded sandy GRAVEL. Obstruction granite rock		▽1
2.00-2.05 2.40 2.00-12.00	13				SPT(C) 25*/50 50/0 CR					
3.90	0						(3.60)			
5.40 5.40-5.69	73				6,11/19,31 SPT(C) 50/135		5.60	Driller notes Brown Boulder Clay. Recovery consists of grey brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sub-angular to subrounded gravel.		
							(1.50)			
6.90 6.90-7.26	30				4,9/14,18,18 SPT(C) 50/205		7.10	Driller notes Brown Clay and Gravel. Recovery consists of brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sub-angular to subrounded gravel.		
8.40 8.40-8.85	17				4,6/6,9,11,9 SPT(C) N=35		(2.80)			
9.90							9.90			

Remarks
Groundwater encountered at 2.0m.
Obstruction granite rock.

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-02

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Site Cornelscourt			**Borehole Number** BH-02
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 2.05m 100mm to 17.40m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location Cornelscourt	**Dates** 14/02/2019-04/03/2019	**Engineer**	**Sheet** 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
9.90-10.35	0				3,3/4,3,5,5 SPT(C) N=17		(1.50)	Driller notes no recovery		
11.40 11.40-11.85					6,8/8,10,10,13 SPT(C) N=41		11.40 (0.60)	Driller notes Sand and Clay. Recovery consists of sandy CLAY.		
12.00 12.00-15.10	93	68	68		CR		12.00	Strong to very strong coarsely crystalline massive orange white GRANITE. Partially weathered with quartz sand on fracture surfaces.		
12.90	100	90	85	6						
14.00 14.40							(5.40)			
15.10-17.40	100	69	69	7	CR					
15.90 16.00	100	94	90	5						
17.40							17.40	12.00m to 17.40m Fracture set:1 Close to widely spaced at 0-20 degrees orientation, stepped rough, tight to open, stained brown. Complete at 17.40m		

Remarks

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-02

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Site Cornelscourt			**Borehole Number** BH-03
Machine : Dando 2000 +T44 **Flush :** In water **Core Dia:** HQ mm **Method :**	**Casing Diameter** 200mm to 6.00m 100mm to 15.90m **Location** 722440.5 E 725871.9 N	**Ground Level (mOD)** **Dates** 14/02/2019-05/03/2019	**Client** DBFL **Engineer**	**Job Number** 8354-01-19 **Sheet** 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(0.20) 0.20	Brown slightly sandy slightly gravelly TOPSOIL with frequent rootlets.			
							(0.90)	MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with concrete slab. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
1.00-1.45 1.00-2.00					1,1/0,1,1,1 SPT(C) N=3 B		1.10	Firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
2.00-2.45 2.00-3.00					3,2/3,2,2,2 SPT(C) N=9 B		(1.90)				
3.00-3.45 3.00-4.00					4,5/6,6,6,7 SPT(C) N=25 B		3.00	Stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles . Sand is fine to coarse with fine to coarse sub-angular to subrounded gravel.		▼1	
					9,11/12,11,10,12 Water strike(1) at 4.00m, rose to 3.00m in 20 mins. SPT(C) N=45 B		(1.70)			▽1	
4.00-4.45 4.00-5.00							4.70	Very stiff brown slightly sandy slightly gravelly laminated CLAY with rare gravel and rare sub - angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel. Frequent shell fragments.			
5.00-5.33 5.00-6.00					14,16/19,20,11 SPT(C) 50/180 B		(1.10)				
5.40							5.80	Driller notes brown boulder CLAY to 9.70m. Recovery consists of greyish brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel. Obstruction at 5.80m onto possible granite.			
6.00-6.23	100				12,30/38,12 SPT(C) 50/80		(1.40)				
6.90 6.90-7.24					8,13/17,21,12 SPT(C) 50/185		7.20	Driller notes brown boulder CLAY. Recovery consists of slightly sandy gravelly CLAY with occasional sub-angular to subrounded gravel.			
	73						(1.20)				
8.40 8.40-8.85					6,9/9,14,12,13 SPT(C) N=48		8.40	Driller notes brown boulder CLAY. Recovery consists of brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
	42						(1.30)				
9.90							9.70	Extremely weak to medium strong coarsely crystalline massive orange white GRANITE			

Remarks
Groundwater encountered at 4.00m.

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-03

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Site Cornelscourt			**Borehole Number** BH-03
Machine : Dando 2000 +T44 **Flush :** In water **Core Dia:** HQ mm **Method :**	**Casing Diameter** 200mm to 6.00m 100mm to 15.90m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location 722440.5 E 725871.9 N	**Dates** 14/02/2019-05/03/2019	**Engineer**	**Sheet** 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
9.90-10.09	40	22	19		7,15/25 SPT(C) 25/40			distinctly weathered. Distinctly weathered.			
11.40 11.40-11.84	29	21	19	6	9,16/50 SPT(C) 25*/140 N=50						
12.90							(6.20)	Fracture set 1: 9.90m - 12.45m, Close to medium spaced at 0 - 20 degrees orientation, stepped rough, tight to open, stained brown with quartz sand on fracture surface.			
13.50	100	64	57	4				Fracture set 1: From 12.45m - 13.50m, close to medium spaced at 0 - 20 degrees orientation, stepped rough, tight to open, stained brown.			
14.40	100	17	17								
15.90							15.90	Non intact from 14.4m to 15.90m. Complete at 15.90m			

Remarks

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-03

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Site Cornelscourt			**Borehole Number** BH-04
Machine : Dando 2000 +T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 100mm to 13.70m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location 722352.4 E 725894.8 N	**Dates** 14/02/2019-04/03/2019	**Engineer**	**Sheet** 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	8							Driller notes brown silty CLAY with gravel from 0.0m to 4.80m. Recovery consists of dark brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
2.40	33						(4.80)			
3.90	40			7						
							4.80			
5.40 5.40-5.83	33				4,8/10,14,14,12 SPT(C) 50/280			Driller notes black gravelly boulder CLAY. Recovery consists of dark grey slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
							(3.60)			
6.90 6.90-7.28	27				7,8/11,16,21,2 SPT(C) 50/230					
8.40 8.40-8.85				5	3,5/5,8,7,10 SPT(C) N=30		8.40	Extremely weak to medium strong coarsely crystalline massive orange white GRANITE. Partially weathered to unweathered.		
9.10	100	81	62					Fracture set 1: From 8.40m - 9.10m, close to medium spaced at 0 - 20 degrees orientation, stepped rough, tight to open, clay smearing on fracture surfaces.		
9.90								Fracture set 1: From 9.10 - 9.90m, close to medium		

Remarks
No groundwater encountered

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-04

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Site Cornelscourt			**Borehole Number** BH-04
Machine : Dando 2000 +T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 100mm to 13.70m **Location** 722352.4 E 725894.8 N	**Ground Level (mOD)** **Dates** 14/02/2019-04/03/2019	**Client** DBFL **Engineer**	**Job Number** 8354-01-19 **Sheet** 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				5				spaced at 10 - 30 degrees orientation, stepped rough, tight to open, stained brown.		
	100	46	40							
10.90				6			(5.30)	Fracture set 1: From 9.90m - 10.90m, close to medium spaced at 10 - 30 degrees orientation, stepped rough, tight to open, stained brown.		
11.40										
11.75	100	100	89	4				Fracture set 1: From 10.90m - 11.75m, close to medium spaced at 10 - 30 degrees orientation. stepped rough, tight to open, stained brown.		
12.90	100	82	76					Fracture set 1: From 11.75m - 12.90m, close to medium spaced at 30 - 40 degrees orientation, stepped rough, tight to open.		
13.00				5						
13.70							13.70	Fracture set 1: From 12.90m - 13.70m, close to medium spaced at 30 - 40 degrees orientation, stepped rough, tight to open.		
								Complete at 13.70m		

Remarks
No groundwater encountered

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-04

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Site Cornelscourt			**Borehole Number** BH-05
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 5.80m 100mm to 10.80m **Location** Cornelscourt	**Ground Level (mOD)** **Dates** 14/02/2019-07/03/2019	**Client** DBFL **Engineer**	**Job Number** 8354-01-19 **Sheet** 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.20) 0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
							(0.90)	MADE GROUND: Light brown slightly sandy slightly gravelly CLAY with concrete slab. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel.		
1.00-1.30 1.00					1,1/1,2,2,2 SPT(C) 7/150 B		1.10	Firm brown slightly sandy gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
2.00-2.45 2.00					3,2/4,4,3,3 SPT(C) N=14 B		(1.90)			
3.00-3.45 3.00					6,7/9,9,13,11 SPT(C) N=42 B		3.00	Very stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Sand is fine to coarse and sub-angular to subrounded gravel.		
4.00-4.32 4.00					10,10/14,20,16 SPT(C) 50/170 B		(1.70)			
5.00-5.33 5.00					18,19/24,26 SPT(C) 50/180 B		4.70	Very stiff brown slightly sandy laminated CLAY with rare gravel and rare sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel. Frequent shell fragments.		
							(1.10)			▼1
5.90 5.80	100	45	30	8	Water strike(1) at 5.80m, rose to 5.50m in 20 mins. B		5.80	Medium strong to strong coarsely crystalline orange greyish white Granite. Partially weathered to unweathered . Quartz sand on fracture surface. Obstruction 5.8m onto granite.		▽1
							(1.10)			
6.90	100	100	96	4			6.90	Medium strong to strong coarsely crystalline orange greyish white Granite. Partially weathered to unweathered . Quartz sand on fracture surface. One fracture set. Fracture set 1: Close to medium spaced at 30 - 40 degrees orientation, planar rough, tight to open, stained brown.		
							(1.50)			
8.40	100	90	90	6			8.40	Medium strong to strong coarsely crystalline orange greyish white Granite. Partially weathered to unweathered . Quartz sand on fracture surface. One fracture set. Fracture set 1: Close to medium spaced at 30 - 45 degrees orientation, planar rough to smooth, tight to open, stained brown.		
							(1.50)			
9.90							9.90			

Remarks
Groundwater encountered at 5.80m.

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-05

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Site Cornelscourt			**Borehole Number** BH-05
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia:** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 5.80m 100mm to 10.80m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location Cornelscourt	**Dates** 14/02/2019-07/03/2019	**Engineer**	**Sheet** 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	100	82	82	5			(0.90)	Medium strong to strong coarsely crystalline orange greyish white Granite. Partially weathered to unweathered . Quartz sand on fracture surface. One fracture set. Fracture set 1: Close to medium spaced at 30 - 40 degrees orientation, planar rough, tight to open, stained brown.		
10.80							10.80	One fracture set. Fracture set 1: Close to medium spaced at 20 - 30 degrees orientation, planar rough to smooth, tight to open, stained brown. Complete at 10.80m		

Remarks

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-05

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Site	Borehole Number
Cornelscourt	BH-06

Machine	Casing Diameter	Ground Level (mOD)	Client	Job Number
Dando 2000 + T44	200mm to 4.60m 100mm to 11.10m		DBFL	8354-01-19
Flush : In water	**Location**	**Dates**	**Engineer**	**Sheet**
Core Dia: HQ mm	Cornelscourt	13/02/2019- 06/03/2019		1/2
Method : Rotary Cored				

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.20) 0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.		
1.00-1.30 1.00					2,2/2,3,3,1 SPT(C) 9/150 B		(1.80)	Firm light brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
2.00-2.45 2.00					2,4/2,3,3,3 SPT(C) N=11 B		2.00 (0.80)	Firm light brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
3.00-3.45 3.00					3,4/4,4,5,6 SPT(C) N=19 B		2.80 (1.20)	Stiff dark grey slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel.		
4.00-4.44 4.00					8,16/14,12,14,10 SPT(C) 50/285 B		4.00 (0.60)	Very stiff dark grey slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel.		▼1 ▽1
4.50	33				Water strike(1) at 4.50m, rose to 4.00m in 20 mins.		4.60 (1.10)	Driller notes Silt Gravel and Clay. Recovery consists of greyish brown slightly sandy slightly gravelly CLAY with occasional angular to sub-angular cobbles. Obstruction 4.6m onto possible granite - no recovery.		
5.40 5.40-5.81					4,4/7,13,21,9 SPT(C) 50/255		5.70	Very weak to weak coarsely crystalline orange white GRANITE partially weathered with quartz bands and quartz sand on fracture surfaces. 5.70m - 6.0m non intact.		
6.00	80	30	30	8			(1.20)			
6.90	80	70	59	9			6.90 (1.50)	Very weak to weak coarsely crystalline orange white GRANITE partially weathered quartz sand on fracture surfaces. Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.		
7.90				1				Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.		
8.40	86	21	16	4			8.40 (1.50)	Very weak to weak coarsely crystalline orange white GRANITE partially weathered. Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown. Non intact.		
9.00				4						
9.90							9.90			

Remarks
Groundwater at 4.5m
Obstruction at 4.6m onto possible granite - no recovery.

Scale (approx)	Logged By
1:50	PM

Figure No.
8354-01-19.BH-06

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Site Cornelscourt			**Borehole Number** BH-06
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 4.60m 100mm to 11.10m **Location** Cornelscourt	**Ground Level (mOD)** **Dates** 13/02/2019-06/03/2019	**Client** DBFL **Engineer**	**Job Number** 8354-01-19 **Sheet** 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
	100	53	53				(1.20)	Very weak to weak coarsely crystalline orange white GRANITE partially weathered. Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown. Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.		
10.60										
11.10							11.10	Complete at 11.10m		

Remarks

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-06

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Site Cornelscourt			**Borehole Number** BH-07
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 3.70m 100mm to 11.40m = to	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location Cornelscourt	**Dates** 11/02/2019-07/03/2019	**Engineer**	**Sheet** 1/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00							(0.20) 0.20	Brown slightly sandy slightly gravelly TOPSOIL with grass rootlets.			
							(0.80)	Soft to firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
1.00-1.30 1.00					1,1/2,1,1,1 SPT(C) 5/150 B		1.00	Firm to stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to sub-rounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		▼1	
2.00-2.45 2.00					1,1/2,3,3,5 SPT(C) N=13 B		(2.00)			▽1	
3.00-3.24					30/50 Water strike(1) at 2.70m, rose to 1.20m in 20 mins. SPT(C) 30*/145 50/95 B		3.00	Very stiff brown sightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
3.00 3.50	50						(0.70) 3.70				
3.90							(0.20) 3.90	Driller notes brown Silty Clay with Gravel. Recovery consists of brown slightly silty slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Obstruction onto possible granite rock at 3.70m - no recovery.			
	20						(1.50)	Driller notes brown Silty Clay with Gravel. Recovery consists of brown slightly silty slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles.			
5.40 5.40-5.85					3,4/4,6,5,8 SPT(C) N=23		5.40	Driller notes brown Silty Clay with Gravel. Recovery consists of brown slightly silty slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles.			
	56	11	6				(0.90)				
							6.30	Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface.			
6.90							(0.60) 6.90				
7.20				6				Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface Non intact from 5.40m - 7.20m			
	100	32	24				(1.50)				
7.90				N.I.				Fracture set 1: Close to medium spaced at 0 - 20 degrees, stepped rough, tight to open, stained brown.			
8.40							8.40	Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface Non intact from 7.20m - 8.75m.			
8.75				6							
	100	44	40				(1.50)				
9.35								Fracture set 1: Close to medium spaced at 30 - 45 degrees, stepped rough, tight to open, stained brown.			
9.90							9.90				

Remarks
Groundwater at 2.70m.
No recovery

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-07

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Site Cornelscourt			**Borehole Number** BH-07
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 3.70m 100mm to 11.40m = to **Location** Cornelscourt	**Ground Level (mOD)** **Dates** 11/02/2019-07/03/2019	**Client** DBFL **Engineer**	**Job Number** 8354-01-19 **Sheet** 2/2

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	53	48	11			(1.50)	Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered to unweathered with quartz sand on fracture surface Non intact from 9.35m - 9.90m.			
11.40							11.40	Fracture set 1: Close to medium spaced at 30- 40 degrees, stepped rough, tight to open, stained brown.			
								Complete at 11.40m			

Remarks

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-07

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Site Cornelscourt			**Borehole Number** BH-08
Machine : Dando 2000 +T44 **Flush :** In water **Core Dia:** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 2.00m 100mm to 8.40m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location Cornelscourt	**Dates** 15/02/2019-28/02/2019	**Engineer**	**Sheet** 1/1

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(0.20) 0.20	Brown slightly sandy slightly gravelly TOPSOIL.			
							(1.10)	Soft brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
1.00-1.30 1.00					1,2/1,1,1,1 SPT(C) 4/150 B		1.30				
							(0.70)	Firm to stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Sand is fine to coarse and gravel is fine to coarse and sub-angular to subrounded..			
2.00-2.45					25/50 SPT(C) N=50		2.00				
							(1.20)	Very stiff CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and medium to coarse sub-angular to subrounded gravel. Obstruction: Possible granite boulder or rock at 2.0m.. No recovery at 2.0m.			
3.00							3.20				
3.40	88	51	51	5				Extremely weak to medium strong coarsely crystalline massive orange white GRANITE. Partially weathered to unweathered.			
3.90	100	73	64	10				Fracture set 1: From 3.40m - 3.90m, close to medium spaced at 30 - 45 degrees orientation, stepped rough, tight to open, stained brown.			
5.40	82	58	53	5			(5.20)	Fracture set 1: From 3.90m - 5.40m, close to medium spaced at 50 - 60 degrees orientation, planar rough, tight to open.			
6.90	86	24	16	7				Fracture set 1: From 5.40m - 6.90m, medium spaced at 50 - 65 degrees orientation, planar rough, tight to open.			
8.40							8.40	Fracture set 1: From 6.90 - 8.40m, close to medium spaced at 70 degrees, planar smooth, tight to open.			
								Complete at 8.40m			

Remarks
No groundwater encountered.
No recovery at 2.0m
Obstruction onto granite rock.

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-08

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Site Cornelscourt			**Borehole Number** BH-09
Machine : Dando 2000 + T 44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 2.90m 100mm to 8.00m **Location** Cornelscourt	**Ground Level (mOD)** **Dates** 12/02/2019-07/03/2019	**Client** DBFL **Engineer**	**Job Number** 8354-01-19 **Sheet** 1/1

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.40)	Brown slightly sandy slightly gravelly TOPSOIL.		
							0.40	Firm to stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles and fine to coarse sub-angular to subrounded gravel.		
1.00-1.30 1.00					2,3/3,4,4,3 SPT(C) 14/150 B		(1.60)			
2.00-2.45 2.00					2,4/5,5,4,4 SPT(C) N=18 B		2.00	Very stiff brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
							(0.90)			
2.90	100	78	72	7			2.90	Weak to medium strong coarsely crystalline whitish orange GRANITE. Partially weathered from 2.90m - 4.20m. Obstruction at 2.9m onto possible granite rock. No recovery.		
							(1.30)			
3.90								Fracture set 1: From 2.90m - 3.90m, medium spaced at 30 - 40 degrees orientation, stepped rough, tight to open.		
	100	100	100	8			4.20	Medium strong to strong coarsely crystalline whitish grey GRANITE. Unweathered.		
							(1.90)			
5.40										
	93	93	93				6.10	Medium strong orange grey coarsely crystalline GRANITE. Partially weathered to unweathered. Fracture set 1: From 3.90m - 6.35m, close to medium spaced at 0 - 20 degrees orientation, stepped rough, tight to open.		
6.35										
6.90				4			(1.90)			
	73	73	73							
8.00							8.00	Fracture set 1: From 6.35m - 8.0m, close to medium spaced at 40 - 50 degrees orientation, planar rough to smooth, tight to open, quartz bands.		
								Complete at 8.00m		

Remarks
Obstruction at 2.9m possible granite
No recovery at 2.9m

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-09

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Site Cornelscourt			**Borehole Number** BH-10
Machine : Dando 2000 + T44 **Flush :** In water **Core Dia :** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 2.85m 100mm to 6.90m **Location** Cornelscourt	**Ground Level (mOD)** **Dates** 12/02/2019-07/03/2019	**Client** DBFL **Engineer**	**Job Number** 8354-01-19 **Sheet** 1/1

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
							(0.40)	Brown slightly sandy slightly gravelly TOPSOIL.		
							0.40 (0.30) 0.70	Soft to firm light brown slightly sandy slightly gravelly CLAY with rare sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel.		
1.00-1.45 1.00					3,2/3,3,3,2 Water strike(1) at 0.90m. SPT(C) N=11 B			Firm brown slightly sandy slightly gravelly CLAY with rare sub angular cobbles.		▽1
2.00-2.45 2.00					1,1/2,2,2,1 SPT(C) N=7 B		(2.00)			
2.60 2.70 2.90	100	45	45	12	B		2.70 (0.15) 2.85	Obstruction at 2.6m onto possible granite rock. Firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.		
3.90	100	17	17	11			(4.05)	Weak to medium strong coarsely crystalline orange white GRANITE. Partially weathered to unweathered. Fracture set 1: From 2.85m - 3.90m, Close to medium spaced at 30 - 40 degrees orientation, planar rough, tight to open, stained brown.		
5.40	100	41	36	23				Fracture set 1: From 3.90m - 5.40m, close to medium spaced at 30 - 40 degrees orientation, planar rough to smooth, tight to open.		
6.90							6.90	Fracture set 1: From 5.40m to 6.90m, close to medium spaced at 30 - 45 degrees orientation, planar rough to smooth, tight to open. Complete at 6.90m		

Remarks
Obstruction onto granite rock

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-10

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Site Cornelscourt			**Borehole Number** BH-11
Machine : Dando 2000 + T 44 **Flush :** In water **Core Dia:** HQ mm **Method :** Rotary Cored	**Casing Diameter** 200mm to 3.20m 100mm to 8.40m	**Ground Level (mOD)**	**Client** DBFL	**Job Number** 8354-01-19
	Location Cornelscourt	**Dates** 12/02/2019-01/03/2019	**Engineer**	**Sheet** 1/1

Depth (m)	TCR	SCR	RQD	FI	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00					B		(0.20) 0.20	Brown slightly sandy slightly gravelly TOPSOIL.			
							(0.50)	Soft to firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
1.00-1.30					1,1/1,1,2,2 SPT(C) 6/150		0.70	Firm brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand with fine to coarse sub-angular to subrounded gravel.			
							(1.30)			▼1	
2.00-2.45 2.00					2,3/3,2,2,2 SPT(C) N=9 B		2.00	Very stiff grey slightly sandy slightly gravelly CLAY with occasional sub-rounded cobbles. Gravel is fine to coarse and angular to sub angular.			
							(1.20)			▽1	
3.00					2,2/50 Water strike(1) at 3.00m, rose to 1.50m in 20 mins. SPT(C) 50/115 B		3.20 (0.20) 3.40	Greyish brown slightly sandy slightly gravelly CLAY with occasional sub-angular to subrounded cobbles. Fine to coarse sand and fine to coarse sub-angular to subrounded gravel. Obstruction at 3.2m onto possible granite rock.			
3.00-3.27 3.00 3.20 3.50 3.84 3.90	100	30	25	5	B			Weak to medium strong coarsely crystalline orange white GRANITE. Partially weathered to unweathered. Non intact from from 3.40m - 3.50m. Fracture set 1: From 3.50m - 3.84m, medium spaced at 30 - 45 degrees orientation, stepped rough, tight to open. Non intact from 3.84m - 3.90m.			
	100	74	53	10			(2.40)				
5.40 5.80	100	15	15	5 12			5.80 (1.10)	Fracture set 1: From 3.90m - 5.40m, close to medium spaced at 60 - 70 degrees orientation, planar rough. tight to open, stained brown. Extremely weak to weak coarsely crystalline pinkish brown GRANITE. Distinctly weathered. Fracture set 1: From 5.40m - 5.80m, close to medium spaced at 40 - 50 degrees orientation, planar smooth, tight to open, stained brown, quartz sand on fracture surfaces.			
6.90	100	26	18				6.90 (1.50)	Weak to medium strong coarsely crystalline pinkish brown GRANITE. Partially weathered to unweathered. Non intact from 5.80m - 6.90.			
8.40							8.40	Fracture set 1: From 6.90m - 8.40m, close to medium spaced at 50 - 60 degrees orientation, planar rough to smooth, tight to open, quartz sand on fracture surfaces. Complete at 8.40m			

Remarks
Groundwater encountered a 3.00m.
Obstruction onto granite rock

Scale (approx)	Logged By
1:50	PM

Figure No. 8354-01-19.BH-11

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Cornelscourt – Rotary Core Photographs


GROUND
INVESTIGATIONS
IRELAND
Colour Chart #14
Grey Scale #14
Client: DBFL
Site: cornelscourt Dublin
Borehole ref: BH-02
Box No: 3 of 3
Job Ref: 8354-01-19
Date: 04/3/19
Depth: From 15.2 to 17.4
cm 10 20 30 40 50 60 70 80 90 100
15.9m
17.4m


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: CORNELSCOURT
Borehole ref: BH03
Box No: 1 of 3
Job Ref: 8354-01-19
Date: 05/03/19
Depth: From 5.4 to 9.5
cm 10 20 30 40 50 60 70 80 90 100 110
5.9m
8.4m
9.5m


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: cornelscourt Dublin
Borehole ref: BH-03
Box No: 2 of 3
Job Ref: 8354-01-19
Date: 05/3/19
Depth: From 9.5 m to 13.5 m
cm 10 20 30 40 50 60 70 80 90 100
9.9m
11.4m
12.9m
13.5m


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: CORNELSCOURT
Borehole ref: BH03
Box No: 3 of 3
Job Ref: 8354-01-19
Date: 05/03/19
Depth: From 13.5 to 15.9
cm 10 20 30 40 50 60 70 80 90 100 110
14.4m
15.9m


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: cornelscourt Dublin
Borehole ref: BH-04
Box No: 1 of 3
Job Ref: 8354-01-19
Date: 04/3/19
Depth: From 0.0 to 9.1
cm 10 20 30 40 50 60 70 80 90 100
2.4
3.9
5.4
6.9
8.4
9.1


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: cornelscourt Dublin
Borehole ref: BH-04
Box No: 2 of 3
Job Ref: 8354-01-19
Date: 04/3/19
Depth: From 9.1 to 11.75
cm 10 20 30 40 50 60 70 80 90 100
9.9
11.4
11.75

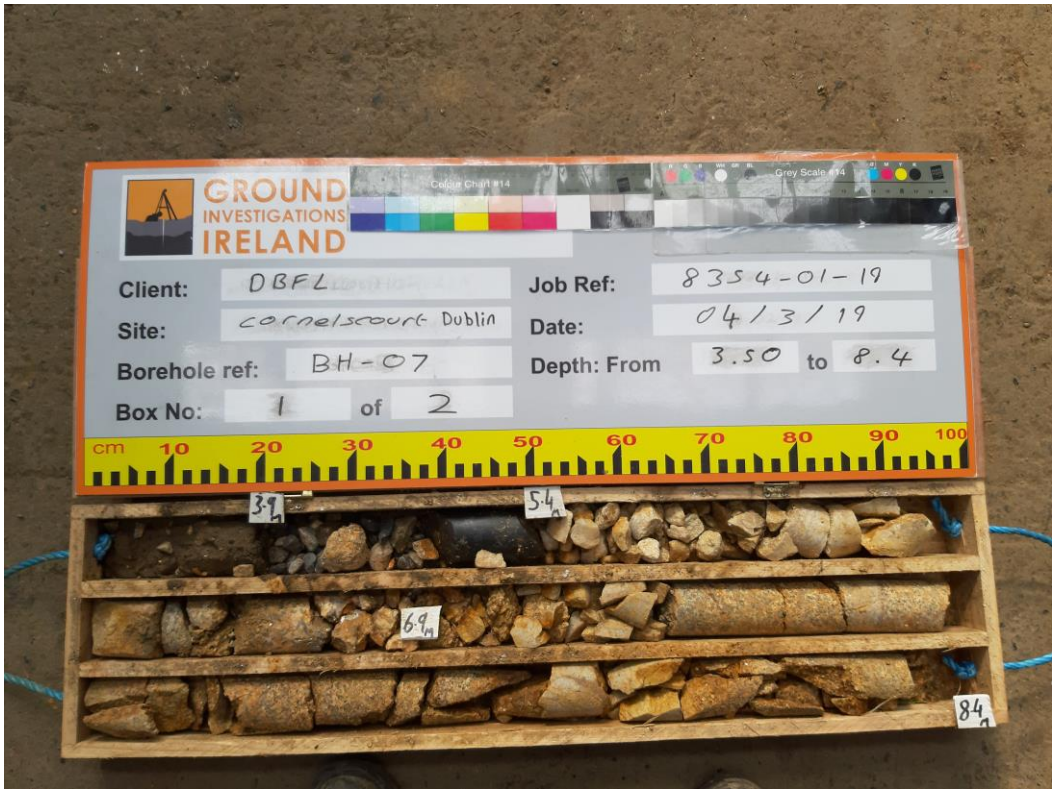

GROUND
INVESTIGATIONS
IRELAND
Colour Chart #14
Grey Scale #14
Client: DBFL
Job Ref: 8354-01-19
Site: cornelscourt Dublin
Date: 04/3/19
Borehole ref: BH-04
Depth: From 11.75 to 13.7
Box No: 3 of 3
cm 10 20 30 40 50 60 70 80 90 100
12.9m
13.7m


GROUND
INVESTIGATIONS
IRELAND
Colour Chart #14
Grey Scale #14
Client: DBFL
Job Ref: 8354-01-19
Site: cornelscourt Dublin
Date: 7/3/19
Borehole ref: BH-05
Depth: From 5.4 to 8.9
Box No: 1 of 2
cm 10 20 30 40 50 60 70 80 90 100
6.9m
8.4m
8.9m


GROUND
INVESTIGATIONS
IRELAND
Colour Chart #14
Grey Scale #14
Client: DBFL
Job Ref: 8354-01-19
Site: cornelscourt Dublin
Date: 7/3/19
Borehole ref: BH-05
Depth: From 8.9 to 10.8
Box No: 2 of 2
cm 10 20 30 40 50 60 70 80 90 100
9.9 m
10.8 m


GROUND
INVESTIGATIONS
IRELAND
Colour Chart #14
Grey Scale #14
Client: DBFL
Job Ref: 8354-01-19
Site: cornelscourt Dublin
Date: 06/3/19
Borehole ref: BH-06
Depth: From 4.5 to 8.4
Box No: 1 of 2
cm 10 20 30 40 50 60 70 80 90 100
5.4 m
6.9m
8.4 m


GROUND INVESTIGATIONS IRELAND
Colour Chart #14
Grey Scale #14
Client: DBFL
Job Ref: 8354-01-19
Site: cornelscourt Dublin
Date: 06/3/19
Borehole ref: BH-06
Depth: From 8.4 to 11.1
Box No: 2 of 2
cm 10 20 30 40 50 60 70 80 90 100
9.9m
11.1m


GROUND INVESTIGATIONS IRELAND
Colour Chart #14
Grey Scale #14
Client: DBFL
Job Ref: 8354-01-19
Site: cornelscourt Dublin
Date: 04/3/19
Borehole ref: BH-07
Depth: From 3.50 to 8.4
Box No: 1 of 2
cm 10 20 30 40 50 60 70 80 90 100
3.9m
5.4m
6.9m
8.4m


GROUND INVESTIGATIONS IRELAND
Client: DBFL
Site: Carnelscourt Dublin
Borehole ref: BH-07
Box No: 2 of 2
Job Ref: 8354-01-19
Date: 04/3/19
Depth: From 8.4 to 11.4
cm 10 20 30 40 50 60 70 80 90 100
9.9m
11.4m


GROUND INVESTIGATIONS IRELAND
Client: DBFL
Site: Carnelscourt Dublin
Borehole ref: BH-08
Box No: 1 of 2
Job Ref: 8354-01-19
Date: 28/2/19
Depth: From 3.00 to 6.1
cm 10 20 30 40 50 60 70 80 90 100
3.9m
5.4m
6.1m


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: Cornelscourt Dublin
Borehole ref: BH-08
Box No: 2 of 2
Job Ref: 8354-01-19
Date: 28/2/19
Depth: From 6.1 to 8.4
cm 10 20 30 40 50 60 70 80 90 100
6.9m
8.4m


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: Cornelscourt Dublin
Borehole ref: BH-09
Box No: 1 of 2
Job Ref: 8354-01-19
Date: 6/3/19
Depth: From 2.9 to 5.95
cm 10 20 30 40 50 60 70 80 90 100
3.9m
5.4m
5.95m


GROUND INVESTIGATIONS IRELAND
Client: DBFL
Site: cornelscourt Dublin
Borehole ref: BH-09
Box No: 2 of 2
Job Ref: 8354-01-19
Date: 6/3/19
Depth: From 5.95 to 8.0
cm 10 20 30 40 50 60 70 80 90 100
6.9m
8.0m


GROUND INVESTIGATIONS IRELAND
Client: DBFL
Site: cornelscourt Dublin
Borehole ref: BH-10
Box No: 1 of 2
Job Ref: 8354-01-19
Date: 7/3/19
Depth: From 2.7 to 5.4
cm 10 20 30 40 50 60 70 80 90 100
3.9m
5.4m


GROUND INVESTIGATIONS IRELAND
Client: DBFL
Site: Cornelscourt Dublin
Borehole ref: BH-10
Box No: 2 of 2
Job Ref: 8354-01-19
Date: 7/3/19
Depth: From 5.4 to 6.9
cm 10 20 30 40 50 60 70 80 90 100
6.9m

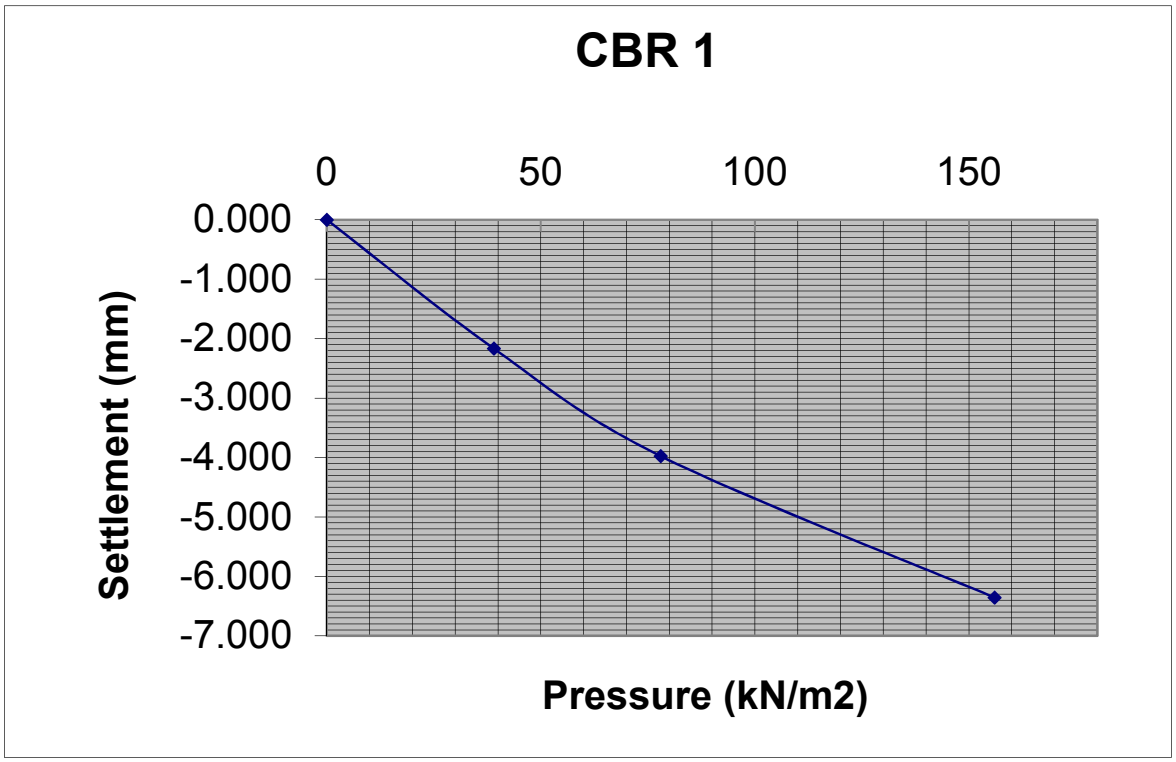

GROUND INVESTIGATIONS IRELAND
Client: DBFL
Site: Cornelscourt Dublin
Borehole ref: BH-11
Box No: 1 of 2
Job Ref: 8354-01-19
Date: 01/3/19
Depth: From 3.0 to 5.8
cm 10 20 30 40 50 60 70 80 90 100
3.9m
5.4m
5.8m


GROUND
INVESTIGATIONS
IRELAND
Client: DBFL
Site: Cornelscourt Dublin
Borehole ref: BH-11
Box No: 2 of 2
Job Ref: 8354-01-19
Date: 01/3/19
Depth: From 5.8 to 8.4
cm 10 20 30 40 50 60 70 80 90 100
6.9m
84

APPENDIX 7 – Plate Test Records

Applied Load	Gauge settlement
0	**0.000**
39	-2.165
78	-3.975
156	-6.355
0	
78	
156	
0	

LOCATION	Cornelscourt	**MATERIAL**	
CONTRACT NO.	8354-01-19		Light brown slightly sandy slightly gravelly CLAY
DATE	23/01/2019		
CLIENT	DBFL	**DEPTH**	0.4
PLATE DIAMETER	457mm	**NOTES**	Plate failed to stop moving up reloading
TEST NO.	Test 1	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **11.73 MN/m2/m**

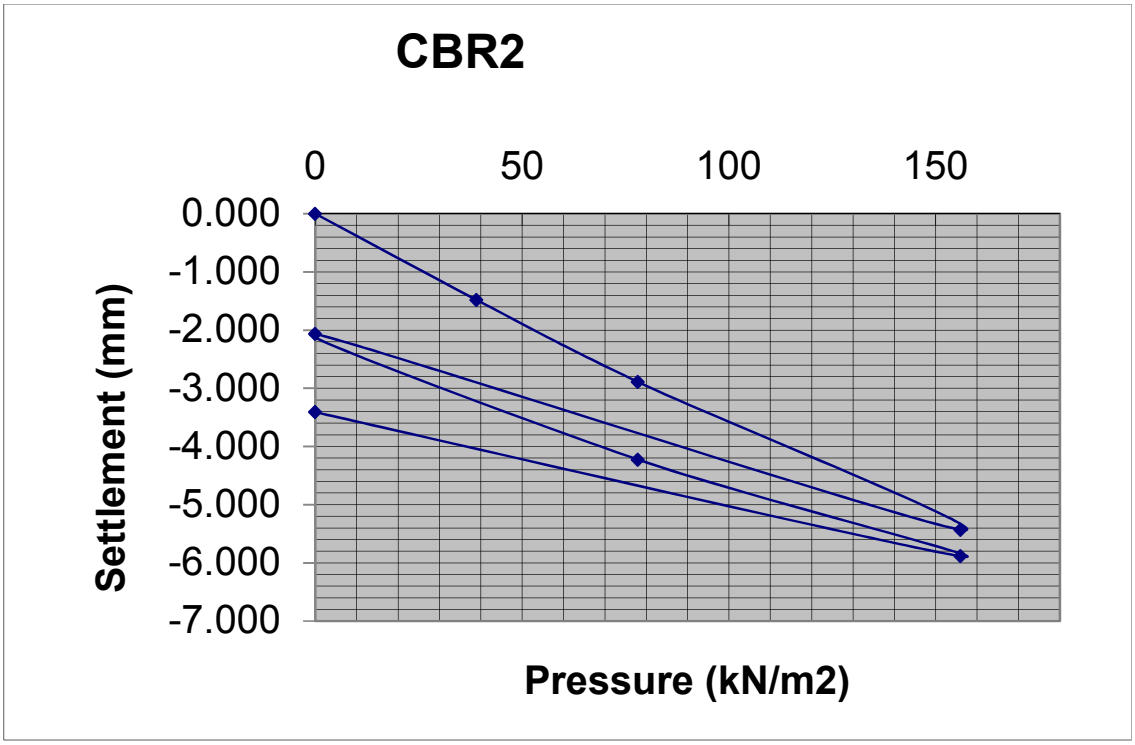
Modulus of subgrade reaction, K (Reload) = **#DIV/0! MN/m2/m**

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **0.69 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **#DIV/0! %**

Applied Load	Gauge settlement
0	**0.000**
39	-1.48
78	-2.89
156	-5.43
0	-2.065
78	-4.225
156	-5.885
0	-3.41

LOCATION	Cornelscourt	**MATERIAL**	
CONTRACT NO.	8354-01-19		Light brown slightly sandy slightly gravelly CLAY
DATE	23/01/2019		
CLIENT	DBFL	**DEPTH**	0.5
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	Test 2	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **16.13 MN/m2/m**

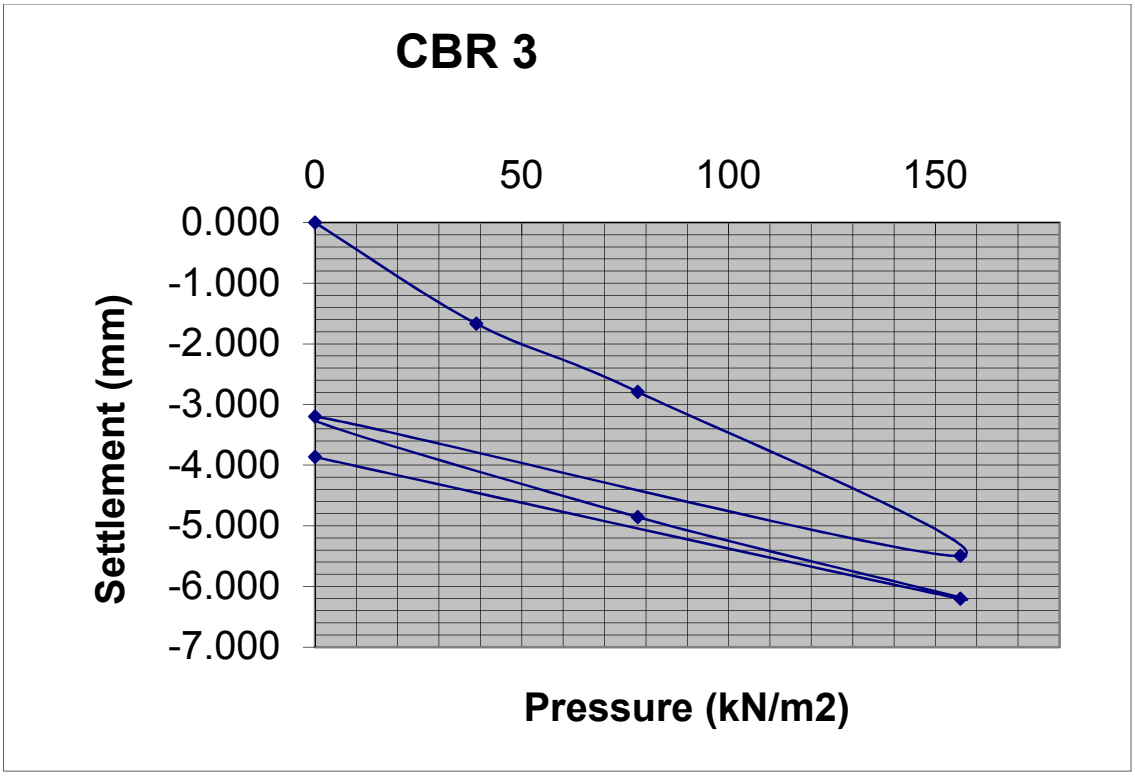
Modulus of subgrade reaction, K (Reload) = **21.58 MN/m2/m**

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **1.19 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **1.98 %**

Applied Load	Gauge settlement
0	**0.000**
39	-1.665
78	-2.79
156	-5.495
0	-3.2
78	-4.855
156	-6.2
0	-3.865

LOCATION	Cornelscourt	**MATERIAL**	
CONTRACT NO.	8354-01-19		Light brown slightly sandy slightly gravelly CLAY
DATE	23/01/2019		
CLIENT	DBFL	**DEPTH**	0.55
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	Test 3	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **16.71 MN/m2/m**

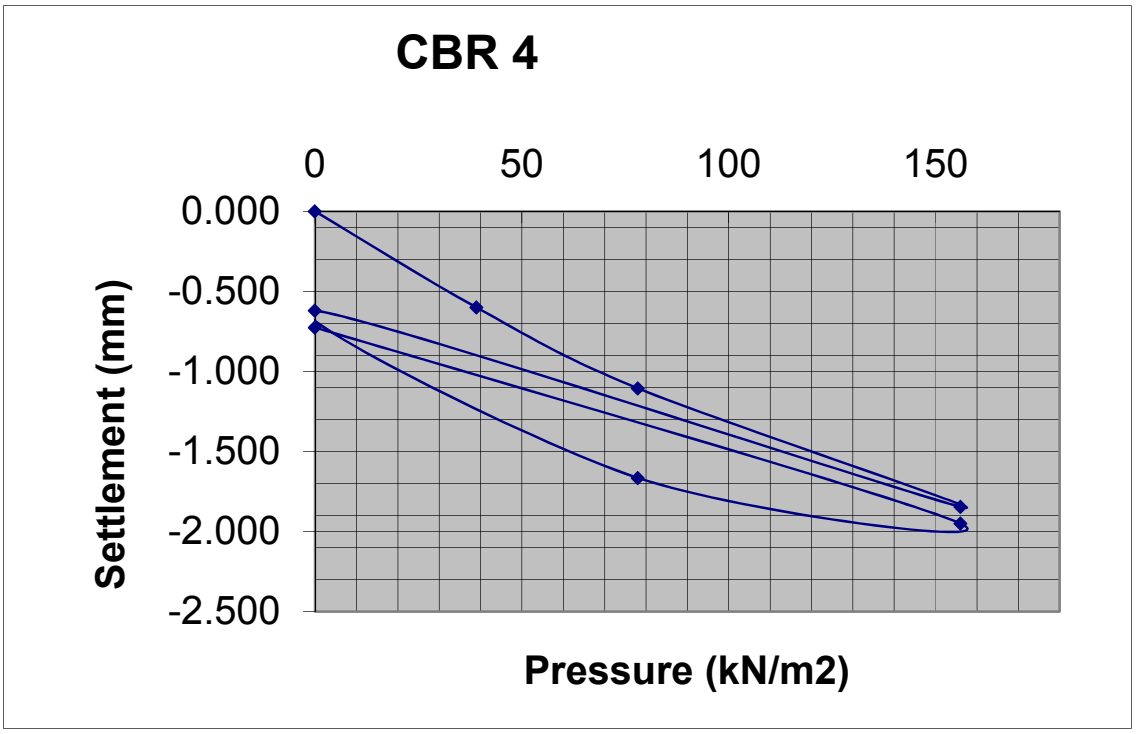
Modulus of subgrade reaction, K (Reload) = **28.17 MN/m2/m**

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **1.27 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **3.14 %**

Applied Load	Gauge settlement
0	**0.000**
39	-0.6
78	-1.105
156	-1.845
0	-0.62
78	-1.665
156	-1.95
0	-0.725

LOCATION	Cornelscourt	**MATERIAL**	MADE GROUND: Bluish grey sandy slightly clayey angular to sub-angular fine to coarse Gravel
CONTRACT NO.	8354-01-19		
DATE	23/01/2019		
CLIENT	DBFL	**DEPTH**	
PLATE DIAMETER	457mm	**NOTES**	
TEST NO.	Test 4	**SAMPLES**	



Modulus of subgrade reaction, K (Initial) = **42.19 MN/m2/m**

Modulus of subgrade reaction, K (Reload) = **44.62 MN/m2/m**

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **6.32 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **6.96 %**

APPENDIX 8 – Laboratory Testing Records

APPENDIX 8.1 – Geotechnical Laboratory Records

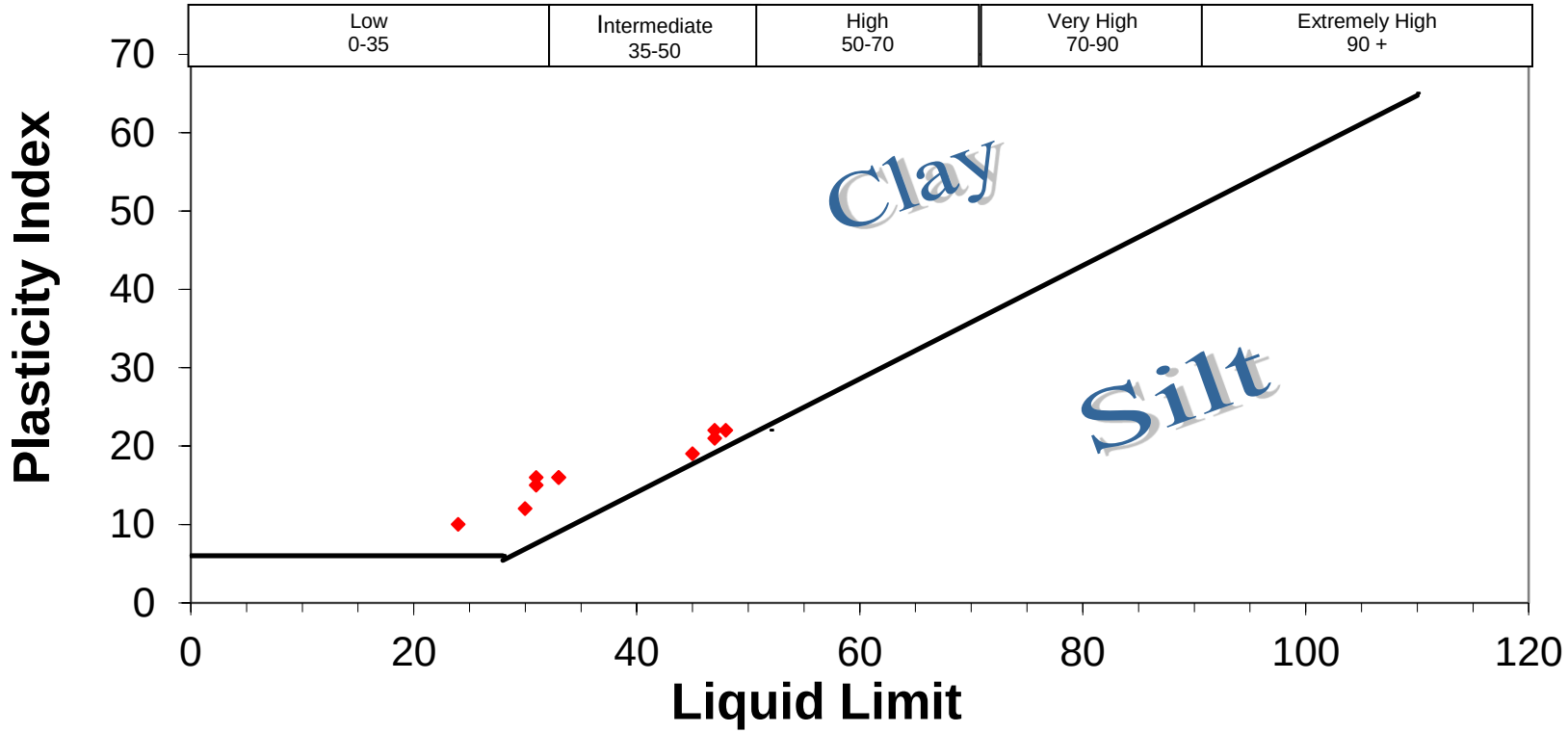
National Materials Testing Laboratory Ltd.

SUMMARY OF TEST RESULTS

				Particle			Index Properties		Bulk	Cell	Undrained Triaxial Tests		Lab	
BH/TP	Depth	sample	Moisture	Density	<425um	LL	PL	PI	Density	Presssure	Compressive	Strain at	Vane	Remarks
No	m	No.	%	Mg/m3	%	%	%	%	Mg/m3	kPa	Stress kPa	Failure %	kPa	
TP02	3.7	B	10.5		27.3	24	14	10						
TP03	0.50	B	22.4		76.7	48	26	22						
TP03	2.50	B	16.2		66.4	31	15	16						
TP06	2.90	B	13.9		46.9	31	16	15						
TP08	0.50	B	22.6		75.0	47	25	22						
TP13	0.50	B	23.7		77.7	47	26	21						
TP13	2.50	B	14.6		56.5	33	17	16						
TP14	1.50	B	13.4		50.1	33	17	16						
TP17	0.50	B	23.5		78.4	45	26	19						
TP21	1.00	B	14.0		41.4	30	18	12						

NMTL	Notes :	Job ref No.	NMTL 2837	GII Project ID:	8354-01-19
	1. All BS tests carried out using preferred (definitive) method unless otherwise stated.	Location	Cornelscourt		

NMTL LTD	**Contract:** Cornelscourt
Unit 18c, Tullow Industrial Estate	**Client:** Ground Investigations Ireland Ltd
Tullow	**Engineer:** N/A
County Carlow	**GII Project ID** 8354-01-19
Tel: 00353 59 9180822	**Date:** 27/02/2019
Mob: 00353 872575508	**Tested By:** Tzr **Checked:** Bc
billachana@eircom.net	**Job ref No.** NMTL 2837



NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	94.5
50.000	89.8
37.500	84.9
28.000	77.2
20.000	71.7
14.000	66.2
10.000	63.2
6.300	58.2
5.000	55.8
3.350	52.5
2.000	46.7
1.180	40.3
0.600	31.1
0.425	27.3
0.300	24.0
0.212	20.8
0.150	17.3
0.063	11.6

Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		11.6			35.2			47.8		5.5	0.0

Sample Description: Brown clayey/silty very sandy GRAVEL with some cobbles.

Project: Cornelscourt

GII Project ID: 8354-01-18

Operator	Checked	Approved	Date sample tested
Tzr	Nc	Bc	19/02/2019

Project No.	NMTL 2837
BH/TP No.	TP02
Sample No.	B
Depth	3.70m

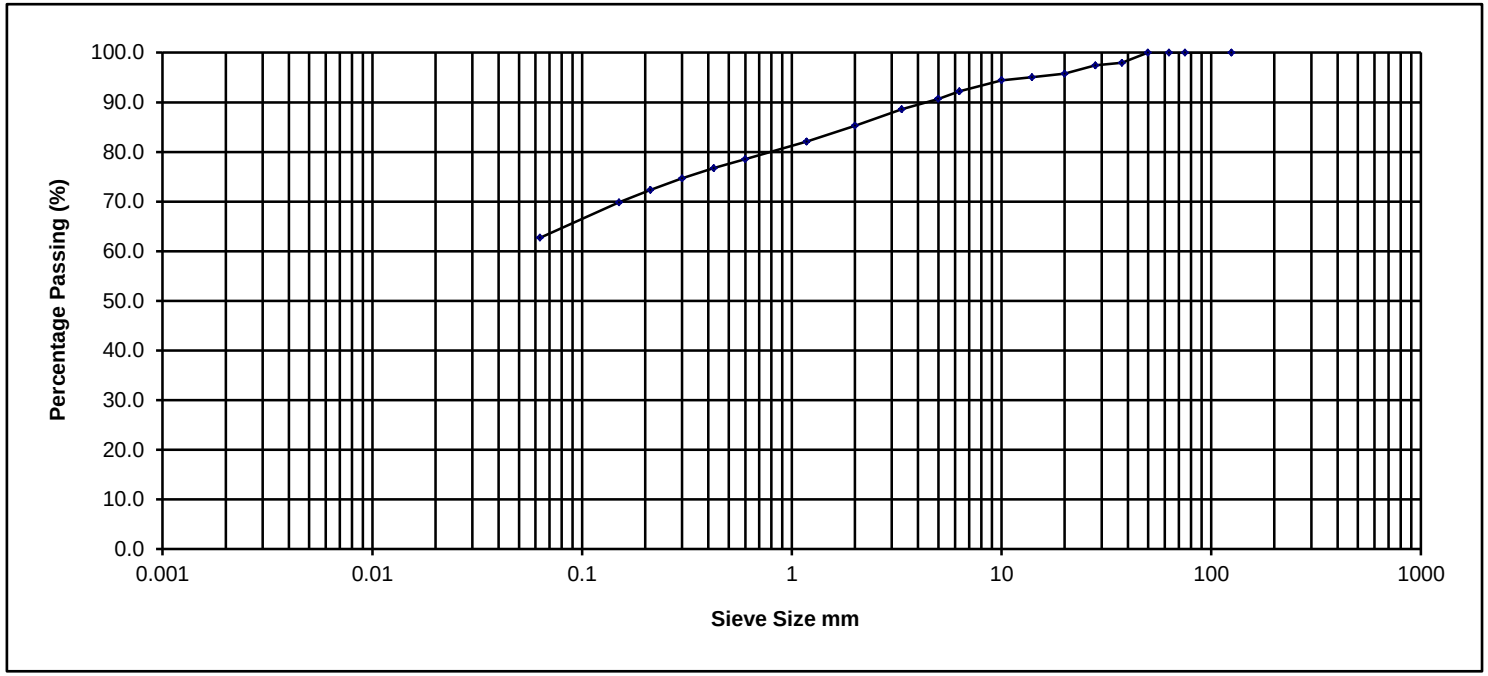
NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	97.9
28.000	97.4
20.000	95.8
14.000	95.1
10.000	94.4
6.300	92.2
5.000	90.7
3.350	88.6
2.000	85.3
1.180	82.1
0.600	78.5
0.425	76.7
0.300	74.7
0.212	72.4
0.150	69.8
0.063	62.7



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		62.7			22.6			14.7		0.0	0.0

Sample Description	Brown slightly gravelly slightly sandy silty CLAY.							Project No.	NMTL 2837
								BH/TP No.	TP03
Project	Cornelscourt					**GII Project ID:**	**8354-01-18**	Sample No.	B
Operator	Tzr	Checked	Nc	Approved	Bc	Date sample tested	19/02/2019	Depth	0.50m

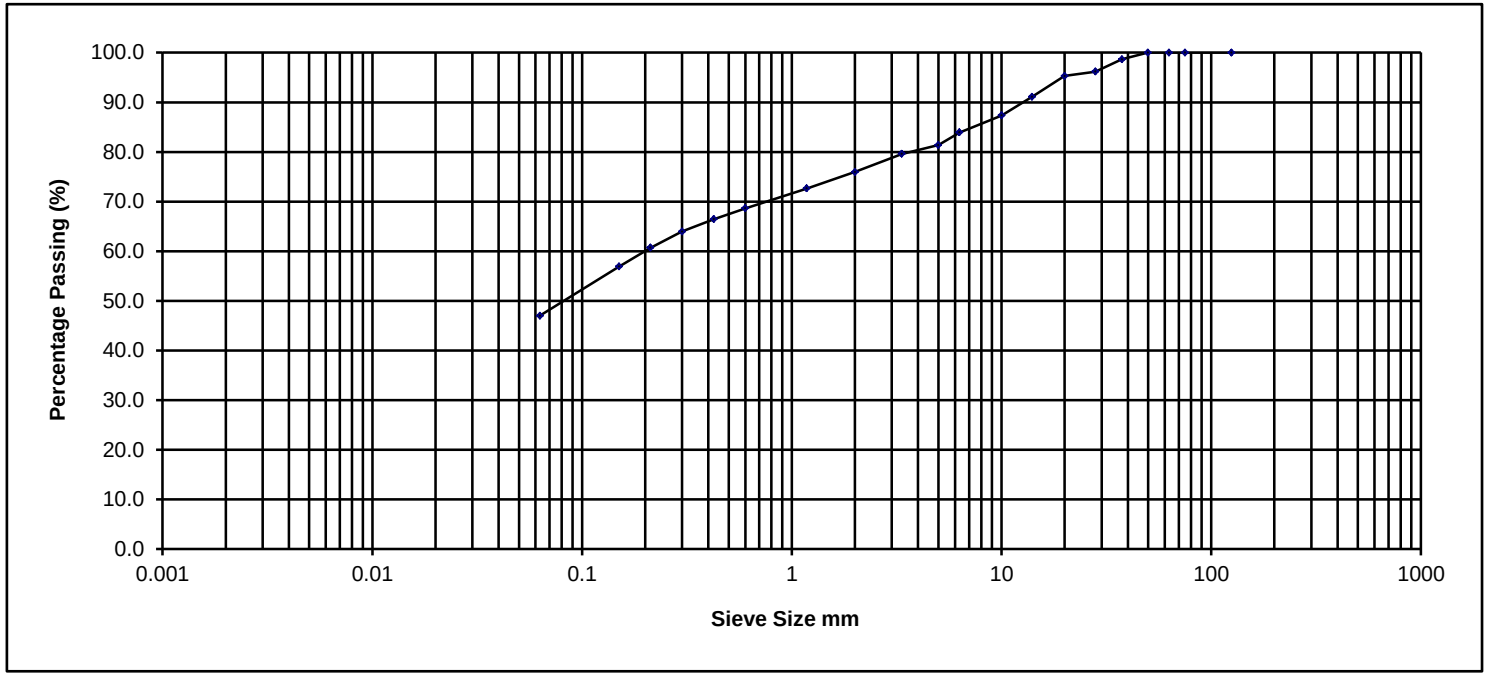
NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	98.7
28.000	96.2
20.000	95.3
14.000	91.1
10.000	87.3
6.300	83.9
5.000	81.4
3.350	79.6
2.000	76.0
1.180	72.6
0.600	68.6
0.425	66.4
0.300	64.0
0.212	60.7
0.150	56.9
0.063	47.0



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		47.0			29.0			24.0		0.0	0.0

Sample Description: Brown slightly gravelly slightly sandy silty CLAY.

Project: Cornelscourt

GII Project ID: 8354-01-18

Project No.	NMTL 2837
BH/TP No.	TP03
Sample No.	B
Depth	2.50m

Operator	Tzr	Checked	Nc	Approved	Bc	Date sample tested	19/02/2019

NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	96.2
50.000	94.4
37.500	90.1
28.000	85.8
20.000	82.8
14.000	79.3
10.000	73.7
6.300	68.2
5.000	65.1
3.350	62.6
2.000	58.2
1.180	53.9
0.600	49.2
0.425	46.9
0.300	44.6
0.212	42.4
0.150	40.1
0.063	34.5

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		34.5			23.7			38.0		3.8	0.0

Sample Description	Brown slightly sandy gravelly silty CLAY, with occasional cobbles.					Project No.	NMTL 2837
						BH/TP No.	TP06
Project	Cornelscourt			**GII Project ID:**	**8354-01-18**	Sample No.	B
Operator Tzr	Checked Nc	Approved Bc		Date sample tested	19/02/2019	Depth	2.90m

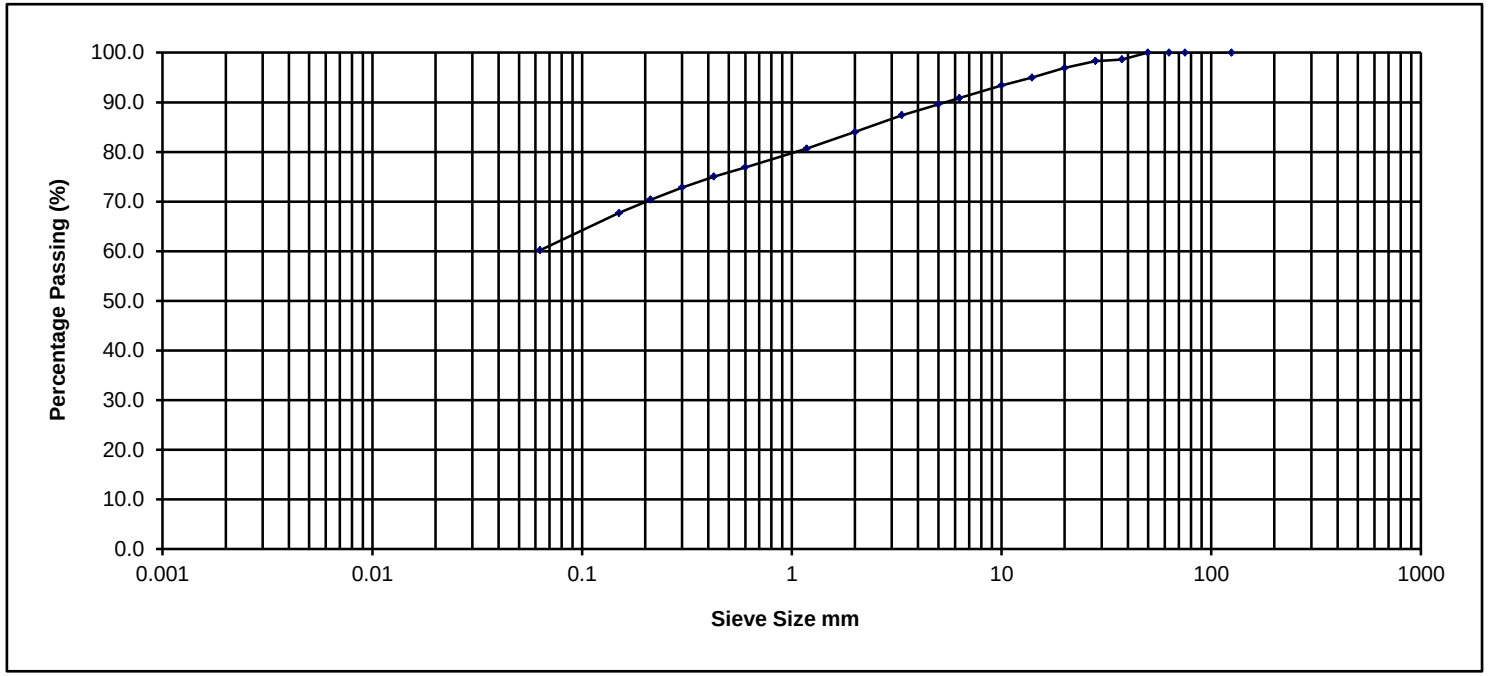
NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	98.6
28.000	98.3
20.000	96.9
14.000	95.0
10.000	93.4
6.300	90.9
5.000	89.6
3.350	87.4
2.000	84.0
1.180	80.7
0.600	76.9
0.425	75.0
0.300	72.8
0.212	70.4
0.150	67.7
0.063	60.2



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		60.2			23.8			16.0		0.0	0.0

Sample Description	Brown slightly gravelly slightly sandy silty CLAY.							Project No.	NMTL 2837
								BH/TP No.	TP08
Project	Cornelscourt					**GII Project ID:**	**8354-01-18**	Sample No.	B
Operator	Tzr	Checked	Nc	Approved	Bc	Date sample tested	19/02/2019	Depth	0.50m

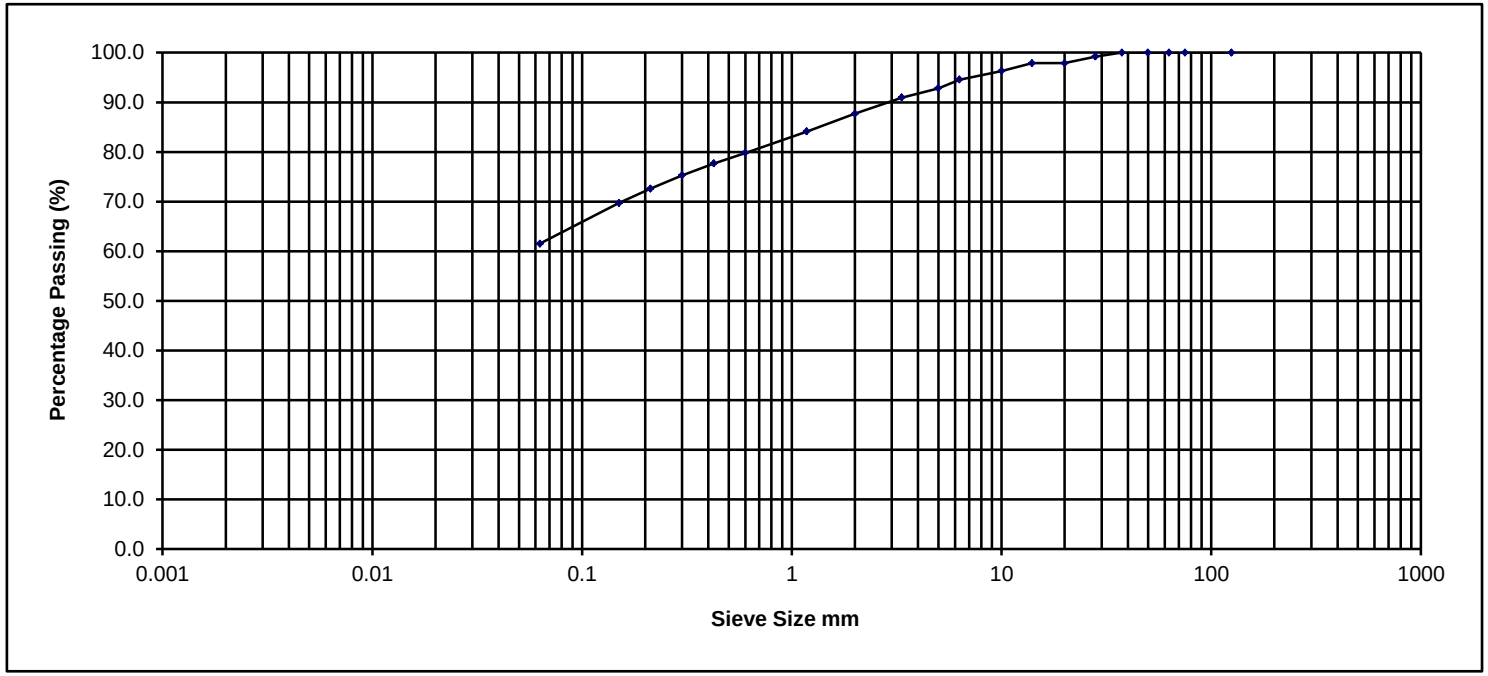
NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	100.0
28.000	99.2
20.000	97.9
14.000	97.9
10.000	96.3
6.300	94.6
5.000	92.8
3.350	91.0
2.000	87.7
1.180	84.1
0.600	79.8
0.425	77.7
0.300	75.3
0.212	72.6
0.150	69.7
0.063	61.5



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		61.5			26.2			12.3		0.0	0.0

Sample Description	Brown slightly gravelly slightly sandy silty CLAY.					Project No.	NMTL 2837
						BH/TP No.	TP13
Project	Cornelscourt			**GII Project ID:**	**8354-01-18**	Sample No.	B
Operator Tzr	Checked Nc	Approved Bc		Date sample tested	19/02/2019	Depth	0.50m

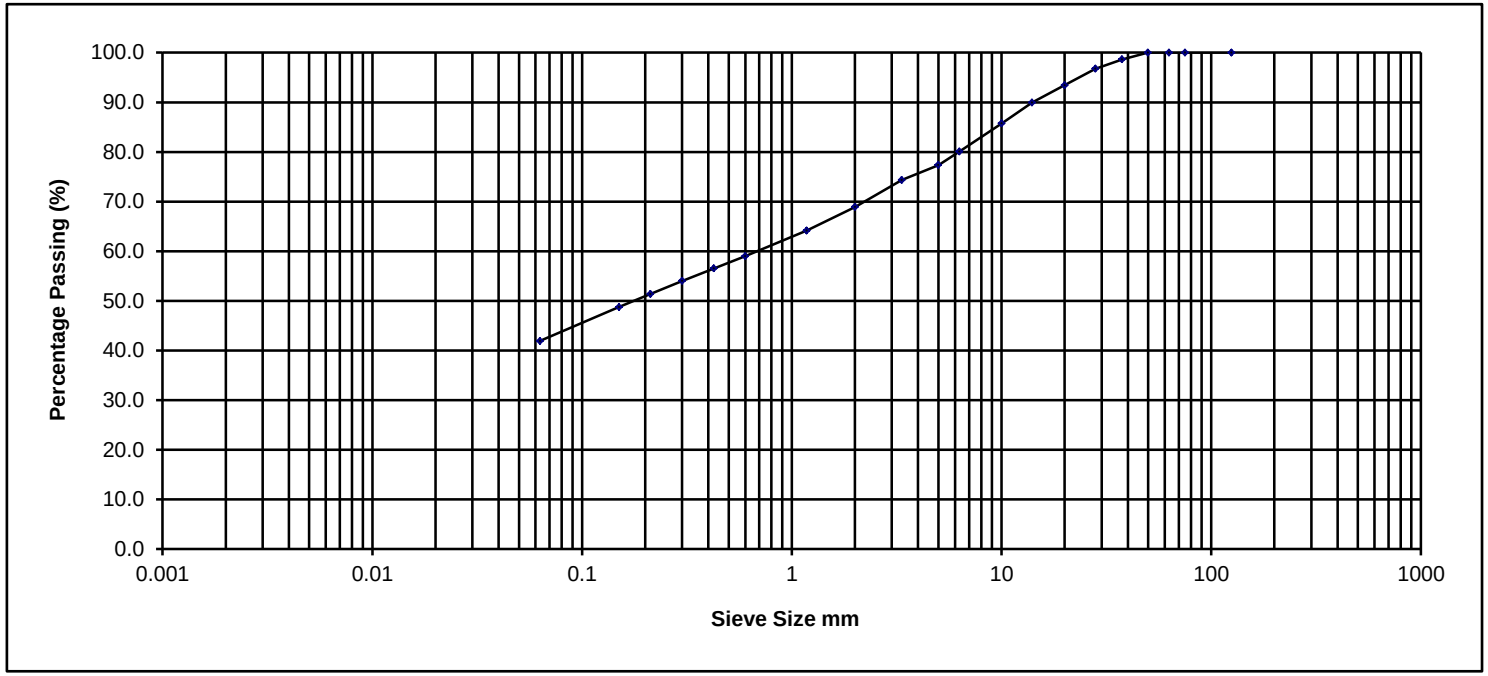
NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	98.6
28.000	96.8
20.000	93.4
14.000	90.0
10.000	85.7
6.300	80.1
5.000	77.4
3.350	74.3
2.000	68.9
1.180	64.1
0.600	59.0
0.425	56.5
0.300	54.0
0.212	51.4
0.150	48.7
0.063	41.9



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		41.9			27.0			31.1		0.0	0.0

Sample Description	Brown slightly sandy slightly gravelly silty CLAY.					Project No.	NMTL 2837
						BH/TP No.	TP13
Project	Cornelscourt			**GII Project ID:**	**8354-01-18**	Sample No.	B
Operator Tzr	Checked Nc	Approved Bc		Date sample tested	19/02/2019	Depth	2.50m

NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	99.5
28.000	98.1
20.000	97.3
14.000	90.1
10.000	81.8
6.300	72.8
5.000	69.6
3.350	65.8
2.000	60.7
1.180	56.7
0.600	52.3
0.425	50.1
0.300	47.9
0.212	45.6
0.150	43.0
0.063	36.7

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		36.7			24.0			39.3		0.0	0.0

Sample Description	Brown slightly sandy gravelly silty CLAY.							Project No.	NMTL 2837
								BH/TP No.	TP14
Project	Cornelscourt					**GII Project ID:**	**8354-01-18**	Sample No.	B
Operator	Tzr	Checked	Nc	Approved	Bc	Date sample tested	19/02/2019	Depth	1.50m

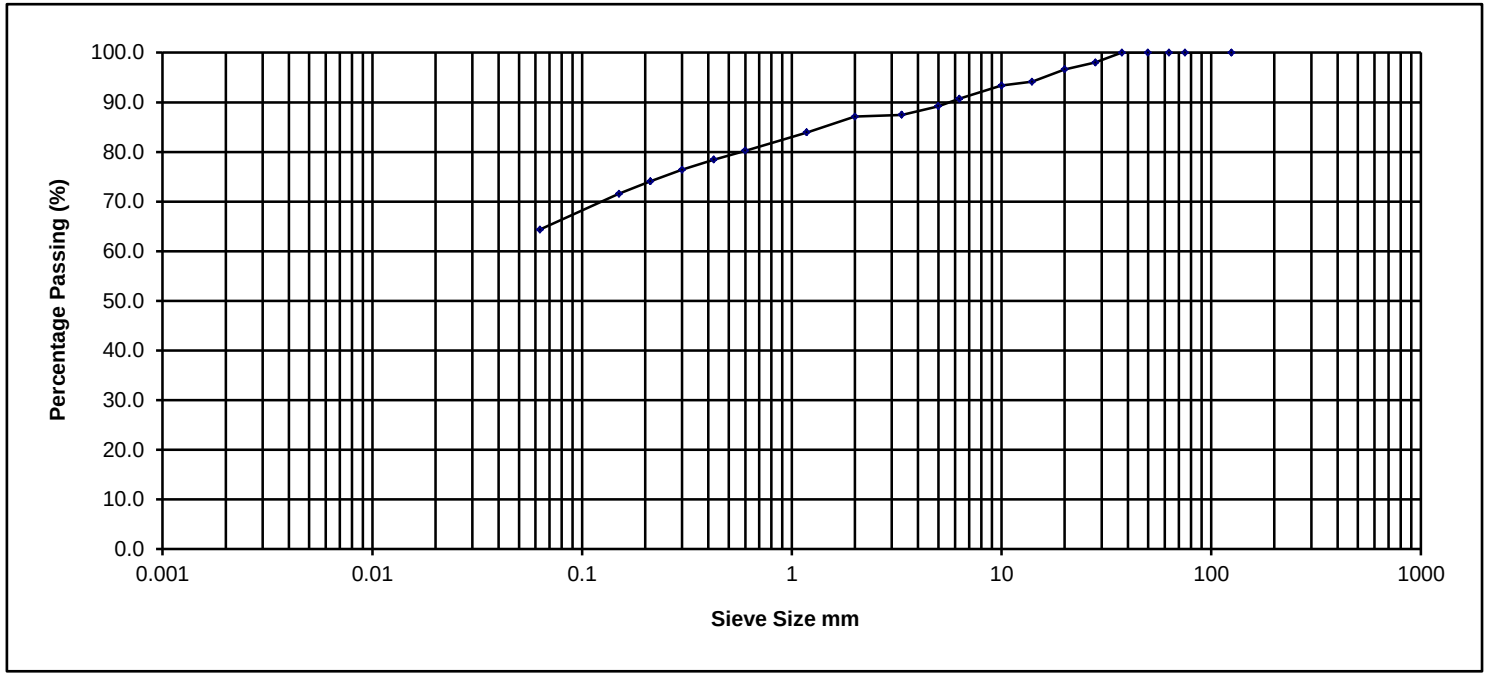
NM TL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	100.0
50.000	100.0
37.500	100.0
28.000	98.0
20.000	96.6
14.000	94.1
10.000	93.4
6.300	90.7
5.000	89.2
3.350	87.5
2.000	87.1
1.180	83.9
0.600	80.3
0.425	78.4
0.300	76.4
0.212	74.1
0.150	71.6
0.063	64.4



Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		64.4			22.8			12.9		0.0	0.0

Sample Description	Brown slightly gravelly slightly sandy silty CLAY.					Project No.	NMTL 2837
						BH/TP No.	TP17
Project	Cornelscourt			**GII Project ID:**	**8354-01-18**	Sample No.	B
Operator Tzr	Checked Nc	Approved Bc		Date sample tested	19/02/2019	Depth	0.50m

NMTL Ltd

NMTL Ltd

Determination of Particle Size Distribution

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

Sieve Size mm	% Passing
125.000	100.0
75.000	100.0
63.000	93.9
50.000	92.7
37.500	87.6
28.000	82.7
20.000	80.2
14.000	77.3
10.000	73.5
6.300	69.2
5.000	65.6
3.350	62.7
2.000	56.0
1.180	50.0
0.600	43.8
0.425	41.4
0.300	39.2
0.212	36.9
0.150	34.5
0.063	28.1

Percentage Particle Size

Clay	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulder
		Silt			Sand			Gravel			
		28.1			27.9			37.9		6.1	0.0

Sample Description: Brown slightly sandy gravelly silty CLAY, with some cobbles.

Project: Cornelscourt

GII Project ID: 8354-01-18

Operator	Tzr	Checked	Nc	Approved	Bc	Date sample tested	19/02/2019

Project No.	NMTL 2837
BH/TP No.	TP21
Sample No.	B
Depth	1.00m

NMTL Ltd

APPENDIX 8.2 – Rock Laboratory Records

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Geotechnical Laboratory,
Civil, Structural & Environmental Engineering
& Environmental Engineering
Trinity College,
Dublin.2.

+353 1 8961009
edunne@tcd.ie

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

Unconfined Compression Tests On Rock Cores

Project: Cornelscourt

Project No: 7354 - 01 - 19

Delivery Date: 27.03.2019

Test Date: 01.04.2019

Borehole Number	Depth (m)	Average Diameter (mm)	Height (mm)	Length/Dia. (Ratio)	Unconfined Compressive Strength (Mpa)	Density (Mg/m^3)
BH - 02	12.40 - 12.90	63.4	159.2	2.51	23.6	2.51
BH - 06	7.30 - 7.50	63.4	112.5	1.77	16.9	2.46
BH - 08	4.10 - 4.40	0.0	159.1	2.51	27.8	2.52
BH - 09	3.00 - 3.20	62.8	134.5	2.14	27.5	2.55
BH - 10	5.40 - 5.70	63.3	158.9	2.51	27.7	2.54
BH - 11	4.90 - 5.40	63.2	158.7	2.51	18.8	2.50

Prof. B. O'Kelly

Specimens prepared and tested in accordance with suggested method from International Society for Rock Mechanics (ISRM), 1985

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Geotechnical Laboratory,
Civil, Structural & Environmental Engineering
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+353 1 8961009
edunne@tcd.ie

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

Point Load Index Tests (single diametral determination)

Project: Cornelscourt

Project No: 8354 - 01 - 19

Delivery date: 27.03.2019

Test Date: 02.04.2019

Diametric samples

Borehole No.	Depth (m)	Is(50) (Mpa)
BH - 02	12.10 - 12.30	0.76
BH - 03	13.00 - 13.30	0.61
BH - 04	8.80 - 9.10	1.56
BH - 05	6.20 - 6.30	0.50
BH - 06	6.20 - 6.30	0.17
BH - 06	10.00 - 10.20	0.39
BH - 07	7.20 - 7.30	0.70
BH - 08	3.60 - 3.90	1.08
BH - 09	4.35 - 4.50	4.66
BH - 10	3.70 - 3.90	0.23
BH - 11	3.60 - 3.90	0.76

Prof. Brendan O'Kelly

Specimens prepared and tested in accordance with suggested method from International Society for Rock Mechanics (ISRM), 1985

APPENDIX 8.3 – Environmental Laboratory Records

Exova Jones Environmental

Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

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Zone 3
Deeside Industrial Park
Deeside
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Attention :	Barry Sexton
Date :	11th February, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/1176 Batch 1
Location :	Cornelscourt
Date samples received :	24th January, 2019
Status :	Final report
Issue :	1

Thirty eight samples were received for analysis on 24th January, 2019 of which twenty 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.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Phil Sommerton BSc
Project Manager

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	1-3	4-6	10-12	13-15	19-21	28-30	31-33	37-39	40-42	43-45	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-04	TP-04	TP-05	TP-06	TP-06			
Depth	0.50	1.50	0.60	1.60	0.50	1.00	2.00	0.80	0.50	1.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Antimony	2	-	2	-	3	2	-	2	2	2	<1	mg/kg	TM30/PM15
Arsenic #	16.1	-	10.9	-	16.3	10.1	-	15.4	7.7	11.3	<0.5	mg/kg	TM30/PM15
Barium #	143	-	73	-	165	63	-	121	87	81	<1	mg/kg	TM30/PM15
Cadmium #	2.6	-	1.9	-	2.7	1.8	-	2.9	1.7	2.1	<0.1	mg/kg	TM30/PM15
Chromium #	88.9	-	42.7	-	73.1	54.8	-	76.8	77.4	50.0	<0.5	mg/kg	TM30/PM15
Copper #	27	-	27	-	35	27	-	33	18	32	<1	mg/kg	TM30/PM15
Lead #	24	-	17	-	70	18	-	142	12	16	<5	mg/kg	TM30/PM15
Mercury #	<0.1	-	<0.1	-	<0.1	<0.1	-	0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	3.6	-	3.2	-	5.5	4.2	-	5.7	3.3	3.5	<0.1	mg/kg	TM30/PM15
Nickel #	48.1	-	40.0	-	53.5	35.7	-	51.6	31.6	44.4	<0.7	mg/kg	TM30/PM15
Selenium #	2	-	1	-	2	1	-	2	<1	<1	<1	mg/kg	TM30/PM15
Zinc #	107	-	88	-	138	101	-	144	61	96	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	-	<0.04	-	<0.04	<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	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-	<0.05	-	<0.05	<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	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	-	<0.03	-	0.05	<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	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	-	<0.03	-	0.10	<0.03	-	0.10	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	-	<0.03	-	0.10	<0.03	-	0.10	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-	<0.06	-	0.10	<0.06	-	0.10	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	-	<0.02	-	0.06	<0.02	-	0.08	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	-	<0.07	-	0.11	<0.07	-	0.14	<0.07	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-	<0.04	-	0.06	<0.04	-	0.08	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	-	<0.04	-	<0.04	<0.04	-	0.05	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-	<0.04	-	<0.04	<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	-	0.06	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	-	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	-	<0.22	-	0.27	<0.22	-	0.43	<0.22	<0.22	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	-	<0.64	-	<0.64	<0.64	-	0.76	<0.64	<0.64	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-	<0.05	-	0.08	<0.05	-	0.10	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-	<0.02	-	0.03	<0.02	-	0.04	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	-	<1	-	<1	<1	-	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	98	-	97	-	99	96	-	96	99	91	<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	-	<30	-	<30	<30	-	<30	<30	<30	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	1-3	4-6	10-12	13-15	19-21	28-30	31-33	37-39	40-42	43-45	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-04	TP-04	TP-05	TP-06	TP-06			
Depth	0.50	1.50	0.60	1.60	0.50	1.00	2.00	0.80	0.50	1.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	-	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	-	<4	-	<4	<4	-	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	-	<7	-	<7	<7	-	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	-	<7	-	<7	<7	-	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	-	<7	-	<7	<7	-	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	-	<26	-	<26	<26	-	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25	<10	-	<10	-	<10	<10	-	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	-	<10	-	<10	<10	-	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	-	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	-	<4	-	<4	<4	-	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	-	<7	-	<7	<7	-	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	-	<7	-	<7	<7	-	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	-	<7	-	<7	<7	-	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	-	<26	-	<26	<26	-	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	-	<52	-	<52	<52	-	<52	<52	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	-	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	-	<10	-	<10	<10	-	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	-	<10	-	<10	<10	-	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 #	<5	-	<5	-	<5	<5	-	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	-	<35	-	<35	<35	-	<35	<35	<35	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	1-3	4-6	10-12	13-15	19-21	28-30	31-33	37-39	40-42	43-45	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-01	TP-02	TP-02	TP-03	TP-04	TP-04	TP-05	TP-06	TP-06			
Depth	0.50	1.50	0.60	1.60	0.50	1.00	2.00	0.80	0.50	1.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Natural Moisture Content	17.4	-	15.1	-	23.2	18.0	-	26.2	16.4	14.2	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	14.8	-	13.1	-	18.8	15.3	-	20.7	14.1	12.5	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	-	<0.3	-	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-		-		-	-		-	-		<0.0015	g/l	TM38/PM20
Chromium III	88.9	-	42.7	-	73.1	54.8	-	76.8	77.4	50.0	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.70	-	0.36	-	1.58	0.34	-	1.66	0.28	0.34	<0.02	%	TM21/PM24
pH #	8.46		8.76		8.40	8.80		8.52	8.62	8.74	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1042	-	0.1058	-	0.1137	0.1107	-	0.1125	0.1046	0.1048		kg	NONE/PM17
Mass of dried test portion	0.09	-	0.09	-	0.09	0.09	-	0.09	0.09	0.09		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	52-54	55-57	58-60	64-66	67-69	73-75	76-78	81-83	84-86	94-96	LOD/LOR	Units	Method No.
Sample ID	TP-07	TP-07	TP-07	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14			
Depth	0.50	1.50	2.50	0.50	1.50	0.50	1.50	0.50	1.50	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Antimony	1	2	1	3	2	3	2	3	2	2	<1	mg/kg	TM30/PM15
Arsenic #	7.6	7.8	7.7	15.8	12.2	17.8	14.6	18.6	10.4	11.8	<0.5	mg/kg	TM30/PM15
Barium #	36	62	65	147	255	139	99	125	69	75	<1	mg/kg	TM30/PM15
Cadmium #	1.8	1.8	1.4	3.0	3.5	3.0	2.6	2.5	1.9	2.2	<0.1	mg/kg	TM30/PM15
Chromium #	40.1	54.6	47.5	66.8	59.7	67.6	70.0	79.6	54.6	60.1	<0.5	mg/kg	TM30/PM15
Copper #	26	23	21	31	37	42	40	44	32	41	<1	mg/kg	TM30/PM15
Lead #	11	14	12	26	25	35	26	84	17	157	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	0.2	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	3.4	3.4	2.8	5.6	6.2	5.8	4.8	4.9	3.8	3.6	<0.1	mg/kg	TM30/PM15
Nickel #	21.2	29.7	29.2	54.4	61.0	66.7	54.4	47.3	42.4	44.0	<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	<1	2	3	2	1	2	1	1	<1	mg/kg	TM30/PM15
Zinc #	66	80	67	134	107	143	116	139	91	139	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.15	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.15	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.39	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.06	<0.03	1.51	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.30	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.09	<0.03	1.06	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.10	<0.03	2.80	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.10	<0.06	0.59	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.08	<0.02	0.37	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.14	<0.07	0.69	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.08	<0.04	0.60	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.06	<0.04	0.36	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.05	<0.04	1.64	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.62	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	0.42	<0.22	4.35	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	0.76	<0.64	11.37	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.10	<0.05	0.50	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	0.19	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	105	97	99	98	96	105	108	112	99	97	<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	<30	<30	<30	<30	<30	<30	<30	<30	3329	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	52-54	55-57	58-60	64-66	67-69	73-75	76-78	81-83	84-86	94-96	LOD/LOR	Units	Method No.
Sample ID	TP-07	TP-07	TP-07	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14			
Depth	0.50	1.50	2.50	0.50	1.50	0.50	1.50	0.50	1.50	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	0.2 SV	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	1.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	17.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	12	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	66	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	2821	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	413	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	3329	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	0.2 SV	<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10	<10	<10	<10	<10	<10	<10	<10	530	<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	2358	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	31.4	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	36	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	129	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	1585	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	291	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	2072	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52	<52	5401	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	463	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	1315	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5 SV	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5 SV	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	<5 SV	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	13 SV	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	15 SV	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	30 SV	<5	ug/kg	TM31/PM12
PCB 28 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	52-54	55-57	58-60	64-66	67-69	73-75	76-78	81-83	84-86	94-96	LOD/LOR	Units	Method No.
Sample ID	TP-07	TP-07	TP-07	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14			
Depth	0.50	1.50	2.50	0.50	1.50	0.50	1.50	0.50	1.50	1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Natural Moisture Content	13.5	14.2	14.7	23.3	17.0	23.9	18.4	29.8	11.5	17.0	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	11.9	12.5	12.8	18.9	14.6	19.3	15.5	23.0	10.3	14.5	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	-		-		-	-	-		-	<0.0015	g/l	TM38/PM20
Chromium III	40.1	54.6	47.5	66.8	59.7	67.6	70.0	79.6	54.6	60.1	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.43	0.27	0.18	0.67	0.64	0.85	0.69	4.57	0.33	1.04	<0.02	%	TM21/PM24
pH #	8.94	8.78	8.91	8.18	8.57	8.33	8.46	8.35	8.86	8.46	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.0985	0.1004	0.1067	0.1087	0.1013	0.111	0.1061	0.112	0.1029	0.1026		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	97-99	100-102	103-105	106-108							LOD/LOR	Units	Method No.
Sample ID	TP-14	TP-14	TP-20	TP-20									
Depth	2.00	3.00	0.50	1.50									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/01/2019	22/01/2019	21/01/2019	21/01/2019									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019									
Antimony	1	2	3	1							<1	mg/kg	TM30/PM15
Arsenic #	7.2	9.2	17.4	8.0							<0.5	mg/kg	TM30/PM15
Barium #	51	63	139	96							<1	mg/kg	TM30/PM15
Cadmium #	1.7	1.9	5.4	1.9							<0.1	mg/kg	TM30/PM15
Chromium #	45.7	54.7	76.6	38.5							<0.5	mg/kg	TM30/PM15
Copper #	26	23	140	26							<1	mg/kg	TM30/PM15
Lead #	65	24	72	15							<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	0.2	<0.1							<0.1	mg/kg	TM30/PM15
Molybdenum #	2.8	2.8	6.0	3.5							<0.1	mg/kg	TM30/PM15
Nickel #	22.7	34.2	49.9	32.9							<0.7	mg/kg	TM30/PM15
Selenium #	1	<1	2	1							<1	mg/kg	TM30/PM15
Zinc #	68	79	181	80							<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	1.45	0.16	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.28	0.14	<0.03	<0.03							<0.03	mg/kg	TM4/PM8
Acenaphthene #	0.10	0.09	<0.05	<0.05							<0.05	mg/kg	TM4/PM8
Fluorene #	0.54	0.41	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
Phenanthrene #	2.19	1.54	0.08	<0.03							<0.03	mg/kg	TM4/PM8
Anthracene #	0.42	0.30	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
Fluoranthene #	1.15	0.80	0.14	<0.03							<0.03	mg/kg	TM4/PM8
Pyrene #	2.86	2.41	0.14	<0.03							<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	0.59	0.47	0.13	<0.06							<0.06	mg/kg	TM4/PM8
Chrysene #	0.36	0.27	0.10	<0.02							<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	0.46	0.33	0.20	<0.07							<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	0.43	0.35	0.11	<0.04							<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	0.17	0.17	0.08	<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 #	0.82	0.67	0.08	<0.04							<0.04	mg/kg	TM4/PM8
Coronene	0.28	0.24	<0.04	<0.04							<0.04	mg/kg	TM4/PM8
PAH 6 Total #	3.03	2.32	0.61	<0.22							<0.22	mg/kg	TM4/PM8
PAH 17 Total	12.10	8.35	1.06	<0.64							<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.33	0.24	0.14	<0.05							<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.13	0.09	0.06	<0.02							<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1							<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	101	102	107	102							<0	%	TM4/PM8
Mineral Oil (C10-C40)	3848	3465	<30	<30							<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	97-99	100-102	103-105	106-108							LOD/LOR	Units	Method No.
Sample ID	TP-14	TP-14	TP-20	TP-20									
Depth	2.00	3.00	0.50	1.50									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/01/2019	22/01/2019	21/01/2019	21/01/2019									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019									
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1 SV	<0.1 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C6-C8 #	0.3 SV	0.2 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C8-C10	1.7 SV	0.9 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C10-C12 #	16.7	8.3	1.8	<0.2							<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	12	<4	<4	<4							<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	81	66	<7	<7							<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	3251	2906	<7	<7							<7	mg/kg	TM5/PM8/PM16
>C35-C40	487	485	<7	<7							<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	3850	3466	<26	<26							<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	2.0 SV	1.1 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C10-C25	644	567	<10	<10							<10	mg/kg	TM5/PM8/PM16
>C25-C35	2658	2444	<10	<10							<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1 SV	<0.1 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1 SV	<0.1 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	0.4 SV	<0.1 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	49.6	28.5	<0.2	<0.2							<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	57	36	<4	<4							<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	145	133	<7	<7							<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	1426	1413	<7	<7							<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	268	281	<7	<7							<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	1946	1892	<26	<26							<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	5796	5358	<52	<52							<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	0.4 SV	<0.1 SV	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC10-EC25	458	416	<10	<10							<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	1142	1162	<10	<10							<10	mg/kg	TM5/PM8/PM16
MTBE #	21 SV	18 SV	<5	<5							<5	ug/kg	TM31/PM12
Benzene #	22 SV	12 SV	<5	<5							<5	ug/kg	TM31/PM12
Toluene #	7 SV	<5 SV	<5	<5							<5	ug/kg	TM31/PM12
Ethylbenzene #	100 SV	14 SV	<5	<5							<5	ug/kg	TM31/PM12
m/p-Xylene #	240 SV	32 SV	<5	<5							<5	ug/kg	TM31/PM12
o-Xylene #	107 SV	<5 SV	<5	<5							<5	ug/kg	TM31/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/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	97-99	100-102	103-105	106-108							LOD/LOR	Units	Method No.
Sample ID	TP-14	TP-14	TP-20	TP-20									
Depth	2.00	3.00	0.50	1.50									
COC No / misc													
Containers	V J T	V J T	V J T	V J T									
Sample Date	22/01/2019	22/01/2019	21/01/2019	21/01/2019									
Sample Type	Soil	Soil	Soil	Soil									
Batch Number	1	1	1	1									
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019									
Natural Moisture Content	11.2	13.6	25.0	13.3							<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	10.1	12.0	20.0	11.8							<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) #	-	-	-	-							<0.0015	g/l	TM38/PM20
Chromium III	45.7	54.7	76.6	38.5							<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.72	0.63	2.44	0.24							<0.02	%	TM21/PM24
pH #	8.42	8.68	8.38	8.68							<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1007	0.1016	0.1054	0.103								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

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : CEN 10:1 1 Batch

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

J E Sample No.	1-3	10-12	19-21	28-30	37-39	40-42	43-45	52-54	55-57	58-60	LOD/LOR	Units	Method No.
Sample ID	TP-01	TP-02	TP-03	TP-04	TP-05	TP-06	TP-06	TP-07	TP-07	TP-07			
Depth	0.50	0.60	0.50	1.00	0.80	0.50	1.50	0.50	1.50	2.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.003	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	<0.0025	<0.0025	<0.0025	0.0032	<0.0025	<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	0.032	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.005	<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	<0.0015	<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	<0.015	<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	<0.007	<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	<0.07	<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	<0.005	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.006	0.007	0.003	0.004	0.005	0.005	0.006	0.004	0.005	0.006	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.06	0.07	0.03	0.04	0.05	0.05	0.06	0.04	0.05	0.06	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<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	<0.02	<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	<0.003	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	<0.1	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	6.4	0.6	<0.5	<0.5	<0.5	4.8	3.6	0.7	1.1	0.8	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	64	6	<5	<5	<5	48	36	7	11	8	<5	mg/kg	TM38/PM0
Chloride #	0.9	0.9	0.4	0.4	0.6	0.9	0.8	0.3	<0.3	<0.3	<0.3	mg/l	TM38/PM0
Chloride #	9	9	4	4	6	9	8	3	<3	<3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	2	<2	6	<2	<2	<2	<2	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	20	<20	60	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM0
pH	8.18	8.27	8.07	8.23	8.10	8.40	8.09	8.60	8.45	8.36	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	69	113	172	115	74	93	82	60	54	59	<35	mg/l	TM20/PM0
Total Dissolved Solids #	690	1130	1720	1150	740	930	820	600	540	590	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : CEN 10:1 1 Batch

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

J E Sample No.	64-66	67-69	73-75	76-78	81-83	84-86	94-96	97-99	100-102	103-105	LOD/LOR	Units	Method No.
Sample ID	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14	TP-14	TP-14	TP-20			
Depth	0.50	1.50	0.50	1.50	0.50	1.50	1.00	2.00	3.00	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.004	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0027	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.027	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.004	0.004	<0.003	<0.003	0.003	<0.003	0.018	0.034	0.016	0.004	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.04	0.04	<0.03	<0.03	0.03	<0.03	0.18	0.34	0.16	0.04	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.005	<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	<0.0015	<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	<0.015	<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	<0.007	<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	<0.07	<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	<0.005	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.002	0.005	0.003	0.005	0.003	0.005	0.009	0.009	0.016	0.003	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.02	0.05	0.03	0.05	0.03	0.05	0.09	0.09	0.16	0.03	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.006	0.008	0.008	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.08	0.08	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.005	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	0.05	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	<0.1	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<0.5	1.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.6	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	<5	17	<5	<5	<5	<5	<5	<5	6	6	<5	mg/kg	TM38/PM0
Chloride #	1.5	0.4	<0.3	<0.3	<0.3	0.7	0.6	0.7	1.0	<0.3	<0.3	mg/l	TM38/PM0
Chloride #	15	4	<3	<3	<3	7	6	7	10	<3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	<2	4	<2	6	3	3	3	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	40	<20	60	30	30	30	<20	mg/kg	TM60/PM0
pH	8.13	8.24	7.90	8.22	8.10	7.91	8.29	8.27	8.01	8.07	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	131	159	41	<35	78	142	107	80	65	<35	<35	mg/l	TM20/PM0
Total Dissolved Solids #	1310	1590	410	<350	780	1420	1070	800	650	<350	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : CEN 10:1 1 Batch

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

J E Sample No.	106-108												
Sample ID	TP-20												
Depth	1.50												
COC No / misc													
Containers	V J T												
Sample Date	21/01/2019												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	24/01/2019												

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
Dissolved Antimony #	<0.002										<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02										<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025										<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025										<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.005										<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.05										<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005										<0.0005	mg/l	TM30/PM17
Dissolved Cadmium (A10) #	<0.005										<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015										<0.0015	mg/l	TM30/PM17
Dissolved Chromium (A10) #	<0.015										<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007										<0.007	mg/l	TM30/PM17
Dissolved Copper (A10) #	<0.07										<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005										<0.005	mg/l	TM30/PM17
Dissolved Lead (A10) #	<0.05										<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.005										<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.05										<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002										<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	<0.02										<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003										<0.003	mg/l	TM30/PM17
Dissolved Selenium (A10) #	<0.03										<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003										<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03										<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001										<0.00001	mg/l	TM61/PM0
Mercury Dissolved by CVAF #	<0.0001										<0.0001	mg/kg	TM61/PM0
Phenol	<0.01										<0.01	mg/l	TM26/PM0
Phenol	<0.1										<0.1	mg/kg	TM26/PM0
Fluoride	<0.3										<0.3	mg/l	TM173/PM0
Fluoride	<3										<3	mg/kg	TM173/PM0
Sulphate as SO4 #	1.9										<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	19										<5	mg/kg	TM38/PM0
Chloride #	0.3										<0.3	mg/l	TM38/PM0
Chloride #	3										<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2										<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20										<20	mg/kg	TM60/PM0
pH	8.22										<0.01	pH units	TM73/PM0
Total Dissolved Solids #	67										<35	mg/l	TM20/PM0
Total Dissolved Solids #	670										<350	mg/kg	TM20/PM0

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : EN12457_2

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

Please see attached notes for all abbreviations and acronyms

J E Sample No.	1-3	10-12	19-21	28-30	37-39	40-42	43-45	52-54	55-57	58-60	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	TP-01	TP-02	TP-03	TP-04	TP-05	TP-06	TP-06	TP-07	TP-07	TP-07						
Depth	0.50	0.60	0.50	1.00	0.80	0.50	1.50	0.50	1.50	2.50						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1						
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019						
Solid Waste Analysis																
Total Organic Carbon #	0.70	0.36	1.58	0.34	1.66	0.28	0.34	0.43	0.27	0.18	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	0.27	<0.22	0.43	<0.22	<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	0.76	<0.64	<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	0.032	<0.025	<0.025	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<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	<0.015	<0.015	<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	<0.07	<0.07	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.06	0.07	0.03	0.04	0.05	0.05	0.06	0.04	0.05	0.06	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<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	<0.05	<0.05	<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	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	690	1130	1720	1150	740	930	820	600	540	590	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	20	<20	60	<20	<20	<20	<20	<20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1042	0.1058	0.1137	0.1107	0.1125	0.1046	0.1048	0.0985	0.1004	0.1067	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	86.0	85.5	78.9	81.0	79.7	85.8	86.1	91.7	89.2	84.4	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.885	0.885	0.876	0.879	0.877	0.885	0.885	0.892	0.889	0.883	-	-	-		l	NONE/PM17
Eluate Volume	0.75	0.7	0.68	0.69	0.8	0.78	0.85	0.79	0.77	0.78	-	-	-		l	NONE/PM17
pH #	8.46	8.76	8.40	8.80	8.52	8.62	8.74	8.94	8.78	8.91	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	64	6	<5	<5	<5	48	36	7	11	8	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	9	9	4	4	6	9	8	3	<3	<3	800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : EN12457_2

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

Please see attached notes for all abbreviations and acronyms

J E Sample No.	64-66	67-69	73-75	76-78	81-83	84-86	94-96	97-99	100-102	103-105	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	TP-07A	TP-07A	TP-08	TP-08	TP-09	TP-09	TP-14	TP-14	TP-14	TP-20						
Depth	0.50	1.50	0.50	1.50	0.50	1.50	1.00	2.00	3.00	0.50						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1						
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019						
Solid Waste Analysis																
Total Organic Carbon #	0.67	0.64	0.85	0.69	4.57	0.33	1.04	0.72	0.63	2.44	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025 SV	<0.025	0.058 SV	0.476 SV	0.058 SV	<0.025	6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	3329	3848	3465	<30	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	<0.22	<0.22	0.42	<0.22	4.35	3.03	2.32	0.61	-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	<0.64	<0.64	0.76	<0.64	11.37	12.10	8.35	1.06	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.027	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.04	0.04	<0.03	<0.03	0.03	<0.03	0.18	0.34	0.16	0.04	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<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	<0.015	<0.015	<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	<0.07	<0.07	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.02	0.05	0.03	0.05	0.03	0.05	0.09	0.09	0.16	0.03	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	0.08	0.08	<0.02	0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<0.02	<0.02	<0.02	0.03	0.04	<0.02	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	0.05	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1310	1590	410	<350	780	1420	1070	800	650	<350	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	40	<20	60	30	30	30	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1087	0.1013	0.111	0.1061	0.112	0.1029	0.1026	0.1007	0.1016	0.1054	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	82.5	89.1	80.8	84.7	80.0	87.5	87.6	89.7	88.7	85.1	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.881	0.889	0.879	0.884	0.878	0.887	0.887	0.89	0.889	0.884	-	-	-		l	NONE/PM17
Eluate Volume	0.64	0.59	0.7	0.65	0.78	0.85	0.8	0.78	0.85	0.74	-	-	-		l	NONE/PM17
pH #	8.18	8.57	8.33	8.46	8.35	8.86	8.46	8.42	8.68	8.38	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<5	17	<5	<5	<5	<5	<5	<5	6	6	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	15	4	<3	<3	<3	7	6	7	10	<3	800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : EN12457_2

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

Please see attached notes for all abbreviations and acronyms

J E Sample No.	106-108															
Sample ID	TP-20															
Depth	1.50															
COC No / misc																
Containers	V J T															
Sample Date	21/01/2019															
Sample Type	Soil															
Batch Number	1											Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Date of Receipt	24/01/2019															
Solid Waste Analysis																	
Total Organic Carbon #	0.24											3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025											6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs #	<0.035											1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30											500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22											-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64											100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																	
Arsenic #	<0.025											0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.05											20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005											0.04	1	5	<0.005	mg/kg	TM30/PM17
Chromium #	<0.015											0.5	10	70	<0.015	mg/kg	TM30/PM17
Copper #	<0.07											2	50	100	<0.07	mg/kg	TM30/PM17
Mercury #	<0.0001											0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.05											0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02											0.4	10	40	<0.02	mg/kg	TM30/PM17
Lead #	<0.05											0.5	10	50	<0.05	mg/kg	TM30/PM17
Antimony #	<0.02											0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03											0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03											4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	670											4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20											500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.103											-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	87.1											-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.887											-	-	-		l	NONE/PM17
Eluate Volume	0.6											-	-	-		l	NONE/PM17
pH #	8.68											-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1											1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3											-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	19											1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	3											800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland **Matrix : Solid**
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1176	1	TP-01	0.50	1-3	No interpretation possible
19/1176	1	TP-02	0.60	10-12	No interpretation possible
19/1176	1	TP-03	0.50	19-21	No interpretation possible
19/1176	1	TP-04	1.00	28-30	No interpretation possible
19/1176	1	TP-05	0.80	37-39	No interpretation possible
19/1176	1	TP-06	0.50	40-42	No interpretation possible
19/1176	1	TP-06	1.50	43-45	No interpretation possible
19/1176	1	TP-07	0.50	52-54	No interpretation possible
19/1176	1	TP-07	1.50	55-57	No interpretation possible
19/1176	1	TP-07	2.50	58-60	No interpretation possible
19/1176	1	TP-07A	0.50	64-66	No interpretation possible
19/1176	1	TP-07A	1.50	67-69	No interpretation possible
19/1176	1	TP-08	0.50	73-75	No interpretation possible
19/1176	1	TP-08	1.50	76-78	No interpretation possible
19/1176	1	TP-09	0.50	81-83	No interpretation possible
19/1176	1	TP-09	1.50	84-86	No interpretation possible
19/1176	1	TP-14	1.00	94-96	Possible PAH's, lubricating oil & Tarmac/bitumen
19/1176	1	TP-14	2.00	97-99	Possible PAH's, lubricating oil & Tarmac/bitumen
19/1176	1	TP-14	3.00	100-102	Possible PAH's, lubricating oil & Tarmac/bitumen
19/1176	1	TP-20	0.50	103-105	No interpretation possible
19/1176	1	TP-20	1.50	106-108	No interpretation possible

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	1	TP-01	0.50	2	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-02	0.60	11	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-03	0.50	20	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-04	1.00	29	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-05	0.80	38	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-06	0.50	41	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-06	1.50	44	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	1	TP-06	1.50	44	02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-07	0.50	53	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-07	1.50	56	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-07	2.50	59	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-07A	0.50	65	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-07A	1.50	68	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-08	0.50	74	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-08	1.50	77	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-09	0.50	82	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-09	1.50	85	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	1	TP-09	1.50	85	02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-14	1.00	95	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-14	2.00	98	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-14	3.00	101	02/02/2019	**General Description (Bulk Analysis)**	Soil/sTONE
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-20	0.50	104	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD
19/1176	1	TP-20	1.50	107	02/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					02/02/2019	**Asbestos Fibres**	NAD
					02/02/2019	**Asbestos ACM**	NAD
					02/02/2019	**Asbestos Type**	NAD
					02/02/2019	**Asbestos Level Screen**	NAD

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 19/1176						

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

JE Job No.: 19/1176

SOILS

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.

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. 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.

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.

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.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

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.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

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.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental 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

Appendix - Methods used for WAC (2003/33/EC)

JE Job No.: 19/1176

Leachate tests	
10l/kg; 4mm	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and filtered over 0.45 µm membrane filter.
Eluate analysis	
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ba	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Mo	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 1484
TDS	I.S. EN 15216
Compositional analysis	
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
BTEX	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES)
Other	
Dry matter	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to 550 ± 25 °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range

Notes:

*If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS
**PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

***Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

Please include all sections of this report if it is reproduced

JE Job No: 19/1176

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 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 8270. 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 160.3 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

JE Job No: 19/1176

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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 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
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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

JE Job No: 19/1176

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	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 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. 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 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 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.				
NONE	No Method Code	PM17	Modified method EN12457-2 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	

JE Job No: 19/1176

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
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 and BS1377.			AR	

Exova Jones Environmental

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

Attention :	Barry Sexton
Date :	11th February, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/1176 Batch 2
Location :	Cornelscourt
Date samples received :	24th January, 2019
Status :	Final report
Issue :	1

Forty two samples were received for analysis on 24th January, 2019 of which forty two 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.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Phil Sommerton BSc
Project Manager

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	115-117	118-120	121-123	124-126	127-129	130-132	133-135	136-138	139-141	142-144	LOD/LOR	Units	Method No.
Sample ID	WS01	WS01	WS01	WS02	WS02	WS02	WS03	WS03	WS03	WS04			
Depth	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Antimony	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Arsenic #	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Barium #	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Cadmium #	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Chromium #	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Copper #	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Lead #	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
Mercury #	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Molybdenum #	-	-	-	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Nickel #	-	-	-	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM15
Selenium #	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Zinc #	-	-	-	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	-	-	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Fluorene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	-	-	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Anthracene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	-	-	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Pyrene #	-	-	-	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	-	-	-	-	-	-	-	-	-	<0.06	mg/kg	TM4/PM8
Chrysene #	-	-	-	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	-	-	-	-	-	-	-	-	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Coronene	-	-	-	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	-	-	-	-	-	-	-	-	-	-	<0.22	mg/kg	TM4/PM8
PAH 17 Total	-	-	-	-	-	-	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	-	-	-	-	-	-	-	-	-	-	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	-	-	-	-	-	-	-	-	-	<0	%	TM4/PM8
Mineral Oil (C10-C40)	-	-	-	-	-	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	115-117	118-120	121-123	124-126	127-129	130-132	133-135	136-138	139-141	142-144	LOD/LOR	Units	Method No.
Sample ID	WS01	WS01	WS01	WS02	WS02	WS02	WS03	WS03	WS03	WS04			
Depth	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4	<4	21	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	60	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	419	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	127	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	627	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10	<10	172	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	334	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	<52	627	<52	<52	<52	<52	<52	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	-	-	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-	-	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	115-117	118-120	121-123	124-126	127-129	130-132	133-135	136-138	139-141	142-144	LOD/LOR	Units	Method No.
Sample ID	WS01	WS01	WS01	WS02	WS02	WS02	WS03	WS03	WS03	WS04			
Depth	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Natural Moisture Content	13.1	13.4	15.9	51.1	13.7	13.5	17.0	15.6	15.1	22.7	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	-	-	-	-	-	-	-	-	-	-	<0.1	%	PM4/PM0
Hexavalent Chromium #	-	-	-	-	-	-	-	-	-	-	<0.3	mg/kg	TM38/PM20
Chromium III	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	-	-	-	-	-	-	-	-	-	-	<0.02	%	TM21/PM24
pH #	-	-	-	-	-	-	-	-	-	-	<0.01	pH units	TM73/PM11
Mass of raw test portion	-	-	-	-	-	-	-	-	-	-		kg	NONE/PM17
Mass of dried test portion	-	-	-	-	-	-	-	-	-	-		kg	NONE/PM17

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Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	145-147	148-150	151-153	154-156	157-159	160-162	163-165	166-168	169-171	172-174	LOD/LOR	Units	Method No.
Sample ID	WS04	WS04	WS04	WS05	WS05	WS05	WS06	WS06	WS06	WS07			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Antimony	2	2	<1	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Arsenic #	9.8	12.1	3.8	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Barium #	74	74	34	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Cadmium #	1.6	1.7	0.1	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Chromium #	64.5	44.3	72.0	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Copper #	29	29	6	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Lead #	16	20	6	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Molybdenum #	3.7	3.6	4.1	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Nickel #	36.0	36.4	7.2	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	<1	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Zinc #	77	103	37	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Fluorene #	0.18	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	0.31	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Pyrene #	0.05	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	-	-	-	-	-	-	-	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	-	-	-	-	-	-	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<0.22	<0.22	-	-	-	-	-	-	-	<0.22	mg/kg	TM4/PM8
PAH 17 Total	<0.64	<0.64	<0.64	-	-	-	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	-	-	-	-	-	-	-	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	97	87	100	-	-	-	-	-	-	-	<0	%	TM4/PM8
Mineral Oil (C10-C40)	673	<30	<30	-	-	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	145-147	148-150	151-153	154-156	157-159	160-162	163-165	166-168	169-171	172-174	LOD/LOR	Units	Method No.
Sample ID	WS04	WS04	WS04	WS05	WS05	WS05	WS06	WS06	WS06	WS07			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>C10-C12 #	73.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	221	<4	12	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	265	<7	10	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	114	<7	<7	<7	<7	<7	<7	<7	109	60	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	13	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	673	<26	<26	<26	<26	<26	<26	<26	122	60	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	<0.1	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>C10-C25	673	<10	25	<10	<10	<10	<10	<10	29	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35	16	<10	<10	<10	<10	<10	<10	<10	86	54	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	8.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	92	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	164	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	74	<7	<7	<7	<7	<7	<7	<7	<7	78	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	16	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	338	<26	<26	<26	<26	<26	<26	<26	<26	94	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	1011	<52	<52	<52	<52	<52	<52	<52	122	154	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 SV	<0.1	mg/kg	TM36/PM12
>EC10-EC25	343	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	71	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	15	79	<5	<5	<5	<5	<5	<5	<5 SV	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	17	<5	<5	<5	<5	<5	<5	<5 SV	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	17	<5	<5	<5	<5	<5	<5	<5 SV	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5 SV	<5	ug/kg	TM31/PM12
PCB 28 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	145-147	148-150	151-153	154-156	157-159	160-162	163-165	166-168	169-171	172-174	LOD/LOR	Units	Method No.
Sample ID	WS04	WS04	WS04	WS05	WS05	WS05	WS06	WS06	WS06	WS07			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Natural Moisture Content	13.8	13.3	8.2	19.8	14.4	14.6	15.4	18.9	15.0	23.1	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	12.1	11.8	7.6	-	-	-	-	-	-	-	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	-	-	-	-	-	-	-	<0.3	mg/kg	TM38/PM20
Chromium III	64.5	44.3	72.0	-	-	-	-	-	-	-	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.34	0.26	0.14	-	-	-	-	-	-	-	<0.02	%	TM21/PM24
pH #	8.57	8.61	9.20	-	-	-	-	-	-	-	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1029	0.1046	0.097	-	-	-	-	-	-	-		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	-	-	-	-	-	-	-		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	175-177	178-180	181-183	184-186	187-189	190-192	193-195	196-198	199-201	202-204	LOD/LOR	Units	Method No.
Sample ID	WS07	WS07	WS07	WS08	WS08	WS08	WS09	WS09	WS09	WS10			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Antimony	2	2	1	-	2	2	-	-	-	-	<1	mg/kg	TM30/PM15
Arsenic #	11.3	8.4	7.8	-	10.0	9.8	-	-	-	-	<0.5	mg/kg	TM30/PM15
Barium #	67	61	48	-	51	70	-	-	-	-	<1	mg/kg	TM30/PM15
Cadmium #	2.1	1.7	1.3	-	1.8	1.6	-	-	-	-	<0.1	mg/kg	TM30/PM15
Chromium #	48.0	54.9	67.5	-	52.9	59.8	-	-	-	-	<0.5	mg/kg	TM30/PM15
Copper #	35	28	17	-	21	27	-	-	-	-	<1	mg/kg	TM30/PM15
Lead #	18	16	12	-	14	18	-	-	-	-	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	-	-	<0.1	mg/kg	TM30/PM15
Molybdenum #	4.0	3.2	3.1	-	3.3	3.6	-	-	-	-	<0.1	mg/kg	TM30/PM15
Nickel #	43.2	34.8	27.6	-	26.4	33.4	-	-	-	-	<0.7	mg/kg	TM30/PM15
Selenium #	2	<1	<1	-	<1	<1	-	-	-	-	<1	mg/kg	TM30/PM15
Zinc #	106	76	66	-	76	80	-	-	-	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	-	<0.04	<0.04	-	-	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	<0.03	<0.03	-	<0.03	0.08	-	-	-	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	-	-	-	<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	<0.04	<0.04	-	<0.04	0.14	-	-	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	-	<0.03	0.27	-	-	-	-	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<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	-	-	-	-	<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<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	-	-	-	-	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	-	<0.02	<0.02	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<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	-	-	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	<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	-	-	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	<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	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	<0.22	<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	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	<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	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	-	<1	<1	-	-	-	-	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	98	91	99	-	95	98	-	-	-	-	<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	143	<30	-	<30	447	-	-	-	-	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	175-177	178-180	181-183	184-186	187-189	190-192	193-195	196-198	199-201	202-204	LOD/LOR	Units	Method No.
Sample ID	WS07	WS07	WS07	WS08	WS08	WS08	WS09	WS09	WS09	WS10			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	0.6	1.7	<0.1	<0.1	1.3	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	2.1	4.1	0.5	<0.1	6.5	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	2.4	2.9	0.4	<0.1	8.9	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	35.9	<0.2	<0.2	<0.2	89.0	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	49	<4	<4	<4	160	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	48	<7	<7	<7	152	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	10	<7	<7	<7	46	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	148	<26	<26	<26	464	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	4.5	7.0	0.9	<0.1	15.4	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25	<10	160	<10	<10	<10	447	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	0.6	0.3	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	17.0	<0.2	<0.2	<0.2	61.8	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	23	<4	<4	<4	98	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	22	<7	<7	<7	106	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	31	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	63	<26	<26	<26	297	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	211	<52	<52	<52	761	<52	<52	<52	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	0.6	0.3	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	68	<10	<10	<10	280	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	261	798	41	<5	755	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	100	80	10	<5	49	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	441	257	21	8	209	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	-	<5	<5	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	-	<35	<35	-	-	-	-	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	175-177	178-180	181-183	184-186	187-189	190-192	193-195	196-198	199-201	202-204	LOD/LOR	Units	Method No.
Sample ID	WS07	WS07	WS07	WS08	WS08	WS08	WS09	WS09	WS09	WS10			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Natural Moisture Content	18.3	14.6	10.7	19.3	17.4	14.4	13.7	14.2	14.0	23.7	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	15.4	12.7	9.7	-	14.8	12.6	-	-	-	-	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	-	<0.3	<0.3	-	-	-	-	<0.3	mg/kg	TM38/PM20
Chromium III	48.0	54.9	67.5	-	52.9	59.8	-	-	-	-	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.38	0.26	0.19	-	0.25	0.29	-	-	-	-	<0.02	%	TM21/PM24
pH #	8.69	7.69	8.44	-	8.66	8.23	-	-	-	-	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1046	0.1027	0.0988	-	0.1008	0.102	-	-	-	-		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	-	0.09	0.09	-	-	-	-		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	205-207	208-210	211-213	214-216	217-219	220-222	223-225	226-228	229-231	232-234	LOD/LOR	Units	Method No.
Sample ID	WS10	WS10	WS10	WS11	WS11	WS11	WS12	WS12	WS12	WS13			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Antimony	-	2	2	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Arsenic #	-	12.1	10.1	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Barium #	-	74	66	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Cadmium #	-	2.1	1.9	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Chromium #	-	50.8	51.2	-	-	-	-	-	-	-	<0.5	mg/kg	TM30/PM15
Copper #	-	37	29	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Lead #	-	21	21	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
Mercury #	-	<0.1	<0.1	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Molybdenum #	-	4.8	4.2	-	-	-	-	-	-	-	<0.1	mg/kg	TM30/PM15
Nickel #	-	47.8	37.7	-	-	-	-	-	-	-	<0.7	mg/kg	TM30/PM15
Selenium #	-	1	1	-	-	-	-	-	-	-	<1	mg/kg	TM30/PM15
Zinc #	-	104	83	-	-	-	-	-	-	-	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Fluorene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Anthracene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Pyrene #	-	<0.03	<0.03	-	-	-	-	-	-	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	<0.06	<0.06	-	-	-	-	-	-	-	<0.06	mg/kg	TM4/PM8
Chrysene #	-	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	<0.07	<0.07	-	-	-	-	-	-	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
Coronene	-	<0.04	<0.04	-	-	-	-	-	-	-	<0.04	mg/kg	TM4/PM8
PAH 6 Total #	-	<0.22	<0.22	-	-	-	-	-	-	-	<0.22	mg/kg	TM4/PM8
PAH 17 Total	-	<0.64	<0.64	-	-	-	-	-	-	-	<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	<0.05	<0.05	-	-	-	-	-	-	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	<0.02	<0.02	-	-	-	-	-	-	-	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	-	<1	<1	-	-	-	-	-	-	-	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	95	93	-	-	-	-	-	-	-	<0	%	TM4/PM8
Mineral Oil (C10-C40)	-	<30	100	-	-	-	-	-	-	-	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	205-207	208-210	211-213	214-216	217-219	220-222	223-225	226-228	229-231	232-234	LOD/LOR	Units	Method No.
Sample ID	WS10	WS10	WS10	WS11	WS11	WS11	WS12	WS12	WS12	WS13			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	10.4	13.9	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	0.1	<0.1	33.4	63.5++	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	0.5	<0.1	<0.1	34.1++	59.8++	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	15.2	<0.2	203.9	349.0	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4	45	<4	365	613	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	40	<7	364	642	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	<7	115	220	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	100	<26	1126	1961	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	0.5	0.1	<0.1	67.5	123.3	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10	104	<10	1027	1758	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	21	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	13.7++	30.1++	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	4.2	<0.2	132.2	231.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	26	<4	190	325	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	39	<7	229	384	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	11	<7	92	132	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	80	<26	657	1103	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	180	<52	1783	3064	<52	<52	<52	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	<0.1	<0.1	<0.1	13.9	30.4	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	70	<10	630	1068	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	13	16	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5	<5	<5	2907	5007	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	282	395	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	3397	8582	<5	<5	<5	7	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	7	<5	10263	21432	11	11	<5	13	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 52 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 101 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 118 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 138 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 153 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
PCB 180 #	-	<5	<5	-	-	-	-	-	-	-	<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	<35	<35	-	-	-	-	-	-	-	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	205-207	208-210	211-213	214-216	217-219	220-222	223-225	226-228	229-231	232-234	LOD/LOR	Units	Method No.
Sample ID	WS10	WS10	WS10	WS11	WS11	WS11	WS12	WS12	WS12	WS13			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00	1.00-2.00	2.00-3.00	0.00-1.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Natural Moisture Content	14.5	15.3	13.4	20.9	14.0	15.6	20.6	12.8	14.1	10.9	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	-	13.3	11.8	-	-	-	-	-	-	-	<0.1	%	PM4/PM0
Hexavalent Chromium #	-	<0.3	<0.3	-	-	-	-	-	-	-	<0.3	mg/kg	TM38/PM20
Chromium III	-	50.8	51.2	-	-	-	-	-	-	-	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	-	0.34	0.26	-	-	-	-	-	-	-	<0.02	%	TM21/PM24
pH #	-	8.18	8.19	-	-	-	-	-	-	-	<0.01	pH units	TM73/PM11
Mass of raw test portion	-	0.1062	0.1024	-	-	-	-	-	-	-		kg	NONE/PM17
Mass of dried test portion	-	0.09	0.09	-	-	-	-	-	-	-		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	235-237	238-240									LOD/LOR	Units	Method No.
Sample ID	WS13	WS13											
Depth	1.00-2.00	2.00-3.00											
COC No / misc													
Containers	V J T	V J T											
Sample Date	22/01/2019	22/01/2019											
Sample Type	Soil	Soil											
Batch Number	2	2											
Date of Receipt	24/01/2019	24/01/2019											
Antimony	-	-									<1	mg/kg	TM30/PM15
Arsenic #	-	-									<0.5	mg/kg	TM30/PM15
Barium #	-	-									<1	mg/kg	TM30/PM15
Cadmium #	-	-									<0.1	mg/kg	TM30/PM15
Chromium #	-	-									<0.5	mg/kg	TM30/PM15
Copper #	-	-									<1	mg/kg	TM30/PM15
Lead #	-	-									<5	mg/kg	TM30/PM15
Mercury #	-	-									<0.1	mg/kg	TM30/PM15
Molybdenum #	-	-									<0.1	mg/kg	TM30/PM15
Nickel #	-	-									<0.7	mg/kg	TM30/PM15
Selenium #	-	-									<1	mg/kg	TM30/PM15
Zinc #	-	-									<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	-	-									<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	-									<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	-									<0.05	mg/kg	TM4/PM8
Fluorene #	-	-									<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	-									<0.03	mg/kg	TM4/PM8
Anthracene #	-	-									<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	-									<0.03	mg/kg	TM4/PM8
Pyrene #	-	-									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	-									<0.06	mg/kg	TM4/PM8
Chrysene #	-	-									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	-									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	-									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	-									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	-									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	-									<0.04	mg/kg	TM4/PM8
Coronene	-	-									<0.04	mg/kg	TM4/PM8
PAH 6 Total #	-	-									<0.22	mg/kg	TM4/PM8
PAH 17 Total	-	-									<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	-									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	-									<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	-	-									<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	-									<0	%	TM4/PM8
Mineral Oil (C10-C40)	-	-									<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	235-237	238-240									LOD/LOR	Units	Method No.
Sample ID	WS13	WS13											
Depth	1.00-2.00	2.00-3.00											
COC No / misc													
Containers	V J T	V J T											
Sample Date	22/01/2019	22/01/2019											
Sample Type	Soil	Soil											
Batch Number	2	2											
Date of Receipt	24/01/2019	24/01/2019											
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2									<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4									<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7									<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7									<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7									<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26									<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10									<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10									<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2									<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4									<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7									<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7									<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7									<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26									<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52									<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	<0.1									<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10									<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10									<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5									<5	ug/kg	TM31/PM12
Benzene #	<5	<5									<5	ug/kg	TM31/PM12
Toluene #	<5	<5									<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5									<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5									<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5									<5	ug/kg	TM31/PM12
PCB 28 #	-	-									<5	ug/kg	TM17/PM8
PCB 52 #	-	-									<5	ug/kg	TM17/PM8
PCB 101 #	-	-									<5	ug/kg	TM17/PM8
PCB 118 #	-	-									<5	ug/kg	TM17/PM8
PCB 138 #	-	-									<5	ug/kg	TM17/PM8
PCB 153 #	-	-									<5	ug/kg	TM17/PM8
PCB 180 #	-	-									<5	ug/kg	TM17/PM8
Total 7 PCBs #	-	-									<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : Solid

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

J E Sample No.	235-237	238-240									LOD/LOR	Units	Method No.
Sample ID	WS13	WS13											
Depth	1.00-2.00	2.00-3.00											
COC No / misc													
Containers	V J T	V J T											
Sample Date	22/01/2019	22/01/2019											
Sample Type	Soil	Soil											
Batch Number	2	2											
Date of Receipt	24/01/2019	24/01/2019											
Natural Moisture Content	13.2	13.9									<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	-	-									<0.1	%	PM4/PM0
Hexavalent Chromium #	-	-									<0.3	mg/kg	TM38/PM20
Chromium III	-	-									<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	-	-									<0.02	%	TM21/PM24
pH #	-	-									<0.01	pH units	TM73/PM11
Mass of raw test portion	-	-										kg	NONE/PM17
Mass of dried test portion	-	-										kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : CEN 10:1 1 Batch

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

J E Sample No.	145-147	148-150	151-153	175-177	178-180	181-183	187-189	190-192	208-210	211-213	LOD/LOR	Units	Method No.
Sample ID	WS04	WS04	WS04	WS07	WS07	WS07	WS08	WS08	WS10	WS10			
Depth	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	2.00-3.00	3.00-4.00			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	2	2	2	2	2	2	2	2	2	2			
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	mg/l	TM30/PM17
Dissolved Antimony (A10) #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	<0.0025	0.0042	<0.0025	0.0029	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	mg/l	TM30/PM17
Dissolved Arsenic (A10) #	<0.025	<0.025	0.042	<0.025	0.029	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	0.012	0.033	<0.003	0.004	0.046	0.011	<0.003	0.027	0.041	0.046	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	0.12	0.33	<0.03	0.04	0.46	0.11	<0.03	0.27	0.41	0.46	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.005	<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	<0.0015	<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	<0.015	<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	<0.007	<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	<0.07	<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	<0.005	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.008	0.012	0.002	0.008	0.013	0.011	0.008	0.017	0.013	0.013	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.08	0.12	<0.02	0.08	0.13	0.11	0.08	0.17	0.13	0.13	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	0.003	<0.002	0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Nickel (A10) #	0.03	<0.02	<0.02	<0.02	<0.02	0.02	<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	<0.003	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	<0.1	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	1.3	<0.5	<0.5	1.8	1.0	1.0	<0.5	3.7	7.8	4.1	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	13	<5	<5	18	10	10	<5	37	78	41	<5	mg/kg	TM38/PM0
Chloride #	0.8	0.9	0.5	<0.3	2.2	0.8	<0.3	4.6	3.9	2.9	<0.3	mg/l	TM38/PM0
Chloride #	8	9	5	<3	22	8	<3	46	39	29	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	2	<2	<2	<2	3	<2	<2	<2	<2	<2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	20	<20	<20	<20	30	<20	<20	<20	<20	<20	<20	mg/kg	TM60/PM0
pH	8.04	8.28	8.32	8.05	8.23	8.23	7.96	8.22	8.24	8.23	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	123	221	148	183	155	153	92	106	107	222	<35	mg/l	TM20/PM0
Total Dissolved Solids #	1230	2209	1479	1830	1550	1530	920	1060	1070	2221	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1176

Report : EN12457_2

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

Please see attached notes for all abbreviations and acronyms

J E Sample No.	145-147	148-150	151-153	175-177	178-180	181-183	187-189	190-192	208-210	211-213	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	WS04	WS04	WS04	WS07	WS07	WS07	WS08	WS08	WS10	WS10						
Depth	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	3.00-4.00	1.00-2.00	2.00-3.00	2.00-3.00	3.00-4.00						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	21/01/2019	21/01/2019	21/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019	21/01/2019	21/01/2019						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	2	2	2	2	2	2	2	2	2	2						
Date of Receipt	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019	24/01/2019						
Solid Waste Analysis																
Total Organic Carbon #	0.34	0.26	0.14	0.38	0.26	0.19	0.25	0.29	0.34	0.26	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	0.034	<0.025	0.541	0.337	<0.025	0.258	<0.025	<0.025	6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	673	<30	<30	<30	143	<30	<30	447	<30	100	500	-	-	<30	mg/kg	TM5/PM8/PM16
PAH Sum of 6 #	<0.22	<0.22	<0.22	<0.22	<0.22	<0.22	<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	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	100	-	-	<0.64	mg/kg	TM4/PM8
CEN 10:1 Leachate																
Arsenic #	<0.025	<0.025	0.042	<0.025	0.029	<0.025	<0.025	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	0.12	0.33	<0.03	0.04	0.46	0.11	<0.03	0.27	0.41	0.46	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<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	<0.015	<0.015	<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	<0.07	<0.07	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.08	0.12	<0.02	0.08	0.13	0.11	0.08	0.17	0.13	0.13	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	0.03	<0.02	<0.02	<0.02	<0.02	0.02	<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	<0.05	<0.05	<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	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.06	0.7	5	<0.02	mg/kg	TM30/PM17
Selenium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1230	2209	1479	1830	1550	1530	920	1060	1070	2221	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	20	<20	<20	<20	30	<20	<20	<20	<20	<20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1029	0.1046	0.097	0.1046	0.1027	0.0988	0.1008	0.102	0.1062	0.1024	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	87.2	86.0	92.3	85.9	87.3	90.8	88.9	88.1	84.4	87.9	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.887	0.885	0.892	0.885	0.887	0.891	0.889	0.888	0.883	0.888	-	-	-		l	NONE/PM17
Eluate Volume	0.6	0.63	0.8	0.62	0.61	0.75	0.81	0.65	0.59	0.58	-	-	-		l	NONE/PM17
pH #	8.57	8.61	9.20	8.69	7.69	8.44	8.66	8.23	8.18	8.19	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	13	<5	<5	18	10	10	<5	37	78	41	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	8	9	5	<3	22	8	<3	46	39	29	800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland **Matrix : Solid**
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1176	2	WS01	0.00-1.00	115-117	No interpretation possible
19/1176	2	WS01	1.00-2.00	118-120	No interpretation possible
19/1176	2	WS01	2.00-3.00	121-123	No interpretation possible
19/1176	2	WS02	0.00-1.00	124-126	PAH's & Tarmac/Bitumen
19/1176	2	WS02	1.00-2.00	127-129	No interpretation possible
19/1176	2	WS02	2.00-3.00	130-132	No interpretation possible
19/1176	2	WS03	0.00-1.00	133-135	No interpretation possible
19/1176	2	WS03	1.00-2.00	136-138	No interpretation possible
19/1176	2	WS03	2.00-3.00	139-141	No interpretation possible
19/1176	2	WS04	0.00-1.00	142-144	No interpretation possible
19/1176	2	WS04	1.00-2.00	145-147	Degraded diesel
19/1176	2	WS04	2.00-3.00	148-150	No interpretation possible
19/1176	2	WS04	3.00-4.00	151-153	No interpretation possible
19/1176	2	WS05	0.00-1.00	154-156	No interpretation possible
19/1176	2	WS05	1.00-2.00	157-159	No interpretation possible
19/1176	2	WS05	2.00-3.00	160-162	No interpretation possible
19/1176	2	WS06	0.00-1.00	163-165	No interpretation possible
19/1176	2	WS06	1.00-2.00	166-168	No interpretation possible
19/1176	2	WS06	2.00-3.00	169-171	Possible PAH's & Trace lubricating Oil
19/1176	2	WS07	0.00-1.00	172-174	Possible PAH's & lubricating Oil
19/1176	2	WS07	1.00-2.00	175-177	No interpretation possible
19/1176	2	WS07	2.00-3.00	178-180	Possible Degraded diesel
19/1176	2	WS07	3.00-4.00	181-183	No interpretation possible
19/1176	2	WS08	0.00-1.00	184-186	No interpretation possible
19/1176	2	WS08	1.00-2.00	187-189	No interpretation possible
19/1176	2	WS08	2.00-3.00	190-192	Gasoline residues & Degraded diesel
19/1176	2	WS09	0.00-1.00	193-195	No interpretation possible
19/1176	2	WS09	1.00-2.00	196-198	No interpretation possible
19/1176	2	WS09	2.00-3.00	199-201	No interpretation possible
19/1176	2	WS10	0.00-1.00	202-204	No interpretation possible
19/1176	2	WS10	1.00-2.00	205-207	No interpretation possible
19/1176	2	WS10	2.00-3.00	208-210	No interpretation possible

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

Matrix : Solid

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1176	2	WS10	3.00-4.00	211-213	Possible Degraded diesel
19/1176	2	WS11	0.00-1.00	214-216	No interpretation possible
19/1176	2	WS11	1.00-2.00	217-219	Gasoline residues, PAH's & Degraded diesel
19/1176	2	WS11	2.00-3.00	220-222	Gasoline residues, Possible PAH's & Degraded diesel
19/1176	2	WS12	0.00-1.00	223-225	No interpretation possible
19/1176	2	WS12	1.00-2.00	226-228	No interpretation possible
19/1176	2	WS12	2.00-3.00	229-231	No interpretation possible
19/1176	2	WS13	0.00-1.00	232-234	No interpretation possible
19/1176	2	WS13	1.00-2.00	235-237	No interpretation possible
19/1176	2	WS13	2.00-3.00	238-240	No interpretation possible

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	2	WS04	1.00-2.00	146	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS04	2.00-3.00	149	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS04	3.00-4.00	152	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS07	1.00-2.00	176	04/02/2019	**General Description (Bulk Analysis)**	soil.stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS07	2.00-3.00	179	04/02/2019	**General Description (Bulk Analysis)**	soil.stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS07	3.00-4.00	182	04/02/2019	**General Description (Bulk Analysis)**	soil.stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS08	1.00-2.00	188	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1176	2	WS08	1.00-2.00	188	04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS08	2.00-3.00	191	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS10	2.00-3.00	209	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD
19/1176	2	WS10	3.00-4.00	212	04/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					04/02/2019	**Asbestos Fibres**	NAD
					04/02/2019	**Asbestos ACM**	NAD
					04/02/2019	**Asbestos Type**	NAD
					04/02/2019	**Asbestos Level Screen**	NAD

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 19/1176						

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

JE Job No.: 19/1176

SOILS

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.

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. 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.

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.

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.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

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.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

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.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental 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

Appendix - Methods used for WAC (2003/33/EC)

JE Job No.: 19/1176

Leachate tests	
10l/kg; 4mm	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and filtered over 0.45 µm membrane filter.
Eluate analysis	
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ba	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Mo	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 1484
TDS	I.S. EN 15216
Compositional analysis	
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
BTEX	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES)
Other	
Dry matter	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to 550 ± 25 °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range

Notes:

*If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS
**PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

***Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

Please include all sections of this report if it is reproduced

JE Job No: 19/1176

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 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 8270. 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 160.3 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

JE Job No: 19/1176

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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 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
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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

JE Job No: 19/1176

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
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	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 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. 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 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 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.				
NONE	No Method Code	PM17	Modified method EN12457-2 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 and BS1377.			AR	

Exova Jones Environmental

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

Attention :	Barry Sexton
Date :	26th March, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/4257 Batch 1
Location :	Cornelscourt
Date samples received :	14th March, 2019
Status :	Final report
Issue :	1

Four samples were received for analysis on 14th March, 2019 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.

Compiled By:

Lucas Halliwell
Project Co-ordinator

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/4257

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

J E Sample No.	1-7	8-14	15-21	22-28							LOD/LOR	Units	Method No.
Sample ID	BH03	BH07	BH08	BH11									
Depth	7.94	2.28	4.13	5.49									
COC No / misc													
Containers	V H HN HCL P G	V H HN HCL P G	V H HN HCL P G	V H HN HCL P G									
Sample Date	13/03/2019	13/03/2019	13/03/2019	13/03/2019									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	14/03/2019	14/03/2019	14/03/2019	14/03/2019									
Dissolved Arsenic #	4.9	2.9	4.0	23.5							<2.5	ug/l	TM30/PM14
Dissolved Boron	32	38	49	38							<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	13	<7	<7							<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Manganese #	571	480	194	599							<2	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	3	59	16	8							<2	ug/l	TM30/PM14
Dissolved Phosphorus #	11	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Potassium #	5.6	7.5	11.6	8.8							<0.1	mg/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Zinc #	<3	3	<3	<3							<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Acenaphthene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Fluorene #	<0.014	<0.014	<0.014	<0.014							<0.014	ug/l	TM4/PM30
Phenanthrene #	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
Anthracene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Fluoranthene #	<0.012	<0.012	<0.012	<0.012							<0.012	ug/l	TM4/PM30
Pyrene #	<0.013	<0.013	<0.013	<0.013							<0.013	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.015	<0.015	<0.015	<0.015							<0.015	ug/l	TM4/PM30
Chrysene #	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.018	<0.018	<0.018	<0.018							<0.018	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.016	<0.016	<0.016	<0.016							<0.016	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.011	<0.011	<0.011	<0.011							<0.011	ug/l	TM4/PM30
PAH 16 Total #	<0.195	<0.195	<0.195	<0.195							<0.195	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	79	73	78	71							<0	%	TM4/PM30

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/4257

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H_2SO_4, Z=ZnAc, N=NaOH, HN=$HN0_3$

J E Sample No.	1-7	8-14	15-21	22-28							LOD/LOR	Units	Method No.
Sample ID	BH03	BH07	BH08	BH11									
Depth	7.94	2.28	4.13	5.49									
COC No / misc													
Containers	V H HN HCL P G	V H HN HCL P G	V H HN HCL P G	V H HN HCL P G									
Sample Date	13/03/2019	13/03/2019	13/03/2019	13/03/2019									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	14/03/2019	14/03/2019	14/03/2019	14/03/2019									
TPH CWG													
Aliphatics													
>C5-C6 #	<10	<10	<10	35							<10	ug/l	TM36/PM12
>C6-C8 #	<10	<10	<10	63							<10	ug/l	TM36/PM12
>C8-C10 #	<10	<10	<10	16							<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5							<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	<10	<10	114							<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	<10	<10	<10							<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	<5							<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	<10	<10	<10							<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	114							<10	ug/l	TM5/TM36/PM12/PM16/PM30
MTBE #	<5	<5	<5	25							<5	ug/l	TM31/PM12
Benzene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
Toluene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
o-Xylene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
Phenol #	<0.01	<0.01	<0.01	<0.01							<0.01	mg/l	TM26/PM0
Sulphate as SO4 #	24.9	38.1	14.3	17.2							<0.5	mg/l	TM38/PM0
Chloride #	20.0	37.2	23.7	17.9							<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	5.4	5.6	2.2							<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	0.15	1.03	<0.02	0.08							<0.02	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01	<0.01	<0.01							<0.01	mg/l	TM89/PM0
Ammoniacal Nitrogen as NH3 #	0.37	0.42	0.06	0.11							<0.03	mg/l	TM38/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006							<0.006	mg/l	TM38/PM0
Electrical Conductivity @25C #	292	694	641	399							<2	uS/cm	TM76/PM0
pH #	8.44	7.54	7.59	7.85							<0.01	pH units	TM73/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 19/4257						

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

JE Job No.: 19/4257

SOILS

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.

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. 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.

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.

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.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

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.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

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.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental 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

JE Job No: 19/4257

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
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.	Yes			
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.				

JE Job No: 19/4257

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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM76	Modified US EPA method 120.1. Determination of Specific Conductance by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			

Exova Jones Environmental

Registered Office: Exova Environmental UK Limited, 10 Lower Grosvenor Place, London, SW1W 0EN. Reg No. 11371415

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

Attention :	Barry Sexton
Date :	15th February, 2019
Your reference :	8354-01-19
Our reference :	Test Report 19/1246 Batch 1
Location :	Cornelscourt
Date samples received :	25th January, 2019
Status :	Final report
Issue :	1

Eighteen samples were received for analysis on 25th January, 2019 of which eighteen 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.

Where Waste Acceptance Criteria Suite (EC Decision of 19 December 2002 (2003/33/EC)) has been requested, all analyses have been performed using the relevant EN methods where they exist.

Compiled By:

Lucas Halliwell
Project Co-ordinator

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : Solid

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

J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019			
Antimony	<1	2	1	2	2	2	2	3	2	1	<1	mg/kg	TM30/PM15
Arsenic #	8.0	9.8	8.8	13.2	10.1	10.8	8.6	20.8	10.7	7.3	<0.5	mg/kg	TM30/PM15
Barium #	52	73	60	91	69	61	154	63	92	132	<1	mg/kg	TM30/PM15
Cadmium #	2.1	2.0	1.6	2.2	1.8	1.2	2.1	3.0	2.3	1.1	<0.1	mg/kg	TM30/PM15
Chromium #	40.4	37.1	47.8	69.0	41.8	65.3	66.2	45.3	46.8	88.6	<0.5	mg/kg	TM30/PM15
Copper #	18	33	28	34	28	14	40	38	33	31	<1	mg/kg	TM30/PM15
Lead #	12	16	15	31	16	15	28	20	21	18	<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM30/PM15
Molybdenum #	3.6	3.9	4.1	5.4	3.8	3.7	3.2	4.3	4.5	2.3	<0.1	mg/kg	TM30/PM15
Nickel #	25.0	40.5	34.4	45.0	33.8	46.8	49.6	50.4	41.9	25.6	<0.7	mg/kg	TM30/PM15
Selenium #	<1	1	1	1	1	1	1	2	2	<1	<1	mg/kg	TM30/PM15
Zinc #	77	92	76	110	83	75	107	190	100	67	<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<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	<0.03	<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	<0.05	<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	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<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	<0.03	<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	<0.03	<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	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<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	<0.04	<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	<0.04	<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	<0.04	<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	<0.04	<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	<0.04	<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	<0.22	<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	<0.64	<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	<0.05	<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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	99	83	90	95	85	89	107	90	95	101	<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : Solid

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

J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019			
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM31/PM12
PCB 28 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : Solid

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

J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019			
Natural Moisture Content	15.5	10.7	13.4	23.0	13.6	12.1	24.9	15.1	14.0	22.3	<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	13.4	9.7	11.8	18.7	12.0	10.8	20.0	13.1	12.3	18.2	<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	-	-	-	0.0075	-	-	-	0.0099	-	<0.0015	g/l	TM38/PM20
Chromium III	40.4	37.1	47.8	69.0	41.8	65.3	66.2	45.3	46.8	88.6	<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.22	0.35	0.27	1.01	0.29	0.15	1.18	0.34	0.49	0.95	<0.02	%	TM21/PM24
pH #	8.64	8.57	8.71	8.35	8.73	8.69	8.24	8.53	8.61	8.22	<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1027	0.1047	0.1033	0.1094	0.1042	0.1026	0.1135	0.1036	0.1005	0.1098		kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09		kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : Solid

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

J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54			LOD/LOR	Units	Method No.
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21					
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50					
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T					
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019					
Antimony	2	2	3	2	<1	2	2	2			<1	mg/kg	TM30/PM15
Arsenic #	9.7	10.0	16.2	12.1	5.6	8.5	10.7	11.4			<0.5	mg/kg	TM30/PM15
Barium #	70	72	96	70	65	129	86	92			<1	mg/kg	TM30/PM15
Cadmium #	1.9	2.3	3.1	2.1	1.1	1.3	2.0	2.3			<0.1	mg/kg	TM30/PM15
Chromium #	55.1	56.2	68.0	44.3	43.8	104.6	55.3	53.7			<0.5	mg/kg	TM30/PM15
Copper #	31	29	44	32	26	41	34	34			<1	mg/kg	TM30/PM15
Lead #	16	17	36	19	17	22	18	22			<5	mg/kg	TM30/PM15
Mercury #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM30/PM15
Molybdenum #	3.5	3.8	6.7	4.9	2.5	2.9	4.4	4.5			<0.1	mg/kg	TM30/PM15
Nickel #	35.5	36.8	65.3	44.7	38.8	29.6	44.0	42.8			<0.7	mg/kg	TM30/PM15
Selenium #	1	1	2	1	<1	<1	1	2			<1	mg/kg	TM30/PM15
Zinc #	88	85	136	106	82	77	95	103			<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene #	<0.04	<0.04	<0.04	<0.04	<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	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	<0.05	<0.05	<0.05	<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	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	<0.04	<0.04	<0.04	<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	0.05	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	<0.03	<0.03			<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06			<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	<0.02	<0.02			<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	<0.07	<0.07	<0.07	<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	<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	<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	<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	<0.04	<0.04	<0.04			<0.04	mg/kg	TM4/PM8
Coronene	<0.04	<0.04	<0.04	<0.04	<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	<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	<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	<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	<0.02	<0.02	<0.02			<0.02	mg/kg	TM4/PM8
Benzo(j)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1			<1	mg/kg	TM4/PM8
PAH Surrogate % Recovery	97	85	98	103	101	99	95	98			<0	%	TM4/PM8
Mineral Oil (C10-C40)	<30	<30	<30	<30	<30	<30	<30	<30			<30	mg/kg	TM5/PM8/PM16

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : Solid

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

J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54			LOD/LOR	Units	Method No.
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21					
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50					
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T					
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019					
TPH CWG													
Aliphatics													
>C5-C6 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C6-C8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C8-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C10-C12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 #	<4	<4	<4	<4	<4	<4	<4	<4			<4	mg/kg	TM5/PM8/PM16
>C16-C21 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
>C21-C35 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
>C35-C40	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26			<26	mg/kg	TM5/TM36/PM8/PM12/PM16
>C6-C10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>C10-C25	<10	<10	<10	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM8/PM16
>C25-C35	<10	<10	<10	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC7-EC8 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC8-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC10-EC12 #	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 #	<4	<4	<4	<4	<4	<4	<4	<4			<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 #	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
>EC35-EC40	<7	<7	<7	<7	<7	<7	<7	<7			<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-40	<26	<26	<26	<26	<26	<26	<26	<26			<26	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-40)	<52	<52	<52	<52	<52	<52	<52	<52			<52	mg/kg	TM5/TM36/PM8/PM12/PM16
>EC6-EC10 #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	mg/kg	TM36/PM12
>EC10-EC25	<10	<10	<10	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM8/PM16
>EC25-EC35	<10	<10	<10	<10	<10	<10	<10	<10			<10	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM31/PM12
PCB 28 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 52 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 101 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 118 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 138 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 153 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
PCB 180 #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/kg	TM17/PM8
Total 7 PCBs #	<35	<35	<35	<35	<35	<35	<35	<35			<35	ug/kg	TM17/PM8

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : Solid

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

J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54			LOD/LOR	Units	Method No.
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21					
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50					
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T					
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019					
Natural Moisture Content	14.9	14.2	24.6	12.2	12.8	23.1	12.8	14.9			<0.1	%	PM4/PM0
Moisture Content (% Wet Weight)	13.0	12.4	19.8	10.9	11.4	18.8	11.4	13.0			<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	-	0.0131	-	-	0.0071	-	-	-			<0.0015	g/l	TM38/PM20
Chromium III	55.1	56.2	68.0	44.3	43.8	104.6	55.3	53.7			<0.5	mg/kg	NONE/NONE
Total Organic Carbon #	0.29	0.28	1.00	0.30	0.33	1.40	0.36	0.36			<0.02	%	TM21/PM24
pH #	8.58	8.63	8.26	8.62	8.76	8.21	8.57	8.67			<0.01	pH units	TM73/PM11
Mass of raw test portion	0.1007	0.1066	0.1115	0.1029	0.1008	0.1115	0.1049	0.1036				kg	NONE/PM17
Mass of dried test portion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09				kg	NONE/PM17

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : CEN 10:1 1 Batch

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

J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	LOD/LOR	Units	Method No.
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16			
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50			
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T			
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019			
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<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	<0.02	<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	<0.0025	<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	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	0.005	<0.003	<0.003	0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	0.05	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.005	<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	<0.0015	<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	<0.015	<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	<0.007	<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	<0.07	<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	<0.005	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.007	0.017	0.005	0.004	0.007	0.007	0.003	0.004	0.007	<0.002	<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.07	0.17	0.05	0.04	0.07	0.07	0.03	0.04	0.07	<0.02	<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<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	<0.02	<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	<0.003	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	<0.1	<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	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	mg/kg	TM38/PM0
Chloride #	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.3	<0.3	0.3	<0.3	mg/l	TM38/PM0
Chloride #	4	<3	<3	<3	<3	<3	<3	<3	<3	3	<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	<2	<2	<2	<2	<2	<2	2	<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	<20	mg/kg	TM60/PM0
pH	8.07	8.30	8.02	8.14	8.14	8.01	8.10	8.20	8.14	7.96	<0.01	pH units	TM73/PM0
Total Dissolved Solids #	165	189	130	283	115	102	184	160	94	78	<35	mg/l	TM20/PM0
Total Dissolved Solids #	1649	1889	1300	2829	1150	1020	1840	1599	940	780	<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : CEN 10:1 1 Batch

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

J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54			LOD/LOR	Units	Method No.
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21					
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50					
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T					
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019					
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019					
Dissolved Antimony #	<0.002	<0.002	<0.002	<0.002	<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	<0.02	<0.02	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Arsenic #	<0.0025	<0.0025	<0.0025	<0.0025	<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	<0.025	<0.025	<0.025			<0.025	mg/kg	TM30/PM17
Dissolved Barium #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	<0.003			<0.003	mg/l	TM30/PM17
Dissolved Barium (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03			<0.03	mg/kg	TM30/PM17
Dissolved Cadmium #	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.005	<0.005	<0.005			<0.005	mg/kg	TM30/PM17
Dissolved Chromium #	<0.0015	<0.0015	<0.0015	<0.0015	<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	<0.015	<0.015	<0.015			<0.015	mg/kg	TM30/PM17
Dissolved Copper #	<0.007	<0.007	<0.007	<0.007	<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	<0.07	<0.07	<0.07			<0.07	mg/kg	TM30/PM17
Dissolved Lead #	<0.005	<0.005	<0.005	<0.005	<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	<0.05	<0.05	<0.05			<0.05	mg/kg	TM30/PM17
Dissolved Molybdenum #	0.005	0.007	0.002	0.008	0.014	<0.002	0.006	0.007			<0.002	mg/l	TM30/PM17
Dissolved Molybdenum (A10) #	0.05	0.07	0.02	0.08	0.14	<0.02	0.06	0.07			<0.02	mg/kg	TM30/PM17
Dissolved Nickel #	<0.002	<0.002	<0.002	<0.002	<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	<0.02	<0.02	<0.02			<0.02	mg/kg	TM30/PM17
Dissolved Selenium #	<0.003	<0.003	<0.003	<0.003	<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	<0.03	<0.03	<0.03			<0.03	mg/kg	TM30/PM17
Dissolved Zinc #	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003			<0.003	mg/l	TM30/PM17
Dissolved Zinc (A10) #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			<0.03	mg/kg	TM30/PM17
Mercury Dissolved by CVAF #	<0.00001	<0.00001	<0.00001	<0.00001	<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	<0.0001	<0.0001	<0.0001			<0.0001	mg/kg	TM61/PM0
Phenol	<0.01	<0.01	<0.01	<0.01	<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	<0.1	<0.1	<0.1			<0.1	mg/kg	TM26/PM0
Fluoride	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<0.3	mg/l	TM173/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3			<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<0.5	0.6	1.3	1.3	1.3	1.3	1.4	2.1			<0.5	mg/l	TM38/PM0
Sulphate as SO4 #	<5	6	13	13	13	13	14	21			<5	mg/kg	TM38/PM0
Chloride #	0.4	0.7	0.9	0.8	6.9	0.9	0.9	0.8			<0.3	mg/l	TM38/PM0
Chloride #	4	7	9	8	69	9	9	8			<3	mg/kg	TM38/PM0
Dissolved Organic Carbon	<2	<2	<2	<2	<2	2	<2	<2			<2	mg/l	TM60/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	20	<20	<20			<20	mg/kg	TM60/PM0
pH	7.67	7.01	7.68	8.28	8.46	8.13	8.28	8.47			<0.01	pH units	TM73/PM0
Total Dissolved Solids #	168	<35	<35	<35	77	174	65	35			<35	mg/l	TM20/PM0
Total Dissolved Solids #	1680	<350	<350	<350	770	1740	650	<350			<350	mg/kg	TM20/PM0

Please see attached notes for all abbreviations and acronyms

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : EN12457_2

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

Please see attached notes for all abbreviations and acronyms

J E Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30						
Sample ID	TP - 11	TP - 11	TP - 11	TP - 12	TP - 12	TP - 12	TP - 13	TP - 13	TP - 13	TP - 16						
Depth	1.00	2.00	3.00	0.50	1.50	2.50	0.50	1.50	2.50	0.50						
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1	1	1	1	Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019						
Solid Waste Analysis																
Total Organic Carbon #	0.22	0.35	0.27	1.01	0.29	0.15	1.18	0.34	0.49	0.95	3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<30	<30	<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	<0.22	<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	<0.64	<0.64	<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	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	<0.03	0.05	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	<0.03	20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<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	<0.015	<0.015	<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	<0.07	<0.07	<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	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.07	0.17	0.05	0.04	0.07	0.07	0.03	0.04	0.07	<0.02	0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<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	<0.05	<0.05	<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	<0.02	<0.02	<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	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1649	1889	1300	2829	1150	1020	1840	1599	940	780	4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	<20	<20	<20	<20	20	500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1027	0.1047	0.1033	0.1094	0.1042	0.1026	0.1135	0.1036	0.1005	0.1098	-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	87.8	85.9	87.5	82.0	86.6	87.6	79.0	86.8	89.4	81.6	-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.887	0.885	0.887	0.88	0.886	0.887	0.876	0.886	0.889	0.88	-	-	-		l	NONE/PM17
Eluate Volume	0.82	0.65	0.7	0.75	0.7	0.85	0.71	0.61	0.68	0.7	-	-	-		l	NONE/PM17
pH #	8.64	8.57	8.71	8.35	8.73	8.69	8.24	8.53	8.61	8.22	-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	4	<3	<3	<3	<3	<3	<3	<3	<3	3	800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton
JE Job No.: 19/1246

Report : EN12457_2

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

Please see attached notes for all abbreviations and acronyms

J E Sample No.	31-33	34-36	37-39	40-42	43-45	46-48	49-51	52-54			Inert	Stable Non-reactive	Hazardous	LOD LOR	Units	Method No.
Sample ID	TP - 16	TP - 16	TP - 17	TP - 17	TP - 17	TP - 21	TP - 21	TP - 21								
Depth	1.50	2.50	0.50	1.50	2.50	0.50	1.50	2.50								
COC No / misc																
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T	V J T								
Sample Date	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019	23/01/2019								
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1	1	1	1								
Date of Receipt	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019	25/01/2019								
Solid Waste Analysis																
Total Organic Carbon #	0.29	0.28	1.00	0.30	0.33	1.40	0.36	0.36			3	5	6	<0.02	%	TM21/PM24
Sum of BTEX	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025			6	-	-	<0.025	mg/kg	TM31/PM12
Sum of 7 PCBs #	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035			1	-	-	<0.035	mg/kg	TM17/PM8
Mineral Oil	<30	<30	<30	<30	<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	<0.22	<0.22	<0.22			-	-	-	<0.22	mg/kg	TM4/PM8
PAH Sum of 17	<0.64	<0.64	<0.64	<0.64	<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	<0.025	<0.025	<0.025	<0.025			0.5	2	25	<0.025	mg/kg	TM30/PM17
Barium #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.04	<0.03			20	100	300	<0.03	mg/kg	TM30/PM17
Cadmium #	<0.005	<0.005	<0.005	<0.005	<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	<0.015	<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	<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	<0.0001	<0.0001	<0.0001	<0.0001			0.01	0.2	2	<0.0001	mg/kg	TM61/PM0
Molybdenum #	0.05	0.07	0.02	0.08	0.14	<0.02	0.06	0.07			0.5	10	30	<0.02	mg/kg	TM30/PM17
Nickel #	<0.02	<0.02	<0.02	<0.02	<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	<0.05	<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	<0.02	<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	<0.03	<0.03	<0.03	<0.03			0.1	0.5	7	<0.03	mg/kg	TM30/PM17
Zinc #	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			4	50	200	<0.03	mg/kg	TM30/PM17
Total Dissolved Solids #	1680	<350	<350	<350	770	1740	650	<350			4000	60000	100000	<350	mg/kg	TM20/PM0
Dissolved Organic Carbon	<20	<20	<20	<20	<20	20	<20	<20			500	800	1000	<20	mg/kg	TM60/PM0
Mass of raw test portion	0.1007	0.1066	0.1115	0.1029	0.1008	0.1115	0.1049	0.1036			-	-	-		kg	NONE/PM17
Dry Matter Content Ratio	88.9	84.4	80.8	87.0	89.0	81.0	85.8	86.6			-	-	-	<0.1	%	NONE/PM4
Leachant Volume	0.889	0.883	0.879	0.887	0.889	0.879	0.885	0.886			-	-	-		l	NONE/PM17
Eluate Volume	0.62	0.7	0.65	0.7	0.71	0.8	0.75	0.7			-	-	-		l	NONE/PM17
pH #	8.58	8.63	8.26	8.62	8.76	8.21	8.57	8.67			-	-	-	<0.01	pH units	TM73/PM11
Phenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			1	-	-	<0.1	mg/kg	TM26/PM0
Fluoride	<3	<3	<3	<3	<3	<3	<3	<3			-	-	-	<3	mg/kg	TM173/PM0
Sulphate as SO4 #	<5	6	13	13	13	13	14	21			1000	20000	50000	<5	mg/kg	TM38/PM0
Chloride #	4	7	9	8	69	9	9	8			800	15000	25000	<3	mg/kg	TM38/PM0

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

Matrix : Solid

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	EPH Interpretation
19/1246	1	TP - 11	1.00	1-3	No interpretation possible
19/1246	1	TP - 11	2.00	4-6	No interpretation possible
19/1246	1	TP - 11	3.00	7-9	No interpretation possible
19/1246	1	TP - 12	0.50	10-12	No interpretation possible
19/1246	1	TP - 12	1.50	13-15	No interpretation possible
19/1246	1	TP - 12	2.50	16-18	No interpretation possible
19/1246	1	TP - 13	0.50	19-21	No interpretation possible
19/1246	1	TP - 13	1.50	22-24	No interpretation possible
19/1246	1	TP - 13	2.50	25-27	No interpretation possible
19/1246	1	TP - 16	0.50	28-30	No interpretation possible
19/1246	1	TP - 16	1.50	31-33	No interpretation possible
19/1246	1	TP - 16	2.50	34-36	No interpretation possible
19/1246	1	TP - 17	0.50	37-39	No interpretation possible
19/1246	1	TP - 17	1.50	40-42	No interpretation possible
19/1246	1	TP - 17	2.50	43-45	No interpretation possible
19/1246	1	TP - 21	0.50	46-48	No interpretation possible
19/1246	1	TP - 21	1.50	49-51	No interpretation possible
19/1246	1	TP - 21	2.50	52-54	No interpretation possible

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

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). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1246	1	TP - 11	1.00	2	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 11	2.00	5	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 11	3.00	8	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 12	0.50	11	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 12	1.50	14	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 12	2.50	17	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stone
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 13	0.50	20	01/02/2019	**General Description (Bulk Analysis)**	soil-stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1246	1	TP - 13	0.50	20	01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 13	1.50	23	01/02/2019	**General Description (Bulk Analysis)**	soil-stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 13	2.50	26	01/02/2019	**General Description (Bulk Analysis)**	soil-stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 16	0.50	29	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 16	1.50	32	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 16	2.50	35	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 17	0.50	38	01/02/2019	**General Description (Bulk Analysis)**	soil-stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 17	1.50	41	01/02/2019	**General Description (Bulk Analysis)**	soil-stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 17	2.50	44	01/02/2019	**General Description (Bulk Analysis)**	Soil/Stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 21	0.50	47	01/02/2019	**General Description (Bulk Analysis)**	soil.stones
					01/02/2019	**Asbestos Fibres**	NAD

Client Name: Ground Investigations Ireland
Reference: 19/01/8354
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
19/1246	1	TP - 21	0.50	47	01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 21	1.50	50	01/02/2019	**General Description (Bulk Analysis)**	soil.stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD
19/1246	1	TP - 21	2.50	53	01/02/2019	**General Description (Bulk Analysis)**	soil.stones
					01/02/2019	**Asbestos Fibres**	NAD
					01/02/2019	**Asbestos ACM**	NAD
					01/02/2019	**Asbestos Type**	NAD
					01/02/2019	**Asbestos Level Screen**	NAD

Client Name: Ground Investigations Ireland
Reference: 8354-01-19
Location: Cornelscourt
Contact: Barry Sexton

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
No deviating sample report results for job 19/1246						

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

JE Job No.: 19/1246

SOILS

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.

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. 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.

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.

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.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

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.

REPORTS FROM THE SOUTH AFRICA LABORATORY

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

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.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental 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

Appendix - Methods used for WAC (2003/33/EC)

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Leachate tests	
10l/kg; 4mm	I.S. EN 12457-2:2002 Specified particle size; water added to L/S ratio; capped; agitated for 24 ± 0.5 hours; eluate settled and filtered over 0.45 µm membrane filter.
Eluate analysis	
As	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ba	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cd	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cr total	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Cu	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Hg	I.S. EN 13370 rec. EN 1483 (CVAAS)
Mo	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Ni	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Pb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Sb	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Se	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Zn	I.S. EN 12506 : EN ISO 11885 (ICP-OES)
Chloride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Fluoride	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Sulphate	I.S. EN 12506 rec. EN ISO 10304-part 1 (liquid chromatography of ions)
Phenol index	I.S. EN 13370 rec. ISO 6439 (4-Aminoantipyrine spectrometic methods after distillation)* (BY HPLC - Jones Env)
DOC	I.S. EN 1484
TDS	I.S. EN 15216
Compositional analysis	
TOC	I.S. EN 13137 Method B: carbonates removed with acid; TOC by combustion.
BTEX	GC-FID
PCB7**	I.S. EN 15308 analysis by GC-ECD.
Mineral oil	I.S. EN 14039 C10 to C40 analysis by GC-FID.
PAH17***	I.S. EN 15527 PAH17 analysis by GC-MS
Metals	I.S. EN 13657 - Aqua regia digestion: EN ISO 11885 (ICP-OES)
Other	
Dry matter	I.S. EN 14346 sample is dried to a constant mass in an oven at 105 ± 3 °C; Method B Water content by direct Karl-Fischer-titration and either volumetric or coulometric detection.
LOI	I.S. EN 15169 Difference in mass after heating in a furnace up to 550 ± 25 °C.
ANC	CEN/TS 15364 Determined by amouns of acid or base needed to cover the pH range

Notes:

*If not suitable due to LOD, precision, etc., any other suitable method can be used, e.g. AFS, ICP-MS
**PCB-28, PCB-52, PCB-101, PCB-118, PCB-138, PCB-153 and PCB-180

***Naphthalene, Acenaphthylene, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Coronene, Dibenzo(a,h)anthracene, Fluorene, Fluoranthene, Indeno(1,2,3-c,d)pyrene, Phenanthrene and Pyrene.

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JE Job No: 19/1246

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 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	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 8270. 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 160.3 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

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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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	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 Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 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
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. 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 can be confirmed using GCMS.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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

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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
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods 325.2 (Chloride), 375.4 (Sulphate), 365.2 (o-Phosphate), 353.1 (TON), 354.1 (Nitrite), 350.1 (NH4+) comparable to BS ISO 15923-1, 7196A (Hex Cr)	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 9060, APHA Standard Methods for Examination of Water and Wastewater 5310B, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM61	Modified US EPA methods 245.7 and 200.7. Determination of Mercury by Cold Vapour Atomic Fluorescence.	PM0	No preparation is required.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	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 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. 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 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes
NONE	No Method Code	PM17	Modified method EN12457-2 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.				
NONE	No Method Code	PM17	Modified method EN12457-2 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	

JE Job No: 19/1246

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
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 and BS1377.			AR	

APPENDIX 9 – Groundwater Monitoring Records

Ground Investigations Ireland
Groundwater Monitoring Field Sheet

(V1 August 2018)

Project Number	8354-01-2019	Sample Date	13-03-2019
Client	DBFL Consulting Engineers	Well I.D.	BH-03
Site Name	Cornelscourt	Weather	Dry
Sampler I.D.	PM	Weather Previous 24hrs	Wet

Well Data

Casing Diameter (mm)	100mm	Total Well Depth (m)	9.59
Standpipe Diam. (mm)	50mm	Water Level (mBGL)	2.27
Stick Up (mm)	0.424mm	VOC Screen in casing (y/n)	N
Standpipe Type pvc, HDPE etc.	PVC	VOC Data (ppm)	ppm

Purge Data

Time Purging Start	9.55am	**Sampling Method/Equipment (Tick)**	
Timer Purging End	10.27am	Submersible Pump	
Purge Volume (litres)	38 litres.	Bailer	√
Colour	Brown	Tube with foot valve	
Recovery	Good	Low Flow Pumping	

Time	Litres Purged	Ph	EC (mS)	Temp	ORP	DO (mg/l)	Odour
10.27	38 litres						

Additional Comments/Observations:

Ground Investigations Ireland
Groundwater Monitoring Field Sheet

(V1 August 2018)

Project Number	8354-01-2019	Sample Date	13-03-2019
Client	DBFL Consulting Engineers	Well I.D.	BH-07
Site Name	Cornelscourt	Weather	Dry
Sampler I.D.	PM	Weather Previous 24hrs	Wet
Well Data			
Casing Diameter (mm)	100mm	Total Well Depth (m)	11.55
Standpipe Diam. (mm)	50mm	Water Level (mBGL)	1.02
Stick Up (mm)	0.424mm	VOC Screen in casing (y/n)	N
Standpipe Type pvc, HDPE etc.	PVC	VOC Data (ppm)	ppm
Purge Data			
Time Purging Start	11.40am	**Sampling Method/Equipment (Tick)**	
Timer Purging End	12.10am	Submersible Pump	
Purge Volume (litres)	55 litres	Bailer	√
Colour	Brown	Tube with foot valve	
Recovery	Good	Low Flow Pumping	

Time	Litres Purged	Ph	EC (mS)	Temp	ORP	DO (mg/l)	Odour
12.10	55 litres						Hydrocarbon odour noted

Additional Comments/Observations:

Ground Investigations Ireland
Groundwater Monitoring Field Sheet

(V1 August 2018)

Project Number	8354-01-2019	Sample Date	13-03-2019
Client	DBFL Consulting Engineers	Well I.D.	BH-08
Site Name	Cornelscourt	Weather	Dry
Sampler I.D.	PM	Weather Previous 24hrs	Wet
Well Data			
Casing Diameter (mm)	100mm	Total Well Depth (m)	7.95
Standpipe Diam. (mm)	50mm	Water Level (mBGL)	0.96
Stick Up (mm)	0.424mm	VOC Screen in casing (y/n)	N
Standpipe Type pvc, HDPE etc.	PVC	VOC Data (ppm)	ppm
Purge Data			
Time Purging Start	9.15am	**Sampling Method/Equipment (Tick)**	
Timer Purging End	9.40am	Submersible Pump	
Purge Volume (litres)	41 litres	Bailer	√
Colour	Brown	Tube with foot valve	
Recovery	Good	Low Flow Pumping	

Time	Litres Purged	Ph	EC (mS)	Temp	ORP	DO (mg/l)	Odour
09.40	41						None

Additional Comments/Observations:

Ground Investigations Ireland
Groundwater Monitoring Field Sheet

(V1 August 2018)

Project Number	8354-01-2019	Sample Date	13-03-2019
Client	DBFL Consulting Engineers	Well I.D.	BH-11
Site Name	Cornelscourt	Weather	Dry
Sampler I.D.	PM	Weather Previous 24hrs	Wet
Well Data			
Casing Diameter (mm)	100mm	Total Well Depth (m)	8.48
Standpipe Diam. (mm)	50mm	Water Level (mBGL)	1.0
Stick Up (mm)	0.424mm	VOC Screen in casing (y/n)	N
Standpipe Type pvc, HDPE etc.	PVC	VOC Data (ppm)	ppm
Purge Data			
Time Purging Start	11.00am	**Sampling Method/Equipment (Tick)**	
Timer Purging End	11.30am	Submersible Pump	
Purge Volume (litres)	40 litres	Bailer	√
Colour	Brown	Tube with foot valve	
Recovery	Good	Low Flow Pumping	

Time	Litres Purged	Ph	EC (mS)	Temp	ORP	DO (mg/l)	Odour
11.30	40 litres						Hydrocarbon odour noted

Additional Comments/Observations: