



Geo-Environmental Assessment

Bennet Court, Bennet Road, Reading

Presented to: Coltham Developments

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Report Details

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Executive Summary

Brief	Delta-Simons Limited ('Delta-Simons') was instructed by Coltham Developments (the 'Client') to undertake a Geo-Environmental Assessment for the land at Bennet Court, Bennet Road, Reading, RG2 0QX (hereafter referred to as the 'Site'). It is understood the Site is to be redeveloped for a commercial end use.
Site Setting	The Site currently comprises a roughly rectangular-shaped plot of land comprising two buildings, associated car parking with some landscaping on the north and east boundaries. The Site was previously a bus depot comprising one large and several smaller buildings. Published geological mapping indicates that the Site comprises Made Ground underlain by the Lambeth Group (clay, silt and sand classified as a Secondary A aquifer).
Ground Conditions	Ground conditions underlying the Site were found to comprise Made Ground to depths typically ranging between 1.0 m to 1.5 m below ground level (bgl) (maximum of 1.9 m bgl in the south of the Site). A buried concrete slab was encountered across the majority of the Site at depths between 0.3 and 0.5m bgl. Underlying the Made Ground, the Lambeth Group comprised soft weathered clays to 2.5-3.5 m bgl with firm grading into stiff silts to a maximum of 20.7 m bgl. Bands of dense sand were encountered from 17.0m bgl. Pockets of perched water were encountered across the Site at shallow depths within the shallow Lambeth Group (up to 5 m bgl). Deeper groundwater strikes were identified within the granular Lambeth Group underlying the Site, which may be under sub-artesian conditions.
Land Contamination Assessment	Elevated PAH concentrations have been recorded in one location within the shallow Made Ground in the north of the Site. However this can be mitigated by the installation of a clean cover system, soft landscaped areas or hardstanding. None of the remaining contaminants assessed were found to have concentrations above their respective screening criteria. Marginal exceedances of some heavy metal concentrations were recorded, as well as one instance of total petroleum hydrocarbons. However, given the wider industrial area, lack of utilisation of the underlying aquifer and distance to the nearest surface water receptor, the risk to controlled waters is considered to be negligible. Ground gas monitoring indicates the Site can be classified as CS1, no ground gas mitigation measures are required.
Geotechnical Assessment	The investigation has identified low shear strength soils and variable thickness of Made Ground including concrete obstructions to be present at shallow depths which may impact the adopted foundation solution at the Site. Spread foundations taken into the top of the firm clay of the Lambeth Group at 2.5m bgl are expected to provide bearing capacities between 100 and 190kPa (dependant on pad size), limited to 25mm total settlement. Locally, foundations may need to be deepened where competent soils are not present at 2.5m bgl. Ground improvement techniques are expected to permit the use of heavier loaded shallow spread foundations; however due to the presence of a buried concrete slab, locations may need to be pre bored. Ground bearing floor slabs are unlikely to be suitable based on current in-situ ground conditions. If the Made Ground and buried concrete slab are fully

	removed and replaced with engineered fill, then floor slabs exerting loads up to 25kPa are likely to be suitable limited to 25mm. Where higher loadings are required then a ground improvement solution is likely to be required. Based on the presence of shallow cohesive soils, the construction of soakaways is unlikely to be suitable at the Site. Buried concrete in contact with Made Ground and Lambeth Group should be designed to resist Design Sulphate Class DS-2 AC-2.
Recommendations	Based on the findings of this Report, the following recommendations are made; • Depending on the requirements of the LLFA and EA, it may be necessary to undertake Soakaway testing at the Site. • It is recommended that the findings of the gas monitoring be agreed with the Local Authority; • It is recommended that CBR testing be completed at the Site to inform subgrade design. • It is recommended that if further soil sampling is undertaken within the Lambeth Group, it may be possible to reduce the classification to DS-1 AC-1 across the Site. • The buried concrete slab will likely require removal in areas of the proposed building footprint and also in areas where service corridors and buried infrastructure are proposed. • The use of standard plastic infrastructure is likely to be suitable in the event that new water supply pipes are required, subject to agreement with the Local Authority. • The Site redevelopment is proposed to comprise predominantly hardstanding. However, in any areas of soft landscaping, a clean cover system of suitable thickness and growing media should be placed over a geotextile marker membrane; • Groundworkers and sub-surface maintenance workers should be made aware of the possibility of encountering contaminated soils through toolbox talks and in particular the potential presence of asbestos and an appropriate protocol and risk assessments to mitigate exposure of the workforce and general public should be in place. • Unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process;
This is intended as a summary only. Further detail and the limitations of the assessment are provided within the main body of the Report.	

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Drawing 1 - Client Supplied Proposed Development Masterplan (ref. 22-024-PL-03 Revision B)

FIGURES

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Figure 2 - Exploratory Hole Location Plan

Figure 3 - SPT N60 vs Depth Graph

Figure 4 - A-A' Geological Cross Section

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APPENDICES

Appendix A - Limitations

Appendix B - Borehole Logs

Appendix C - Geotechnical Analysis Results

Appendix D - Soil Chemical Analysis Results

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1.0 Introduction

1.1 Appointment

Delta-Simons Limited ("Delta-Simons") was instructed by Coltham Developments (the "Client") to prepare a Geo-Environmental Assessment for Bennet Court, Bennet Road, Reading, RG2 0QX (the "Site").

1.2 Context & Purpose

The aim of the study was to complete a geo-environmental assessment of the proposed development area. The investigation has obtained information regarding ground conditions, from which risks to end-users, the environment and structures have been assessed, with mitigation measures suggested where necessary. The investigation has also gathered geotechnical information to inform on the preliminary design of foundations and infrastructure. The Report provides recommendations for further work (where appropriate) based on the findings of the investigation.

1.3 Scope of Works

The scope of the investigation and layout of this Report has been designed with consideration of guidance on Land Contamination: Risk Management pages of the [GOV.UK](https://www.gov.uk) web pages, the relevant requirements of the National Planning Policy Framework (NPPF) (as revised 2021) (paragraphs 174 & 183-184)¹ and the Planning Practice Guidance (Land Affected by Contamination)²

The project was undertaken to an agreed brief as set out in Delta-Simons' proposal (reference 21-0819.03, dated 12/07/22).

The detailed scope of works is outlined in Section 3.

Specific sections of this Report may generally follow guidance set out in Eurocode 7 for a Ground Investigation Report (GIR), as defined in BS EN 1997-1:2004 and BS EN 1997-2:2007. Eurocode 7 includes specific guidance on the number and spacing of investigation positions, methods of investigation and sample quality to be achieved which may not have been met by this investigation. The Report also includes information which may support a Geotechnical Design Report (GDR) as defined in BS EN 1997-1:2004; however, unless otherwise explicitly stated, the investigation has not been undertaken in accordance with Eurocode 7 and the preliminary geotechnical interpretation, assessments, risk register (if included) and recommendations presented within this Report may not meet the full requirements of a GDR.

1.4 Proposed Development

The Site currently comprises a roughly rectangular-shaped plot of land which supports five commercial units within two buildings and associated car parking and perimeter landscaping. It is understood that the Site is to be redeveloped for a commercial end use provisionally understood to comprise a single 4,523sq.m. warehouse with office accommodation and mezzanine with associated hard stand delivery yard and parking areas. A proposed development plan has been produced by BHP ref 22-024-PL-03 Revision B dated December 2022 and is included as Drawing 1.

No planning conditions have yet been granted for the proposed redevelopment to the knowledge of Delta-Simons.

It is intended that this Report may be used in support of the discharge of any associated environmental planning conditions.

1

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf

2 <https://www.gov.uk/guidance/land-affected-by-contamination>

1.5 Existing Information

This Report must be considered in the context of the previous Reports undertaken by Delta-Simons:

- Delta Simons on behalf of the Client 'Preliminary Geo-Environmental Risk Assessment' (ref 22-0819.01 dated June 2022).

1.6 Limitations

The assessment is limited to the issues agreed within the proposal for the works. General notes on limitations associated with this assessment are provided in Appendix A.

1.7 Data Gaps and Uncertainty

In addition, the following specific data gaps and uncertainty apply to this assessment:

- The presence of buildings on-Site dictated the location of the borehole locations.
- The presence of obstructions within the Made Ground resulted in some exploratory hole locations being terminated at shallow depths, notably DS101 and DS108.
- DS106 was not completed due to time constraints.
- The investigation scoped and geotechnical assessments provided are specific to a commercial development anticipated and may not be relevant for other development schemes should these be considered in the future.

2.0 Site Details

2.1 Site Setting

A summary of the current Site status, environmental setting and key historical features is presented below. This has been summarised from the existing Report(s) listed in Section 1.5 which should be consulted for further detail.

Co-ordinates	Centred at National Grid Reference 471450, 170140.	Elevation	Approx. 40.0 - 42.0 m AOD
		Area	0.75 Ha
Site Address and Location	Bennet Court, Bennet Road, Reading RG2 0QX. The Site is located in an area of mixed land uses including commercial/industrial (north, south, east and west), residential (east) and recreational grounds (south-east). The B3031 road is located approximately 215 m to the east and the A33 road is located approximately 425 m to the west. Google Maps Link A Site Location Map is included as Figure 1.		
Current Site Description	The Site is accessed via Bennet Road on the northern boundary. The on-Site buildings comprised 2 No. two-storey, L-shaped office blocks located in the north and south of the Site, supporting five commercial units, with a central brick-paved courtyard utilised as a carpark. An area of asphalt is located to the rear of the southern building. Hardstanding is in relatively good condition with several drainage gullies observed. The Site boundaries comprised a mixture of palisade fencing and wire fencing on the east, south and western boundaries. The northern boundary was formed by brick walls with railings. Soft landscaping and mature trees were present along the east and western boundaries, and to the north of the northern most building.		
Physical Setting	The Site is shown to be directly underlain by solid geology of the Lambeth Group (clay, silt and sand). Superficial deposits are not mapped. A thickness of Made Ground is present. The nearest relevant BGS record is a borehole log (reference SU77SW901, dated 6/5/1964), located approximately 30 m to the east of the Site. The following generalised geology was recorded (depths have been calculated from feet to metres): • Topsoil to a depth of 0.01 m; • Firm brown clay with fractions of silt, sand and gravel and occasional bands of sand and gravel to a depth of approximately 8.20 m bgl; • Stiff red and grey clay with fractions of silt, sand and gravel to a depth of approximately 18.70 m bgl (the final depth of investigation); and • Groundwater seepages were recorded during drilling at depths of 3.00 m bgl, 6.00 m bgl and 15.80 m bgl. The Environment Agency (EA) data classifies the solid geology as follows: • Lambeth Group - Secondary A aquifer (high groundwater vulnerability)		

	The Site is not located within a designated groundwater Source Protection Zone and there are no groundwater abstractions recorded on-Site. Two groundwater abstractions are recorded within 250 m of the Site boundary, licensed to a property operated by the Clean Linen Service Ltd. The wells are noted to be approximately 229 m and 240 m to the north and north-west of the Site respectively. There are no recorded surface water features on-Site and the nearest feature is a drain located approximately 160 m to the south-east. In addition, there are no licensed abstraction records from surface water located within 500 m of the Site. The Site topography is relatively flat.
Key Historical Features	The Site was in use as agricultural land until 1958, when a Bus Depot was constructed. The area immediately surrounding the Site was constructed to commercial/industrial land uses from circa 1936 starting with a sewage works. In addition, residential development began beyond Basingstoke Road to the east around the same time. The Site was labelled Bennet Court from 1993 following redevelopment in the mid to late 1980s. Potentially contaminative land uses include the previous Site use as a Bus Depot, infilled land and the surrounding commercial/industrial land uses.
Summary of Preliminary Conceptual Site Model	Sources - On-Site Made Ground and contaminants associated with the formal Bus Depot and infilled land, in summary heavy metals, asbestos, hydrocarbon fractions volatile organic compounds (VOCs) and Semi Volatile Organic Compounds (SVOCs), ground gases and vapours. Pathways - Direct contact, ingestion and inhalation; - Migration and leaching of contaminants into the groundwater underlying the Site; - Migration of ground gas / vapours into on-Site buildings causing asphyxiation or risk of explosion; and - Direct contact between aggressive ground conditions and new infrastructure. Receptors - Human receptors; construction workers, future site users, third parties during construction, adjacent site users and residents; - Controlled waters receptors: The nearby drain 160 m southeast and, underlying solid strata Aquifer (Secondary A); and - The built environment. Overall the risk assessment indicated that there was a low to moderate risk to human health and controlled water receptors and that a ground investigation should be completed to quantify the identified potential pollutant linkages.

3.0 Ground Investigation

3.1 Intrusive Investigation

Delta-Simons carried out intrusive investigation work from 22nd August to 2nd of September 2022 to assess the potential pollutant linkages identified in the outline conceptual model (see Section 2.0 above) and to provide geotechnical information.

3.2 Ground Investigation and Rationale

3.2.1 Intrusive Works

The ground investigation comprised the following items:

- Service avoidance exercise and topographic survey of exploratory hole locations;
- Site attendance and monitoring of all works by a Delta-Simons Geo-Environmental engineer. All intrusive locations were geologically logged to BS 5930:2015+A1:2020 Code of Practice for Ground Investigations;
- Advancement of ten dynamic sampling boreholes (DS101, DS101A, DS102-DS105 inclusive and DS107 to DS110 inclusive) to a maximum depth of 5.45 m bgl; and
- Three cable percussive drilled boreholes (CP101 – CP103 inclusive) to a maximum depth of 26.5 m bgl.

An intrusive exploratory hole location plan is presented as Figure 2.

Specific limitations affecting the proposed scope of works are summarised in Section 1.7.

Delta-Simons exploratory hole logs are presented as Appendix B in accordance with BS EN ISO 22476-3:2005+A1:2011 (incorporating corrigendum No. 1 2007), Geotechnical investigation and testing - Field testing - Part 3: Standard penetration test for SPT trip hammers.

3.2.2 Rationale

Location	Rationale	Comments
DS101 and DS101A, DS102	Targeting northwest boundary and area of infilled land to obtain shallow soil samples for laboratory analysis.	Both DS101 and DS101A were terminated in the hand pits due to obstructions in the Made Ground.
DS103 to DS105 inclusive and DS107 to DS110	Spatial distribution across entire Site given former usage as bus depot.	Achieved target depth of 5.45 m bgl.
CP101 to CP103 inclusive	Spatial Distribution across proposed building footprint.	

3.3 Geotechnical Sampling and In-Situ Testing

3.3.1 Sampling

Sampling comprised disturbed, undisturbed, bulk and environmental soil samples as detailed on the borehole logs. Undisturbed U100 samples were collected where possible in cohesive soils as detailed on the cable percussion borehole logs.

3.3.2 In-Situ Tests

SPT tests were undertaken in 1 m intervals to 5 m bgl and 1.5 m intervals thereafter (alternating with U100 samples in cohesive strata). The results of these tests are presented on the borehole logs included as Appendix B. A plot of Corrected SPT N values versus Depth is included as Figure 3.

3.4 Geotechnical Laboratory Testing

A selection of soil samples was submitted to the UKAS accredited laboratory for a range of geotechnical testing, the results of which are included in Appendix C. The rationale for the laboratory tests undertaken is provided in the table below.

Laboratory Test	Test Standard	Number of Samples Tested	Rationale
Classification			
Water Content	BS1377-2:3	18	To assess the potential for cohesive soils to shrink and swell due to changes in the water content of a soil associated with the presence, removal or addition of trees and shrubs.
Liquid and Plastic Limits	BS1377-2:4 - 5	18	
Particle Size Analysis	BS1377-2:9.2 & 9.3	8	To assess the suitability of the natural soils for re-use as an acceptable earthworks material in accordance with the Specification for Highways Works (SHW) (Series 600).
Soil Strength			
Quick Undrained Triaxial (single stage)	BS1377-7:8 or BS EN ISO 17892-8	6	To derive undrained shear strength (s_u) or cohesion (c_u) of cohesive soils. To assess the bearing capacity of the soil for foundation design purposes.
Deformation			
Oedometer Consolidation	BS1377-5:3 or BS EN ISO 17892-5	6	To assess the compressibility of a soil and derive the coefficient of volume change (m_v) and coefficient of consolidation (c_v) for use in settlement calculations.
Geo-Chemical - Soil Samples			
pH	BRE Special Digest 1 or other	29	To assess the soil and groundwater conditions of the Site in accordance with BRE Special Digest 1 Concrete in aggressive ground and specify an appropriate concrete class to resist chemical attack.
Water-Soluble Sulphate (2:1 water/soil extract)	BRE Special Digest 1 or other	29	
Acid Soluble Sulphate	BRE Special Digest 1 or other	15	
Total Sulphur	BRE Special Digest 1 or other	15	
Geo-Chemical - Water Samples			
pH	BRE Special Digest 1 or other	9	
Soluble Sulphate	BRE Special Digest 1 or other	9	

3.5 Environmental Sampling and Laboratory Analysis

Soils collected for laboratory analysis were placed in a variety of containers appropriate to the anticipated testing suite. Records of the samples taken as part of the Site investigation works, including their depths and location, are included within the exploratory hole records in Appendix B.

One set of groundwater samples were collected from each of the boreholes (except for DS109, which was dry and DS107 due to accessibility) on the 14th September 2022, a groundwater sample from DS107 was collected during a return monitoring round on the 30th September 2022. The groundwater samples were collected using a dedicated disposable bailer. Samples were stored in accordance with Delta-Simons' quality procedures to maintain sample integrity and preservation and to minimise the chance of cross contamination. Samples analysed for environmental purposes were placed in chilled cool boxes on site and transported to the laboratory for analysis on completion of the groundwater sampling visit.

The rationale for chemical analysis is presented in the table below and the results of the chemical laboratory testing are included in Appendix D and E.

Analytes	No. of Samples Tested		Rationale
	Soil	Ground-water	
Asbestos	14	-	Common potential contaminant - Analysed in all samples of Made Ground.
pH, As, Cd, Cu, Cr, Hg, Pb, Ni, Zn, speciated Polycyclic Aromatic Hydrocarbons (PAH)	14	9	Potential contaminants of concern, common to many sites.
Total Petroleum Hydrocarbons, Criteria Working Group Method (TPHCWG), Benzene, Toluene, Ethylbenzene and Xylene (BTEX)	14	9	Specific analysis to identify hydrocarbon sources.
Cyanide (Complex/Free)	14	-	Potential contaminants of concern, common to many sites.
Volatile and Semi-Volatile Organic Compounds (VOC and SVOC)	14	9	Potential contaminants of concern identified during preliminary CSM (former bus depot) Specific analysis to target possible hydrocarbon odours at DS102 and DS107.
pH, sulphate	14	9	To assess potential for chemical attack on buried concrete.
Total Organic Carbon (TOC)	14	-	To allow comparison of potentially elevated contaminants against their relevant assessment criteria and to assess potential gassing regimes at the Site.

3.6 Monitoring Programme

One round of groundwater sampling was undertaken two weeks after the installation of wells (14th September 2022), alongside six rounds of ground gas monitoring with regular intervals over an eight week period. One groundwater sample (DS107) was collected on 30th October 2022 as the monitoring well was inaccessible during the sampling round on 14th September 2022.

Measurements of the depth to groundwater within the monitoring wells were taken using an electronic dip meter.

To characterise the ground gas regime at the Site, an infrared gas meter was used to measure gas flow, concentrations of carbon dioxide (CO₂), methane (CH₄) and oxygen (O₂) in percentage by volume. Initial and steady state concentrations were recorded. The atmospheric pressure before and during monitoring, together with the weather conditions, was recorded.

All monitoring results obtained to date are contained within Appendix F.

4.0 Ground Summary

4.1 Introduction

The sections below summarise the ground and groundwater conditions encountered during the Site investigation.

4.2 Ground Summary

A summary of the observed ground conditions at the Site is provided below. A north to south geological cross section is provided as Figure 4. The line of the cross section is shown on the Exploratory Hole Location Plan included as Figure 2.

Strata	Typical Strata Description	Depth Range of Strata Top (m)	Depth Range of Strata Base (m)	Thickness Range (m)	Comments
Hardstanding	Brick Paving	0.00	0.07	0.07	Present within the car-parking areas, covering majority of Site (DS103, DS104, DS105, DS107, DS108, CP101 and CP102)
	Tarmac	0.00	0.10	0.10	Present within the south of Site within DS109, DS110 and CP103.
Made Ground	Brown slightly silty gravelly fine to medium SAND. Gravel was found to comprise, fine to coarse of flint, brick, limestone and concrete. Occasional fragments of glass, plastic and rootlets noted.	0.00 - 0.07	0.10 - 0.80	0.04 - 0.8	Present within the northern soft landscaped area of Site (DS101, DS101a and DS102). Glass, plastic and rootlets present in DS102.
	Subbase materials comprising a thin layer of light brown fine to coarse SAND overlying reddish brown sandy angular to sub-angular fine to coarse GRAVEL of limestone. Sand is fine to coarse.	0.07 - 0.20	0.15 - 0.50	0.25 - 0.40	Present within DS103, DS104, DS107, DS108, DS109, DS110, CP101, CP102 and CP103.
	Below-ground Concrete slab underlying the subbase material.	0.10 - 0.50	0.15 - 0.80	0.05 - 0.30	Layer present at depth in most areas on Site; DS103, DS104, DS105, DS107, DS108, DS109, DS110, CP101, CP102 and CP103.
	Relict Made Ground underlying the concrete slab comprising brown or grey sandy GRAVEL or	0.15 - 0.8	1.0 - 1.90	0.35 - 1.30	Many variations within the Made Ground across the Site. SILT found

	gravelly SAND. With fewer descriptions of SILT and CLAY. Sand is largely fine to coarse. Gravel ranges in angularity and size of flint, brick, concrete and limestone; variations across Site.				present in DS104 and DS105. With CLAY present in DS103 and DS110. Relict Made Ground typically located beneath the concrete slab, likely associated with the former bus depot.
Weathered Lambeth Group	Soft orangish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of flint.	1.00 - 2.6	2.05 - 3.50	0.40 - 1.70	Weathered Lambeth Group - present in all locations.
Lambeth Group	Firm to stiff brownish grey slightly sandy SILT. Sand is fine to medium. Occasional shell fragments. Occasional lenses of clay.	2.05 - 3.10	5.00 - 7.00	2.15 - 3.90	Present at all locations. Shell fragments present in all boreholes. Occasional lenses of clay present in DS103, DS104, DS105 and CP102.
	Stiff to very stiff light greenish grey mottled reddish brown sandy SILT. Sand is fine to medium.	8.00 - 8.60	14.80 - 17.00	6.80 - 8.40	Present in all deep locations (CP101 - CP103).
	Medium dense to dense greenish grey slightly silty fine to coarse SAND.	6.20 - 17.00	>26.50	>0.90 - >9.00	Present in all deep locations (CP101 - CP103). Thin bands (up to 1 m thick) interbedded with the silts. Base of each location consisted of sands.

Hardstanding:

Hardstanding was present in most borehole locations with the exception of DS101, DS101A, DS102, which were situated in a soft landscaped areas in the north of the Site.

The hardstanding was typically found to comprise brick paving, to 0.07m bgl, within the car-parking areas with Tarmac to 0.10m bgl encountered in the south of Site.

Made Ground:

Made Ground was found in all locations across the Site and consisted of several distinct layers.

In the landscaped areas in the north (DS101, DS101a, DS102 and DS103) the Made Ground comprised brown gravelly fine to coarse sand, with gravel comprising a range of angular to rounded flint, brick, concrete and limestone to a maximum depth of 1.3 m bgl. This is likely part of the material used to fill in the suspected historic ditch/gulley present in this area of the Site.

Across the rest of the Site, Made Ground was found typically found to comprise subbase materials of sand and gravels to depths between 0.3 m and 0.5 m bgl. A concrete slab was encountered between 0.1 m and 0.8 m bgl. Made Ground below the slab and across the Site was found to comprise mostly of sands and gravels, with variable proportions of clays to depths between 1.0 m and 1.9 m bgl and is likely associated with the former bus depot.

Lambeth Group:

The Lambeth Group was noted to be weathered at the surface comprising soft orangish brown slightly sandy slightly gravelly clay or silt at all locations with a maximum depth of 1.0 m to 3.5 m bgl.

The underlying Lambeth Group was found to comprise firm grading into stiff brownish grey slightly sandy clay or silt, to depths between 6.2 m and 7.0 m bgl.

Deeper soils were found to comprise a band stiff silt with bands of medium dense sand typically grading into a medium dense to dense band of greyish brown silty sand at depths between 17.0m and 20.70m bgl. Dense to very dense sands were encountered to the base of the holes to a maximum proven depth of 26.5 m bgl.

4.3 Groundwater

4.3.1 Strikes During Investigations

The groundwater strikes during the ground investigation are summarised below.

Exploratory Hole	Water strike during drilling (m bgl)	Water strike during drilling (m AOD)	Stratum	Comment
DS102	3.5	38.18	Lambeth Group - Shallow Cohesive	Seepage
	4.5	37.18		Seepage
DS103	4.0	37.44	Lambeth Group - Shallow Cohesive	Seepage
DS104	4.0	37.45	Lambeth Group - Shallow Cohesive	Seepage
DS105	4.0	37.42	Lambeth Group - Shallow Cohesive	Seepage
DS107	4.0	37.43	Lambeth Group - Shallow Cohesive	Seepage
DS109	4.0	37.41	Lambeth Group - Shallow Cohesive	Seepage
DS110	4.5	36.87	Lambeth Group - Shallow Cohesive	Seepage
CP101	6.2	35.25	Lambeth Group - Shallow Cohesive	After 20 minutes water level rose to 3.3 m bgl.
	14.8	26.65	Lambeth Group - Deep Cohesive	After 20 minutes water level rose to 7.4 m bgl.
CP102	6.8	34.59	Lambeth Group - Shallow Cohesive	After 20 minutes water level rose to 5.7 m bgl.
	15.9	25.49	Lambeth Group - Deep Cohesive	After 20 minutes water level rose to 10.3 m bgl.
CP103	7.2	34.21	Lambeth Group - Sand	After 20 minutes water level rose to 4.7 m bgl.

	12.1	29.31	Lambeth Group - Deep Cohesive	After 20 minutes water level rose to 11.8 m bgl.
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4.3.2 Resting Groundwater Levels

Groundwater levels were measured on a total of six occasions between 9th September and 19th October 2022. Monitoring data and NAPL measurements are provided in Appendix F and summarised in the table below.

Exploratory Hole	Water level during monitoring Max to Min Range		NAPL Y/N	Stratum
	m bgl	m AOD.		
DS102	1.72 - 1.89	39.96 - 39.79	N	Lambeth Group - Shallow Cohesive
DS103	1.32 - 1.51	40.12 - 39.93	N	Lambeth Group - Shallow Cohesive
DS104	1.45 - 1.63	40.00 - 39.82	N	Lambeth Group - Shallow Cohesive
DS105	0.32 - 1.46	41.10 - 39.96	N	Lambeth Group - Shallow Cohesive
DS107	1.57 - 1.63	39.86 - 39.80	N	Lambeth Group - Shallow Cohesive
DS109	Dry	Dry	N	Lambeth Group - Shallow Cohesive/ Made Ground
DS110	2.25 - 2.41	39.12 - 38.96	N	Lambeth Group - Shallow Cohesive
CP101	1.33 - 1.7	40.12 - 39.75	N	Lambeth Group - Shallow Cohesive / Lambeth Group - Sand
CP102	1.9 - 2.15	39.49 - 39.24	N	Lambeth Group - Shallow Cohesive / Lambeth Group - Deep Cohesive
CP103	1.9 - 2.03	39.51 - 39.36	N	Lambeth Group - Shallow Cohesive / Lambeth Group - Sand

Resting groundwater levels within the Lambeth Group during the monitoring period varied between 0.32 m and 2.41 m bgl (41.10 m to 38.96 m AOD). This groundwater is likely perched pore water contained within the shallow cohesive Lambeth Group (typically less than 7 m bgl) and in pockets of sand within the deeper granular bands in the Lambeth Group. There was no evidence of NAPL present in any of the boreholes during monitoring.

4.4 Visual and Olfactory Evidence of Contamination

A slight hydrocarbon odour was recorded in DS102 between 3.5m and 4.5m bgl, and at DS107 between 0.45 and 0.7m bgl.

4.5 Material Properties

The table below summarises the factual material properties based upon the results of in-situ and laboratory test data and where appropriate provides derived geotechnical parameters.

Parameter	Unit	Value or Range (adopted characteristic design parameters)	Justification
Made Ground			
Uncorrected SPT 'N'	Blows	12 - 36	In Situ Testing
Corrected SPT 'N60'	Blows	16 - 49	SPT N values corrected for energy ration (Er) after BS EN ISO 22476-3:2005. Er stated on borehole logs.
Weathered Lambeth Group (up to 3.5 m bgl)			
w (Water Content)	%	12 - 27	Laboratory Testing
IP (Plasticity Index)	-	14 - 26	Laboratory Testing
IP' (Modified Plasticity Index)	-	7 - 26	
PL (Plastic Limit)	%	17 - 22	Laboratory Testing
LL (Liquid Limit)	%	31 - 47	Laboratory Testing
Uncorrected SPT 'N'	Blows	8 - 23	In Situ Testing
Corrected SPT 'N60'	Blows	11 - 31	SPT N values corrected for energy ration (Er) after BS EN ISO 22476-3:2005. Er stated on borehole logs.
cu (Undrained Shear Strength)	kPa	71	Laboratory Testing
cu (Undrained Shear Strength)	kPa	52 - 151	Inferred from PI and N-Value after Stroud (1975)
mv (Coefficient of Volume of Compressibility)	m ² /MN	0.035 - 0.100	Inferred from E' (Drained Elastic Modulus Values) as $mv = 1/E'$
E' (Drained Elastic Modulus)	MPa	9.97 - 28.67	Inferred from PI and Undrained Shear Strength after Stroud and Butler (1975)
Lambeth Group - Cohesive (up to 7 m bgl)			
w (Water Content)	%	18 - 31	Laboratory Testing
IP (Plasticity Index)	-	9 - 28	Laboratory Testing
IP' (Modified Plasticity Index)	-	9 - 28	
PL (Plastic Limit)	%	14 - 24	Laboratory Testing
LL (Liquid Limit)	%	23 - 52	Laboratory Testing
Uncorrected SPT 'N'	Blows	12 - 51	In Situ Testing
Corrected SPT 'N60'	-	16 - 70	SPT N values corrected for energy ration (Er) after BS EN ISO 22476-3:2005. Er stated on borehole logs.
cu (Undrained Shear Strength)	kPa	98 - 107	Laboratory Testing

Parameter	Unit	Value or Range (adopted characteristic design parameters)	Justification
cu (Undrained Shear Strength)	kPa	79 - 335	Inferred from PI and N-Value after Stroud (1975)
mv (Coefficient of Volume of Compressibility)	m ² /MN	0.12 - 0.71	Laboratory Testing
mv (Coefficient of Volume of Compressibility)	m ² /MN	0.016 - 0.067	Inferred from E' (Drained Elastic Modulus Values) as $mv = 1/E'$
E' (Drained Elastic Modulus)	MPa	14.96 - 63.57	Inferred from PI and Undrained Shear Strength after Stroud and Butler (1975)
Lambeth Group - Cohesive (Greater than 7 m bgl)			
w (Water Content)	%	16 - 44	Laboratory Testing
IP (Plasticity Index)	-	17 - 35	Laboratory Testing
IP' (Modified Plasticity Index)	-	17 - 35	
PL (Plastic Limit)	%	14 - 29	Laboratory Testing
LL (Liquid Limit)	%	23 - 64	Laboratory Testing
Uncorrected SPT 'N'	Blows	24 - 65	In Situ Testing
Corrected SPT 'N60'	-	28 - 76	SPT N values corrected for energy ration (Er) after BS EN ISO 22476-3:2005. Er stated on borehole logs.
cu (Undrained Shear Strength)	kPa	48 - 276	Laboratory Testing
cu (Undrained Shear Strength)	kPa	134 - 364	Inferred from PI and N-Value after Stroud (1975)
mv (Coefficient of Volume of Compressibility)	m ² /MN	0.1 - 0.2	Laboratory Testing
mv (Coefficient of Volume of Compressibility)	m ² /MN	0.014 - 0.039	Inferred from E' (Drained Elastic Modulus Values) as $mv = 1/E'$
E' (Drained Elastic Modulus)	MPa	25.54 - 69.16	Inferred from PI and Undrained Shear Strength after Stroud and Butler (1975)
Lambeth Group - Granular			
Uncorrected SPT 'N'	Blows	16 - 70	In Situ Testing
Corrected SPT 'N60'	-	19 - 82	SPT N values corrected for energy ration (Er) after BS EN ISO 22476-3:2005. Er stated on borehole logs.

A plot of corrected SPT N value versus depth per strata is presented as Figure 3. Plasticity charts are presented within geotechnical test results in Appendix C.

4.6 Geochemical Testing

Geochemical analysis was undertaken on 29 soil samples of Made Ground and Lambeth Group and 9 groundwater samples, tested for selective contaminants (BRE Special Digest 1:2005 (3rd Edition), Concrete in Aggressive Ground, the results of which are summarised in the table below.

Tests	No. of Tests	Minimum	Maximum
Made Ground			
Soil - pH	18	7.6	10.7
Soil - Total Sulphur	5	0.009%	0.028%
Soil - Acid Soluble Sulphate	5	0.012%	0.027%
Soil - Water Soluble Sulphate	18	3.3 mg/L	200 mg/L
Lambeth Group			
Soil - pH	11	7.6	9.2
Soil - Total Sulphur	10	0.006%	1.59%
Soil - Acid Soluble Sulphate	10	<0.005%	0.232%
Soil - Water Soluble Sulphate	11	4 mg/L	1,100 mg/L
Groundwater			
Water - pH	9	6.9	8.1
Water - Sulphate	9	32.5 mg/L	211 mg/L

5.0 Geotechnical Assessment

5.1 Introduction

5.1.1 Summary of Development Proposals

Currently and to the knowledge of Delta-Simons, the Site has not been granted planning for a proposed redevelopment. However, the current proposed development is indicated to comprise the construction of a single 4,523 sq.m. warehouse with office accommodation and mezzanine with associated hardstanding delivery yard and parking areas. As part of the proposed development it will be necessary to demolish the existing on-Site buildings.

At the time of writing, while the final proposed design has not been confirmed, preliminary Uniformly Distributed Loads (UDL) of 50 kN/m² for floor slabs have been provided by the Client. Based on a design scheme of approximately 10 m high steel portal framed unit, it is envisaged that scheme will incorporate light to moderate loaded columns. The final levels are currently unknown. As the proposed development has not been granted planning permission and design may be subject to change, the information provided below should be treated as preliminary and will be subject to review once a scheme and levels have been finalised, and further detailed assessment may be required.

5.1.2 Preliminary Geotechnical Hazards

The geohazards listed below have been identified to follow guidance presented in the HE document CD622 'Managing Geotechnical Risk' (2020) which aims to identify and manage the geotechnical risks associated with a scheme throughout its lifespan, from planning to construction to maintenance.

The following geohazards are considered to be substantial ground related risks associated with the proposed development. A substantial risk is defined by Delta-Simons in Appendix G.

Limited Made Ground has been identified across the Site but is considered unlikely to be a suitable founding strata in its current state given its variable composition.

Compressible / soft ground: - The weathered Lambeth Group, typically described as a soft orangish brown sandy clay, is present across the Site to a maximum depth of 3.1 m bgl (CP103) in the south of the Site, although typically is only present to depths between 2 m and 2.5 m bgl across the rest of the Site. Soft / compressible ground can cause differential settlement and lead to the damage of shallow foundations and roads.

Obstructions: - concrete slabs are present between depths of 0.1 m and 0.8 m bgl with a maximum thickness of 0.3 m across much of the Site. The condition and composition of the concrete is unknown. This obstruction has the potential to cause significant differential settlement when loaded or may result in punching on foundations and will require removal for deeper earthworks / foundation solutions.

Shallow groundwater: - resting groundwater levels ranged from 0.32 m and 2.41 m bgl (41.10 m to 38.96 m AOD). Shallow groundwater can inundate earthworks and cause damage during development. However, based on field observations, this groundwater is likely pore water contained within the shallow cohesive Lambeth Group.

Deep groundwater: - Groundwaters strikes were recorded at depth within the more granular Lambeth Group at depths ranging from 12 m to 16 m bgl, with water rising by a maximum of approximately 7 m in 20 mins, possibly indicating sub-artesian conditions. If a piled foundation solution is required, then consideration to mitigating rising deep groundwater may be required.

5.2 Earthworks

At the time of writing finished levels were unclear although as the Site is broadly flat, it is considered unlikely that significant earthworks would be required.

5.3 Foundations

5.3.1 Spread Foundations

The Made Ground (up to 1.3 m to 1.5 m bgl) is considered to be too unpredictable and variable in its existing condition for conventional shallow foundations at the Site. The weathered Lambeth Group (to depths between 2.05 and 3.5 m bgl), comprising soft clay and silt, is considered to be too weak and compressible in its existing condition for conventional shallow foundations within this stratum. Therefore these two strata have not been included when considering shallow foundation solutions on Site.

It is envisaged that conventional pad foundations will be taken down to the top of the competent Lambeth Group (firm and stiff clay/ silt) at depths of approximately 2.5 m bgl across the Site.

The following indicative bearing capacities have been provided based on foundations taken into the top of the firm clay at 2.5m bgl based on a minimum shear strength of 70kN/m² with total settlements limited to 25mm):

- 1m x 1m pad: 190 kPa
- 2m x 2m pad: 140 kPa
- 3m x 3m pad: 100 kPa

Consideration should be given to founding in uniform strata in order limit the potential for differential settlement.

All foundation excavations should be inspected by a suitably qualified engineer prior to casting to ensure the appropriate depth, founding medium and strength characteristics have been achieved.

5.3.2 Volume Change Potential

The volume change potential should be considered in any foundation schedule for structures and services located within the influence zone of trees or bushes (proposed, existing or to be removed) and appropriate precautions and/or founding depths should be designed accordingly. In cohesive soils, it is recommended that foundations should be designed in accordance with NHBC Standard Chapter 4.2 "*Building Near Trees*".

Based on the current proposed development, it is unlikely that the building will be constructed within the zone of influence of existing trees. However, should the proposed design change, reassessment of volume change potential within the weathered Lambeth Group may be required. Consideration should also be given to the placement of new trees as part of the proposed redevelopment, to ensure they are not placed in close proximity to the proposed structures.

5.3.3 Ground Improvement Techniques

Alternatively, where depths to competent strata are considered to be economically unfeasible or where insufficient working loads can be achieved with deeper pad foundations then ground improvement techniques could be adopted to improve the uniformity and density of the Made Ground and low shear strength soils to permit the use of shallow spread foundations at shallow depths.

Achievable bearing capacities of approximately 125 kPa are likely, based on the method of ground improvement and subject to advice from a specialist contractor.

Depending on the selection of ground improvement technique the identified buried concrete slab (maximum depth of 0.5 m bgl) will need to be broken out or pre-bored to allow for ground improvement techniques to reach the targeted soils.

The precise ground improvement technique/proprietary methods, suitability of the ground, suitability of fill materials and allowable bearing capacity that can be achieved would need to be confirmed by discussions with a suitably experienced contractor; whose design should be warranted.

There are a range of ground improvement techniques that can be adopted to improve the geotechnical performance of the shallow strata and permit the use of shallow spread foundations. A summary of suitable techniques is presented below.

Vibro Stone Replacement

Vibro Stone Replacement involves the use of a long and heavy vibrating poker to form stone columns over the depth of soil requiring treatment (likely to the full depth of the Made Ground and weathered Lambeth Group). Structural loads may then be supported, on shallow, nominally reinforced pad and strip footings. The placement of columns under the slabs may allow a traditional ground bearing construction to be adopted. Such a programme may be more economical than a piled scheme.

Controlled-Modulus-Columns

A reverse flight auger is used to drill down to competent strata while laterally displacing soils creating minimal surface spoil whilst simultaneously densifying the surrounding soils. Concrete or Grout is then pumped through the hollow stem auger whilst the auger is slowly removed. The concrete then provides an unreinforced pile which allows the transfer of surface loads via a transfer mattress to the competent Lambeth Group at depth.

It is recommended that a specialist ground improvement contractor be consulted to confirm the suitability and selection of appropriate ground improvement techniques and achievable working loads for pad/ floor slab foundations.

5.3.4 Piling

Given the relatively shallow depth to the competent Lambeth Group beneath the Site, it is considered likely that a spread foundation solution will be utilised at the Site. Therefore it is unlikely piling will be necessary to transfer loads to the deeper strata.

However, should a piled foundation solution be considered, using driven/ traditional bored or continuous flight auger (CFA) piles transferring loads to deeper competent Lambeth Group (from 7 m bgl) may be suitable for the proposed or anticipated design loads, utilising both skin friction and end bearing capacity.

During the investigation, below ground concrete obstructions (up to 0.5 m bgl and 0.3 m thick) were encountered across most of the Site, likely associated with the former Bus Depot foundations and slabs. These below ground obstructions will likely need to be removed and or pre bored prior to the construction of piles.

The precise method of pile installation and applicability of proprietary systems, diameters and depths required would need to be informed based on the results of this investigation, by discussions with a piling contractor with suitable experience, whose design should be warranted.

Individual pile/pile group loads will be a function of the surface area of the piles to be employed at the Site and their method of construction.

It is recommended that during demolition of the building, all relict basements, foundations, piles caps and other obstructions are removed, and the locations of existing piles (if present) recorded to avoid in-ground obstructions during piling.

Normal static and dynamic load testing (including uplift tests) should be considered to achieve satisfactory quality control/assurance in accordance with good practice.

There will be a requirement for the placement of a suitably engineered piling mat, which should be designed and validated by a suitably qualified and experienced engineer.

5.3.5 Floor Slabs

At the time of writing, while the final proposed design has not been confirmed, preliminary structural and floor loadings of 50 kN/m² (UDL) have been provided by the Client. Ground bearing floor slabs are unlikely to be suitable with the target floor loadings without prior ground improvement due to excessive and differential settlement associated with the variability of the Made Ground and underlying weathered Lambeth Group at the Site.

It is noted that a buried concrete slab is present at the Site which will likely need to be excavated and replaced with granular engineered fill bringing ground levels back to their original level. On the basis that the formation below the floor slab is heavily compacted and proof rolled, including the removal of any soft

spots and subsequently backfilled with compacted engineered fill, ground bearing floor slabs exerting loads up to 22.5kN/m² limited to 25mm settlement may be permissible and where Made Ground Deposits are fully removed and replaced with engineered fill then loads up to 25kN/m² are likely to be suitable.

As stated above in Section 5.3.3, the below ground concrete obstructions present on-Site will need to be removed prior to construction of the floor slab. A historical plan of the former bus depot footprint is provided as Figure 5. It is likely that concrete obstructions are present across the footprint of the former building and will require removal within the footprint of the proposed new building.

Alternatively, where the proposed ground bearing floor slabs are not considered acceptable, ground improvement Techniques could be adopted to permit the use of ground bearing floor slabs.

5.4 Roads and Pavements

CBR testing has not been undertaken as part of this report, and currently final design and levels of the proposed development have not been approved. As such, it is recommended that plate CBR tests are completed at the Site to inform pavement design parameters with further CBR tests as close to construction of the pavement as feasible to confirm selection of the appropriate subgrade thickness.

Given the presence of a concrete slab at shallow depth, this feature may need to be broken out in areas of proposed roads and service corridors.

5.5 Excavations & Obstructions

It is expected that large hydraulic 360° tracked excavators will readily remove the shallow Made Ground likely to be encountered in shallow excavations although a breaker will be required to remove the existing below ground concrete obstructions and any hardstanding present at surface.

Below ground concrete obstructions are present between depths of 0.1 m and 0.8 m bgl with a maximum proven thickness of 0.3 m across much of the Site. These obstructions will need to be broken out and removed to allow any subsequent enabling works and excavations, including the construction of drainage and service corridors.

All shallow foundation or services excavations at the Site should be considered unstable, therefore, temporary support of all excavations should be considered when excavating on-site.

5.6 Groundwater

Resting groundwater levels within the Lambeth Group during the monitoring period varied between 0.32 m and 2.41 m bgl (41.10 m to 38.96 m AOD). This groundwater is likely perched pore water contained within the shallow cohesive Lambeth Group (typically less than 7 m bgl) and in pockets of sand within the cohesive strata. It is unlikely that this water body is continuous or phreatic in nature, and therefore unlikely to pose a risk to engineering considerations such as shallow foundation design and earthworks.

Significant groundwater would not be anticipated during the shallow excavations potentially required as part of the proposed development. Should any perched groundwater be encountered, then local dewatering via sump and pump should be suitable, however, treatment prior to disposal to sewer may be required.

Groundwater was also encountered at depth within the granular Lambeth Group. If piled foundations are considered for the development, they may need to account for sub-artesian groundwater.

Given the generally cohesive nature of the shallow soils, the construction of soakaways is unlikely to be suitable however depending on the requirements of the Local Lead Flood Authority/ EA then in-situ soakaways tests and seasonal groundwater monitoring may be required to assess the viability of soakaway construction.

5.7 Chemical Attack on Buried Concrete

Made Ground

Samples collected from the Made Ground onsite recorded pH levels ranging from 7.6 to 10.7 and water-soluble sulphate concentrations ranging from 3.0 mg/l to 200 mg/l. Total sulphur and acid soluble sulphate concentrations ranged from 0.009 % to 0.028 % and 0.012 % to 0.027 % respectively.

In accordance with the recommendations of BRE Special Digest 1, 'Concrete in Aggressive Ground' 2005, the conditions of the Made Ground at the Site would therefore be classified as Design Sulphate Class DS-1 and ACEC Class AC-1 for soils and groundwater, when considering the most appropriate type of concrete to be used at the Site for shallow foundations limited to the Made Ground in order to resist chemical attack from elevated sulphate present in the soils (assuming mobile groundwater in non-pyritic soils).

Lambeth Group

Samples collected from the Lambeth Group on-Site recorded pH levels ranging from 7.6 to 9.2 and water-soluble sulphate concentrations ranging from 4.0 mg/l to 180 mg/l. Total sulphur and acid soluble sulphate concentrations ranged from <0.005 % to 0.444 % and 0.012 % to 0.046 % respectively.

One sample collected from the Lambeth Group at 4 m bgl in CP103 recorded slightly elevated concentrations of water-soluble sulphate (1,100 mg/l), total sulphur (1.59 %) and acid soluble sulphate (0.232 %).

In accordance with the recommendations of BRE Special Digest 1, 'Concrete in Aggressive Ground' 2005, the conditions of the Lambeth Group soils at the Site would therefore be classified as Design Sulphate Class DS-2 and ACEC Class AC-2 for soils and groundwater, when considering the most appropriate type of concrete to be used at the Site for shallow foundations in order to resist chemical attack from elevated sulphate present in the soils (assuming mobile groundwater in non-pyritic soils).

Overall BRE SD1 Recommendations

In accordance with the recommendations of BRE Special Digest 1, 'Concrete in Aggressive Ground' 2005, the conditions of the shallow soils at the Site would therefore be classified as Design Sulphate Class DS-2 and ACEC Class AC-2 for soils and groundwater, when considering the most appropriate type of concrete to be used at the Site for shallow foundations in order to resist chemical attack from elevated sulphate present in the soils (assuming mobile groundwater in non-pyritic soils).

However, the DS-2 AC-2 concrete classification is being driven by one sample in the Lambeth Group at 4.0 m bgl. It is recommended that if further soil sampling is undertaken within the Lambeth Group, it may be possible to reduce the classification to DS-1 AC-1 across the Site.

6.0 Generic Quantitative Risk Assessment

6.1 Introduction

The presence of hazardous substances in or on a Site is generally only of concern if an actual or potential unacceptable risk exists. Legislation and guidance on the assessment of contaminated sites, consistent with UK best practice, acknowledges the need for a tiered risk-based approach. This section represents a Generic Quantitative Risk Assessment (GQRA) being a comparison of Site contaminant levels against Generic Assessment Criteria.

6.2 Human Health GQRA

The assessment of risks in relation to human health has been undertaken using Generic Assessment Criteria (GAC) as detailed within the appropriate tables. Risks from soil, groundwater and Non-Aqueous Phase Liquids (NAPL) have been considered. The GAC are predominantly based on long term (chronic) risk to health. However, in the limited circumstances where short-term (acute) risks are more pronounced, these GAC have been utilised to ensure a thorough and conservative initial assessment is undertaken.

Based on the proposed light industrial use, the soil and groundwater chemical data has been compared against a commercial end use GAC for 1% soil organic matter (SOM) content. A 1 % SOM content has been selected based on the laboratory analytical results for total organic carbon (TOC) content of 14 soil samples, ranging from 0.3 % to 2.4 % with an average of 0.75 %. A factor of 1.72 can be applied to TOC to calculate SOM, providing an average SOM of 1.3 % across the 14 samples.

6.2.1 Risks from Soil Sources

The laboratory results for the majority of contaminant concentrations were either below the limit of detection or below their adopted screening criteria, contaminant concentrations observed to exceed their respective GAC are presented in the table below.

Contaminant	Max Conc. (mg/kg)	GAC (mg/kg)	GAC Source	No. Exceed GAC / No. of samples	Location of Exceedances (depth) = Concentration (mg/kg)
Polycyclic Aromatic Hydrocarbons					
Benzo[b]fluoranthene	83	44	LQM	1 / 14	DS102 (0.20m) = 83
Benzo[a]pyrene	110	35	LQM	1 / 14	DS102 (0.20m) = 110
Dibenz(a,h)anthracene	14	3.5	LQM	1 / 14	DS102 (0.20m) = 14
Notes: LQM = Land Quality Management/CIEH S4UIs for Human Health Risk Assessment, 2014. AGAC = Acute Generic Assessment Criteria published by the Society of Brownfield Risk Assessment (SoBRA) 2019					

6.2.2 Soil Analysis Summary

The results of laboratory analysis has indicated three PAH's (benzo[b]fluoranthene, benzo[a]pyrene and dibenz(a,h)anthracene) in one sample (DS102, at 0.2m bgl) in the north of the Site to exceed their adopted screening criteria. This area is likely to have been part of the infilled ditch and remains as soft ground. The exceedances are relatively minor, therefore, the use of a clean cover system or concrete capping would reduce/eliminate any contaminant linkages.

6.2.3 Risks from Groundwater Sources

Based on the proposed use of the Site for light industrial use, the groundwater chemical data has been compared against a SoBRA commercial end use GAC to assess risks from groundwater sources to indoor air and subsequent vapour inhalation indoors.

No potentially volatile contaminants were detected within the groundwater samples to be in excess of the GAC.

6.2.4 Risks from Non-Aqueous Phase Liquids (NAPL)

Soil and groundwater exposure models used in generating Generic Assessment Criteria do not account for the potential for NAPL to represent a source of risk to human health, principally due to the production of vapours. Whilst it is possible to calculate theoretical soil saturation limits, in reality, due to co-solubility effects, these are not an appropriate indicator of the presence of NAPL. In order to assess the presence of NAPL, for petroleum hydrocarbons, an assessment criterion of 5,000 mg/kg for TPH has been applied based on professional experience.

The following has been identified in relation to NAPL at the Site:

- No observations of NAPL were made within the soils observed during drilling;
- No concentrations of Total Petroleum Hydrocarbons in excess of 5,000 mg/kg were recorded;
- No NAPL was measured during groundwater monitoring works.

On this basis, there is no evidence of NAPL being present on the Site.

6.3 Controlled Waters/Water Environment GQRA

The approach adopted to assessing risks to Controlled Waters/Water Environment is based principally on considering the concentrations of contaminants identified within the groundwater samples obtained in comparison to relevant GAC.

Given the 'prevent and limit' approach of the Water Framework Directive (2000/60/EC) and the identified receptors, a range of Water Quality Standards (WQS) have been applied as Generic Assessment Criteria (GAC), these include Water Framework Directive standards and thresholds (WFD), the Freshwater Environmental Quality Standards (EQS), the UK Drinking Water Quality Standards (DWQS), WHO Guidelines for Drinking Water Quality or SEPA resource protection values which have been used as initial conservative GAC to assess whether groundwater contamination requires further assessment or discussion in terms of the risks to controlled waters. Where specific water quality standards are not available, Delta-Simons has adopted surrogate values based on professional judgement (DS GAC).

6.3.1 Groundwater Results

The identified controlled water receptors are the nearby drain approximately 160 m southeast, and the underlying Secondary A Aquifer. There are no potable abstractions recorded within 500 m of the Site. As such, the results of groundwater analysis have been screened against the GAC protective of surface water receptors.

Laboratory results above relevant the applied GAC are summarised in the table overleaf.

Contaminant	Max Conc. (µg/l)	GAC (µg/l)	GAC Source	No. Exceed GAC / No. of samples	Location of Exceedances = Concentration (µg/l)
Cadmium	0.12	0.08	WFD 2015a	2 / 9	DS103 = 0.09 DS107 = 0.12
Copper	6.7	1	WFD 2015b	9 / 9	DS102 = 4.8 DS103 = 3.0 DS104 = 4.5 DS105 = 6.7 DS107 = 2.5 DS110 = 1.2 CP101 = 2.9 CP102 = 2.2 CP103 = 1.7
Lead	1.4	1.2	WFD 2015a	1 / 9	DS104 = 1.4
Nickel	74	4	WFD 2015a	9 / 9	DS102 = 5.3 DS103 = 13.0 DS104 = 9.0 DS105 = 22.0 DS107 = 74.0 DS110 = 9.4 CP101 = 8.6 CP102 = 7.8 CP103 = 13.0
Zinc	27	12.1	WFD 2015b	4 / 9	DS105 = 13.0 DS110 = 15.0 CP101 = 15.0 CP103 = 27.0
Total Petroleum Hydrocarbons (TPH)	1,900	300	DS3	1/9	DS104 = 1,900
Notes: WFD2015a: Water Framework Directive Surface Water Driven WFD2015b: Water Framework Directive Surface Water Driven DS3: Delta Simon in-house surface water driven GAC for TPH in groundwater					

6.3.2 Groundwater Results Summary

The majority of contaminant concentrations from the groundwater samples are generally low and below the adopted screening criteria, with the exception of some heavy metals. Exceedances were recorded at all locations for copper (maximum of 6.7 µg/l, DS105) and nickel (maximum of 74 µg/l, DS107). Zinc was also recorded exceeding the screening criteria in four locations (maximum of 27 µg/l, CP103), with two exceedances of cadmium (maximum of 0.12 µg/l, DS107) and one of lead (1.4 µg/l, DS104). Although there are several metal exceedances within the groundwater across the Site, the exceedances are generally minor and considering the commercial setting are likely to be consistent with the background conditions.

There was one exceedance of the in-house Delta Simons GAC (300 µg/l) for TPH protective of surface water receptors. The groundwater sample from DS104, in the centre of the Site, recorded a TPH concentration of 1,900 µg/l however, the overall TPH exceedance comprised mostly of the long chain >C21-C35 aliphatic fraction (1,700 µg/l), with no light end fractions recorded above the limit of detection. Generally, heavy end aliphatic fractions have a low mobility and are unlikely to migrate. It should also be noted that this is a localised exceedance and none of the other groundwater samples recorded any TPH concentrations above

the limit of detection. The low mobility of the contaminant will limit any potential migration to the nearest surface water receptor (drain 160 m southeast), therefore the risk is considered to be low.

There are a number of determinants (including some PAHs and VOCs), where the laboratory limit of detection (LOD) exceeded the GACs. However, given the lack of other visual/olfactory and laboratory (soils) data evidence of contamination, they are unlikely to pose a risk to controlled waters.

6.4 Built Environment

6.4.1 Potable Water Supply Pipes

The investigation requirements for the selection of potable water pipe material are set out in UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (UKWIR, 2010). This Report has very specific and onerous investigation requirements and as such the detailed investigation of each utility route was not within the scope of this investigation. The relevant water supply company needs to be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

A preliminary review of the results indicates that a relevant linkage is unlikely to exist due to the limited organic contaminants on Site, and therefore contaminant polyethylene (PE) and/or polyvinyl chloride (PVC) water supply pipes may be suitable for use on the development subject to discussions with the relevant Local Water Authority.

6.4.2 Building Materials

Risks to building materials associated with aggressive ground conditions is addressed in Section 5.7.

6.5 Waste Management

In recent years a number of mechanisms have aimed to change the way in which waste materials have traditionally been managed (*i.e.* a move away from less sustainable options such as landfill disposal). These include:

- Legislation and guidance (e.g. the Waste Framework Directive [2008, as amended]; the Waste [England and Wales] Regulations, 2011; the Definition of Waste: Development Industry Code of Practice, Version 2 [DoWCoP; CL:AIRE, 2011]).
- Fiscal drivers (e.g. the landfill tax escalator).
- Corporate responsibility campaigns (e.g. WRAP: Halving waste to landfill & Quality Protocol projects; Ellen Macarthur Foundation).

There is now a greater focus on waste re-use, treatment and recovery as organisations try and move their waste materials up the Waste Hierarchy and move to more circular models of material supply and re-use.

In accordance with current industry best practice, guidance and legislation Delta-Simons would always recommend options including managing materials on site through the DoWCoP, waste treatment and waste recovery be considered ahead of landfill disposal. Landfill disposal should be seen as an option of last resort given that in terms of cost, environment and social outcomes it is less sustainable. However, the availability of alternatives to landfill disposal depends on the timescales of the project, proactive involvement of qualified advisors and the nature and status of the materials being considered.

6.6 Waste Classification

In general, the predominant waste material encountered during the construction phase of development schemes will likely be construction and demolition waste, predominantly waste soils and crushed demolition arisings. These may be found *in situ* in the ground or stockpiled on sites and they may be contaminated which may have implications for their classification and subsequent management.

This investigation was not undertaken to advise on the classification or potential management routes for such waste materials. Classification and management of these types of wastes either on site, off site or within the development are likely to require further investigation and assessment. The extent of such work

will depend on the particular management option that is being considered and could, for example, involve the use of waste acceptance criteria analyses.

7.0 Bulk Ground Gas Risk Assessment

7.1 Ground Gas Conceptual Site Model

7.1.1 Sources

The preliminary CSM indicated that there were no sources of bulk ground gas present at the Site or in the nearby surrounding area, this confirmed by visual observations during the ground investigation. However, sources of localised ground gas generation could not be ruled out entirely, as such, the following potential sources of localised ground gas have been identified:

- Made Ground - The Made Ground encountered on-Site was typically granular engineered subbase in the top 0.5 m, with a concrete slab below (generally 0.2 m thick), underlying the concrete slab was variable granular and cohesive soils to a maximum of 1.9 m bgl. Limited organic matter and deleterious material was observed within the Made Ground. Total Organic Carbon (TOC) was measured in all 14 Made Ground soil samples with results ranging from 0.2 - 2.4%, with the majority of samples (10 out of 14) recording a TOC concentration of less than 1% and an average value of 0.76% across all samples.

7.1.2 Pathways

- Vertical and lateral migration of ground gas through permeable strata;
- Potential for gases to enter future buildings through voids in the floor including service entry points and cracks and accumulate in confined spaces; and
- Future maintenance/construction workers may come into contact with hazardous ground gases via entry into below ground confined spaces such as excavations or service entries/inspection points.

7.1.3 Receptors

- Future Site users; and
- Construction/ maintenance workers

7.2 Duration & Extent of Monitoring

Tables 5.5a and 5.5b within CIRIA C665 detail current recommended monitoring duration and frequency for sites in the UK. Based on the identification of potential sources, the gas generation potential is considered to be low, whilst the sensitivity of the proposed development is low given a commercial end use. On this basis, CIRIA C665 recommends six visits should be completed over a minimum period of two months.

Gas monitoring has been carried out at the Site on six occasions to assess the ground gas regime.

The locations of the monitoring wells are highlighted on Figure 2 and indicate representative coverage across the whole study area.

Barometric pressures during the gas monitoring period ranged from 1001 mBar to 1016 mBar, of which three visits were completed during periods of falling pressure.

7.3 Ground Gas Risk Assessment

7.3.1 Background

Based on the proposed commercial end use, the following documents have been consulted when assessing the gas regime at the Site:

- CIRIA C665 (2007), Assessing risks posed by hazardous ground gases to buildings; and
- British Standards Institute (BSI, 2019): Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings, BS:8485:2015+A1:2019.

The presence of a source of hazardous gas within the ground does not necessarily indicate a risk will be present. Consideration of recorded gas flows together with source concentrations can allow an initial assessment to be made of the potential both for generation and subsequent migration of gas. A Characteristic Situation (CS) is derived from an assessment of the ground gas data and forms the basis of determining mitigation measures.

7.3.2 Gas Screening Value (GSV)

The Gas Screening Value (gas concentration as a fraction x maximum recorded flow) is used to provide an initial assessment of risks to future Site users. The GSVs calculated for the monitoring wells are presented in the following table.

Location	Maximum Steady Methane (%v/v)	Maximum Steady Carbon Dioxide (%v/v)	Maximum Steady Flow Rate (l/hr)	GSV/Classification				Flooded?
				Methane		Carbon Dioxide		
				GSV	Classification	GSV	Classification	
DS102	<0.1	3.6	<0.1	0.0001	1	0.0036	1	6 of 6
DS103	<0.1	0.5	<0.1	0.0001	1	0.0005	1	6 of 6
DS104	<0.1	2.0	<0.1	0.0001	1	0.002	1	1 of 6
DS105	<0.1	1.1	<0.1	0.0001	1	0.0011	1	6 of 6
DS107	<0.1	9.6	<0.1	0.0001	1	0.0096	1	0 of 6
DS109	<0.1	7.9	<0.1	0.0001	1	0.0079	1	0 of 6
DS110	<0.1	9.5	<0.1	0.0001	1	0.0095	1	0 of 6
CP101	<0.1	0.4	<0.1	0.0001	1	0.0004	1	6 of 6
CP102	<0.1	0.8	<0.1	0.0001	1	0.0008	1	6 of 6
CP103	<0.1	1.4	3.1	0.0031	1	0.0434	1	5 of 5

As no source of bulk ground gas was observed at the Site, the monitoring wells were screened within the Lambeth Group, predominantly to understand the groundwater regime at the Site. As such, six of the ten wells were flooded during all monitoring rounds and the results from these wells (DS102, DS103, DS105, CP101, CP102 and CP103) are not representative of the gassing conditions present on-Site. Therefore these wells have been discounted from the below calculations.

All monitored locations recorded maximum steady methane concentrations of <0.1 %v/v. Three locations recorded carbon dioxide concentrations greater than 5 %v/v: DS107 in the east of the Site, and DS109 and DS110 in the south of the Site. All three locations recorded concentrations over 5 %v/v over all of the monitoring rounds, with the exception of DS107 during round 4, indicating consistently elevated concentrations in these locations. However, the flow rate at these locations was recorded at <0.1 l/hr during all rounds, limiting the potential for any vertical migration of ground gases into indoor structures.

The GSV for the Site-wide worst-case flow rate (<0.1 l/hr) and ground gas concentration (CO₂ 9.6 %v/v) has been assessed which indicates a CS1 classification. It should also be noted that based on the current proposed development masterplan, all three locations with elevated CO₂ concentrations would all be located in external areas of the Site, reducing the severity of any potential ground gases generated. There is also no evidence for site-wide sources of bulk ground gas, it is likely that the exceedance locations are localised pockets of ground gas. Additionally TOC concentrations within the Made Ground soils samples were generally below 1% (average of 0.76%), providing further evidence of a CS1 gassing regime.

Considering the above data and the localised elevated CO₂ concentrations (limited to external areas of the proposed development), the Site can be classified as CS1 (very low hazard potential) in accordance with BS 8485:2015 Table 2.

7.4 Ground Gas Risk Mitigation

The ground gas regime at the Site has been classified as CS1 in accordance with the CIRIA guidance and it is recommended that a CS1 situation is assumed for design purposes and should be agreed with the Local Authority.

As such no ground gas mitigation measures are required on-Site.

7.5 Radon

The Site is located within an area where radon protective measures are not required.

7.6 Organic Vapours

No sources of volatile vapours have been identified as part of the ground investigation.

8.0 Revised Conceptual Site Model

The majority of potential sources of contamination identified in the preliminary CSM have been eliminated through the on-Site observations and data obtained from the ground investigation. In cases where a source may still exist, consideration has been given to the presence of a plausible contaminant linkage. A revised CSM is presented in the table below and has been formulated taking into account all of the available data from the Delta-Simons intrusive investigation, suitable for a site with a proposed end use of a commercial warehouse.

Revised Conceptual Site Model				
Source	Pathways	Receptors	Contaminant Linkage?	Discussion and Mitigation
Potentially contaminated soils beneath the Site - PAHs in shallow Made Ground within DS102 in the north of the Site	Direct contact, ingestion and/or inhalation of soil/dust	Human health - Future site users	No	Some PAH concentrations were recorded exceeding the adopted human health GAC in one shallow Made Ground sample in the soft landscaped area in the north of the Site (DS102 at 0.2 m bgl). If this area is covered with hardstanding as part of the proposed redevelopment of Site, the contaminant linkage to future Site users will be removed. If this area is to remain as soft landscaping, a clean cover system of suitable imported topsoil will also eliminate the contaminant linkage. If the contaminant linkage is broken, then the risk to the chosen human health receptor from potential sources of contamination no longer exists.
	Direct contact, ingestion and/or inhalation of soil/dust	Human health - construction workers	Yes	Short term risk would be mitigated by use of PPE and provision of suitable welfare facilities.
	Direct infiltration in water supply pipes	Drinking water supply pipes	No	Hydrocarbons, especially aromatics, are known to permeate plastic pipes. Assessment of the risk to water pipes for any new supply will have to be undertaken as a requirement of the statutory undertakers, who should be provided with a copy of this Assessment and provide recommendations for upgrading of potable water supply pipes. It is considered that the use of upgraded water supply pipes would not be anticipated given the very limited organic contamination identified onsite.
Potentially contaminated	Migration of contaminants into surface waters	Drain 160m to the south east	No	Exceedances of several heavy metals were recorded within the groundwater samples collected from the Site. However, given the wider industrial setting of the surrounding area, the elevated metal

Revised Conceptual Site Model				
Source	Pathways	Receptors	Contaminant Linkage?	Discussion and Mitigation
groundwater beneath the Site – Heavy metal exceedances in the groundwater				concentrations are likely to be consistent with background concentrations. The cohesive Lambeth Group will also significantly reduce lateral migration of impacted groundwater. Given the distance to the receptor, it is unlikely that a contaminant linkage exists.
Ground gas – Elevated CO ₂ concentrations	Indoor inhalation of hazard via enclosed space accumulation of ground gas	Future site users / maintenance workers	Yes	Ground gas monitoring results recorded elevated concentrations of carbon dioxide at three separate locations in the south and east of the Site. Based on the current proposed development plans, these areas are likely to be external, limiting any risk posed by elevated CO₂ concentrations. Flow rates at these locations were also all negligible (<0.1 l/hr). Therefore, a classification of CS1 can be given to the Site. No ground gas mitigation measures are required during the redevelopment of the Site.

9.0 Conclusions & Recommendations

9.1 Ground Model Summary

Ground conditions underlying the Site were found to comprise Made Ground to depths typically ranging from 1.0 m to 1.5 m bgl, deepening slightly to a maximum of 1.9 m bgl in the south of the Site. The Made Ground consisted of hardstanding (brick paving or macadam overlying engineered granular subbase to 0.5 m bgl. A below-ground concrete slab was encountered across the site beneath the subbase to a maximum depth of 0.8 m bgl, with an average thickness of 0.2 m. Beneath the concrete, relict Made Ground associated with the former bus depot was encountered to a maximum of 1.9 m bgl. Underlying the Made Ground is the Lambeth Group, consisting of soft weathered clays and silts to depths between 2.5 m and 3.5m bgl with more competent firm and stiff silts to 17 m bgl (20.7 m bgl in the west of the Site) bearing onto dense to very dense sands below 17 m bgl to a maximum proven depth of 26.5 m bgl.

Pockets of perched groundwater was encountered across the Site at shallow depths within the shallow Lambeth Group (up to 5 m bgl). Deeper groundwater strikes were identified within the granular Lambeth Group underlying the Site, which were indicated to be sub-artesian in nature.

9.2 Geotechnical Summary

The investigation has identified low shear strength soils and variable thickness of Made Ground including concrete obstructions to be present at shallow depths which may impact the adopted foundation solution at the Site. Spread foundations taken into the top of the firm clay of the Lambeth Group at 2.5m bgl with bearing capacities expected to range between 100 and 190kPa, limited to 25mm total settlement depending on the size of the pad. Locally, foundations may need to be deepened where competent soils are not present at 2.5m bgl.

Alternatively ground improvement techniques are expected to permit the use of shallow spread foundations; however due to the presence of a concrete slab, locations may need to be pre bored.

Given the variable thickness of the Made Ground, low shear strengths soil in the shallow Lambeth Group and presence of a buried concrete slab, ground bearing floor slabs are considered unlikely to be suitable. Where the Made Ground and concrete slab are fully removed and replaced with engineered fill then floor slabs exerting loads up to 25kPa are likely to be suitable limited to 25mm. Where higher loadings are required then a ground improvement solution is likely to be required.

Based on the presence of shallow cohesive soils, the construction of soakaways is considered unlikely to be suitable at the Site.

Buried concrete in contact with Made Ground and Lambeth Group should be designed to resist Design Sulphate Class DS-2 AC-2.

9.3 Contamination Summary

The investigation has been carried out in order to provide information on the quality of the soil and groundwater beneath the Site in the context of land contamination and provide information on the ground gas regime beneath the Site for a commercial end use. The assessment is being completed prior to the proposed redevelopment of the Site.

9.3.1 Human Health

Some elevated PAH concentrations have been recorded in the shallow Made Ground in the soft landscaped area in the north of the Site. The main exposure pathway is direct contact ingestion and inhalation of soils and dust and therefore, the contaminant linkage to future site users can be broken by the installation of a clean cover system or hardstanding in this area.

Although no asbestos containing materials (ACM) were identified in the samples analysed, ACM may be present within the buildings currently on-Site and therefore cannot be fully discounted from the ground.

9.3.2 Controlled Waters

No widespread impact to the groundwater beneath the site was encountered during this investigation. Some elevated heavy metal concentrations were recorded within the groundwater samples; however these are likely consistent with background conditions of the wider industrial area. Additionally, it is considered that lateral migration of contaminants to the nearest surface water receptor (drain 160 m southeast) will be unlikely given distance to the receptor. Therefore, it is considered that no further action is required.

9.3.3 Ground Gas

The ground gas monitoring undertaken indicates the Site can be classified as CS1. As such, ground gas mitigation measures will not be required as part of the redevelopment of the Site.

9.3.4 Built Environment

The ground investigation was not designed to assess ground conditions in full accordance with the UKWIR guidance for water supply pipes. However, based on the general absence of petroleum hydrocarbons including hydrocarbons in the ground, the use of standard plastic infrastructure is likely to be suitable in the event that new water supply pipes are required. The use of standard plastic infrastructure is subject to agreement with the Local Authority.

9.4 Recommendations

Based on the findings of this Report, the following recommendations for supplementary investigation / assessment are made:

No further investigation / assessment works are considered to be necessary for the redevelopment of the Site based on the current proposals.

9.4.1 Planning Support

The following recommendations for the development of the Site are made:

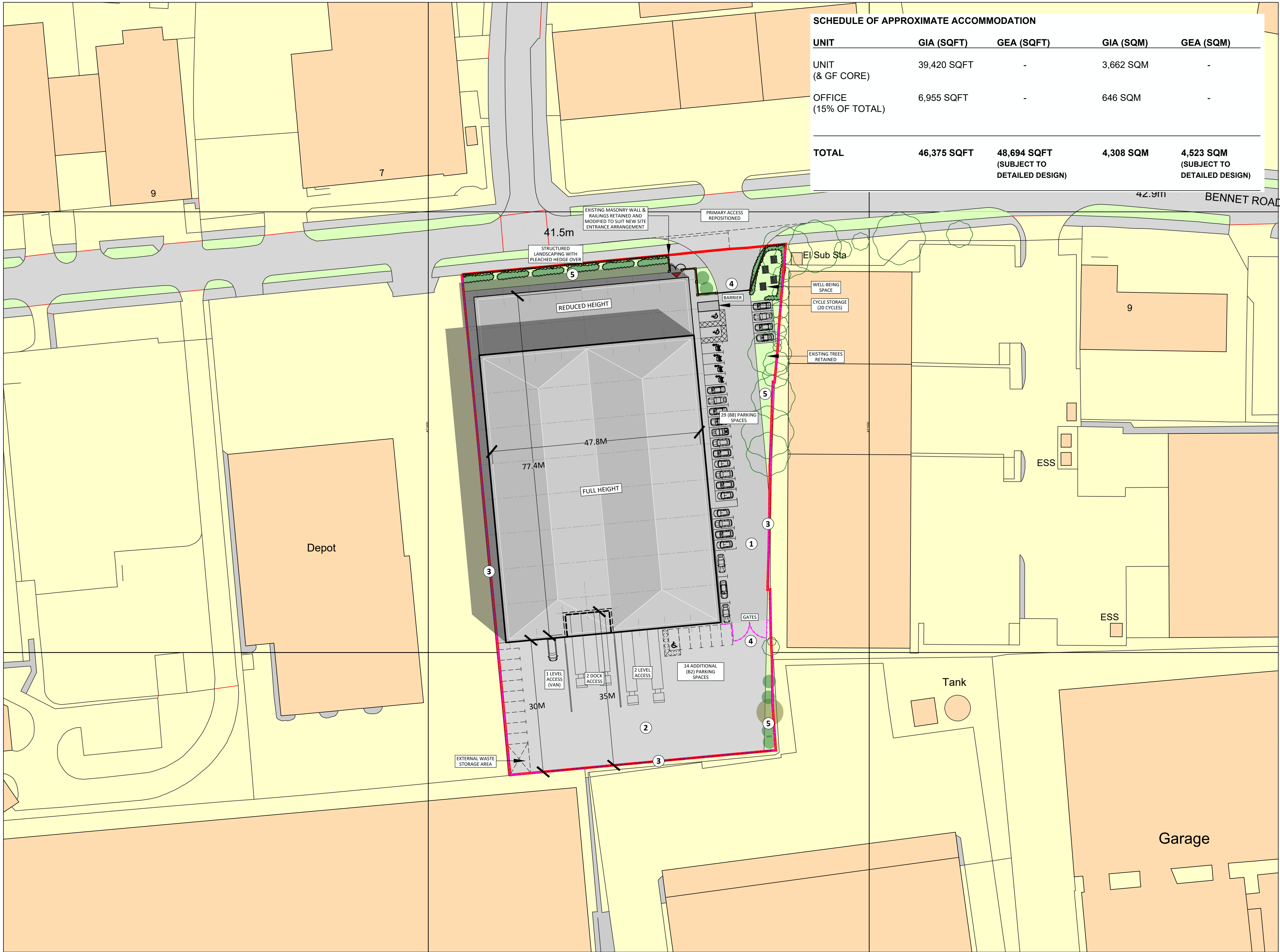
- The Site redevelopment is proposed to comprise predominantly hardstanding. However, in any areas of soft landscaping where Made Ground is present, a clean cover system should be placed to break the identified contaminant linkage. An overview of the construction and verification of clean cover systems is provided as Appendix H. The following criteria are recommended:
 - A hard-dig layer should be installed on top of Made Ground upon which the cover layer will then be placed. This is to provide a physical break of a potential pathway between Made Ground and the cover system;
 - Within proposed landscape areas, the clean cover layer shall be a minimum thickness of 300 mm, consisting of 150 mm subsoil and 150 mm topsoil;
 - Where trees are to be planted as part of landscaping, the cover system will be deepened to accommodate the root-ball.
- It is recommended that the findings of the ground gas risk assessment are agreed with the Local Authority.
- It is recommended that if further soil sampling is undertaken within the Lambeth Group, it may be possible to reduce the classification to DS-1 AC-1 across the Site.
- Waste classification has not been undertaken as part of the scope of works, should it be proposed to dispose of materials from the Site then specific additional investigations may be needed to classify the materials in accordance with current regulatory requirements.
- An asbestos survey should be undertaken prior to demolition by a specialist contractor and removed in accordance with legislation to prevent further contamination of the ground.
- Groundworkers and sub-surface maintenance workers should be made aware of the possibility of encountering contaminated soils through toolbox talks and in particular the potential presence of

asbestos and an appropriate protocol and risk assessments to mitigate exposure of the workforce and general public should be in place. Good standards of personal hygiene should be observed, and appropriate levels of PPE / RPE utilised where necessary;

- Unidentified localised areas of contamination may exist at the Site and an appropriate 'hotspot' protocol should be in place for groundworkers to act upon should such contamination be identified during the construction process;
- Confirmation should be sought from the Local Water Authority as to whether they will require upgraded pipework to be installed for new service installations, although this is considered to be likely;
- The re-use of materials on-Site may be possible if required and where the material is chemically and geotechnically suitable for its proposed end location. Material re-use would need to be undertaken under a Materials Management Plan. Any imported material, including topsoil would also be chemically and geotechnical suitable for its proposed end-use.
- Depending on the requirements of the LLFA and EA, it may be necessary to undertake Soakaway testing at the Site. It is recommended that CBR testing be completed at the Site to inform subgrade design.
- The buried concrete floor slab will likely require removal in areas of the proposed building footprint and also in areas where service corridors and buried infrastructure are proposed.

Drawings

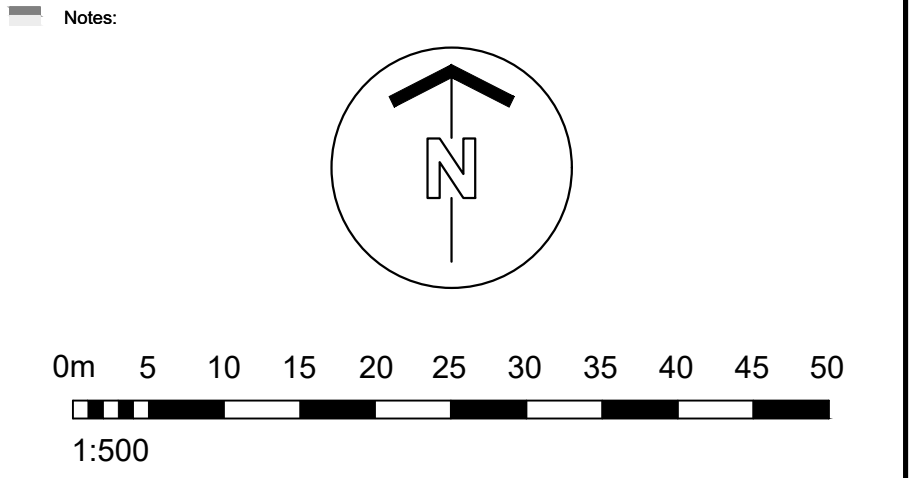
Drawing 1 - Client Supplied Proposed Development Masterplan (ref. 22-024-PL-03 Revision B)



SCHEDULE OF APPROXIMATE ACCOMMODATION				
UNIT	GIA (SQFT)	GEA (SQFT)	GIA (SQM)	GEA (SQM)
UNIT (& GF CORE)	39,420 SQFT	-	3,662 SQM	-
OFFICE (15% OF TOTAL)	6,955 SQFT	-	646 SQM	-
TOTAL	46,375 SQFT	48,694 SQFT (SUBJECT TO DETAILED DESIGN)	4,308 SQM	4,523 SQM (SUBJECT TO DETAILED DESIGN)

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NOTE:
THIS DRAWING IS © COPYRIGHT OF BHP DESIGN (UK) LTD AND SHOULD NOT BE REPRODUCED WITHOUT PERMISSION.
THIS IS A PRELIMINARY FEASIBILITY STUDY ONLY AND IS INTENDED TO BROADLY ASSESS THE VIABILITY OF THE SCHEME.
THE LAYOUT IS BASED ON VARIOUS SOURCES, THE ACCURACY OF WHICH CANNOT BE GUARANTEED AND AS SUCH ALL PROPOSALS ARE SUBJECT TO CONFIRMATION FOLLOWING DETAILED TOPOGRAPHICAL, BUILDING AND OTHER RELEVANT SURVEYS.
IT HAS BEEN ASSUMED THAT OTHER THAN WHERE SHOWN THE SITE IS ESSENTIALLY FLAT WITH NO EASEMENTS TO ABOVE OR BELOW GROUND SERVICES.
WHILST EVERY EFFORT IS MADE TO ENSURE THAT ALL PROPOSALS MEET CURRENT BUILDING REGULATIONS, RELEVANT LEGISLATION AND OTHER GOOD BUILDING PRACTICE, THEY ARE SUBJECT TO CONFIRMATION FOLLOWING LIASONS WITH RELEVANT LOCAL AUTHORITIES AND OTHER DUE DILIGENCE.
WHERE BOUNDARIES ARE SHOWN THESE ARE AS ADVISED BY THE CLIENT AND ARE FOR GENERAL GUIDANCE ONLY, WHILST PLOTTED WITH REFERENCE TO LAND REGISTRY DATA WHERE AVAILABLE AND INTERPOLATED AS PHYSICAL FEATURES ON SITE WHERE POSSIBLE, THEY ARE NOT INTENDED TO REPRESENT DEFINITIVE SITE EXTENTS OR LEGAL OWNERSHIP.



- SCHEDULE OF EXTERNAL HARDSTANDING MATERIALS**
- ① - MACADAM SURFACING
- THERMOPLASTIC PAINT LINING ETC.
- COLOUR - BLACK/GREY SELF COLOUR WITH LINING TO CONVENTION
 - ② - CONCRETE SURFACING
- COLOUR - LIGHT GREY SELF COLOUR
 - ③ - GENERALLY 2.4M HIGH PALADIN FENCE
- SURFACE COATED IN PROPRIETARY FINISH
- COLOUR - TBA
 - ④ - FABRICATED STEEL PEDESTRIAN/VEHICULAR GATES/CONTROL BARRIER
- FULL SPECIFICATION PAINT FINISH
- COLOUR - TBA
 - ⑤ - STRUCTURED LANDSCAPING
- SCHEME TO BE APPROVED BY LOCAL AUTHORITY
- PRIOR TO IMPLEMENTATION

PLANNING

COLTHAM

Revisions: Amendment: Date: Name:

St. Paul's Place, 40 St. Paul's Square, Birmingham,
B3 1FQ, United Kingdom
t. +44(0)121 314 6618 e : info@bhp-design.co.uk

CLIENT: DV5 COLTHAM (READING) LTD

PROJECT: PROPOSED DEVELOPMENT AT
BENNET COURT
BENNET ROAD
READING
RG2 0QX

TITLE: SITE LAYOUT PLAN -
AS PROPOSED (OS BASED)

Scale:	1:500@A1	Date :	DEC 2022
Design :	DFC	Draft:	JC
Drw No :	22-024-PL-03	Revision:	B

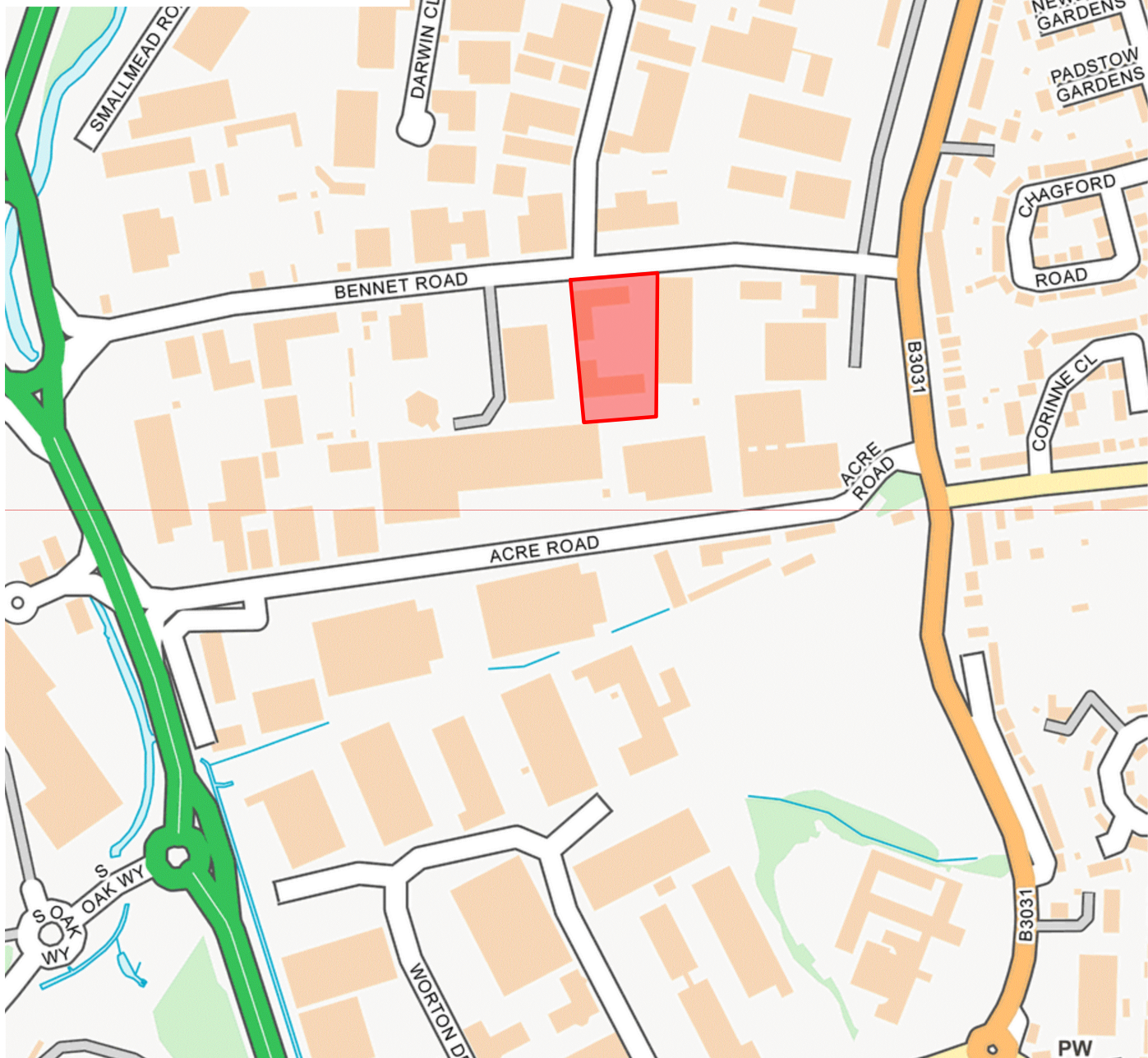
Figures

Figure 1 - Site Location Plan



LEGEND

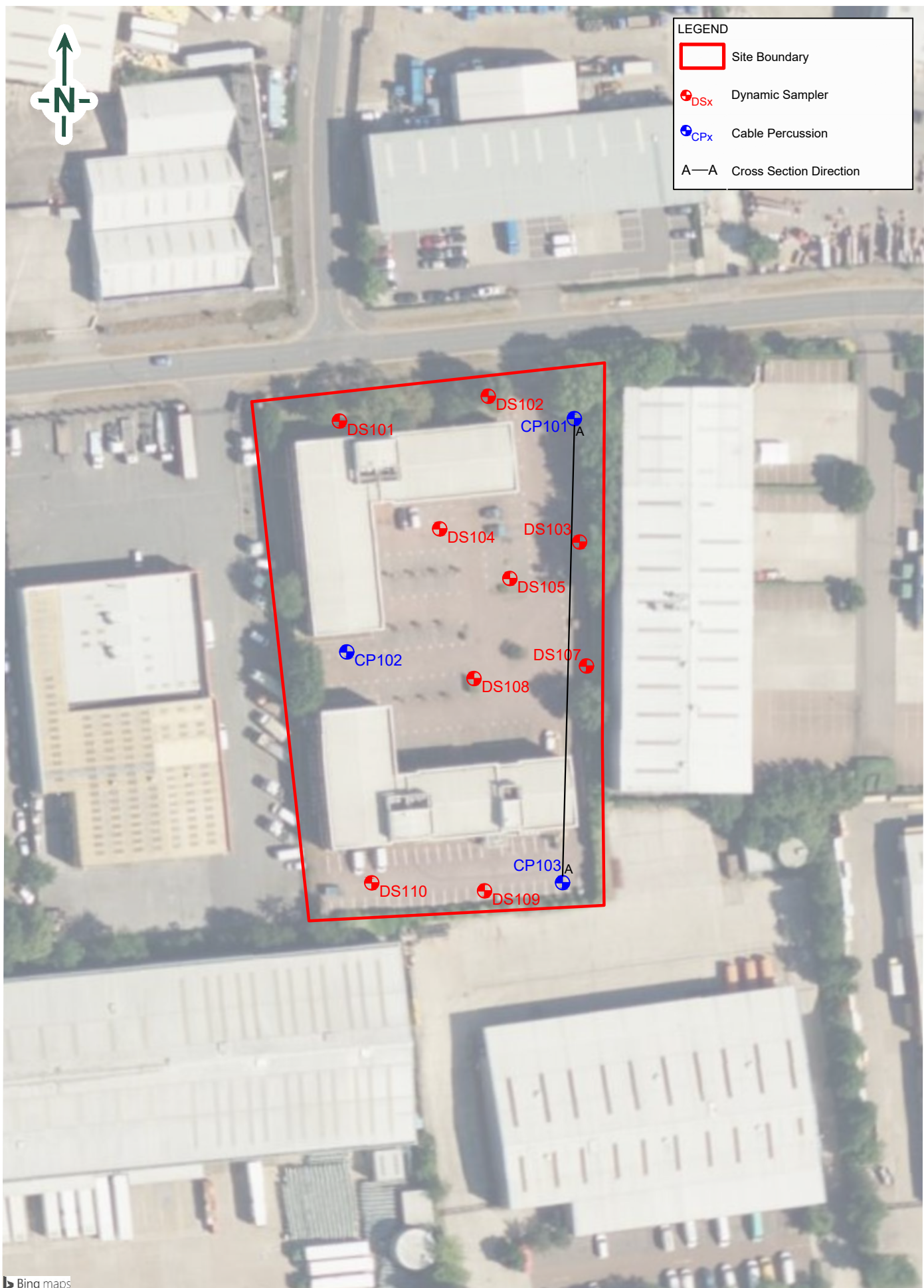
Site Boundary



Scale: 1 / 5,000 @ A4

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Figure 2 - Exploratory Hole Location Plan



Bing maps

Figure 3 - SPT N60 vs Depth Graph

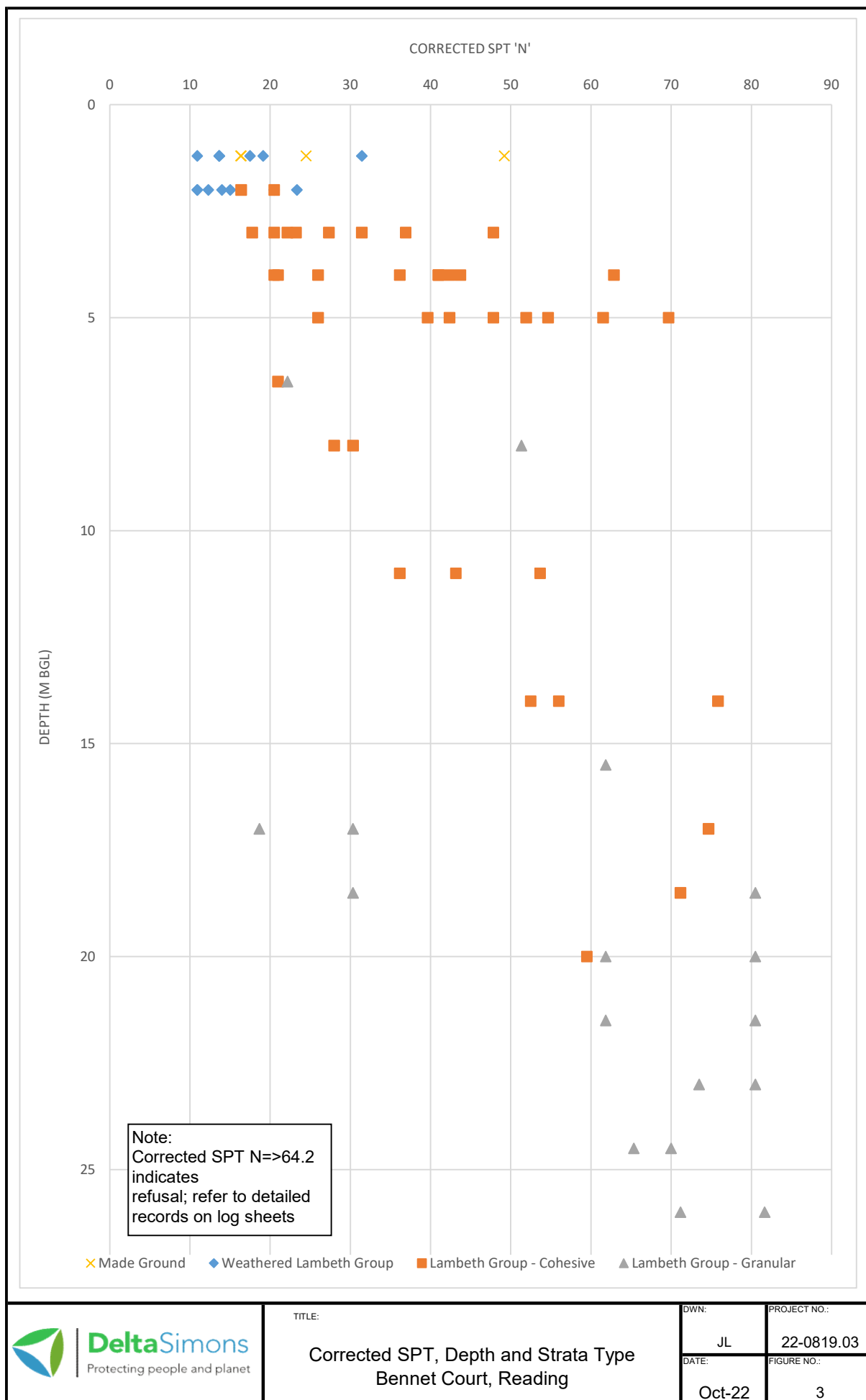
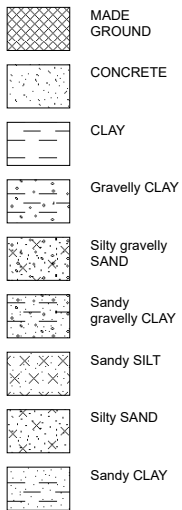
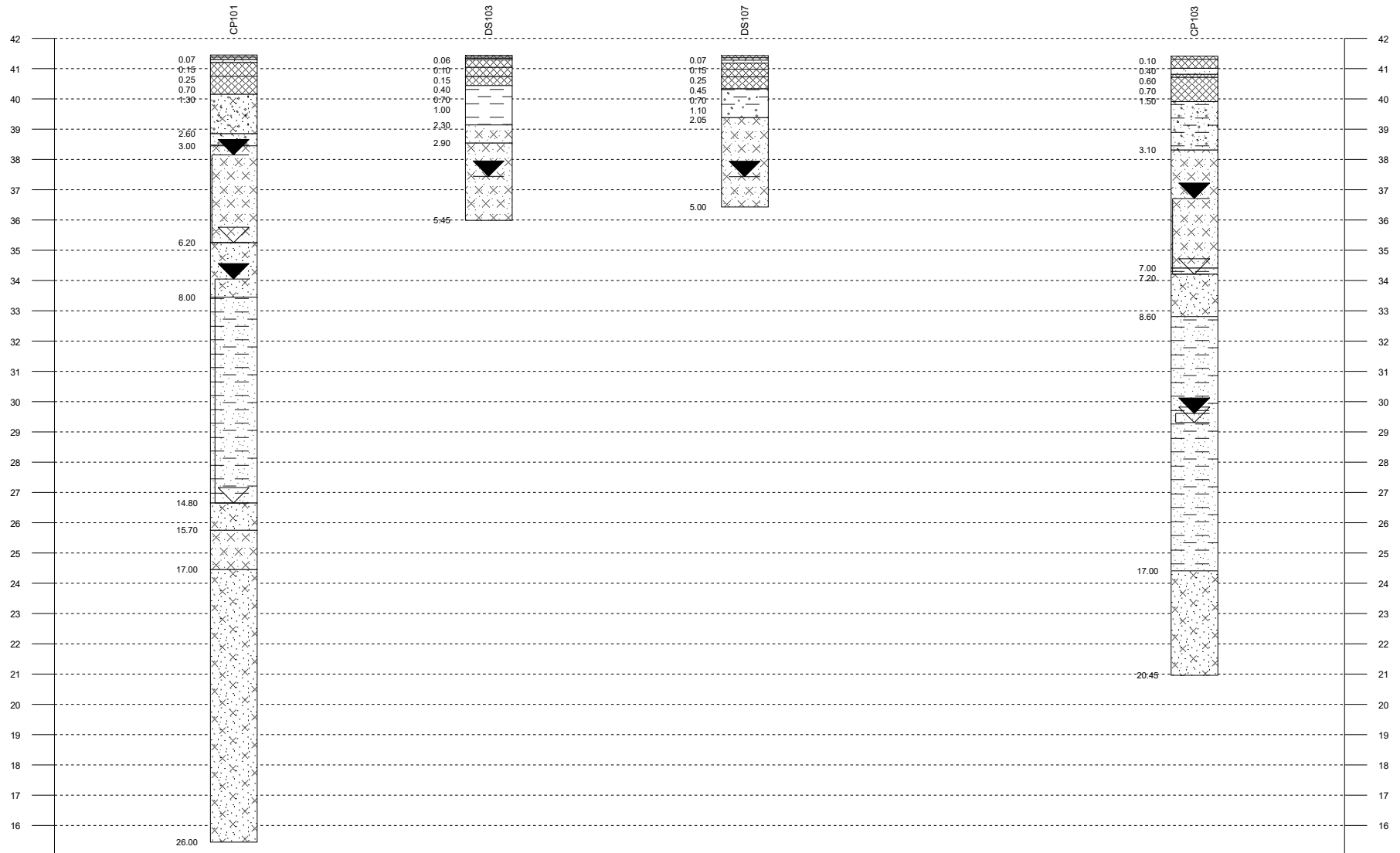


Figure 4 - A-A' Geological Cross Section

Legend Key

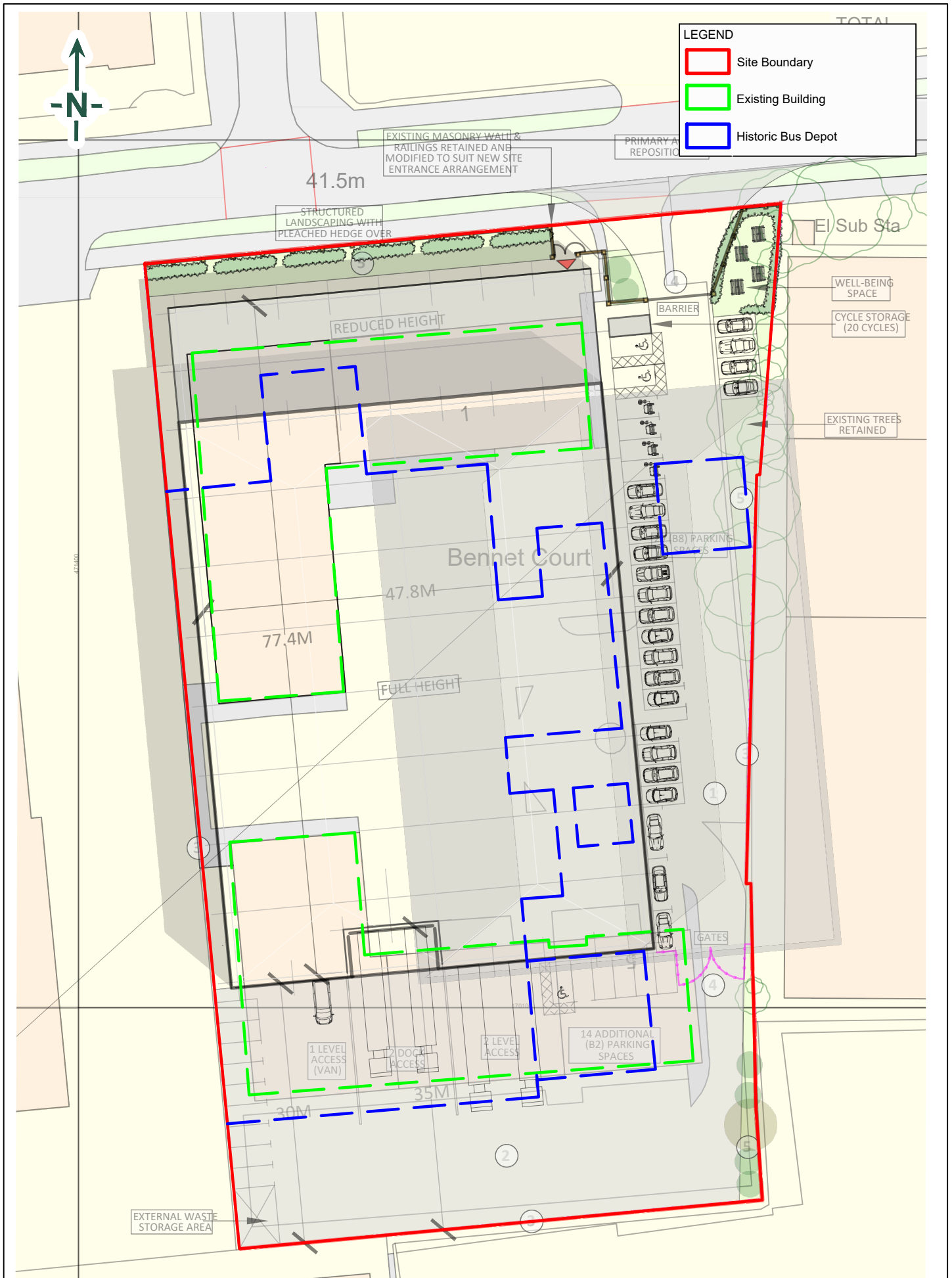


15.00



Chainage (m)	0.00	8.88	35.24	61.71	108.19	118.85
Elevation (mAOD)		41.45	41.44	41.43	41.41	
Offset (m)		2.00	0.20	1.98	1.94	

Figure 5 - Historic Bus Depot Layout



Site Plan Provided by Client

Appendices

Appendix A - Limitations

Limitations

This Report was prepared by Delta-Simons Ltd (Delta-Simons) for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. Delta-Simons does not intend, without its written consent through a formal letter of reliance or warranty, for this Report to be disseminated to any party other than the named Client or to be used or relied upon by any party other than the named Client. Use of the Report by any other party is unauthorised and such use is at the sole risk of the user. Any party using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by Delta-Simons. Unless explicitly agreed otherwise, in writing, this Report has been prepared under Delta-Simons' Standard Terms and Conditions as included within our proposal to the Client.

The recommendations contained within this Report represent Delta-Simons professional opinions, based upon the information detailed within the Report, exercising the reasonable skill and care to be expected of a professional consultant holding itself out as having the competence, experience and resources necessary for the purpose of carrying out similar work in scope and character to the services performed. The Report needs to be considered in the light of the proposal and associated limitations of scope. The Report needs to be read and considered in full and isolated sections cannot be used without full reference to other elements of the Report and any previous works referenced within the Report.

Where Delta-Simons has obtained, reviewed and evaluated information in preparing this Report from the Client and others and Delta-Simons conclusions, opinions and recommendations has been reasonably determined using this information, Delta-Simons does not warrant the accuracy of the third-party information provided to it and cannot be responsible for any opinions which Delta-Simons has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

Site surveys document the conditions encountered at the time of survey only and conditions may change due to natural processes or human intervention. As such, surveys represent an assessment at a specific point in time and Delta-Simons cannot be responsible for adverse conditions which arise or become apparent after the time of the survey or for conditions which sit outside the scope for which the survey or Report was commissioned.

Where intrusive investigations have been completed, information, comments and opinions given in this Report are based on the ground conditions encountered during the site work period and on the results of laboratory and field tests performed during the investigation. Ground conditions are inherently variable such that no investigation can be exhaustive to the extent that all adverse conditions are revealed. Conditions may therefore be present beneath the site that were not apparent in the data reviewed or obtained as part of this assessment. It should be noted that groundwater levels vary due to seasonal and other effects and may at times differ to those measured during the investigation. Delta-Simons does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions. Where risk assessment is undertaken, this is based upon the standards, guidance and common practice at the time of the assessment and Delta-Simons cannot be responsible for conditions which become apparent following changes in guidance or practice or advancements in scientific knowledge which change the position in relation to assessment of risk.

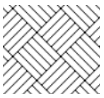
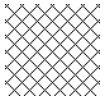
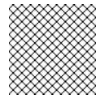
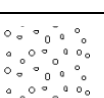
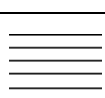
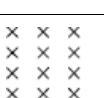
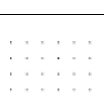
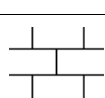
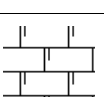
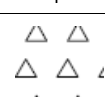
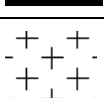
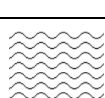
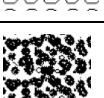
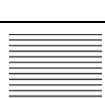
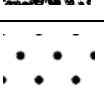
No aspect of this Report constitutes a design. Where this information is used in design, the designer should verify the information has been used appropriately.

Where budgets are prepared and presented within the Report, these are for information only to indicate the likely magnitude of a cost and do not represent an invitation to treat for the works. All budgets and programmes presented should be reviewed and verified by appropriately qualified and experienced independent Project Managers and Cost Consultants.

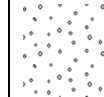
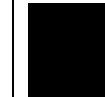
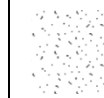
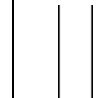
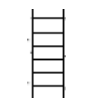
Appendix B - Borehole Logs

KEY TO BOREHOLE AND TRIAL PIT LOGS

MATERIAL LEGENDS

	Topsoil		Made Ground		Bituminous Material
	Concrete		Clay		Silt
	Sand		Gravel		Peat
	Cobbles		Boulders		Mudstone
	Siltstone		Sandstone		Limestone
	Chalk		Coal		Breccia
	Conglomerate		Igneous		Metamorphic
	Pyroclastic (volcanic ash)		Gypsum		Shale
	Ironstone		Bedrock (Unidentified)		Void

INSTALLATION/BACKFILL LEGENDS

	Sand		Gravel		Bentonite/Grout
	Arising		Concrete		Plain Pipe
	Slotted Pipe				

Legend symbols in general accordance with BS 5930:2015+A1:2020 and standard industry practice.

SAMPLE TYPES

ACM	Asbestos Containing Material Sample
B	Bulk Disturbed Sample
BLK	Block Sample
C	Core Sample
CBR	Undisturbed Sample for California Bearing Ratio Test - 154mm diameter
D	Disturbed Sample - Tub
ES	Soil Sample for Environmental Testing
EW	Water Sample for Environmental Testing
G	Gas Sample
U	Undisturbed Driven Tube Sample - 70/102mm diameter, 450mm long
W	Water Sample

TEST TYPES

CPT	Cone Penetrometer Test (kN/m ²)
FID	Flame Ionisation Detector Test (ppm)
HV	In-Situ Hand Shear Vane Test (kN/m ²)
PID	Photoionisation Detector Test (ppm)
SPT (S)	Standard Penetration Test - Split Spoon Sampler
SPT (C)	Standard Penetration Test - Solid 60 Degree Cone

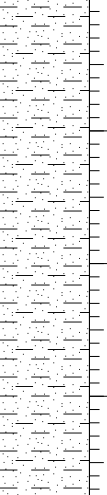
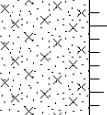
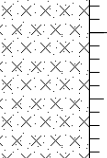
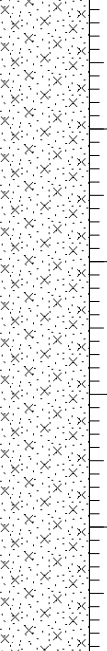
CORE DETAILS

If	Fracture Spacing (mm) - Minimum, Average, Maximum
NI	Non-Intact where >25 fracture spacings per metre
TCR	Total Core Recovery (%)
SCR	Solid Core Recovery (%)
RQD	Rock Quality Designation (%)
AF	Air Flush Return (%)
WF	Water Flush Return (%)
NIDD	Non-Intact - Drilling Disturbed
AZCL	Assessed Zone of Core Loss

WATER COLUMN DETAILS

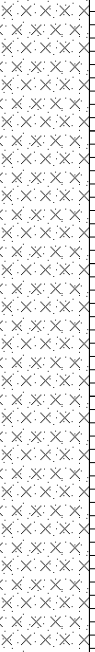
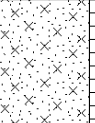
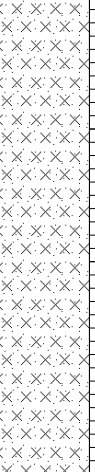
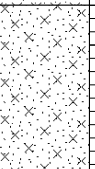
	Water Strike
	Water Level

 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com					Project No: 22-0819.03		Hole ID: CP101		Page: 1 of 3		
					Project: Bennet Court, Reading						
Cable Percussive Borehole Log					Date: 25/08/2022 - 30/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
MADE GROUND: Brick paving.		0.07		41.38							
MADE GROUND: Light brown fine to coarse SAND.		0.15	(0.10)	41.30			0.25 - 0.40	B1			
MADE GROUND: CONCRETE.		0.25	(0.45)	41.20			0.40	ES1	0.40	PID=0.5ppmv	
MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.70		40.75			0.70 - 1.00	B2			
			(0.60)				1.00	D3	1.00	PID=0.8ppmv	
		1.30		40.15			1.00	ES2	1.20	SPT(S)N=16 (2,3/4,4,4,4)	
							1.20 - 1.65	D4			
MADE GROUND: Brown gravelly silty fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of brick and flint.			(1.30)				1.80	D5	1.80	PID=0.4ppmv	
Medium dense orangish brown gravelly silty fine to coarse SAND. Gravel is subangular to rounded of flint. (WEATHERED LAMBETH GROUP)		2.60		38.85			1.80	ES3	2.00	SPT(S)N=15 (2,3/4,3,4,4)	
							2.00 - 2.45	D6			
Soft orangish brown mottled grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to rounded fine to medium of flint. (WEATHERED LAMBETH GROUP)		3.00	(0.40)	38.45			2.70 - 2.90	B7			
							3.00	D8	3.00		
							3.00 - 3.45	U9			
Firm dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP)			(3.20)				3.45 - 3.50	D10			
							3.50 - 3.80	B11			
							4.00	D12	4.00	SPT(S)N=14 (2,2/3,3,4,4)	
							4.00 - 4.45	D13			
							4.80	D14	5.00		
							5.00 - 5.45	U15	5.00		
							5.45 - 5.50	D16			
		6.20		35.25			6.00	D17			
Medium dense greyish brown slightly silty fine to coarse SAND. (LAMBETH GROUP)			(1.80)				6.20 - 6.50	B18	6.50	SPT(S)N=14 (2,3/3,3,4,4)	
							6.50 - 6.95	D19			
							7.50	D20			
		8.00		33.45			8.00 - 8.45	D21	8.00	SPT(S)N=21 (2,3/4,6,5,6)	
Very stiff greenish grey mottled reddish brown slightly sandy Silt. Sand is fine. Occasional reddish brown pockets of medium to coarse sand. (LAMBETH GROUP)							8.00 - 8.50	B22			
							9.00	D23			
							9.50 - 9.95	U24	9.50		
							9.95 - 10.00	D25			
							10.50	D26			
							11.00 - 11.45	D27	11.00	SPT(S)N=25 (3,3/5,6,7,7)	
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 26 m bgl. 5. Groundwater was encountered at 6.2 m and 14.8 m bgl.					Water Strikes			Water Level		Chiselling	
					Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
						6.20		20 min	3.30		
						14.80		20 min	7.40		
Coordinates: E471470.32 N170181.38					Elevation (mAOD): 41.45			Drilled By: Wheeler SI		Plant Used: Dando	
								Logged: JL		Checked: DJ	
								Approved: DJ		Scale (m): 1:57	

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						Project: Bennet Court, Reading						
Cable Percussive Borehole Log						Date: 25/08/2022 - 30/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill	
							Depth (m)	Type & Ref	Depth (m)	Results		
Very stiff greenish grey mottled reddish brown slightly sandy Silt. Sand is fine. Occasional reddish brown pockets of medium to coarse sand. (LAMBETH GROUP)		14.80	(6.80)	26.65		14.80	12.00	D28	12.50	SPT(S)N=50 (6,9/50 for 254mm)		
							12.50 - 12.95	U29				
							12.95 - 13.00	D30				
							13.50	D31				
							14.00 - 14.40	D32				
Dense brown silty fine to medium SAND. (LAMBETH GROUP)		15.70	(0.90)	25.75			14.80 - 15.00 15.00	B33 D34	15.50	SPT(S)N=39 (6,8/8,10,10,11)		
Firm brown mottled grey sandy SILT. Sand is fine to medium. (LAMBETH GROUP)		17.00	(1.30)	24.45			15.50 - 15.95 15.70 - 16.00	D35 B36	17.00	SPT(S)N=12 (2,2/3,2,3,4)		
Dense greenish grey silty fine to coarse SAND. (LAMBETH GROUP)			(9.00)				16.50	D37	18.50	SPT(S)N=50 (6,13/50 for 256mm)		
							17.00 - 17.45	D38				
							17.50 - 18.00	B39				
							18.00	D40				
							18.50 - 18.91	D41				
							19.50	D42				
							20.00 - 20.33	D43				
21.00	D44											
21.50 - 21.95	D45	21.50	SPT(S)N=48 (2,3/7,8,14,19)									
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 26 m bgl. 5. Groundwater was encountered at 6.2 m and 14.8 m bgl.						Water Strikes			Water Level		Chiselling	
						Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
							6.20 14.80		20 min 20 min	3.30 7.40		
						Coordinates: E471470.32 N170181.38						Plant Used: Dando
Elevation (mAOD): 41.45				Drilled By: Wheeler SI								

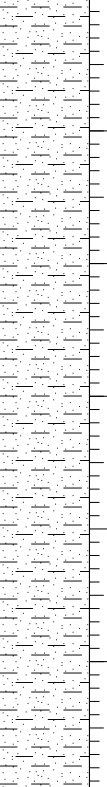
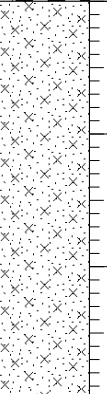
 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com						Project No: 22-0819.03		Hole ID: CP101		Page: 3 of 3		
						Project: Bennet Court, Reading						
Cable Percussive Borehole Log						Date: 25/08/2022 - 30/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill	
							Depth (m)	Type & Ref	Depth (m)	Results		
Dense greenish grey silty fine to coarse SAND. (LAMBETH GROUP)							22.50	D46				
							23.00 - 23.39	D47	23.00	SPT(S)N=50 (4,9/50 for 239mm)		
							24.00	D48				
							24.50 - 24.88	D49	24.50	SPT(S)N=50 (2,4/50 for 233mm)		
							25.50	D50				
		26.00		15.45			26.00 - 26.36	D51	26.00	SPT(S)N=60 (3,7/60 for 206mm)		
Borehole complete at 26.00 m bgl.												
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 26 m bgl. 5. Groundwater was encountered at 6.2 m and 14.8 m bgl.						Water Strikes			Water Level		Chiselling	
						Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
							6.20 14.80		20 min 20 min	3.30 7.40		
Coordinates: E471470.32 N170181.38		Elevation (mAOD): 41.45		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale (m): 1:57	

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					Project: Bennet Court, Reading						
Cable Percussive Borehole Log					Date: 31/08/2022 - 02/09/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
MADE GROUND: Brick paving.		0.08	(0.12)	41.31							
MADE GROUND: Greyish brown fine to coarse SAND.		0.20	(0.30)	41.19			0.20 - 0.40	B1			
MADE GROUND: Reddish brown sandy slightly silty angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.50	(0.30)	40.89							
MADE GROUND: CONCRETE.		0.80	(0.30)	40.59			0.80 - 1.00	B2		PID=1.2ppmv	
MADE GROUND: Black sandy clayey angular to subangular fine to coarse GRAVEL of brick, concrete and limestone. Sand is fine to coarse.		1.20	(0.40)	40.19			0.90	ES1	0.90		
Soft brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular of flint and brick.			(0.80)				1.00	D3	1.20	SPT(C)N=11 (2,2/3,2,3,3)	
(WEATHERED LAMBETH GROUP)		2.00		39.39			1.20 - 1.65	B4	1.40	PID=0.7ppmv	
Soft orangish brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded of flint.		2.60	(0.60)	38.79			1.40	ES2			
(WEATHERED LAMBETH GROUP)			(0.70)				1.80	D5			
Soft grey mottled orangish brown slightly sandy slightly gravelly SILT. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of flint. Occasional shell fragments.		3.30	(3.70)	38.09			2.00 - 2.45	B6	2.00	SPT(C)N=9 (1,2/2,2,2,3)	
(WEATHERED LAMBETH GROUP)							2.20	ES3	2.20	PID=0.6ppmv	
Stiff dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments.							2.60 - 2.80	B7			
(LAMBETH GROUP)							2.80	D8			
Stiff dark grey and brown slightly sandy SILT. Sand is fine to medium. Frequent lenses of very stiff dark brown clay.							3.00 - 3.45	U9	3.00		
(LAMBETH GROUP)											
Stiff light greenish grey mottled reddish brown sandy SILT. Occasional pockets of reddish brown fine to medium sand.							3.45 - 3.50	D10			
(LAMBETH GROUP)							3.50 - 3.70	B11			
							3.80	D12			
							4.00 - 4.45	D13	4.00	SPT(S)N=14 (2,2/3,3,4,4)	
							4.70	D14			
							5.00 - 5.45	U15	5.00		
							5.45 - 5.50	D16			
							6.00	D17			
							6.50 - 6.95	D18	6.50	SPT(S)N=25 (3,3/5,6,7,7)	
							7.00 - 7.20	B19			
							7.50	D20			
							8.00 - 8.45	D21	8.00	SPT(S)N=20 (2,2/4,4,5,7)	
							8.50 - 8.80	B22			
							9.00	D23			
							9.50 - 9.95	U24	9.50		
							9.95 - 10.00	D25			
							10.50	D26			
							11.00 - 11.45	D27	11.00	SPT(S)N=28 (3,6/6,7,7,8)	
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 26.5 m bgl. 5. Groundwater was encountered at 6.8 m and 15.9 m bgl.					Water Strikes			Water Level		Chiselling	
					Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
						6.80		20 min	10.30		
						15.90		20 min	5.70		
Coordinates: E471421.63 N170131.46		Elevation (mAOD): 41.39		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale (m): 1:57

 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com						Project No: 22-0819.03		Hole ID: CP102		Page: 2 of 3		
						Project: Bennet Court, Reading						
Cable Percussive Borehole Log						Date: 31/08/2022 - 02/09/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill	
							Depth (m)	Type & Ref	Depth (m)	Results		
Stiff light greenish grey mottled reddish brown sandy SILT. Occasional pockets of reddish brown fine to medium sand. (LAMBETH GROUP)			(7.60)				12.00	D28				
							12.50 - 12.95	U29	12.50			
							12.95 - 13.00	D30				
							13.50	D31				
							14.00 - 14.45	D32	14.00	SPT(S)N=35 (5,8/8,8,9,10)		
							15.00	D33				
							15.50 - 16.00	B34				
		16.00		25.39		15.90	16.00 - 16.50	B35				
Brown silty fine to medium SAND. (LAMBETH GROUP)			(1.00)				16.50	D36				
		17.00		24.39			17.00 - 17.43	D37	17.00	SPT(S)N=50 (5,9/50 for 276mm)		
Stiff to very stiff greenish grey sandy SILT. Sand is fine to medium. (LAMBETH GROUP)			(3.70)				18.00	D38				
							18.50 - 18.94	D39	18.50	SPT(S)N=50 (4,7/50 for 287mm)		
							19.50	D40				
							20.00 - 20.45	D41	20.00	SPT(S)N=41 (4,6/8,9,12,12)		
		20.70		20.69			20.70 - 21.00	B42				
							21.00	D43				
Dense greyish brown silty fine to medium SAND. (LAMBETH GROUP)							21.50 - 21.82	D44	21.50	SPT(S)50 (7,12/50 for 201mm)		
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 26.5 m bgl. 5. Groundwater was encountered at 6.8 m and 15.9 m bgl.						Water Strikes			Water Level		Chiselling	
						Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
							6.80		20 min	10.30		
							15.90		20 min	5.70		
Coordinates: E471421.63 N170131.46		Elevation (mAOD): 41.39		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale (m): 1:57	

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						Project: Bennet Court, Reading						
Cable Percussive Borehole Log						Date: 31/08/2022 - 02/09/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill	
							Depth (m)	Type & Ref	Depth (m)	Results		
Dense greyish brown silty fine to medium SAND. (LAMBETH GROUP)			(5.80)				22.50	D45				
							23.00 - 23.36	D46	23.00	SPT(S)50 (7,12/50 for 169mm)		
							24.00	D47				
							24.50 - 24.90	D48	24.50	SPT(S)N=50 (4,6/50 for 272mm)		
							25.50	D49				
							26.00 - 26.45	B50	26.00	SPT(S)N=50 (4,7/50 for 229mm)		
Borehole complete at 26.50 m bgl.		26.50		14.89								
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 26.5 m bgl. 5. Groundwater was encountered at 6.8 m and 15.9 m bgl.						Water Strikes			Water Level		Chiselling	
						Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
							6.80		20 min	10.30		
							15.90		20 min	5.70		
Coordinates: E471421.63 N170131.46		Elevation (mAOD): 41.39		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale (m): 1:57	

 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com					Project No: 22-0819.03		Hole ID: CP103		Page: 1 of 2		
					Project: Bennet Court, Reading						
Cable Percussive Borehole Log					Date: 23/08/2022 - 25/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
MADE GROUND: MACADAM.		0.10	(0.10)	41.31			0.10 - 0.40	B1			
MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.40	(0.30)	41.01			0.30	ES1	0.30	PID=0.7ppmv	
		0.60	(0.20)	40.81							
		0.70	(0.10)	40.71							
MADE GROUND: CONCRETE.							0.80 - 1.00	B2			
MADE GROUND: Black slightly silty gravelly SAND. Gravel is angular to subangular fine to coarse of brick and flint.			(0.80)				0.90	ES2	0.90	PID=0.4ppmv	
							1.00	D3	1.20	SPT(S)N=10 (2,2/3,2,3,2)	
		1.50		39.91			1.20 - 1.65	D4			
							1.50 - 1.80	B5	1.70	PID=1.2ppmv	
MADE GROUND: Brown gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick and flint.							1.90	D6			
Soft brown mottled grey slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of flint. (WEATHERED LAMBETH GROUP)			(1.60)				2.00 - 2.45	U7	2.00		
							2.45 - 2.50	D8			
		3.10		38.31			3.00 - 3.45	D9	3.00	SPT(S)N=14 (2,3/3,3,4,4)	
Firm dark grey slightly sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP)							3.50 - 3.70	B10			
							3.80	D11			
							4.00 - 4.45	U12	4.00		
							4.45 - 4.50	D13			
			(3.90)			4.70	5.00 - 5.45	D14	5.00	SPT(S)N=29 (5,7/7,7,7,8)	
							6.00	D15			
		7.00		34.41			6.95 - 7.00	D17			
Stiff greenish grey mottled blue sandy CLAY. Sand is fine to medium. (LAMBETH GROUP)		7.20	(0.20)	34.21		7.20	7.20 - 7.50	B18			
Medium dense greyish brown slightly silty fine to medium SAND. (LAMBETH GROUP)			(1.40)				7.50	D19			
							8.00 - 8.45	D20	8.00	SPT(S)N=29 (7,8/8,7,7,7)	
		8.60		32.81			8.60 - 8.90	B21			
Very stiff greenish grey mottled reddish brown slightly sandy SILT. Sand is fine. Occasional reddish brown pockets of medium to coarse sand. (LAMBETH GROUP)							9.00	D22			
							9.50 - 10.00	B23			
							10.50	D24			
							11.00 - 11.45	D25	11.00	SPT(S)N=33 (6,7/7,8,9,9)	
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 20.45 m bgl. 5. Groundwater was encountered at 7.2 m and 12.1 m bgl.					Water Strikes			Water Level		Chiselling	
					Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
						7.20		20 min	11.80		
						12.10		20 min	4.70		
Coordinates: E471467.78 N170082.10					Elevation (mAOD): 41.41			Drilled By: Wheeler SI		Plant Used: Dando	
								Logged: JL		Checked: DJ	
								Approved: DJ		Scale (m): 1:57	

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						Project: Bennet Court, Reading						
Cable Percussive Borehole Log						Date: 23/08/2022 - 25/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill	
							Depth (m)	Type & Ref	Depth (m)	Results		
Very stiff greenish grey mottled reddish brown slightly sandy SILT. Sand is fine. Occasional reddish brown pockets of medium to coarse sand. (LAMBETH GROUP)			(8.40)			11.80 12.10	12.00	D26	14.00	SPT(S)N=35 (4,6/7,9,9,10)		
							12.50 - 13.00	B27				
							13.50	D28				
							14.00 - 14.45	D29				
							15.00	D30				
							15.50 - 15.95	U31				
							15.95 - 16.00	D32				
							16.50	D33				
							17.00 - 17.45	D34		17.00		SPT(S)N=19 (3,4/4,4,5,6)
							17.50 - 17.80	B35		18.50		SPT(S)N=20 (3,3/4,4,5,7)
18.00	D36											
18.50 - 18.95	D37											
Medium dense to dense greenish grey silty fine to coarse SAND. (LAMBETH GROUP)			(3.00)				19.50	D38	20.00	SPT(S)N=40 (5,8/8,9,11,12)		
							20.00 - 20.45	D39				
							Borehole complete at 20.00 m bgl.					
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 20.45 m bgl. 5. Groundwater was encountered at 7.2 m and 12.1 m bgl.						Water Strikes			Water Level		Chiselling	
						Date	Depth (m)	Remarks	Duration	Standing	Depth Top	Duration
							7.20 12.10		20 min 20 min	11.80 4.70		
Coordinates: E471467.78 N170082.10		Elevation (mAOD): 41.41		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale (m): 1:57	

Dynamic Sampler Log

Date: **22/08/2022**

Client: **Coltham
Developments**

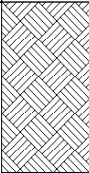
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							Depth (m)	Type & Ref	Depth (m)	Results	
MADE GROUND: Brown gravelly slightly silty fine to medium SAND. Gravel is subangular to rounded fine to coarse of flint and brick.			(0.80)				0.20 0.30	ES1 D1	0.20	PID=1.7ppmv	
Borehole complete at 0.80 m bgl.		0.80		40.73							

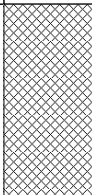
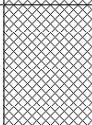
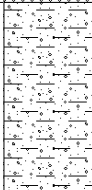
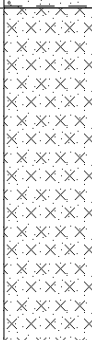
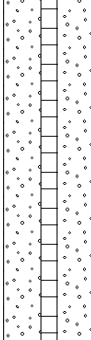
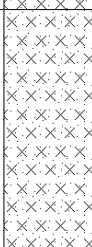
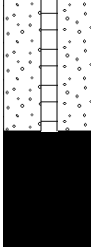
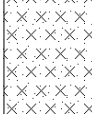
Remarks:

Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Handpit terminated at 0.8 m bgl due to solid concrete obstruction. 5. No groundwater was encountered.

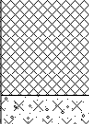
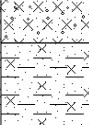
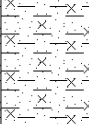
Water Strike			Water Level		Borehole Diameter	
Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter

Coordinates: E471420.06 N170180.86	Elevation (mAOD): 41.53	Drilled By: Wheeler SI	Plant Used: Dando	Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32
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 DeltaSimons Protecting people and planet					Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com			Project No: 22-0819.03		Hole ID: DS101A		Page: 1 of 1	
					Project: Bennet Court, Reading								
Dynamic Sampler Log					Date: 22/08/2022		Client: Coltham Developments						
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill		
							Depth (m)	Type & Ref	Depth (m)	Results			
MADE GROUND: Brown gravelly slightly silty fine to medium SAND. Gravel is subangular to rounded fine to coarse of flint and brick.		0.70	(0.70)	40.83									
Borehole complete at 0.70 m bgl.													
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Handpit terminated at 0.7 m bgl due to solid concrete obstruction. 5. No groundwater was encountered.						Water Strike		Water Level		Borehole Diameter			
						Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter	
Coordinates: E471420.06 N170182.86		Elevation (mAOD): 41.53		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32		

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					Project: Bennet Court, Reading						
Dynamic Sampler Log					Date: 24/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
MADE GROUND: Brown gravelly slightly silty fine to medium SAND. Gravel is angular to subangular fine to coarse of flint, brick and concrete. Rare fragments of glass and plastic.							0.20	ES1 D1	0.20	PID=2.3ppmv	
				(0.80)			40.88		0.30		
MADE GROUND: Brown gravelly silty fine to medium SAND. Gravel is angular to subangular fine to coarse of flint and brick. Occasional rootlets.							1.00	ES2 D2	1.00	PID=0.7ppmv	
				(0.50)			40.38		1.20 - 1.45		
Soft orangish brown mottled grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of flint. Occasional orangish brown fine to coarse sand partings. (WEATHERED LAMBETH GROUP)							1.80	D3 ES3 D4	1.90	PID=0.4ppmv SPT(S) N=6 (1,1/1,1,2,2)	
				(0.80)			39.58		2.00 - 2.45		
Soft becoming firm at 3.0 m bgl orangish brown mottled grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (WEATHERED LAMBETH GROUP)							2.80	D5 D6	2.50	PID=0.3ppmv	
				(1.40)					3.00 - 3.45		
Firm dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP) <i>Slight hydrocarbon odour.</i>						3.50 ▼			3.50	PID=0.3ppmv	
				(1.50)							
<i>Slight hydrocarbon odour.</i>						4.50 ▼			4.50	PID=0.2ppmv	
Borehole complete at 5.00 m bgl.											
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 5 m bgl. 5. Groundwater was encountered at 3.5 m and 4.5 m bgl.					Water Strike			Water Level		Borehole Diameter	
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter
						3.50 4.50					
Coordinates: E471451.89 N170186.17		Elevation (mAOD): 41.68		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32

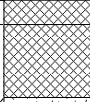
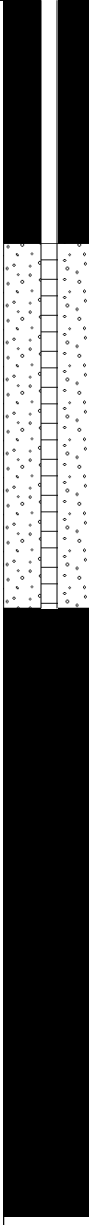
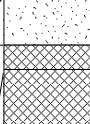
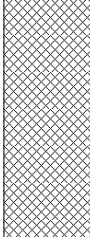
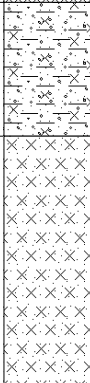
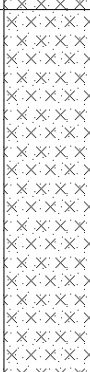
 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com					Project No: 22-0819.03		Hole ID: DS103		Page: 1 of 1		
					Project: Bennet Court, Reading						
Dynamic Sampler Log					Date: 22/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
MADE GROUND: Brick paving.		0.06		41.38							
MADE GROUND: Light greyish brown slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine of flint and limestone.		0.10		41.34							
		0.15	(0.25)	41.29							
		0.40		41.04			0.30	ES1	0.30	PID=0.9ppmv	
MADE GROUND: CONCRETE.			(0.30)								
MADE GROUND: Light greyish brown gravelly fine to coarse SAND. Gravel is angular to subangular fine to medium of flint and limestone.		0.70		40.74			0.60	ES2	0.60	PID=1.0ppmv	
			(0.30)				0.80	D1			
MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		1.00		40.44			0.90	ES3	0.90	PID=4.8ppmv	
MADE GROUND: Soft brown slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of flint, concrete and limestone.							1.20	ES4	1.20	SPT(S) N=11 (1,2/2,3,3,3)	
Soft light brown mottled grey slightly sandy CLAY. Sand is fine to medium. (WEATHERED LAMBETH GROUP)			(1.30)				1.20 - 1.65	D2	1.20	PID=0.8ppmv	
							1.80	D3			
							2.00 - 2.45	D4	2.00	SPT(S) N=12 (1,2/2,3,4,3)	
		2.30		39.14							
Firm brown mottled grey sandy SILT. Sand is fine to medium. Rare shell fragments. (LAMBETH GROUP)			(0.60)				2.60	D5	2.40	PID=0.8ppmv	
		2.90		38.54							
Firm dark grey sandy SILT. Sand is fine to medium. Occasional pockets of clay. (LAMBETH GROUP)							3.00 - 3.45	D6	3.00	SPT(S) N=21 (3,3/3,5,5,8)	
									3.50	PID=0.6ppmv	
			(2.10)				3.70	D7			
						4.00	4.00 - 4.50	D8	4.00	SPT(S) N=34 (6,6/6,9,10,9)	
							4.60	D9	4.50	PID=0.5ppmv	
		5.00		36.44			5.00 - 5.45	D10	5.00	SPT(S) N=37 (6,8/9,9,9,10)	
Borehole complete at 5.00 m bgl.											
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 5.45 m bgl.5. Groundwater was encountered at 4 m bgl.					Water Strike		Water Level		Borehole Diameter		
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter
						4.00					
Coordinates: E471471.43 N170154.98		Elevation (mAOD): 41.44		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32

 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com					Project No: 22-0819.03		Hole ID: DS104		Page: 1 of 1				
					Project: Bennet Court, Reading								
Dynamic Sampler Log					Date: 23/08/2022		Client: Coltham Developments						
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill		
							Depth (m)	Type & Ref	Depth (m)	Results			
MADE GROUND: Brick paving.		0.07		41.38			0.30	ES1	0.30	PID=0.4ppmv			
MADE GROUND: Grey fine to coarse SAND.		0.15		41.30									
MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.40	(0.25)	41.05									
MADE GROUND: CONCRETE.		0.60	(0.20)	40.85									
MADE GROUND: Soft dark grey mottled orangish brown slightly sandy slightly gravelly SILT. Sand is fine to medium. Gravel is angular to subangular fine to coarse of flint and brick.		1.00	(0.40)	40.45			0.80	ES2 D1	0.80	PID=0.5ppmv			
Soft light brown slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of flint. (WEATHERED LAMBETH GROUP)			1.60	(0.60)			1.20 - 1.65		D2	1.20		SPT(S) N=6 (1,1/1,2,1,2)	
Light brown silty fine to medium SAND. (WEATHERED LAMBETH GROUP)								1.50		ES3		1.50	PID=0.2ppmv
Soft light grey mottled orangish brown slightly sandy silty CLAY. Sand is fine to medium. (WEATHERED LAMBETH GROUP)		1.80	(0.20)	39.65			1.70	D3	2.00 - 2.45	D4		2.00	SPT(S) N=4 (2,3/1,1,1,1)
Firm brownish grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP)			2.70	(0.90)			38.75					2.50	PID=0.2ppmv
Stiff dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments. Occasional lenses of clay. (LAMBETH GROUP)		3.30		38.15	3.00 - 3.45	4.00	D7 D8	3.50	PID=0.2ppmv				
Borehole complete at 5.00 m bgl.			5.00		36.45			3.90	4.00 - 4.45	4.00	SPT(S) N=15 (2,2/3,2,5,5)		
										4.50	PID=0.1ppmv		
							5.00 - 5.45	D9	5.00	SPT(S) N=29 (5,6/6,8,7,8)			
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 5 m bgl. 5. Groundwater was encountered at 4 m bgl.					Water Strike		Water Level		Borehole Diameter				
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter		
						4.00							
Coordinates: E471441.49 N170157.79		Elevation (mAOD): 41.45		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32		

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					Project: Bennet Court, Reading									
Dynamic Sampler Log					Date: 23/08/2022		Client: Coltham Developments							
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill			
							Depth (m)	Type & Ref	Depth (m)	Results				
MADE GROUND: Brick paving.		0.07		41.35										
MADE GROUND: Light brown fine to coarse SAND.		0.15		41.27										
MADE GROUND: CONCRETE.		0.40	(0.25)	41.02										
MADE GROUND: Black gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick and flint.		0.60	(0.20)	40.82			0.50	ES1	0.50	PID=0.3ppmv				
MADE GROUND: Soft orangish brown mottled dark grey slightly gravelly sandy SILT. Gravel is angular to subangular fine to coarse of brick and flint. Sand is fine to coarse.		1.00	(0.40)	40.42			0.80	ES2	0.80	PID=0.4ppmv				
Soft orangish brown mottled light grey slightly sandy silty CLAY. Sand is fine to medium. Occasional shell fragments and sand partings. (WEATHERED LAMBETH GROUP)							1.20 - 1.65	D1	1.20	SPT(S) N=8 (1,1/2,2,2,2)				
							1.50	ES3	1.50	PID=0.3ppmv				
			(1.50)				1.90 2.00 - 2.45	D2 D3	2.00	SPT(S) N=6 (1,1/1,1,2,2)				
		2.50		38.92					2.50	PID=0.3ppmv				
Firm brown slightly sandy SILT. Sand is fine to medium. Occasional lenses of grey silty clay. (LAMBETH GROUP)		3.00	(0.50)	38.42			2.70	D4						
Firm becoming stiff at 4 m bgl dark grey sandy SILT. Sand is fine to coarse. Occasional shell fragments. (LAMBETH GROUP)							3.00 - 3.45	D5	3.00	SPT(S) N=13 (2,2/2,2,4,5)				
									3.50	PID=0.2ppmv				
			(2.00)			4.00	4.00 - 4.45	D6	4.00	SPT(S) N=23 (4,4/5,4,6,8)				
							4.60	D7	4.50	PID=0.2ppmv				
		5.00		36.42			5.00 - 5.45	D8	5.00	SPT(S) N=33 (6,6/8,8,9,8)				
Borehole complete at 5.00 m bgl.														
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 5 m bgl. 5. Groundwater was encountered at 4 m bgl.					Water Strike			Water Level		Borehole Diameter				
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter			
						4.00								
Coordinates: E471456.52 N170147.17					Elevation (mAOD): 41.42		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32

 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com					Project No: 22-0819.03		Hole ID: DS107		Page: 1 of 1		
					Project: Bennet Court, Reading						
Dynamic Sampler Log					Date: 22/08/2022		Client: Coltham Developments				
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
MADE GROUND: Brick paving.		0.07		41.36							
MADE GROUND: Light brown fine to coarse SAND.		0.15		41.28							
		0.25	(0.10)	41.18							
MADE GROUND: CONCRETE.											
MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.45	(0.20)	40.98			0.50	ES1	0.50	PID=46.2ppmv	
		0.70	(0.25)	40.73			0.66	D1			
MADE GROUND: Dark grey sandy silty subangular to subrounded fine to coarse GRAVEL of flint and brick. Sand is fine to medium.			(0.40)				1.00	ES2	1.00	PID=5.0ppmv	
<i>Slight hydrocarbon odour.</i>		1.10		40.33			1.20 - 1.65	D2	1.20	SPT(S) N=8 (1,1/1,2,2,3)	
MADE GROUND: Orangish brown gravelly silty fine to medium SAND. Gravel is subangular to subrounded fine to coarse of brick and flint.							1.40	ES3	1.40	PID=1.1ppmv	
Soft orangish brown mottled grey slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of flint. Occasional fine sand partings. (WEATHERED LAMBETH GROUP)			(0.95)				1.50	D3			
		2.05		39.38			2.00 - 2.45	D4	2.00	SPT(S) N=9 (1,2/1,2,3,3)	
Firm dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP)			(2.95)						2.50	PID=1.0ppmv	
							2.80	D5			
							3.00 - 3.45	D6	3.00	SPT(S) N=16 (2,2/3,3,5,5)	
									3.50	PID=1.1ppmv	
							3.70	D7			
							4.00 - 4.45	D8	4.00	SPT(S) N=24 (2,4/5,5,6,8)	
									4.50	PID=0.8ppmv	
		5.00		36.43			5.00 - 5.45	D9	5.00	SPT(S) N=26 (4,5/5,6,7,8)	
Borehole complete at 5.00 m bgl.											
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 5 m bgl. 5. Groundwater was encountered at 4 m bgl.					Water Strike		Water Level		Borehole Diameter		
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter
						4.00					
Coordinates: E471472.91 N170128.46		Elevation (mAOD): 41.43		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32

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					Project: Bennet Court, Reading								
Dynamic Sampler Log					Date: 23/08/2022		Client: Coltham Developments						
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill		
							Depth (m)	Type & Ref	Depth (m)	Results			
		MADE GROUND: Brick paving.		0.07				41.34	0.20	ES1		0.20	PID=0.4ppmv
		MADE GROUND: Light brownish grey fine to coarse SAND.		0.15				41.26					
		MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.40			(0.25)	41.01					
MADE GROUND: CONCRETE.		0.55	(0.15)	40.86									
MADE GROUND: Orangish brown gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick and flint.			(0.75)		0.70 0.80	ES2 D1	0.70	PID=0.4ppmv					
Borehole complete at 1.30 m bgl.		1.30		40.11									
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole terminated at 1.3 m bgl due to solid concrete obstruction. 5. No groundwater was encountered.					Water Strike			Water Level		Borehole Diameter			
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter		
Coordinates: E471448.84 N170125.77		Elevation (mAOD): 41.41		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32		

 DeltaSimons Protecting people and planet Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com					Project No: 22-0819.03		Hole ID: DS109		Page: 1 of 1				
					Project: Bennet Court, Reading								
Dynamic Sampler Log					Date: 24/08/2022		Client: Coltham Developments						
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill		
							Depth (m)	Type & Ref	Depth (m)	Results			
MADE GROUND: MACADAM.		0.10	(0.10)	41.31									
MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.40	(0.30)	41.01									
MADE GROUND: CONCRETE.		0.60	(0.20)	40.81									
MADE GROUND: Black gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of flint brick and concrete.		0.70	(0.10)	40.71			0.65	ES1	0.65	PID=0.5ppmv			
MADE GROUND: Orangish brown gravelly silty fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of flint.			(1.20)				1.10	D1	1.10	PID=0.4ppmv			
							1.10	ES2	1.20	SPT(S) N=27 (4,5/8,7,6,6)			
							1.20 - 1.65	D2					
		1.90		39.51			1.80	ES3	1.80	PID=0.5ppmv			
Soft brown mottled grey slightly sandy slightly silty gravelly CLAY. Sand is fine to medium. Gravel is sub-rounded to rounded fine to medium of flint. (WEATHERED LAMBETH GROUP)		2.45	(0.55)				2.00 - 2.45	D3	2.00	SPT(S) N=8 (1,2/2,2,2,2)			
									2.50	PID=0.2ppmv			
							2.80	D4					
Firm dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP)		3.50	(1.05)				3.00 - 3.45	D5	3.00	SPT(S) N=14 (2,3/3,4,4,3)			
									3.50	PID=0.2ppmv			
							3.60	D6					
Stiff dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP)		5.00	(1.50)	36.41			4.00	D7	4.00	SPT(S) N=24 (3,3/5,5,7,7)			
									4.50	PID=0.1ppmv			
							5.00 - 5.45	D8	5.00	SPT(S) N=23 (4,4/4,6,6,7)			
Borehole complete at 5.00 m bgl.													
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 5 m bgl. 5. No groundwater was encountered.					Water Strike			Water Level		Borehole Diameter			
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter		
						4.00							
Coordinates: E471451.11 N170080.35		Elevation (mAOD): 41.41		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL	Checked: DJ	Approved: DJ	Scale: 1:32		

 DeltaSimons Protecting people and planet					Head Office 3 Henley Way, Doddington Road Lincoln, LN6 3QR Tel: +44 (0) 1522 882555 Email: info@deltasimons.com			Project No: 22-0819.03		Hole ID: DS110		Page: 1 of 1	
					Project: Bennet Court, Reading								
Dynamic Sampler Log					Date: 23/08/2022			Client: Coltham Developments					
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill		
							Depth (m)	Type & Ref	Depth (m)	Results			
MADE GROUND: MACADAM.		0.10	(0.10)	41.27									
MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of limestone. Sand is fine to coarse.		0.40	(0.30)	40.97			0.20 0.30	ES1 D1	0.20	PID=0.7ppmv			
MADE GROUND: CONCRETE.		0.60	(0.20)	40.77									
MADE GROUND: Brickwork.		0.75	(0.15)	40.62									
MADE GROUND: Soft dark grey slightly gravelly sandy CLAY. Gravel is angular to subangular fine to coarse of brick and flint. Sand is fine to medium.		1.10	(0.35)	40.27			1.00	ES2	1.00	PID=0.7ppmv			
Soft orangish brown mottled grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of flint. (WEATHERED LAMBETH GROUP)			(0.80)				1.20 - 1.65	D2	1.20	SPT(S) N=20 (1,2/3,6,5,6)			
		1.60						ES3	1.60	PID=0.5ppmv			
		1.90		39.47									
Firm brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to medium of flint. (LAMBETH GROUP)			(0.90)				2.00 - 2.45	D3	2.00	SPT(S) N=12 (2,1/3,2,4,3)			
		2.50							2.50	PID=0.4ppmv			
		2.80		38.57									
Firm dark grey sandy SILT. Sand is fine to medium. Occasional shell fragments. (LAMBETH GROUP)			(2.20)				2.90 3.00 - 3.45	D4 D5	3.00	SPT(S) N=11 (2,2/2,3,3,4)			
									3.80	PID=0.5ppmv			
							4.00 - 4.45	D6	4.00	SPT(S) N=11 (2,2/2,3,3,3)			
Dark grey sand and frequent fossil fragments.									4.50	PID=0.3ppmv			
							4.60	D7					
		5.00		36.37									
Borehole complete at 5.00 m bgl.							5.00 - 5.45	D8	5.00	SPT(S) N=28 (4,6/6,7,7,8)			
Remarks: 1. Logged in general accordance with BS 5930:2015+A1:2020. 2. Hole location cleared for services prior to excavating a hand dug service inspection pit to 1.2 m bgl. 3. Elevation and location data obtained from GPS survey. 4. Borehole completed to 5 m bgl. 5. Groundwater was encountered at 4.5 m bgl.					Water Strike			Water Level		Borehole Diameter			
					Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter		
						4.50							
Coordinates: E471426.97 N170082.05					Elevation (mAOD): 41.37		Drilled By: Wheeler SI		Plant Used: Dando		Logged: JL		
									Checked: DJ		Approved: DJ		
											Scale: 1:32		

Appendix C - Geotechnical Analysis Results

4041

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 22/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

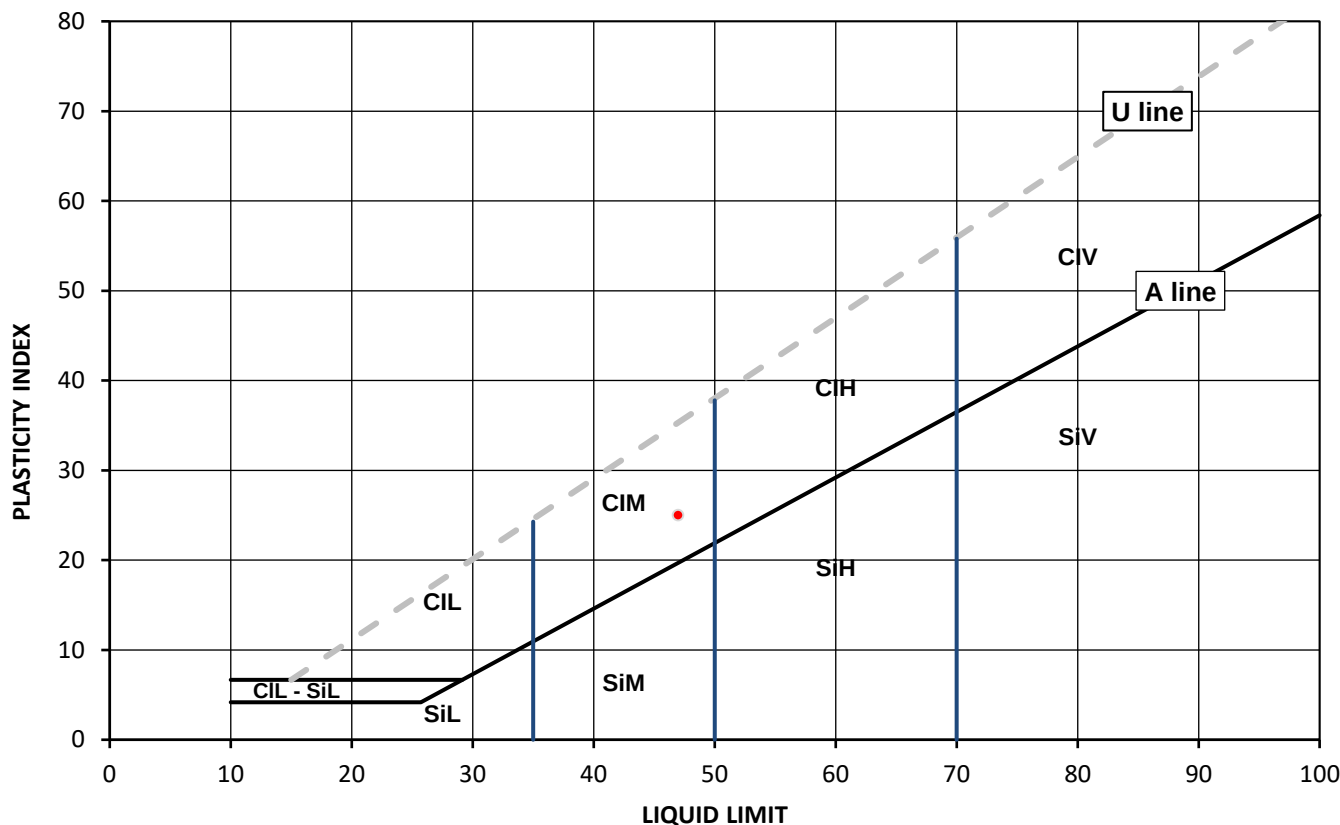
Test Results:

Laboratory Reference: 2408661
Hole No.: DS103
Sample Reference: 3
Sample Description: Brown slightly sandy CLAY

Depth Top [m]: 1.80
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	47	22	25	100



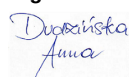
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 22/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

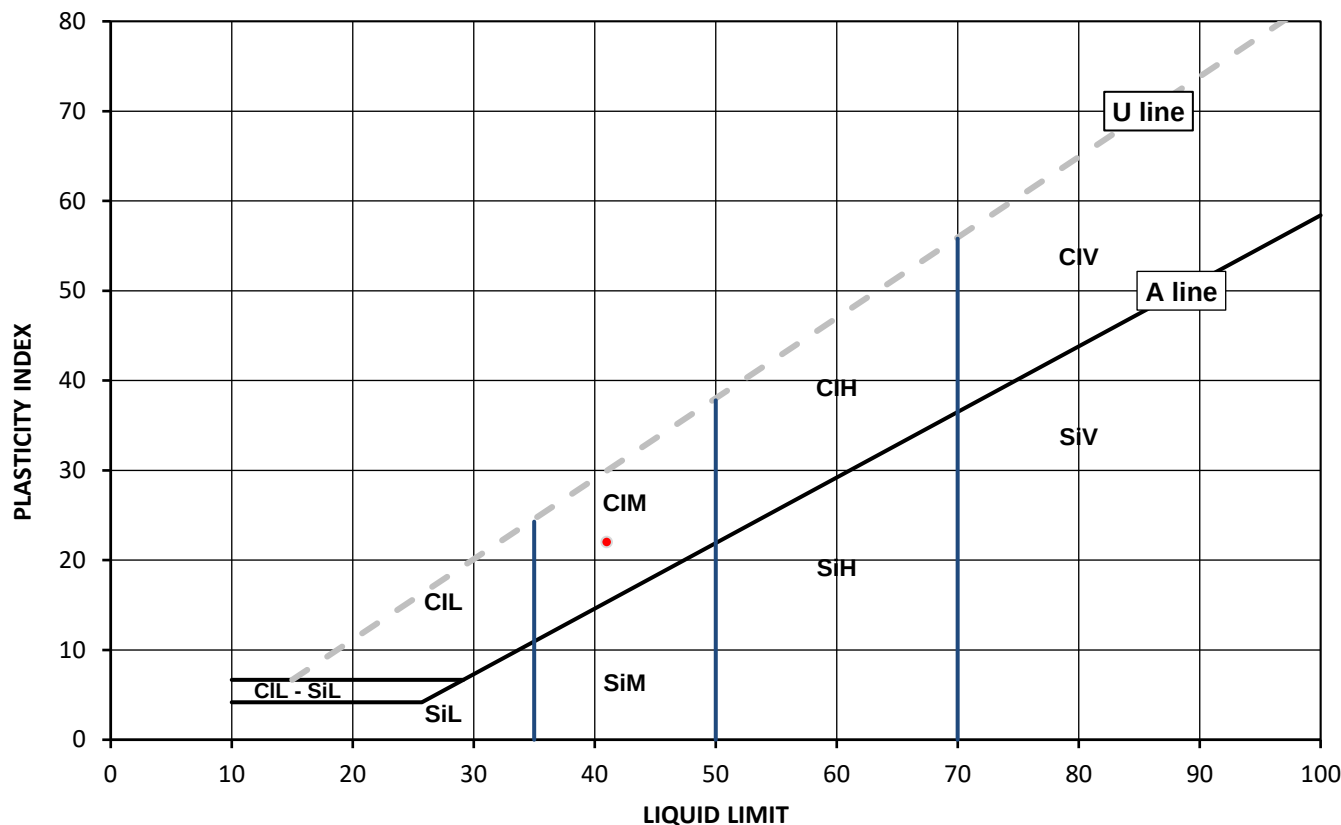
Test Results:

Laboratory Reference: 2408662
Hole No.: DS107
Sample Reference: 5
Sample Description: Brown sandy CLAY

Depth Top [m]: 2.80
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	41	19	22	100



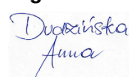
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. This report may not be reproduced other than in full without the prior written approval of the issuing laboratory. The results included within the report relate only to the sample(s) submitted for testing.

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

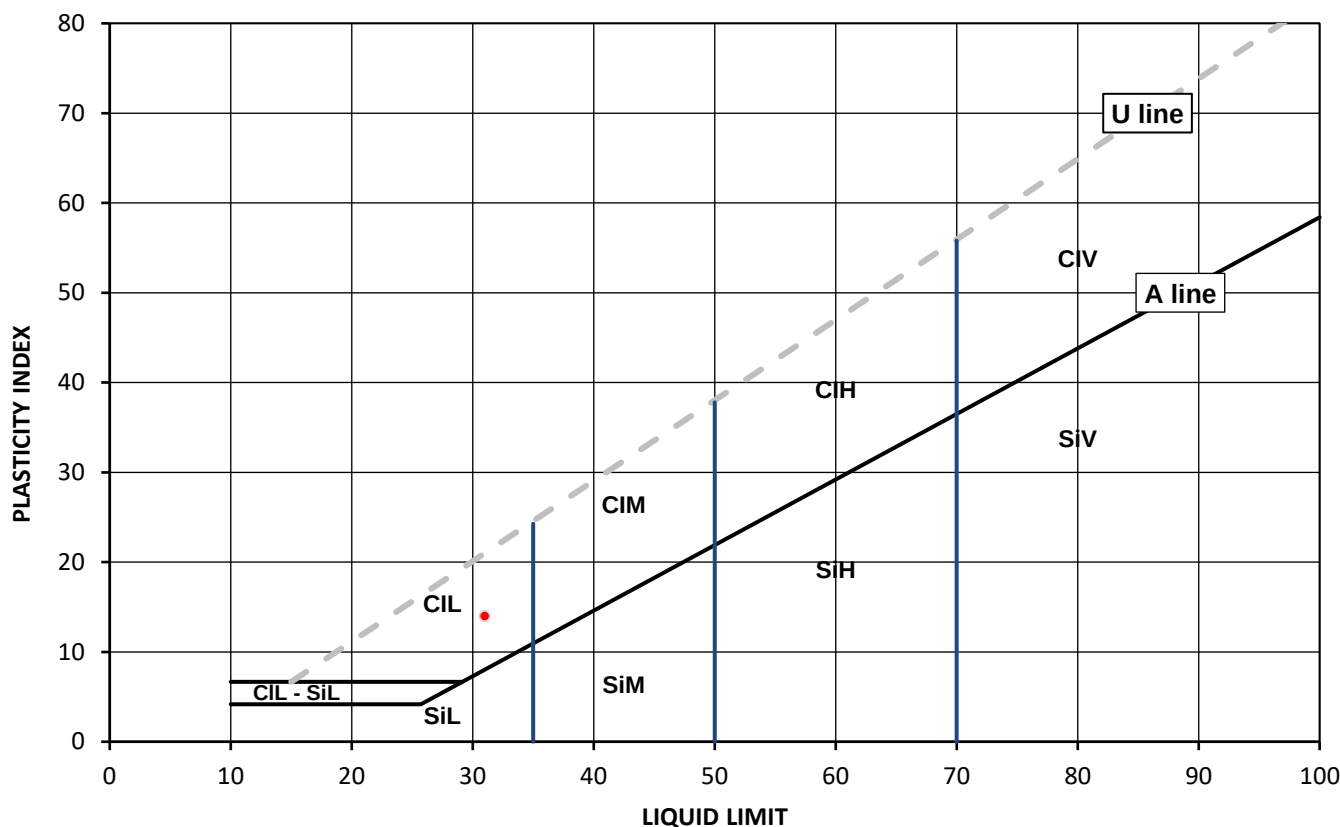
Test Results:

Laboratory Reference: 2408663
Hole No.: DS104
Sample Reference: 2
Sample Description: Brown gravelly very sandy CLAY

Depth Top [m]: 1.20
Depth Base [m]: 1.65
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
12	31	17	14	51



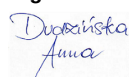
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

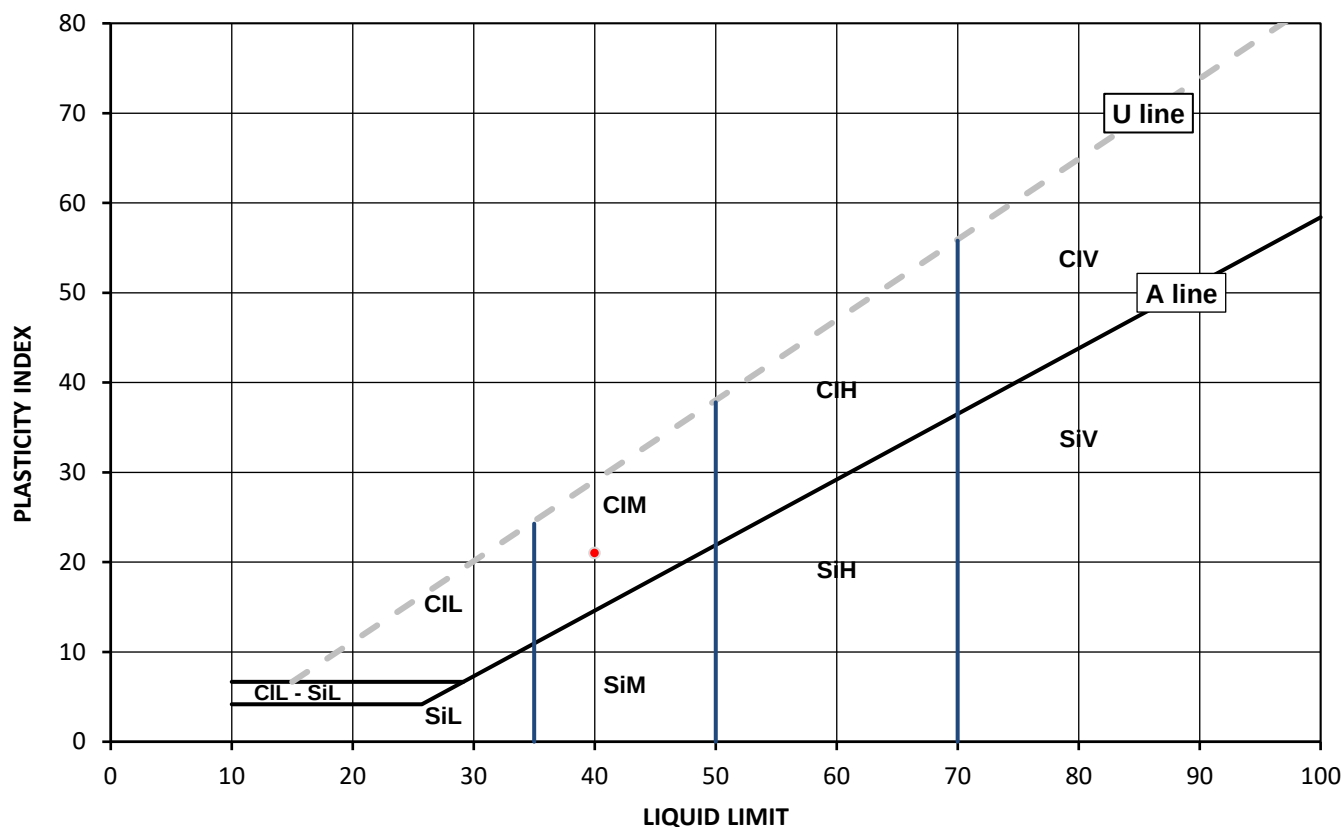
Test Results:

Laboratory Reference: 2408664
Hole No.: DS104
Sample Reference: 7
Sample Description: Brownish grey sandy CLAY

Depth Top [m]: 3.90
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
22	40	19	21	100



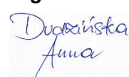
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

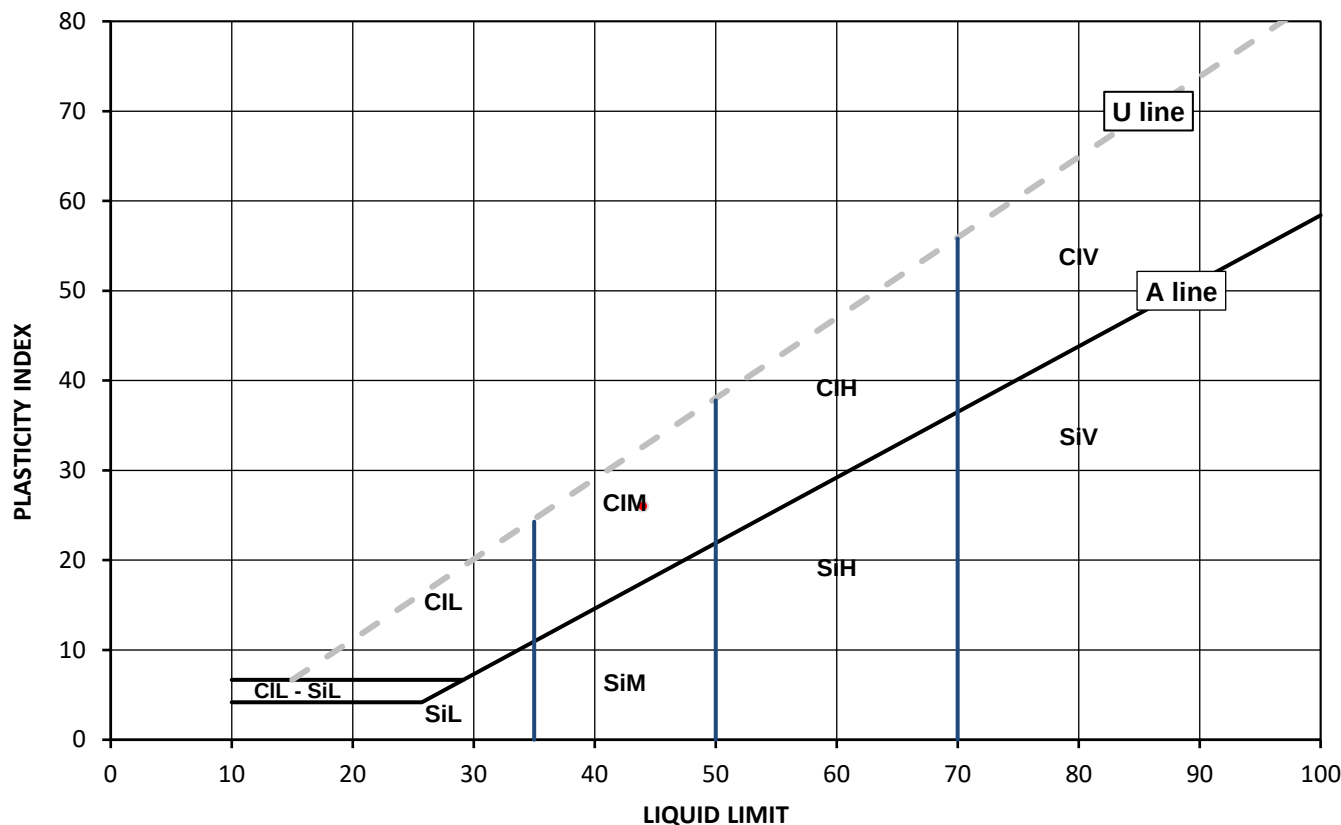
Test Results:

Laboratory Reference: 2408665
Hole No.: DS105
Sample Reference: 2
Sample Description: Brownish grey sandy CLAY

Depth Top [m]: 1.90
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	44	18	26	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

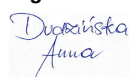
	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:



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PL Deputy Head of Reporting Team
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4041

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

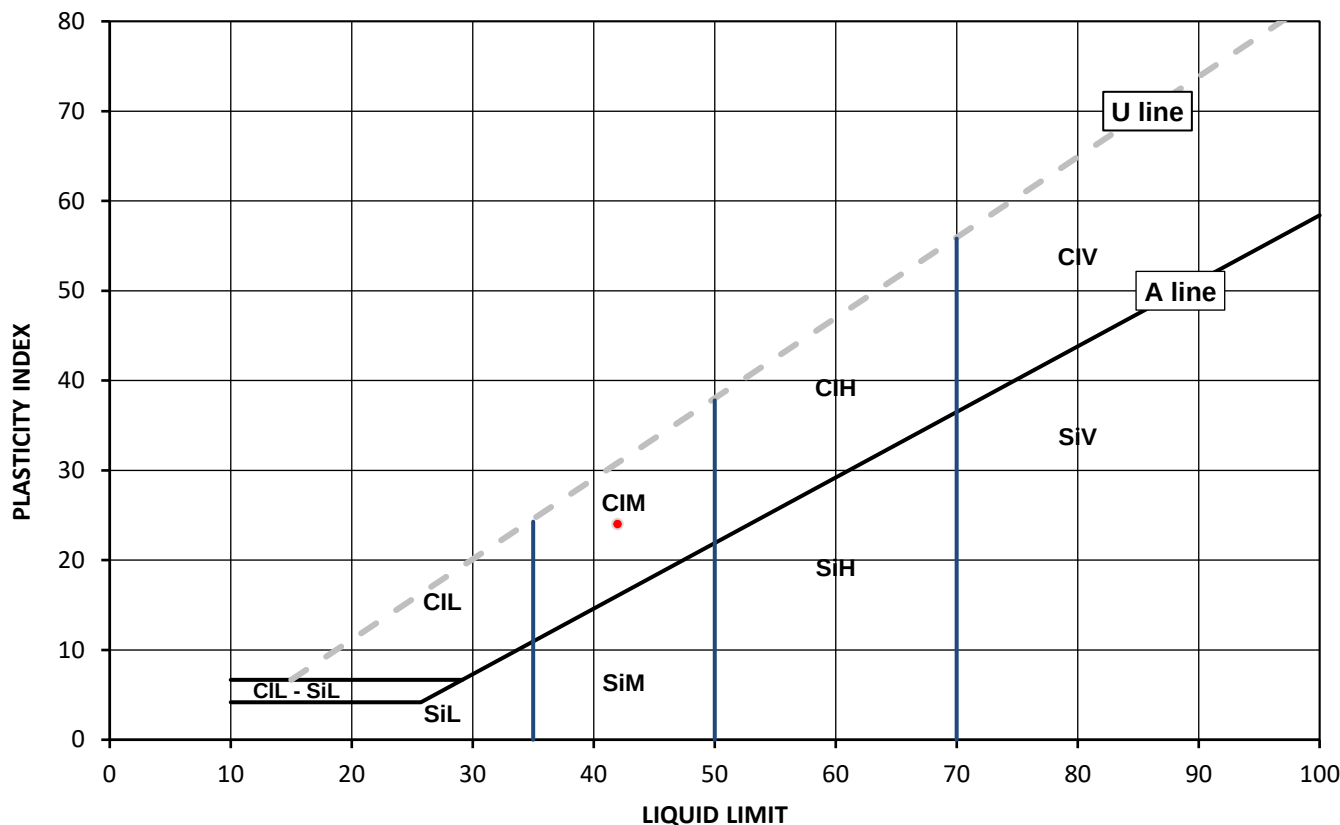
Test Results:

Laboratory Reference: 2408666
Hole No.: DS110
Sample Reference: 4
Sample Description: Grey sandy CLAY

Depth Top [m]: 2.90
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
22	42	18	24	100



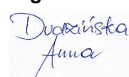
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Client: Delta-Simons
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Contact: Jack Lott
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Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

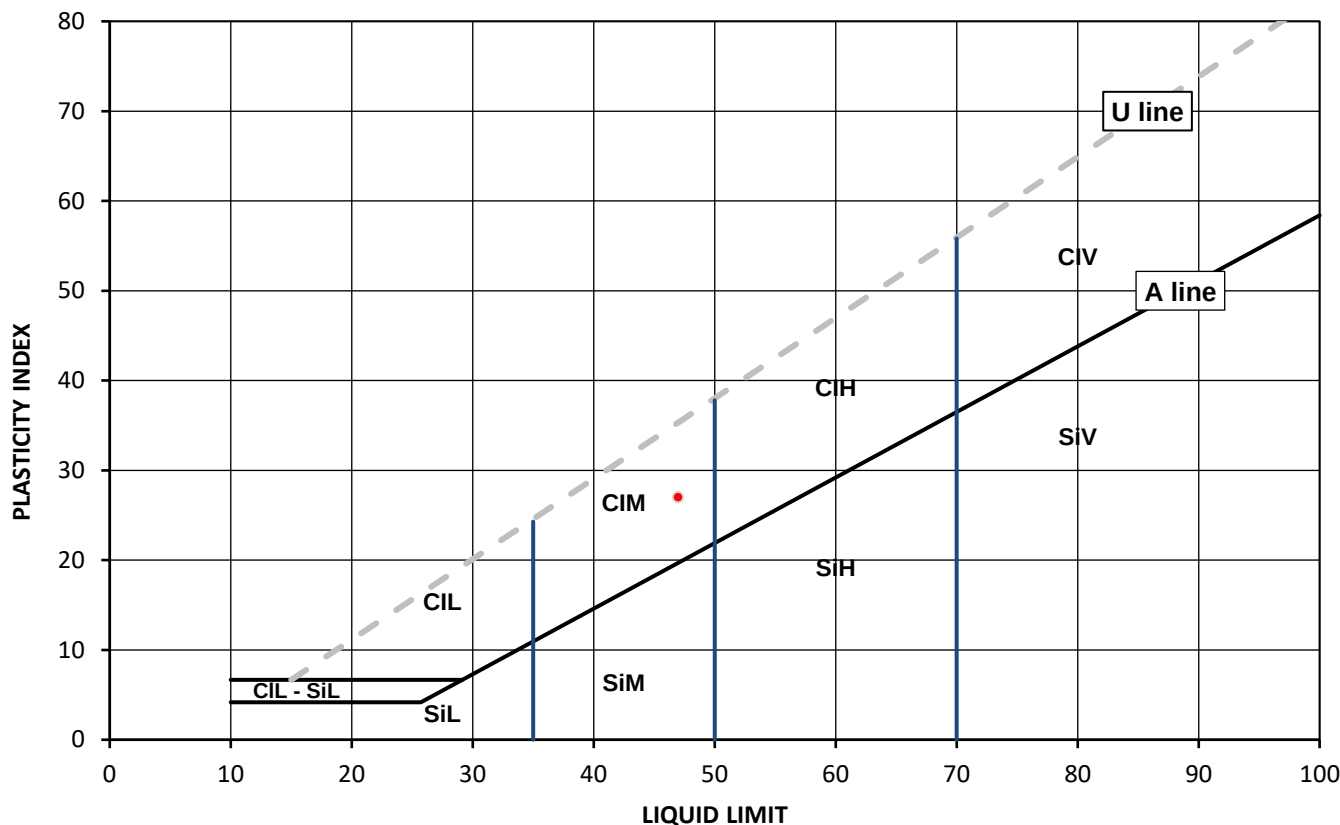
Test Results:

Laboratory Reference: 2408667
Hole No.: DS110
Sample Reference: 7
Sample Description: Grey slightly sandy CLAY

Depth Top [m]: 4.70
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	47	20	27	100



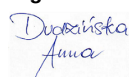
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
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Northampton NN4 7EB

Client: Delta-Simons
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Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 24/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

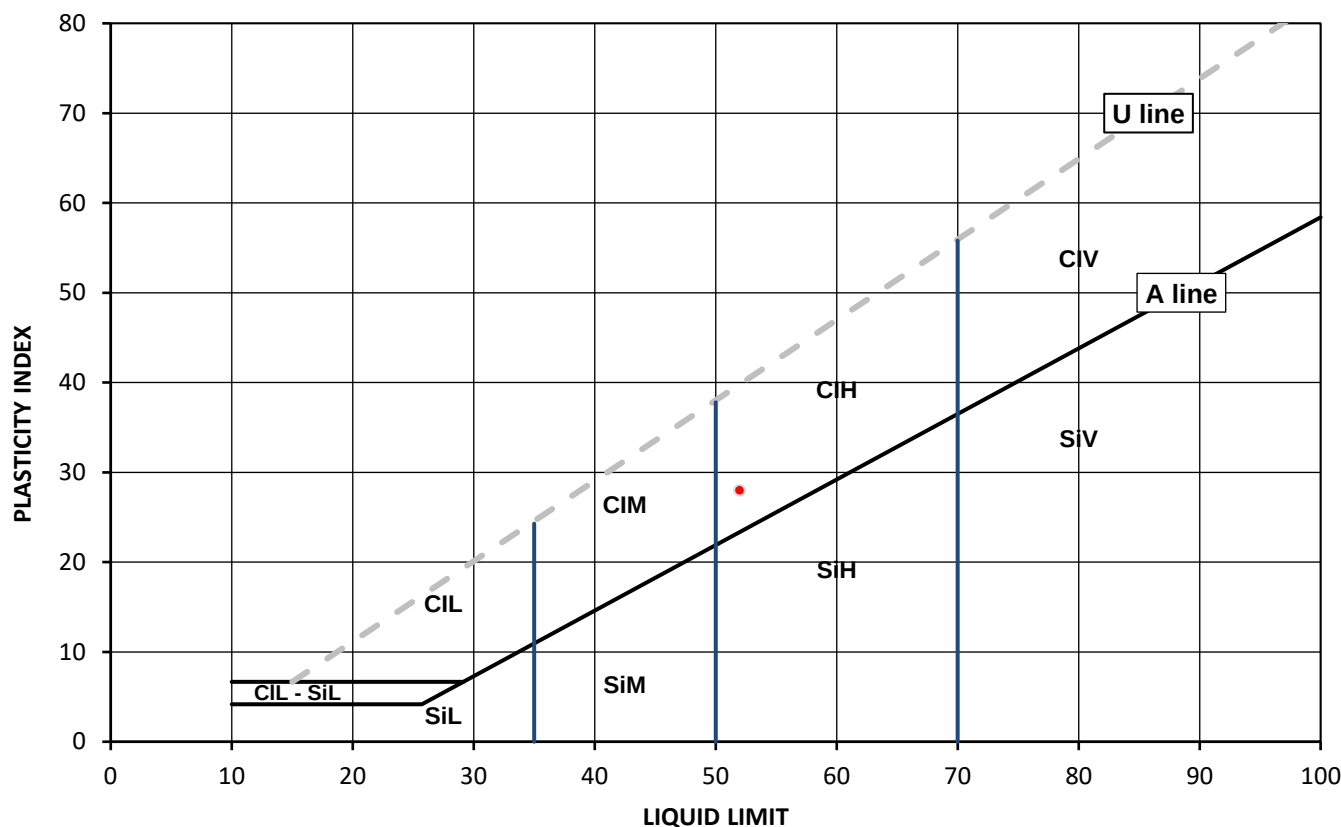
Test Results:

Laboratory Reference: 2408668
Hole No.: DS109
Sample Reference: 3
Sample Description: Brown slightly sandy CLAY

Depth Top [m]: 2.00
Depth Base [m]: 2.45
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
28	52	24	28	100



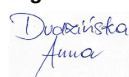
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



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TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

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i2 Analytical Ltd
Unit 8 Harrowden Road
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Client: Delta-Simons
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Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 24/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

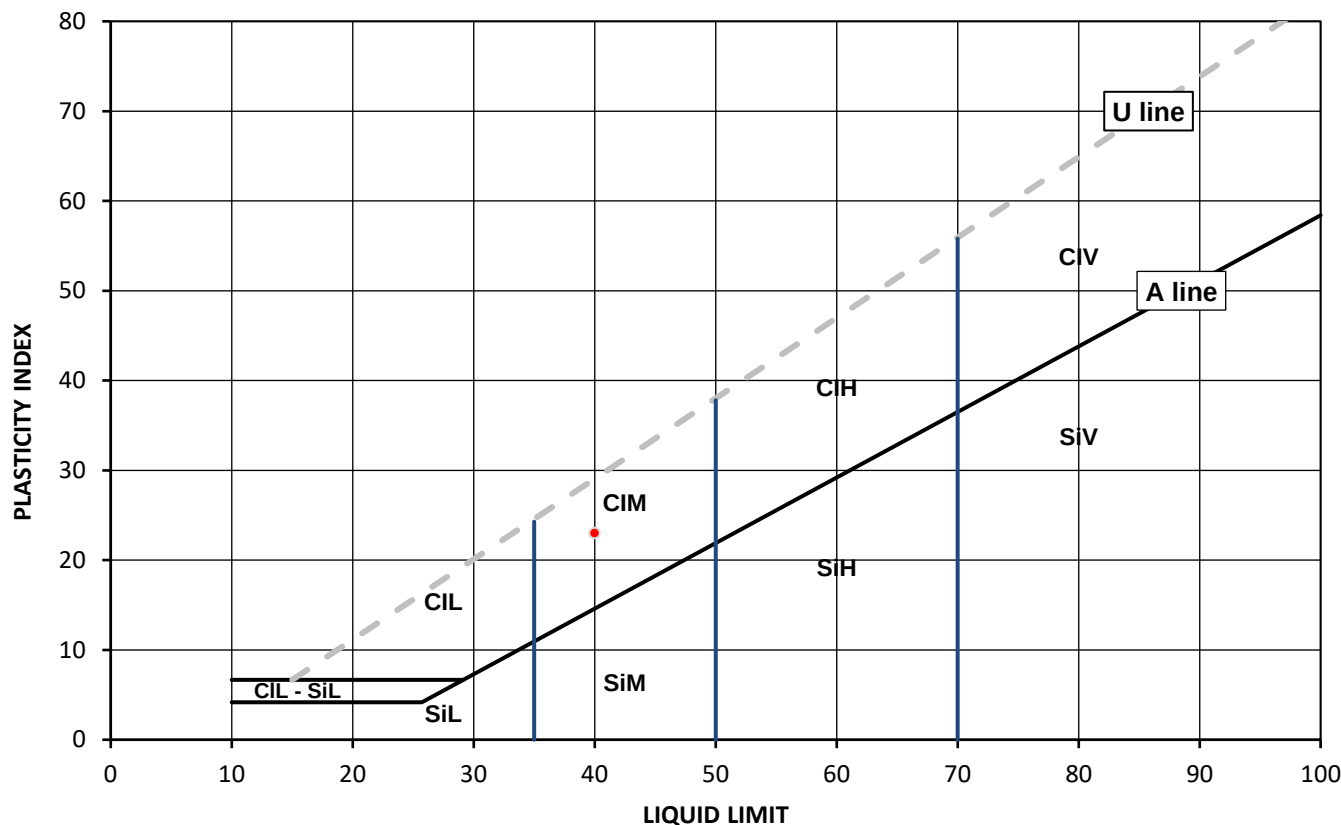
Test Results:

Laboratory Reference: 2408669
Hole No.: DS102
Sample Reference: 3
Sample Description: Brownish grey sandy CLAY

Depth Top [m]: 1.80
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
27	40	17	23	100



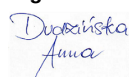
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 05/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

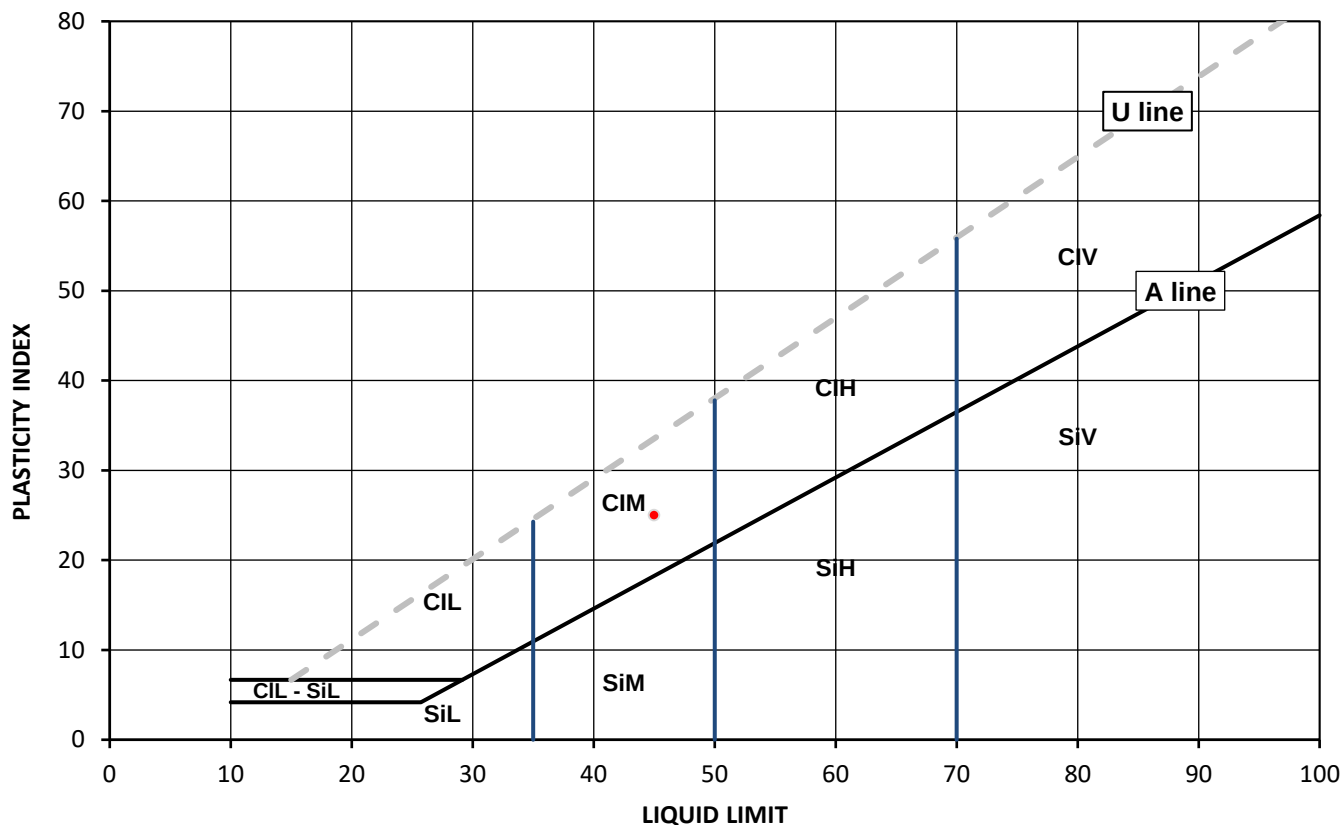
Test Results:

Laboratory Reference: 2408672
Hole No.: CP103
Sample Reference: 12
Sample Description: Grey slightly sandy CLAY

Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: U

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
31	45	20	25	100



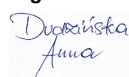
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

Cl	Clay	Plasticity	L	Low	Liquid Limit	below 35
Si	Silt		M	Medium		35 to 50
			H	High		50 to 70
			V	Very high		exceeding 70
			O	Organic		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 05/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

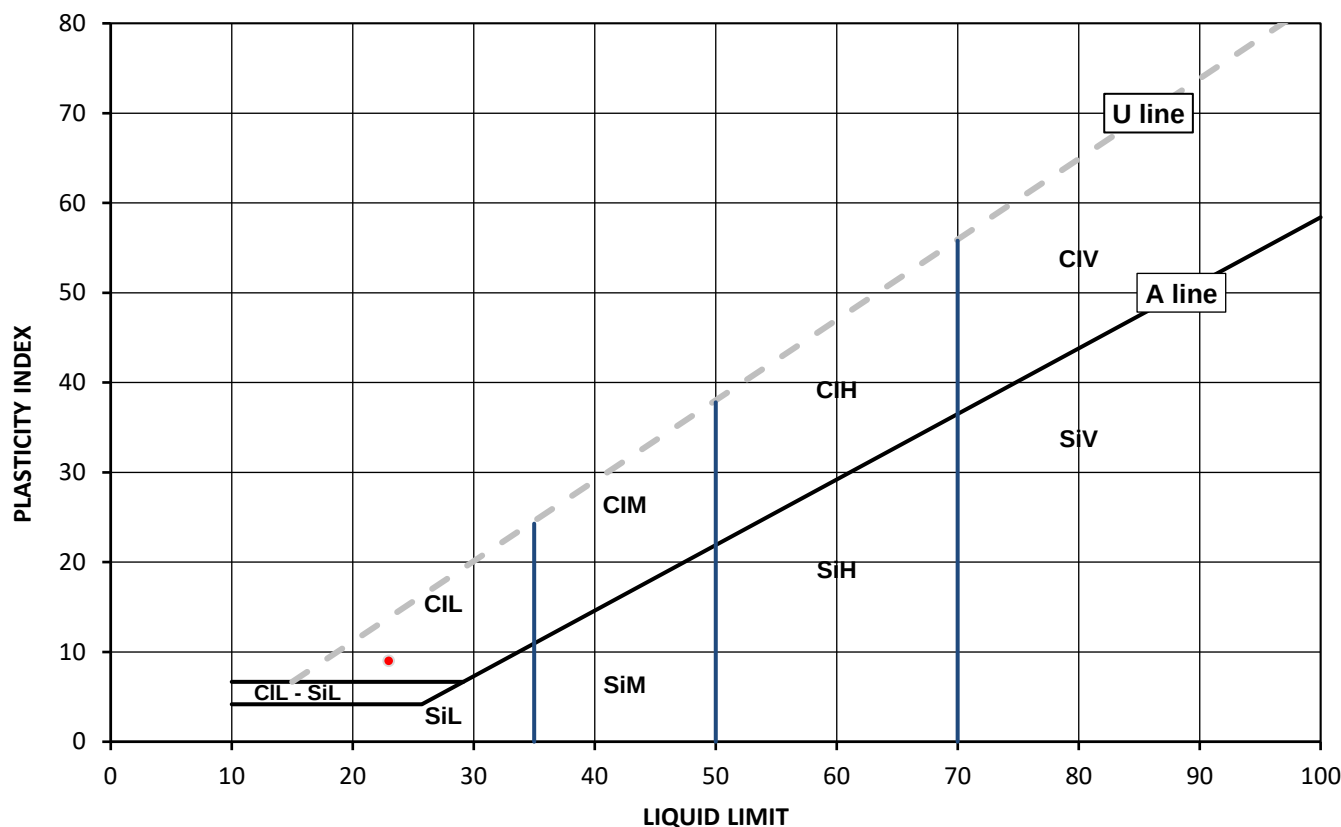
Test Results:

Laboratory Reference: 2408673
Hole No.: CP103
Sample Reference: 17
Sample Description: Greyish brown very sandy CLAY

Depth Top [m]: 6.50
Depth Base [m]: 6.95
Sample Type: U

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
18	23	14	9	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

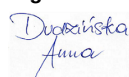
	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

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Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 24/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

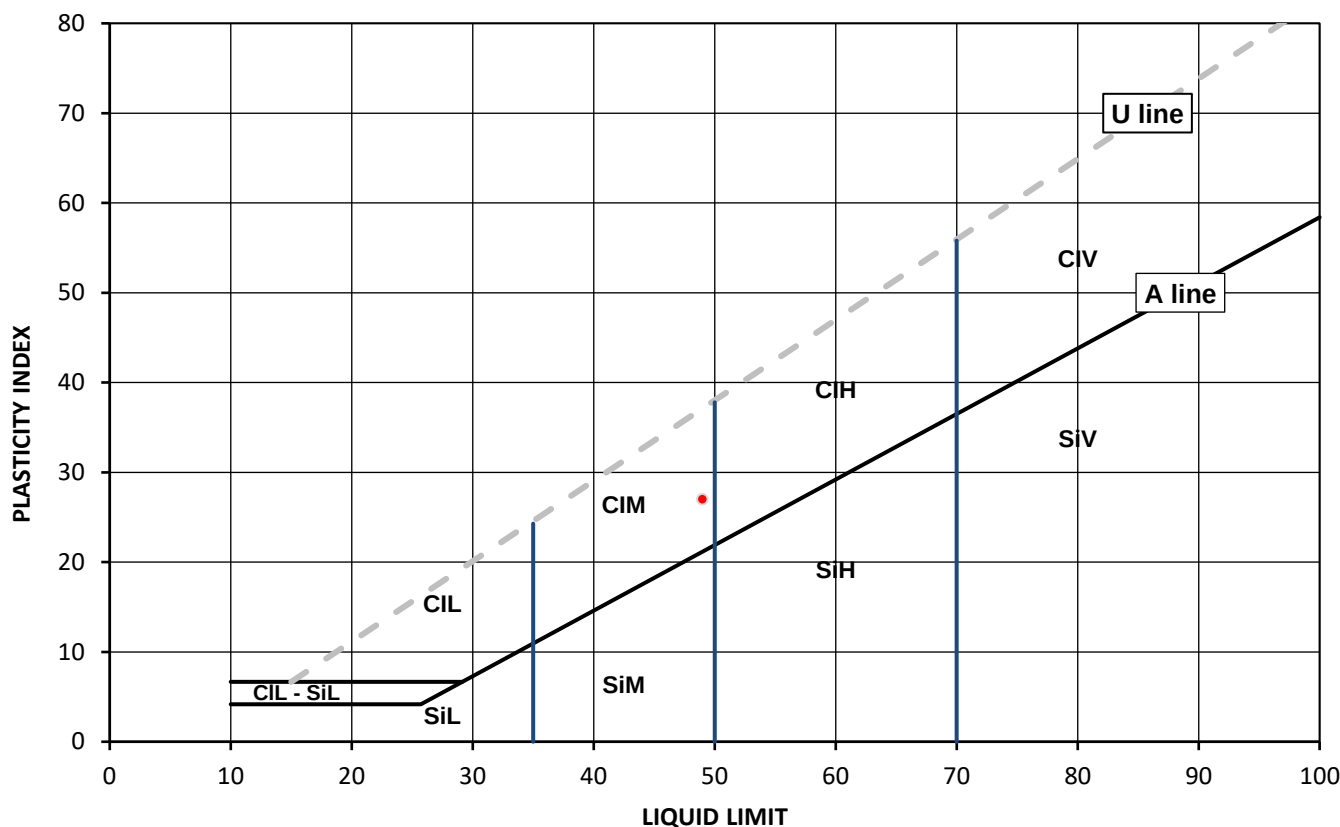
Test Results:

Laboratory Reference: 2408676
Hole No.: CP103
Sample Reference: 32
Sample Description: Multicolour slightly sandy CLAY

Depth Top [m]: 15.95
Depth Base [m]: 16.00
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
20	49	22	27	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

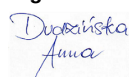
	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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4041

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Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott

Site Address: Bennet Court

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT**SUMMARY OF CLASSIFICATION TEST RESULTS**

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990:
Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2:
1990: Clause 8.2i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client Reference: 22-0819.03

Job Number: 22-81364

Date Sampled: 22/08 - 24/08/2022

Date Received: 26/08/2022

Date Tested: 05/09 - 06/09/2022

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m						%	%	%	%	Mg/m3	Mg/m3	Mg/m3			
2408672	CP103	12	4.00	4.45	U	Grey slightly sandy CLAY	Atterberg 4 Point	31		100	45	20	25						
2408673	CP103	17	6.50	6.95	U	Greyish brown very sandy CLAY	Atterberg 4 Point	18		100	23	14	9						
2408676	CP103	32	15.95	16.00	D	Multicolour slightly sandy CLAY	Atterberg 4 Point	20		100	49	22	27						
2408669	DS102	3	1.80	Not Given	D	Brownish grey sandy CLAY	Atterberg 4 Point	27		100	40	17	23						
2408661	DS103	3	1.80	Not Given	D	Brown slightly sandy CLAY	Atterberg 4 Point	26		100	47	22	25						
2408663	DS104	2	1.20	1.65	D	Brown gravelly very sandy CLAY	Atterberg 4 Point	12		51	31	17	14						
2408664	DS104	7	3.90	Not Given	D	Brownish grey sandy CLAY	Atterberg 4 Point	22		100	40	19	21						
2408665	DS105	2	1.90	Not Given	D	Brownish grey sandy CLAY	Atterberg 4 Point	23		100	44	18	26						
2408662	DS107	5	2.80	Not Given	D	Brown sandy CLAY	Atterberg 4 Point	26		100	41	19	22						
2408668	DS109	3	2.00	2.45	D	Brown slightly sandy CLAY	Atterberg 4 Point	28		100	52	24	28						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

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SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990:
Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2:
1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um %	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2408666	DS110	4	2.90	Not Given	D	Grey sandy CLAY	Atterberg 4 Point	22		100	42	18	24						
2408667	DS110	7	4.70	Not Given	D	Grey slightly sandy CLAY	Atterberg 4 Point	23		100	47	20	27						

Note: # Non accredited; NP - Non plastic

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



4041

Client: Delta-Simons

Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott

Site Address: Bennet Court

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT**DETERMINATION OF WATER CONTENT**

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Environmental Science

Client Reference: 22-0819.03

Job Number: 22-81364

Date Sampled: 22/08 - 24/08/2022

Date Received: 26/08/2022

Date Tested: 05/09 - 06/09/2022

Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2408672	CP103	12	4.00	4.45	U	Grey slightly sandy CLAY		31	Sample was quartered, oven dried at 106 °C			
2408673	CP103	17	6.50	6.95	U	Greyish brown very sandy CLAY		18	Sample was quartered, oven dried at 106 °C			
2408676	CP103	32	15.95	16.00	D	Multicolor slightly sandy CLAY		20	Sample was quartered, oven dried at 106 °C			
2408669	DS102	3	1.80	Not Given	D	Brownish grey sandy CLAY		27	Sample was quartered, oven dried at 106 °C			
2408661	DS103	3	1.80	Not Given	D	Brown slightly sandy CLAY		26	Sample was quartered, oven dried at 106 °C			
2408663	DS104	2	1.20	1.65	D	Brown gravelly very sandy CLAY		12	Sample was quartered, oven dried at 106 °C			
2408664	DS104	7	3.90	Not Given	D	Brownish grey sandy CLAY		22	Sample was quartered, oven dried at 106 °C			
2408665	DS105	2	1.90	Not Given	D	Brownish grey sandy CLAY		23	Sample was quartered, oven dried at 106 °C			
2408662	DS107	5	2.80	Not Given	D	Brown sandy CLAY		26	Sample was quartered, oven dried at 106 °C			
2408668	DS109	3	2.00	2.45	D	Brown slightly sandy CLAY		28	Sample was quartered, oven dried at 106 °C			

Comments:

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Signed:

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



4041

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2408666	DS110	4	2.90	Not Given	D	Grey sandy CLAY		22	Sample was quartered, oven dried at 106 °C			
2408667	DS110	7	4.70	Not Given	D	Grey slightly sandy CLAY		23	Sample was quartered, oven dried at 106 °C			

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

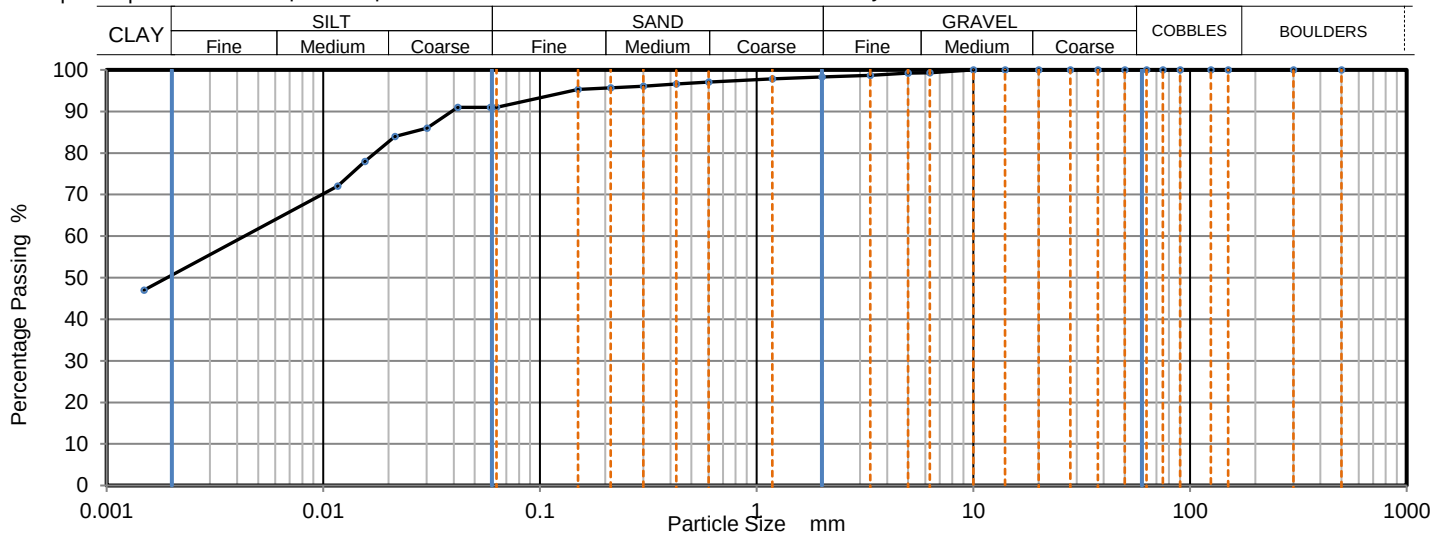
Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2408670
Hole No.: CP103
Sample Reference: 5
Sample Description: Brown slightly gravelly sandy very silty CLAY
Sample Preparation: Sample was quartered, oven dried at 107.6 °C and broken down by hand.

Depth Top [m]: 1.50
Depth Base [m]: 1.80
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0590	91
300	100	0.0417	91
150	100	0.0301	86
125	100	0.0214	84
90	100	0.0156	78
75	100	0.0116	72
63	100	0.0015	47
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99	Particle density (assumed) 2.65 Mg/m3	
2	98		
1.18	98		
0.6	97		
0.425	97		
0.3	96		
0.212	96		
0.15	95		
0.063	91		

Sample Proportions	% dry mass
Very coarse	0
Gravel	2
Sand	8
Silt	39
Clay	51

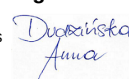
Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 2.9
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

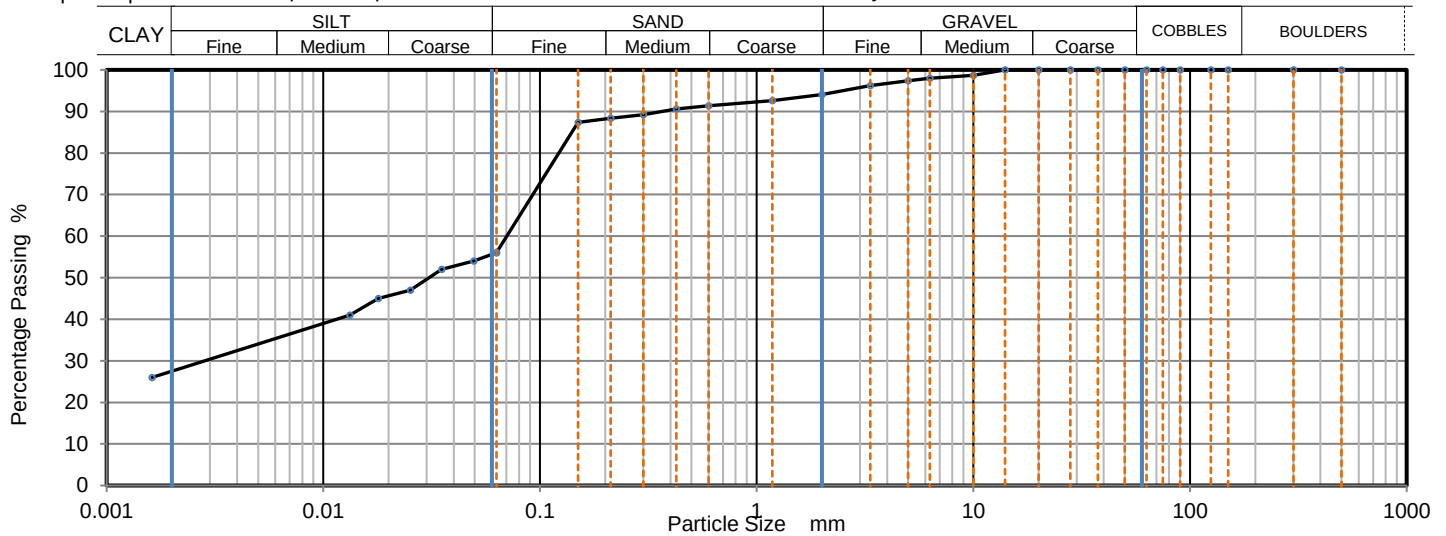
Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2408671
Hole No.: CP103
Sample Reference: 10
Sample Description: Brownish grey gravelly very sandy CLAY with fragments of shells
Sample Preparation: Sample was quartered, oven dried at 107.8 °C and broken down by hand.

Depth Top [m]: 3.50
Depth Base [m]: 3.70
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	56
300	100	0.0494	54
150	100	0.0351	52
125	100	0.0252	47
90	100	0.0179	45
75	100	0.0132	41
63	100	0.0106	38
50	100	0.0075	35
37.5	100	0.0060	32
28	100	0.00475	29
20	100	0.00375	26
14	100		
10	99		
6.3	98		
5	97		
3.35	96		
2	94		
1.18	93		
0.6	91		
0.425	91		
0.3	89		
0.212	88		
0.15	87		
0.063	56		

Sample Proportions	% dry mass
Very coarse	0
Gravel	6
Sand	38
Silt	29
Clay	27

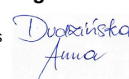
Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 43
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

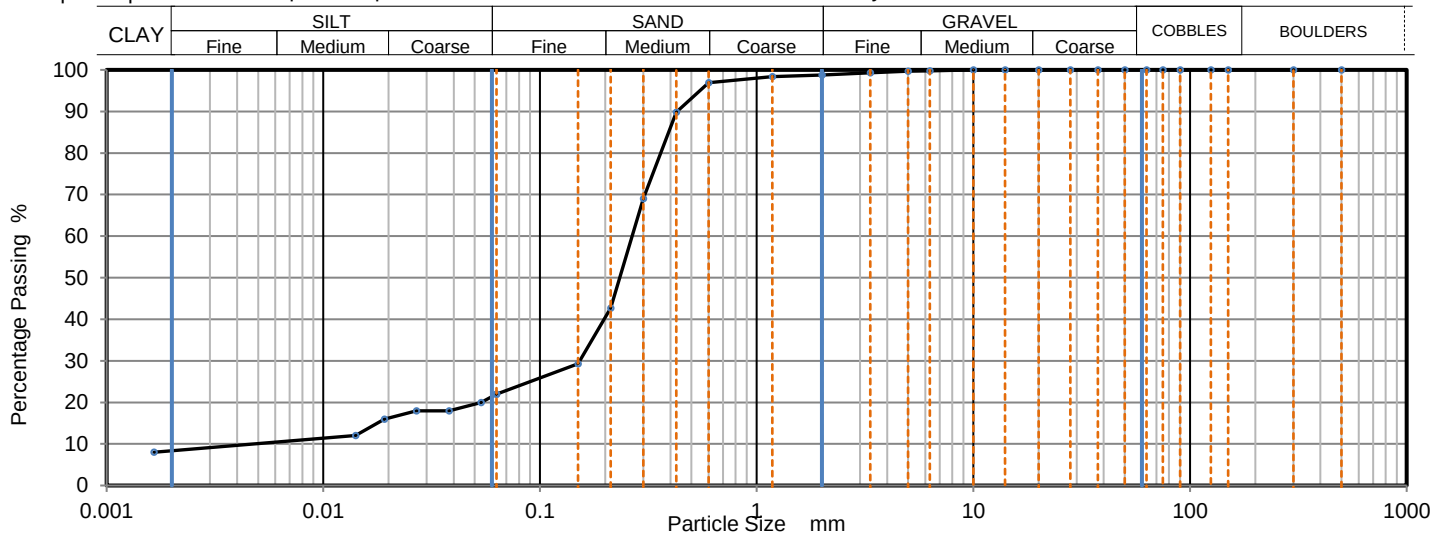
Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 06/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2408674
Hole No.: CP103
Sample Reference: 18
Sample Description: Grey silty clayey SAND
Sample Preparation: Sample was quartered, oven dried at 107.8 °C and broken down by hand.

Depth Top [m]: 7.20
Depth Base [m]: 7.50
Sample Type: B



TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 23/08/2022
Date Received: 26/08/2022
Date Tested: 05/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

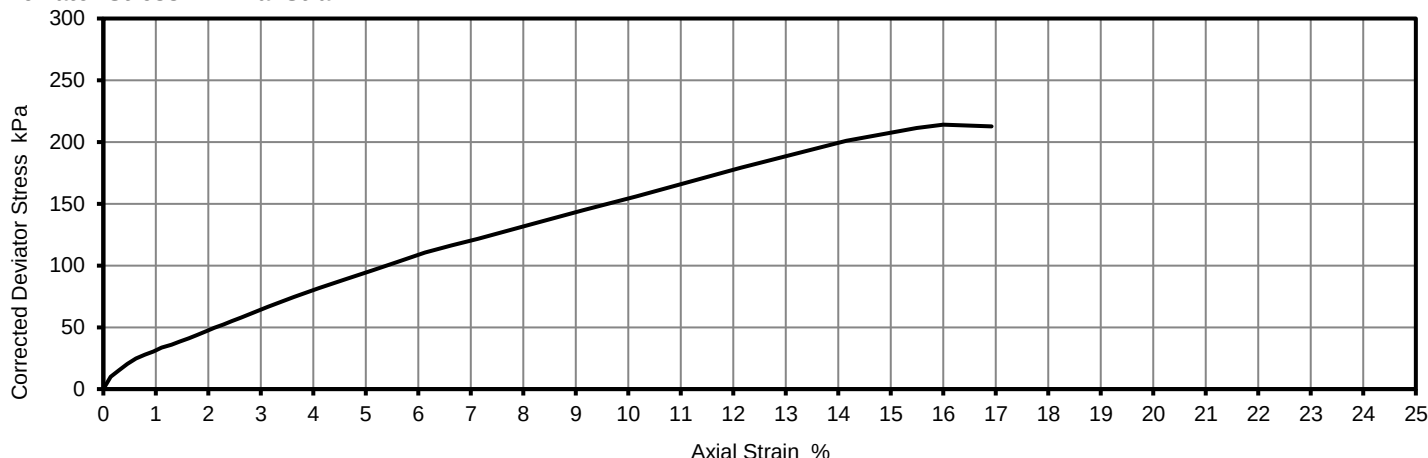
Test Results:

Laboratory Reference: 2408672
Hole No.: CP103
Sample Reference: 12
Sample Description: Grey slightly sandy CLAY
Sample Preparation: Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.

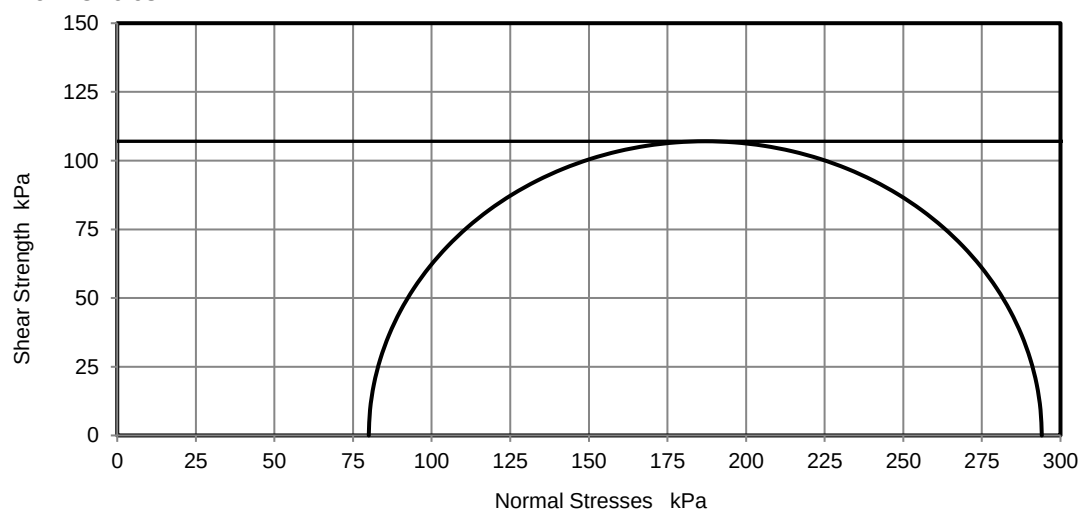
Depth Top [m]: 4.00
Depth Base [m]: 4.45
Sample Type: U

Test Number	1	Rate of Strain	1.99	%/min
Length	200.55	Cell Pressure	80	kPa
Diameter	101.77	Axial Strain at failure	16.0	%
Bulk Density	2.05	Deviator Stress, ($\sigma_1 - \sigma_3$) _f	214	kPa
Moisture Content	31	Undrained Shear Strength, c_u	107	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Dry Density	1.56	Mode of Failure	Compound	
Membrane Correction	0.72	Membrane thickness	0.23	mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

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Signed:

Anna Dudzinska
Anna

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client: Delta-Simons
Client Address: Unit 3, Chalk Hill House, Rosary Road,
Norwich, NR1 1SZ

Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-81364
Date Sampled: 24/08/2022
Date Received: 26/08/2022
Date Tested: 05/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

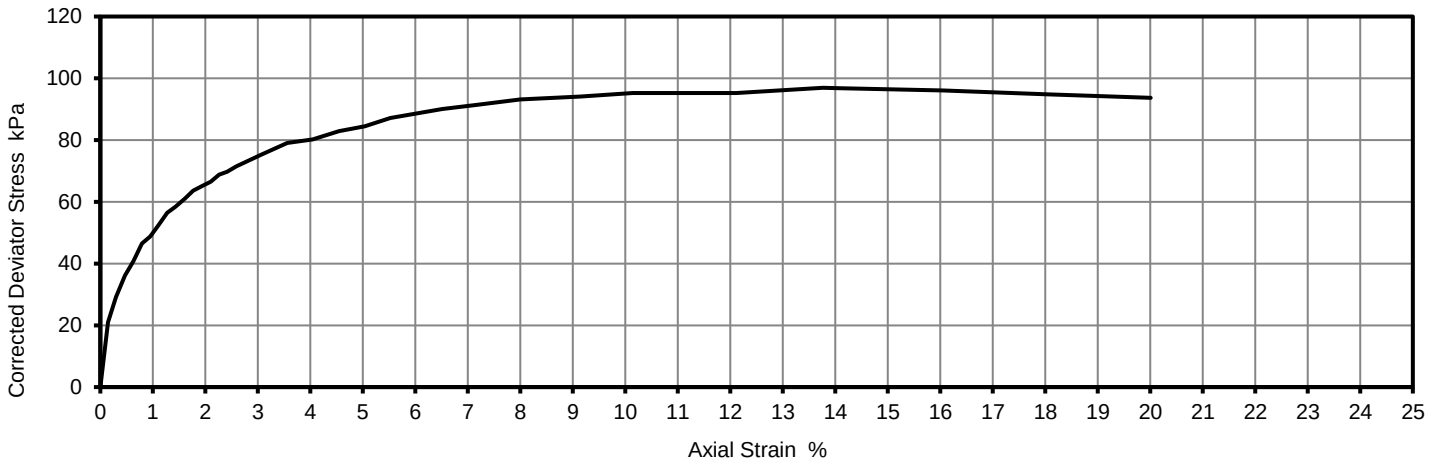
Test Results:

Laboratory Reference: 2408675
Hole No.: CP103
Sample Reference: 31
Sample Description: Yellowish brown CLAY
Sample Preparation: Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.

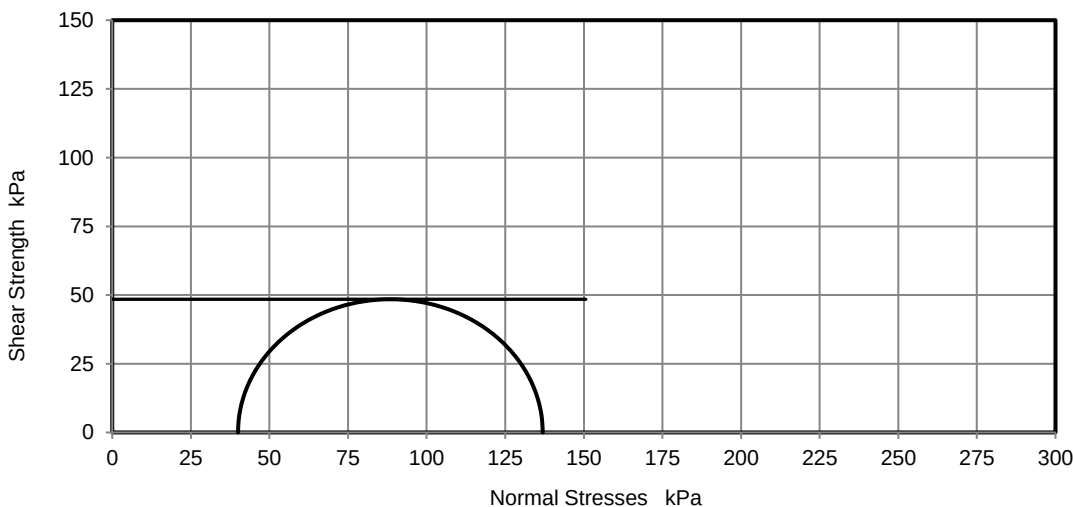
Depth Top [m]: 15.50
Depth Base [m]: 15.95
Sample Type: U

Test Number	1	Rate of Strain	1.97	%/min
Length	203.23	Cell Pressure	40	kPa
Diameter	102.64	Axial Strain at failure	13.8	%
Bulk Density	1.96	Deviator Stress, ($\sigma_1 - \sigma_3$) _f	97	kPa
Moisture Content	32	Undrained Shear Strength, c_u	48	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Dry Density	1.49	Mode of Failure	Compound	
Membrane Correction	0.75	Membrane thickness	0.27	mm

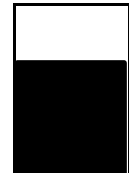
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

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Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Jack Lott
Delta-Simons
Unit 3, Chalk Hill House
Rosary Road
Norwich
NR1 1SZ

t: 01603699119

e: jack.lott@deltasimons.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 22-81370

Project / Site name:	Bennet Court	Samples received on:	26/08/2022
Your job number:	22 0819 03	Samples instructed on/ Analysis started on:	31/08/2022
Your order number:	DS69976	Analysis completed by:	14/09/2022
Report Issue Number:	1	Report issued on:	14/09/2022
Samples Analysed:	9 soil samples		



Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-81370
Project / Site name: Bennet Court
Your Order No: DS69976

Lab Sample Number				2408700	2408701	2408702	2408703	2408704
Sample Reference				DS101	DS104	DS104	DS108	DS110
Sample Number				1	1	3	1	1
Depth (m)				0.30	0.90	1.70	0.80	0.30
Date Sampled				22/08/2022	23/08/2022	23/08/2022	23/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	40	< 0.1	< 0.1	55	71
Moisture Content	%	0.01	NONE	3.8	11	11	5.1	1.6
Total mass of sample received	kg	0.001	NONE	0.7	0.7	0.7	0.7	0.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	9.9	8.1	8.6	9.3
Total Sulphate as SO ₄	%	0.005	MCERTS	0.025	0.027	< 0.005	0.012	0.018
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	18	180	8	16	28
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.009	0.092	0.004	0.008	0.014
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	9	92	4	8	14.2
Total Sulphur	%	0.005	MCERTS	0.016	0.028	< 0.005	0.009	0.015

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-81370
Project / Site name: Bennet Court
Your Order No: DS69976

Lab Sample Number				2408705	2408706	2408707	2408708
Sample Reference				DS102	CP103	CP103	CP103
Sample Number				2	6	12	19
Depth (m)				1.20-1.65	1.90	4.00-4.45	7.50
Date Sampled				24/08/2022	23/08/2022	23/08/2022	24/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	17	20	17
Total mass of sample received	kg	0.001	NONE	0.7	0.7	0.3	0.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	8.2	7.6	8.4
Total Sulphate as SO ₄	%	0.005	MCERTS	0.013	0.017	0.232	0.01
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	29	49	2200	94
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.015	0.025	1.1	0.047
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	14.7	24.5	1120	47.2
Total Sulphur	%	0.005	MCERTS	0.011	0.013	1.59	0.079

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-81370
Project / Site name: Bennet Court

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2408700	DS101	1	0.3	Brown loam and sand with gravel and stones.
2408701	DS104	1	0.9	Brown clay and sand with gravel.
2408702	DS104	3	1.7	Brown clay and sand.
2408703	DS108	1	0.8	Brown loam and sand with gravel and stones.
2408704	DS110	1	0.3	Brown sand with gravel and stones.
2408705	DS102	2	1.20-1.65	Brown clay and sand.
2408706	CP103	6	1.9	Brown clay and sand.
2408707	CP103	12	4.00-4.45	Brown clay and loam with gravel and vegetation.
2408708	CP103	19	7.5	Brown clay and sand.

Analytical Report Number : 22-81370
Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82069
Date Sampled: 31/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

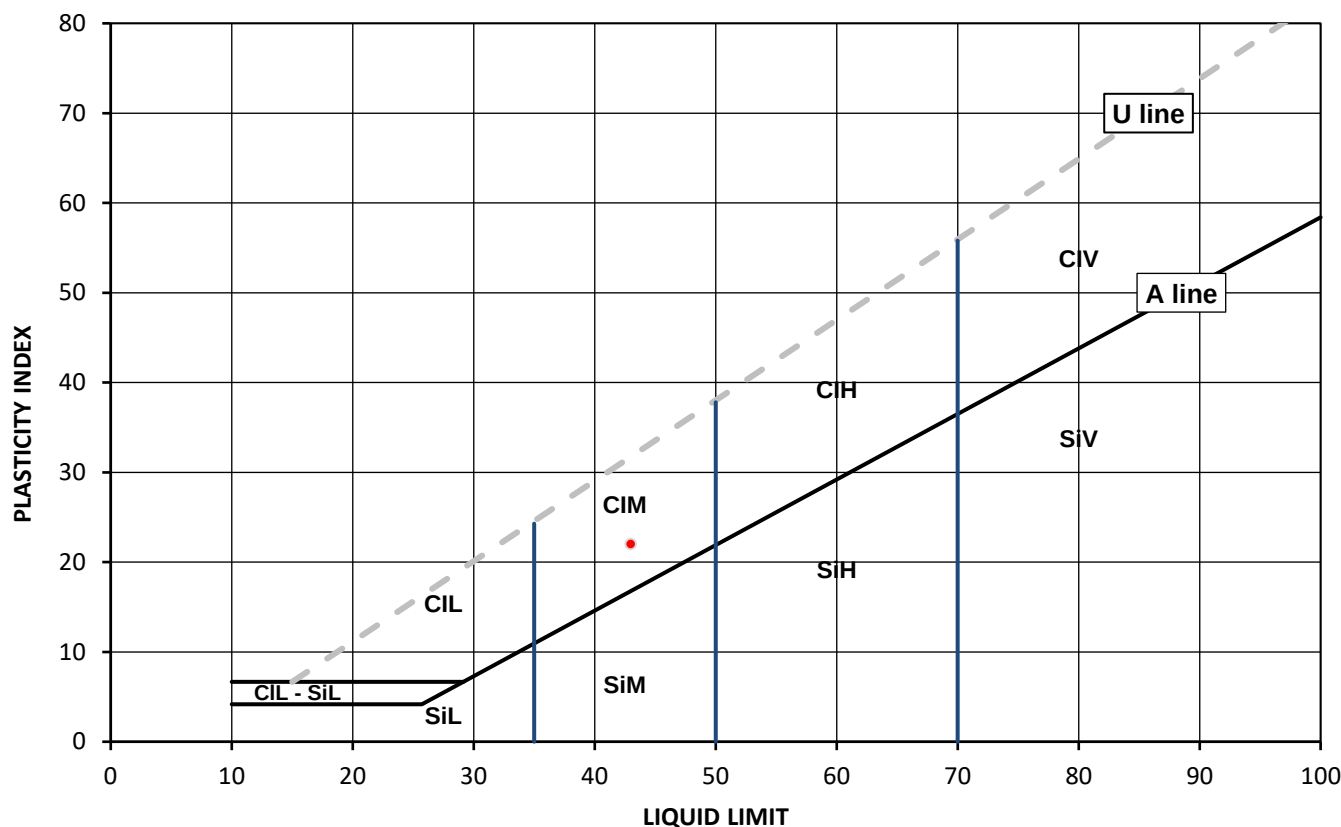
Test Results:

Laboratory Reference: 2412965
Hole No.: CP102 U15
Sample Reference: Not Given
Sample Description: Grey sandy CLAY

Depth Top [m]: 5.00
Depth Base [m]: 5.45
Sample Type: U

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	43	21	22	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

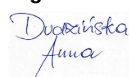
	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



4041

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 22-0819.03
Job Number: 22-82069
Date Sampled: 31/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2412965	CP102 U15	Not Given	5.00	5.45	U	Grey sandy CLAY		23	Sample was quartered, oven dried at 106.5 °C			

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

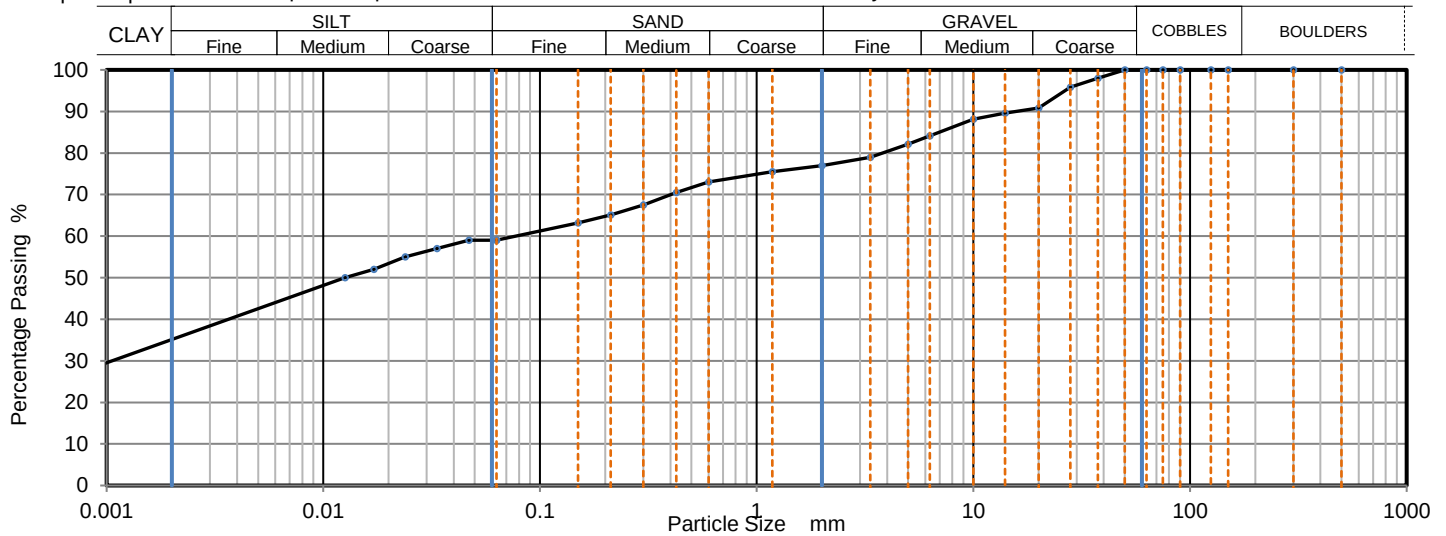
Client Reference: 22-0819.03
Job Number: 22-82069
Date Sampled: 31/08/2022
Date Received: 01/09/2022
Date Tested: 15/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2412966
Hole No.: CP102 B19
Sample Reference: Not Given
Sample Description: Brownish grey sandy very gravelly very silty CLAY
Sample Preparation: Sample was quartered, oven dried at 108.9 °C and broken down by hand.

Depth Top [m]: 7.00
Depth Base [m]: 7.20
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	59
300	100	0.0470	59
150	100	0.0335	57
125	100	0.0238	55
90	100	0.0171	52
75	100	0.0126	50
63	100	0.0008	28
50	100		
37.5	98		
28	96		
20	91		
14	90		
10	88		
6.3	84		
5	82		
3.35	79	Particle density (assumed) 2.65 Mg/m3	
2	77		
1.18	76		
0.6	73		
0.425	71		
0.3	68		
0.212	65		
0.15	63		
0.063	59		

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	18
Silt	24
Clay	35

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 94
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82069
Date Sampled: 31/08/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

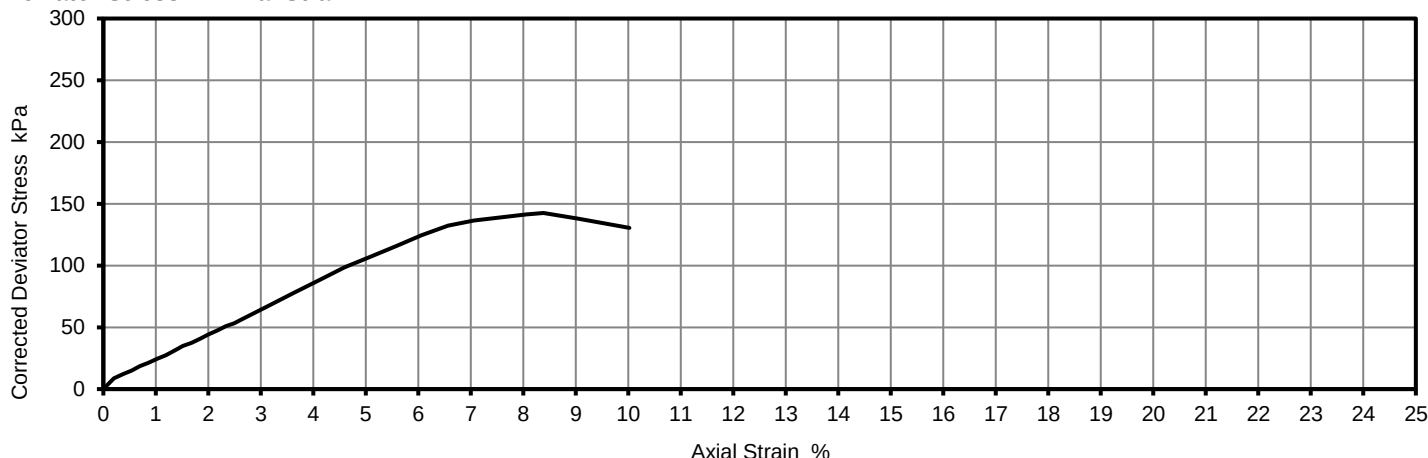
Test Results:

Laboratory Reference: 2412964
Hole No.: CP102 U9
Sample Reference: Not Given
Sample Description: Yellowish brown to grey very sandy CLAY
Sample Preparation: Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.

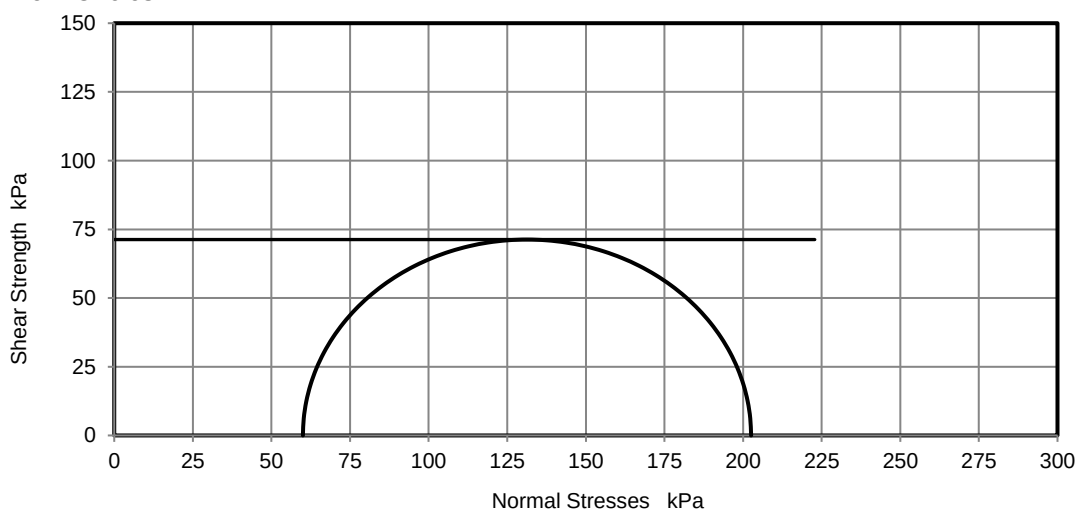
Depth Top [m]: 3.00
Depth Base [m]: 3.45
Sample Type: U

Test Number	1	Rate of Strain	1.97	%/min
Length	202.70	Cell Pressure	60	kPa
Diameter	101.72	Axial Strain at failure	8.4	%
Bulk Density	2.05	Deviator Stress, ($\sigma_1 - \sigma_3$) _f	143	kPa
Moisture Content	24	Undrained Shear Strength, c_u	71	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Dry Density	1.65	Mode of Failure	Brittle	
Membrane Correction	0.52	Membrane thickness	0.27	mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

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Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

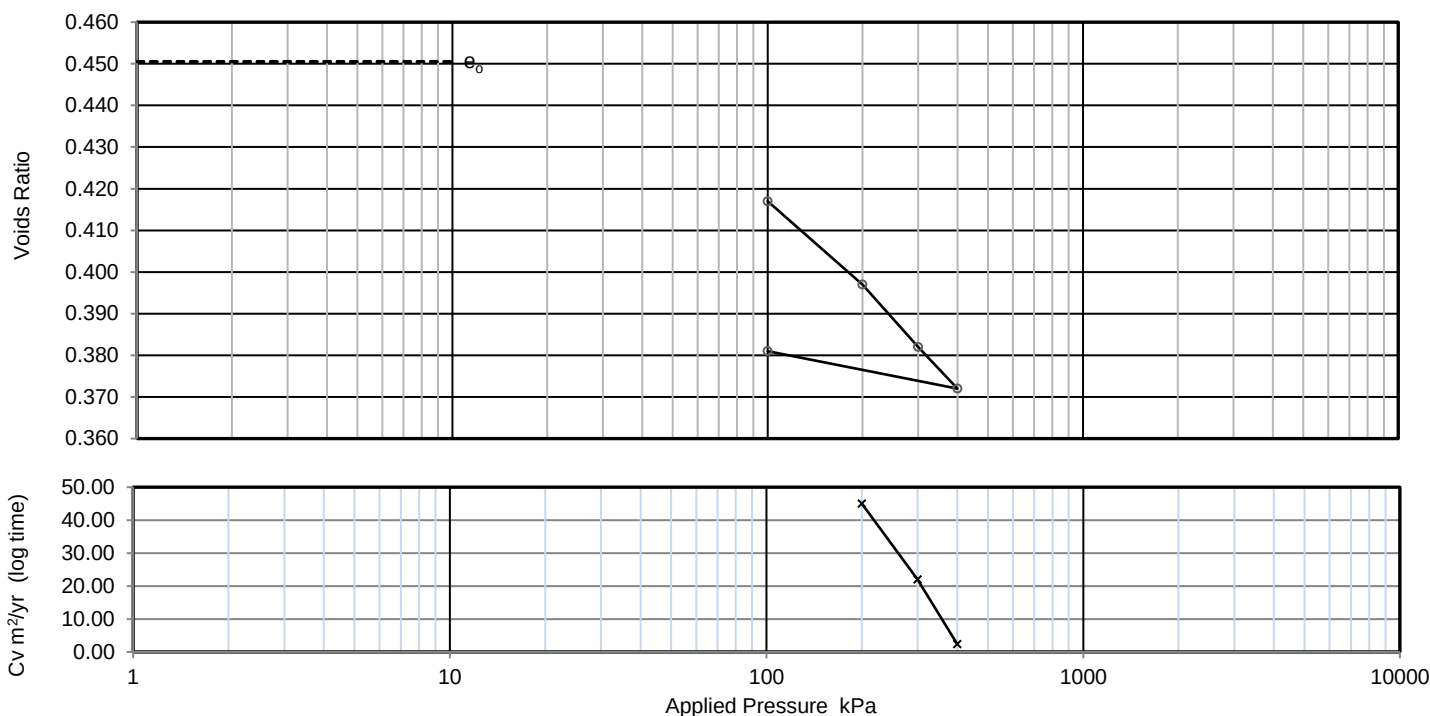
Client Reference: 22-0819.03
Job Number: 22-82069
Date Sampled: 31/08/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2412965
Hole No.: CP102 U15
Sample Reference: Not Given
Sample Description: Grey sandy CLAY

Depth Top [m]: 5.00
Depth Base [m]: 5.45
Sample Type: U

[illegible]

Preparation

Carried out on middle of U100

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

Total test time

Vertical		
assumed	2.65	Mg/m3
N/A		%
N/A		%

Initial	Final	
50.00	-	mm
20.10	19.14	mm
21	23	%
2.22	2.37	Mg/m3
1.83	1.92	Mg/m3
0.451	0.381	
126	162	%
22.0		°C
Not measured		kPa
		%
5		days

Note: Cv corrected to 20°C

Remarks:

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Signed:

Dupaińska
Anna

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Jack Lott
Delta-Simons
Suite C1
Joseph's Well
Hanover Walk
Leeds
LS3 1AB

e: jack.lott@deltasimons.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 22-82071

Project / Site name:	Bennet Court	Samples received on:	01/09/2022
Your job number:	22-0819.03	Samples instructed on/ Analysis started on:	05/09/2022
Your order number:	DS69976	Analysis completed by:	16/09/2022
Report Issue Number:	1	Report issued on:	16/09/2022
Samples Analysed:	1 soil sample		


Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-82071
 Project / Site name: Bennet Court
 Your Order No: DS69976

Lab Sample Number				2412984
Sample Reference				CP102 D20
Sample Number				None Supplied
Depth (m)				7.50
Date Sampled				31/08/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.001	NONE	0.7

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4
Total Sulphate as SO ₄	%	0.005	MCERTS	0.046
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	350
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.18
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	177
Total Sulphur	%	0.005	MCERTS	0.444

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-82071

Project / Site name: Bennet Court

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2412984	CP102 D20	None Supplied	7.5	Brown clay and sand.

Analytical Report Number : 22-82071

Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

4041

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 25/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

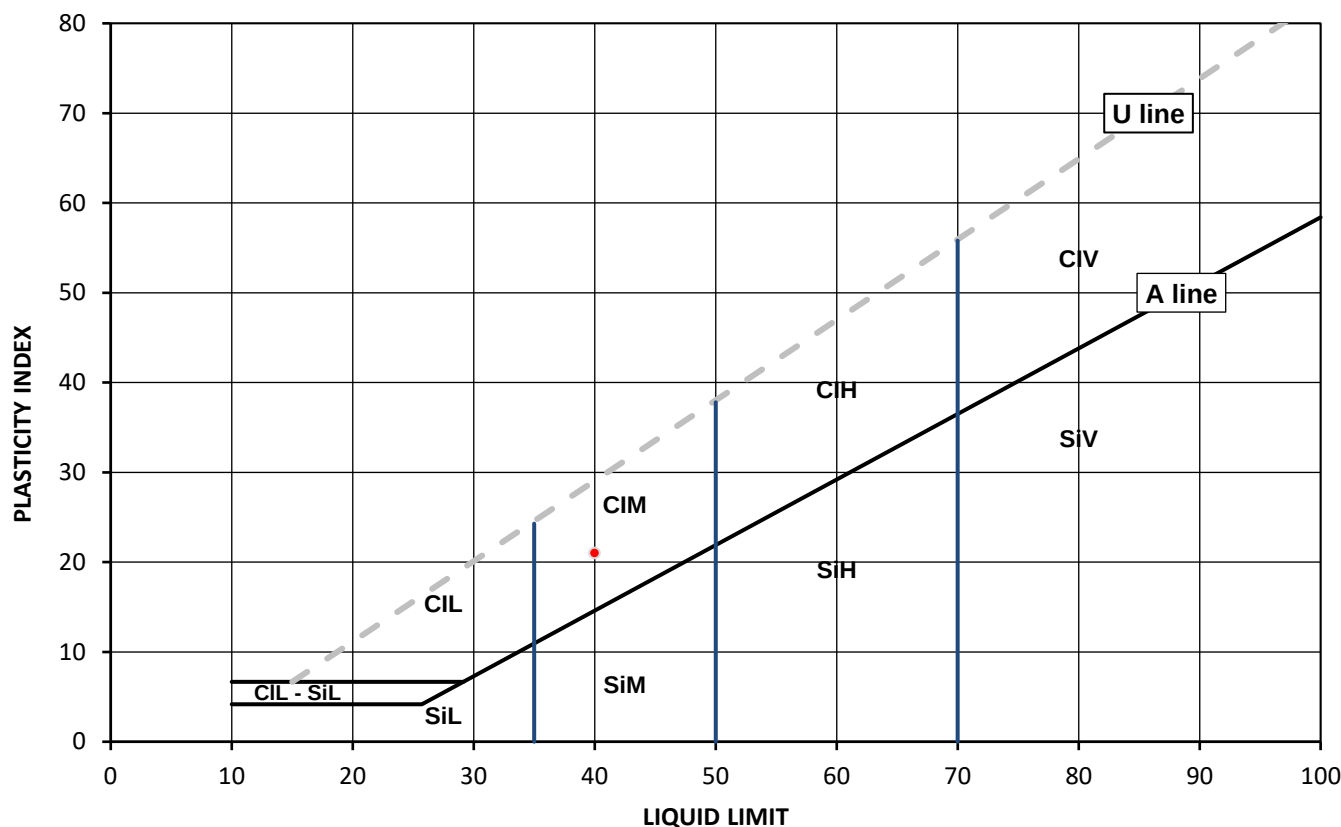
Test Results:

Laboratory Reference: 2413033
Hole No.: CP101
Sample Reference: 15
Sample Description: Grey sandy CLAY

Depth Top [m]: 5.00
Depth Base [m]: 5.45
Sample Type: U

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	40	19	21	100



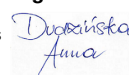
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl Clay	L Low	below 35
Si Silt	M Medium	35 to 50
	H High	50 to 70
	V Very high	exceeding 70
	O Organic	append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 26/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

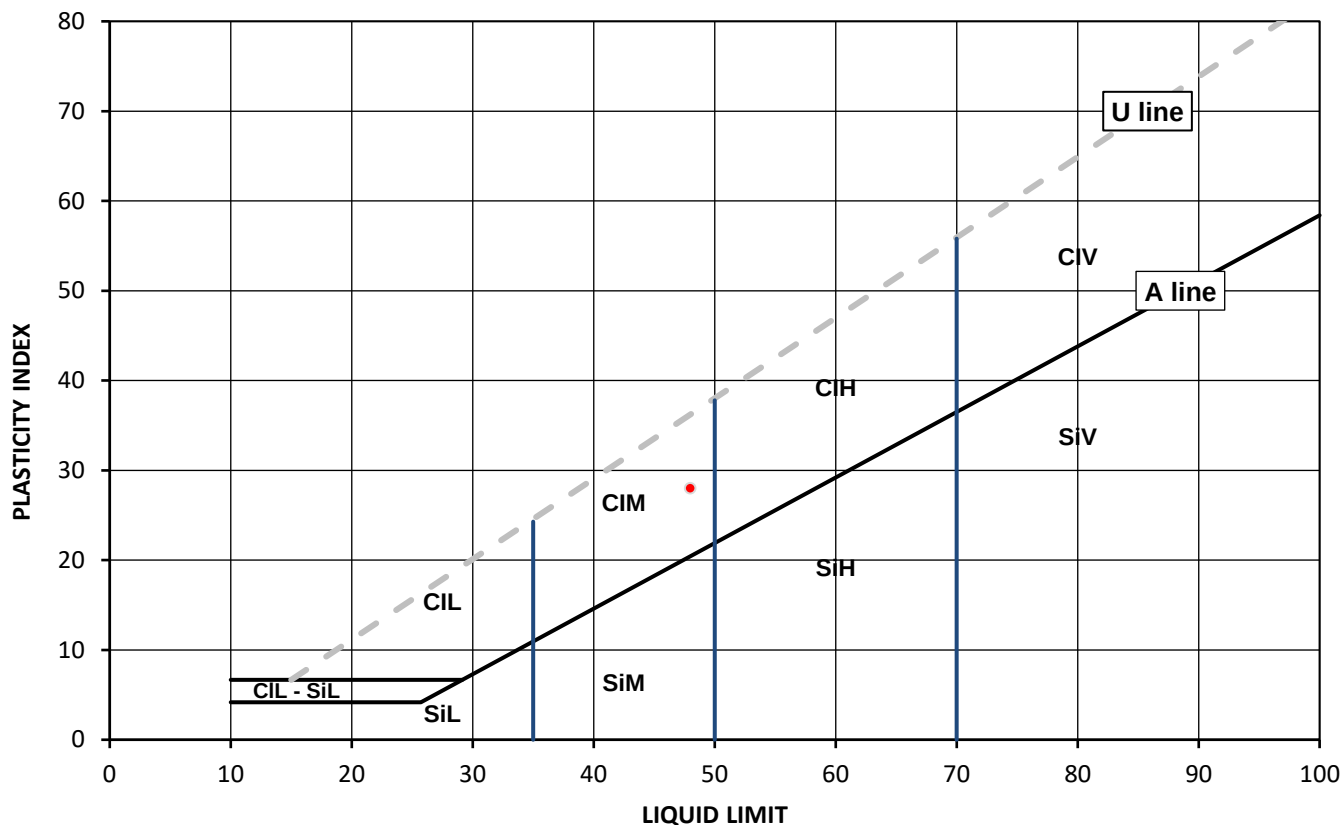
Test Results:

Laboratory Reference: 2413036
Hole No.: CP101
Sample Reference: 29
Sample Description: Multicolour slightly sandy CLAY

Depth Top [m]: 12.50
Depth Base [m]: 12.95
Sample Type: U

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
19	48	20	28	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

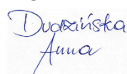
	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS 1377-2:1990: Clause 4.3 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 26/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

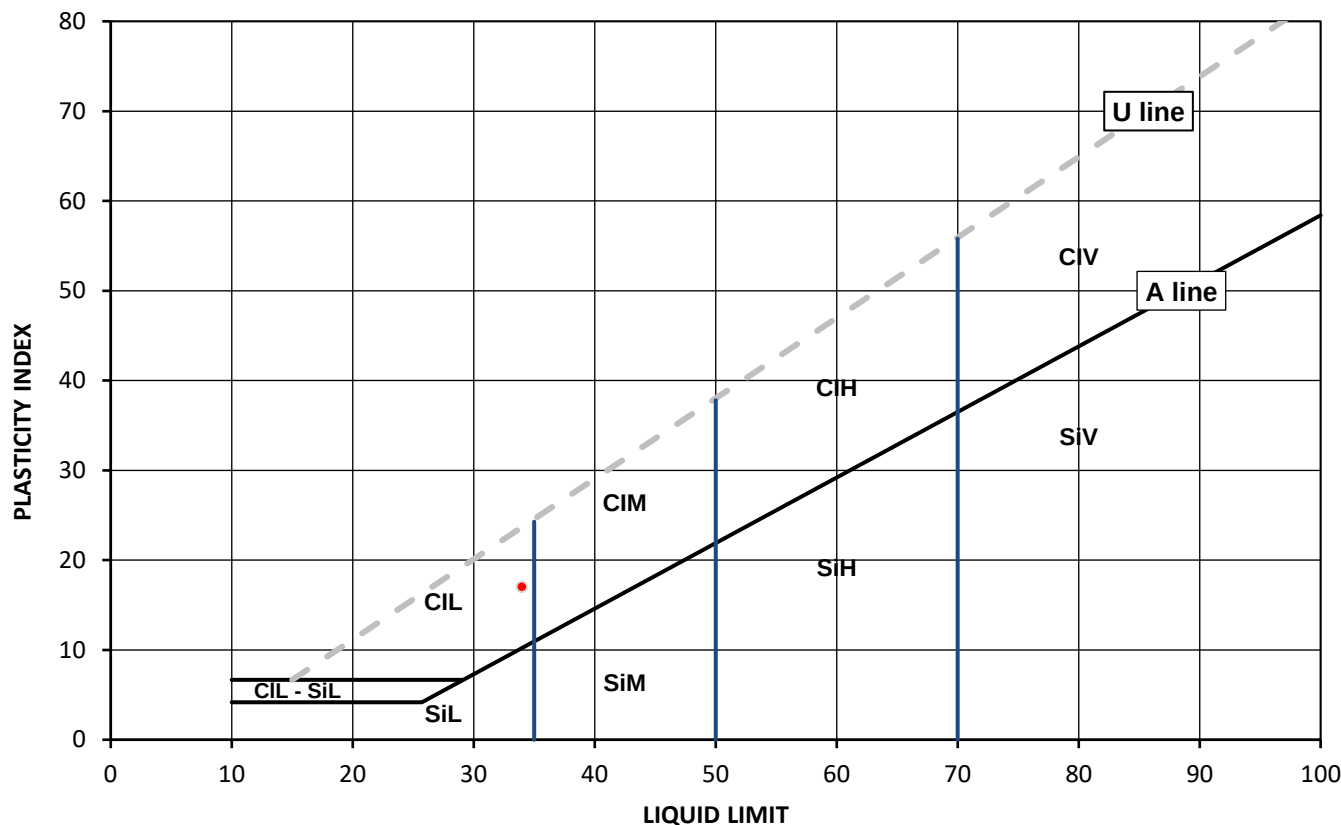
Test Results:

Laboratory Reference: 2413037
Hole No.: CP101
Sample Reference: 37
Sample Description: Light brown very sandy CLAY

Depth Top [m]: 16.50
Depth Base [m]: 12.95
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
44	34	17	17	100



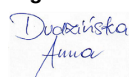
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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4041

Client: Delta-Simons
 Client Address: Suite C1, Joseph's Well,
 Hanover Walk, Leeds,
 LS3 1AB
 Contact: Jack Lott
 Site Address: Bennet Court

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990:
 Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2:
 1990: Clause 8.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: 22-0819.03

Job Number: 22-82077

Date Sampled: 25/08 - 26/08/2022

Date Received: 01/09/2022

Date Tested: 12/09/2022

Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um %	WL %	Wp %	Ip %	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
2413033	CP101	15	5.00	5.45	U	Grey sandy CLAY	Atterberg 4 Point	26		100	40	19	21						
2413036	CP101	29	12.50	12.95	U	Multicolour slightly sandy CLAY	Atterberg 4 Point	19		100	48	20	28						
2413037	CP101	37	16.50	12.95	D	Light brown very sandy CLAY	Atterberg 4 Point	44		100	34	17	17						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Anna Dudzinska
 PL Deputy Head of Reporting Team
 for and on behalf of i2 Analytical Ltd

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4041

Client: Delta-Simons
 Client Address: Suite C1, Joseph's Well,
 Hanover Walk, Leeds,
 LS3 1AB
 Contact: Jack Lott
 Site Address: Bennet Court

SUMMARY REPORT**DETERMINATION OF WATER CONTENT**

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
 Unit 8 Harrowden Road
 Brackmills Industrial Estate
 Northampton NN4 7EB



Environmental Science

Client Reference: 22-0819.03
 Job Number: 22-82077
 Date Sampled: 25/08 - 26/08/2022
 Date Received: 01/09/2022
 Date Tested: 12/09/2022
 Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2413033	CP101	15	5.00	5.45	U	Grey sandy CLAY		26	Sample was quartered, oven dried at 106.5 °C			
2413036	CP101	29	12.50	12.95	U	Multicolour slightly sandy CLAY		19	Sample was quartered, oven dried at 106.5 °C			
2413037	CP101	37	16.50	12.95	D	Light brown very sandy CLAY		44	Sample was quartered, oven dried at 107.6 °C			

Comments:

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Signed:

Anna Dudzinska
 PL Deputy Head of Reporting Team
 for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

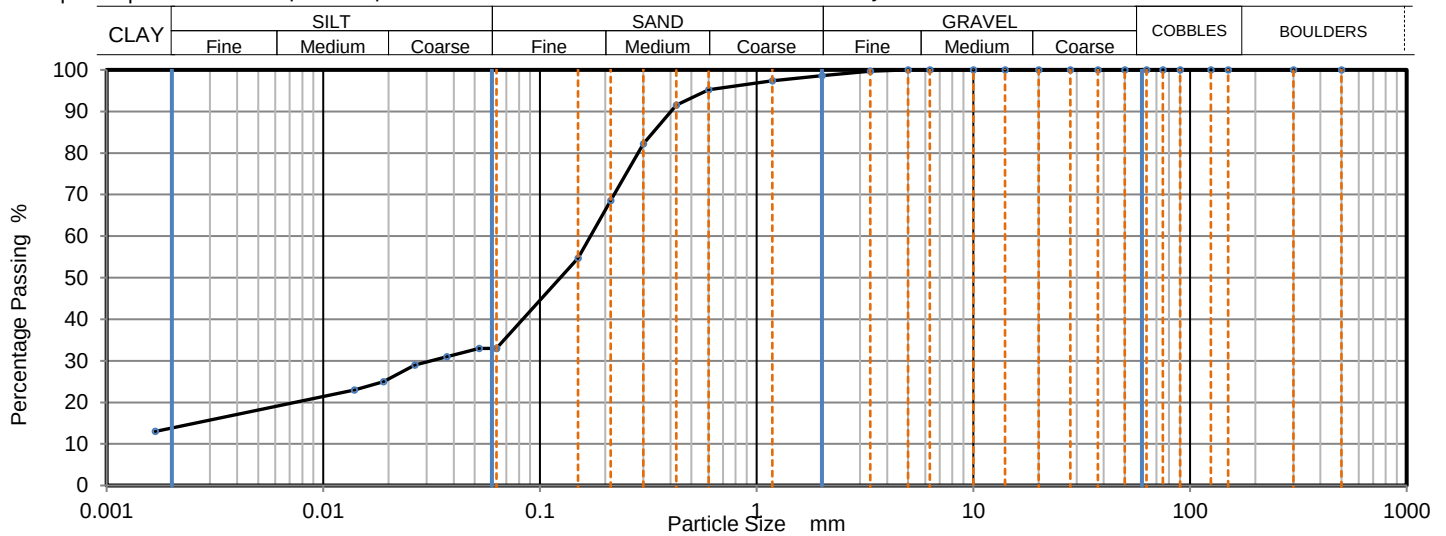
Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 26/08/2022
Date Received: 01/09/2022
Date Tested: 14/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2413034
Hole No.: CP101
Sample Reference: 18
Sample Description: Multicolor clayey silty SAND
Sample Preparation: Sample was quartered, oven dried at 109.0 °C and broken down by hand.

Depth Top [m]: 6.20
Depth Base [m]: 6.50
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	33
300	100	0.0523	33
150	100	0.0372	31
125	100	0.0265	29
90	100	0.0189	25
75	100	0.0139	23
63	100	0.0017	13
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100	Particle density (assumed) 2.65 Mg/m3	
2	99		
1.18	97		
0.6	95		
0.425	92		
0.3	82		
0.212	69		
0.15	55		
0.063	33		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	65
Silt	21
Clay	13

Grading Analysis	
D100	mm
D60	mm
D30	mm
D10	mm
Uniformity Coefficient	> 100
Curvature Coefficient	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

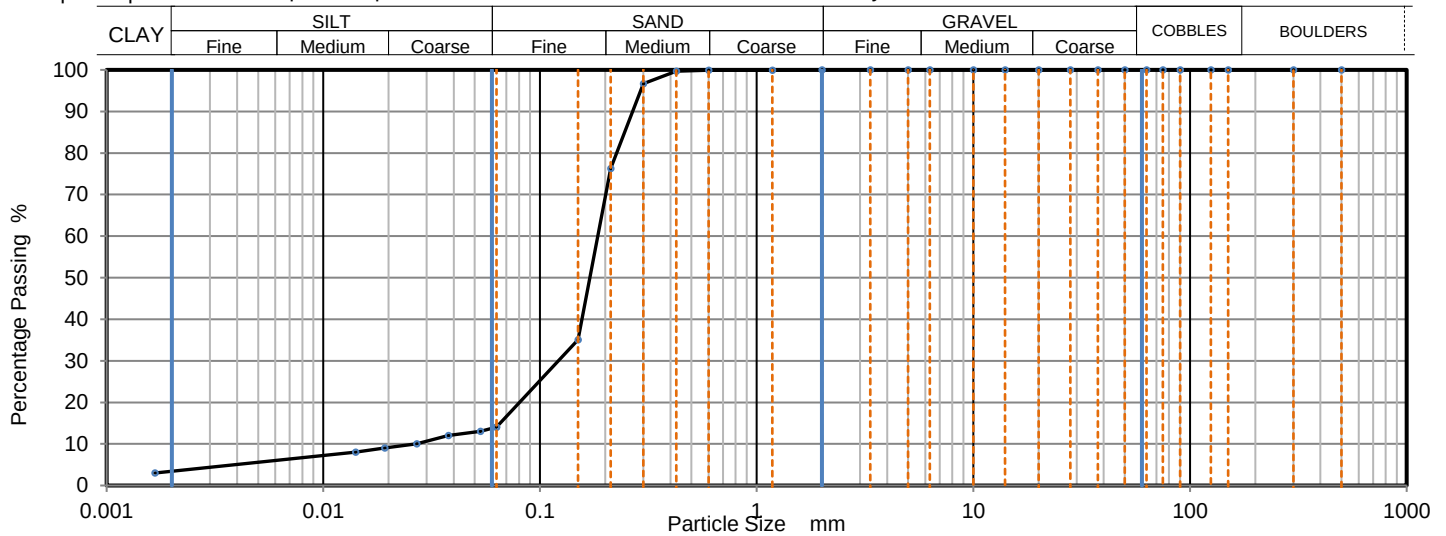
Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 26/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2413038
Hole No.: CP101
Sample Reference: 38
Sample Description: Brownish grey slightly clayey silty SAND
Sample Preparation: Sample was quartered, oven dried at 107.6 °C and broken down by hand.

Depth Top [m]: 17.00
Depth Base [m]: 17.45
Sample Type: D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	14
300	100	0.0531	13
150	100	0.0378	12
125	100	0.0270	10
90	100	0.0192	9
75	100	0.0141	8
63	100	0.0017	3
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100	Particle density (assumed) 2.65 Mg/m3	
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	97		
0.212	76		
0.15	35		
0.063	14		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	86
Silt	11
Clay	3

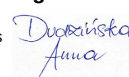
Grading Analysis		
D100	mm	3.35
D60	mm	0.185
D30	mm	0.121
D10	mm	0.0251
Uniformity Coefficient		7.4
Curvature Coefficient		3.2

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 25/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

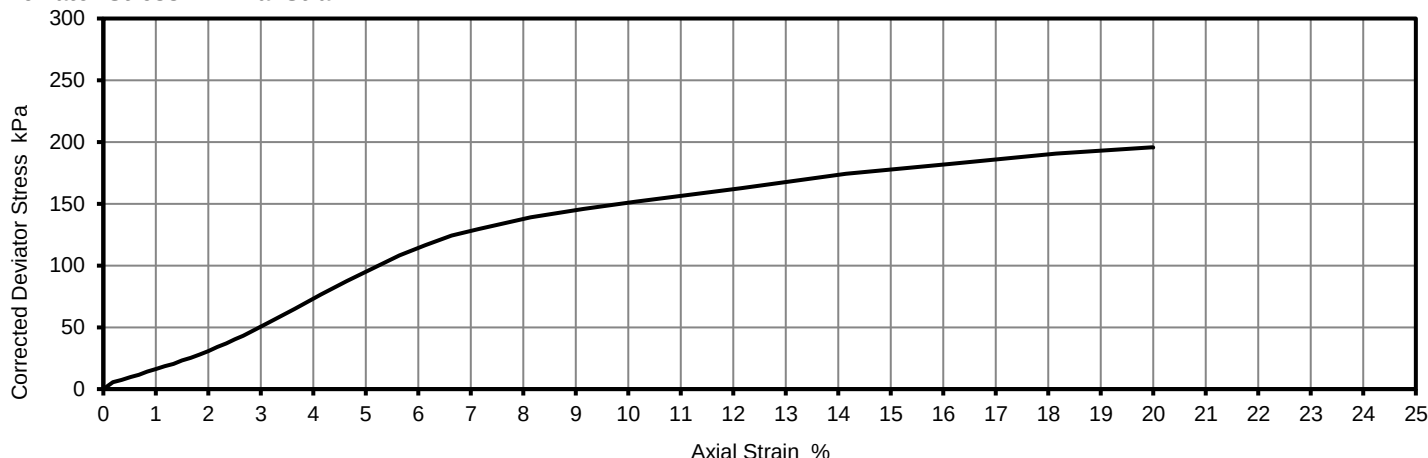
Test Results:

Laboratory Reference: 2413032
Hole No.: CP101
Sample Reference: 9
Sample Description: Yellowish brown to grey very sandy CLAY
Sample Preparation: Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.

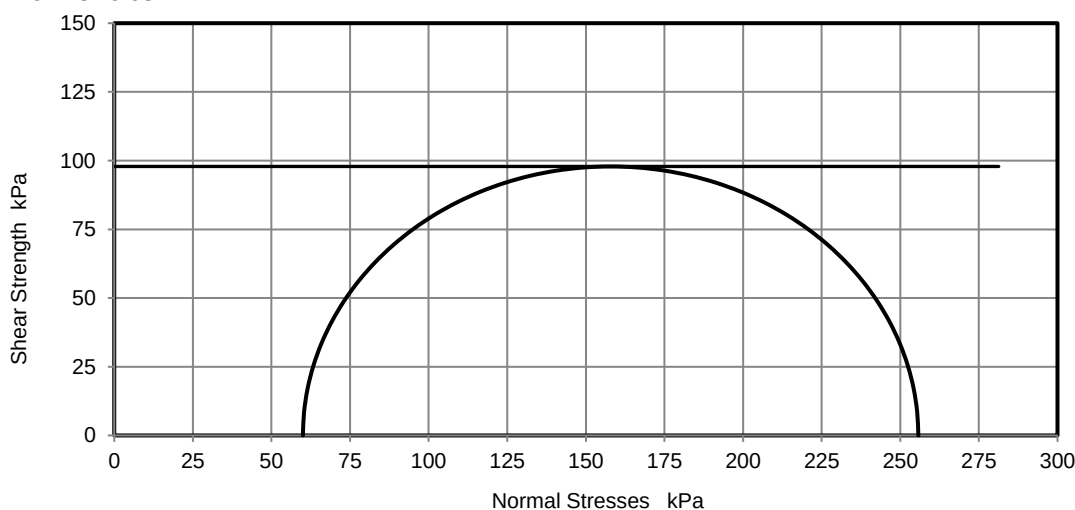
Depth Top [m]: 3.00
Depth Base [m]: 3.45
Sample Type: U

Test Number	1	Rate of Strain	1.98	%/min
Length	201.73	Cell Pressure	60	kPa
Diameter	101.24	Axial Strain at failure	20.0	%
Bulk Density	2.06	Deviator Stress, ($\sigma_1 - \sigma_3$) _f	196	kPa
Moisture Content	26	Undrained Shear Strength, c_u	98	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Dry Density	1.64	Mode of Failure	Compound	
Membrane Correction	1.10	Membrane thickness	0.29	mm

Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

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Signed:

Anna Dudzinska
Anna

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 26/08/2022
Date Received: 01/09/2022
Date Tested: 12/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

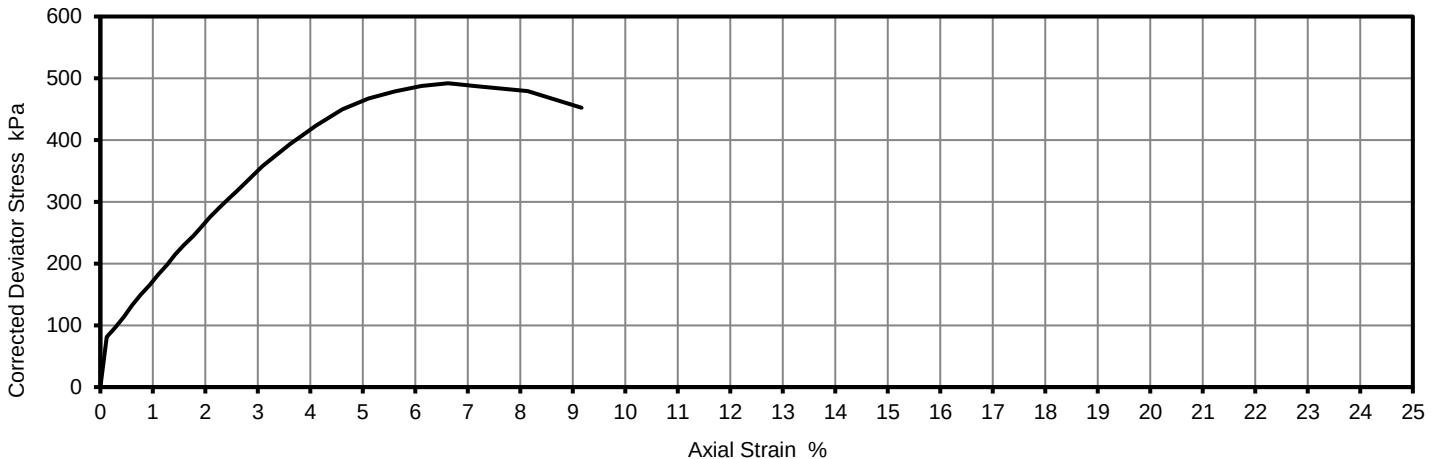
Test Results:

Laboratory Reference: 2413036
Hole No.: CP101
Sample Reference: 29
Sample Description: Multicolour slightly sandy CLAY
Sample Preparation: Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.

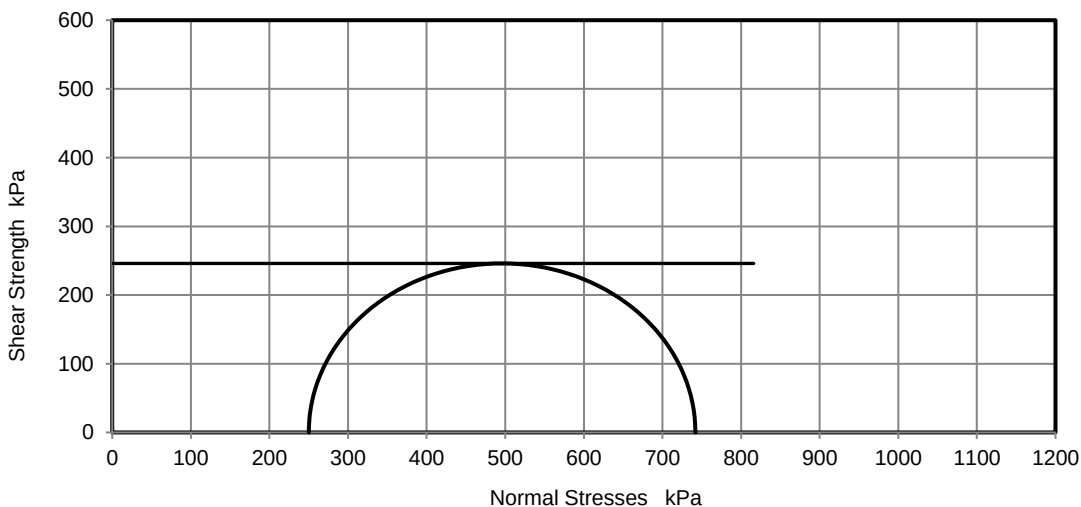
Depth Top [m]: 12.50
Depth Base [m]: 12.95
Sample Type: U

Test Number	1	Rate of Strain	2.00	%/min
Length	139.98	Cell Pressure	250	kPa
Diameter	68.93	Axial Strain at failure	6.6	%
Bulk Density	2.13	Deviator Stress, ($\sigma_1 - \sigma_3$) _f	492	kPa
Moisture Content	19	Undrained Shear Strength, c_u	246	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Dry Density	1.79	Mode of Failure	Compound	
Membrane Correction	0.61	Membrane thickness	0.25	mm

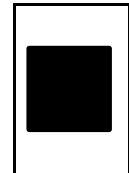
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

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Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

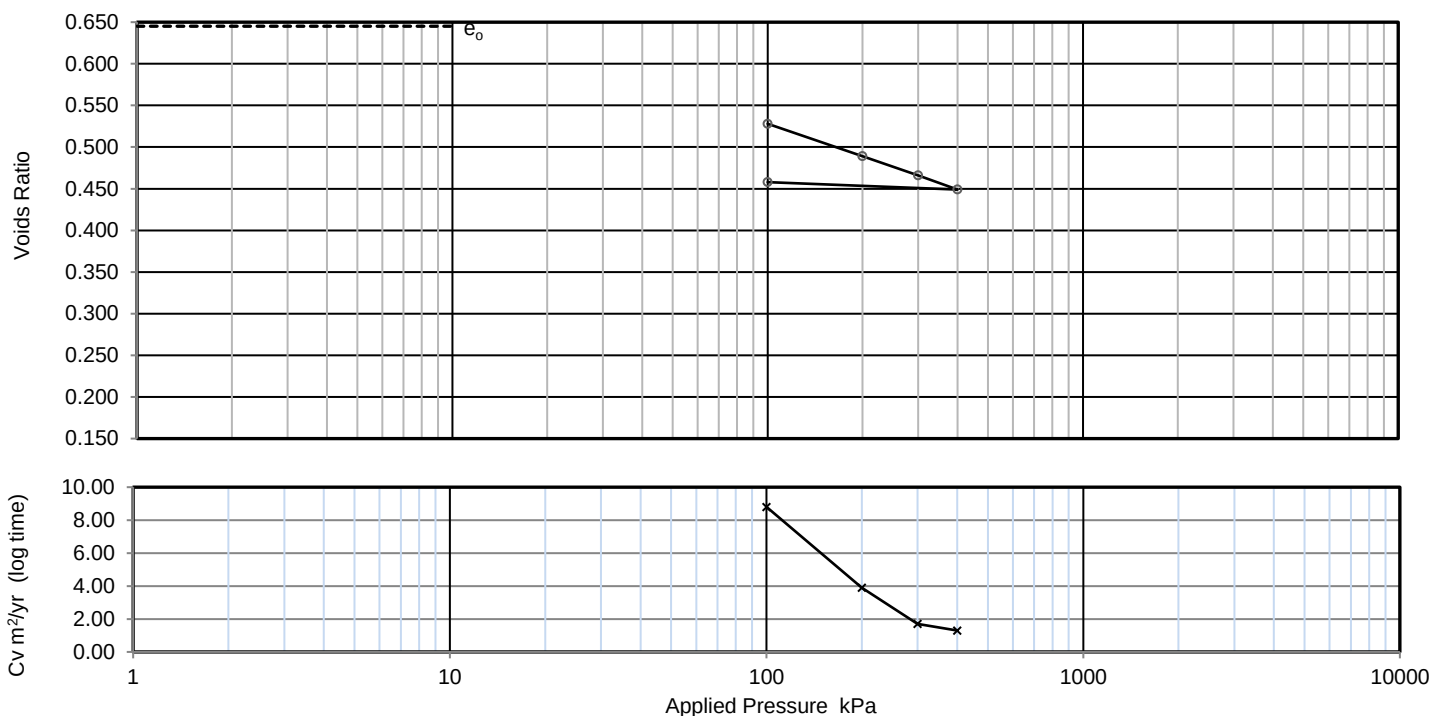
Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 25/08/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2413033
Hole No.: CP101
Sample Reference: 15
Sample Description: Dark brown silty CLAY

Depth Top [m]: 5.00
Depth Base [m]: 5.45
Sample Type: U

[illegible]

Preparation

Carried out on top of U100

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Vertical		
assumed	2.65	Mg/m3
N/A		%
N/A		%

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

Total test time

Initial	Final	
50.10	-	mm
20.10	17.81	mm
26	21	%
2.03	2.21	Mg/m3
1.61	1.82	Mg/m3
0.645	0.458	
108	123	%
22.0		°C
Not measured		kPa
		%
5		days

Note: Cv corrected to 20°C

Remarks:

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Signed:

Dupaińska
Anna

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

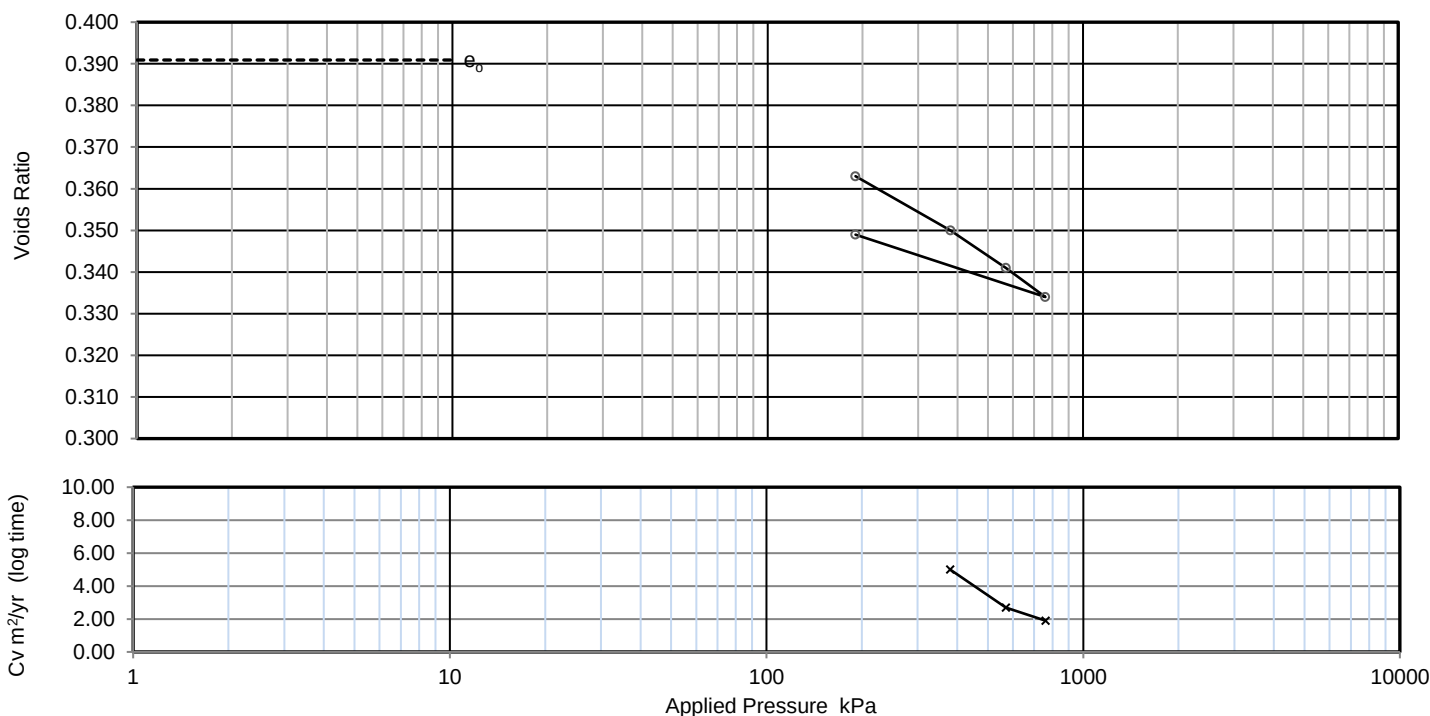
Client Reference: 22-0819.03
Job Number: 22-82077
Date Sampled: 26/08/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2413035
Hole No.: CP101
Sample Reference: 24
Sample Description: Brown to greenish grey silty CLAY

Depth Top [m]: 9.50
Depth Base [m]: 9.95
Sample Type: U

[illegible]

Preparation

Carried out on top of U100

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

Total test time

Vertical		
assumed	2.65	Mg/m3
N/A		%
N/A		%

Initial	Final	
50.10	-	mm
20.20	19.59	mm
18	16	%
2.24	2.29	Mg/m3
1.91	1.96	Mg/m3
0.391	0.349	
119	124	%
22.0		°C
Not measured		kPa
		%
5		days

Note: Cv corrected to 20°C

Remarks: Stiff soil.

Signed:

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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Page 1 of 1

Date Reported: 21/09/2022

GF 172.16



Jack Lott
Delta-Simons
Suite C1
Joseph's Well
Hanover Walk
Leeds
LS3 1AB

e: jack.lott@deltasimons.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 22-82084

Project / Site name:	Bennet Court	Samples received on:	01/09/2022
Your job number:	22 0819 03	Samples instructed on/ Analysis started on:	02/09/2022
Your order number:	DS69976	Analysis completed by:	15/09/2022
Report Issue Number:	1	Report issued on:	15/09/2022
Samples Analysed:	3 soil samples		

Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-82084

Project / Site name: Bennet Court

Lab Sample Number				2413065	2413066	2413067
Sample Reference				CP101	CP101	CP101
Sample Number				28	42	20
Depth (m)				12.00	19.50	7.50
Date Sampled				26/08/2022	26/08/2022	26/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	15	15
Total mass of sample received	kg	0.001	NONE	0.6	1	1

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.2	9.2	8.6
Total Sulphate as SO ₄	%	0.005	MCERTS	0.009	0.005	0.022
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	16	11	130
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0082	0.0057	0.064
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8.2	5.7	64.4
Total Sulphur	%	0.005	MCERTS	0.006	0.016	0.261

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-82084

Project / Site name: Bennet Court

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2413065	CP101	28	12	Brown clay and sand.
2413066	CP101	42	19.5	Brown sand.
2413067	CP101	20	7.5	Brown sand.

Analytical Report Number : 22-82084

Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

4041

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

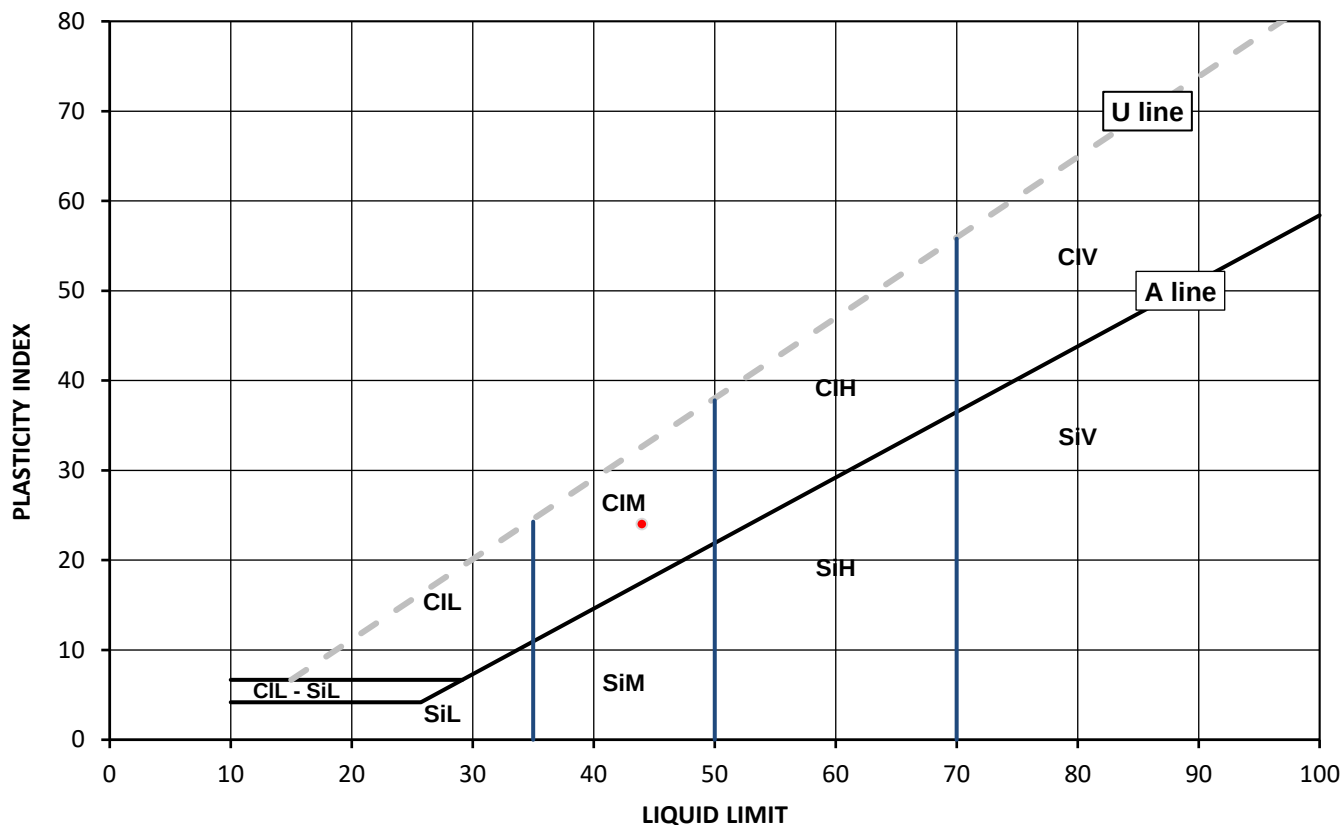
Test Results:

Laboratory Reference: 2414550
Hole No.: CP102 U24
Sample Reference: Not Given
Sample Description: Multicolour sandy CLAY

Depth Top [m]: 9.50
Depth Base [m]: 9.95
Sample Type: U

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	44	20	24	100



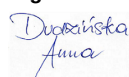
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L	Low
	M	Medium
	H	High
	V	Very high
	O	Organic
		append to classification for organic material (eg CIHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

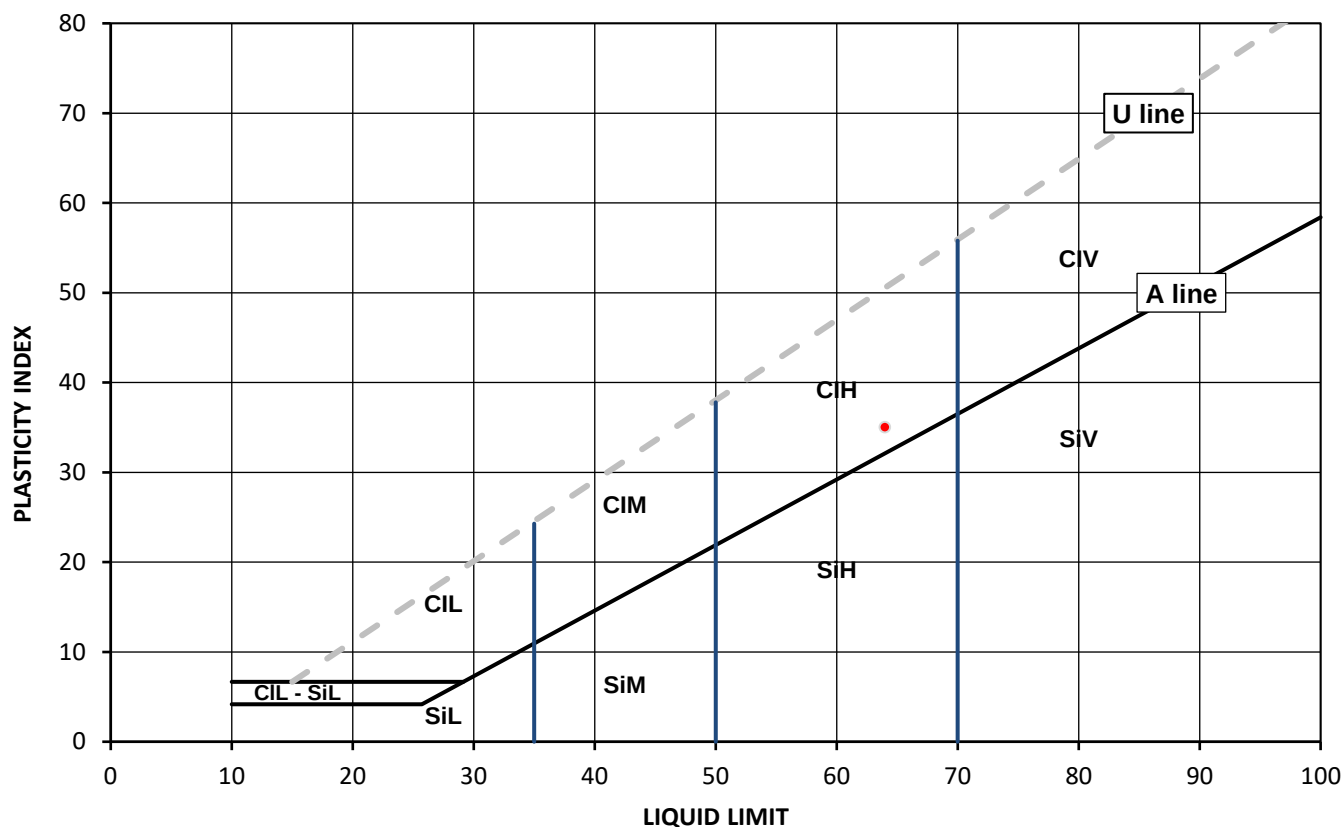
Test Results:

Laboratory Reference: 2414551
Hole No.: CP102 U29
Sample Reference: Not Given
Sample Description: Multicolour CLAY

Depth Top [m]: 12.50
Depth Base [m]: 12.95
Sample Type: U

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
24	64	29	35	100



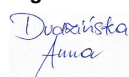
Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

	Plasticity	Liquid Limit
Cl	Clay	below 35
Si	Silt	35 to 50
	L Low	50 to 70
	M Medium	exceeding 70
	H High	append to classification for organic material (eg CIHO)
	V Very high	
	O Organic	

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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4041

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990:
Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2:
1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W] %	Water Content BS EN ISO 17892-2 [W] %	Atterberg				Density			Total Porosity# %		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m															
2414550	CP102 U24	Not Given	9.50	9.95	U	Multicolour sandy CLAY	Atterberg 4 Point	16		100	44	20	24						
2414551	CP102 U29	Not Given	12.50	12.95	U	Multicolour CLAY	Atterberg 4 Point	24		100	64	29	35						

Note: # Non accredited; NP - Non plastic

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



4041

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Environmental Science

Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type							
2414550	CP102 U24	Not Given	9.50	9.95	U	Multicolour sandy CLAY		16	Sample was quartered, oven dried at 106.5 °C			
2414551	CP102 U29	Not Given	12.50	12.95	U	Multicolour CLAY		24	Sample was quartered, oven dried at 106.5 °C			

Comments:

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Signed:

Dudzińska Anna

Anna Dudzińska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

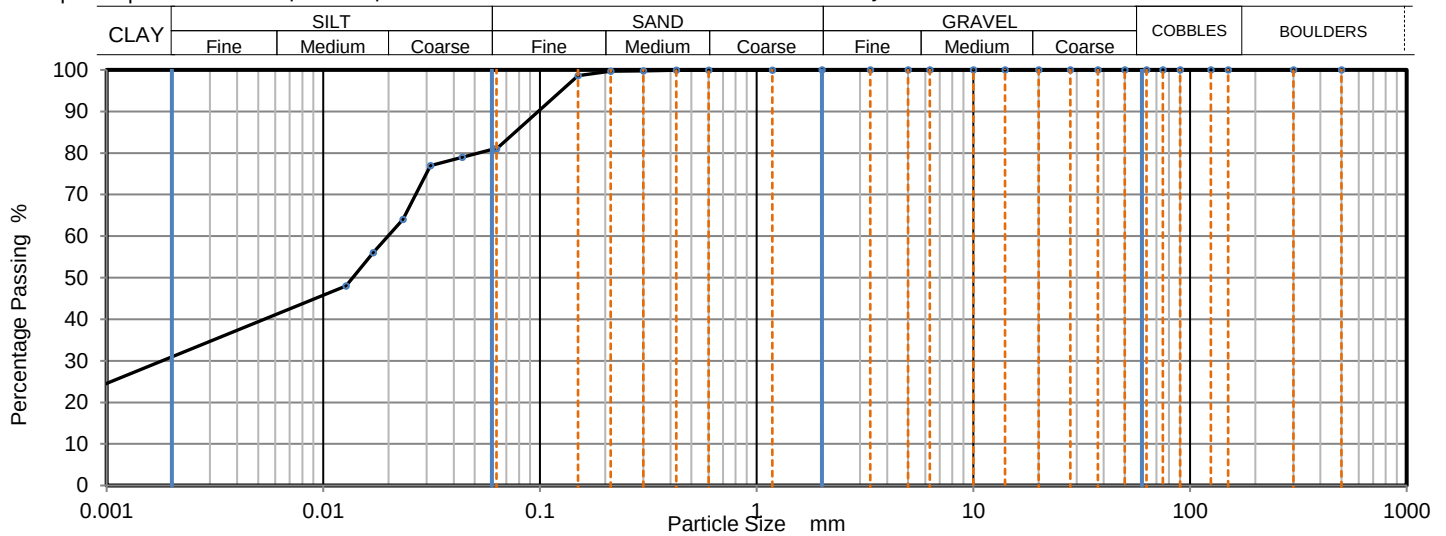
Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 15/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2414552
Hole No.: CP102 B34
Sample Reference: Not Given
Sample Description: Grey mottled brown sandy very clayey SILT
Sample Preparation: Sample was quartered, oven dried at 106.0 °C and broken down by hand.

Depth Top [m]: 15.50
Depth Base [m]: 16.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0613	81
300	100	0.0437	79
150	100	0.0312	77
125	100	0.0233	64
90	100	0.0170	56
75	100	0.0127	48
63	100	0.0008	23
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100	Particle density (assumed) 2.65 Mg/m3	
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	100		
0.15	99		
0.063	81		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	19
Silt	50
Clay	31

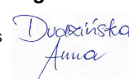
Grading Analysis		
D100	mm	5
D60	mm	0.0199
D30	mm	0.00175
D10	mm	
Uniformity Coefficient		> 24
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed:



Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

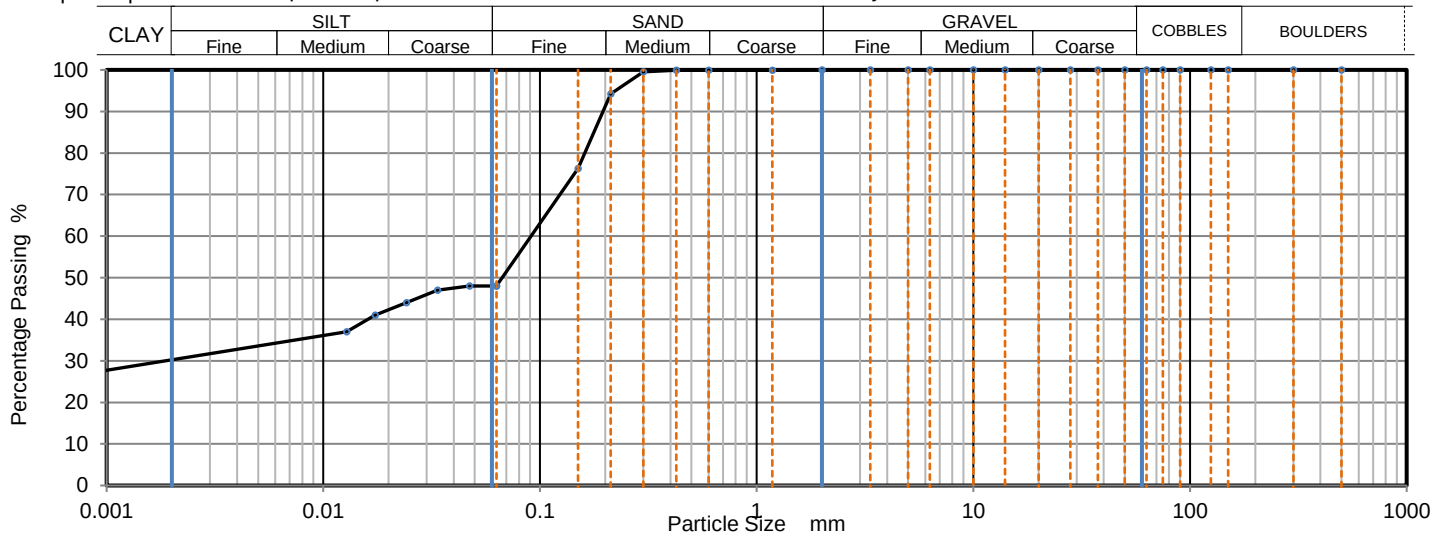
Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 15/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2414553
Hole No.: CP102 B42
Sample Reference: Not Given
Sample Description: Brownish grey silty very clayey SAND
Sample Preparation: Sample was quartered, oven dried at 106.6 °C and broken down by hand.

Depth Top [m]: 20.70
Depth Base [m]: 21.00
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	48
300	100	0.0473	48
150	100	0.0337	47
125	100	0.0242	44
90	100	0.0173	41
75	100	0.0128	37
63	100	0.0090	34
50	100	0.0075	32
37.5	100	0.0060	30
28	100	0.00475	28
20	100	0.00375	26
14	100	0.0025	24
10	100	0.00175	22
6.3	100	0.00106	20
5	100	0.00075	18
3.35	100	0.000475	16
2	100	0.00030	14
1.18	100	0.00015	12
0.6	100	0.000075	10
0.425	100		
0.3	100		
0.212	94		
0.15	76		
0.063	48		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	52
Silt	18
Clay	30

Grading Analysis		
D100	mm	3.35
D60	mm	0.0904
D30	mm	0.00196
D10	mm	
Uniformity Coefficient		> 110
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

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Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 13/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

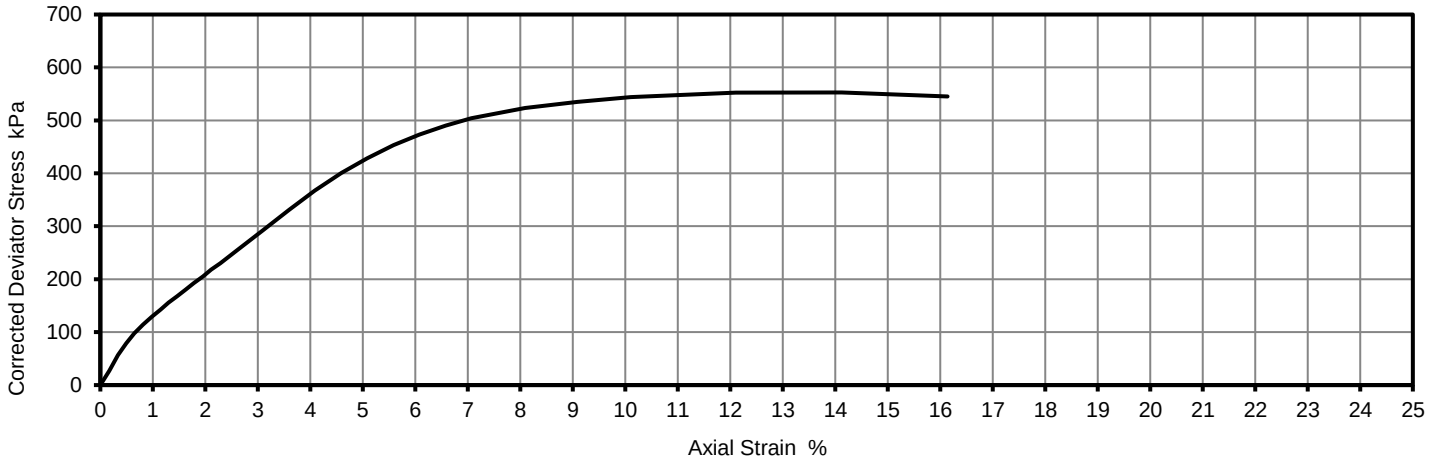
Test Results:

Laboratory Reference: 2414550
Hole No.: CP102 U24
Sample Reference: Not Given
Sample Description: Multicolour sandy CLAY
Sample Preparation: Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.

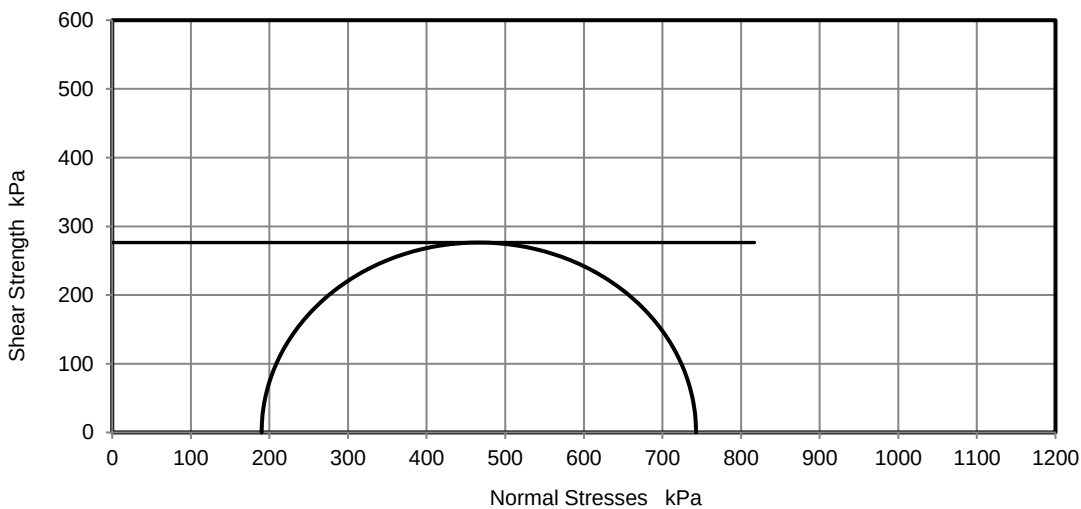
Depth Top [m]: 9.50
Depth Base [m]: 9.95
Sample Type: U

Test Number	1	Rate of Strain	1.99	%/min
Length	200.59	Cell Pressure	190	kPa
Diameter	102.77	Axial Strain at failure	14.1	%
Bulk Density	2.20	Deviator Stress, ($\sigma_1 - \sigma_3$) _f	553	kPa
Moisture Content	16	Undrained Shear Strength, c_u	276	kPa $\frac{1}{2}(\sigma_1 - \sigma_3)_f$
Dry Density	1.90	Mode of Failure	Compound	
Membrane Correction	0.82	Membrane thickness	0.29	mm

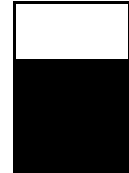
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377.
This is provided for information only.

Remarks:

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Signed:

Anna Dudzinska

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB



Client: Delta-Simons
Client Address: Suite C1, Joseph's Well,
Hanover Walk, Leeds,
LS3 1AB
Contact: Jack Lott
Site Address: Bennet Court

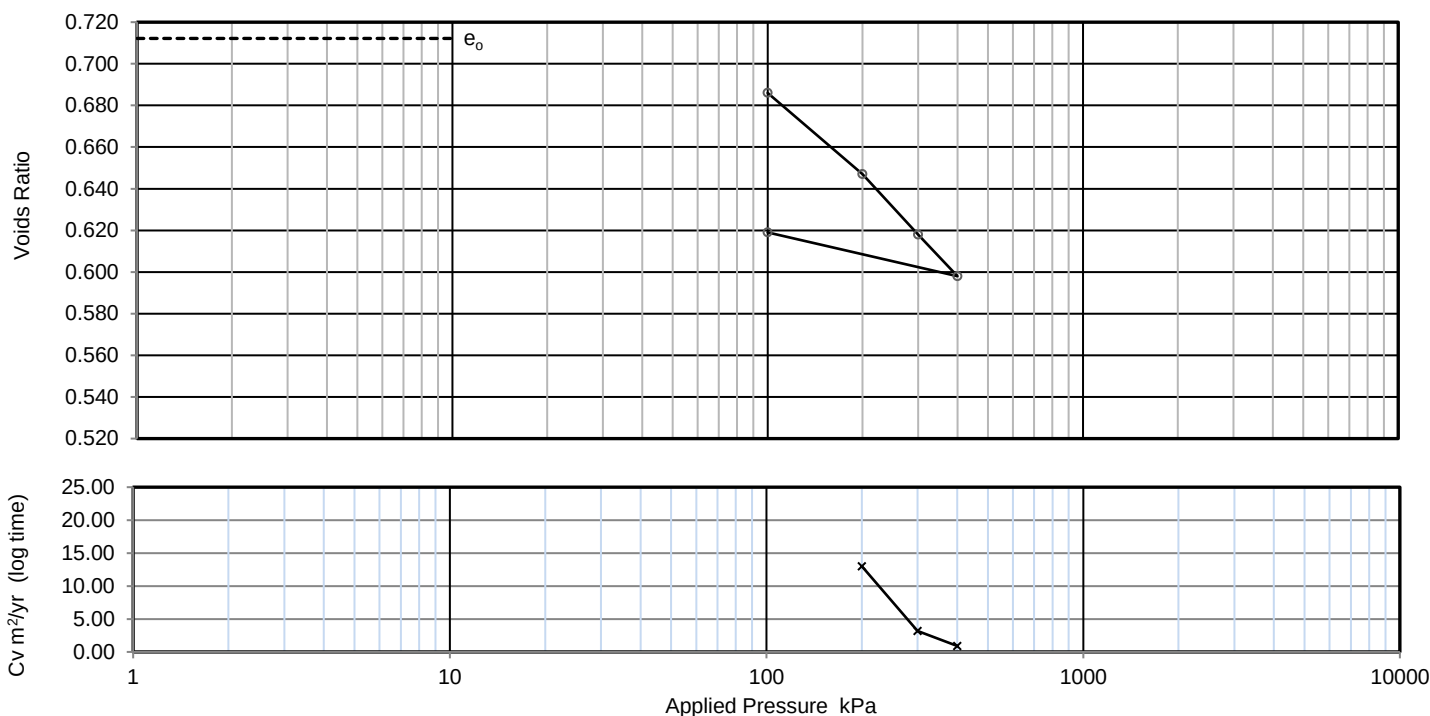
Client Reference: 22-0819.03
Job Number: 22-82319
Date Sampled: 01/09/2022
Date Received: 01/09/2022
Date Tested: 14/09/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference: 2414551
Hole No.: CP102 U29
Sample Reference: Not Given
Sample Description: Multicolour CLAY

Depth Top [m]: 12.50
Depth Base [m]: 12.95
Sample Type: U

[illegible]

Preparation

Carried out on top of U100

Index tests

Orientation of the sample

Particle density

Liquid limit

Plastic limit

Specimen details

Diameter

Height

Moisture Content

Bulk density

Dry density

Voids Ratio

Saturation

Avg. temperature for test

Swelling Pressure

Settlement on saturation

Total test time

Vertical		
assumed	2.65	Mg/m3
N/A		%
N/A		%

Initial	Final	
50.00	-	mm
20.10	19.00	mm
26	26	%
1.95	2.06	Mg/m ³
1.55	1.64	Mg/m ³
0.712	0.619	
96	111	%
22.0		°C
Not measured		kPa
		%
5		days

Note: Cv corrected to 20°C

Remarks:

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Signed:

Dupaińska
Anna

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd



Jack Lott
Delta-Simons
Suite C1
Joseph's Well
Hanover Walk
Leeds
LS3 1AB

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: jack.lott@deltasimons.com

Analytical Report Number : 22-82866

Project / Site name:	Bennet Court	Samples received on:	01/09/2022
Your job number:	22-0819.03	Samples instructed on/ Analysis started on:	05/09/2022
Your order number:		Analysis completed by:	20/09/2022
Report Issue Number:	1	Report issued on:	20/09/2022
Samples Analysed:	3 soil samples		

Signed:

Izabela Wójcik

Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-82866

Project / Site name: Bennet Court

Lab Sample Number				2417701	2417702
Sample Reference				CP102 D31	CP102 D43
Sample Number				None Supplied	None Supplied
Depth (m)				13.50	21.00
Date Sampled				31/08/2022	31/08/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	10	27
Total mass of sample received	kg	0.001	NONE	0.6	0.6

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9	8.8
Total Sulphate as SO ₄	%	0.005	MCERTS	0.01	0.012
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	36	30
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.015
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	18.1	15
Total Sulphur	%	0.005	MCERTS	0.011	0.018

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-82866

Project / Site name: Bennet Court

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2417701	CP102 D31	None Supplied	13.5	Brown clay.
2417702	CP102 D43	None Supplied	21	Light brown clay.

Analytical Report Number : 22-82866

Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Appendix D - Soil Chemical Analysis Results

Jack Lott
Delta-Simons
Unit 3, Chalk Hill House
Rosary Road
Norwich
NR1 1SZ

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e: jack.lott@deltasimons.com

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7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 22-79990

Project / Site name:	Bennet Court	Samples received on:	24/08/2022
Your job number:	22 0819 03	Samples instructed on/ Analysis started on:	24/08/2022
Your order number:	DS69976	Analysis completed by:	06/09/2022
Report Issue Number:	1	Report issued on:	06/09/2022
Samples Analysed:	9 soil samples		


Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number				2401153	2401154	2401155	2401156	2401157
Sample Reference				DS101	DS103	DS107	DS107	DS104
Sample Number				ES1	ES3	ES1	ES2	ES2
Depth (m)				0.20	0.90	0.50	1.00	0.80
Date Sampled				22/08/2022	22/08/2022	22/08/2022	22/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	35	37	23	< 0.1
Moisture Content	%	0.01	NONE	3.9	4.4	4.9	5.9	11
Total mass of sample received	kg	0.001	NONE	0.5	0.8	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	8.5	8.3	8.2	8.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	9	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	9	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	6.7	59	200	52	320
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0033	0.03	0.099	0.026	0.16
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	3.3	29.5	99.1	25.8	161
Organic Matter (automated)	%	0.1	MCERTS	2	-	1.1	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.2	0.3	0.6	0.2	0.7

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.31	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	3.2	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	3.2	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.4	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1.6	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.6	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.3	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.5	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.35	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.9	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	21.7	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number	2401153	2401154	2401155	2401156	2401157
Sample Reference	DS101	DS103	DS107	DS107	DS104
Sample Number	ES1	ES3	ES1	ES2	ES2
Depth (m)	0.20	0.90	0.50	1.00	0.80
Date Sampled	22/08/2022	22/08/2022	22/08/2022	22/08/2022	23/08/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	9.5	8.1	31	8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.6	0.5	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	25	14	17	17	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	14	17	17	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	6	11	7.6	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34	23	48	14	28
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	11	9	23	11
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	52	65	70	35	45

Monoaromatics & Oxygenates

Benzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
p & m-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
o-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	3	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	11	130	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	23	330	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	8.9	120	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_1D_AL	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	MCERTS	< 10	42	590	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	42	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	130	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	18	< 10	38	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	26	< 10	210	< 10	< 10

TPH (C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
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Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number	2401153	2401154	2401155	2401156	2401157
Sample Reference	DS101	DS103	DS107	DS107	DS104
Sample Number	ES1	ES3	ES1	ES2	ES2
Depth (m)	0.20	0.90	0.50	1.00	0.80
Date Sampled	22/08/2022	22/08/2022	22/08/2022	22/08/2022	23/08/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chloroethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromomethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Vinyl Chloride	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trichlorofluoromethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,2-Trichloro 1,2,2-Trifluoroethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cis-1,2-dichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
2,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloropropene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans-1,2-dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Benzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tetrachloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dibromomethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromodichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cis-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,2-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dibromochloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tetrachloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dibromoethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
p & m-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Styrene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Tribromomethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
o-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,2,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Isopropylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
n-Propylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
2-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
4-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3,5-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
tert-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
sec-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichlorobenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
p-Isopropyltoluene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,4-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dibromo-3-chloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Hexachlorobutadiene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010

Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number				2401153	2401154	2401155	2401156	2401157
Sample Reference				DS101	DS103	DS107	DS107	DS104
Sample Number				ES1	ES3	ES1	ES2	ES2
Depth (m)				0.20	0.90	0.50	1.00	0.80
Date Sampled				22/08/2022	22/08/2022	22/08/2022	22/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,3-Trichlorobenzene								

Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number	2401153	2401154	2401155	2401156	2401157
Sample Reference	DS101	DS103	DS107	DS107	DS104
Sample Number	ES1	ES3	ES1	ES2	ES2
Depth (m)	0.20	0.90	0.50	1.00	0.80
Date Sampled	22/08/2022	22/08/2022	22/08/2022	22/08/2022	23/08/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	0.21	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	1	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.31	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	3.2	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	3.2	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.4	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1.6	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.6	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.3	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.5	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.35	< 0.05	< 0.05	< 0.05	< 0.05

Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number				2401153	2401154	2401155	2401156	2401157
Sample Reference				DS101	DS103	DS107	DS107	DS104
Sample Number				ES1	ES3	ES1	ES2	ES2
Depth (m)				0.20	0.90	0.50	1.00	0.80
Date Sampled				22/08/2022	22/08/2022	22/08/2022	22/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
	mg/kg	0.05	MCERTS	1.9	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene								

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number				2401158	2401159	2401160	2401161
Sample Reference				DS108	DS105	DS110	CDP103
Sample Number				ES2	ES2	ES2	ES2
Depth (m)				0.70	0.80	1.00	0.90
Date Sampled				23/08/2022	23/08/2022	23/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	8.5	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	6.1	8.2	12	9.5
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	7.9	9.2	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	13	210	410	31
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0066	0.1	0.2	0.016
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	6.6	105	204	15.5
Organic Matter (automated)	%	0.1	MCERTS	-	-	0.8	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.2	0.4	0.5	0.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80
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Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number				2401158	2401159	2401160	2401161
Sample Reference				DS108	DS105	DS110	CDP103
Sample Number				ES2	ES2	ES2	ES2
Depth (m)				0.70	0.80	1.00	0.90
Date Sampled				23/08/2022	23/08/2022	23/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	17	9.3	8.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	22	28	25	14
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	28	25	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.8	12	17	8.3
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	12	40	9.7
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.5	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	24	20	13
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	36	37	75	24
Monoaromatics & Oxygenates							
Benzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
p & m-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
o-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	6.1	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	11	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	25	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_1D_AL	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	MCERTS	< 10	42	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH (C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10

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Project / Site name: Bennet Court

Lab Sample Number				2401158	2401159	2401160	2401161
Sample Reference				DS108	DS105	DS110	CDP103
Sample Number				ES2	ES2	ES2	ES2
Depth (m)				0.70	0.80	1.00	0.90
Date Sampled				23/08/2022	23/08/2022	23/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
Chloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chloroethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromomethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Vinyl Chloride	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trichlorofluoromethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,2-Trichloro 1,2,2-Trifluoroethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cis-1,2-dichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
2,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloropropene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans-1,2-dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Benzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tetrachloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dibromomethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromodichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Cis-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Toluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,2-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dibromochloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tetrachloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dibromoethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
p & m-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Styrene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
Tribromomethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010	< 0.0010
o-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,2,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Isopropylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
n-Propylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
2-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
4-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3,5-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
tert-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
sec-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichlorobenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
p-Isopropyltoluene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,4-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dibromo-3-chloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Hexachlorobutadiene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010	< 0.0010

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Project / Site name: Bennet Court

Lab Sample Number				2401158	2401159	2401160	2401161
Sample Reference				DS108	DS105	DS110	CDP103
Sample Number				ES2	ES2	ES2	ES2
Depth (m)				0.70	0.80	1.00	0.90
Date Sampled				23/08/2022	23/08/2022	23/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,3-Trichlorobenzene							

Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number				2401158	2401159	2401160	2401161
Sample Reference				DS108	DS105	DS110	CDP103
Sample Number				ES2	ES2	ES2	ES2
Depth (m)				0.70	0.80	1.00	0.90
Date Sampled				23/08/2022	23/08/2022	23/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05

Analytical Report Number: 22-79990
Project / Site name: Bennet Court

Lab Sample Number				2401158	2401159	2401160	2401161
Sample Reference				DS108	DS105	DS110	CDP103
Sample Number				ES2	ES2	ES2	ES2
Depth (m)				0.70	0.80	1.00	0.90
Date Sampled				23/08/2022	23/08/2022	23/08/2022	23/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene							

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-79990
Project / Site name: Bennet Court

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2401153	DS101	ES1	0.2	Brown loam and clay with gravel.
2401154	DS103	ES3	0.9	Brown sandy clay with gravel and stones.
2401155	DS107	ES1	0.5	Brown sandy clay with gravel and stones.
2401156	DS107	ES2	1	Brown sandy clay with gravel and stones.
2401157	DS104	ES2	0.8	Brown loam and clay with gravel.
2401158	DS108	ES2	0.7	Brown sand with gravel.
2401159	DS105	ES2	0.8	Brown clay and loam with gravel and stones.
2401160	DS110	ES2	1	Brown sandy clay with gravel and brick.
2401161	CDP103	ES2	0.9	Brown sand with gravel.

Analytical Report Number : 22-79990

Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

Analytical Report Number : 22-79990
Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Topsoil Organic Matter	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate. (Walkley Black Method)	In house method.	L023-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

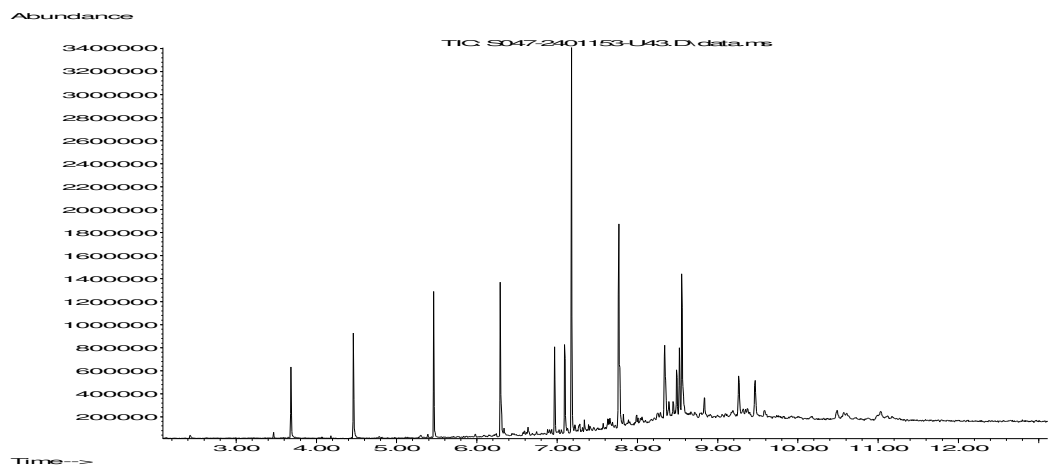
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

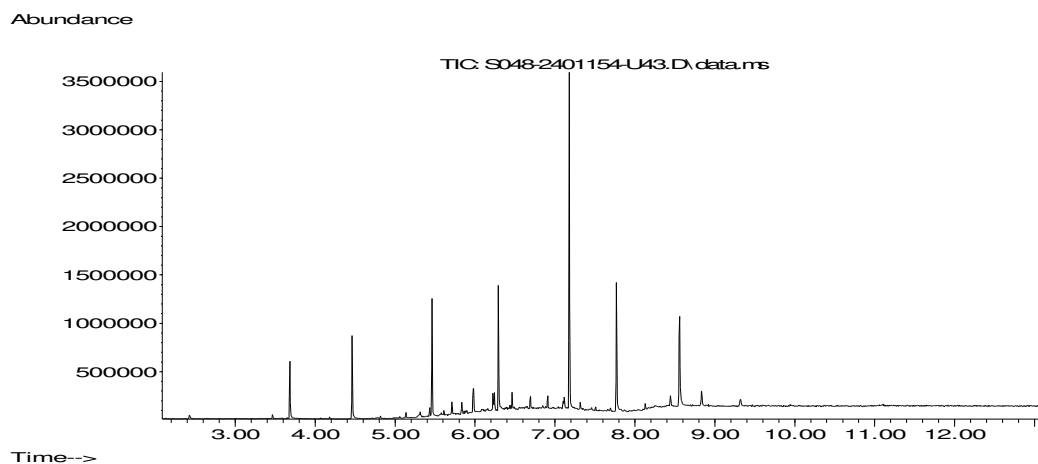
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

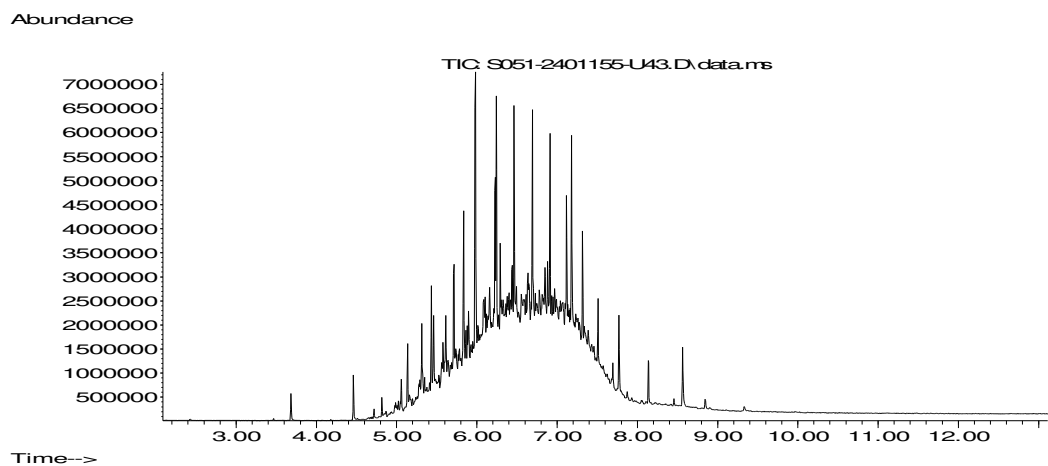
Information in Support of Analytical Results

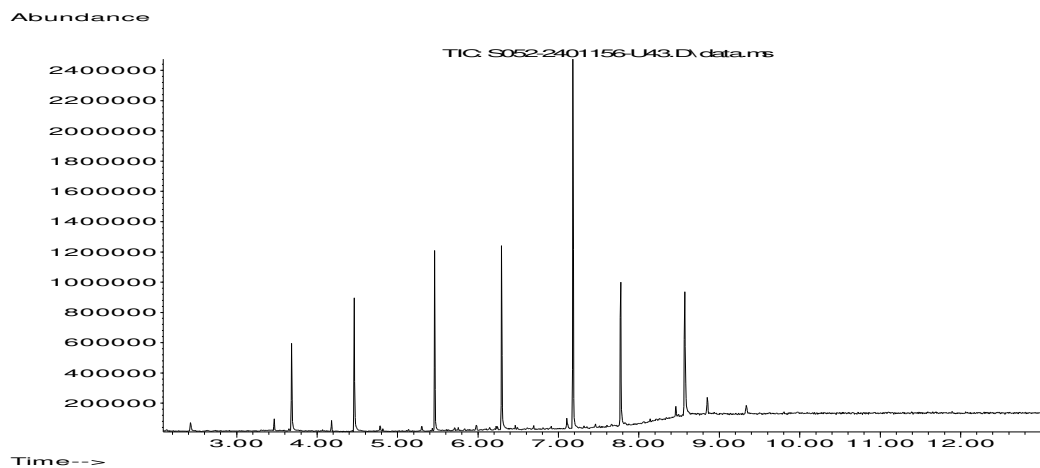
List of HWOL Acronyms and Operators

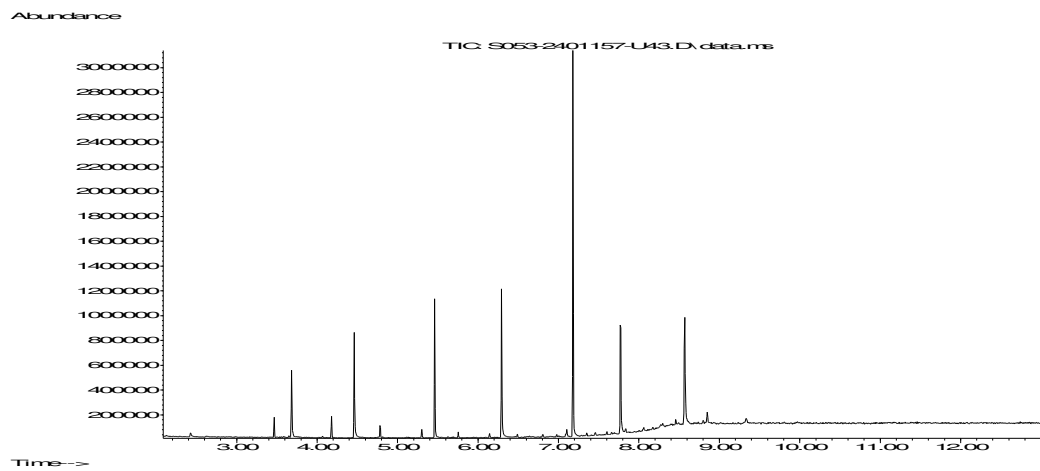
Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

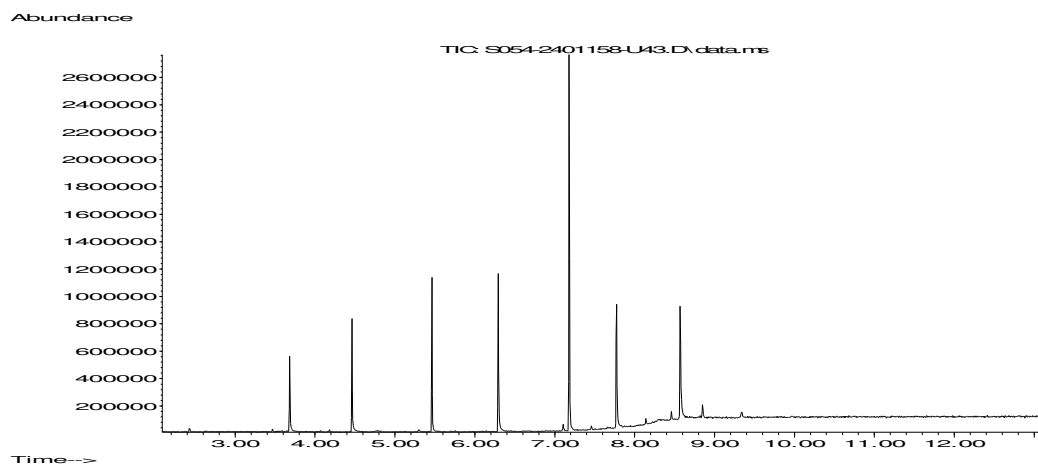


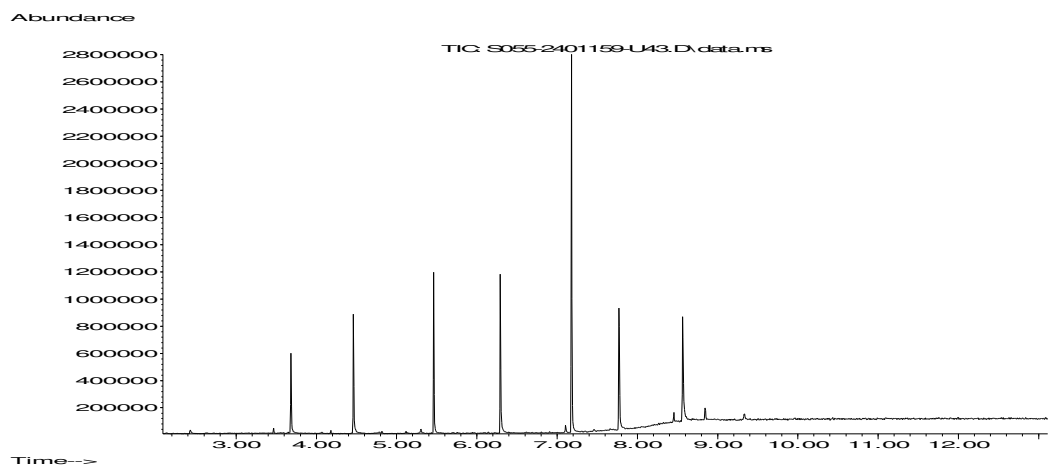


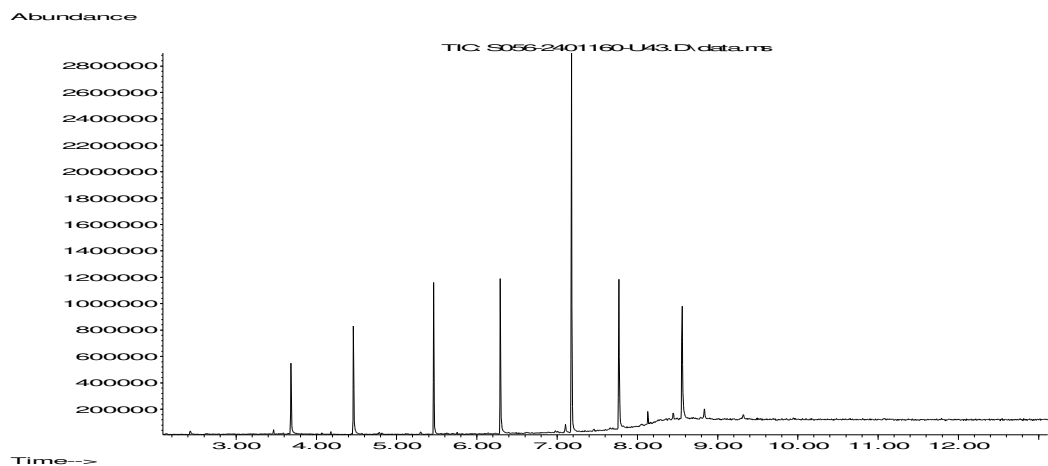


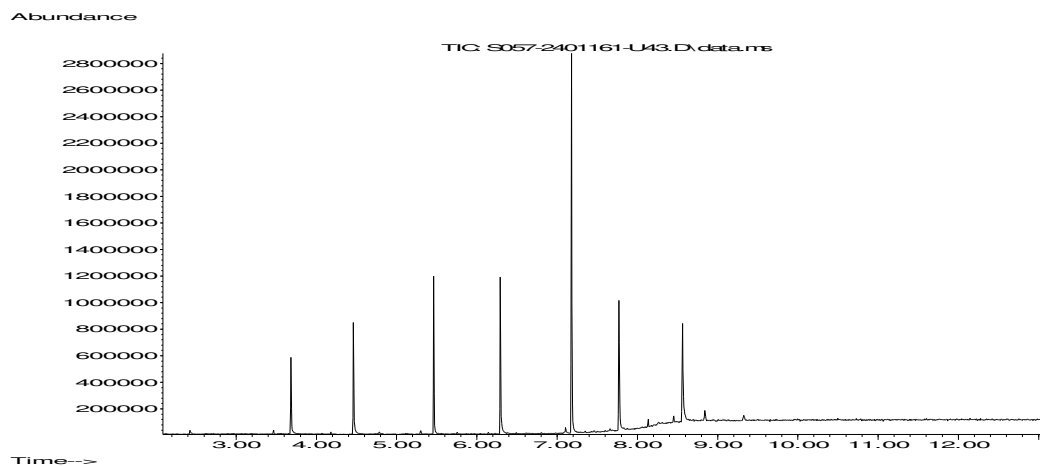












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Analytical Report Number : 22-80596

Project / Site name: Bennet court

Samples received on: 26/08/2022

Your job number: 22 0819.03

**Samples instructed on/
Analysis started on:** 26/08/2022

Your order number:

Analysis completed by: 06/09/2022

Report Issue Number: 1

Report issued on: 06/09/2022

Samples Analysed: 3 soil samples



Signed:

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-80596
Project / Site name: Bennet court

Lab Sample Number				2404471	2404472	2404473
Sample Reference				DS109	DS102	CP101
Sample Number				ES1	ES1	ES2
Depth (m)				0.65	0.20	1.00
Date Sampled				24/08/2022	24/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.6	2.8	9.4
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN	MJN

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.7	8.8	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	340	350	150
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.17	0.18	0.074
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	172	177	73.7
Organic Matter (automated)	%	0.1	MCERTS	-	4.2	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.7	2.4	0.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.24	22	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	14	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	19	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	32	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.3	220	0.65
Anthracene	mg/kg	0.05	MCERTS	0.3	58	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.1	220	0.42
Pyrene	mg/kg	0.05	MCERTS	1.1	190	0.81
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.76	110	0.33
Chrysene	mg/kg	0.05	MCERTS	0.5	67	0.21
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.73	83	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.3	59	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.59	110	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.28	51	< 0.05
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	14	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.39	65	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	7.45	1330	2.42
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	17	31
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	16	18	25
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	19	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	44	12	8.3
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	77	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3

Analytical Report Number: 22-80596
Project / Site name: Bennet court

Lab Sample Number				2404471	2404472	2404473
Sample Reference				DS109	DS102	CP101
Sample Number				ES1	ES1	ES2
Depth (m)				0.65	0.20	1.00
Date Sampled				24/08/2022	24/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)						
	Units	Limit of detection	Accreditation Status			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	18	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	64	52	60

Analytical Report Number: 22-80596
Project / Site name: Bennet court

Lab Sample Number	2404471	2404472	2404473
Sample Reference	DS109	DS102	CP101
Sample Number	ES1	ES1	ES2
Depth (m)	0.65	0.20	1.00
Date Sampled	24/08/2022	24/08/2022	25/08/2022
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Monoaromatics & Oxygenates

Benzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
Toluene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
p & m-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
o-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS,1D,AL}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS,1D,AL}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS,1D,AL}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH,CU,1D,AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH,CU,1D,AL}	mg/kg	2	MCERTS	< 2.0	5.8	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	< 8.0	14	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	67	100	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 _{EH,CU,1D,AL}	mg/kg	10	NONE	20	54	< 10
TPH-CWG - Aliphatic (EC5 - EC35) _{EH,CU+HS,1D,AL}	mg/kg	10	MCERTS	70	120	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS,1D,AR}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS,1D,AR}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS,1D,AR}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH,CU,1D,AR}	mg/kg	1	MCERTS	< 1.0	26	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH,CU,1D,AR}	mg/kg	2	MCERTS	< 2.0	100	18
TPH-CWG - Aromatic >EC16 - EC21 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	< 10	480	30
TPH-CWG - Aromatic >EC21 - EC35 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	22	970	23
TPH-CWG - Aromatic >EC35 - EC40 _{EH,CU,1D,AR}	mg/kg	10	NONE	< 10	190	< 10
TPH-CWG - Aromatic (EC5 - EC35) _{EH,CU+HS,1D,AR}	mg/kg	10	MCERTS	29	1600	70

TPH (C35 - C40) _{EH,CU,1D,TOTAL}	mg/kg	10	MCERTS	20	240	< 10
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Analytical Report Number: 22-80596
Project / Site name: Bennet court

Lab Sample Number				2404471	2404472	2404473
Sample Reference				DS109	DS102	CP101
Sample Number				ES1	ES1	ES2
Depth (m)				0.65	0.20	1.00
Date Sampled				24/08/2022	24/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status

VOCs

Chloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Chloroethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010
Bromomethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Vinyl Chloride	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010
Trichlorofluoromethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010
1,1,2-Trichloro 1,2,2-Trifluoroethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Cis-1,2-dichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
2,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Trichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,1,1-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloropropene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Trans-1,2-dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010
Benzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Tetrachloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Trichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Dibromomethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Bromodichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Cis-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Trans-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Toluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,1,2-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,3-Dichloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Dibromochloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Tetrachloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010
1,2-Dibromoethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
Chlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,1,1,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
p & m-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Styrene	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
Tribromomethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010	< 0.0010
o-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,1,2,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Isopropylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Bromobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
n-Propylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
2-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
4-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,3,5-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
tert-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
sec-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,3-Dichlorobenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
p-Isopropyltoluene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
1,2-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,4-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010

Analytical Report Number: 22-80596
Project / Site name: Bennet court

Lab Sample Number				2404471	2404472	2404473
Sample Reference				DS109	DS102	CP101
Sample Number				ES1	ES1	ES2
Depth (m)				0.65	0.20	1.00
Date Sampled				24/08/2022	24/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
1,2-Dibromo-3-chloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
Hexachlorobutadiene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010	< 0.0010
1,2,3-Trichlorobenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010	< 0.0010

Analytical Report Number: 22-80596
Project / Site name: Bennet court

Lab Sample Number	2404471	2404472	2404473
Sample Reference	DS109	DS102	CP101
Sample Number	ES1	ES1	ES2
Depth (m)	0.65	0.20	1.00
Date Sampled	24/08/2022	24/08/2022	25/08/2022
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	0.24	22	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	11	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	14	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	19	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	28	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	32	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	1.3	220	0.65
Anthracene	mg/kg	0.05	MCERTS	0.3	58	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	25	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	14	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	1.1	220	0.42
Pyrene	mg/kg	0.05	MCERTS	1.1	190	0.81
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.76	110	0.33
Chrysene	mg/kg	0.05	MCERTS	0.5	67	0.21
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.73	83	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.3	59	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.59	110	< 0.05

Analytical Report Number: 22-80596
Project / Site name: Bennet court

Lab Sample Number				2404471	2404472	2404473
Sample Reference				DS109	DS102	CP101
Sample Number				ES1	ES1	ES2
Depth (m)				0.65	0.20	1.00
Date Sampled				24/08/2022	24/08/2022	25/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.28	51	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	14	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.39	65	< 0.05

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-80596

Project / Site name: Bennet court

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2404471	DS109	ES1	0.65	Brown loam and sand with gravel and vegetation.
2404472	DS102	ES1	0.2	Brown loam and sand with gravel and vegetation.
2404473	CP101	ES2	1	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 22-80596

Project / Site name: Bennet court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

Analytical Report Number : 22-80596

Project / Site name: Bennet court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

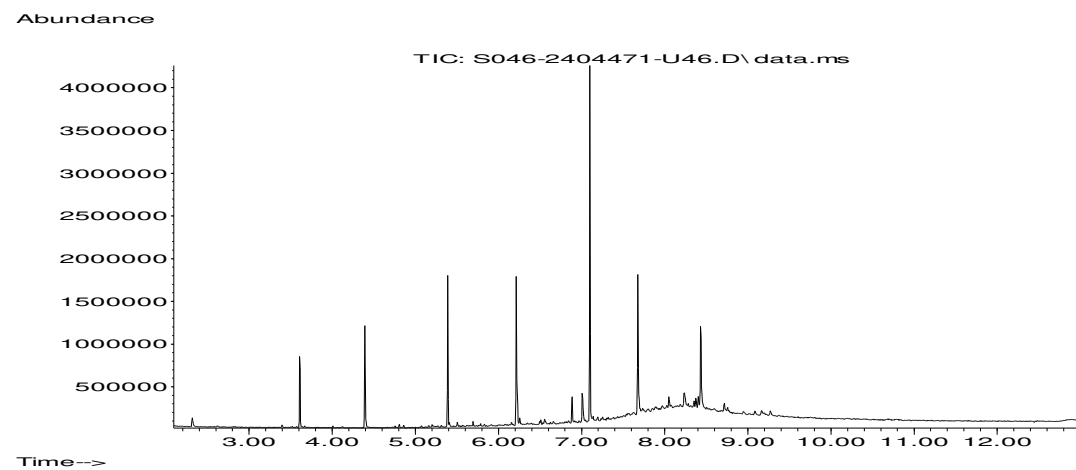
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

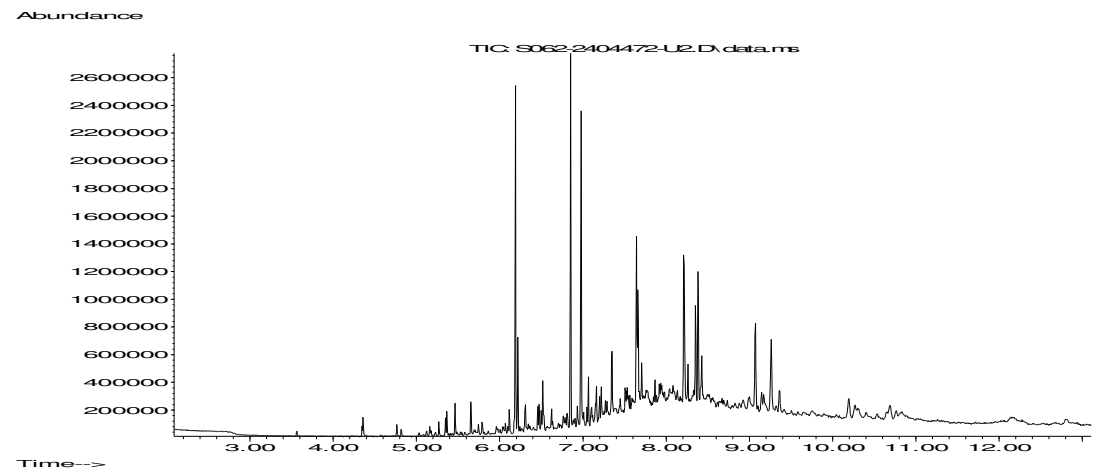
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

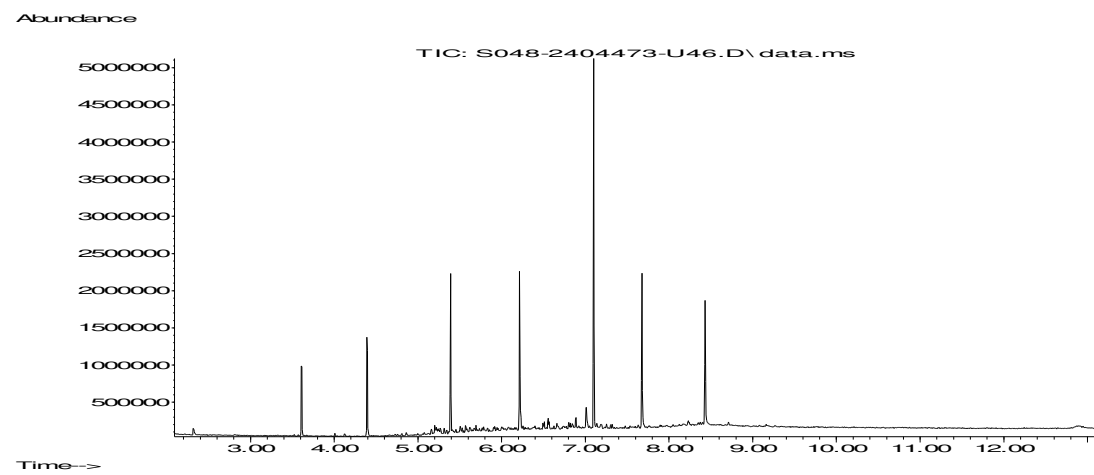
Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total







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Analytical Report Number : 22-81813

Project / Site name:	Bennet Court	Samples received on:	01/09/2022
Your job number:	22 0819 03	Samples instructed on/ Analysis started on:	02/09/2022
Your order number:		Analysis completed by:	09/09/2022
Report Issue Number:	1	Report issued on:	09/09/2022
Samples Analysed:	2 soil samples		



Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-81813
Project / Site name: Bennet Court

Lab Sample Number				2411671	2411672
Sample Reference				CP102	CP102
Sample Number				ES1	ES2
Depth (m)				0.90	1.40
Date Sampled				01/09/2022	01/09/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	36	< 0.1
Moisture Content	%	0.01	NONE	9.2	6.5
Total mass of sample received	kg	0.001	NONE	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.8	8.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	310	180
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.15	0.091
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	154	91.1
Organic Matter (automated)	%	0.1	MCERTS	2.7	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6	0.3

Phenols by GC-MS

Phenol	mg/kg	0.2	NONE	< 0.2	< 0.2
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4-Dichlorophenol	mg/kg	0.3	NONE	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	NONE	< 0.3	< 0.3
2-Chlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3
4-Chloro-3-methylphenol	mg/kg	0.1	ISO 17025	< 0.1	< 0.1
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2

Total Phenols

Total Phenols (GC-MS)	mg/kg	1	NONE	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.56	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.75	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.74	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.44	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.3	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.25	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	5.16	< 0.80
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Analytical Report Number: 22-81813
Project / Site name: Bennet Court

Lab Sample Number				2411671	2411672
Sample Reference				CP102	CP102
Sample Number				ES1	ES2
Depth (m)				0.90	1.40
Date Sampled				01/09/2022	01/09/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	13
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	3.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	18	17
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	63	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	81
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	3.2	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	14
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	97	85

Monoaromatics & Oxygenates

Benzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001
Toluene	mg/kg	0.001	MCERTS	< 0.001	< 0.001
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.001	< 0.001
p & m-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001
o-xylene	mg/kg	0.001	MCERTS	< 0.001	< 0.001
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.001	< 0.001

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC35 - EC40 EH_CU_1D_AL	mg/kg	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	MCERTS	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic >EC35 - EC40 EH_CU_1D_AR	mg/kg	10	NONE	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	< 10	< 10

TPH (C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10
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Analytical Report Number: 22-81813
Project / Site name: Bennet Court

Lab Sample Number	2411671	2411672
Sample Reference	CP102	CP102
Sample Number	ES1	ES2
Depth (m)	0.90	1.40
Date Sampled	01/09/2022	01/09/2022
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection Accreditation Status

VOCs

Chloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Chloroethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010
Bromomethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Vinyl Chloride	mg/kg	0.001	NONE	< 0.0010	< 0.0010
Trichlorofluoromethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010
1,1-Dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010
1,1,2-Trichloro 1,2,2-Trifluoroethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Cis-1,2-dichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,1-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
2,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Trichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,1,1-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,2-Dichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,1-Dichloropropene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Trans-1,2-dichloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010
Benzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Tetrachloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,2-Dichloropropane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Trichloroethene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Dibromomethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Bromodichloromethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Cis-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Trans-1,3-dichloropropene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Toluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,1,2-Trichloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,3-Dichloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Dibromochloromethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Tetrachloroethene	mg/kg	0.001	NONE	< 0.0010	< 0.0010
1,2-Dibromoethane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
Chlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,1,1,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Ethylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
p & m-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Styrene	mg/kg	0.001	MCERTS	< 0.001	< 0.001
Tribromomethane	mg/kg	0.001	NONE	< 0.0010	< 0.0010
o-Xylene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,1,2,2-Tetrachloroethane	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Isopropylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Bromobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
n-Propylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
2-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
4-Chlorotoluene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,3,5-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
tert-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,2,4-Trimethylbenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
sec-Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,3-Dichlorobenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
p-Isopropyltoluene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
1,2-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,4-Dichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Butylbenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
1,2-Dibromo-3-chloropropane	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010
1,2,4-Trichlorobenzene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010
Hexachlorobutadiene	mg/kg	0.001	MCERTS	< 0.0010	< 0.0010

Analytical Report Number: 22-81813
Project / Site name: Bennet Court

Lab Sample Number				2411671	2411672
Sample Reference				CP102	CP102
Sample Number				ES1	ES2
Depth (m)				0.90	1.40
Date Sampled				01/09/2022	01/09/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
1,2,3-Trichlorobenzene	mg/kg	0.001	ISO 17025	< 0.0010	< 0.0010

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	0.56	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.75	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.74	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.44	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.3	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.25	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

Analytical Report Number: 22-81813
Project / Site name: Bennet Court

Lab Sample Number				2411671	2411672
Sample Reference				CP102	CP102
Sample Number				ES1	ES2
Depth (m)				0.90	1.40
Date Sampled				01/09/2022	01/09/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-81813

Project / Site name: Bennet Court

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2411671	CP102	ES1	0.9	Brown loam and sand with gravel and stones.
2411672	CP102	ES2	1.4	Brown clay and sand with gravel.

Analytical Report Number : 22-81813
Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Phenols, speciated, in soil, by GCMS	Determination of speciated phenols in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

Analytical Report Number : 22-81813
Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

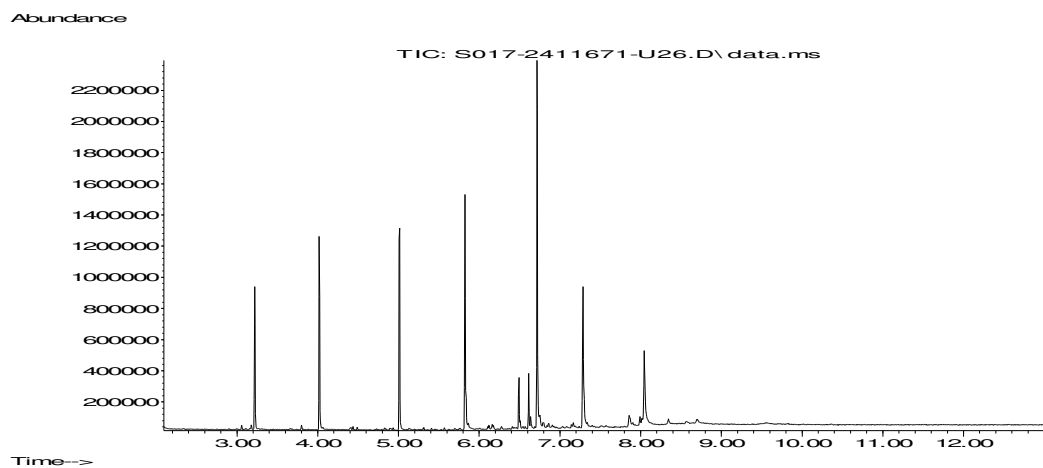
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

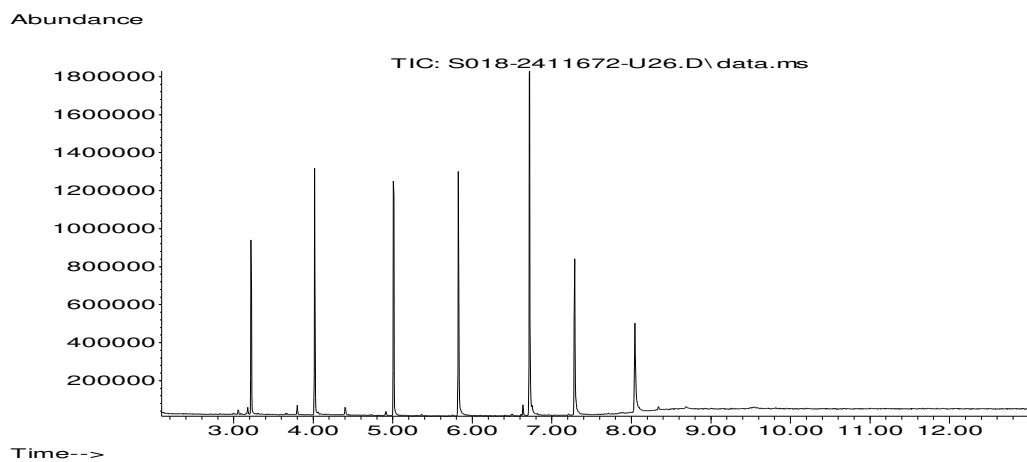
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total





Appendix E - Groundwater Chemical Analysis Results

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Analytical Report Number : 22-84409

Project / Site name:	Bennet Court	Samples received on:	15/09/2022
Your job number:	22-0819.03	Samples instructed on/ Analysis started on:	15/09/2022
Your order number:	DS70215	Analysis completed by:	23/09/2022
Report Issue Number:	1	Report issued on:	23/09/2022
Samples Analysed:	8 water samples		


Signed:

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



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Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number	2426159				2426160	2426161	2426162	2426163
Sample Reference	DS102				DS103	DS104	DS105	DS110
Sample Number	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	14/09/2022				14/09/2022	14/09/2022	14/09/2022	14/09/2022
Time Taken	None Supplied				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.3	7.3	8.1	7.6	7
Sulphate as SO4	µg/l	45	ISO 17025	49800	175000	211000	180000	42400

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.79	2.97	5.39	2.65	0.32
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05	0.09	0.06	0.07	0.04
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	6.7	4.6	1.3	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	4.8	3	4.5	6.7	1.2
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.3	1.4	0.3	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	5.3	13	9	22	9.4
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.7	6	4.7	13	15

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



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Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number				2426159	2426160	2426161	2426162	2426163
Sample Reference				DS102	DS103	DS104	DS105	DS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Aliphatic >C10 - C12 _{EH,2D,AL,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aliphatic >C12 - C16 _{EH,2D,AL,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	50	< 10	< 10
Aliphatic >C16 - C21 _{EH,2D,AL,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	110	< 10	< 10
Aliphatic >C21 - C35 _{EH,2D,AL,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	1700	< 10	< 10
Aliphatic >C10 - C35 _{EH,2D,AL,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	1900	< 10	< 10

TPH-CWG - Aromatic >C5 - C7 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Aromatic >C10 - C12 _{EH,2D,AR,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C12 - C16 _{EH,2D,AR,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C16 - C21 _{EH,2D,AR,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C21 - C35 _{EH,2D,AR,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Aromatic >C10 - C35 _{EH,2D,AR,#1,#2}	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0



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Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number				2426159	2426160	2426161	2426162	2426163
Sample Reference				DS102	DS103	DS104	DS105	DS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

VOCs TICs

VOCs TICs Compound Name		N/A	NONE	ND	ND	ND	ND	ND
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SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05



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Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number				2426159	2426160	2426161	2426162	2426163
Sample Reference				DS102	DS103	DS104	DS105	DS110
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				14/09/2022	14/09/2022	14/09/2022	14/09/2022	14/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	ND	ND	ND	ND	ND
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U/S = Unsuitable Sample I/S = Insufficient Sample



4041



Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number				2426164	2426165	2426166
Sample Reference				CP101	CP102	CP103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				14/09/2022	14/09/2022	14/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

General Inorganics

pH	pH Units	N/A	ISO 17025	8	7.7	7.4
Sulphate as SO ₄	µg/l	45	ISO 17025	32500	135000	134000

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.36	4.87	0.89
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.06	0.03	0.07
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	9.7	2.2
Copper (dissolved)	µg/l	0.5	ISO 17025	2.9	2.2	1.7
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.3	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	8.6	7.8	13
Zinc (dissolved)	µg/l	0.5	ISO 17025	15	11	27

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0



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Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number				2426164	2426165	2426166
Sample Reference				CP101	CP102	CP103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				14/09/2022	14/09/2022	14/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

Aliphatic >C10 - C12 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aliphatic >C12 - C16 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aliphatic >C16 - C21 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aliphatic >C21 - C35 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aliphatic >C10 - C35 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10

TPH-CWG - Aromatic >C5 - C7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

Aromatic >C10 - C12 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aromatic >C12 - C16 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aromatic >C16 - C21 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aromatic >C21 - C35 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10
Aromatic >C10 - C35 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0



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Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number				2426164	2426165	2426166
Sample Reference				CP101	CP102	CP103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				14/09/2022	14/09/2022	14/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

VOCs TICs

VOCs TICs Compound Name		N/A	NONE	ND	ND	ND
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SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05



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Analytical Report Number: 22-84409

Project / Site name: Bennet Court

Your Order No: DS70215

Lab Sample Number				2426164	2426165	2426166
Sample Reference				CP101	CP102	CP103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				14/09/2022	14/09/2022	14/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10
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SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	ND	ND	ND
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U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-84409

Project / Site name: Bennet Court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 *for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Tentatively identified compounds (SVOC) in water	Determination of semi-volatile organic compounds total ion count in water by extraction with hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L070-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Tentatively identified compounds (VOC) in water	Determination of volatile organic compounds total ion count in water by headspace GC-MS followed by a full library scan.	In-house method based on USEPA8260	L073B-PL	W	NONE
TPH C10-C35 by GCxGC-FID	Determination of total petroleum hydrocarbons in water by GC x GC FID with carbon banding aliphatic and aromatic C10-C35. Accredited Matrices SW,GW,PW.	In-house method	L101B-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH Chromatogram in Water	TPH Chromatogram in Water.	In-house method	L070-PL	W	NONE
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

Analytical Report Number : 22-84409

Project / Site name: Bennet Court

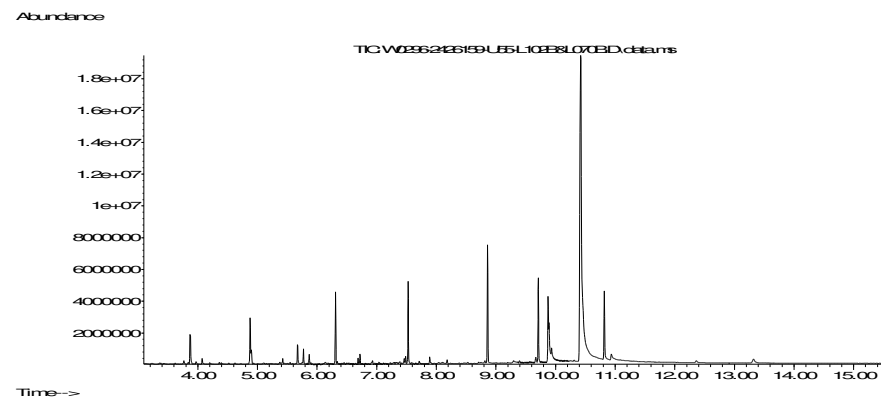
Water matrix abbreviations:

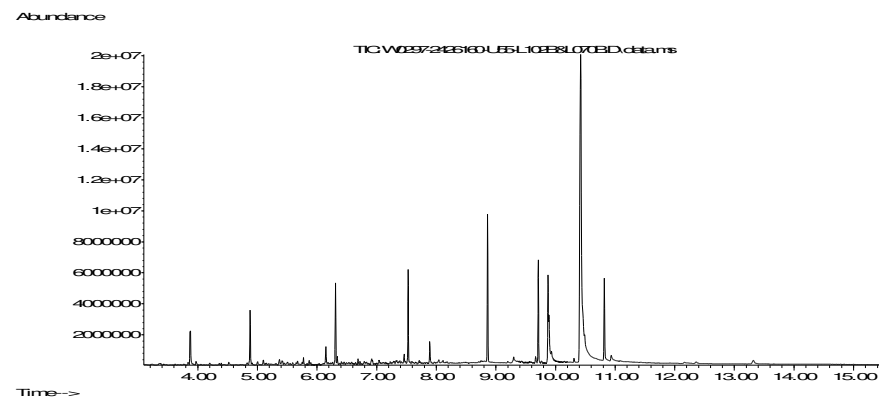
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

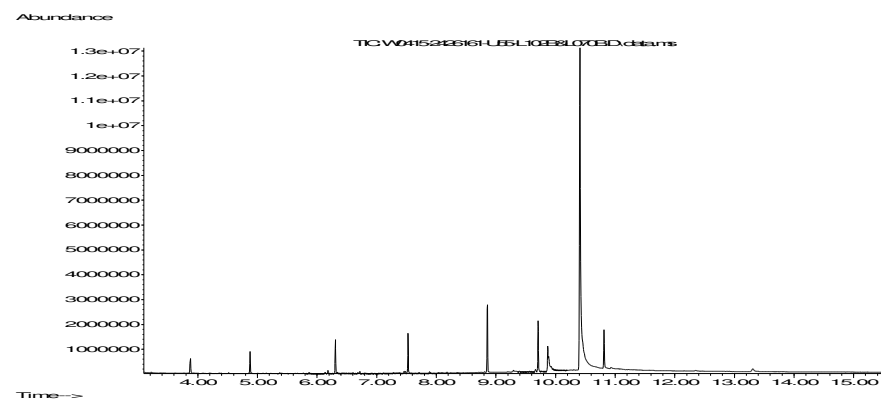
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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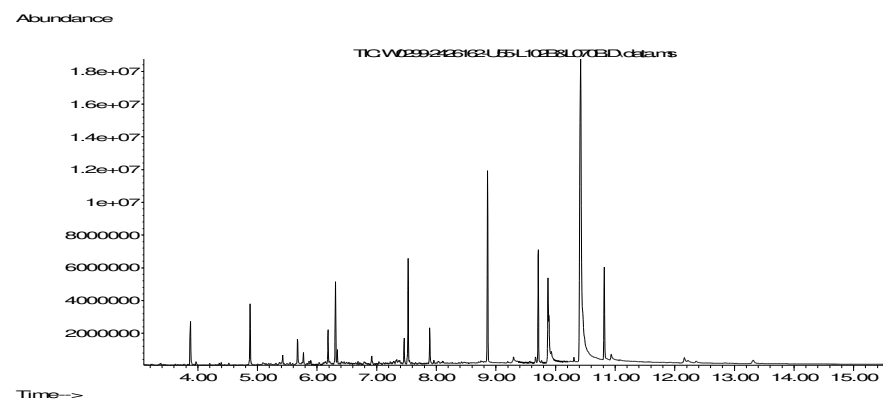
List of HWOL Acronyms and Operators

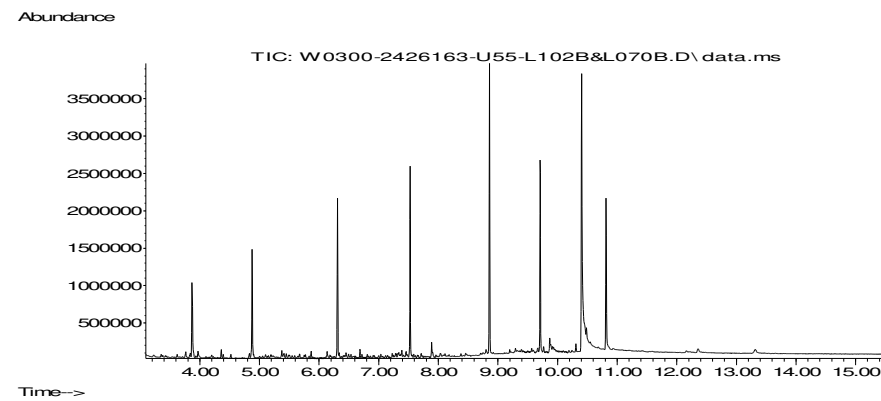
Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

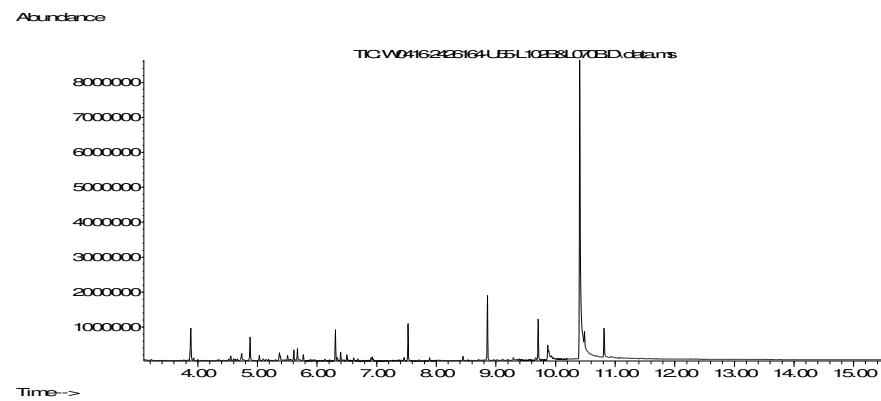


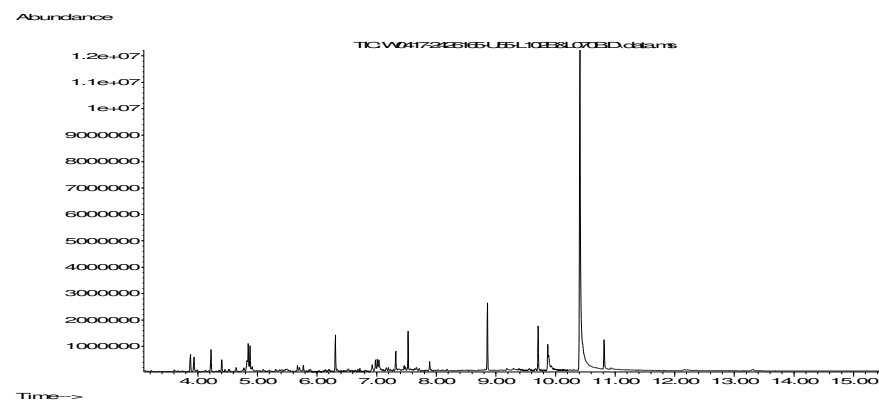


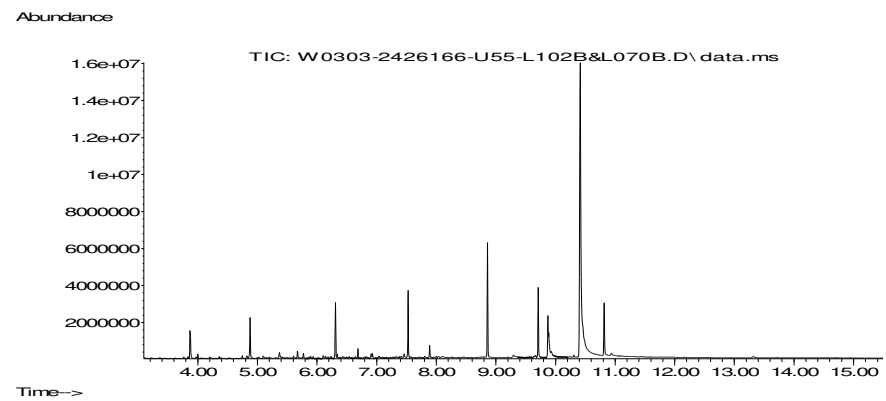














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Analytical Report Number : 22-87532

Project / Site name:	Bennet court	Samples received on:	03/10/2022
Your job number:	22 0819.03	Samples instructed on/ Analysis started on:	03/10/2022
Your order number:	DS70440	Analysis completed by:	06/10/2022
Report Issue Number:	1	Report issued on:	07/10/2022
Samples Analysed:	1 water sample		


Signed:

Martyna Langer
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



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Analytical Report Number: 22-87532

Project / Site name: Bennet court

Your Order No: DS70440

Lab Sample Number	2445227			
Sample Reference	DS107			
Sample Number	None Supplied			
Depth (m)	None Supplied			
Date Sampled	30/09/2022			
Time Taken	None Supplied			
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH	pH Units	N/A	ISO 17025	6.9
Sulphate as SO ₄	µg/l	45	ISO 17025	97800

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16
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Heavy Metals / Metalloids

Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
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Arsenic (dissolved)	µg/l	0.15	ISO 17025	7.2
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.12
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3
Copper (dissolved)	µg/l	0.5	ISO 17025	2.5
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	74
Zinc (dissolved)	µg/l	0.5	ISO 17025	8.7

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0



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Analytical Report Number: 22-87532

Project / Site name: Bennet court

Your Order No: DS70440

Lab Sample Number				2445227
Sample Reference				DS107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				30/09/2022
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C6 - C8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aliphatic >C8 - C10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0

Aliphatic >C10 - C12 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10
Aliphatic >C12 - C16 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10
Aliphatic >C16 - C21 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10
Aliphatic >C21 - C35 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10
Aliphatic >C10 - C35 _{EH_2D_AL_#1_#2}	µg/l	10	ISO 17025	< 10

TPH-CWG - Aromatic >C5 - C7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C7 - C8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH-CWG - Aromatic >C8 - C10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0

Aromatic >C10 - C12 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10
Aromatic >C12 - C16 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10
Aromatic >C16 - C21 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10
Aromatic >C21 - C35 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10
Aromatic >C10 - C35 _{EH_2D_AR_#1_#2}	µg/l	10	ISO 17025	< 10

VOCs

Chloromethane	µg/l	1	ISO 17025	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0



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Analytical Report Number: 22-87532

Project / Site name: Bennet court

Your Order No: DS70440

Lab Sample Number				2445227
Sample Reference				DS107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				30/09/2022
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0

VOCs TICs

VOCs TICs Compound Name		N/A	NONE	ND
VOC % Match	%	N/A	NONE	0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05



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Analytical Report Number: 22-87532

Project / Site name: Bennet court

Your Order No: DS70440

Lab Sample Number				2445227
Sample Reference				DS107
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				30/09/2022
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status	
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Azobenzene	µg/l	0.05	NONE	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Carbazole	µg/l	0.05	NONE	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01

3&4-Methylphenol	µg/l	0.1	NONE	< 0.10
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SVOCs TICs

SVOCs TICs Compound Name		N/A	NONE	ND
SVOC % Match	%	N/A	NONE	0

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-87532

Project / Site name: Bennet court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 *for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Tentatively identified compounds (SVOC) in water	Determination of semi-volatile organic compounds total ion count in water by extraction with hexane followed by GC-MS followed by a full library scan.	In-house method based on USEPA 8270	L070-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Tentatively identified compounds (VOC) in water	Determination of volatile organic compounds total ion count in water by headspace GC-MS followed by a full library scan.	In-house method based on USEPA8260	L073B-PL	W	NONE
TPH C10-C35 by GCxGC-FID	Determination of total petroleum hydrocarbons in water by GC x GC FID with carbon banding aliphatic and aromatic C10-C35. Accredited Matrices SW,GW,PW.	In-house method	L101B-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH Chromatogram in Water	TPH Chromatogram in Water.	In-house method	L070-PL	W	NONE
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
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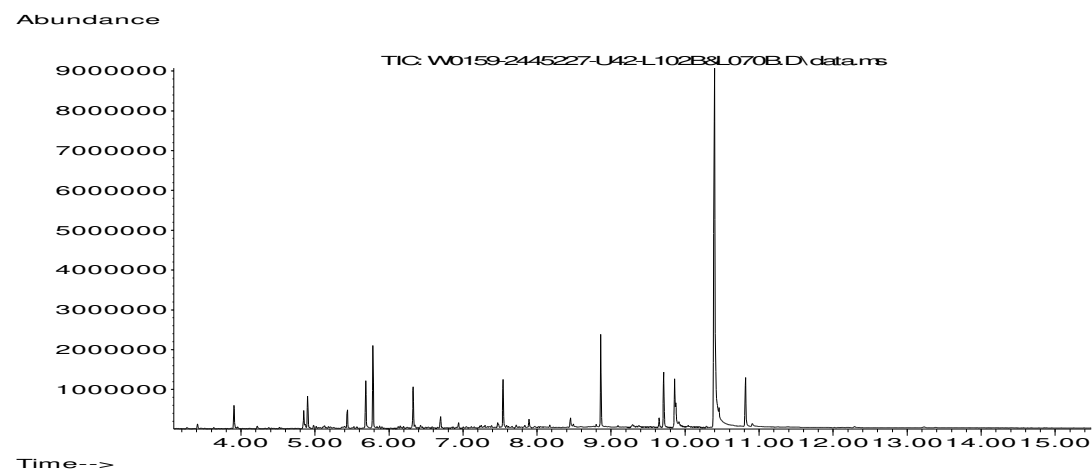
Analytical Report Number : 22-87532

Project / Site name: Bennet court

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
HS	Headspace Analysis				
MS	Mass spectrometry				
FID	Flame Ionisation Detector				
GC	Gas Chromatography				
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))				
CU	Clean-up - e.g. by Florisil®, silica gel				
1D	GC - Single coil/column gas chromatography				
2D	GC-GC - Double coil/column gas chromatography				
Total	Aliphatics & Aromatics				
AL	Aliphatics				
AR	Aromatics				
#1	EH_2D_Total but with humics mathematically subtracted				
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - understore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				



Appendix F - Field Monitoring Data/Gas Monitoring Data

[illegible]



[illegible]



[illegible]

Appendix G - Risk Definitions

Contaminated Land Risk Definitions

The following methodology is based on the methodology presented in CIRIA C552 Contaminated Land Risk Assessment: A Guide to Good Practice 2001. It requires the classification of the:

- Magnitude of the potential consequence (severity) of the Risk occurring; and
- Magnitude of the Probability (likelihood) of the Risk occurring.

The classifications are then compared to indicate the risk presented by each pollutant linkage.

Consequence to Receptor Definition Matrix

	Human Health	Controlled Waters	Buildings/Services
Severe Consequence	Acute or chronic permanent impact on human health.	Sensitive controlled water pollution ongoing, or just about to occur.	Catastrophic collapse
Medium Consequence	Chronic permanent impact on human health	Gradual pollution of sensitive controlled water	Degradation of materials
Mild Consequence	Chronic temporary impact on human health	Gradual pollution of non-sensitive controlled water	Damage to building rendering it unsafe to occupy (eg foundation damage resulting in instability).
Minor Consequence	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc).	Slight discoloration of water	Easily repairable effects of damage to buildings, structures and services, i.e discoloration of concrete

Probability Definitions

Probability	Definition in Context
Higher	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution. Positive evidence of source, pathway and receptor.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term. Suspect source, pathway, and receptor
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term No evidence of hazard, pathway, and receptor

Standard Risk Matrix

		Consequence/Magnitude of impact			
		Severe	Medium	Mild	Minor
Probability	High	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/low	Low
	Low Likelihood	Moderate	Moderate/low	Low	Very Low
	Unlikely	Moderate/low	Low	Very Low	Very Low

Classified risks and likely action

Significance Level	Definition/Comments
Very High Risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required. Demonstrable contaminated land situation, highest threat & liability level, urgent action recommended.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term. Likely contaminated land situation, risk assessment and action recommended.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, if it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term. Plausible contaminated land situation, risk assessment and possible action recommended.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild. Unlikely contaminated land situation, possible risk assessment and possible action.
Very Low Risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe. Negligible risk, no action recommended except vigilance for changes in conditions.

Geotechnical Risk Classification

The geohazards listed in the report within Section 4 follow guidance presented in Clayton, C.R.I. (2001) *Managing Geotechnical Risk*, Thomas Telford and the National Highways document CD622 'Managing Geotechnical Risk' (2020) which aims to identify and manage the geotechnical risks associated with a scheme throughout its lifespan, from planning to construction to maintenance.

For each geohazard the probability of the hazard occurring (P) has been considered together with the impact it would have (I) if it were to happen to calculate the risk rating between 1 and 25.

Risks that fall within Moderate, Significant and Severe categories below are considered to be **substantial** and are therefore listed within the report.

Probability	(P)	X	Impact	(I)	=	(R)	Risk
Very Likely (VLk)	5		Very High (VH)	5		20 – 25	Severe
Likely (Lk)	4		High (H)	4		15 – 19	Substantial
Plausible (P)	3		Medium (M)	3		10 – 14	Moderate
Unlikely (U)	2		Low (L)	2		5 – 9	Minor
Very Unlikely (VU)	1		Very Low (VL)	1		1 – 4	Negligible

Appendix H - Construction and Verification of Clean Cover Systems

Appendix H - Construction and Verification of Clean Cover Systems

1.1 Certified Clean Topsoil / Subsoil Layer - Cover System

Delta-Simons consider that a clean cover system should be placed for soft landscaping areas where Made Ground is present at surface, to break the identified pollutant linkage and to facilitate the growing of flora. Where Made Ground has been removed, no remedial measures are deemed necessary aside from the provision of a minimum 150 mm topsoil layer in garden or soft landscaped areas.

For areas where a clean cover system is required (anticipated to be all areas of soft landscaping at the Site), the following criteria are recommended:

- A high visibility membrane or hard-dig layer should be installed on top of Made Ground upon which the cover layer will then be placed. This is to provide a physical break of a potential pathway between Made Ground and the cover system;
- Within proposed soft landscaping areas, the clean cover layer shall be a minimum thickness of 300 mm, consisting of 150 mm subsoil and 150 mm topsoil; and
- Where trees are to be planted as part of landscaping, the cover system will be deepened to accommodate the root-ball.

In accordance with BS 3882:2015, the depth of topsoil shall not exceed 300 mm but the depth of subsoil should be at least double the depth of the topsoil.

In areas where the Made Ground has been removed in its entirety, the requirement for a clean cover is negated and a suitable growing medium of at least 150 mm of topsoil should be provided. Based on the delta-Simons Site investigation data, this is not anticipated to be the case at the Site.

1.2 Imported Materials and Verification

1.2.1 Pre-Importation Testing

In the event that any soils are required to be imported to the Site to be used in cover systems a detailed understanding of the provenance of such materials is to be provided to the Environmental Consultant ahead of any further investigation or import. As a minimum, this should include:

- The materials source location;
- The supplier details and proposed quantities for import; and,
- A description of how the soils have been generated (e.g. stockpiled for removal from a site or manufactured at a recognised supplier).

Soil materials being considered for importation shall be sampled at their source or manufacture location prior to import to Site. The soil samples shall be analysed at a UKAS accredited laboratory for the required laboratory chemical analyses and the results of these analyses (as detailed in Section 1.3) shall be provided to the Environmental Consultant. Written approval from the Environmental Consultant shall be obtained prior to importing the soil to Site.

Some soil materials that are suitable for use on site may also be wastes (not products). Examples of such soils may include soils stripped from other developments prior to construction, soils sourced from third party sites and some manufactured soils. Care is needed when considering these materials for import. Further understanding of the provenance of these materials, additional laboratory chemical analyses and an exemption, permit or other form of regulatory control are likely to be required to be able to utilise these materials within the cover system. Adherence to the Duty of Care Regulations will also likely be required if waste soils are to be recovered in the scheme. The Environmental Consultant should be consulted well in advance of when these types of material are to be utilised. The Environmental Consultant will advise on the acceptability or otherwise of such materials and agree the pathway to be followed.

If chemical data for the soil cannot be provided, then the Contractor shall procure the Environmental Consultant to undertake appropriate testing prior to importation:

Samples shall be analysed for a minimum suite of:

Asbestos screening;

pH, heavy metals;

Total petroleum hydrocarbons; and

Speciated Polyaromatic Hydrocarbons (16 PAH).

The samples shall be truly representative of the soil to be offered.

One composite sample shall be taken for every 250 m³ of imported soil to be used, with a minimum of 3 No. samples of each soil type shall be tested from each source/supplier.

The chemical criteria against which any imported soils shall be assessed is based on relevant Generic Assessment Criteria applicable at the time of the works for a residential end use, alternatively, Delta-Simons Human Health Generic Assessment Criteria as presented in Section 1.3 shall be used.

Any materials which fail the verification testing shall be removed from the Site and replaced with suitable materials by the Contractor.

The verification information shall be included within the verification report.

1.2.2 Post-Placement Verification

Following the placement of the clean cover system in garden and soft landscaped areas, the depth of cover must be physically inspected to confirm the minimum thicknesses detailed in Section 9.1 have been achieved.

The inspection is to be undertaken by the Environmental Consultant and will comprise (at least):

- Inspection pits on a 25 m grid in soft landscaped areas.

It is anticipated that subsoil and topsoil may have been tested for chemical suitability prior to placement. However, for any areas where this is not the case, samples will be obtained of topsoil and subsoil on the following testing frequency (as a minimum):

- Topsoil and subsoil shall be sampled from each inspection pit within soft landscaping areas.

These will be tested to confirm compliance with the GAC for a residential end use with plant uptake.

The location of the inspection pits is to be determined by the Environmental Consultant to ensure a good spatial coverage.

The Environmental Consultant will record the overall depth of the clean cover along with the thickness of topsoil and subsoil, and the presence of a membrane or hard-dig layer. A photographic record of the excavation, with suitable scale, will be obtained for the Cover System Validation Report.

Should soils fail the applied criteria, then they shall be replaced by the Contractor with alternatively sourced soils and retested.

1.2.3 Cover systems and other potentially interacting site works

Careful consideration should be given to the programming of in-ground Site works with the potential to disturb the cover system once it has been placed. For example:

Erection of fencing (where post holes are to be created and arisings generated);

Planting of trees;

Services installation.

Ideally, these works (or similar), which would result in made ground being brought to surface, should be programmed to occur before installation of the cover system to avoid disturbance/cross-contamination of the cover soils.

In the event such works occur after placement of the cover system, care should be taken to control arisings to avoid such cross-contamination. Evidencing of the absence of cross contamination may be required.

1.3 Imported Soils Assessment Criteria

The following Generic Assessment Criteria shall apply as absolute limits for all soils imported for re-use as clean cover **regardless of the end use of the Site.**

The criteria selected are based on Residential with Plant Uptake land use scenario on the basis that imported clean cover soils should be 'clean' and not result in an increase in contaminant loading. It may be possible, in some circumstances, to agree alternative, higher criteria with the appropriate regulatory body, however, this is outside of the scope of this assessment.

Soils shall be tested for a suite of contaminants appropriate to the source land use but as a minimum for the contaminants stated below unless otherwise stated within this strategy. The below criteria assume a minimum of 1% Soil Organic Matter.

In addition to meeting the criteria below, imported materials shall be free from deleterious inclusions and shall be free from invasive weeds (Japanese Knotweed).

Any testing for asbestos must be from a UKAS accredited laboratory and the only acceptable criteria is 'Not Detected'. Any detected asbestos, even if reports as <0.001% is not acceptable. Asbestos containing soils must not be used for clean cover materials.

Criteria for Imported Materials			
Compound	GAC	Source	Comment
Arsenic	37	C4SL	
Cadmium	11	LQM	
Chromium (III)	910	LQM	
Chromium (VI)	6	LQM	
Copper	2400	LQM	
Lead	200	C4SL	
Mercury (inorganic)	40	LQM	
Nickel	130	LQM	
Selenium	250	LQM	
Zinc	3700	LQM	
Acenaphthene	210	LQM	
Acenaphthylene	170	LQM	
Anthracene	2400	LQM	
Benzo[a]anthracene	7.2	LQM	
Benzo[a]pyrene	2.2	LQM	
Benzo[b]fluoranthene	2.6	LQM	
Benzo[ghi]perylene	320	LQM	

Criteria for Imported Materials

Compound	GAC	Source	Comment
Benzo[k]fluoranthene	77	LQM	
Chrysene	15	LQM	
Dibenz[ah]anthracene	0.24	LQM	
Fluoranthene	280	LQM	
Fluorene	170	LQM	
Indeno[123-cd]pyrene	27	LQM	
Naphthalene	2.3	LQM	
Phenanthrene	95	LQM	
Pyrene	620	LQM	
Benzene	0.2	C4SL	
Toluene	130	LQM	
Ethylbenzene	47	LQM	
Xylene - m/p	56	LQM	
Xylene - o	60	LQM	
Total Petroleum Hydrocarbons (TPH)	500		Professional judgement.
Aliphatic EC5-EC6	42	LQM	
Aliphatic >EC6-EC8	100	LQM	
Aliphatic >EC8-EC10	27	LQM	
Aliphatic >EC10-EC12	130	LQM	
Aliphatic >EC12-EC16	500	LQM	Capped at 500 - professional judgement
Aromatic >EC5-EC7	70	LQM	
Aromatic >EC7-EC8	130	LQM	
Aromatic >EC8-EC10	34	LQM	
Aromatic >EC10-EC12	74	LQM	
Aromatic >EC12-EC16	140	LQM	
Aromatic >EC16-EC21	260	LQM	

Criteria for Imported Materials			
Compound	GAC	Source	Comment
Aromatic >EC21-EC35	500	LQM	Capped at 500 - professional judgement
Asbestos	Not Detected		

The respective sources are:

- Soil Guidance Values (SGV) published by the EA;
- Category 4 Screening Levels (C4SLs) published by DEFRA;
- The 2014 Land Quality Management (LQM) / Chartered Institute of Environmental Health (CIEH) Suitable for Use Levels for Human Health Risk Assessment (S4ULs);
- The guidance values produced by the Environmental Industries Commission (EIC), the Association of Geotechnical and Geoenvironmental Specialists (AGS) and Contaminated Land: Application in Real Environments (CL:AIRE) in December 2009; and
- In house Generic Screening Values (DS-GACs) derived by Delta-Simons.