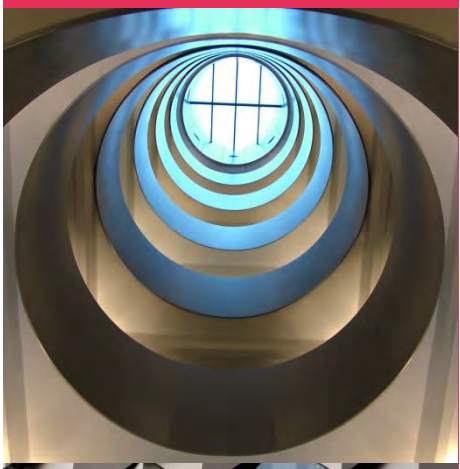
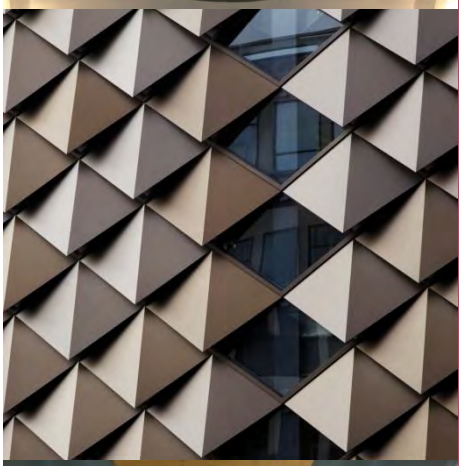








Napier Road, Reading

Phase 2 Ground Investigation

Curtins Ref: 080908-CUR-XX-XX-T-GE-0002 Napier Road, Reading

Revision: [P05]

Issue Date: 05 October 2023

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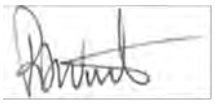
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Executive Summary

Appointment	Curtins were instructed by Sladen Estates on behalf of Peveril Securities to undertake a Phase 2 Ground Investigation at Napier Court, Reading. This report has been undertaken in support of the proposed development plans comprising the demolition of the three existing two-storey office buildings, and the construction of three new multi-storey residential blocks (maximum 25 storeys) with basement plant room, undercroft parking, hardstanding, and communal soft landscaping. No private gardens are anticipated as part of the development. The construction of finalised development plans are ongoing.
Current Site Status	The development site comprises a rectangular parcel of land approximately 1.22 hectares (Ha) in area which is currently occupied by the three, two-storey office buildings (Pennant House, Emerald House, and Hawker House) along the northern boundary of the site. The remaining area is for car parking with minimal soft landscaping (tree planting and hedges). A retaining wall owned by Network Rail is present along the southern boundary of the site. The site is predominately topographically flat and is centred on National Grid Reference 472020, 173860.
Fieldworks	Two stages of ground investigation was undertaken by Curtins. The first set of ground investigation from 04 July 2022 to 11 August 2022. The investigation comprised six rotary cored boreholes to a maximum depth of 41.50m bgl, twelve window samples up to 4.00m bgl with follow on dynamic probing to 10.00m bgl, six hand excavated foundation inspection trial pits along the adjacent Network Rail retaining wall, and the installation of eight combined gas and groundwater monitoring wells, and five deeper groundwater monitoring wells. A total of four return gas monitoring and five groundwater monitoring visits were undertaken in 2022. The arisings of the boreholes were logged by a suitably qualified Curtins engineer and representative samples of the soil were submitted for environmental chemistry and geotechnical laboratory testing. The rotary core was logged to CIRIA C574. Further ground investigation (five boreholes) and groundwater sampling (four visits) was undertaken in 23 May 2023 to 03 August 2023, to further determine concentrations of PCE in groundwater within the eastern area.
Ground Conditions	Topsoil was encountered from ground level in areas of soft landscaping along the Network Rail retaining wall on the southern boundary of the site as black slightly clayey silty SAND with rootlets to a maximum depth of 0.18m bgl. Made Ground was encountered in the remaining exploratory locations to a maximum depth of 2.10m bgl. The Made Ground initially comprised hardstanding of tarmacadam/block paving to 0.30m bgl, overlying granular sub-base materials within BH02 to BH05, WS01, WS05, WS10, and WS12 to depths up to 0.60m bgl, with localised deepening to 0.90m bgl within BH01. Cohesive Made Ground was locally encountered in BH01, BH03, and BH05 to 1.00m bgl as soft dark brown/black sandy gravelly CLAY with gravels of concrete, brick fragments, chalk, and flint. Granular Made Ground, thought to be associated with historical railway sidings, was encountered from 0.60m to 1.60m bgl as brown, black, and grey locally silty locally clayey variably gravelly fine to coarse SAND/silty fine to coarse SAND and GRAVEL/ slightly silty variably sandy GRAVEL/ and sandy GRAVELS and COBBLES with gravels of aggregate, ballast, concrete, flint, brick, clinker, slag, coal, dolostone, limestone, chalk, ash, and cobbles of slag. Underlying the cohesive and granular Made Ground, reworked ground was encountered from 1.30m to 2.10m bgl as a black, white, and greyish/blackish white variably silty locally clayey sandy GRAVEL or very soft to soft silty sandy gravelly locally cobbley CLAY with gravels of chalk, flint, clinker, slag, coal, and rare ash. Underlying the Made Ground soils were the superficial Alluvium deposits encountered in all exploratory locations, except BH07 or where subsurface obstructions were encountered, to a maximum depth of 3.70m bgl comprising grey, green, blue, orange, brown, and reddish brown slightly sandy, locally organic SILT with mild organic odour or silty, locally sandy, locally gravelly CLAY with gravels of flint and localised shells with slight organic odour. River Terrace Deposits were encountered underlying the Alluvium in all exploratory locations, except BH07 where it was encountered underlying the Made Ground to depths ranging from 7.30m and 10.30m bgl comprising very loose to very dense brown/yellowish-brown/dark yellow/grey variably gravelly fine to coarse SAND or locally silty fine to coarse SAND and GRAVEL/COBBLES of flint. Weathered bedrock of the Seaford and Newhaven Chalk Formation (Undifferentiated) was initially encountered as CIRIA Grade Dm from 7.30mbgl/30.75mAOD and 10.30mbgl/27.62m AOD as white/yellowish white/off-white sandy gravelly locally cobbley SILT with gravels and cobbles of chalk and

flint. CIRIA Grade Dc chalk was typically encountered from 13.00mbgl/24.88mAOD to 16.40m bgl/21.56m AOD and described as white/yellowish white/off-white silty sandy locally cobbley GRAVEL with flint and chalk. In exploratory location BH03, Grade Dm chalk was encountered to 19.20m bgl. In BH02, BH04, and BH05, the structureless Grades Dm and Dc chalk was encountered as interbedded to the base of the weathered chalk.

Structured chalk was encountered thereafter at depths ranging from 16.35mbgl/23.08mAOD to 22.35mbgl/15.53mAOD bgl and proven to a minimum depth of 41.50mbgl/-3.45mAOD (base not encountered). The structured chalk was initially encountered as weak to medium strong, low to medium density, white CHALK with black specs and bands of marl, flint, and iron staining. Fractures are open to closed and infilled with white silt (CIRIA Grade C2 and C3).

Beyond this, the chalk becomes stronger and of higher density with increasing depth. From depths ranging from 19.20mbgl/18.72mAOD to 22.35mbgl/15.53mAOD, the chalk comprises medium strong to very strong, high to very high-density white CHALK with bands of marl, flint, and iron staining. Fractures are open to closed, and occasionally infilled with white silt (CIRIA Grade B2 and B3). In BH05 only, the chalk comprised weak to medium strong, low to high density white CHALK with bands of marl, and flint. Fractures are closed to 3mm aperture (CIRIA Grade A2).

A series of obstructions were encountered during the ground investigation as summarised below:

Location	Area	Co-ordinates (X,Y)	Depth (m bgl)	Comment
WS01	West	471913.64 - 173860.21	0.60	Adjacent to Pennant House
WS04	West	471937.64 - 173854.16	1.45	
WS07	West	471974.07 - 173853.42	0.60	
WS08	Central West	472003.56 - 173852.12	0.40	Adjacent to Hawker House
BH01	West	471907.50 - 173874.10	1.00 – 1.05	Ø 220mm insulated metal pipe encountered underlying concrete at 1.05m bgl.
BH02	West	471946.19 - 173856.55	0.90 – 1.20	Adjacent to Pennant House
BH03	Central	472015.46 - 173848.27	0.90 – 1.95	Adjacent to Hawker House

During the ground investigation, groundwater strikes were recorded at the base of Alluvium and start of River Terrace Deposits at depths ranging from 2.30mbgl/35.72mAOD (WS12) to 3.60mbgl/34.36mAOD (WS06). The return monitoring recorded groundwater levels ranged from 35.72mAOD (WS2/WS3 – Western Area) to 35.49mAOD (BH05 – Eastern Area). Generally, a review of groundwater levels highlights a trend of an easterly to north-easterly groundwater flow across the site on a minimal gradient.

In 2023, the return groundwater monitoring within the eastern area recorded levels consistent with previous monitoring.

Laboratory Testing

Representative samples of the site soils were obtained and submitted to a suitably accredited laboratory for environmental chemistry and geotechnical analyses. The environmental chemistry results for soils have been compared with the Tier 1 criteria for soils with respect to human health for both Residential without Homegrown Produce and Public Open Space (near residential housing) end use reflecting a multi-storey residential development having no private gardens.

Geotechnical testing comprised pH and Sulphates, Atterberg Limits, Particle Size Distribution, Intact Dry Density, Saturated Moisture Content, Moisture Content, Bulk Density, Point Load Test, Uniaxial Compressive Strength.

Generic Quantitative Risk Assessment	**Human Health** – At this stage the risk from contamination in soils to future site users is considered Low to Moderate, subject to further investigation post demolition including delineation to inform whether clean capping is required (in area of WS09) as part of necessary remedial actions. **Controlled Waters –** The risk presented to controlled waters at this stage is considered to be Moderate, with a recommendation for a Detailed Quantitative Risk Assessment (DQRA) to further determine risk to the River Thames. **Ground Gas –** the risk presented by ground gases is assessed as Low with no requirement for ground gas protection measures to be incorporated into the construction of the proposed new build development.
Geotechnical Assessment	An initial assessment into the potential for dissolution features on-site was undertaken, with in-situ testing results in overlying River Terrace Deposits and structureless chalk indicating the risk to be Low. As a preliminary consideration, it is recommended that piles be advanced into a sufficient thickness of the medium to high density structured chalk bedrock which is typically encountered from a level of 16.65m to 13.46m AOD on-site. It is recommended that a specialist contractor and one with experience of piling in chalk is commissioned to undertake the detailed design and the installation of the piles. In-situ CBR testing was not undertaken as a part of the ground investigation, however based on the ground investigation descriptions and laboratory testing it is anticipated that in the underlying Made Ground soils CBR values in excess of 2.5% are achievable. In addition, very soft Alluvial soils were encountered underlying the Made Ground and it is anticipated that such soils would likely achieve CBR values below 2.5%. The following concrete design classifications are advised, DS-2, AC-2 in relation to Made Ground and DS-1, AC-1 for underlying strata (superficial deposits and bedrock).
Recommendations	Accounting for the findings of the initial Phase 2 Ground Investigation, the following recommendations are made: • DQRA to further determine the risk of residual PCE concentrations in groundwater (far eastern area of the site) to the River Thames. The outcome of the DQRA would advise of any requirements of the Remediation Strategy in relation to the residual PCE in groundwater. • Based on available and consistent stable PCE concentrations recorded surrounding the building, it is not envisaged that an ongoing source is present, however a 'confirmatory check' of soils underneath the building is recommended to ensure no unsaturated source of PCE in this area. • Further investigation within existing building footprints post demolition including delineation (vertical and lateral) of hydrocarbon impact adjacent to WS09 to determine necessary remedial actions. • The contamination risk assessment is to be updated to reflect final building layout (development plans are ongoing). Note: Guidance on the importation of Topsoil for the development, ensuring the material is suitable for use is provided in Appendix F.

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1.0 Introduction

1.1 Project Background

Curtins were instructed by Sladen Estates on behalf of Peveril Securities to undertake a Phase 2 Ground Investigation at Napier Court, Reading.

This report has been undertaken in support of the proposed development plans comprising the demolition of the three existing two-storey office buildings, and the construction of three new multi-storey residential blocks (maximum 25 storeys) with basement plant room, undercroft parking, hardstanding, and communal soft landscaping. No private gardens are anticipated as part of the development. The construction of finalised development plans are ongoing, with no finalised plans available currently.

Curtins have previously undertaken a Phase 1 Preliminary Risk Assessment (1) for the development which recommended for a Phase 2 ground investigation to be undertaken to determine the potential contaminative risk to environmental receptors and inform the civil and structural design of the development.

Note – This following report comprises version 04 of the Phase 2 report, following further ground investigation and groundwater sampling within the eastern area (pre demolition) in 2023.

1.2 Scope of Works

The investigation was undertaken to provide an assessment of both geo-environmental and geotechnical ground conditions on the subject site with respect to any potential contamination in the underlying soils and or groundwater.

Specifically, the report is intended to determine:

a) If there is a risk of the proposed end user being adversely impacted upon by potential contamination in shallow site soils that may be present on the site due to its known current, recent and historical use.

b) If there is a risk of groundwater and/or surface water being adversely impacted upon by potential contamination that may be present on the site due to its known current, recent and historical use.

c) If there is a risk to the end user from soil gases including methane, carbon dioxide, oxygen, and hydrogen sulphide.

d) If there is a risk to development from geohazards notably potential dissolution features within sub-surface chalk.

e) Recommendations for the design of piled foundations.

f) Recommendations for the specification of sub-structure concrete.

2.0 Site Setting

2.1 Current Site Setting

The development site comprises a rectangular parcel of land approximately 1.22 hectares (Ha) in area which is currently occupied by the three, two-storey office buildings (Pennant House, Emerald House, and Hawker House) along the northern boundary of the site. The remaining area is for car parking with minimal soft landscaping (tree planting and hedges). A retaining wall owned by Network Rail is present along the southern boundary of the site. The site is predominately topographically flat and is centred on National Grid Reference 472020, 173860. The site location is presented in Figure 2.1 with the site boundary outlined in red.



Figure 2.1 *Site Location Plan (site boundary outlined in red) © Google Maps 2022*

2.2 Surrounding Area

The immediate surrounding land use to the development site is highlighted in Table 2.2 below.

Table 2.2 *Surrounding Area*

Surrounding Area	N	Napier Road, with Kings Meadow Playground, Thames Lido, and the River Thames beyond (118m).
	E	Network Rail maintenance delivery unit.
	S	Railway lines associated with Reading Train Station.
	W	Thames Quarter multistorey residential development.

2.3 Phase 1 Desk Study

Curtins have prepared a Phase 1 Preliminary Risk Assessment (PRA) (1), which is recommended to be read in conjunction with this reporting, provides a geo-environmental overview regarding the site geology, hydrogeology, hydrology, current and historical land use, and landfill.

For continuity, a Preliminary Conceptual Site Model (PCSM) has been undertaken by Curtins in Section 3.0 of this report, based on the data presented in the previous reporting.

3.0 Initial Conceptual Site Model and Qualitative Risk Assessment

The conceptual site model (CSM) and Qualitative Risk Assessment (QRA) are presented in the table presented in this section.

The CSM details the source-pathway-receptor linkages or potential contaminant linkages (PCL) that have been identified for the site. The QRA details the associated level of risk relating to these potential contaminant linkages.

The QRA follows the framework outlined within CIRIA C552 which is summarised within Appendix F.

The 'risk rating' within the QRA refers to the risk that the source, pathway, receptor linkage or PCL is complete. Unless specifically stated it does not necessarily refer to an immediate risk and is intended to be used as a tool to assess the necessity for further assessment/investigation.

Under current health and safety legislation, employers are required to carry out their own appropriate risk assessments and mitigation to protect themselves and their employees, other human receptors and the environment from potential contamination. Such risks must be adequately mitigated by law, specifically the Construction Design Management (CDM) Regulations (2015) which require that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate / manage that risk. It has been assumed that any future construction works on site will be undertaken in compliance with these requirements and therefore construction workers involved in the building works at the site have been discounted as a human receptor in the conceptual site model.



- The table below represents the first stage in the land quality risk assessment process: The Qualitative Risk Assessment.
- In order for a development site to be deemed 'suitable for use', the level of risk needs to be brought down to acceptable levels, i.e. low to negligible risk. The purpose of each stage of risk assessment is ultimately to establish, if there is a requirement for additional levels of assessment to be made in order to have sufficient confidence to support a risk characterisation or management decision, e.g. remedial action.
- In the absence of specific site data a Generic Quantitative Risk Assessment is invariably recommended.

Conceptual Site Model			Qualitative Risk Assessment			Action
Source	**Pathway(s)**	**Receptor(s)**	**Consequence (Potential Severity)**	**Likelihood of Occurrence**	**Risk Rating**	
On-site sources of potential contamination: Uncontrolled deposition of Made Ground associated with several phases of construction and demolition as identified on historical mapping, including historical goods yard/shed and railway usage. Deposition of ash and clinker products to form historical sidings/railway lines. Potential leakage and spillages mobile phase contamination sources associated with railway depot/goods yard/shed and potential tanks (i.e. diesel, lubricating, engine and/or hydraulic oils). *Potential contaminants of concern associated with the above sources include, amongst others; hydrocarbons including diesel and petrol range organics, solid phase contamination (heavy metals, PAHs, asbestos, ash etc).*	**Inhalation of vapours/dust/fibres and direct contact/ingestion of soils.** *Ingestion of homegrown produce has been discounted owing to no proposed private gardens.*	**End users of site** Residents, staff, visitors and trespassers	**Medium** Chronic health risk	**Likely** Given the several phases of development identified on historical mapping, ground conditions on site are likely to comprise hardstanding over Made Ground potentially up to >2.00m bgl (given former industrial usage with potential basements/subsurface features). Made Ground is likely to comprise solid phase contamination (ash, bricks, clinker, potential asbestos) and mobile phase contamination (petroleum hydrocarbons, etc) owing to the demolition of previous structures and historical development as goods yard/shed on site. No private gardens are proposed as part of the development and soft landscaping areas are understood to comprise areas of open space. Based on this, existing Made Ground soils and historical leakages on site have the potential to present a Moderate likelihood of risk to future site users of the development within areas of soft landscaping and building footprints. A generic quantitative risk assessment is recommended to be undertaken as part of a ground investigation to confirm the risk.	**Moderate**	**GQRA as part of a ground investigation.**
	Vertical and horizontal migration through the Made Ground and granular superficial soils May occur due to processes including capillary action.	**Controlled waters (Groundwater and Surface Water)** Principal Aquifer within Bedrock and Secondary 'A' Aquifer within Superficial Deposits. No active groundwater abstraction points within 500m of the site. Site within a SPZ 3 – Total Catchment. River Thames located 118m north of the site.	**Medium** Pollution of sensitive water resources	**Likely** Given the several phases of development identified on historical mapping, ground conditions on site are likely to comprise topsoil/hardstanding over Made Ground potentially up to >2.00m bgl (given former industrial usage with potential basements/subsurface features). Made Ground is likely to comprise solid and free phase contamination (ash, bricks, clinker, potential asbestos, petroleum hydrocarbons, etc) owing to the demolition of previous structures and historical development as goods yard/shed on site. No private gardens are proposed as part of the development and soft landscaping areas are understood to comprise areas of open space. Consequently, it is considered likely that on-site contaminant sources would present a potential contamination risk to controlled waters. A generic quantitative risk assessment is recommended to be undertaken as part of a ground investigation to confirm the risk.	**Moderate**	**GQRA as part of a ground investigation.**
On-site sources of potential contamination: One on-site electrical substation.	**Dermal contact of soil and inhalation of dust risk.**	**End users of site** Residents, staff, visitors, and trespassers	**Medium** Chronic health risk	**Unlikely** Due to the limited mobility of PCB contaminants, it is likely if present would be in the footprint of the electrical substation and within near surface soils. With reference to the development plans, the electrical substation is located within an area of proposed hard landscaping (footpath). At this stage, there is a limited potential risk to future site users given that the substation is situated in an area of proposed hard standing (foot path), therefore there is no viable contaminant pathway.	**Low**	**No further action**

Conceptual Site Model			Qualitative Risk Assessment			Action
Source	**Pathway(s)**	**Receptor(s)**	**Consequence (Potential Severity)**	**Likelihood of Occurrence**	**Risk Rating**	
Off-site sources of potential contamination: Uncontrolled deposition of Made Ground soils during construction of neighbouring developments. Neighbouring railway goods depot and adjacent historical tanks. Pollution incident on adjacent former BMW garage in which underground fuel storage tank overflowed approximately 40m west of the development site. *Potential contaminants of concern associated with the above sources include, amongst others; hydrocarbons including diesel and petrol range organics, volatile organic compounds from spillages, solid phase contamination (asbestos, ash etc).*	**Vertical and horizontal migration of contamination through the Superficial Deposits, bedrock, and air (dust/particulates)** Followed by… **Inhalation of vapours**	**End users of site** Residents, staff, visitors and trespassers	**Medium** Chronic health risk	**Likely** Given that there is an unrecorded pollution incident (underground fuel storage tank leakage) immediately adjacent to the west of the site as recorded within the Ramboll Phase II report, there is potential for free phase contamination (hydrocarbons including diesel and petrol range organics) to have horizontally migrated onto the development site through the Superficial Deposits (Alluvium/River Terrace Deposits) and could potentially present a risk to future site users. It is assumed that such potential risk was addressed via planning for the Thames Quarter development, however with no available remediation strategy or verification report, the potential risk remains undetermined. Consequently, without this information a potential likely risk to future site users is considered from historical hydrocarbons spillages within adjacent site.	**Moderate**	**GQRA as part of a ground investigation. and confirm no gross or mobile phase contamination as part of the ground investigation**
Potential on and off-site sources of ground gases Uncontrolled deposition of Made Ground associated with several phases of construction and demolition have been identified on historical mapping. Potentially infilled land (water) identified on the environmental database report 88m NW of the development site. No historical landfills within 250m of the subject site. Potential presence of organic/putrescible content within the underlying Alluvium deposits.	**Vertical and horizontal migration through existing service corridors, Superficial Deposits, and Bedrock.**	**End users of site** Residents, staff, visitors and trespassers	**Severe** Acute health risk	**Low Likelihood** When considering the on-site (Made Ground) and off-site (potentially infilled land) ground gas sources are considered to have 'very low' gassing potential in line with Figure 6 of BS8576. It is anticipated that the on-site Made Ground is likely to comprise 'inert' material such as demolition material with brick and concrete. Whilst the off-site infilled land to 88m NW is likely to be localised to its area and unlikely to be an ongoing ground gas source which could migrate onto site. However, it is anticipated that natural Alluvium will be present on-site which is likely to comprise organic material which is a potential source of ground gas and in line with Figure 6 of BS8576 considered to have 'low' gassing potential. As such it is considered low likelihood to be a potential ground gas risk to future site users as part of the development, with a GQRA to be undertaken as part of ground investigation.	**Low to Moderate**	**GQRA as part of a ground investigation. .**

4.0 Fieldwork

A first stage of ground investigation was undertaken by Curtins from 04 July 2022 to 11 August 2022. A summary of the scope and rationale for the intrusive works undertaken is summarised in Table 4.0a below. Further ground investigation and groundwater sampling within the eastern area was undertaken from 23 May to 03 August 2023, a summary of the scope and rationale is provided in Table 4.0b.

The ground investigation was designed by Curtins accounting for the findings of the Phase 1 (1), accounting for the proposed development and to be in general accordance with current UK guidance including LCRM (2), British Standard (BS) 10175 (3), BS5930:2020 (4), CIRIA C574 (5) and Eurocode 7 (6).

Table 4.0a *Ground Investigation Scope and Rationale*

Activity	Rationale
Six rotary boreholes (BH01 to BH05, BH07) to a maximum depth of up to 41.50m bgl.	• Characterise deeper ground conditions. • Collect soil samples for chemical & geotechnical analysis. • Undertake in-situ testing. • Determine geotechnical parameters. • Enable monitoring well construction.
12 windowless sample boreholes (WS01 to WS12) to depths up to 4.00m bgl with follow on dynamic probing as detailed below.	• Characterise shallow ground conditions. • Collect soil samples for chemical & geotechnical analysis. • Undertake in-situ testing. • Enable monitoring well construction. • Determine geotechnical parameters.
Follow on dynamic probing to depths of 10.00m bgl in select window sample boreholes.	• Determine potential presence of dissolution features across the development site.
Six hand-excavated foundation pits (HP1 to HP6) to depths up to 1.20m bgl.	• Determine existing foundation conditions of the adjacent Network Rail retaining wall.
Installation of monitoring wells within 13 exploratory locations.	• To enable a ground gas and groundwater level monitoring to be undertaken.
Four return gas monitoring visits.	• To determine the ground gas level regime.
Five return groundwater monitoring visits.	• To determine the groundwater level regime. • Collect water samples for chemical analysis.

Table 4.0b *Further Ground Investigation Scope and Rationale – Eastern Area*

Activity	Rationale
5 windowless sample boreholes (WS101 to WS105) to depths up to 4.00m bgl.	• Characterise shallow ground conditions in eastern areas. • Enable monitoring well construction.
Four return groundwater monitoring and sampling visits of new and existing wells (eastern area only)*	• To determine the groundwater level regime. • Collect water samples for chemical analysis.

Notes - *Due to parked vehicles certain locations were unable to sampled on certain visits**.**

Curtins Exploratory Hole Location drawing, records the locations of all exploratory hole locations a copy of which is contained within Appendix A.

4.1 Logging and Sampling (Soil and Groundwater)

Exploratory hole arisings were logged on site by a suitably qualified Curtins engineer in accordance with the requirements of BS5930:2020 (4) and CIRIA C574 Guidance (6), including recording observed visual and olfactory indicators of contamination. Copies of the exploratory hole logs are provided in Appendix B, with ground conditions presented in Section 6.1.

Representative soil and groundwater samples were selected for laboratory chemical and geotechnical analysis, based on field observations and to provide a characterisation of the Made Ground and natural strata encountered.

Representative soil and rock samples were placed in laboratory provided containers and stored in cool boxes prior to being transported to the nominated laboratory under the laboratory's chain of custody documentation. Groundwater samples were obtained via low flow and bailer methods from select monitoring locations across the site to undergo laboratory chemical analysis. Prior to the sampling of groundwater, installations were purged three times the well volume.

The laboratory selected by Curtins for chemical and geotechnical analysis in 2022 was i2 Analytical, a UKAS and MCerts accredited laboratory. During the 2023 groundwater sampling, the laboratory selected by Curtins for chemical analysis was Envirolab a UKAS and MCerts accredited laboratory.

4.2 Monitoring Well Installations

In 2022, gas and groundwater monitoring installations (50mm OD) were installed within 13 intrusive locations as part of the ground investigation. The rationale for installations within deeper boreholes was to inform basement dewatering at early stages of the project. In 2023, a further five groundwater monitoring installations (50mm OD) were installed within the eastern area of the site.

A bentonite seal was placed above the screened section of all boreholes (and below where relevant) to minimise potential for downward migration of contaminants and the creation of a preferential

migratory pathway. A gravel surround was installed in the annulus between the sides of the borehole and the slotted sections of pipe. A summary of the response zones is presented in Table 4.2.

Table 4.2 *Borehole Response Zones*

Location Reference	Response Zone(s) (m bgl)	Principle Strata Description(s)
2022		
BH02	1.00 – 7.40	Alluvium, River Terrace Deposits.
BH03	10.00 – 25.00	Structureless Chalk, Structured Chalk.
BH04	10.00 – 25.00	Structureless Chalk, Structured Chalk.
BH05	1.00 – 25.00	Alluvium, River Terrace Deposits, Structureless Chalk, Structured Chalk.
BH07	10.00 – 23.00	Structureless Chalk, Structured Chalk.
WS02	1.00 to 3.70	Made Ground, Alluvium, and River Terrace Deposits.
WS03	1.00 to 3.50	
WS05	1.00 to 3.50	
WS06	1.00 to 3.70	
WS09	1.00 to 3.90	
WS10	1.00 to 3.00	
WS11	1.00 to 3.00	
WS12	1.00 to 3.00	
2023		
WS101	1.00 to 4.00	Alluvium and River Terrace Deposits.
WS102	1.00 to 2.80	
WS103	1.00 to 3.20	
WS104	1.00 to 3.60	
WS105	1.00 to 3.40	

Copies of borehole logs provided by Curtins can be referred to in Appendix B of this report.

4.3 Post-Investigation Monitoring

4.3.1 Ground Gas and Groundwater Level Monitoring

An initial programme of four gas monitoring and five groundwater level monitoring visits in 2022 was proposed in order to confirm the initial ground gas risk assessment, and to determine a working groundwater level model for the site. The gas and groundwater monitoring have been undertaken on the following occasions: 25 July 2022, 08 August 2022, 17 August 2022, 24 August 2022 and 15 September 2022 (groundwater monitoring only).

The return groundwater sampling and monitoring visits in the eastern area following further ground investigation was undertaken on 23 May 2023, 14 June 2023, 30 June 2023 and 06 July 2023.

Copies of the ground gas and groundwater monitoring visits undertaken by Curtins are presented in Appendix C of this report.

5.0 Laboratory Testing

5.1 Environmental Chemical Testing

A programme of environmental chemistry testing was scheduled, with analytical suites developed reflecting the preliminary CSM in Section 3.0 and observations made during the ground investigation.

Given the potential for site wide source of contamination (Made Ground) and former land uses the sampling positions (boreholes) were generally located in a semi targeted array to give an adequate and representative coverage of the site accounting for the historical site use and immediate environmental setting. In 2023, the five additional boreholes were advanced to target identified residual PCE in groundwater within the eastern area during the first stage of ground investigation.

5.1.1 Soil Analysis

Soil samples were taken from the Made Ground and natural soils across the site and tested for the suites listed in Table 5.1.1a and Table 5.1.1b. The nature and type of soil contamination potentially present on the site was considered to include, amongst others; ash, slag, hydrocarbons (e.g., fuel oils), heavy metals and asbestos the extent of which is captured by the broad environmental testing suites detailed below. In addition, WAC testing was undertaken of Made Ground soils to inform potential landfill acceptance. Copies of the environmental chemistry testing certificates can be referred to in Appendix C of this report.

Table 5.1.1a *Environmental Chemistry Analysis - Curtins Soil Suite 1A*

Analysis	Limit of Detection (LOD)
Asbestos Screen	N/A
pH	N/A
Organic Matter	0.1%
Arsenic	1 mg/kg
Boron (water soluble)	0.2 mg/kg
Cadmium	0.2 mg/kg
Chromium	1.2 mg/kg
Chromium VI	1 mg/kg
Copper	1 mg/kg
Lead	1 mg/kg
Mercury	0.3 mg/kg
Nickel	1 mg/kg
Selenium	1 mg/kg
Zinc	1 mg/kg
Ammoniacal Nitrogen, Ammonia, Ammonium	0.5 mg/kg
TPH CWG inc. BTEX & MTBE	0.01 to 10 mg/kg
SVOCs	<0.05 to <0.3 mg/kg
VOCs	<1 µg/kg
Phenols (total)	<0.1 mg/kg
Cyanide (total and free)	1 mg/kg
Sulphate (SO_4)	<1.25 mg/l

Table 5.1.1b *Environmental Chemistry Analysis - Curtins Soil Suite 1B*

Analysis	Limit of Detection (LOD)
Asbestos Screen	N/A
pH	N/A
Organic Matter	0.1%
Arsenic	1 mg/kg
Boron (water soluble)	0.2 mg/kg
Cadmium	0.2 mg/kg
Chromium	1.2 mg/kg
Chromium VI	1 mg/kg
Copper	1 mg/kg
Lead	1 mg/kg
Mercury	0.3 mg/kg
Nickel	1 mg/kg
Selenium	1 mg/kg
Zinc	1 mg/kg
Cyanide (total)	<1
Sulphate (as SO4) (2:1)	<1.25
Phenols (total)	<1
PAH – speciated (EPA 16)	<0.05 - <0.1
TPH CWG in BTEX & MTBE	<0.1 - <10

5.2 Groundwater Analysis

Groundwater samples were obtained via low flow and bailer methods from select monitoring locations across the site and tested for the following analysis presented in Table 5.2. The differing sample retrieval method was to determine groundwater concentrations at differing water column depths. Copies of the environmental chemistry testing certificates are presented in Appendix C of this report. The recorded groundwater parameters (temperature, pH, dissolved oxygen, redox potential and electrical conductivity) of each of the samples as part of the low flow sampling (where undertaken) are presented in Appendix C.

Table 5.2 - *Environmental Chemistry Analysis - Groundwater*

Analysis	LOD
pH	N/A
Arsenic	1.1 µg/l
Boron (water soluble)	10 µg/l
Cadmium	0.08 µg/l
Chromium	0.4 µg/l
Copper	0.7 µg/l
Lead	1 µg/l
Mercury	0.5 µg/l
Nickel	0.3 µg/l
Selenium	4 µg/l
Zinc	0.4 µg/l
Sulphate (total)	0.1 mg/l
Chloride	0.15 mg/l
Ammoniacal Nitrogen as NH3	15 µg/l
Ammoniacal Nitrogen as NH4	15 µg/l
Nitrate (NO_3^{-})	0.05 mg/l

Analysis	LOD
Total Phenols Speciated PAHs TPH (Aro/Ali Split & BTEX) Speciated PAHs VOCs	1 µg/l 1 µg/l 1 to 10 µg/l 10 µg/l 1 µg/l

As part of the 2023 groundwater sampling and testing only TPH (Aro/Ali Split & BTEX) and VOCs were scheduled for laboratory testing.

5.3 Geotechnical Testing

Soil samples taken during the ground investigation works were prepared in accordance with BS1377: Part 1:2016. The following geotechnical in situ and laboratory testing has been undertaken. The results of the testing are discussed further in Section 6.0 and presented in Appendix C.

Table 5.3 *Geotechnical Testing*

Test Type	Quantity	Standard
In-Situ Testing		
Standard Penetration Testing	117	BS5930:2020, Clause 41
Dynamic Probing	8*	BS5930:2020, Clause 41
Laboratory Testing		
Atterberg Limits (, liquid content, plasticity index)	4	BS EN17892 Pt 12: 2018 + A1: 2021
Particle Size Distribution	7	BS EN17892 Pt 4: 2016
Water Soluble Sulphate	35	BS 1377-3:2018+A1 2021
pH Value		BS 1377-3:2018+A1 2021
Saturated Moisture Content/Bulk Density	54	BS1377 Pt 2: 1990
Moisture Content	70	BS1377 Pt 2: 1990
Point Load Test	35	ISRM 1974-2006
Uniaxial Compressive Strength	5	ISRM 1985
Remoulded CBR	1	BS1377 Pt 4: 1990

Notes - *Number of tested locations

6.0 Ground Model

6.1 Encountered Ground Conditions

The revealed site geology was generally consistent with the anticipated geology and historical use of the site. A summary of the encountered ground conditions is presented in Table 6.1.

Table 6.1 *Summary of Ground Conditions Encountered*

Stratum	Depth to top of strata		Thickness (m)	General Description
	Min-Max (m BGL)	Min – Max (m AOD)	Min-Max	
Topsoil	GL	-	0.05-0.18	Black slightly clayey silty SAND with rootlets.
Made Ground	GL–0.18	GL – 37.85	1.10-2.10	**Hardstanding and Sub-base** *See description 6.1.2 below* **Suspected Former Railway Sidings** *See description 6.1.2 below* **Reworked Ground** *See description 6.1.2 below*
Alluvium	0.40–2.10	36.77 – 35.81	0.30-2.00	Multicoloured slightly organic silty CLAY/sandy SILT with localised shells, localised gravels of rounded to sub-angular fine to coarse flint, and slight organic odour. Sand is fine to medium.
River Terrace Deposits	1.50-3.70	36.48 – 35.73	4.30-7.80	Brown/yellowish-brown/dark yellow variably gravelly medium to coarse SAND/locally silty SAND and GRAVEL. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse flint. Sub-angular Cobbles of flint.
Structureless Seaford and Newhaven Chalk Formation (Undifferentiated) (Bedrock)	7.30-10.30	30.75 – 27.62	6.85-12.50	Grade Dm: White/yellowish white/off-white sandy gravelly locally cobbley SILT. Sand is fine to coarse. Gravels are angular to rounded, fine to coarse flint and chalk. Grade Dc: White/yellowish white/off-white silty sandy locally cobbley GRAVEL of angular to rounded, fine to coarse flint and chalk. Sand is fine to coarse.
Structured Seaford and Newhaven Chalk Formation (Undifferentiated) (Bedrock)	16.35-22.35	23.08 – 15.53	>8.20*->21.70*	Weak to very strong, low to high density white CHALK with bands and nodules of flint and marl (Grades C2, C3, C4, B2, B3, A2).

Notes - *Base not encountered.

6.1.1 Topsoil

Topsoil was encountered across the site in all areas of soft landscaping (HP1 to HP6) adjacent to boundary wall, with a thickness of 0.05m to 0.18m. The topsoil consisted of black slightly clayey silty SAND with rootlets.

6.1.2 Made Ground

Made Ground material was encountered in all exploratory locations to base depths of 0.40m (WS103) to 2.10m bgl (WS02)/36.77m to 35.72m AOD. The Made Ground soils recorded on-site comprised hardstanding underlain by sub-base, reworked chalk/gravelly clays, and soils thought to be potentially representative of historical railway sidings. Several concrete obstructions were also encountered as discussed in Section 6.6

Hardstanding and Sub-Base

Hardstanding was encountered within all the exploratory boreholes. The hardstanding was encountered as a 0.10m to 0.20m thickness of tarmacadam, or block paving to a maximum depth of 0.10m bgl underlain by 0.10m to 0.20m of bedding sand.

Sub-base material was encountered in exploratory locations BH02 to BH05, WS01, WS05, WS10 and WS12, generally comprising dense brown/reddish-brown gravelly, fine to coarse SAND with gravels of sub-angular to sub-rounded, fine to coarse brick, concrete, and light greyish red/pinkish grey flint or sandy, sub-angular to sub-rounded, fine to medium GRAVEL of limestone and dolostone. The thickness of this material was typically 0.20 to 0.50m.

Cohesive Made Ground

Cohesive Made Ground soils were encountered in BH01, BH03, and BH05 underlying the hardstanding (BH01 only) to a maximum depth of 1.00m bgl as soft dark brown/black sandy gravelly CLAY. Sand is fine to coarse. Gravels are angular to sub-rounded, fine to coarse concrete, brick fragments, chalk, and flint.

Granular Made Ground

Granular Made Ground soils thought to comprise historical railway sidings/bedding material were encountered in several exploratory locations across the development site to maximum depths ranging from 0.60m to 1.60m bgl. The unit was recorded as brown, black, and grey locally silty locally clayey variably gravelly fine to coarse SAND/silty fine to coarse SAND and GRAVEL/ slightly silty variably sandy GRAVEL/ and sandy GRAVELS and COBBLES of slag. Sand is fine to coarse. Gravels are very angular to sub-rounded, fine to coarse: aggregate, ballast, concrete, flint, brick, clinker, slag, coal, dolostone, limestone, chalk, and ash. Organic matter was encountered locally in WS09, whilst mild organic odours were noted from 0.45m – 1.10m in WS02 and from 0.40m – 0.60m in WS03. A slight aromatic hydrocarbon odour was recorded within the material of WS09 at 1.00m to 1.80m bgl.

Reworked Ground

Reworked ground was encountered in several exploratory locations across the development site underlying granular Made Ground to maximum depths ranging from 1.30m to 2.10m bgl. The unit was recorded as a black, white, and greyish/blackish white variably silty locally clayey sandy GRAVEL/very soft to soft silty sandy gravelly locally cobbley CLAY. Sand is fine to

coarse. Gravels are angular to sub-rounded, fine to coarse chalk, flint, clinker, slag, coal, and rare ash.

Made Ground is not considered a suitable founding stratum. As such, no review of geotechnical testing has been undertaken on this stratum and no design parameters have been derived.

6.1.3 Superficial Deposits - Alluvium

Underlying the Made Ground were the superficial Alluvium deposits encountered in all exploratory locations, (save for BH07 or where subsurface obstructions were encountered), to maximum depths ranging from 1.60m bgl/36.40m AOD (WS11) to 3.70m bgl/35.73m AOD (BH01). The unit extended to deeper depths towards the western end of the development site as well as areas along the northern-central boundary (closer to the River Thames). The predominantly cohesive soils comprised grey, green, blue, orange, brown, and reddish brown slightly sandy, locally organic SILT with mild organic odour/silty, locally sandy, locally gravelly CLAY, with fine to coarse sand, and gravels of sub-rounded to well rounded, fine to coarse flint with localised shells with slight organic odour.

A summary of geotechnical tests results from Alluvium is presented in Table 6.1.3a, and Figure 6.1.3a below.

Table 6.1.3a – *Summary of geotechnical tests for Alluvium*

	Parameter		Quantity	Values
Alluvium	**In Situ Test**			
	Standard Penetration Test 'N' Value		12	Min: 0 Max: 21 Average: 6
	Laboratory Test			
	Atterberg Limits	Moisture Content (%)	2	Min:5.3 Max: 24 Average: 14.7
		Liquid Limit (%)		Min: 70 Max: 74 Average: 72
		Plastic Limit (%)		Min: 27 Max: 37 Average: 32
		Plasticity Index (%)		Min: 37 Max:43 Average: 40
	pH		2	Min: 8.1 Max: 8.5 Average 8.3:
	Water Soluble Sulphate (2:1 Leachate Equivalent) (mg/l)		2	Min: 21 Max: 430 Average: 225

The moisture contents of the Alluvium ranged from 5.3% to 24%. Plasticity Indices ranged from 37% to 40%, classifying the deposits as very high plasticity. The 12 No. SPTs results within the Alluvium, recorded N values in the range of 0 to 21, with an average of 6. The N value of 21 is considered an anomaly and potentially reflective of gravel band/material within the Alluvium.

Moderately conservative Cu values of cohesive soils can be indirectly estimated from the correlation between Plasticity Indices (PI) and SPT N values using **Equation 1** (Stroud, 1975):

$C_u = f_1 \times SPT\ N$ **Equation 1**

Where:

C_u is the Undrained Shear Strength

f_1 is the Stroud Factor

To be conservative a plasticity index of 40% has been adopted and therefore, an f1 factor of 4.5 has been utilised (Stroud, 1975). Consequently, undrained shear strengths in the range of 4.5kPa to 54kPa (with anomaly removed). This classifies the deposits as an extremely low to low strength clay predominately in accordance with BS5930:2015+A1:2020. Following guidance from BS8004:2015+A1:2020, a unit weight of 17kN/m^3 is appropriate for design.

The Adhesion Factor (α), has been determined as 0.5 through correlation with undrained shear strength (Weltman and Healy, 1978). An Nc of 9 is appropriate for cohesive soils (Look, 2007)

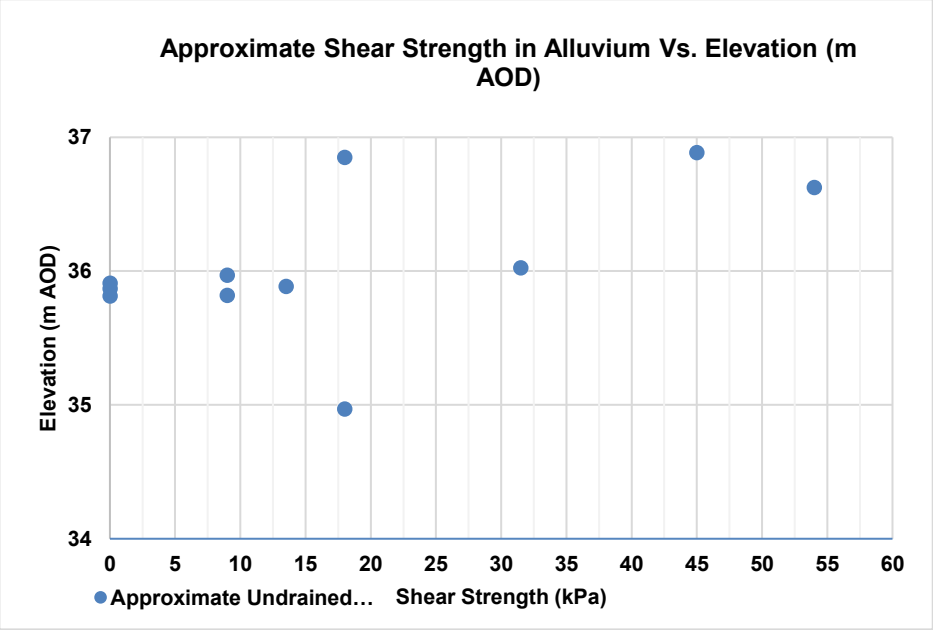


Figure 6.1.3a *Approximate Undrained Shear Strength in Alluvium vs Elevation (m AOD)*

6.1.4 Superficial Deposits – River Terrace Deposits

Underlying the Alluvium deposits were the superficial River Terrace Deposits encountered in all exploratory locations (without obstructions) to maximum depths ranging from 7.30m bgl/30.75m AOD (BH02) to 10.30m bgl/27.62m AOD (BH03). The unit comprised a brown/yellowish-brown/dark yellow/grey variably gravelly fine to coarse SAND/ locally silty fine to coarse SAND and GRAVEL/COBBLES of sub-angular to sub-rounded flint. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse flint. The base of the River Terrace Deposits was not proven in the window sample boreholes. The River Terrace Deposits extended to deeper depths within the eastern area (BH03, BH04 and BH05) of the development site.

A summary of geotechnical tests results from River Terrace Deposits is presented in Table 6.1.4a, Table 6.1.4b below and Figure 6.1.4.

Table 6.1.4a – *Summary of geotechnical tests for River Terrace Deposits*

	Parameter	Quantity	Values
River Terrace Deposits	**In Situ Test**		
	Standard Penetration Test 'N' Value	29	Min: 3 Max: 112 Average: 37
	Laboratory Test		
	Particle Size Distribution (%)	7	See Appendix C
	Ph	4	Min: 8.4 Max: 9.0 Average: 8.6
	Water Soluble Sulphate (2:1 Leachate Equivalent) (g/l)	4	Min: 0.013 Max: 0.024 Average: 0.017

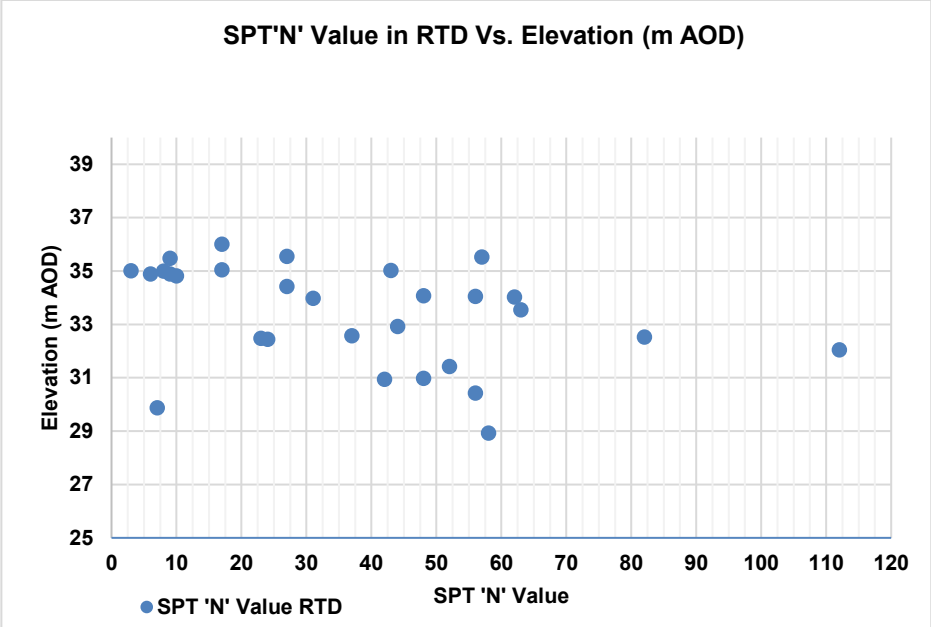


Figure 6.1.4 *SPT 'N' Value in River Terrace Deposits vs Elevation (m AOD)*

The results of the PSD analysis predominately recorded brown/yellowish-brown slightly clayey very sandy GRAVEL. The SPT N values within the River Terrace Deposits ranged from 3 to 112, with an average SPT N value of 38, which indicates very loose to very dense, with an average relative density of dense. The lower SPT values (<10) within RTD were noted where groundwater strikes were encountered and interface with chalk bedrock. The Angle of Internal Friction for the granular superficial deposits has been derived from a review of derived parameters from relationship with SPT 'N' values (Peck et al,1994) and published values. An Angle of Internal Friction of 38° is deemed suitable for this stratum. Following a review of published values, a moderately conservative unit weight, ɣ', of 18 kN/m^3 has been deemed suitable for the granular superficial soils. These characteristic parameters for the RTD are presented in Table 6.1.4b below.

Table 6.1.4b – *Characteristic Parameters – River Terrace Deposits*

Parameter	Characteristic Values	Reference
Unit Weight, ɣ (kN/m^3)	18	Barnes, 2000
Angle of Internal Friction, ϕ' (°)	38	Correlation with SPT 'N' value (Tomlinson, 1986)

6.1.5 Bedrock – Seaford and Newhaven Chalk Formation (Undifferentiated) (SNCF)

Underlying the superficial deposits was SNCF bedrock. The weathered bedrock was initially encountered as structureless chalk (Grade Dm to Grade Dc) in all rotary cored boreholes (BH01 – BH05, and BH07) encountered at depths ranging from 7.30m bgl/30.75m AOD (BH02) to 10.30m bgl/27.62m AOD (BH03). The structureless chalk was proven to maximum depths of 16.35m bgl/23.08m AOD (BH01) to 22.35m bgl/15.53m AOD (BH05). The structureless chalk was generally encountered as Grade Dm becoming Grade Dc, but also interbedded as Grades Dm and Dc.

Weathered Seaford and Newhaven Chalk Formation (CIRIA Grades Dm & Dc)

The weathered, structureless chalk was initially encountered as Grade Dm described as white/yellowish white/off-white sandy gravelly locally cobbley SILT. Gravels and cobbles are angular to sub-angular, very weak to weak, low to medium density white chalk and flint. Grade Dc chalk was typically encountered at greater depths ranging from 13.00m/24.88m AOD to 16.40m bgl/21.56m AOD and described as white/yellowish white/off-white silty sandy locally cobbley GRAVEL with angular to rounded, fine to coarse flint and chalk. Sand is fine to coarse. In exploratory location BH03 only, Grade Dm chalk was encountered to 19.20m bgl. In BH02, BH04, and BH05, the structureless Grades Dm and Dc chalk was encountered as interbedded to the base of the weathered chalk.

A summary of geotechnical tests results within weathered bedrock is presented in Table 6.1.5a, Table 6.1.5b, and Figure 6.1.5a below.

Table 6.1.5a – *Summary of geotechnical tests for Structureless Chalk*

	Parameter		Quantity	Values
Structureless Chalk	**In Situ Test**			
	Standard Penetration Test 'N' Value		41	Min: 7 Max: 65 Average: 32
	Laboratory Test			
	Saturation Moisture Content and Intact Dry Density	Saturated Moisture Content (%)	5	Min: 25 Max: 28 Average: 26.4
		Bulk Density (Mg/m^3)		Min: 1.94 Max: 2.02 Average: 1.98
		Dry Density (Mg/m^3)		Min: 1.55 Max: 1.62 Average: 1.58
		Moisture Content (%)	10	Min: 23 Max: 26 Average: 24.9

	Atterberg Limits	Moisture Content (%)	2	Min: 26 Max: 28 Average: 27
		Liquid Limit (%)		Min: 28 Max: 31 Average: 29.5
		Plastic Limit (%)		Min: 20 Max: 20 Average: 20
		Plasticity Index (%)		Min: 8 Max: 11 Average: 9.5
	pH		12	Min: 8.2 Max: 9.2 Average: 8.8
	Water Soluble Sulphate (2:1 Leachate Equivalent) (g/l)		12	Min: 0.012 Max: 0.051 Average: 0.038

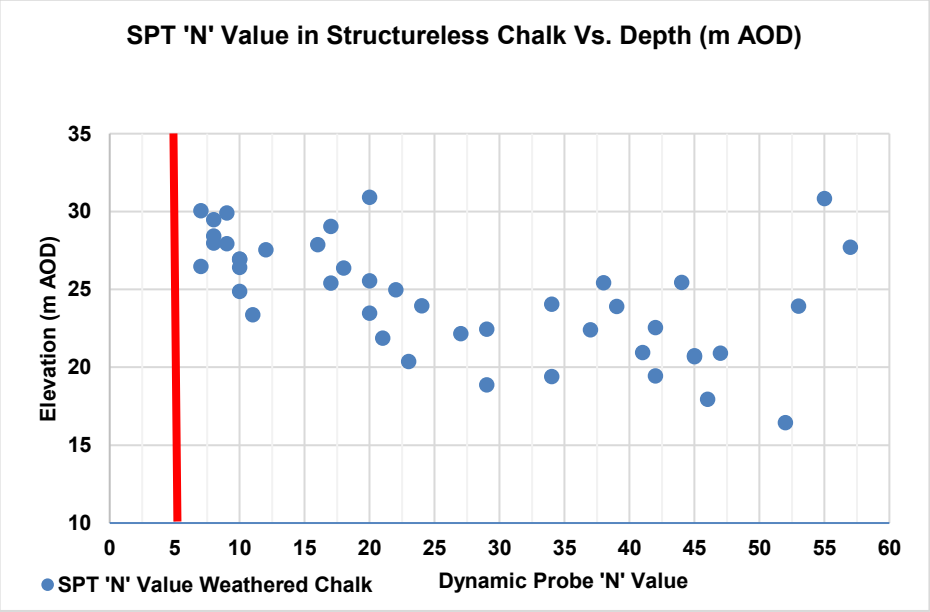


Figure 6.1.5a *SPT 'N' Value in weathered Chalk vs Elevation (m AOD) (red line denotes N values <5 and consequently potential dissolution features)*

41 SPT 'N' values were recorded within the weathered structureless chalk bedrock with 'N' values ranging from 7 to 65, with an average of 32 as displayed in Figure 6.1.6. In addition, the dynamic probing of the overlying River Terrace Deposits and structureless chalk recorded N values (cumulative per 300mm) ranging from 5 to 53, with an average of 24 as discussed further in Section 6.2 below.

Based on this, the Dm and Dc Chalk was considered to predominately comprise low to medium density with reference to CIRIA C574.

Following a review of published values and laboratory testing, a moderately conservative unit weight, ɣ', of 19 kN/m^3 has been deemed suitable for the unstructured chalk bedrock. In

addition, with reference CIRIA C574 the following interim parameters have been determined for typical low to medium-density chalk. These characteristic parameters for the Structureless Chalk are presented in Table 6.1.5b below.

Table 6.1.5.b - *Characteristic Parameters – Structureless Chalk*

Parameter	Characteristic Values	Reference
Unit Weight, γ (kN/m^3)	19	Barnes, 2000
Ultimate Bearing Capacity (Qu)	1.5 MN/m^2	CIRIA C574

Seaford and Newhaven Chalk Formation (CIRIA Grades C to A)

Structured chalk was encountered underlying structureless chalk at depths ranging from 16.35m bgl/23.08m AOD (BH01) to 22.35m bgl/15.53m AOD (BH05) and proven to a minimum depth of 41.50m/-3.45m AOD bgl (base not encountered). The structured chalk was initially encountered as a weak to medium strong, low to medium density, white CHALK with black specs and bands of marl, flint, and iron staining. Fractures are open to closed and infilled with white silt (CIRIA Grade C2 and C3).

Beyond this, the chalk became stronger and higher density with increasing depth. From depths ranging from 19.20m bgl/18.72m AOD to 22.35m bgl/15.53m AOD, the chalk comprises medium strong to very strong, high to very high-density white CHALK with bands of marl, flint, and iron staining. Fractures are open to closed, and occasionally infilled with white silt (CIRIA Grade B2 and B3). In BH05 only, the chalk comprised weak to medium strong, low to high density white CHALK with bands of marl, and flint. Fractures are closed to 3mm aperture (CIRIA Grade A2).

Numerous bands of rinded flint (up to cobble size) were recorded throughout which was considered to impact recovery of the structured chalk.

A summary of geotechnical tests results within the structured chalk are presented in Table 6.1.5c, Table 6.1.5d, and Figure 6.1.5a below.

Table 6.1.5c – *Summary of geotechnical tests for Structured Chalk*

	Parameter	Quantity	Values
Structured Chalk	**In Situ Test**		
	Standard Penetration Test 'N' Value	10	Min: 50 Max: 80 Average: 57.
	RQD (%)	74	Min: 0* Max: 95 Average: 34
	Laboratory Test		

	Saturation Moisture Content and Intact Dry Density	Saturated Moisture Content (%)	38	Min: 20 Max: 30 Average: 24.8
		Bulk Density (Mg/m^3)		Min: 1.86 Max: 2.09 Average: 1.99
		Dry Density (Mg/m^3)		Min: 1.48 Max: 1.75 Average: 1.62
		Moisture Content (%)		Min: 17 Max: 30 Average: 22.8
	Point Load (Is^{50}) MPa		35	Min: 0.02 Max: 0.47 Average: 0.19
	Point Load (Is^{50}) MPa x 4 (correlation) MPa		35	Min: 0.08 Max: 1.88 Average: 0.76
	UCS MPa		5	Min: 2.09 Max: 6.20 Average: 3.96
	pH		16	Min: 7.4 Max: 9.2 Average: 9.1
	Water Soluble Sulphate (2:1 Leachate Equivalent) (mg/l)		16	Min: 0.012 Max: 0.43 Average: 0.062

*Recorded RQD of 0 likely caused by trapped flint gravel/cobble destroying core.

UCSs were determined from the Unconfined Compressive Strength test results and the Point Load test results. A factor of 4 was deemed suitable to correlate the Is50 determined from the Points Load tests, based on average structured chalk UCS.

10 SPT 'N' values were recorded within the intact bedrock of the Seaford and Newhaven Chalk (Undifferentiated), with 'N' values ranging from 50 to 80, with average of 57. It should be noted that lower 'N' values are attributed to early termination of the standard penetration test due to the hammer bouncing on hard rock/flint and have therefore been discounted. Based on this, the Structured Chalk was considered high density.

Following a review of published values, a moderately conservative unit weight, ɣ', of 20 kN/m^3 has been deemed suitable for the structured chalk bedrock. In addition, with reference CIRIA C574 the following parameters have been determined for typical medium to high density chalk. These characteristic parameters for the Structured Chalk are presented in Table 6.1.5d below.

Table 6.1.5d - *Characteristic Parameters – Structured* Seaford and Newhaven Chalk.

Parameter	Characteristic Values	Reference
Unit Weight, ɣ (kN/m^3)	20	Barnes, 2000

Parameter	Characteristic Values	Reference
Unconfined Compressive Strength (UCS)	4.0 MN/m^2	CIRIA C574 and in-situ testing

6.2 Potential Dissolution Features

As part of the ground investigation, dynamic probing was undertaken within all window sample boreholes as a preliminary investigation to determine the potential for dissolution features within the chalk bedrock and therefore any geotechnical hazards regarding onwards development. The dynamic probe logs are presented within Appendix B, and 'N' Values detailed within Table 6.2 and Figure 6.2 below. The results of the testing within both window sample and rotary boreholes across the development site did not identify any SPT 'N' values <5, therefore the potential for dissolution features at this stage is considered Low.

Table 6.2 – *Summary of geotechnical tests for Structureless Chalk*

	Parameter	Quantity	Values
All strata	In Situ Test		
	Dynamic Probing 'N' Value (taken as cumulative blows over 300mm) to <10m bgl.	420	Min: 5 Max: 53 Average: 24

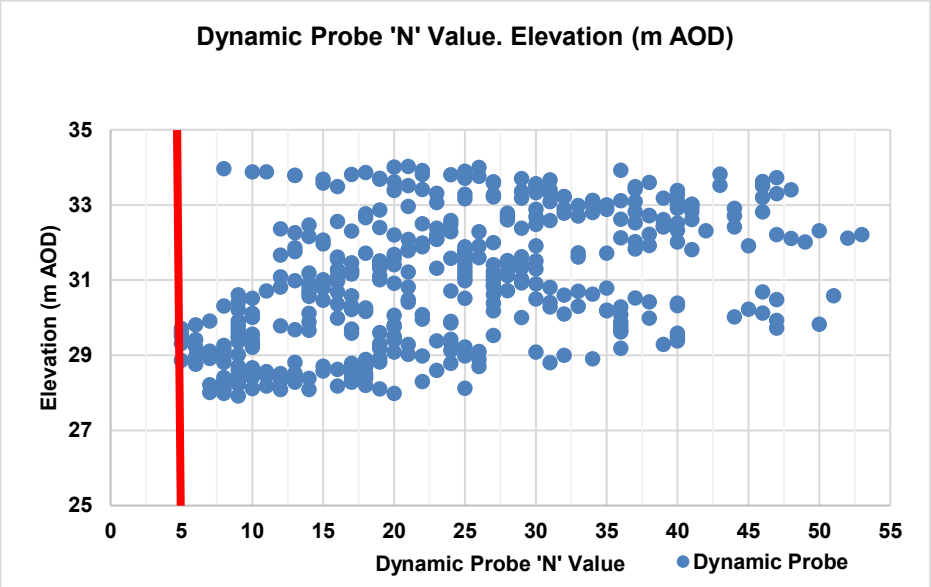


Figure 6.2 *Dynamic Probe 'N' Value vs Elevation (m AOD) (red line denotes N values <5 and consequently potential dissolution features/'weakening' of soils overlying chalk)*

6.3 Visual and Olfactory Indicators of Contamination

During the ground investigation, visual and olfactory indicators of contamination were recorded within WS09 at 1.00m to 1.80m bgl/36.91 to 36.11m AOD in the form of slight aromatic hydrocarbon odour within Made Ground. Given that WS09 was located within the footprint of the historical railway goods shed, it is considered that potential sources of contamination could include coal tar coated aggregates/slag. A sample was retrieved of the strata and submitted for environmental chemistry testing, discussed in Section 7.0. to determine potential risk to future site users and controlled waters.

No further indicators of visual or olfactory contamination (including mobile phase/volatiles) were recorded within Made Ground or natural soils or groundwater during the ground investigation.

6.4 Groundwater

A summary of the groundwater depths/levels recorded during the 2022 ground investigation, and subsequent monitoring, is presented in Table 6.4a below. The monitoring undertaken during the 2023 period is presented in Table 6.4b below. Full details of the water strikes recorded during progression of the investigation positions are presented on the exploratory hole logs included in Appendix B and full details of the water levels recorded during the monitoring visits completed to date are presented in Appendix C.

Table 6.4a – *Summary of Groundwater Levels - 2022*

Exploratory Hole Location Ref.	During Ground Investigation		Post Investigation Monitored Groundwater Levels		
	Strike Depth (mbgl/m AOD)	Strata	Installation Strata	Monitored Depth (m bgl)	Monitored Levels (m AOD)
WS02	3.00/34.82	A/ RTD	MG, A and RTD	2.10 – 2.18	35.72 – 35.64
WS03	3.00/34.82			2.10 – 2.20	35.72 – 35.62
WS05	3.00/34.87			2.23 – 2.36	35.64 – 35.51
WS06	3.60/34.36			2.35 – 2.43	35.62 – 35.54
WS09	1.80/36.11 (perched)	MG		1.48 – 1.96	36.43 – 35.93
	3.20/34.71	A/RTD			
WS10	2.60/35.29	A/RTD		2.21 – 2.60	35.68 – 35.29
WS11	3.00/35.00	A		2.40 – 2.49	35.60 – 35.51
WS12	2.30/35.72	A/ RTD		2.43 – 2.46	35.60 – 35.5
BH02	*	*	ALLUVIUM, RTD	2.38 – 2.40	35.69 – 35.65
BH03	*	*	CHALK	2.39 – 2.40	35.57 – 35.53
BH04	*	*	CHALK	2.36 – 2.38	35.62 – 35.58
BH05	*	*	MG/ALLU	2.38 – 2.39	35.52 – 35.49
BH07	*	*	CHALK	2.35 – 2.38	35.63 - 35.60

Notes - MG – Made Ground, A – Alluvium and RTD – River Terrace Deposits. * Groundwater strikes not identified owing to rotary flush drilling methods.

Table 6.4b – *Summary of Groundwater Levels – 2023*

Exploratory Hole Location Ref.	During Ground Investigation		Post Investigation Monitored Groundwater Levels		
	Strike Depth (mbgl/m AOD)	Strata	Installation Strata	Monitored Depth (m bgl)	Monitored Levels (m AOD)
WS10 (37.89)	-[1]	-[1]	MG, A and RTD	2.0 to 2.32	35.89 to 35.57
WS11 (38.00)	-[1]	-[1]		Dry[2]	-
WS12 (38.03)	-[1]	-[1]	A/ RTD	2.37[2]	35.66
BH04 (37.96)	-[1]	-[1]	CHALK	2.30	35.66
BH05 (37.88)	-[1]	-[1]	MG/ALLU	2.32 to 2.38	35.56 to 35.50
BH07 (37.98)	-[1]	-[1]	CHALK	2.31	35.67
WS101 (37.95)	2.1/35.85	A/ RTD	A and RTD	2.08 to 2.28	35.87 to 35.67
WS102 (38.02)	2.5/35.52			2.28 to 2.44	35.74 to 35.58
WS103 (38.00)	2.4/35.60			-[3]	-[3]
WS104 (37.93)	2.3/35.53			2.0 to 2.32	35.93 to 35.61
WS105 (37.91)	2.0/35.91			1.93 to 2.32	35.98 to 35.59

Notes – 1 - Refer to Table 6.4a for strikes during 2022 ground investigation. 2 – Unable to be sampled due to insufficient groundwater column or dry.

During the 2022 ground investigation, groundwater strikes were recorded at the base of Alluvium and start of River Terrace Deposits at depths ranging from 2.30m/35.72m AOD (WS12) to 3.60/34.36m AOD (WS06). Deeper strikes were recorded within the western area where the thickness of Alluvium material was greater than the eastern area. Consequently, it is anticipated that the overlying Alluvium is acting as an aquiclude above the underlying River Terrace Deposits.

During the 2022 ground investigation perched groundwater was recorded within WS09 at a depth of 1.80m bgl/36.11m AOD, potentially reflective of nearby drainage 'leaking' over time. It was noted that perched groundwater monitored levels rose after periods of heavy rainfall. Groundwater strikes were recorded within the RTD in the 2023 ground investigation at 2.0m bgl/35.91m AOD (WS105) to 2.5m bgl/35.52m AOD (WS102).

The return monitoring recorded groundwater levels in 2022 ranged from 35.72m AOD (WS2/WS3 – Western Area) to 35.49m AOD (BH05 – Eastern Area). The return groundwater levels in 2023 ranged

from 35.98m AOD to 35.58m AOD. The 2023 ground investigation and monitoring generally recorded results in keeping with the 2022 investigation.

Generally, a review of groundwater levels highlights a trend of an easterly to north-easterly groundwater flow across the site on a minimal gradient. It is anticipated that Secondary A Aquifer (RTD) is in continuity with the underlying Principal Aquifer (chalk) based installations constructed specifically within chalk strata corresponding to similar groundwater levels to installations constructed within the RTD.

Within the area of BH05 however, a circa 0.10m AOD groundwater level difference between BH05 and adjacent BH04, WS11 and WS12 monitoring wells is noted. It is noted that the base of the Alluvium in WS11 was recorded at 36.40m AOD, whilst base of the Alluvium in BH05 is 35.48m AOD. A further circa 0.10m AOD groundwater level difference between BH05 and 2023 constructed monitoring wells WS103 to WS105 was also noted on 03 August 2023.

Consequently, the gradient change of the base of Alluvium in this area likely contributes to steeper gradient and change in groundwater level therein.

6.5 Encountered Foundation Conditions

A total of six hand excavated foundation inspection trial pits were advanced against the retaining wall along the southern boundary of the site. The schematic cross-sections of the foundations are presented in Appendix A. The foundation inspection pits determined shallow strip foundations with typical widths of 250mm to 500mm and to depths of 250mm to 800mm. It is anticipated that the boundary wall is a false wall with a piled foundation for railway infrastructure behind, with the strip foundations supporting the false wall only.

6.6 Encountered Obstructions

Several subsurface obstructions were encountered during the ground investigation, as presented in Table 6.6, as well as locations detailed within drawings – Appendix A and the exploratory hole logs in Appendix B.

Table 6.6 *Summary of Encountered Obstructions*

Location	Area	Co-ordinates (X,Y)	Depth (m bgl)	Comment
WS01	West	471913.64 - 173860.21	0.60	Adjacent to Pennant House
WS04	West	471937.64 - 173854.16	1.45	
WS07	West	471974.07 - 173853.42	0.60	
WS08	Central West	472003.56 - 173852.12	0.40	Adjacent to Hawker House

Location	Area	Co-ordinates (X,Y)	Depth (m bgl)	Comment
BH01	West	471907.50 - 173874.10	1.00 – 1.05	Ø 220mm insulated metal pipe encountered underlying concrete at 1.05m bgl.
BH02	West	471946.19 - 173856.55	0.90 – 1.20	Adjacent to Pennant House
BH03	Central	472015.46 - 173848.27	0.90 – 1.95	Adjacent to Hawker House

The concrete obstruction in BH01 was encountered from 1.00m bgl to 1.05m bgl and was overlying a Ø 220mm insulated metal pipe associated with the air conditioning system of the adjacent Pennant House not present on utility drawings.

The remaining subsurface obstructions present on-site are suspected to comprise old brick footings/concrete associated with the historical goods shed on-site. Within BH03, a suspected thick subsurface slab/loading bay or 1m thick foundation was present from circa 0.90m to 1.90m bgl. The subsurface concrete is in keeping with a number of obstructions encountered within parking bays immediately south of the three office buildings, with window sample boreholes WS01, WS07, WS08 all refusing on subsurface concrete. It is anticipated that three buildings were placed just to the north of historical railway buildings and main railway infrastructure.

Due to the drilling method (rotary cored), locations BH01 to BH03 were able to be advanced through the concrete present. The remaining window sample locations however were not able to advance through the concrete and therefore were abandoned.

6.7 Aggressive Ground Conditions

The classification of the site in terms of concrete in aggressive ground is based on the guidance provided in the Building Research Establishment (BRE) Special Digest 1, 3rd Edition of 2017 (7). A summary of the results obtained during the ground investigation works are summarised in Table 6.7.1 and Table 6.7.2 summarises the classification, based on geology.

Table 6.7.1 *Summary of pH and water soluble (2:1) sulphate testing*

Stratum	*Test Type*	*Range*
Made Ground	pH	8.5 – 10.5
	Water Soluble Sulphate (mg/l)	44.6 - 845
Alluvium	pH	8.1 – 8.5
	Water Soluble Sulphate (mg/l)	21 – 430

Stratum	Test Type	Range
River Terrace Deposits	pH	8.4 – 9.0
	Water Soluble Sulphate (mg/l)	12 – 24
Structureless Chalk	pH	8.2 – 9.2
	Water Soluble Sulphate (mg/l)	12 - 51
Structured Chalk	pH	7.4 – 9.2
	Water Soluble Sulphate (mg/l)	12 - 430

Table 6.7.2 *Aggressive Chemical Environment for Concrete (ACEC) Site Classification*

Stratum	Design Sulphate Class	ACEC Class (1)
Made Ground	DS-2	AC-2
Alluvium	DS-1	AC-1
River Terrace Deposits	DS-1	AC-1
Structureless Chalk	DS-1	AC-1
Structured Chalk	DS-1	AC-1

(1) ACEC assessment was based on mobile groundwater condition in a brownfield scheme area.

7.0 Ground and Groundwater Contamination Assessment

This section of the report includes the assessment of the potential solid contamination, liquid and gas, identified on the subject site which may present a risk to the potential end users, associated utilities and the wider environment.

In guidance published by the Environment Agency, the risk to human health or controlled waters is determined through an assessment of contaminant linkages between a source of contamination (within the ground or groundwater either on or off site) and a sensitive receptor such as end users of the site, building materials, edible plants grown in gardens or groundwater abstracted for drinking. This is termed a source-pathway-receptor relationship. The same model is applied to the assessment of risk arising from ground gases as detailed within BS8576:2013 (8).

These models have a common approach, which is one of a tiered assessment. At each stage of the assessment further detail can be applied to the conceptual site model to provide a detailed interpretation on a site-by-site basis. As part of the planning process this approach is adopted in order to establish either if the site is 'suitable for use' or whether additional work or else remedial work is required in order for the site to be deemed so.

The sub-sections hereafter therefore incorporate the first tier (Tier 1) of this approach otherwise referred to as the Generic Quantitative Risk Assessment (GQRA). The GQRA builds on the qualitative risk assessment presented in Section 3.0, in conjunction with observations made during the ground investigation and is based solely on the results of the chemical and other testing data obtained as part of Curtins Consulting's ground investigation.

The following sections present more detail on the risk assessment methodology rationale for the main receptors.

7.1 Human Health GQRA

Detailed guidance on human health risk assessment is available within a number of documents, published by both the Environment Agency and DEFRA. Guidance includes Contaminated Land Exposure Assessment (CLEA) v1.07 model (9), Science Report 2 (10) and Science Report 3 (11).

A generic quantitative risk assessment (GQRA) has been carried out for the Potential Contaminant Linkages (PCLs) investigated by screening of soil contamination data against relevant Generic Assessment Criteria (GAC) where available, including:

i) **Soil Guideline Values (SGVs):** These have been published by the Environment Agency and are trigger values for screening out low risk areas of land contamination. SGV's give an indication of representative average concentrations of chemicals in soil, below which long-term health risks are likely to be minimal. SGVs have been published for a number of contaminants including arsenic, cadmium, mercury, nickel, selenium, BTEX, phenols and dioxins, furans and dioxin-like PCB substances for land uses including residential, allotments and commercial. The SGVs have been developed for a sandy loam soil with 1% soil organic matter (SOM) content;

ii) **Supplementary Screening Values:** In addition to the SGVs developed by the EA other third-party organisations have derived GACs for a wider range of contaminants and land uses using the CLEA Model. Curtins have adopted these numbers where applicable, including those developed by Atkins AtriskSoil™, the LQM/CIEH Suitable for Use Levels (S4UL) and EIC/AGS/CL:AIRE published thresholds.

iii) **Category 4 Screening Levels (C4SLs):** In March 2014 Defra published C4SLs for arsenic, benzene, benzo(a)pyrene, cadmium, hexavalent chromium and lead. These values were derived to support the revised Part 2A Statutory Guidance issued in 2012 (12) in which four categories of contaminated land are included, ranging from Category 1 (significant/high risk) to Category 4 (low risk). C4SLs are not representative of significant possibility of significant harm (SPoSH) and are values of low risk levels. As such, where the C4SLs are not exceeded, land can be demonstrated to be in Category 4 and therefore cannot be determined as contaminated land.

This report has been undertaken in support of the proposed development plans comprising the demolition of the three existing two-storey office buildings, and the construction of three new multi-storey residential blocks (maximum 25 storeys) with basement plant room, undercroft parking, hardstanding, and communal soft landscaping. No private gardens are anticipated as part of the development. The construction of finalised development plans are ongoing, with no finalised plans at present.

As such, this GQRA considers a combination of land use scenario:

- *'Residential without Homegrown Produce'*
- *'Public Open Space near Residential'*

The POS (near Residential) scenario is protective of most critical receptor on-site (young children) within areas of communal soft landscaping, the likely occupancy of critical receptors within open space and main pathways of tracked back dust on-site. The 'Residential without Homegrown Produce' scenario is protective of indoor inhalation of vapour pathway associated with residential on-site. Consequently, volatile contaminants will be screened against 'Residential without Homegrown Produce'. Details of the GAC's adopted for the GQRA are provided in Appendix D.

7.1.1 Soils

As part of the investigation a total of 23 samples were submitted for environmental chemistry testing based on the suite presented in Table 5.1.1, to determine any relevant contaminant/pollutant linkages .

Soil organic matter (SOM) has a strong bearing on the availability of potential contaminants and therefore influences the Tier 1 thresholds. The SOM typically ranged from 0.4% to 4.5%, with a resulting in an average of 2.0%. As such as part of the assessment a comparison has been

made against GACs developed for a sandy soil with a SOM of 2.5%. The results of the environmental chemistry testing are appended in Appendix C. Copies of the adopted Tier 1 thresholds are contained within Appendix D.

With respect to 'Residential without Homegrown Produce' the results of the screening identified several exceedances of PAHs within WS06 at 0.30m bgl (granular made ground), WS09 at 0.60m (granular made ground), and 1.30m bgl (granular made ground) and a single exceedance of heavy metal (lead) within BH02 at 0.55m bgl (sub-base) as shown in Table 7.1.1 below.

Table 7.1.1 *Tier 1 Threshold Exceedances – Residential without Homegrown Produce and POS (near Resi)*

Location	Depth (m bgl)	Strata	Determinant	Concentration (mg/kg)	Tier 1 Threshold (mg/kg)
WS06	0.30	Granular Made Ground	Benzo(a)anthracene Benzo(b)fluoranthene Benzo(a)pyrene Dibenz(a,h)anthracene	13 14 12 1.4	**11***/29* **3.9***/7.1* **3.2***/5.7* **0.31***/0.57*
WS09	0.60		Benzo(b)fluoranthene Benzo(a)pyrene Dibenz(a,h)anthracene	4.6 3.8 0.44	**3.9***/29* **3.2***/5.7* **0.31***/0.57*
WS09	1.30		Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno(1,2,3-cd)pyrene Dibenz(a,h)anthracene	270 170 170 210 240 92 28	**11***/29* **30***/57* **3.2***/7.1* **110***/190* **3.2***/5.7* **45***/82* **0.31***/0.57*
BH02	0.55	Sub-base	Lead	410	**310***/630*

Notes – Bold – Residential without Homegrown Produce and *italics – Public Open Space near Residential*

The results of the Tier 1 screening against '*Residential without Homegrown Produce*' have identified several PAHs exceedances and a single heavy metal (Lead) exceedance within four Made Ground samples comprising Granular and Sub-Base. However, no exceedances were recorded for vapour derived pathway contaminants. Consequently, the risk to future site users from vapour derived pathway contaminants in the Made Ground soils from solid phase contaminants soil is not discussed further.

With reference to Tier 1 screening against *'Public Open Space near Residential',* PAH exceedances were recorded within two Made Ground samples (WS06 at 0.30m bgl and WS09 at 1.30m bgl). The exceedances within WS09 are likely reflective of the slight aromatic hydrocarbon odour within the material and potentially reflective of coal tar aggregate within suspected railway sidings material.

The main contaminant exposure pathways for the identified exceedances of POS near Residential are considered to represent the direct contact, and oral derived pathways where present in soft landscaping.

At this stage, given the variable depths of the exceedances (0.30m bgl to 1.30m bgl) within the Made Ground, the identified contaminants could present a potential risk to future site users through inhalation of soil dust and dermal contact pathways if the Made Ground soils are to remain within areas of soft landscaping. The potential risk is discussed further in Section 7.2.

In addition, no exceedances of mobile phase contaminants were recorded and the VOC testing within soils recorded concentrations less than the laboratory limits of detection.

7.1.2 Asbestos

A total of 22 samples were submitted to the laboratory for Asbestos presence and screen. The results of the testing concluded that Asbestos was not positively identified within any of the samples submitted to the laboratory. The risk to end users of the site and off-site receptors by Asbestos is thus not considered further.

7.2 Discussion of Potential Risk – End Users

7.2.1 Potential Risk to End Users (Residential)

Two samples of Made Ground recorded exceedances of solid phase contaminants PAHs, based on GAC values of '*Public Open Space near Residential'*. These exceedances are likely to present a risk to future site users through inhalation of soil dust/dermal contact soils if they are present within areas of proposed soft landscaping.

It is considered that granular Made Ground soils encountered at 0.30m to 1.30m bgl within WS06 and WS09 are unlikely to pose a potential risk to future site users if located in finalised in building/underlying hard standing surfaces, owing to no viable pathway.

The PAH exceedances if located in finalised soft landscaping areas could present a potential inhalation of inhalation of dust/dermal contact risk to future site users.

Recommendation: It is recommended that further investigation is undertaken within the area of WS09 to delineate the Made Ground with elevated PAHs and aromatic hydrocarbon odours to inform the potential requirements for clean capping or removal of material (to be detailed within a Remediation Strategy) prior to development.

The contamination risk assessment should be revisited upon finalised development plans.

In addition, given limited Topsoil currently present on-site, the importation of Topsoil is anticipated as part of proposed soft landscaping areas. Consequently, to ensure the material is suitable guidance in relation to the importation of Topsoil is provided in Appendix F.

7.3 Controlled Waters – GQRA

The controlled waters GQRA has been designed to assess the risks posed to the identified controlled waters receptors, namely the on-site Principal Aquifer and the River Thames, from the potential migration of contaminants originating from site sources as defined within the Conceptual Site Model in Section 3.0. Controlled waters GQRA comprises a comparison of chemical analysis results for groundwater samples against appropriate water quality standards (WQS) to assess the risk.

WQS selection depends on the controlled waters (surface and groundwater) receptors identified at the site and in general, the Generic Assessment Criteria (GAC) for the principal or most sensitive controlled waters receptor are used. These include: the underlying Secondary A Aquifer (River Terrace Deposits), on-site Principal Aquifer (Seaford and Newhaven Chalk Formation), and the River Thames located 120m north of the site. There are no groundwater abstractions within 500m of the subject site, however the site is within an Environment Agency designated Source Protection Zone 3 (total catchment) relating to an abstraction located 2.2km south at Reading University, White Knights Campus. Given the above, along with likely continuity between the River Terrace Deposits and Chalk bedrock as well as the distance to the River Thames, the underlying Principal Aquifer is considered the most sensitive controlled waters receptor. As such groundwater samples will be screened against Drinking Water Standards (DWS), as presented in Appendix D.

Groundwater samples were collected from select installations using low flow and bailer methods on eight occasions between 2022 and 2023. These dates comprised 09 August 2022, 17 August 2022, 24 August 2022, 15 September 2022, 15 June 2023, 30 June 2023, 06 July 2023 and 03 August 2023. The results of the environmental chemistry testing are appended in Appendix C.

The groundwater testing results from 2022 were screened against DWS which recorded several exceedances including PAHs, Petroleum Hydrocarbons and VOCs, as shown in Table 7.3a below. No exceedances were recorded for heavy metals and phenols. The exceedance of calcium in WS06 is considered marginal and likely reflective of background concentration within such area, consequently this is not considered any further within the assessment.

Table 7.3a *Controlled Waters Screening Assessment - 2022*

Location	Date Sample Collected	Determinant	Concentration (µg/l)	Tier 1 Threshold (µg/l)
WS06	9/08/2022	Calcium	310 mg/l	250 mg/l
WS09		Anthracene Fluoranthene TPH-CWG Aro C10–C35	1.56 8.76 720	0.1 0.0063 10
WS11		Tetrachloroethene	88.7	10
WS12			33.4	

Location	Date Sample Collected	Determinant	Concentration (µg/l)	Tier 1 Threshold (µg/l)
WS06	17/08/2022	Calcium	340 mg/l	250 mg/l
WS09		Fluoranthene	0.50	0.0063
WS11		Tetrachloroethene	17.7	10
WS12			14.2	
BH04	24/08/2022*	Tetrachloroethene	26.1	10
BH05			111	
BH07			16	
BH05	15/09/2022	Tetrachloroethene	93.1	10
BH07			18.6	
WS11			29	
WS12			14.3	

Notes - *No sampling of WS11 and WS12 was undertaken.

Table 7.3b *Controlled Waters Screening Assessment – 2023*

Location	Date Sample Collected	Determinant	Concentration (µg/l)	Tier 1 Threshold (µg/l)
WS101	15/06/2023	Tetrachloroethene	11	10
WS104			35	
WS105			36	
BH05			103	
BH07			15	
WS101	30/06/2023[1]	Tetrachloroethene	13	10
WS104			59	
BH04[3]			38	
BH05			100	
WS101	06/07/2023[1]	Tetrachloroethene	12	10
WS104			35	
WS105			74	
BH04			15	
WS103	03/08/2023[2]	Tetrachloroethene	28	10
WS104			11	
WS105			81	
BH04			12	
BH05			90	

Notes – 1- Unable to sample WS103 and BH05 due to parked car. **2 -** Only WS103 to WS105, BH04 and BH05 sampled. **3 –** Recorded as WS10 on laboratory testing sheets.

With reference to the exceedances, it is evident that there is a localised area of heavy end aromatic TPH and PAHs exceedances in WS09. In addition, within the eastern area of the site there is an area of Tetrachloroethene (PCE) contamination in groundwater. The two areas are discussed further below in Sections 7.3.1 and 7.3.2 below.

7.3.1 WS09 Area

Within WS09, perched groundwater has been encountered at depths ranging from 1.48m to 1.90m bgl. It was noted that the perched groundwater within this area would 'top-up' following rainfall events and as such, it is anticipated the perched groundwater is via a nearby 'leaking subsurface drain'. The water level in this location is higher than in other parts of the site which could be explained by leaking drainage. Sampling and analysis of groundwater from WS09 determined elevated concentrations of dissolved PAH and TPH-CWG Aro C10–C35. It would be anticipated that this has occurred due to leaching out from the overlying impacted soils as there is little evidence of other sources either solid or liquid. The concentrations were noted to reduce during sampling visits, reflecting the leaching of this material.

Consequently, the recommended action in Section 7.2 comprising the delineation of this material both laterally and vertically is likely to reduce the potential wider risk to controlled waters. In addition, post development it is anticipated that the leaking drainage will be replaced with new subsurface drainage reducing the potential risk of leaching this material to the underlying aquifers.

7.3.2 PCE Contamination

The results of the environmental chemistry testing in 2022 and 2023 recorded PCE (tetrachloroethene) within groundwater above the DWS in BH04, BH05, BH07, WS11, WS12, WS101 and WS102 to WS105 within the eastern area of the site. This is presented within drawing no.080908-CUR-XX-XX-DR-GE-003 within Appendix A.

PCE was recorded within BH03 and WS102, however below the DWS with a concentration of 6 µg/l and 5 µg/l respectively. It is noted that the environmental chemistry testing of soils recorded PCE less than laboratory limits of detection and no volatile odours were recorded within soils or groundwater any intrusive locations as part of the two sets of ground investigation.

The above results in Table 7.3a and 7.3b are reflective of the anticipated contamination from historical site use as a railway goods shed/depot, with PCE used as degreaser or cleaner of machinery associated with railway depot. It should be noted that the recorded exceedances are seen to decrease in concentration from the time of the initial round of sampling on 9 August 2022, to the second phase of sampling on 15 September 2022. By the final monitoring the PCE concentration within BH04 was noted to be below <10µg/l the DWS in 2022. However the PCE concentrations in 2023 (one year post) detailed a general rebound to concentrations and concentrations remaining generally consistent/stable with local fluctuations. This is notable within

BH05 which has typically recorded highest concentrations consistently. The fluctuations are anticipated to be as a result of purging/removal of groundwater through sampling slightly lowering the water column with also slight groundwater level change also considered to cause these fluctuations.

With reference to the identified concentrations the main source of impact is within this area of BH05 with all other concentrations recorded marginal concentrations above 10µg/l notably locations (in this instance WS103) within circa 5m to 10m from BH05,

The current concentrations indicates that an active source of contamination (i.e.: subsurface tanks with continued leaking etc) is unlikely to be present on-site, with concentrations generally reducing in certain areas and remaining constant in the area of concern (BH05). It is anticipated that such potential source of PCE contamination could be as a result of historical spillages impacting the unsaturated zone of soils and migration into the underlying aquifer. These spillages are anticipated to have occurred over 40 years ago when previously a railway depot. With reference to Figure 7.3.2, two structures were noted on historical plans to be upgradient of WS103 to WS105 and BH05, where the greatest concentrations were recorded. It is noted that historical mapping does not list either of these structures as tank but they could have been used for chemical storage. These historical structures however are currently located in building footprints.



Figure 7.3.2 *Historical Mapping (1962-1973) overlay of the site (red circle denoting PCE concentrations in groundwater consistently above 20 µg/l*

It is anticipated that the Alluvium underlying the Made Ground will provide a barrier to any migration. In the area of BH07 no Alluvium was recorded and PCE was determined in water sampled from this exploratory hole (northern-central area). Consequently, it is possible that within this area the absence of the Alluvium has contributed to migration of PCE into shallow

groundwater. The decreased concentrations following the development of the monitoring wells and sampling has highlighted this potential residual source. Notwithstanding, given the determined continuity between the Secondary A Aquifer and Principal Aquifer (as discussed in Section 6.4) the historical spillage of PCE has impacted the Principal Aquifer within a Source Protection Zone – 3 (pertaining to abstraction 2.2km south of the site).

It is also noted that daughter products of PCE were all recorded less than laboratory limits of detection, potentially indicating site groundwater conditions not suitable for decay.

The concentrations of PCE in groundwater are predominately within the same orders of magnitude, however the highest concentration was recorded with BH05 in the eastern area of the site. This is anticipated to be reflective of a groundwater flow eastward across the site at steady gradient of 1:0.0004 (between BH02 and BH04) which indicates minimal migration of groundwater across the site. However, a review of groundwater levels in area of BH05 has highlighted around a 0.10m AOD difference in groundwater level to nearby wells (BH04, WS11, WS12, WS103 to WS105). A greater gradient of 1:0.005 is recorded between WS12 and BH05, which potentially highlights the 'pooling' of residual PCE within this area due to the steeper gradient level. It is noted that the greatest concentration of PCE in groundwater (BH05) is present within an area of no historical features (as presented in Figure 7.3.2) with only railway tracks.

At this stage, given the anticipated easterly to north-easterly groundwater flow along with minimal migration on-site it is considered unlikely that the residual PCE concentrations in groundwater within the far eastern area would pose a potential risk to groundwater abstraction 2km south of the site. Further to this, the site is at such a distance where any increase in groundwater pumping as part of the abstraction is unlikely to change groundwater flow on-site.

As previously stated, the residual PCE concentrations in groundwater of the eastern area of the site are likely to have to been present for 40 years with minimal movement. Owing to a localised gradient change has likely resulted in 'pooling' of PCE concentrations within BH05. At this stage, it is not clear whether the 'pooling' of residual PCE concentrations within BH05 would present an ongoing risk to the River Thames located 118m north of the site.

Recommendation: It is recommended that a Detailed Quantitative Risk Assessment (DQRA) is undertaken to further determine the potential risk from residual PCE concentrations in groundwater 'pooling' with the far eastern area of the site. The DQRA will determine the requirements of a Remediation Strategy (if required).

Based on available and consistent stable PCE concentrations recorded surrounding the building, it is not envisaged that an ongoing source is present, however a 'confirmatory check' of soils underneath the building is recommended to ensure no unsaturated source of PCE in this area.

Furthermore, the PCE contamination and potential groundwater derived vapours are unlikely to present a risk to future site users owing to plans indicating undercroft this area and no habitable

ground floor space proposed. In addition, no volatile odours were recorded within the groundwater.

7.4 Ground Gas GQRA

The assessment of risk presented by ground gases is assessed with reference to guidance published by CIRIA (Assessing Risks Posed by Hazardous Ground Gases to Buildings, C665 (14), BSI Publication (Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings BS8485:2015 (15), BSI Publication (Guidance on Investigations for Ground Gas-Permanent gases and Volatile Organic Compounds (VOCs) (8) and other broadly accepted references such as the Ground Gas Handbook 2009 (16).

The gas risk assessment adopts a tiered approach. In the first instance, this involves a re-evaluation of the Conceptual Site Model described within the Phase 1 Preliminary Site Assessment (desk study) and thereafter validating this conceptual model with the ground gas data, the semi-quantitative risk assessment.

7.4.1 Asphyxiant, Noxious and Explosive Gases

The Preliminary Conceptual Site Model (PCSM) presented within Section 3.0, Uncontrolled deposition of Made Ground within localised areas. The ground investigation encountered Made Ground predominately to depths of circa 1.10m to 2.10m bgl. In addition, Alluvium was encountered across the majority of the site (exception of BH07) which comprised organic material, however no bands of peat or decaying matter was identified on the borehole logs.

In order to characterise the site's gas regime and validate the qualitative assessment of ground gas risk, a total of 8 gas monitoring installations were within window sample boreholes, as detailed in Table 4.2 within Section 4.0.

An initial programme of four gas monitoring visits over two months were proposed, with visits undertaken on: 25 July 2022, 08 August 2022, 17 August 2022, and 24 August 2022.

Gas monitoring to date has been undertaken during steady and falling atmospheric pressures with barometric pressures from 1004mb to 1027mb. Consequently, a gas monitoring visit close to a worst-case scenario (<1000 mb) low pressure was undertaken. A summary of the soil gas monitoring results to date is presented in Table 7.4.1 and copies of the log sheets presented in Appendix C.

Table 7.4.1 *Summary of Soil Gas Monitoring Results*

Location	CO_2 Range (% $^{vol}/_{vol}$)	CH_4 Range (% $^{vol}/_{vol}$)	O_2 (% $^{vol}/_{vol}$)	Max Flow Rate (l/hr)	Steady State Flow Rate (l/hr)
WS02	0.9 – 1.6	<0.1	16.4 – 20.9	0.1	<0.1

Location	CO_2 Range (% $^{vol}/_{vol}$)	CH_4 Range (% $^{vol}/_{vol}$)	O_2 (% $^{vol}/_{vol}$)	Max Flow Rate (l/hr)	Steady State Flow Rate (l/hr)
WS03	3.1 – 3.3	<0.1	13.8 – 16.4	<0.1	<0.1
WS05	0	<0.1	15.8 – 19.9	<0.1	<0.1
WS06	0.8 – 2.0	<0.1	17.3 – 19.3	<0.1	<0.1
WS09	0.3	<0.1	19.8 – 20.8	3.4	<0.1
WS10	0.1 – 1.8	<0.1	17.8 – 20.6	<0.1	<0.1
WS11	0.5 – 1.7	<0.1	17.9 – 20.0	<0.1	<0.1
WS12	1.2 – 4.7	<0.1	13.7 – 18.9	<0.1	<0.1

Note: hydrogen sulphide and carbon monoxide were not detected during any of the ground gas monitoring visits.

Maximum concentrations of carbon dioxide and methane were recorded at 3.3% $^{vol}/_{vol,}$ and <0.1% $^{vol}/_{vol,}$ respectively. These ground gas concentrations are consistent with the on-site ground gas sources, i.e., shallow Made Ground predominately consisting of inert material (i.e., brick, clinker, and concrete). In addition, limited bands of peat or decaying organic matter within the underlying Alluvium.

During the monitoring visit a peak a flow rate of 3.4 l/hr was recorded on the 17 August 2022 in WS09. Given that the measured flow rate was recorded following a period of inclement weather (e.g.: heavy rainfall/storms), it is considered likely that this flow was caused by an artificial increase in pressure owing to rise in perched ground water level. Consequently, this peak flow rate has been discounted from the assessment and a flow rate of 0.1 l/hr is considered appropriate.

Considering both a near 'worst credible scenario' (maximum 'absolute' flow rate, maximum gas concentration within a single borehole location) and 'worst possible scenario' (maximum 'absolute' flow rate, maximum gas concentration across all borehole locations) the Hazardous Gas Flow Rates (Q_{hg}) for the site are evaluated as 0.0033 (carbon dioxide) and 0.0001 (methane).

In this site situation, the calculated Hazardous Gas Flow Rates (Q_{hg}) are considered to be reflective of a conservative assessment of Gas Screening Values (GSV) with generally very low to negligible flow rates and low to non-detectable concentrations of carbon dioxide and methane recorded.

With reference to CIRIA C665 (14), the above calculated GSV for the development site, indicate a Characteristic Situation (CS) 1 in regard to ground risk. Based on this classification, ground gas protection measures are not recommended for the proposed development.

7.4.2 Radon

The BGS Radon Mapping confirms the site is situated in a Lower probability radon area where less than 1% of homes are above the radon action level. For structures without basements no radon protection measures are considered necessary in the construction of new dwellings or extensions. Structures with basements will require a risk assessment undertaken by the building owner and or tenants prior to occupation.

8.0 Revised Conceptual Site Model

The preliminary conceptual site model (PCSM) presented and discussed in Section 3.0 of this report has been revised following the GQRA in Section 7.0 above. The revised Conceptual Site Model (CSM) is presented in the table overleaf.

The CSM details the source-pathway-receptor linkages or potential contaminant linkages (PCL) that have been identified for the site. The GQRA details the associated level of risk relating to these potential contaminant linkages.

The CSM concerns risk to human health, Water and Environment with additional, more specific risk assessment protocols contained within the main body of this reporting as detailed in Section 8.1 below. The CSM follows the framework outlined within CIRIA C552 which is summarised within Appendix E.

The 'risk rating' within the CSM refers to the risk that the source, pathway, receptor linkage or PCL is complete. Unless specifically stated it does not necessarily refer to an immediate risk and is intended to be used as a tool to assess the necessity for further assessment/investigation.

8.1 Additional Risk Assessments

The following risk assessments, listed below, are not included within the main CSM and GQRA but none-the-less can be of critical importance to the onward development of the site.

- The risk presented by **Radon** is discussed and assessed in Section 7.4.2.
- The risk presented by **Unexploded Ordnance** is discussed and assessed in the Phase 1 Preliminary Risk Assessment.

Under current health and safety legislation, employers are required to carry out their own appropriate risk assessments and mitigation to protect themselves and their employees, other human receptors and the environment from potential contamination. Such risks must be adequately mitigated by law, specifically the Construction Design Management (CDM) Regulations, 2015 which require that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate / manage that risk. It has been assumed that any future construction works on site will be undertaken in compliance with these requirements and therefore construction workers involved in the building works at the site have been discounted as a human receptor in the conceptual site model.



- The table below represents the second stage in the land quality risk assessment process: The Quantitative Risk Assessment.
- In order for a development site to be deemed 'suitable for use', the level of risk needs to be brought down to acceptable levels, i.e. low to negligible risk. The purpose of each stage of risk assessment is ultimately to establish, if there is a requirement for additional levels of assessment to be made in order to have sufficient confidence to support a risk characterisation or management decision, e.g. remedial action.

Conceptual Site Model			Quantitative Risk Assessment			Action
Source	**Pathway(s)**	**Receptor(s)**	**Consequence (Potential Severity)**	**Likelihood of Occurrence**	**Risk Rating**	
On-site sources of potential contamination: PAH exceedances above *Public Open Space* screening criteria within Made Ground (WS06 and WS09)	**Inhalation of dust and direct contact of soils.** *Ingestion of homegrown produce has been discounted owing to no proposed private gardens.* *Inhalation of vapours and fibres have been discounted following testing results.*	**End users of site** Residents, staff, visitors and trespassers	**Medium** Chronic health risk	**Low Likelihood** With reference to PAH exceedances these are likely to comprise solid phase material and within WS09 is anticipated to be reflective of coal tar aggregate within suspected railway sidings material. The exceedances unlikely to pose a potential risk to future site users if located within proposed footprint of the building/underlying hard standing surfaces, owing to no viable pathway. If the PAH exceedances are located within proposed soft landscaping area at ground level, there is potential for an inhalation of dust/dermal contact risk to future site users. Consequently, at this stage there is a low likelihood of risk to future site users with recommendation to undertaking further investigation to delineate this area.	**Low to Moderate**	**Further investigation to delineate the Made Ground of WS09 to inform the potential remedial/removal requirements**
	Vertical and horizontal migration through the Made Ground and granular superficial soils May occur due to processes including capillary action.	**Controlled waters (Groundwater and Surface Water)** Principal Aquifer within Bedrock and Secondary 'A' Aquifer within Superficial Deposits. No active groundwater abstraction points within 500m of the site. Site within a SPZ 3 – Total Catchment pertaining to abstraction located 2.2km south. River Thames located 118m north of the site.	**Medium** Pollution of sensitive water resources	**Unlikely** Within WS09, perched groundwater has been encountered at depths ranging from 1.48m to 1.90m bgl. The water level in this location is higher than in other parts of the site which could be explained by leaking drainage. Sampling and analysis of groundwater from WS09 determined elevated concentrations of dissolved PAH and TPH-CWG Aro C10–C35. It would be anticipated that this has occurred due to leaching out from the overlying impacted soils as there is little evidence of other sources either solid or liquid. The concentrations were noted to reduce during sampling visits, reflecting the leaching of this material. Consequently, the risk to wider controlled waters is considered low following development.	**Low**	**Further investigation to delineate the Made Ground to inform the potential remedial/removal requirements**
On-site sources of potential contamination: Elevated PCE concentrations in groundwater above DWS.	**Inhalation of soil-vapours**	**End users of site** Residents, staff, visitors and trespassers	**Medium** Chronic health risk	**Unlikely** At this stage, PCE within tested soils recorded concentrations less than laboratory limits of detection and no evidence of volatiles was recorded within soils. Additionally no habitable ground floor space is proposed. Based on this and, it is considered unlikely that residual PCE concentrations in groundwater would present a risk to future site users.	**Low**	**No further action.**
	Vertical and horizontal migration through the Made Ground and granular superficial soils May occur due to processes including capillary action.	**Controlled Waters (Groundwater** Principal Aquifer within Bedrock and Secondary 'A' Aquifer within Superficial Deposits. No active groundwater abstraction points within 500m of the site. Site within a SPZ 3 – Total Catchment pertaining to abstraction located 2.2km south.	**Medium** Pollution of sensitive water resources	**Unlikely** The results of the groundwater testing have determined residual PCE concentrations above DWS in shallow groundwater within the eastern area on-site. The sampling and testing have determined consistent stable concentrations across the site which suggests an ongoing source is not present on-site. The greatest concentrations have been encountered within BH05 in area of steeper gradient suggesting 'pooling' of this PCE within this area over 40 years. Given the anticipated easterly to north-easterly groundwater flow along with minimal migration on-site it is considered unlikely that the residual PCE concentrations in groundwater within the far eastern area would pose a potential risk to groundwater abstraction 2km south of the site. Further to this, the site is at such a distance where any increase in groundwater pumping as part of the abstraction is unlikely to change groundwater flow on-site. Based on this, it is considered unlikely that the residual PCE concentrations would present a risk to the groundwater abstraction.	**Low**	**No further action.**
	Horizontal migration through the Made Ground and granular superficial soils	**Controlled Waters (Surface Water)** River Thames located 118m north of the site.		**Likely** The results of the groundwater testing have determined residual PCE concentrations above DWS in shallow groundwater within the eastern area on-site. The sampling and testing have determined consistent stable concentrations across the site which		**A DQRA to further determine the risk to the River Thames.**

Conceptual Site Model			Quantitative Risk Assessment			
Source	**Pathway(s)**	**Receptor(s)**	**Consequence (Potential Severity)**	**Likelihood of Occurrence**	**Risk Rating**	**Action**
	May occur due to processes including capillary action.			suggests an ongoing source is not present on-site. The greatest concentrations have been encountered within BH05 in area of steeper gradient suggesting 'pooling' of this PCE within this area over 40 years. Given the anticipated easterly to north-easterly groundwater flow along with minimal migration on-site and the presence of the River Thames located 118m north of the site; it is recommended that a DQRA is undertaken to further determine the risk to this receptor.		
On-site sources of potential contamination: One on-site electrical substation.	**Dermal contact of soil and inhalation of dust risk.**	**End users of site** Residents, staff, visitors, and trespassers	**Medium** Chronic health risk	**Unlikely** Due to the limited mobility of PCB contaminants, it is likely if present would be in the footprint of the electrical substation and within near surface soils. With reference to the development plans, the electrical substation is located within an area of proposed hard landscaping (footpath). At this stage, there is a limited potential risk to future site users given that the substation is situated in an area of proposed hard standing (foot path), therefore there is no viable contaminant pathway.	**Low**	**No further action**
Off-site sources of potential contamination: Pollution incident on adjacent former BMW garage in which underground fuel storage tank overflowed approximately 40m west of the development site.	**Horizontal migration of contamination through the Made Ground/Superficial Deposits, bedrock, and air (dust/particulates)** Followed by… **Inhalation of vapours**	**End users of site** Residents, staff, visitors and trespassers	**Medium** Chronic health risk	**Unlikely** Limited evidence of horizontal migration of mobile contamination onto the development site as a result of historical pollution incident on adjacent former BMW garage (now Thames Quarter), Consequently, it is unlikely that there is limited to no risk to future site users from off-site sources of contamination.	**Low**	**No further action required.**
On-site and off-site sources of potential ground gas: Made Ground encountered on the site to a depth of 2.10m bgl, with predominately inert material and limited putrescible material. Presence of Alluvium underlying the Made Ground with no Peat recorded.	**Vertical and horizontal migration through the residual (incl. Made Ground) and superficial**	**End users of site** Residents, staff, visitors, and trespassers	**Severe** Acute health risk	**Unlikely** Based on the results of the ground gas monitoring visits, in regard to ground gas risk assessment the site has been determined to be within a Characteristic Situation 1 (CS1) scenario. This is reflective of limited thickness of Made Ground and mainly 'inert' material reflective of very low gassing potential in line with Figure 6 of BS8576. Consequently, the ground gas risk for the site is considered to be low.	**Low**	**No further action**

9.0 Geotechnical Conclusions and Recommendations

The recommendations provided within this section are based on a review of the historical and recent records of ground conditions encountered across the site with account taken of the proposed building structures.

9.1 Preliminary Foundation Recommendation

The proposed development on-site is to comprise the demolition of the three existing two-storey office buildings, and the construction of three new multi-storey residential blocks (maximum 25 storeys) with partial basement, hardstanding, and communal soft landscaping.

Given the anticipated loads and construction of a partial basement, it is recommended that a piled foundation be adopted for the development. As an initial consideration of suitable founding strata, it is considered that structured chalk (Grade C3 to A2) encountered at a maximum depth of 22.35m bgl/ 15.53m AOD (BH05) is the most suitable founding strata on-site. The initial weathered Grade Dm and Dc chalk is not recommended as a founding stratum due to variability of the material and reduced strength of the material.

9.1.1 Pile Foundation

As a preliminary consideration, it is recommended that piles be advanced into a sufficient thickness of the determined high-density structured chalk bedrock which is typically logged across the site at levels ranging from 16.65m to 13.46m AOD on-site.

Given the evolving nature of pile design and pile technology it is recommended that a specialist contractor and one with experience of piling in chalk is commissioned to undertake detailed design and installation of the piles. The following and above commentary is therefore offered as preliminary guidance with respect to their design.

Pile Type: In light of the ground conditions revealed, a bored piled solution is considered technically feasible for the proposed development. In general, the adoption of a driven pile solution is not considered feasible given the presence of the adjacent buildings and railway infrastructure

Potential Constraints: As part of the enabling works, consideration should be given to the presence of below ground constraints including obstructions, relic and existing drains and on-site utilities. In addition, the presence of adjacent railway infrastructure is likely to require liaison with Network Rail ahead of any construction works.

In addition, the presence of cobbles and gravels of rinded flint within the structured chalk will have to be considered by the specialist piling contractor as part of a design.

Temporary Casing: The presence of weathered Dm and Dc chalk up to 16.35m bgl/23.08m AOD (BH01) to 22.35m bgl/15.53m AOD (BH05) will likely necessitate

temporary casing within some pile locations to ensure pile consistency and prevent 'necking' of the pile.

Piling Platforms: In its current condition, it is unlikely that the shallow soils will be suitable to support the load of a piling rig without a temporary piling mat.

Planning Requirement: With piles likely to be constructed in chalk bedrock (Principal Aquifer), there is potential for a piling risk assessment to be required to satisfy the relevant planning condition.

9.2 Ground Floor Slabs

In general, based on the proposed piled foundation solution as part of a development a suspended floor slab is considered to be suitable.

9.3 Settlement and Heave Considerations

With reference to the proposed piled foundation solution settlement levels should be limited to tolerable levels as agreed with the Structural Engineer.

9.4 Groundwater and Excavations

Excavations will be required during the enabling works and construction phase including for local treatment of contamination, utility installation and grubbing out, pile caps and ground beams and removal of obstructions. Given the presence of variable Made Ground soils from ground level depths to around 1.10m bgl to 2.10m bgl, any excavations are likely to require ground support.

Local instability should be expected where greater proportions of degradable or unsuitable material such as lenses of sand and gravel or made ground are encountered. Where batters are not feasible it is anticipated that some form of temporary earth retaining works would be required. Excavations shallower than 1.2m deep, requiring personnel access, will require closed side support. Attention should be given to limiting the duration over which excavations remain exposed to water ingress as the Made Ground/superficial deposits may undergo rapid loss of strength and possible heave if wetted excessively. In accordance with Health and Safety Regulations, side support for safety purposes should be provided to all excavations which appear unstable and those more than 1.2m deep. Excavations are likely to be stable at suitable batters.

Shallow groundwater is anticipated based on ground investigation data and post investigation monitoring, with resting ground water levels recorded consistently between 35.72m AOD (WS2/WS3 – Western Area) to 35.49m AOD (BH05 – Eastern Area). Given the resting groundwater levels, a groundwater dewatering specialist should be consulted in the design of the basement, with groundwater levels likely to interact with the basement formation level

General advice on de-watering in accordance with CIRIA Report C750: Groundwater Control (17) should be taken into consideration.

9.4.1 Preliminary Waste Assessment of Soils

It is the responsibility of the contractor and/or their appointed groundworks contractor to confirm waste classifications of soils requiring disposal off site. Where any site soils are to be disposed of off-site guidance on the disposal of contaminated soils is provided within the following documents published by the Environment Agency.

a) Guidance on the classification and Assessment of Waste Technical Guidance WM3 (1st Edition 2015) (18)

Guidance states that the principal contractor (or any other sub-contractor undertaking excavations) should, in conjunction with the proposed disposal facility, use where possible the relevant environmental chemistry analyses results to classify any surplus material identified for off-site disposal. However, it should be noted that this information is for guidance only and material identified for disposal should be tested and assessed in accordance with WM3 to enable classification during the works.

An initial assessment for the waste classification of the Made Ground on-site encountered on site has been carried out through a comparison of the soil testing results using the Waste Soils Characterisation Assessment Tool, Cat-Waste^{Soil}, developed by McArdle and Atkins. This online tool gives a rapid assessment of contaminated soils and their classification as either hazardous or non-hazardous waste.

In addition, 9 samples of Made Ground underwent Waste Acceptance Criteria (WAC) testing to provide information for use by tenderers for the construction works in their discussions with Landfill Operators.

The initial CAT Waste assessment has revealed that predominately Made Ground and natural soils could be considered non-hazardous for off-site disposal as a preliminary classification.

The results of WAC testing on the Made Ground samples show that the majority of soils sampled are within the ‘Inert’ range. However, Made Ground soils within the area of WS06 at 0.30m bgl and 1.20m bgl, in addition to WS09 at 1.30m bgl, are indicated in the non-hazardous range due to PAHs. These results can be used by tendering contractors in their initial discussions with landfill operators.

Waste Acceptance Criteria (WAC) testing has been scheduled to aid tendering contractors at that stage. As stated before the Principal Contractor/Earthworks Contractor will be responsible for properly testing and classifying all soils that become surplus during the works and are scheduled for disposal off site. They will also be responsible with a Duty of Care for ensuring that waste soils are appropriately transported and disposed of at suitably licenced facilities. It is

noted that landfill operators are not obliged to accept waste and, if they were to do so, may have specific requirements beyond those outlined above prior to acceptance. Early engagement with Landfill Operators is recommended.

9.5 Earthworks and Re-use of Site Soils

In the event of a cut and fill as part of the development, general advice is presented below.

Made Ground

It is assumed that re-use of soils will be considered as a part of the development works.

The re-use of site soils is considered viable in terms of an environmental quality perspective providing soils are placed beneath hardstanding. Made Ground soils up to 1.80m bgl within WS09 however are not suitable for reuse within areas of soft landscaping. The re-use of any material on-site should be discussed with a suitably qualified Geo-Environmental Engineer.

In addition to quality, the re-use of site-won soils is governed by the following principles:

- The geotechnical suitability of the material needs to be confirmed.
- The re-use of the material needs to be covered as part of the planning approval, e.g., site levels maintained within agreed limits;
- The volume of the material being re-used needs to be confirmed and traceable.
- Regulatory approval from the relevant authorities should be sought.

These principles are outlined within the CL:AIRE publication The Definition of Waste: Development Industry Code of Practice (Version 2) and if the re-use of site-won soils is proposed as part of the development works, it is recommended that if possible this document be complied with to satisfy the Duty of Care required by UK Waste Regulations, otherwise alternate methods will be required to satisfy waste regulatory requirements.

9.6 Roads and Hardstanding Design

In-situ CBR testing was not undertaken as a part of the ground investigation, however based on the ground investigation descriptions and laboratory testing, the underlying Made Ground soils it is anticipated that CBR values in excess of 2.5% are achievable. In addition, very soft Alluvial soils were encountered underlying the Made Ground and it is anticipated that such soils would likely achieve CBR values below 2.5%.

For detailed design the designer should assess the appropriate CBR value to be adopted based on the proposed formation level, determined following detailed design of proposed carriageways/hardstanding and (where applicable) the minimum Local Highway Authority requirements for carriageway construction thicknesses.

The designer should take into account the nature of the deposits that will form the sub-formation to any proposed capping and subbase design. Cohesive soils are sensitive to seasonal changes and inclement weather.

Any CBR value adopted in detailed design (including any values taken from the results appended to this report) must be confirmed on site at the time of construction through appropriate inspection and validation testing at the specific line and level of the proposed carriageway sub-formation. A suitable Earthworks Strategy must be adopted which details suitable validation testing methods and criteria. The Strategy should provide suitable process for dealing with the potential degradation of the sub-formation during periods of heavy rain or other inclement weather conditions (e.g. frost).

10.0 Geo-Environmental Conclusions and Recommendations

10.1 Geo-Environmental Conclusions

A revised tabulated Conceptual Site Model has been derived following the findings of the Generic Quantitative Risk Assessment and is presented in Section 8.0.

10.1.1 Ground and Groundwater Contamination

The environmental chemistry soil results have been compared with the Generic Assessment Criteria (GAC) for soils with respect to human health against '*Residential without Homegrown Produce' and 'Public Open Space near Residential'.* The results of the Tier 1 screening identified PAH exceedances within two Made Ground samples. Based on this, the material is generally considered safe for reuse on site given that they are placed below hardstanding surfaces to remove potential pathway to future site users. However, any Made Ground soils within proposed soft landscaping are anticipated to present a potential risk to future site users. Further delineation of the WS09 material required to inform risk and potential requirements for clean capping as part of remediation strategy. The risk to future site users at this stage is considered to be Low to Moderate.

The risk to controlled waters at this stage is considered Moderate, with a Detailed Quantitative Risk Assessment recommended to be undertaken to further determine the risk to the River Thames.

A review of the ground gas risk highlights no ground gas protection measures are required for the site.

The BGS Radon Mapping confirms that the site is situated in a lower probability radon area where less than 1% of homes are above the radon action level. On this basis radon protection measures are not considered necessary for the proposed development on the site.

10.1.2 Recommendations

Accounting for the findings of the initial Phase 2 Ground Investigation, the following recommendations are made:

- DQRA to further determine the risk of residual PCE concentrations in groundwater (far eastern area of the site) to the River Thames. The outcome of the DQRA would advise of any requirements of the Remediation Strategy in relation to the residual PCE in groundwater.
- Based on available and consistent stable PCE concentrations recorded surrounding the building, it is not envisaged that an ongoing source is present, however a

'confirmatory check' of soils underneath the building is recommended to ensure no unsaturated source of PCE in this area.

- Further investigation within existing building footprints post demolition including delineation (vertical and lateral) of hydrocarbon impact adjacent to WS09 to determine necessary remedial actions.
- The contamination risk assessment is to be updated to reflect final building layout (development plans are ongoing).

  Note: Guidance on the importation of Topsoil for the development, ensuring the material is suitable for use is provided in Appendix F.

11.0 References

1**Curtins***Phase 1 Preliminary Risk Assessment - Napier Road, Reading*August 2022

2**Environment Agency (EA)***Land contamination risk management (LCRM) - How to assess and manage risks from land contamination*April 2021

3**British Standard Institution (BSI)** *Investigation of Potentially Contaminated Sites (report no. BS10175).*2011

4**British Standards (BS)***BS 5930:2020, Code of practice for site investigations*2020

5**CIRIA***Engineering in Chalk - C574* 2002

6**British Standards Institution***Eurocode 7: Geotechnical Design (report no. BS EN 19972*006

7**BRE***BRE Special Digest 1 (SD1:2005), Concrete in aggresive ground, 3rd Edition*2005

8**British Standards (BS)***BS8576, Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)*2013

9**Environment Agency***Contamined Land Exposure Assessment (CLEA) v.1.06 Model*September 2009

10*Human health toxicological assessment of contaminants in soil. Science report 2.*January 2009

11*Updated technical background to the CLEA model. Science Report 3*January 2009

12**Department of Environment, Food and Rural Affairs (DEFRA)***Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (report no.PB13735).*2014

13**Atkins***Atrisk - Water Screening Values (WSVs)*2011

14**CIRIA***Assessing Risks Posed by Hazardous Ground Gases to Buildings (report no. C665).*2007

15**British Standards***BS 8485, Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*June 2015

16**S.Wilson, G.Card and S.Haines***Ground Gas Handbook*2009

17**CIRIA***CIRIA Report No C750 Groundwater Control*2016

18**Environment Agency***Guidance on the classification and assessment of waste (1st edition 2015). Technical Guidance WM3*May 2015

19**Environment Agency** *Guidance on the classification and assessment of waste (1st Edition v1.1.GB) Technical Guidance WM3*January 2021

Appendices

Appendix A **Drawings**

Appendix B **Exploratory Hole Logs**

Appendix C **Laboratory Testing and Monitoring Results**

Appendix D **Tier 1 Screening Criteria**

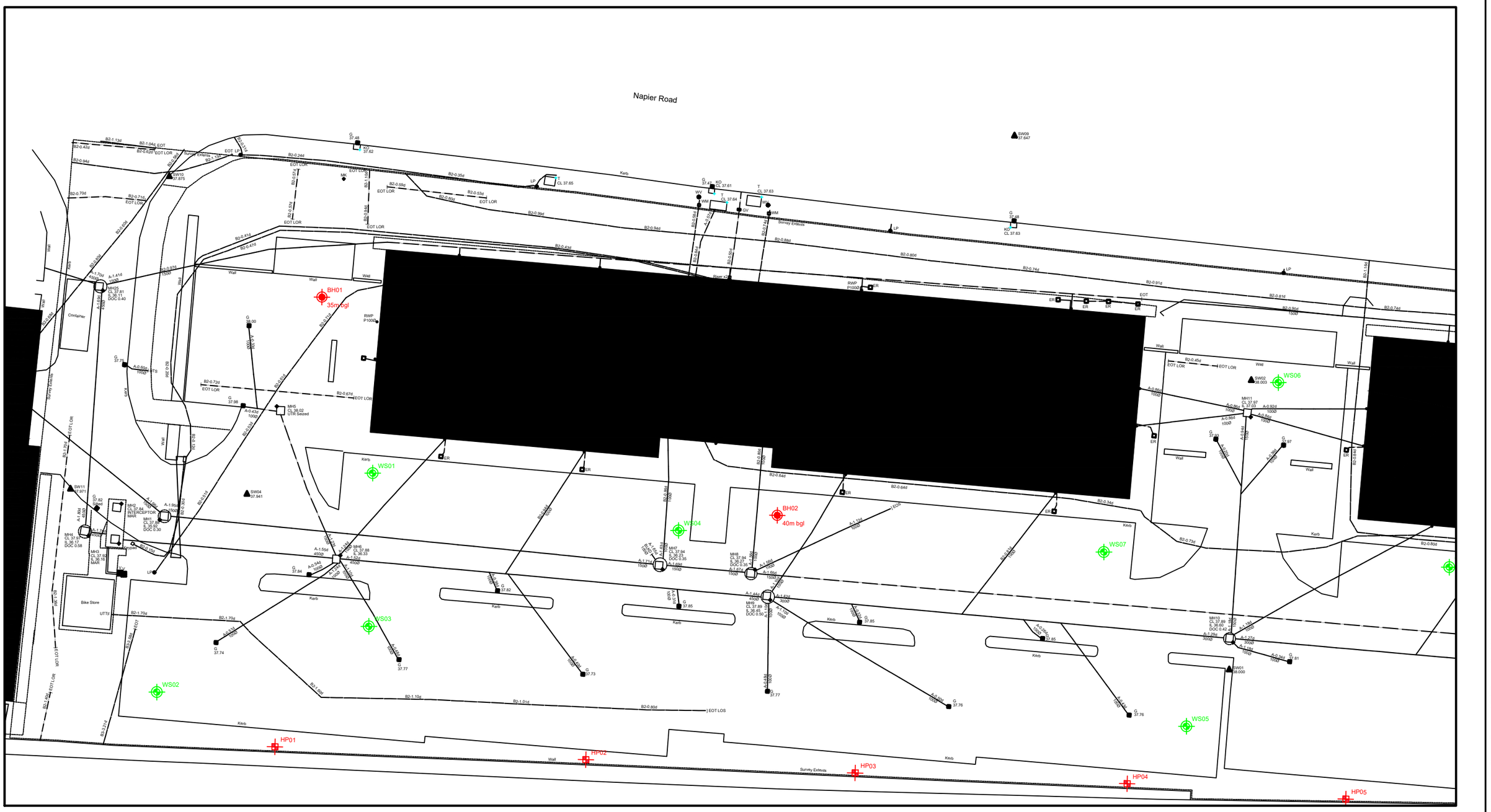
Appendix E **Risk Assessment Rationale**

Appendix F **Guidance on Importation of Soils for Soft Landscaping**

Appendix A Drawings

- 080908-CUR-XX-XX-DR-GE-00001-Napier Road - Exploratory Hole Location Plan GI ALL
- 080908-CUR-00-XX-DR-GE-00002-Napier Road - Foundations – ALL
- 080908-CUR-XX-XX-DR-GE-00003-Napier Road – PCE Concentrations in Groundwater

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Key

- BH — Rotary Core Borehole
- WS — Window Sample Borehole
- HP — Hand Excavated Pit
- TP — Machine Excavated Trial Pit

GENERAL NOTES:

Rev:	Description:	Date:	By:	Chkd:
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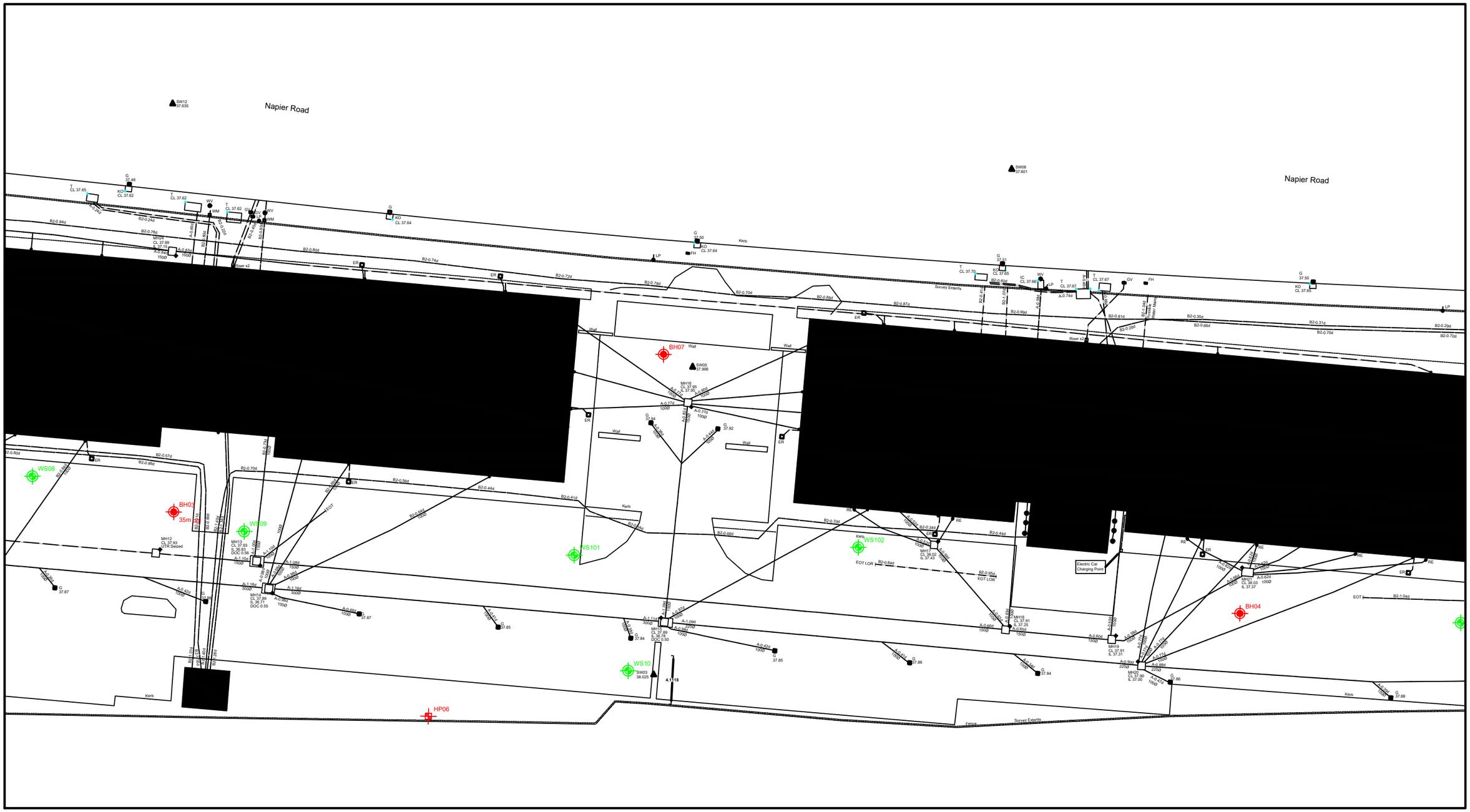
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Designed By:	WS	Date:	15/08/23
Scale:	1:XXX		

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
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Key

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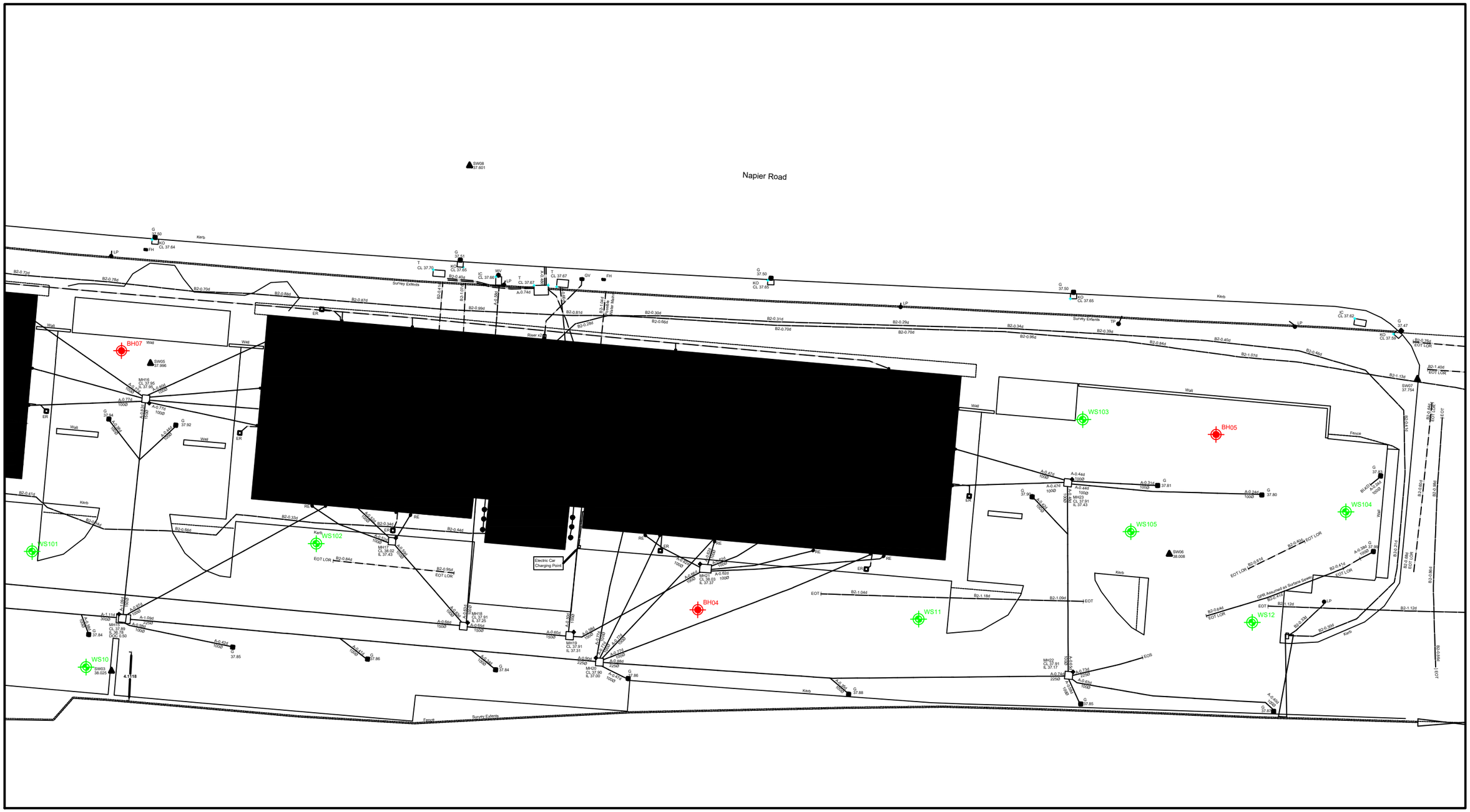
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Status: PRELIMINARY

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Designed By:	WS	Date:	15/08/23
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Key

- BH — Rotary Core Borehole
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Drg Title: Exploratory Hole Location Plan

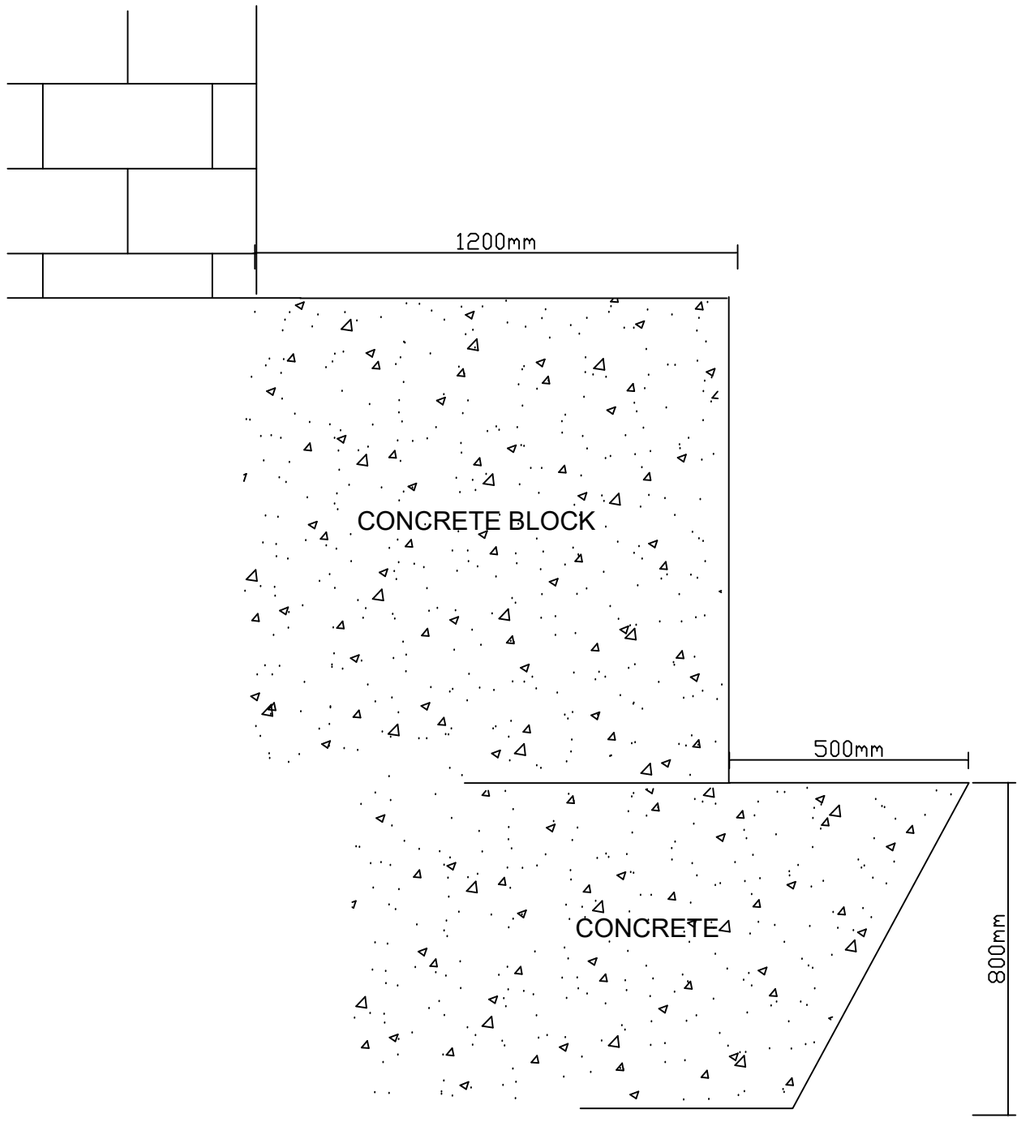
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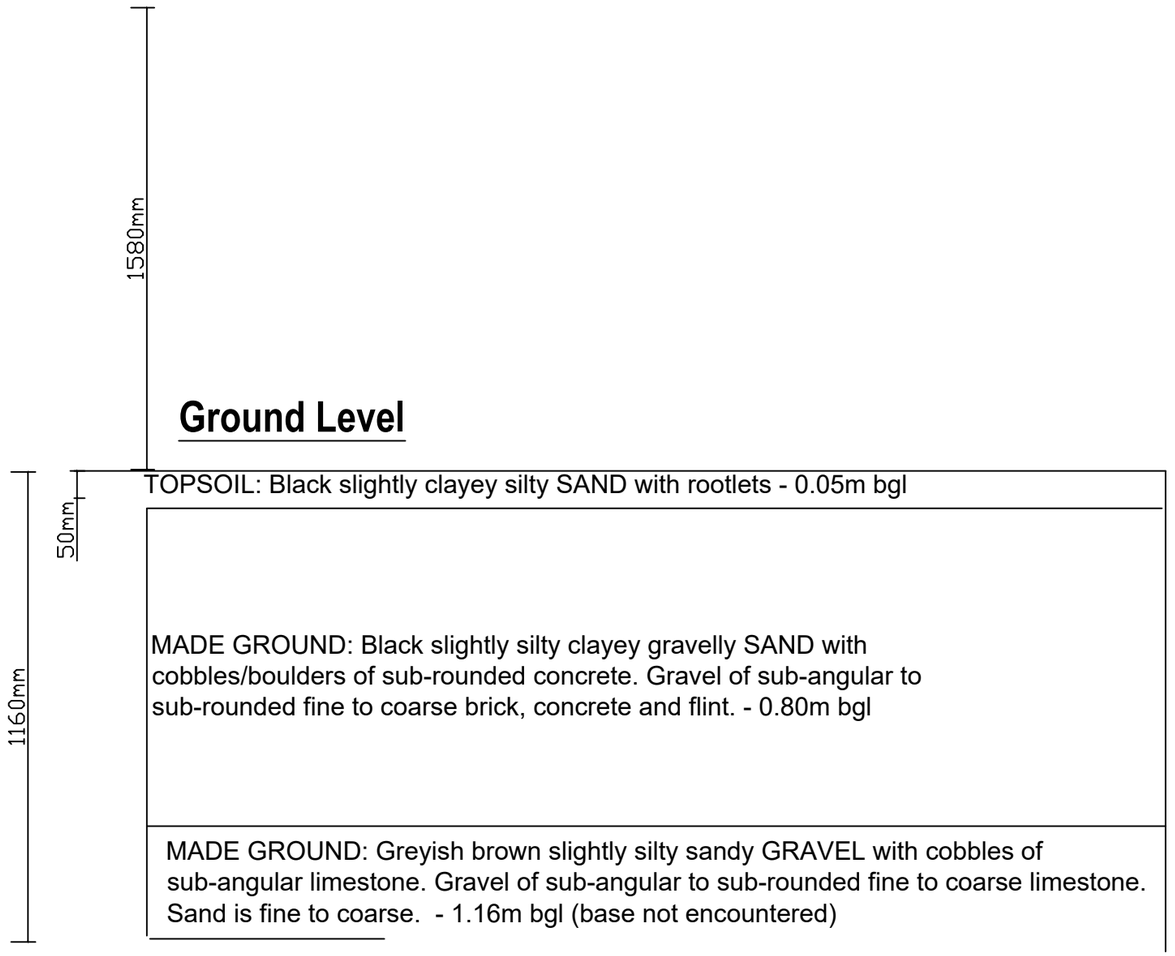
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Scale:	1:XXX		

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
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HP1





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Project: Napier Road, Reading

Drg Title: ENCOUNTERED FOUNDATIONS

Status:

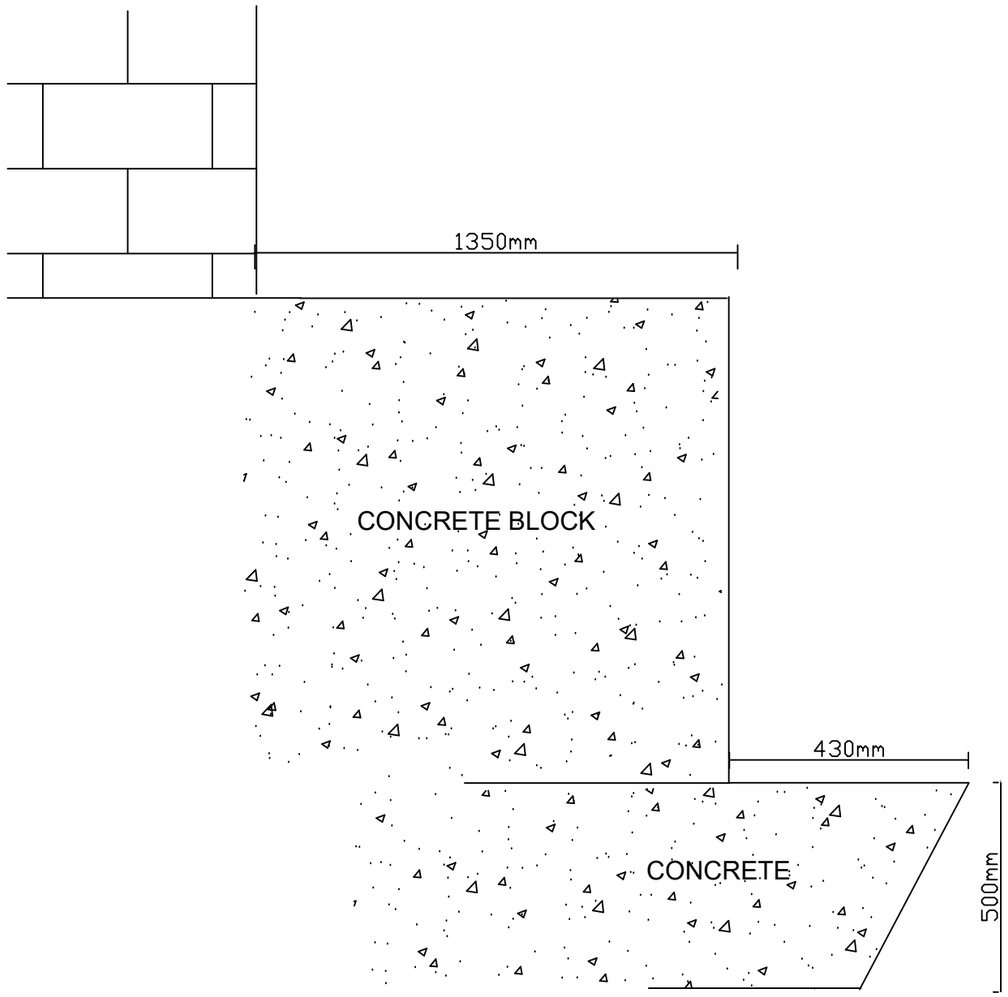
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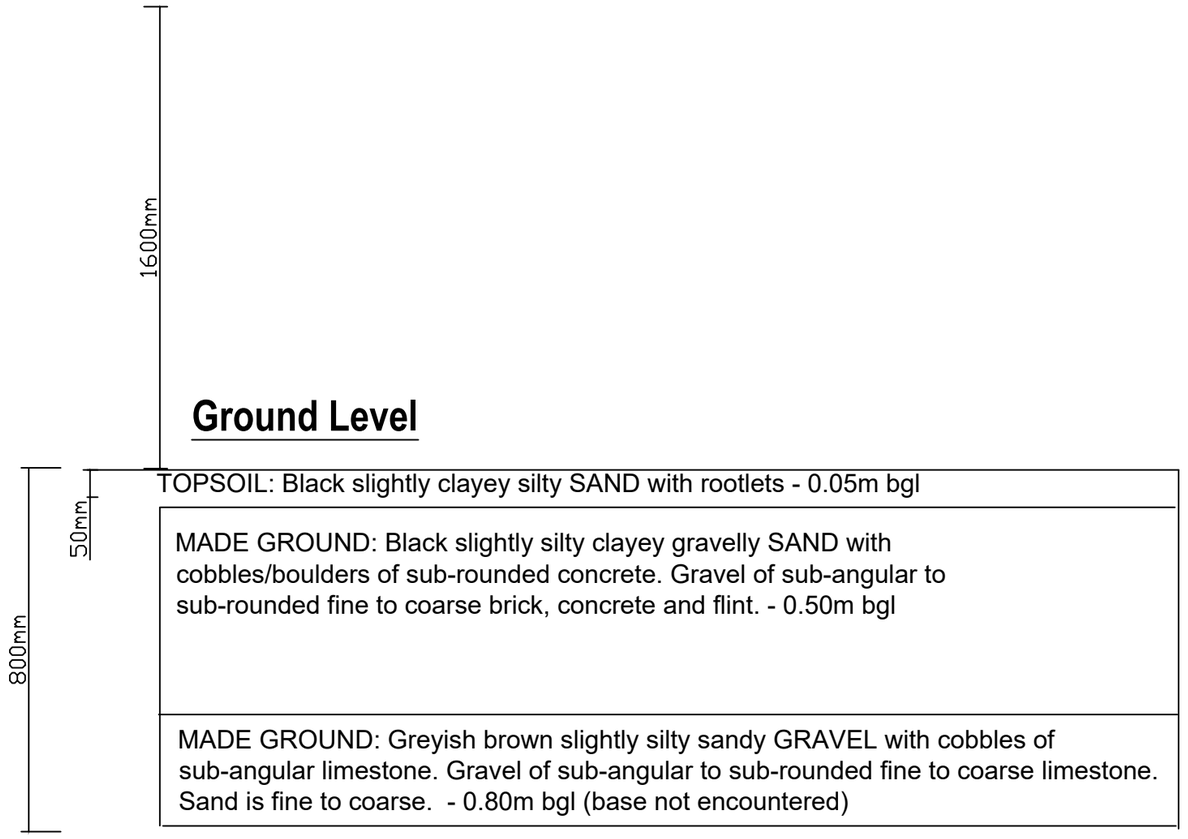
Designed By: WS | Date: 04/08/2022

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HP2





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Project: Napier Road, Reading

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Status:

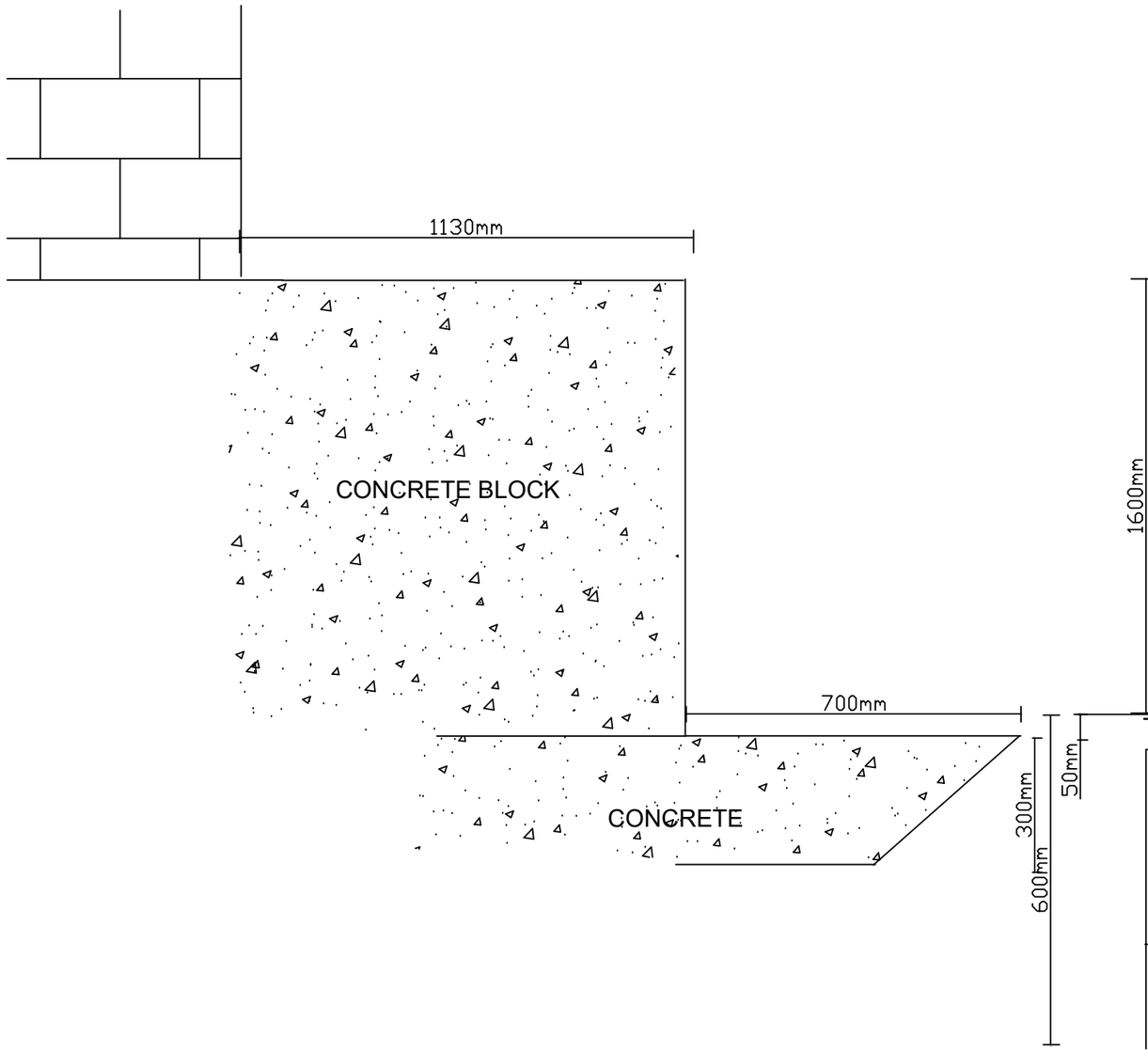
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Scale:

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
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HP3



Ground Level

TOPSOIL: Black slightly clayey silty SAND with rootlets - 0.05m bgl

MADE GROUND: Black slightly silty clayey gravelly SAND with cobbles/boulders of sub-rounded concrete. Gravel of sub-angular to sub-rounded fine to coarse brick, concrete and flint. - 0.35m bgl

MADE GROUND: Greyish brown slightly silty sandy GRAVEL with cobbles of sub-angular limestone. Gravel of sub-angular to sub-rounded fine to coarse limestone. Sand is fine to coarse. - 0.60m bgl (base not encountered)

GENERAL NOTES:	Rev:	Description:	Date:	By:	Chkd:

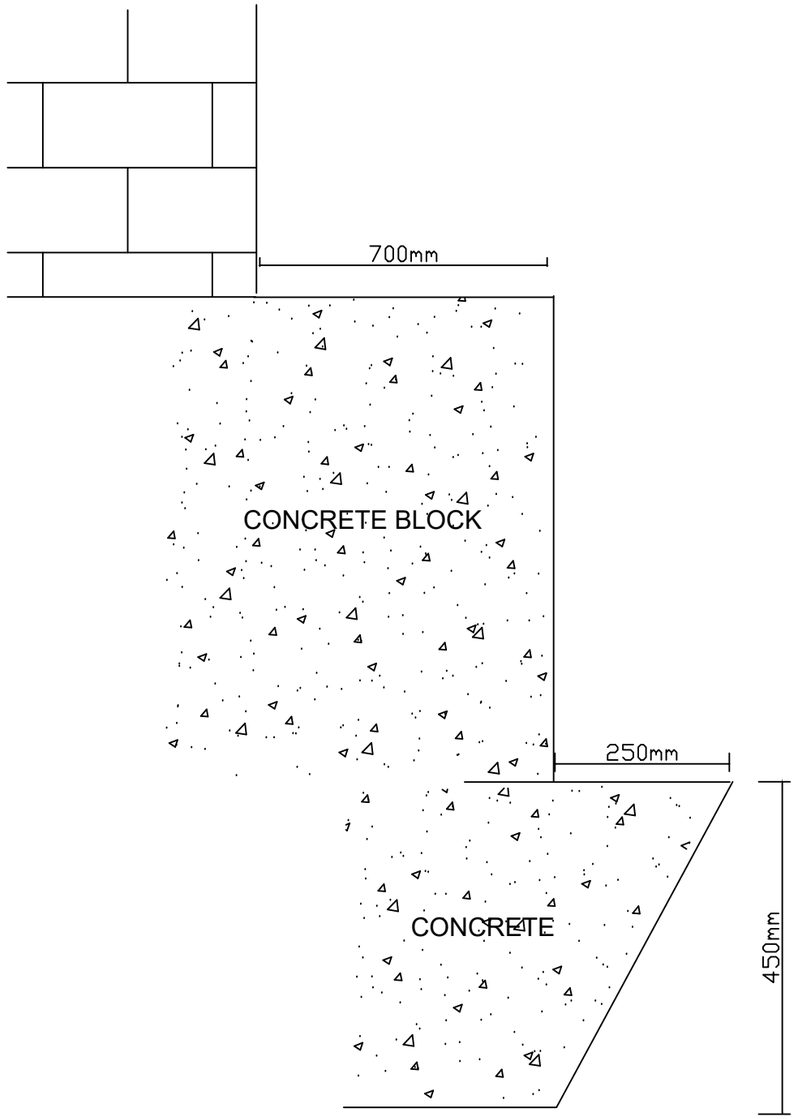
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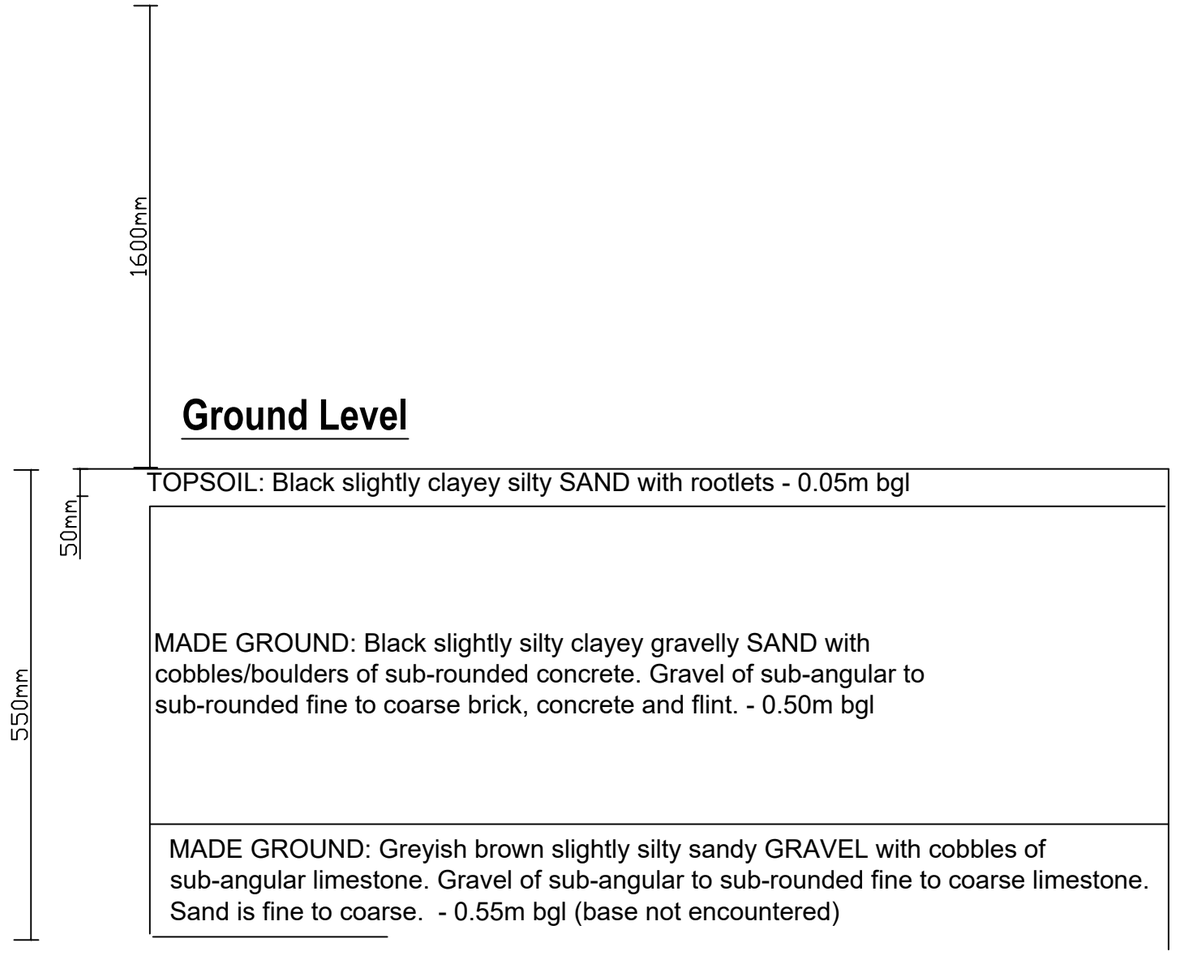
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Project: Napier Road, Reading	Status:
Drg Title: ENCOUNTERED FOUNDATIONS	Drawn By: WS / Checked By: WS
	Designed By: WS / Date: 04/08/2022
	Scale:

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
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HP4





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Project: Napier Road, Reading

Drg Title: ENCOUNTERED FOUNDATIONS

Status:

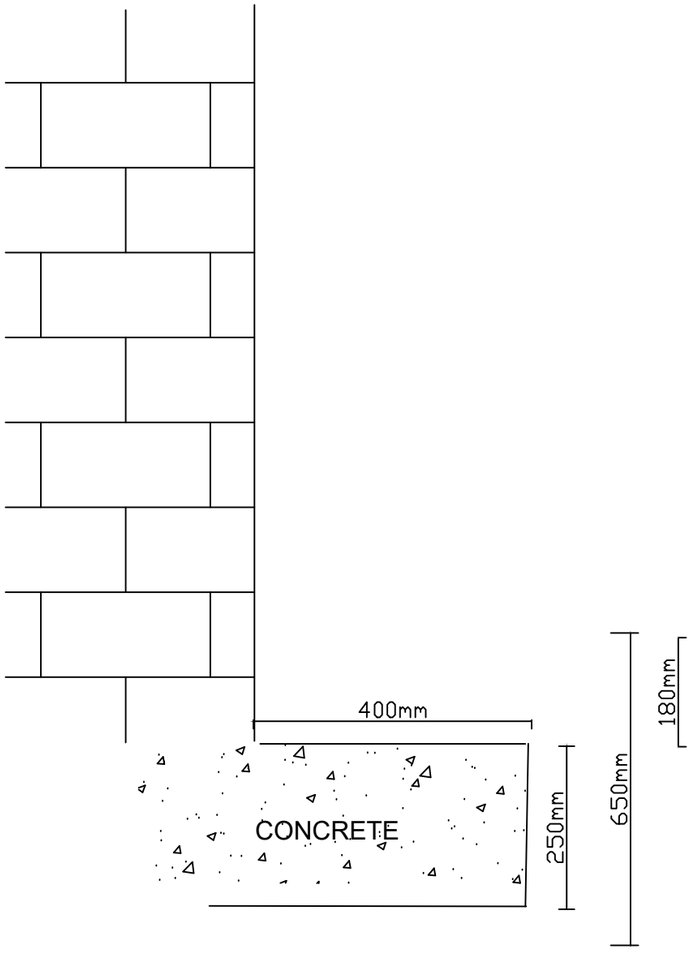
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Designed By: WS | Date: 04/08/2022

Scale:

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
080908	CUR	00	XX	DR	GE	002	-

HP5



Ground Level

TOPSOIL: Black slightly clayey silty SAND with rootlets - 0.18m bgl
MADE GROUND: Greyish brown slightly silty sandy GRAVEL with cobbles of sub-angular limestone. Gravel of sub-angular to sub-rounded fine to coarse limestone. Sand is fine to coarse. - 0.65m bgl (base not encountered)

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Project: Napier Road, Reading

Drg Title: ENCOUNTERED FOUNDATIONS

Status:

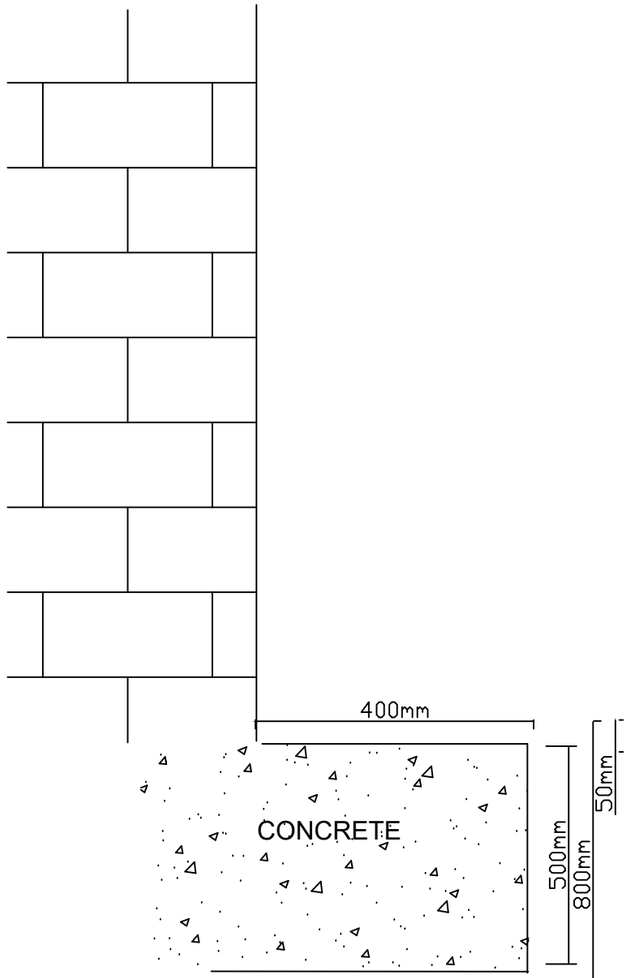
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Designed By: WS | Date: 04/08/2022

Scale:

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
080908	CUR	00	XX	DR	GE	002	-

HP6



Ground Level

TOPSOIL: Black slightly clayey silty SAND with rootlets - 0.05m bgl

MADE GROUND: Greyish brown slightly silty sandy GRAVEL with cobbles of sub-angular limestone. Gravel of sub-angular to sub-rounded fine to coarse limestone. Sand is fine to coarse. - 0.80m bgl (base not encountered)

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Project: Napier Road, Reading			Status:
Drg Title: ENCOUNTERED FOUNDATIONS		Drawn By: WS	Checked By: WS
		Designed By: WS	Date: 04/08/2022
			Scale:

Project No:	Originator:	Volume:	Level:	Type:	Role:	Category / Number:	Rev:
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GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS
2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
4. FOR GENERAL NOTES REFER TO DRAWING.

Key

- Rotary Core Borehole
- Window Sample Borehole
- Hand Excavated Pit
- Machine Excavated Trial Pit

Napier Road

Location BH07		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not sampled	-
17/08/2022	Not sampled	-
15/09/2022	18.6ug/l	35.63m AOD
15/06/2023	15ug/l	35.67m AOD
30/06/2023	Not sampled	-
06/07/2023	Not sampled	-
03/08/2023	Not sampled	-

Location WS101		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not constructed	-
17/08/2022	Not constructed	-
15/09/2022	Not constructed	-
15/06/2023	11ug/l	35.67m AOD
30/06/2023	13ug/l	35.87m AOD
06/07/2023	12ug/l	35.81m AOD
03/08/2023	Not sampled	-

Location WS102		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not constructed	-
17/08/2022	Not constructed	-
15/09/2022	Not constructed	-
15/06/2023	5ug/l	35.74m AOD
30/06/2023	5ug/l	35.58m AOD
06/07/2023	Not sampled	-
03/08/2023	Not sampled	-

Location WS10		
Date Sampled	PCE Concentration	Water Level
09/08/2022	<1ug/l	35.48m AOD
17/08/2022	<1ug/l	35.60m AOD
15/09/2022	Not sampled	-
15/06/2023	<1ug/l	35.89m AOD
30/06/2023	Not sampled	-
06/07/2023	Not sampled	-
03/08/2023	Not sampled	-

Location BH04		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not sampled	-
17/08/2022	Not sampled	-
15/09/2022	8.9ug/l	35.62m AOD
15/06/2023	9ug/l	35.66m AOD
30/06/2023	38ug/l	35.64m AOD
06/07/2023	15ug/l	35.62m AOD
03/08/2023	15ug/l	35.74m AOD

Location WS11		
Date Sampled	PCE Concentration	Water Level
09/08/2022	88.7ug/l	35.39m AOD
17/08/2022	17.7ug/l	35.60m AOD
15/09/2022	29ug/l	35.60m AOD
15/06/2023	Not sampled	-
30/06/2023	Not sampled	-
06/07/2023	Not sampled	-
03/08/2023	Not sampled	-

Location WS103		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not constructed	-
17/08/2022	Not constructed	-
15/09/2022	Not constructed	-
15/06/2023	Not sampled	-
30/06/2023	Not sampled	-
06/07/2023	Not sampled	-
03/08/2023	28ug/l	35.77m AOD

Location BH05		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not sampled	-
17/08/2022	Not sampled	-
15/09/2022	93ug/l	35.62m AOD
15/06/2023	103ug/l	35.56m AOD
30/06/2023	Not sampled	-
06/07/2023	Not sampled	-
03/08/2023	90ug/l	35.65m AOD

Location WS105		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not constructed	
17/08/2022	Not constructed	-
15/09/2022	Not constructed	-
15/06/2023	36ug/l	35.60m AOD
30/06/2023	Not sampled	
06/07/2023	74ug/l	35.98m AOD
03/08/2023	28ug/l	35.77m AOD

Location WS104		
Date Sampled	PCE Concentration	Water Level
09/08/2022	Not constructed	-
17/08/2022	Not constructed	-
15/09/2022	Not constructed	-
15/06/2023	35ug/l	35.61m AOD
30/06/2023	59ug/l	35.83m AOD
06/07/2023	35ug/l	36.0m AOD
03/08/2023	11ug/l	35.73m AOD

Location WS12		
Date Sampled	PCE Concentration	Water Level
09/08/2022	33.4ug/l	35.41m AOD
17/08/2022	14.2ug/l	35.58m AOD
15/09/2022	14.3ug/l	35.61m AOD
15/06/2023	Not sampled	-
30/06/2023	Not sampled	-
06/07/2023	Not sampled	-
03/08/2023	Not sampled	-

Electric Car Charging Point

Ver	Description	Date	By	Chkd

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Project: Napier Road, Reading

Dwg Title: PCE Concentrations in Groundwater

Size	Scale	Drawn By:	Designed By:	Checked By:
A1	22/08/23	WS	WS	PW

Drawing No: 080908 - CUR - XX - XX - DR - GE - 0005 - P01

Appendix B Exploratory Hole Logs

- Rotary Cored Borehole Logs
- Window Sample Borehole/Dynamic Probe Logs
- Hand Excavated Foundation Pit Logs

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Rotary Core Log

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Borehole No. **BH01** Sheet 1 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 471907.50 - 173874.10	Hole Type RC
Location: Reading		Level: 39.43	Scale 1:50
Client: Sladen Estates		Dates: 27/07/2022 - 03/08/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.12	39.31		Tarmacadam.
							0.30	39.13		MADE GROUND: Soft dark brown sandy gravelly CLAY. Sand is fine to coarse. Gravels are angular to sub-rounded, fine to coarse concrete, brick fragments, chalk and flint.
							0.90	38.53		MADE GROUND: Soft black sandy gravelly CLAY. Sand is medium. Gravel is sub-angular to sub-rounded, brick, flint and chalk.
							1.00	38.43		MADE GROUND: Light brown medium to coarse SAND.
							1.05	38.38		Concrete.
							2.00	37.43		Reworked black and white very silty sandy GRAVEL. Sand is medium. Gravel is sub-angular to sub-rounded, fine to coarse chalk.
										...220mm ∅ insulated metal pipe encountered at 1.05m bgl.
										N = 24 (9,9/9,6,4,5)
										Dark grey slightly sandy SILT with mild organic odour. ALLUVIUM
		3.00	D							*N = 12 (3,2/3,3,3,3)*
		3.70 - 4.00	D				3.70	35.73		Brown very gravelly medium to coarse SAND. Gravel is sub-angular to sub-rounded, fine to medium flint. RIVER TERRACE DEPOSITS
							4.00	35.43		*N = 57 (9,10/12,13,15,17)*
							4.40	35.03		Presumed brown very gravelly medium to coarse SAND. Gravel is sub-angular to sub-rounded, fine to medium flint. RIVER TERRACE DEPOSITS
		5.00 - 5.90	D							*...No recovery from 4.00m to 4.40m bgl.*
										Brown coarse SAND and GRAVEL .Gravel is sub-angular to sub-rounded, fine to medium flint. RIVER TERRACE DEPOSITS
										N = 67 (6,7/15,15,16,16)
							6.00	33.43		Presumed brown coarse SAND and GRAVEL .Gravel is sub-angular to sub-rounded, fine to medium flint. RIVER TERRACE DEPOSITS
										...No recovery from 6.00m to 9.50m bgl due to running sand.
										N = 82 (7,16/24,20,21,17)
										N = 20 (2,2/3,4,7,6)
		9.50 - 11.00	D				9.50	29.93		Recovered as structureless white sand gravelly SILT with infrequent sub-angular cobbles. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to coarse chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 9 (6,3/3,2,2,2)

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) 220mm ∅ insulated metal pipe encountered at 1.05m bgl. 4) Position backfilled to 1.50m bgl to allow for access to metal pipe. 5) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 6) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH01**

Sheet 2 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 471907.50 - 173874.10	Hole Type RC
Location: Reading		Level: 39.43	Scale 1:50
Client: Sladen Estates		Dates: 27/07/2022 - 03/08/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							11.10	28.33		*N = 8 (2,3/2,2,2,2)*
										Recovered as structureless white sand gravelly SILT with infrequent sub-angular cobbles. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to coarse chalk and flint. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 10 (2,1/1,2,4,3)
		13.00 - 14.00	D				13.00	26.43		Recovered as structureless white silty sandy GRAVEL of angular to sub-rounded, fine to coarse chalk and flint. Sand is fine to coarse. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		14.00 - 15.50		56	17	17	14.00	25.43		Recovered as structureless yellowish white silty sandy GRAVEL of angular to sub-rounded, fine to coarse chalk and flint. Sand is fine to coarse. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 38 (11,9/10,9,9,10)
		15.30	D							
										N = 49 (10,12/14,12,11,12)
										…Flint gravel from 15.50m bgl.
										…Non intact and iron staining from 15.85 to 16.35m bgl.
		15.50 - 17.00		76	42	37	16.35	23.08		Weak to medium strong medium dense white chalk with iron staining. Fractures are 45° to 90°, open to closed, and infilled with white silt. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		16.90 - 17.00	C							*…Fracture 85°, closed, not infilled.*
										…Conjugate fracture 45° and 63°, open, not infilled.
							17.00	22.43		*…Fracture 90°, open, not infilled.*
		17.00 - 18.50		57	13	13				Weak to medium strong, medium to high density white CHALK with flint cobbles. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 65 (14,16/17,16,16,16)
		18.02 - 18.22	C							*…Non intact from 17.65 to 17.96m bgl.*
										…Flint cobbles from 18.23 to 18.50m bgl.
							18.50	20.93		Medium strong, medium density white CHALK with black specs. Fractures are 75° to 180°, open, infilled with white silt. FI NI/107/300. Grade C3. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		18.50 - 20.00		90	45	36				*…46 blows for 150mm penetration.*
										…Abundant marl from 18.90m bgl.
										…Conjugate fracture 75° and 85°, open, infilled with white silt.
										…Iron staining from 19.20m to 19.50m bgl.
										…Fracture 85°, open, infilled with white silt.
		19.85 - 20.00	C							*…Fracture 95°, open, infilled with white silt.*
							20.00	19.43		*…Two 180° fractures, open, infilled with white silt.*

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) 220mm ∅ insulated metal pipe encountered at 1.05m bgl. 4) Position backfilled to 1.50m bgl to allow for access to metal pipe. 5) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 6) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH01** Sheet 3 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 471907.50 - 173874.10	Hole Type RC
Location: Reading		Level: 39.43	Scale 1:50
Client: Sladen Estates		Dates: 27/07/2022 - 03/08/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		20.06 - 20.96	C	79	39	33				Weak to medium strong, medium density white CHALK with flint. Fractures are 90°, open to 3mm aperture, infilled with white chalk. FI NI/107/300. Grade C3. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) …Flint cobbles and gravels. …Marl band. …Flint band.
		21.50 - 23.00 22.86 - 23.00	C	93	65	55	21.50	17.93		Medium strong, low to medium density white CHALK with flint and marl bands. Fractures are 20° to 150°, open to closed. FI 60/175/1040. Grade B3. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) …Flint band. …Fracture 90°, open, infilled with white silt. …Conjugate fracture 90° and open, and infilled with white silt and 50° and closed. …Flint band. …Fracture 100° and 2mm aperture, not infilled. …Marl band. …Fracture 20°, 1mm aperture, not infilled. …Fracture 90°, open, not infilled. …Fracture 150°, 1mm aperture, not infilled. …Fracture 90°, closed. …Fracture 90°, open.
		23.62 - 23.90 23.00 - 24.50	C	78	37	29	23.00	16.43		Strong, high density white CHALK with flint. Fractures are 90°, open to 1mm aperture, infilled with white silt. FI 60/175/1040. Grade B3. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) …Flint band. …Fracture 90°, 1mm aperture, infilled with silt.. …Fracture 90° 2mm aperture, infilled with silt. …Fracture 90°, open, infilled with white silt. …Flint band.
		24.50 - 26.00 25.32 - 25.47	C	100	87	87	24.50	14.93		Strong, high density white CHALK with flint and marl. Fractures are 45° to 90°, open, and infilled with white silt. FI 120/130/1250. Grade C2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) …Flint band. …Marl band. …Fracture 45°, open, infilled with white silt. …Marl band. …Fracture 90, open, infilled with white silt.
		26.20 - 26.43 26.00 - 27.50	C	93	29	29	26.00	13.43		Medium strong, high density white CHALK with marl. Fractures are 50° to 140°, open to 3mm aperture, not infilled. FI 120/130/1250. Grade C2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) …Abundant marl from 26.55 to 27.30m bgl. …Conjugate fractures 60° and 140°, open. …Conjugate fractures 50° and 85°, open. …Conjugate fractures 70° and 120°, 3mm aperture.
		27.50 - 29.00 28.43 - 28.69	C	100	50	50	27.50	11.93		Medium strong, high density white CHALK with flint and marl. FI 10/240/880. Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) …Flint band. …Conjugate fractures 30° and open, 95° and 2mm aperture. Not infilled. …Fracture 92°, 1mm aperture, infilled with white silt. …Fracture 115°, 1mm aperture, not infilled. …Fracture 54°, 3mm aperture, not infilled. …Fracture 115°, 1mm aperture, not infilled. …Conjugate fracture 60° and 90°, open, infilled with white silt. …Flint band. …Fracture 90°, open, infilled with white silt. …Marl bands.
		29.09 - 29.45 29.00 - 30.50	C	100	73	53	29.00	10.43		

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) 220mm ∅ insulated metal pipe encountered at 1.05m bgl. 4) Position backfilled to 1.50m bgl to allow for access to metal pipe. 5) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 6) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH01** Sheet 4 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 471907.50 - 173874.10	Hole Type RC
Location: Reading		Level: 39.43	Scale 1:50
Client: Sladen Estates		Dates: 27/07/2022 - 03/08/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										Fracture 85°, closed.
							30.50	8.93		Strong, high density white CHALK with marl. Fractures are 70° to 160°, open to 2mm aperture, infilled with white silt. FI 10/240/880. Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		31.10 - 31.30 30.50 - 32.00	C	93	87	83				*…Marl band.* *…Fracture 90°, 2mm aperture. Infilled with white silt.* *…Marl band.* *…Marl band.* *…Marl band.* *…Fracture 95°, 2mm aperture, infilled with white silt.* *…Fracture 160°, open, infilled with white silt.* *…Fracture 70°, open, infilled with white silt.*
							32.00	7.43		Strong, high density white chalk with flint and marl. Fractures are 85° to 90°, open to 2mm aperture, infilled with white silt. FI 10/240/880. Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		32.00 - 33.50 32.91 - 33.09	C	60	23	23				*…Flint cobble.* *…Fracture 90°, 1mm aperture, not infilled.* *…Marl band.* *…Fracture 85°, open, not infilled.* *…Fracture 90°, closed.* *…Fracture 90°, 2mm aperture not infilled.*
							33.50	5.93		Strong, high density white CHALK with flint and marl. FI 10/240/880. Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		33.85 - 34.05 33.50 - 35.00	C	93	73	73				*…Pushing flint cobble.* *…Flint band from 32.60m to 32.80m bgl.* *…Abundant marl from 33.10m to 33.50m bgl.* *…Yellowish-white from 33.10m to 33.50m bgl.*
							35.00	4.43		Strong to very strong, high density white CHALK with flint and marl. FI 10/240/880. Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										…Marl band. *…Flint band from 34.05 to 34.15.* *…Fracture 85°, closed.* *…Flint band.* *…Fracture 90°, 1mm aperture, not infilled.* *…Fracture 80°, open, not infilled.*
										End of borehole at 35.00 m

31 32 33 34 35 36 37 38 39 40

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) 220mm ∅ insulated metal pipe encountered at 1.05m bgl. 4) Position backfilled to 1.50m bgl to allow for access to metal pipe. 5) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 6) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH02**

Sheet 1 of 5

Project Name: Napier Road	Project No. 080908	Co-ords: 471946.19 - 173856.55	Hole Type RC
Location: Reading		Level: 38.05	Scale 1:50
Client: Sladen Estates		Dates: 04/07/2022 - 07/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.10	37.95		Tarmacadam.
		0.30	ES							MADE GROUND: Reddish brown sandy sub-angular to sub-rounded, fine to medium GRAVEL of limestone. Sand is fine to coarse. (Sub-base)
		0.55	ES				0.50	37.55		MADE GROUND: Dense reddish brown gravelly fine to coarse SAND. Gravel is angular to sub-rounded, fine to coarse brick and concrete.
							0.90	37.15		Concrete.
		1.20 - 1.65	D				1.20	36.85		Greenish brown slightly sandy SILT with mild organic odour. Sand is fine. ALLUVIUM
										N = 4 (1,1/1,1,1,1)
										…Grey siltstone band.
										…Minimal recovery from 1.50m to 3.00m bgl
		3.00 - 3.45	D				3.00	35.05		Brown fine to coarse SAND and GRAVEL. Gravels are angular to sub-rounded, fine to coarse flint. RIVER TERRACE DEPOSITS
		3.01 - 4.50	D							*N = 17 (2,2/3,3,5,6)*
		4.50 - 4.95	D				4.50	33.55		Brown very gravelly fine to coarse SAND. Gravel is angular to sub-angular, fine to coarse flint. RIVER TERRACE DEPOSITS
										N = 63 (8,9/13,12,20,18)
							5.20	32.85		Brown slightly gravelly medium to coarse SAND. Gravel is sub-rounded, fine to medium flint. RIVER TERRACE DEPOSITS
		5.80 - 6.50	D				5.80	32.25		Brown very gravelly fine to coarse SAND. Gravel is angular to sub-angular, fine to coarse flint. RIVER TERRACE DEPOSITS
		6.00 - 6.45	D							*N = 100 (8,13/21,23,24,32)*
							7.00	31.05		Sub-angular to sub-rounded COBBLES of flint and mudstone. RIVER TERRACE DEPOSITS
							7.30	30.75		*55 blows for 75mm penetration (10,18/27). No further penetration.*
		8.00 - 8.45	D							Presumed structureless chalk composed of uncompact white sandy gravelly SILT. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to coarse, weak, low density, white chalk. (Grade DM) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										…No recovery from 7.30m to 9.00m bgl.
										N = 7 (2,2/1,2,2,2)
		~~9.00 - 9.45~~	D				9.00	29.05		Recovered as structureless chalk composed of uncompact white, sandy gravelly SILT. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to coarse, weak, low density, white chalk. (Grade DM) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		9.00 - 10.50		53	0	0				
		10.00 - 10.50	D							*N = 17 (1,1/4,4,5,4)*

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH02**

Sheet 2 of 5

Project Name: Napier Road	Project No. 080908	Co-ords: 471946.19 - 173856.55	Hole Type RC
Location: Reading		Level: 38.05	Scale 1:50
Client: Sladen Estates		Dates: 04/07/2022 - 07/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										N = 12 (3,2/2,3,4,3)
										…Slightly gravelly with sub-rounded medium flint.
		11.00 - 12.50		53	0	0				
		12.00 - 12.50	D							
										N = 20 (4,5/5,5,4,6)
										…Band of flint/chert at 13.00m bgl.
		12.50 - 14.00		53	0	0				
		13.50 - 14.00	D							
		~~14.00 - 14.45~~	D				14.00	24.05		Recovered as structureless chalk composed of uncompact white, sandy, very gravelly SILT. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to coarse, weak, low density, white chalk and flint. (Grade DM) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		14.00 - 15.50		47	0	0				
		15.00 - 15.50	D							*N = 32 (3,6/6,8,9,11)*
										…Iron staining at 15.00m bgl.
		~~15.50 - 15.95~~	D				15.50	22.55		Structureless white chalk composed of uncompacted white, silty, sandy angular to sub-rounded, fine to coarse GRAVEL of chalk and flint. (Grade DC) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		15.50 - 17.30		50	0	0				
		16.50 - 17.00	D							*N = 42 (7,5/8,10,11,13)*
										…Band of flint from 16.00m to 16.30m bgl.
		~~17.30 - 17.75~~	D				17.30	20.75		Recovered as structureless chalk composed of uncompact white, sandy gravelly SILT. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to coarse, weak, low density, white chalk. (Grade DM) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		17.30 - 18.80		33	0	0				*N = 45 (7,9/9,7,10,19)*
		18.40 - 18.80	D				18.40	19.65		Structureless white chalk composed of uncompacted white, silty, sandy angular to sub-rounded, fine to coarse GRAVEL of chalk and flint. (Grade DC) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		~~18.80 - 19.25~~	C							*N = 63 (8,9/6,9,23,25)*
										Horizontal 90° fracture, 1mm aperture, infilled with white silt.
		18.80 - 20.30		45	31	25				Weak, medium density, white CHALK. Fractures are horizontal and conjugate (90°/10°-45°), open and infilled with white SILT. NI/90/200 (Grade C3).
		19.90 - 20.00	C				19.80	18.25		SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH02**

Sheet 3 of 5

Project Name: Napier Road	Project No. 080908	Co-ords: 471946.19 - 173856.55	Hole Type RC
Location: Reading		Level: 38.05	Scale 1:50
Client: Sladen Estates		Dates: 04/07/2022 - 07/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		20.20 - 20.30	C							*Conjugate fractures 10° and 45°, 2mm aperture, infilled with white silt.*
		20.90 - 21.16	C							*55 blow for 225mm penetration (13,12/13,15,30). No further penetration.*
		20.30 - 22.00		82	40	25				*Flint band.*
		21.74 - 21.80	C							*Fracture 45°, 4mm aperture, infilled with white silt.*
										Fracture 45°, 4mm aperture, infilled with white silt.
										Fracture 10°, 2mm aperture, infilled with white silt.
										Weak to medium strong, high density, white CHALK. Bedding fractures are 10° to 45° and infilled with white silt. NI/90/200 (Grade C3). SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
							22.00	16.05		*…Flint band at 22m bgl.*
										Flint band.
		22.50 - 22.75	C							*Fracture 55°, open, infilled with white silt.*
		22.00 - 23.50		99	71	65				*Fracture 115°, open, infilled with white silt.*
		23.00 - 23.08	C							*Fracture 90°, 2mm aperture, infilled with white silt.*
		23.37 - 23.50	C							*Fracture 150°, 4mm aperture, infilled with white silt.*
										…Ironstone staining and marl bands afrom 22.90m to 23.10m bgl.
										Fracture 75°, 1mm aperture, infilled with white silt.
										Flint band.
										Fracture 90°, 1mm aperture, infilled with white silt.
										Fracture 70°, 1mm aperture, infilled with white silt.
							23.50	14.55		*Fracture 90°, closed, no infilling.*
										Fracture 85°, closed, no infilling.
		24.01 - 24.16	C							Medium strong, medium density, white chalk. Bedding fractures are 70° to 150°, closed to open and infilled with white silt. NI/90/200 (Grade C3). SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		24.16 - 24.31	C							*Fracture 90°, closed, no infilling.*
		23.50 - 25.00		85	79	65				*Flint band.*
										Fracture 90°, 1mm aperture, infilled with white silt.
										Flint band.
							25.00	13.05		*Fracture 90°, 1mm aperture, infilled with white silt.*
										Fracture 110°, 1mm aperture, infilled with white silt.
										Fracture 75°, 1mm aperture, infilled with white silt.
		25.68 - 26.08	C							*Fracture 90°, 1mm aperture, infilled with white silt.*
		25.00 - 26.50		100	90	68				*Fracture 110°, 1mm aperture, infilled with white silt.*
										Conjugate fractures 40° and 120°, 2mm aperture, infilled with white silt.
										Flint band.
										Flint band.
										Marl band.
										Marl band.
							26.50	11.55		Medium strong, very high density, white CHALK with bands of marl and flint nodules. Bedding fractures are 50° to 180°, open to closed. NI/90/200 Grade C3 to 26.00m bgl. Grade B2 from 26.00m bgl. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		26.50 - 28.00		100	76	76				*Fracture 90°, 1mm aperture, infilled with white silt.*
		27.36 - 27.53	C							*Fracture 90°, 1mm aperture, infilled with white silt.*
										Conjugate fractures 50° and 180°, 2mm aperture, infilled with white silt.
										Marl band.
		28.08 - 28.24	C				28.00	10.05		Strong, high density, white CHALK with bands of marl and flint nodules. Bedding fractures are 60° to 90°, 2mm and infilled with white silt. 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		28.00 - 29.50		100	63	47				*Fracture 85°, 3mm aperture, infilled with white silt.*
										Flint band.
										Fracture 75°, 2mm aperture, not infilled.
										Marl band.
							29.50	8.55		*Fracture 90°, 1mm aperture, not infilled.*
		29.65 - 29.80	C							*Fracture 60°, 1mm aperture, not infilled.*
										Flint band.

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH02** Sheet 4 of 5

Project Name: Napier Road	Project No. 080908	Co-ords: 471946.19 - 173856.55	Hole Type RC
Location: Reading		Level: 38.05	Scale 1:50
Client: Sladen Estates		Dates: 04/07/2022 - 07/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		29.50 - 31.00		100	95	95				Medium strong, high density, white CHALK with bands of marl and flint nodules. Fractures are 60° to 180°, open to closed. 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Fracture 90°, 2mm aperture, infilled with white silt.* *Fracture 90°, 2mm aperture, infilled with white silt.* *Fracture 180°, closed, infilled with white silt.* *Fracture 60°, 2mm aperture, infilled with white silt.* *Fracture 90°, 2mm aperture, infilled with white silt.* *Fracture 90°, 2mm aperture, infilled with white silt.*
		31.65 - 31.71 31.00 - 32.50	C	93	63	57	31.00	7.05		Strong, high to very high density white CHALK with bands of marl and flint nodules. Fractures are 60° to 90°. Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Flint band.* *Flint band.*
		32.50 - 34.00 33.60 - 33.80	C	100	88	88	32.50	5.55		Medium strong to strong, high to very high density white CHALK. Fractures are 90° to 150°, apperture is closed to 2mm, infiled with white silt. Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Fracture 90°, 2mm aperture, infilled with white silt.* *Fracture 150°, 2mm aperture, infilled with white silt.* *Fracture 90°, 2mm aperture, infilled with white silt.* *Flint band.*
		34.09 - 34.21 34.00 - 35.50	C	93	83	51	34.00	4.05		Medium strong, high density white CHALK with flint nodules. Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Marl bands.* *Flint band.* *Marl bands.*
		35.50 - 37.00 36.40 - 36.60	C	90	83	81	35.50	2.55		Medium strong to strong, high density white CHALK. Fractures are 40° to 140°, open to close and infilled with white silt. Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Flint band.* *Fracture 140°, open, infilled with white silt.* *Fracture 40°, aperture 1mm, infilled with white silt.* *Fracture 50°, closed, infilled with white silt.* *Flint band.* *Fracture 180°, open, infilled with white silt.* *Flint band.* *Marl bands.*
		37.44 - 37.57 37.00 - 38.50	C	100	57	31	37.00	1.05		Strong to very strong, high density white CHALK with marl and flint bands. Fractures are 75° to 180°, open to closed. Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Fracture 90°, aperture 1mm, infilled with white silt.* *Fracture 90°, closed, infilled with white silt.* *Fracture 90°, aperture 3mm, infilled with white silt.* *Fracture 180°, open, infilled with white silt.* *Marl band.* *Fracture 75°, open, infilled with white silt.* *Fracture 90°, open, not infilled.*
		38.50 - 40.00	C	100	49	23	38.50	-0.45		Very strong, very dense, white CHALK with marl and flint bands. Fractures are 90° to 180°, 1mm aperture and infilled with white silt.Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
							40.00	-1.95		Medium strong to strong, very dense white CHALK with bands of flint. Fractures are 55° to

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

AGS

curtins

Rotary Core Log

Borehole No.
BH02
Sheet 5 of 5

Project Name:	Napier Road	Project No. 080908	Co-ords:	471946.19 - 173856.55	Hole Type RC
Location:	Reading		Level:	38.05	Scale 1:50
Client:	Sladen Estates		Dates:	04/07/2022 - 07/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		40.65 - 40.98 40.00 - 41.50	C	100	55	40	41.50	-3.45		180°, open to closed, infilled with white silt. Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Fracture 55°, open, infilled with white silt.* *Flint cobble.* *Fracture 85°, open, infilled with white silt.* *Fracture 90°, aperture 1mm, infilled with white silt.* *Fracture 180°, open, infilled with white silt.* *Conjugate fracture 65° and 115°, infilled with white silt.* Strong to very strong, high density white CHALK with flint bands. Fracture is 80° and closed. Grade 60/400/800 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *Flint band.* *Flint band.* *Fracture 80°, closed.* *Flint band.* End of borehole at 41.50 m

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Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

AGS

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Rotary Core Log

Borehole No. **BH03**

Sheet 1 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472015.46 - 173848.27	Hole Type RC
Location:	Reading		Level:	37.92	Scale 1:50
Client:	Sladen Estates		Dates:	20/07/2022 - 27/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.12	37.80		Tarmacadam
							0.40	37.52		MADE GROUND: Brown gravelly medium to coarse SAND. Gravel is sub-angular to sub-rounded, medium flint and brick fragments.
							0.90	37.02		MADE GROUND: Soft dark brown/black sandy gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular, fine to medium brick fragments. Concrete.
							1.95	35.97		Dark brown and grey sandy SILT with mild organic odour. ALLUVIUM *N = 21 (11,5/5,4,6,5)*
							3.40	34.52		Brown very gravelly medium to coarse SAND. Gravel is sub-rounded to sub-angular, fine to medium flint. RIVER TERRACE DEPOSITS *N = 27 (5,8/6,5,8,8)*
		4.50 - 5.00	D							*N = 44 (6,6/5,9,12,18)*
										N = 56 (6,13/13,12,13,13)
							7.50	30.42		Presumed brown very gravelly medium to coarse SAND. Gravel is sub-rounded to sub-angular, fine to medium flint. RIVER TERRACE DEPOSITS *N = 51 (12,10/12,20,12,12)* *...No recovery from 7.5 to 9.50m.*
										58 Blows for 375mm penetration (12,7/7,7,7,25).

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) No recovery from 26.00m bgl to 35.00m bgl due to flint cobbles. 4) Not possible to designate a CIRIA Grade due to poor recovery. 5) Position installed with groundwater monitoring well. 6) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 7) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

AGS

curtins

Rotary Core Log

Borehole No. **BH03** Sheet 2 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 472015.46 - 173848.27	Hole Type RC
Location: Reading		Level: 37.92	Scale 1:50
Client: Sladen Estates		Dates: 20/07/2022 - 27/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										57 Blows for 225mm penetration. (15,17/20)
		10.50 - 11.00	D	83			10.30	27.62		Recovered as structureless white sandy, gravelly SILT with low cobble content. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to medium chalk. Cobbles are sub-angular chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		11.00 - 12.50	D				11.00	26.92		
		11.00 - 12.50		13						Recovered as structureless white sandy, slightly gravelly SILT. Sand is fine to coarse Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 10 (2,2/2,2,3,3)
		12.50 - 14.00	D				12.50	25.42		
		12.50 - 14.00		33						Recovered as structureless white sandy, slightly gravelly SILT with frequent cobbles. Sand is fine to coarse. Gravels are sub-angular, fine to medium flint. Cobbles are sub-angular chalk. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 17 (3,3/3,3,4,7)
							14.00	23.92		
		14.00 - 15.50		0						Presumed structureless white sandy, slightly gravelly SILT with frequent cobbles. Sand is fine to coarse. Gravels are sub-angular, fine to medium flint. Cobbles are sub-angular chalk. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 39 (7,15/11,12,9,7)
										…No recovery from 14.00m to 15.50m bgl due to flint cobble in casing.
		15.50 - 17.00	D				15.50	22.42		
		15.50 - 17.00		33						Recovered as structureless white sandy, gravelly SILT. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to medium chalk. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 37 (8,8/9,9,10,9)
		17.00 - 18.50	D				17.00	20.92		
		17.00 - 18.50		27						Recovered as structureless white sandy, slightly gravelly SILT. Sand is fine to coarse Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 47 (10,9/12,10,10,15)
										…Frequent black specs.
										N = 34 (10,9/12,10,10,15)
		18.50 - 20.00		83	23	11	19.20	18.72		Medium strong, high density white CHALK with infrequent marl bands. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		19.51 - 19.67	C							*…Fracture 90°, 1mm aperture.*
										…Fracture 65°, open, infilled with white silt.
										…Fracture 115°, open, infilled with white silt.
										…Marl band.
							20.00	17.92		

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) No recovery from 26.00m bgl to 35.00m bgl due to flint cobbles. 4) Not possible to designate a CIRIA Grade due to poor recovery. 5) Position installed with groundwater monitoring well. 6) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 7) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH03** Sheet 3 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472015.46 - 173848.27	Hole Type RC
Location:	Reading		Level:	37.92	Scale 1:50
Client:	Sladen Estates		Dates:	20/07/2022 - 27/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		20.00 - 21.50		77	40	38				Weak to medium strong, medium density white CHALK. Fractures are open to 1mm, 65° to 115° and infilled with white silt. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		21.02 - 21.25	C							*N = 72 (10,12/18,16,19,19)*
										…Conjugate fracture 20° and 3mm aperture and 40°, open, infilled with white silt.
										…Conjugate fracture 30° open and 65° 3mm aperture, infilled with white silt.
										…Fracture 90°, open, infilled with white silt.
							21.50	16.42		Medium strong, medium density white CHALK with flint bands. Fractures are open, 85° to 90° and infilled with white silt. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		21.50 - 23.00		43	32	14				*25 Blows for 0mm penetration (25)*
		22.63 - 22.73	C							*…Flint band.*
										…Fracture 90°, open, infilled with white silt.
										…Flint band.
										…Ironstone staining at 22.90m bgl.
		23.00 - 24.50		66	7	7				*70 Blows for 300mm penetration (11,16/25,18)*
		23.80 - 23.90	C							*…Fracture 85°, open, infilled with white silt.*
										…Flint nodules.
										…Flint nodules.
							24.50	13.42		Medium strong, high density white CHALK. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		24.50 - 26.00		20	10	10				*…20% recovery due to flint cobbles.*
		25.85 - 26.00	C							
							26.00	11.92		Presumed white CHALK. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										…No recovery from 26.00m to 35.00m bgl due to flint cobble in casing.
		27.00 - 27.25	C							
		29.00 - 29.10	C							

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) No recovery from 26.00m bgl to 35.00m bgl due to flint cobbles. 4) Not possible to designate a CIRIA Grade due to poor recovery. 5) Position installed with groundwater monitoring well. 6) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 7) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No.
BH03
Sheet 4 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472015.46 - 173848.27	Hole Type RC
Location:	Reading		Level:	37.92	Scale 1:50
Client:	Sladen Estates		Dates:	20/07/2022 - 27/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring			Depth (m)	Level (m)	Legend	Stratum Description
				TCR	SCR	RQD				
							35.00	2.92		End of borehole at 35.00 m

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Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) No recovery from 26.00m bgl to 35.00m bgl due to flint cobbles. 4) Not possible to designate a CIRIA Grade due to poor recovery. 5) Position installed with groundwater monitoring well. 6) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 7) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No.
BH04
Sheet 1 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472101.80 - 173842.68	Hole Type RC
Location:	Reading		Level:	37.96	Scale 1:50
Client:	Sladen Estates		Dates:	03/08/2022 - 05/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		0.20	B				0.20	37.76		MADE GROUND: Tarmacadam.
		0.60	B				0.60	37.36		MADE GROUND: Reddish brown sandy sub-angular to sub-rounded, fine to medium GRAVEL of limestone. Sand is fine to coarse. (Sub-base)
		1.00	B							MADE GROUND: Greyish white slightly silty sandy clayey GRAVEL. Sand is fine to coarse. Gravel of sub-angular to sub-rounded fine to coarse flint, chalk, clinker and aggregate.
										SPT: 2,2/1,1,2,3 - N=7
		1.50	B				1.50	36.46		Soft dark grey black organic silty CLAY with fine sub-rounded shells and black organic matter. Slight organic odour. ALLUVIUM
		2.20	B				2.20	35.76		Brown fine to coarse SAND and GRAVEL. Gravels are angular to sub-rounded, fine to coarse flint. RIVER TERRACE DEPOSITS
										SPT: 4,6/7,7,7,6 - N=27
										SPT: 7,9/12,13,16,15 - N=56
										SPT: 8,5/6,6,6,6 - N=24
										SPT: 10,12/10,9,12,11 - N=42
										SPT: 8,9/10,27,21,17 - N=75
							10.00	27.96		Continued on next sheet

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Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH04** Sheet 2 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472101.80 - 173842.68	Hole Type RC
Location:	Reading		Level:	37.96	Scale 1:50
Client:	Sladen Estates		Dates:	03/08/2022 - 05/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										Structureless white CHALK composed of slightly sandy silty very gravelly CLAY. Gravel is extremely weak to very weak, low density, white. (Grade Dm Chalk) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										SPT: 3,2/2,3,2,2 - N=9
										SPT: 3,2/2,2,3,3 - N=10
										Limited recovery due to flint cobble present.
										SPT: 9,7/10,11,12,11 - N=44
										SPT: 4,5/5,6,6,7 - N=24
										AZCL - recovered as gravel of sub-angular very weak low density chalk.
		14.00 - 15.50		33	20	13				Structureless white CHALK composed of silty gravelly CLAY. Gravel is extremely weak to very weak, low density white with occasional orange flecks and flint. (Grade Dm CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		15.20	B				15.20	22.76		*SPT: 10,8/7,7,7,8 - N=29*
		15.50 - 17.00		87	13	13				Structureless white CHALK composed of slightly silty slightly of sub-angular to sub-rounded GRAVEL. Clasts are very weak to weak, low density, white with frequent bands of coarse very angular flint. (Grade Dc CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		16.40	B				16.40	21.56		*Cobble of sub-angular flint.*
										SPT: 8,9/7,9,14,11 - N=41
										AZCL - recovered as white silty GRAVEL of sub-angulkar to sub-rounded fine to coarse chalk and flint.
		17.00 - 18.50		60	7	0				Structureless white CHALK composed of silty gravelly CLAY. Gravel is extremely weak to very weak, low to medium density white with occasional orange flecks and flint. (Grade Dm CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
							17.80	20.16		Structureless white CHALK composed of slightly silty slightly of sub-angular to sub-rounded GRAVEL. Clasts are very weak to weak, low density, white with frequent bands of coarse very angular flint. (Grade Dc CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		18.30	D				18.10	19.86		
							18.50	19.46		
		18.50 - 20.00		27	0	0				Structureless white CHALK composed of slightly silty sub-angular to sub-rounded GRAVEL and COBBLES. Clasts are weak, medium density, white with frequent bands of flint. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										Cobble of very angular flint.
										SPT: 8,9/8,9,8,7 - N=32

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH04** Sheet 3 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 472101.80 - 173842.68	Hole Type RC
Location: Reading		Level: 37.96	Scale 1:50
Client: Sladen Estates		Dates: 03/08/2022 - 05/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		20.00 - 21.50		40	0	0				SPT: 10,9/9,12,16,9 - N=46 Cobble of sub-rounded flint. Very angular coarse bands of flint.
		21.50 - 23.00 22.40 22.70	C C	60	32	13	22.30	15.66		SPT: 10,12/14,14,12,12 - N=52 FI - 4, 50/50/100 AZCL - recovered as cobble of sub-angular flint and weak medium density chalk. Weak, medium density white CHALK. Fractures are horizontal (90°), close (50/50/100), infilled with gravel of chalk (>3mm). (Grade C3 CHALK). SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		23.00 - 24.50 23.70	C	67	23	21	23.00	14.96		Flint bed. Weak, medium density white CHALK. Fractures are horizontal and conjugate (90° to 180°), close (20/40/160), infilled with gravel of chalk and black flecks (>3mm). (Grade C3 CHALK). SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) SPT: 14,18/ 50 for 150mm No core recovery - assumed due to previous flint bed. FI - 9, 20/40/160
		24.50 - 26.00 25.30	C	80	50	39	24.50	13.46		AZCL - recovered as weak medium density chalk gravel. Fractures are conjugate (180°) Fractures are conjugate (180°) Flint bed. Medium strong, medium to high density white CHALK. Fractures are horizontal and vertical (90 to 180°), close (60/100/200), infilled with chalk gravel and flint (>3mm). (Grade C3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		26.00 - 27.50 26.90	C	100	47	41				FI - 7, 60/100/200. Flint bed. Fractures are horizontal (90°), close, open or infilled (>3mm) Flint bed. AZCL FI - 9, 60/130/200. Fractures are horizontal (70 to 90°) close, open or infilled with chalk gravel (>3mm) Fractures infilled with marl Flint bed.
		27.50 - 29.00 28.80	C	80	45	37	27.50	10.46		Medium strong to strong, high density white CHALK. Fractures are horziontal (90°), close (50/100/180) open or closed (<3mm). (Grade B3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) FI - 8, 50/100/180 Flint beds. Flint beds. Flint beds. FI - 10, 30/90/130
		29.00 - 30.50		73	43	33				Flint beds. Marl beds

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

AGS

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Rotary Core Log

Borehole No.
BH04
Sheet 4 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472101.80 - 173842.68	Hole Type RC
Location:	Reading		Level:	37.96	Scale 1:50
Client:	Sladen Estates		Dates:	03/08/2022 - 05/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		30.40	C				30.50	7.46		End of borehole at 30.50 m

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Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater seepages not identified due to the addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH05**

Sheet 1 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 472149.93 - 173855.34	Hole Type RC
Location: Reading		Level: 37.88	Scale 1:50
Client: Sladen Estates		Dates: 13/07/2022 - 15/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							0.13	37.75		Tarmacadam
							0.40	37.48		MADE GROUND: Brown gravelly medium to coarse SAND. Gravel is sub-angular to sub-rounded, fine to coarse flint.
		0.80	ES				0.75	37.13		MADE GROUND: Soft dark brown/black sandy gravelly CLAY. Sand is medium. Gravel is sub-angular to sub-rounded, fine to medium chalk and flint.
							1.80	36.08		MADE GROUND: Reworked black and white very silty sandy GRAVEL. Sand is medium. Gravels are angular to sub-rounded, fine to coarse, chalk, clinker, and pummice.
		2.00	D							*N = 5 (1,2/2,1,1,1)*
		~~2.40 - 3.90~~	D				2.40	35.48		Mottled brown and reddish brown very sandy slightly gravelly SILT with mild organic odour. Sand is fine to medium. Gravel is sub-angular, fine flint. ALLUVIUM
		2.40 - 3.90		80						Brown gravelly SAND. Sand is fine to coarse. Gravel is angular to sub-rounded, fine to medium flint. RIVER TERRACE DEPOSITS
										N = 9 (2,3/2,3,2,2)
		~~3.90 - 5.40~~	D							*N = 31 (5,5/5,7,8,11)*
		3.90 - 5.40		85						
		~~5.40 - 6.90~~	D							*N = 24 (3,3/5,6,5,7)* *...Gravel is angular to sub-rounded, fine to coarse flint from 5.40m to 5.70m bgl.*
		5.40 - 6.90		85						
		~~6.90 - 8.40~~	D							*N = 58 (20,14/12,15,16,15)*
		6.90 - 8.40		90						
										56 blows for 150mm penetration (7,7/22,34). *...No recovery from 8.40m to 9.80m bgl.*
		10.00 - 11.50	D				10.00	27.88		

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH05**

Sheet 2 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 472149.93 - 173855.34	Hole Type RC
Location: Reading		Level: 37.88	Scale 1:50
Client: Sladen Estates		Dates: 13/07/2022 - 15/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										Recovered as structureless yellowish-white silty sandy GRAVEL. Sand is fine to coarse. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DC. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		10.50 - 11.00		27						*N = 16 (3,3/3,4,4,5)*
							11.50	26.38		Recovered as structureless yellowish-white sandy slightly gravelly SILT. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to medium chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		11.50 - 13.00 12.50 - 13.00	D	80						*N = 18 (2,2/3,4,4,7)*
							13.00	24.88		Recovered as structureless off-white silty sandy GRAVEL. Sand is fine to medium. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DC. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		13.00 - 14.50 14.00 - 14.50	D	72			13.30	24.58		*N = 10 (3,2/2,3,2,3)*
							14.50	23.38		Recovered as structureless off-white sandy gravelly SILT. Sand is fine to medium. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										Presumed structureless off-white sandy gravelly SILT. Sand is fine to medium. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										N = 11 (3,3/3,3,2,3)
										…Openholed from 14.50m to 16.00m bgl.
										N = 21 (7,7/4,5,6,6)
										…No recovery from 16.00m to 17.50m bgl
										Recovered as structureless white silty sandy GRAVEL with ironstone staining. Sand is fine to medium. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DC. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		~~17.50 - 18.50~~	D				17.50	20.38		*N = 23 (6,5/5,5,7,6)*
										…Ironstone staining from 17.50m to 18.70m bgl.
										…Band of flint.
		17.50 - 19.00		70						Recovered as structureless white sandy gravelly SILT. Sand is fine to medium. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
							18.70	19.18		Recovered as structureless white silty sandy GRAVEL with ironstone staining. Sand is fine to medium. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DC. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
							19.00	18.88		*N = 29 (6,6/8,9,6,6)*
		19.00 - 20.50		82						*…Ironstone staining from 19.70m to 20.00m bgl.*
		20.00 - 20.50	D							

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH05**

Sheet 3 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472149.93 - 173855.34	Hole Type RC
Location:	Reading		Level:	37.88	Scale 1:50
Client:	Sladen Estates		Dates:	13/07/2022 - 15/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							20.50	17.38		Recovered as structureless white silty sandy GRAVEL with ironstone staining. Sand is course. Gravels are sub-angular to sub-rounded, fine to medium chalk. Grade DC. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		20.50 - 22.00 21.50 - 22.00	D	70						*...Ironstone staining from 20.50m bgl.* *N = 23 (6,4/4,5,5,9)* *...Ironstone staining from 21.70m to 22.00m bgl.* *N = 32 (9,8/9,8,8,9)*
		22.00 - 23.50	C	83	19	7	22.15 22.35	15.73 15.53		Recovered as structureless white sandy slightly gravelly SILT. Sand is fine to medium. Gravels are sub-angular to sub-rounded, fine chalk. Grade DM. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										Weak to medium strong, medium to high density, white CHALK with iron staining. Fracture is 90° open and infilled with white silt. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
							23.50	14.38		*...Ironstone staining from 22.4 to 22.5m bgl.* *...Band of flint.* *Fracture 90°, open, infilled with white silt.*
		23.50 - 25.00 24.52 - 24.64	C	87	39	9	23.85	14.03		Recovered as structureless white sandy gravelly SILT. Sand is medium. Gravels are sub-angular to sub-rounded, fine to medium chalk and flint. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *N = 92 (16,20/20,20,20,32)*
							25.00	12.88		Weak to medium strong, low to high density white chalk. Fractures are open, 85° to 150° and infilled with white silt. FI: NI/180/560. Grade C2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		25.00 - 26.50 26.14 - 26.35	C	87	46	33				*Fracture 125°, open, infilled with white silt.* *Fracture 85°, open, infilled with white silt.* *Fracture 150°, open, infilled with white silt.* *Conjugate fractures 110° and 50°, open, infilled with white silt.* *Fracture is 120°, open, infilled with white silt.*
							26.50	11.38		Medium strong, high density white CHALK with marl bands and flint nodules. Fracture is 40° and open. FI: NI/180/560. Grade C2 to 26.30m bgl. FI: 40/150/680 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		27.10 - 27.28 26.50 - 28.00	C	100	63	63				*65 blows for 150mm pentration (30,35).* *Flint nodules.* *Flint nodules.* *Fracture 40°, open, infilled with white silt.* *Flint nodules.* *Marl band.* *Marl band.* *Marl band.* *Flint nodules.*
							28.00	9.88		Medium strong, high density white CHALK with marl bands. Fractures are 20° to 145°, closed to 1mm and not infilled. FI: 40/150/680 Grade B2. SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		28.55 - 28.75 28.00 - 29.50	C	90	79	67				*Flint nodules.* *Conjugate fractures 145° and 35°, open, infilled with white silt.* *Fracture 90°, 1mm aperture, not infilled.* *Fracture 90°, 1mm aperture, not infilled.* *...Ironstone staining at 27.20m bgl.* *Fracture 108°, 1mm aperture, not infilled.*
							29.50	8.38		

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH05** Sheet 4 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 472149.93 - 173855.34	Hole Type RC
Location: Reading		Level: 37.88	Scale 1:50
Client: Sladen Estates		Dates: 13/07/2022 - 15/07/2022	Logged By DX

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										lint nodules.
										Marl band.
										Marl band.
		30.36 - 30.52 29.50 - 31.00	C	91	68	57				*Fracture 20°, 1mm aperture, not infilled.*
										Medium strong to strong, high to very high density white CHALK with marl bands and flint nodules. Fractures are open to closed, 46 to 90 and closed to 3mm and not infilled. FI: 40/150/680 Grade B2.
							31.00	6.88		SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										Marl band.
										Fracture 50°, open, not infilled.
										Fracture 85°, 3mm aperture, infilled with white silt.
		32.10 - 32.20	C							*Fracture 90°, 1mm aperture, not infilled.*
										Flint band.
										Fracture 90°, closed.
										Marl bands.
							32.50	5.38		*Conjugate fracture 46° and 121°, closed, not infilled.*
										Marl bands.
										Weak to medium strong, medium to high density white CHALK with marl bands and flint nodules. Fractures are 80° and closed. FI: 40/150/680 Grade B2.
		33.04 - 33.16 32.50 - 34.00	C	80	45	25				*Flint nodules.*
										Marl band.
										Flint nodules.
										Marl band.
										Fracture 74°, 1mm, infilled with white silt.
										Fracture 80°, 1mm, infilled with white silt.
							34.00	3.88		*Marl band.*
										Flint nodules.
										Marl band.
		34.70 - 34.90 34.00 - 35.50	C	97	80	69				Medium strong, medium to low density white CHALK with flint nodules and abundant marl bands.
										Medium strong, medium to high density white CHALK with marl bands and flint nodules. Fracture is 85°, 3mm and infilled with white silt. FI: 50/170/680. Grade A2.
							35.50	2.38		*Marl band.*
										Marl band.
										Marl band.
										Marl band.
		36.10 - 36.30 35.50 - 37.00	C	87	58	51				*Fracture 85°, 3mm, not infilled.*
										Flint band.
										Fracture 70°, 2mm, infilled with white silt.
										Flint band.
										Marl bands.
										Weak to medium strong, high density white CHALK with flint nodules and marl bands. FI: 50/170/680. Grade A2.
							37.00	0.88		*Flint nodules.*
										Flint band.
										Medium strong, medium to high density white CHALK with marl bands and flint nodules. Fractures are closed 68 to 103, not infilled. FI: 50/170/680. Grade A2.
										Flint band.
										Fracture 103°, closed, not infilled.
										Fracture 68°, closed, not infilled.
										Conjugate fractures, 68° and 103, closed, not infilled.
										Flint band.
										Marl band.
										End of borehole at 37.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No.
BH07
Sheet 1 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472058.45 - 173861.66	Hole Type RC
Location:	Reading		Level:	37.98	Scale 1:50
Client:	Sladen Estates		Dates:	08/08/2022 - 10/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
		0.40	B				0.30	37.68		MADE GROUND: Block paving with bedding sand.
							0.70	37.28		MADE GROUND: Blackish grey slightly silty fine to coarse SAND and GRAVEL with cobbles of sub-angular ballast/concrete. Gravel of sub-angular to sub-rounded fine to coarse flint, ballast, concrete, brick and clinker.
							1.50	36.48		MADE GROUND: Black slightly clayey gravelly fine to coarse SAND. Gravel of sub-angular to sub-rounded fine to coarse ash, clinker and coal.
										SPT: 1,2/1,2,2,2 - N=7
										Brown fine to coarse SAND and GRAVEL. Gravels are angular to sub-rounded, fine to coarse flint. RIVER TERRACE DEPOSITS
										SPT: 2,1/1,2,2,2 - N=7
										3,6/10,12,12,14 - N=48
										SPT: 8,10/8,9,10,10 - N=37
										Open hole due to presence of flint cobbles.
										SPT: 10,12/14,10,12,12 - N=48
							8.50	29.48		Structureless white CHALK composed of slightly silty slightly sandy very gravelly CLAY. Sand is fine. Gravel is of extremely weak to very weak, low density, white. (Grade Dm CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
										SPT: 2,1/2,2,2,2 - N=8

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No.
BH07
Sheet 2 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472058.45 - 173861.66	Hole Type RC
Location:	Reading		Level:	37.98	Scale 1:50
Client:	Sladen Estates		Dates:	08/08/2022 - 10/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
										SPT: 2,2/2,2,2,2 - N=8
										SPT: 2,3/2,1,2,2 - N=7 Poor recovery due to presence of flint cobble
		12.00	B							
		13.00	B							SPT: 4,5/4,6,6,6 - N=22 Frequent cobbles of sub-angular to sub-rounded rinded flint.
		14.50 - 15.80		38	9	9				SPT: 4,4/5,5,4,6 - N=20
		15.50	B				15.50	22.48		AZCL - recovered as gravel of low to medium density sub-rounded chalk
		15.80 - 17.30		33	0	0	15.80	22.18		Structureless white CHALK composed of slightly clayey cobbly sub-angular to sub-rounded GRAVEL. Clasts are very weak to weak, low to medium density, white. Rare cobbles of sub-rounded flint. (Grade Dc CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		17.30 - 18.80		53	17	17				Structurless white CHALK composed of sub-angluar to sub-rounded GRAVEL and COBBLES. Clasts are very weak to weak, low to medium density, white with occasional orange staining. (Grade Dc CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		18.20	B							SPT: 5,7/7,6,7,7 - N=27 SPT: 10,12/12,10,11,12 - N=45 AZCL - recovered as gravel of low to medium density sub-rounded chalk Cobble of sub-angular flint very clayey within chalk matrix
		18.80 - 20.30		80	17	0				SPT: 10,11/12,14,14,15 - N=55 AZCL - recovered as gravel of low to medium density sub-rounded chalk Weak medium density white CHALK. Fractures are horizontal and conjugate (120° to 180°), very closely spaced, infilled (>3mm) with chalk gravel (10/10/40) and open. FI - 9, 20/40/90. (Grade C4 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		20.00	C				19.60	18.38		

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH07** Sheet 3 of 4

Project Name:	Napier Road	Project No. 080908	Co-ords:	472058.45 - 173861.66	Hole Type RC
Location:	Reading		Level:	37.98	Scale 1:50
Client:	Sladen Estates		Dates:	08/08/2022 - 10/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							20.30	17.68		*Cobbles of rinded flint*
		20.30 - 21.80		100	71	40	21.00	16.98		Weak medium density white CHALK. Fractures are horizontal and vertical (90° to 180°), close spaced (50/100/100), infilled with chalk and flint gravel (20/30/40). (Grade C4 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		21.60	C							*SPT: 50 for 50mm*
										FI - 10, 50/100/200.
										Bands of flint
										Bands of flint
		21.80 - 23.00		100	59	35				Weak to medium strong, medium to high density white CHALK. Fractures are horizontal (90° to 120°), close (50/100/200), infilled with gravel or open. (Grade C3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		22.70	C				22.80	15.18		*AZCL - recovered as gravel of low to medium density sub-rounded chalk*
										FI - 7, 50/100/200
		23.60	C							Medium strong, high density white CHALK. Fractures are close (40/60/100), open and infilled with silt. (Grade C3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		23.00 - 24.50		93	40	21				*Bands of flint.*
										FI - 12, 40/60/100
										Rinded flint
										Fractures are very close, multiple fractures conjugate (90° to 180°), infilled with silt (40/40/60)
							24.50	13.48		Medium strong, high density white CHALK. Fractures horizontal and conjugate (90° to 180°) are close (50/100/200), open and infilled with silt (<3mm). (Grade C3 CHALK). SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		24.50 - 26.00		100	55	47				*Marl bed - weak, medium density*
		25.40	C							*FI - 9, 50/100/200.*
										Marl bed - weak, medium density
							26.00	11.98		Medium strong, high density white CHALK. Fractures are close (90/100/200), open or infilled with silt (<3mm). (Grade B3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		26.00 - 27.50		100	70	33				*Horizontal 90° to 120° fractures.*
										FI - 8, 90/100/200
										Rinded flint bed.
										Horizontal and conjugate 90° to 180° fractures.
		~~27.50~~	C				27.50	10.48		Medium strong, high density white CHALK. Fractures are horizontal (90°) close (20/100/200), open or infilled with silt (<3mm). (Grade B3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		27.50 - ~~29.00~~ 28.30	C	67	51	39				*AZCL*
										FI - 5, 20/100/200
										Flint bed resulting in core loss.
										Marl bed - weak, medium density
							29.00	8.98		Medium strong, high density white CHALK. Fractures are close (70/70/200), open or infilled with marl (<3mm). (Grade B3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED)
		29.00 - 30.50		80	40	20				*Marl bed.*
		29.60	C							*FI - 7, 70/70/200.*
										Gravel of flint.

Continued on next sheet

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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Rotary Core Log

Borehole No. **BH07**

Sheet 4 of 4

Project Name: Napier Road	Project No. 080908	Co-ords: 472058.45 - 173861.66	Hole Type RC
Location: Reading		Level: 37.98	Scale 1:50
Client: Sladen Estates		Dates: 08/08/2022 - 10/08/2022	Logged By WS

Well	Water Strikes	Depth (m)	Type / FI	Coring TCR	Coring SCR	Coring RQD	Depth (m)	Level (m)	Legend	Stratum Description
							30.50	7.48		*Fracture is horizontal and conjugate 90° to 180° infilled with clayey gravel of chalk.*
		30.50 - 32.00		100	65	51				Medium strong, high density white CHALK. Fractures are horizontal (90°) medium to close (70/100/260), open (<3mm). (Grade B2 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *FI - 7, 70/100/260.* *Band of flints* *Rinded flint.*
							32.00	5.98		*Rinded flint.*
		32.00 - 33.50	C	80	47	18				Medium strong, high density white CHALK. Fractures are horizontal and conjugate (90° to 180°) close (50/90/100), open (<3mm). (Grade B3 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *FI - 10, 50/90/100* *Rinded flint* *Rinded flint and fracture infilled with flint and chalk gravel.*
		33.50 - 35.00		90	48	48	33.50	4.48		Medium strong, high density white CHALK. Fractures are horizontal (90°) medium to close (80/100/240), infilled to clean (<3mm). (Grade B2 CHALK) SEAFORD AND NEWHAVEN CHALK (UNDIFFERENTIATED) *FI - R7, 80/100/240* *Rinded flint.* *Marl bed* *Fracture horizontal 120°*
		35.00	D				35.00	2.98		End of borehole at 35.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groudnwater seepages not identified due to addition of water to aid drilling procedure. 3) Position installed with groundwater monitoring well. 4) Chalk density terms assessed using 150mm Nail Penetration Test whereby Low Density: >25mm penetration, Medium Density: 15-25mm penetration, High Density: 6-15mm penetration, Very High Density: <6mm penetration. 5) Chalk density terms assessed using Used Rock Pick Penetration Test whereby Low Density: >30mm penetration, Medium Density: 11-30mm penetration, High Density: 2-11mm Penetration, Very High Density: <2mm penetration.

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curtins

Borehole Log

Borehole No.
WS01
Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	471913.64 - 173860.21	Hole Type WS
Location:	Reading		Level:	38.01	Scale 1:25
Client:	Sladen Estates		Dates:	11/07/2022 - 11/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.91		MADE GROUND: Tarmac.
					0.40	37.61		MADE GROUND: Dark brown-red slightly silty gravelly fine to coarse SAND. Gravel of sub-angular to sub-rounded fine to coarse dolomite and rare brick.
		0.50	ES	PID=0	0.60	37.41		MADE GROUND: Reddish brown to white slightly silty slightly sandy gravelly CLAY. Sand is fine to medium. Gravel of sub-angular to sub-rounded fine to coarse brick, chalk and flint.
					0.60	37.41		MADE GROUND: Suspected brick footing.
								End of borehole at 0.60 m

Remarks
1) Position cleared using GPR and CAT scan prior to excavation. 2) Refusal - A suspected brick footing is present at 0.60m bgl.

AGS

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Borehole Log

Borehole No. **WS02**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	471893.23 - 173841.46	Hole Type WS
Location:	Reading		Level:	37.82	Scale 1:25
Client:	Sladen Estates		Dates:	11/07/2022 - 11/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.72		MADE GROUND: Tarmac.
					0.45	37.37		MADE GROUND: Darkish grey light brown slightly silty very sandy GRAVEL of angular to sub-rounded fine to coarse dolostone and limestone. Sand is fine to coarse.
		0.60	ES	PID=1				MADE GROUND: Blackish-white slightly silty gravelly medium to coarse SAND. Gravel of sub-angular to sub-rounded fine to coarse dolostone, chalk, flint and rare clinker. Occasional cobbles of sub-angular chalk and rare gravel of clinker. Slight organic odour.
		1.00		N=8 (4,1/2,1,2,3)				
					1.10	36.72		MADE GROUND: Blackish-white silty gravelly CLAY. Gravel of sub-angular to rounded fine to coarse chalk, ash, flint and cobbles of sub-angular chalk.
		1.50	ES	PID=1				
		2.00		N=2 (1,0/1,0,1,0)				
					2.10	35.72		Very soft greyish brown slightly organic silty CLAY with slight organic odour. ALLUVIUM
		2.50	D					
	▼	3.00		N=3 (1,1/1,1,0,1)	3.00	34.82		Yellowish-brown medium to coarse SAND and GRAVEL. Gravel of sub-angular to sub-rounded medium to coarse flint. RIVER TERRACE DEPOSITS
					4.00	33.82		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater encountered at 3.0m bgl. 3) Dynamic probed from 4.0m to 10.0m bgl. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.70m bgl.

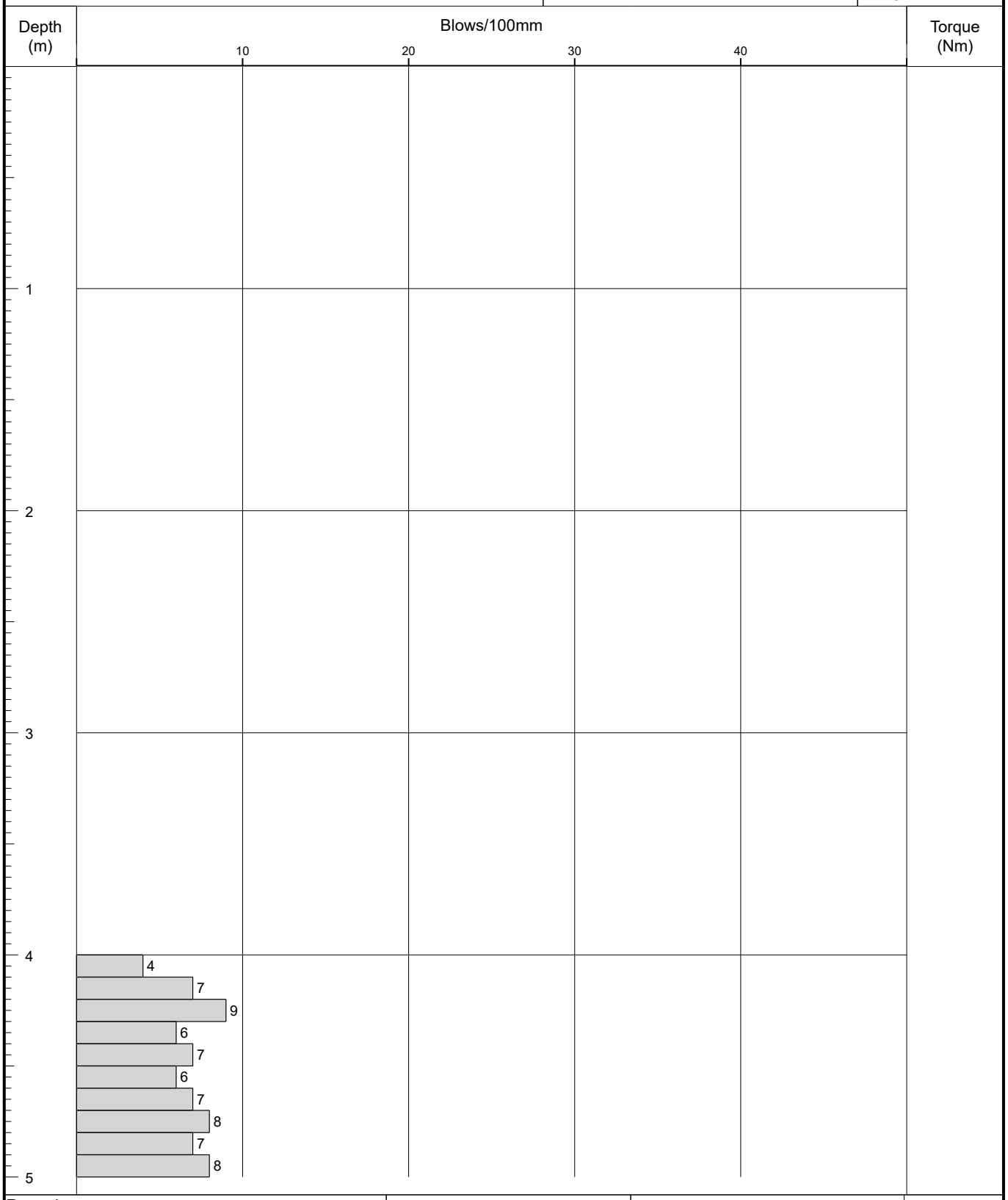
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Probe Log

Borehole No.
DP02
Sheet 1 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471893.23 - 173841.46	Hole Type DP
Location:	Reading		Level: 37.82	Scale 1:25
Client:	Sladen Estates		Dates: 11/07/2022 - 11/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS02

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

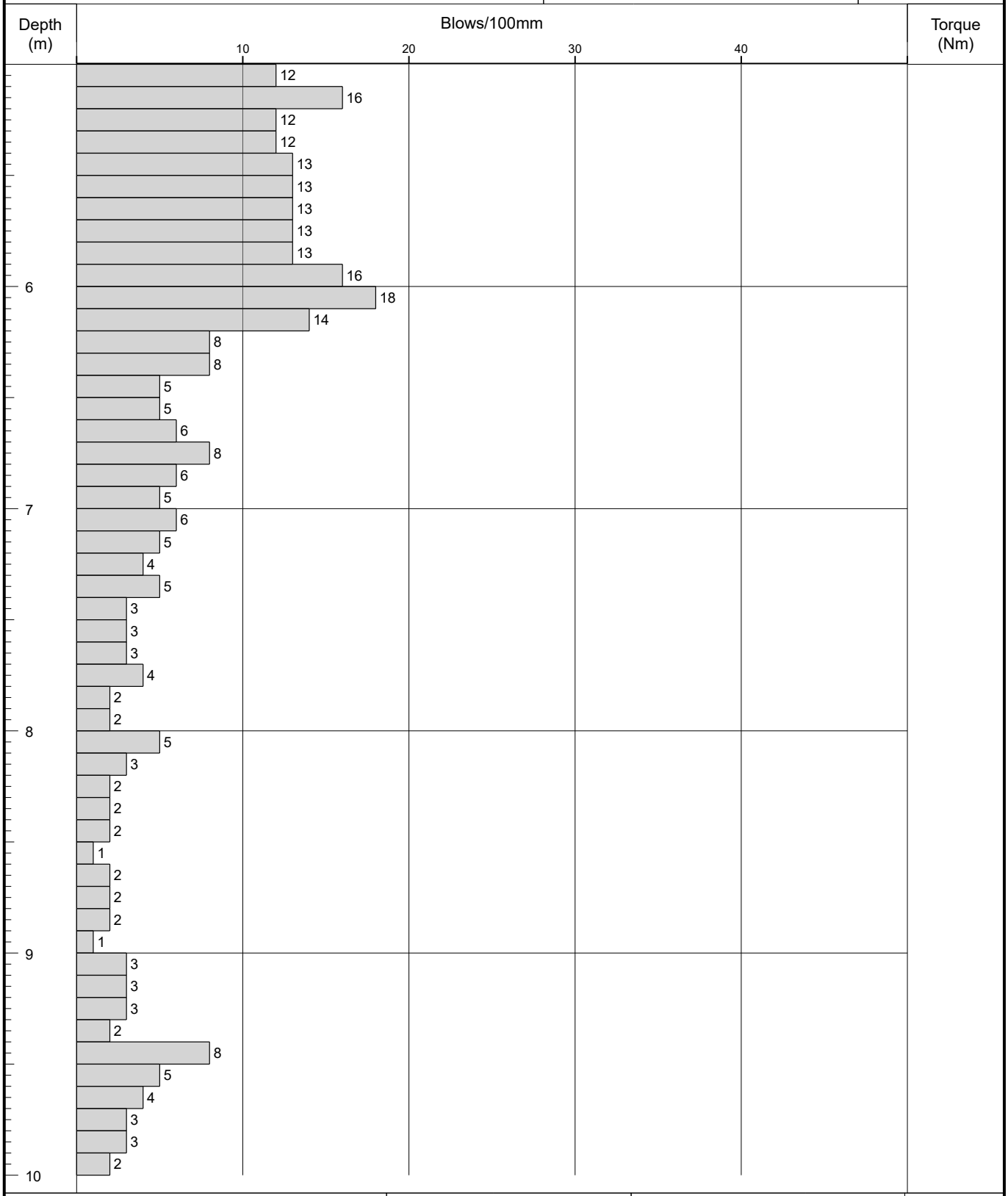
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Probe Log

Borehole No.
DP02
Sheet 2 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471893.23 - 173841.46	Hole Type DP
Location:	Reading		Level: 37.82	Scale 1:25
Client:	Sladen Estates		Dates: 11/07/2022 - 11/07/2022	Logged By Oakland SI



Remarks

1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS02

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

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Borehole Log

curtins

Borehole No. **WS03**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	471911.45 - 173847.21	Hole Type WS
Location:	Reading		Level:	37.82	Scale 1:25
Client:	Sladen Estates		Dates:	11/07/2022 - 11/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	37.62		MADE GROUND: Block paving with fine to medium SAND.
					0.40	37.42		MADE GROUND: Light blue-grey slightly silty very gravelly fine to coarse SAND. Gravel of very angular to sub-rounded fine to coarse dolostone and limestone.
					0.60	37.22		MADE GROUND: Blackish-white slightly silty gravelly medium to coarse SAND. Gravel of sub-angular to sub-rounded fine to coarse dolostone, chalk, flint and rare clinker. Occasional cobbles of sub-angular chalk and rare gravel of clinker. Slight organic odour.
		0.80	ES	PID=0				
		1.00		N=8 (1,2/3,2,2,1)				MADE GROUND: White slightly sandy silty gravelly CLAY. Gravel of sub-angular to sub-rounded fine to medium chalk.
					1.50	36.32		Very soft dark blue-grey organic silty CLAY with occasional rootlets and slight organic odour. ALLUVIUM
		1.80	D					
		2.00		N=0 (0,0/0,0,0,0)				
	▼	3.00		N=11 (1,1/3,3,3,2)	3.00	34.82		*Becoming sandy gravelly with medium to coarse rounded flint.*
								Dark yellow slightly silty fine to coarse SAND and GRAVEL of sub-angular to well rounded fine to coarse flint. RIVER TERRACE DEPOSITS
					3.40	34.42		Dark yellow slightly sandy GRAVEL of sub-angular to well rounded fine to coarse flint. Sand is fine to coarse. RIVER TERRACE DEPOSITS
					4.00	33.82		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater encountered at 3.0m bgl. 3) Dynamic probed from 4.0m to 10.0m bgl. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.50m bgl.

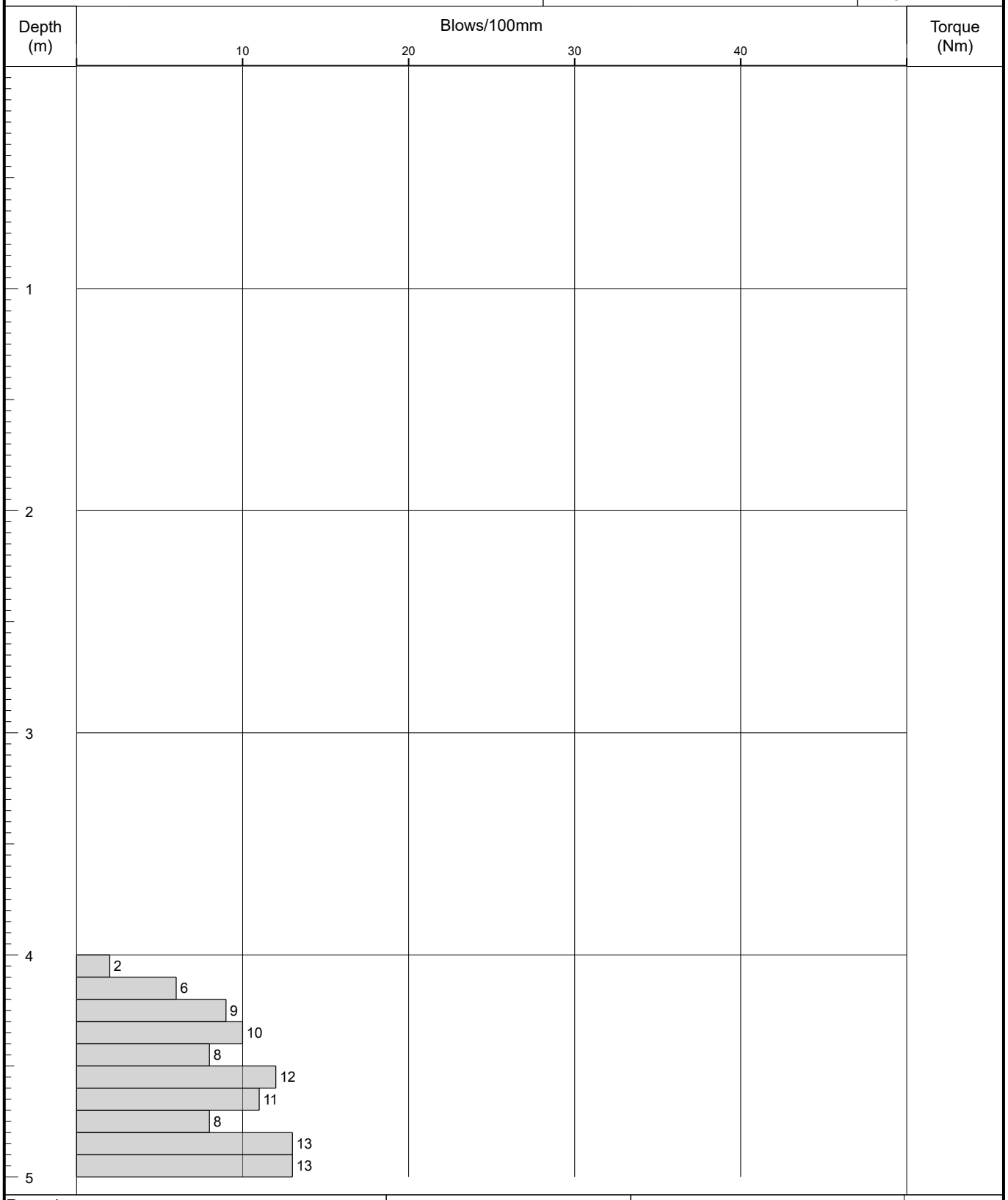
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Probe Log

Borehole No.
DP03
Sheet 1 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471911.45 - 173847.21	Hole Type DP
Location:	Reading		Level: 37.82	Scale 1:25
Client:	Sladen Estates		Dates: 11/07/2022 - 11/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS03

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

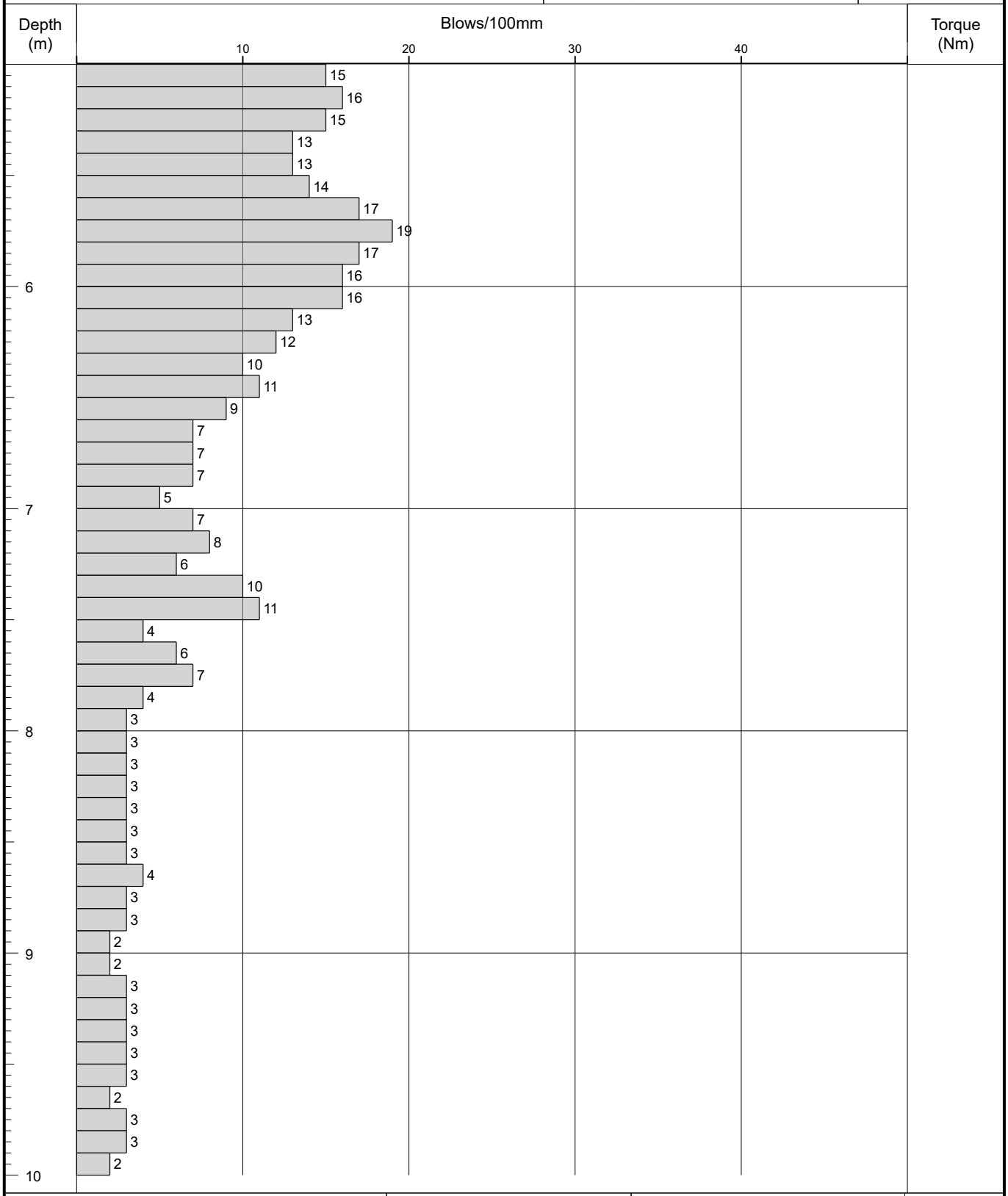
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Probe Log

Borehole No.
DP03
Sheet 2 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471911.45 - 173847.21	Hole Type DP
Location:	Reading		Level: 37.82	Scale 1:25
Client:	Sladen Estates		Dates: 11/07/2022 - 11/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS03

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

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Borehole Log

Borehole No.
WS04
Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	471937.64 - 173854.16	Hole Type WS
Location:	Reading		Level:	37.95	Scale 1:25
Client:	Sladen Estates		Dates:	11/07/2022 - 11/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.85		MADE GROUND: Tarmac.
		0.60	ES	PID=0				MADE GROUND: Dark yellow slightly silty gravelly fine to coarse SAND. Gravel fo sub-angular to sub-rounded fine to coarse flint, aggregate and brick. Rare cobbles of very angular flint.
		1.00		N=55 (1,2/2,1,2,50)				
					1.45	36.50		MADE GROUND: Suspected concrete slab.
					1.45	36.50		End of borehole at 1.45 m

Remarks
1) Position cleared using GPR and CAT scan prior to excavation. 2) Refusal - Suspected concrete is present at 1.45m bgl.

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Borehole Log

Borehole No. **WS05**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	471980.14 - 173836.92	Hole Type WS
Location:	Reading		Level:	37.87	Scale 1:25
Client:	Sladen Estates		Dates:	12/07/2022 - 12/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.77		MADE GROUND: Tarmac.
								MADE GROUND: Light brownish-red slightly silty very sandy GRAVEL of sub-angular to sub-rounded fine to coarse dolostone. Sand is fine to coarse. Rare cobble sized dolostone.
					0.60	37.27		
		0.70	ES	PID=0				MADE GROUND: Whitish-grey sandy GRAVEL and COBBLES. Gravel of sub-angular to sub-rounded fine to coarse clinker and slag. Cobbles are angular slag. Sand is fine to coarse.
					0.80	37.07		
		1.00	ES					MADE GROUND: Greyish-white slightly sandy slightly gravelly slightly organic silty CLAY. Gravel of sub-angular to rounded fine to coarse flint and chalk. Sand is fine.
		1.00		N=10 (1,0/1,1,5,3) PID=0	1.10	36.77		
		1.50	D					Soft to firm light brown-orange mottled grey slightly gravelly silty CLAY. Gravel of sub-rounded to well-rounded fine to coarse flint. ALLUVIUM
					1.90	35.97		
		2.00		N=0 (0,0/0,0,0,0)				Very soft to soft dark blue-grey slightly sandy organic silty CLAY with slight organic odour. Sand is fine. ALLUVIUM
								Becoming gravelly with very angular to sub-rounded medium to coarse flint.
	▼	3.00		N=6 (1,1/2,1,2,1)	3.00	34.87		Dark yellow slightly silty fine to coarse SAND and GRAVEL of sub-angular to well rounded fine to coarse flint. RIVER TERRACE DEPOSITS
					4.00	33.87		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater encountered at 3.0m bgl. 3) Dynamic probed from 4.0m to 10.0m bgl. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.50m bgl.

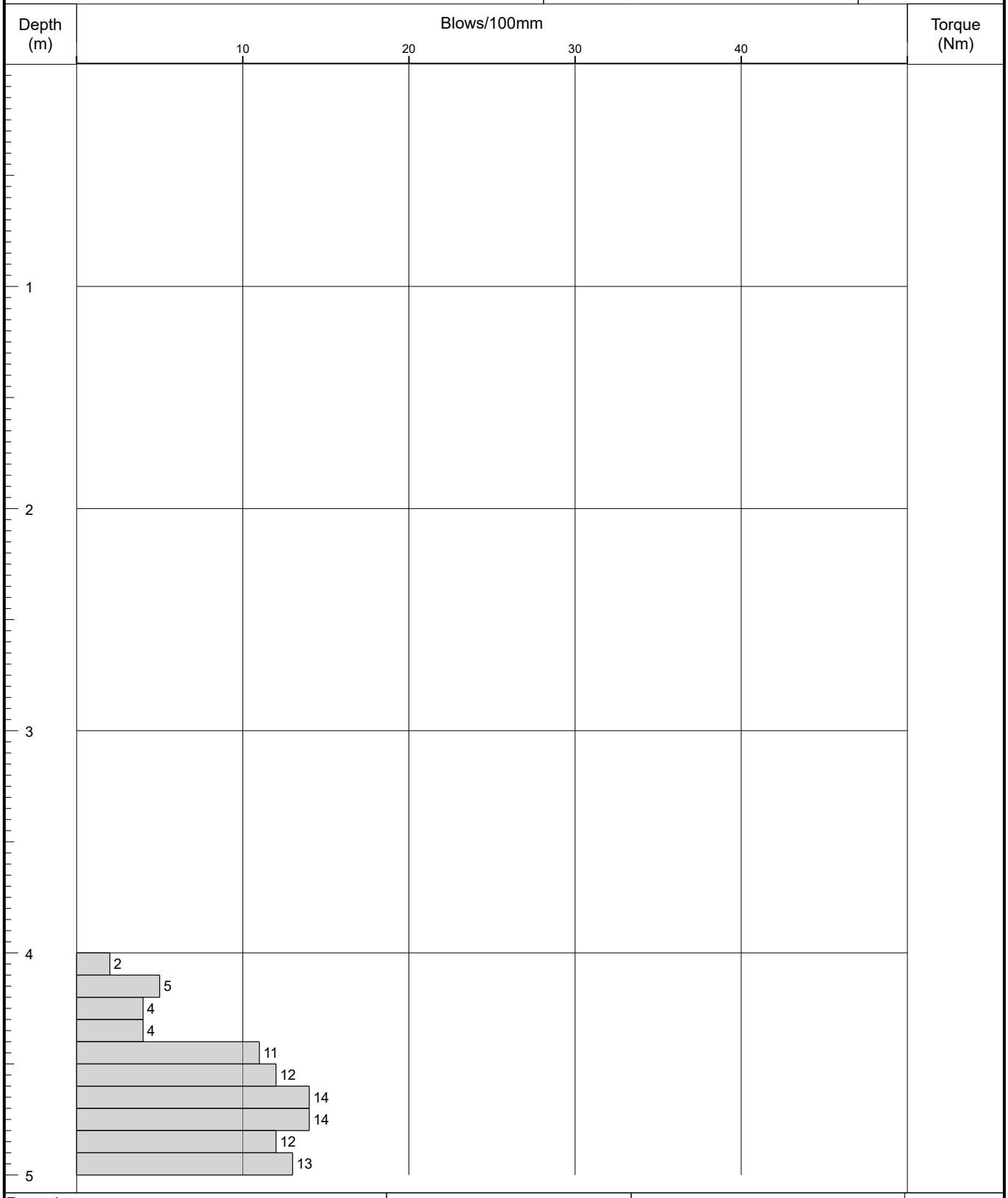
AGS

curtins

Probe Log

Borehole No.
DP05
Sheet 1 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471980.14 - 173836.92	Hole Type DP
Location:	Reading		Level: 37.87	Scale 1:25
Client:	Sladen Estates		Dates: 12/07/2022 - 12/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS05

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

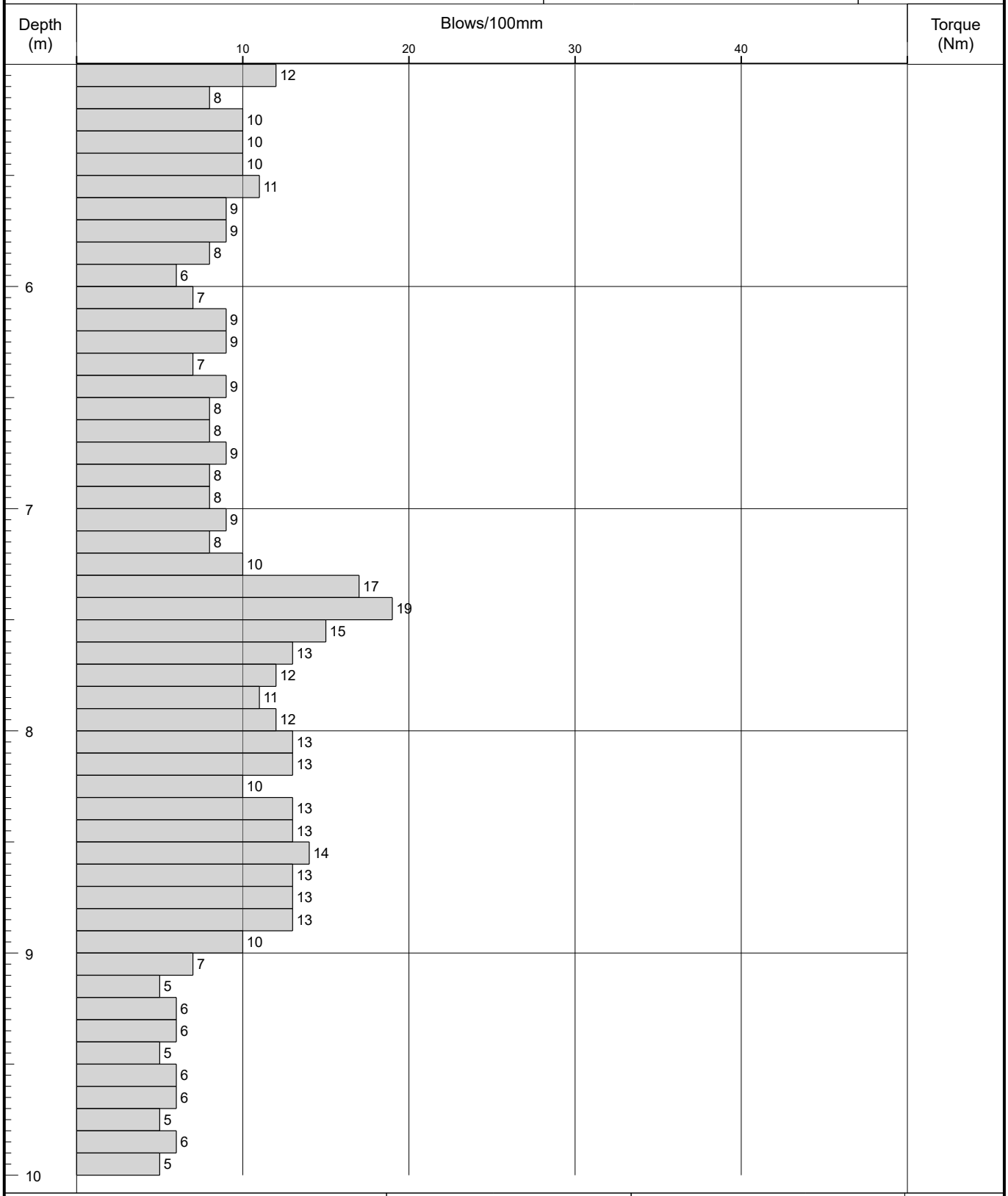
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Probe Log

Borehole No.
DP05
Sheet 2 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471980.14 - 173836.92	Hole Type DP
Location:	Reading		Level: 37.87	Scale 1:25
Client:	Sladen Estates		Dates: 12/07/2022 - 12/07/2022	Logged By Oakland SI



Remarks		Fall Height	750	Cone Base Diameter	50
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS05		Hammer Wt	64	Final Depth	10.00
		Probe Type	DPSH-B	Log Scale	1:25

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Borehole Log

Borehole No. **WS06**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	471988.96 - 173867.88	Hole Type WS
Location:	Reading		Level:	37.97	Scale 1:25
Client:	Sladen Estates		Dates:	12/07/2022 - 12/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30	ES	PID=4	0.23	37.74		MADE GROUND: Block paving with fine to medium SAND.
								MADE GROUND: Dark brown gravelly coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse concrete, brick and clinker.
		0.80	ES	PID=4	0.70	37.26		MADE GROUND: Dark brown very gravelly coarse SAND. Gravel is of sub-angular to sub-rounded fine to medium slag and clinker.
		1.00		N=10 (8,2/3,3,2,2)				
		1.20	ES		1.20	36.76		MADE GROUND: Black slightly gravelly ashy silty fine to medium SAND.
		1.80	D		1.60	36.36		Soft dark blue-grey slightly sandy organic SILT with mild organic odour. ALLUVIUM
		2.00		N=2 (1,0/0,1,0,1)				
		2.50	D		2.30	35.66		Soft bluish green and greenish brown organic SILT with organic odour. ALLUVIUM
		3.00		N=4 (0,0/0,0,2,2)				
	▼				3.60	34.36		Brown very gravelly medium to coarse SAND. Gravel is sub-angular to sub-rounded fine to medium flint. RIVER TERRACE DEPOSITS
					4.00	33.97		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater encountered at 3.6m bgl. 3) Dynamic probed from 4.0m to 10.0m bgl. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.70m bgl.

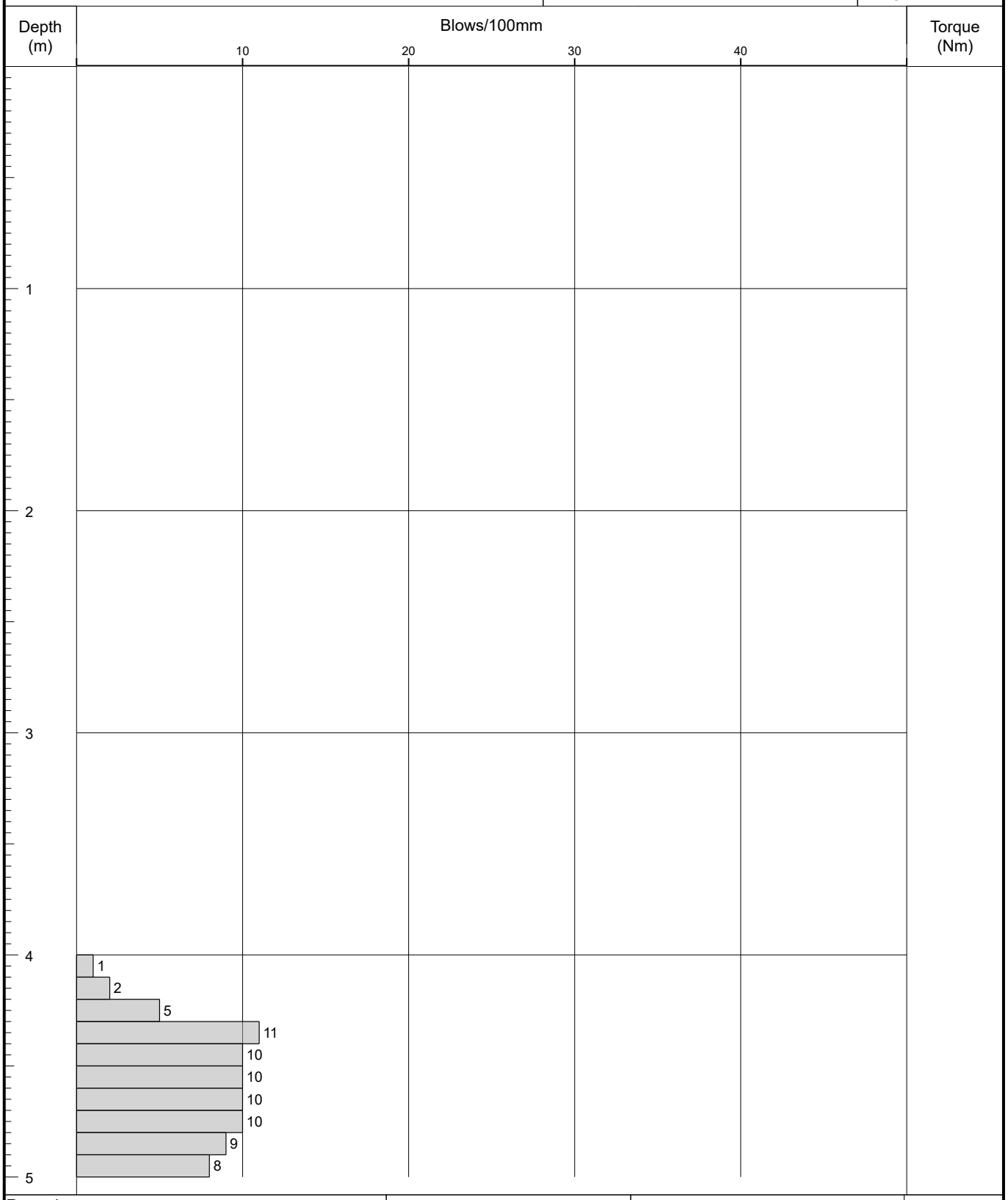
AGS

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Probe Log

Borehole No.
DP06
Sheet 1 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471988.96 - 173867.88	Hole Type DP
Location:	Reading		Level: 37.97	Scale 1:25
Client:	Sladen Estates		Dates: 12/07/2022 - 12/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS06

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

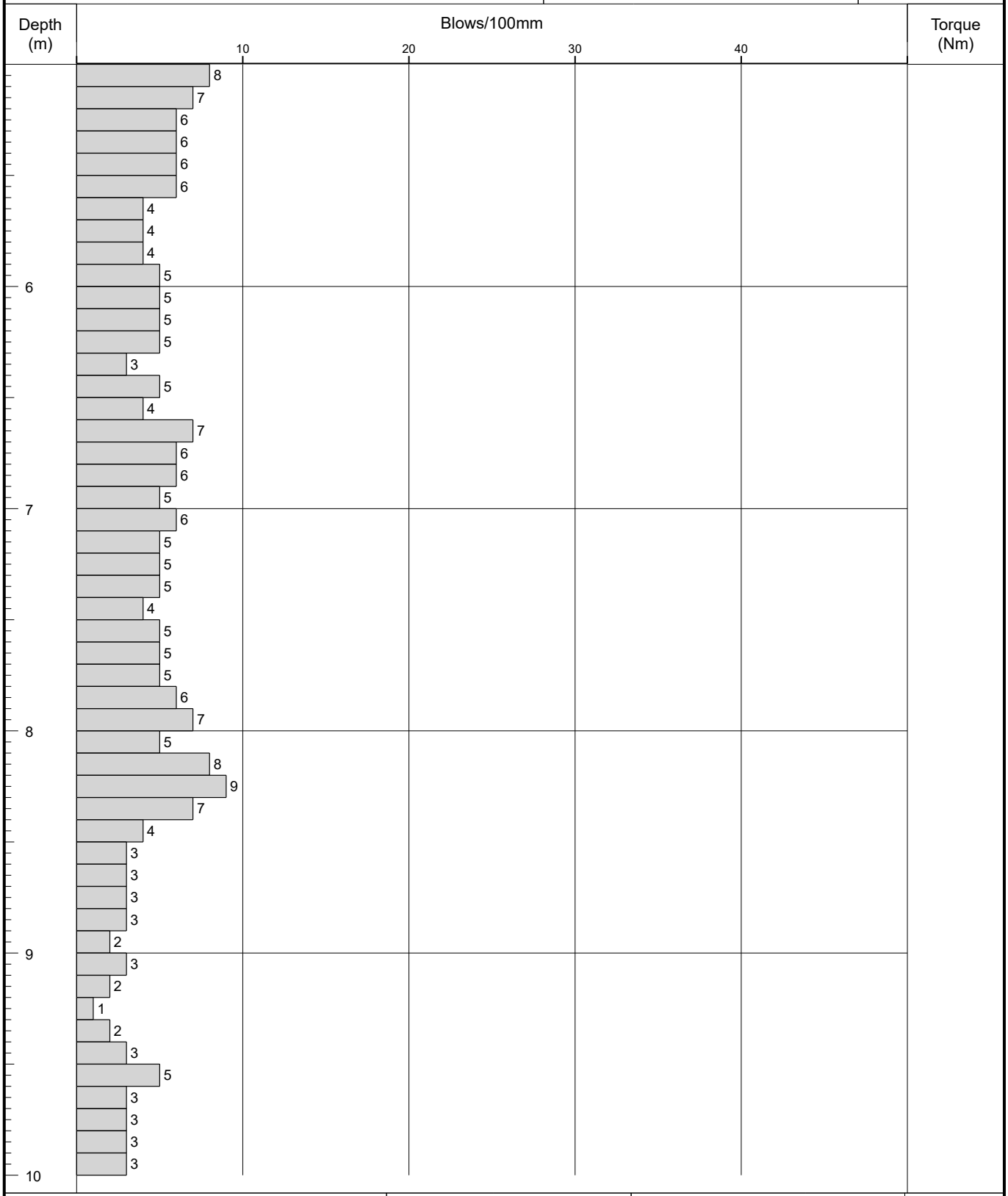
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Probe Log

Borehole No.
DP06
Sheet 2 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 471988.96 - 173867.88	Hole Type DP
Location:	Reading		Level: 37.97	Scale 1:25
Client:	Sladen Estates		Dates: 12/07/2022 - 12/07/2022	Logged By Oakland SI



Remarks

1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS06

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

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curtins

Borehole Log

Borehole No.
WS07
Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	471974.07 - 173853.42	Hole Type WS
Location:	Reading		Level:	38.04	Scale 1:25
Client:	Sladen Estates		Dates:	12/07/2022 - 12/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.94		MADE GROUND: Tarmac.
					0.40	37.64		MADE GROUND: Light brownish-red slightly silty very sandy GRAVEL of sub-angular to sub-rounded fine to coarse dolostone. Sand is fine to coarse. Rare cobble sized dolostone.
					0.60	37.44		MADE GROUND: Lean mix Concrete and brick.
					0.60	37.44		MADE GROUND: Suspected brick footing. End of borehole at 0.60 m

Remarks
1) Position cleared using GPR and CAT scan prior to excavation. 2) Refusal - A suspected brick footing is present at 0.60m bgl.

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Borehole Log

Borehole No.
WS08
Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	472003.56 - 173852.12	Hole Type WS
Location:	Reading		Level:	38.00	Scale 1:25
Client:	Sladen Estates		Dates:	12/07/2022 - 12/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.90		MADE GROUND: Tarmac.
								MADE GROUND: Light brownish-red slightly silty very sandy GRAVEL of sub-angular to sub-rounded fine to coarse dolostone. Sand is fine to coarse. Rare cobble sized dolostone.
					0.40	37.60		MADE GROUND: Suspected brick footing.
					0.40	37.60		End of borehole at 0.40 m

Remarks
1) Position cleared using GPR and CAT scan prior to excavation. 2) Refusal - A suspected brick footing is present at 0.40m bgl.

AGS

Borehole Log

curtins

Borehole No. **WS09**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	472021.52 - 173847.44	Hole Type WS
Location:	Reading		Level:	37.91	Scale 1:25
Client:	Sladen Estates		Dates:	13/07/2022 - 13/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.81		MADE GROUND: Tarmac.
					0.50	37.41		MADE GROUND: Greyish-brown slightly silty sandy GRAVEL of sub-angular to sub-rounded fine to coarse dolostone. Sand is fine to coarse.
		0.60	ES	PID=2				MADE GROUND: Blackish-brown clayey gravelly fine to coarse SAND. Gravel of sub-angular to sub-rounded fine to coarse brick, dolostone, flint and organic matter. Rare cobbles of sub-angular brick.
		1.00		N=3 (1,0/1,1,1,0)	1.00	36.91		MADE GROUND: Very soft blackish-white slightly sandy silty gravelly CLAY. Sand is fine to medium. Gravel of sub-angular to sub-rounded fine to coarse chalk, slag, clinker and rare ash and flint. Slight aromatic hydrocarbon odour.
		1.30	ES	PID=0				
	▼				1.80	36.11		MADE GROUND: Very soft black grey slightly sandy silty gravelly CLAY. Gravel of very angular to rounded fine to coarse flint and chalk.
		2.00		N=0 (1,0/0,0,0,0)	2.10	35.81		Very soft bluish-grey organic silty CLAY with occasional brown rootlets and slight organic odour. ALLUVIUM
		3.00		N=10 (1,2/3,2,3,2)				*Becoming gravelly CLAY with medium to coarse rounded flint.*
	▼				3.20	34.71		Dark yellow-grey slightly silty fine to coarse SAND and GRAVEL of sub-angular to sub-rounded fine to coarse flint. RIVER TERRACE DEPOSITS
		3.50	ES	PID=6				
					4.00	33.91		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Perched groundwater at 1.80m bgl and groundwater encountered at 3.2m bgl. 3) Not dynamic probed to prevent potential migration of contamination. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.90m bgl.

AGS

curtins

Borehole Log

Borehole No. **WS10**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	472054.09 - 173835.63	Hole Type WS
Location:	Reading		Level:	37.89	Scale 1:25
Client:	Sladen Estates		Dates:	14/07/2022 - 14/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.79		MADE GROUND: Tarmac.
					0.45	37.44		MADE GROUND: Light greyish-red very sandy GRAVEL of sub-angular to sub-rounded fine to coarse dolostone and limestone. Sand is fine to coarse.
		0.60	ES	PID=0				MADE GROUND: Black slightly silty sandy GRAVEL of sub-angular to sub-rounded fine to coarse ash, aggregate, flint and slag. Sand is coarse.
					0.90	36.99		MADE GROUND: Brownish-yellow slightly clayey sandy GRAVEL of sub-angular to well-rounded fine to coarse flint and aggregate.
		1.00		N=10 (3,3/3,3,2,2)				
		1.40	ES	PID=1				
					1.60	36.29		MADE GROUND: Greyish-white slightly silty gravelly CLAY. Gravel of sub-angular to sub-rounded fine to coarse flint and chalk.
					1.70	36.19		Very soft dark grey black organic silty CLAY with fine sub-rounded shells and black organic matter. Slight organic odour ALLUVIUM
		2.00		N=3 (0,0/0,1,1,1)				
	▼				2.60	35.29		Dark yellow slightly clayey slightly silty gravelly fine to coarse SAND. Gravel of angular to well-rounded medium to coarse flint. RIVER TERRACE DEPOSITS
		3.00		N=14 (0,0/1,3,5,5)	3.00	34.89		Dark yellow fine to coarse SAND and GRAVEL of angular to well-rounded medium to coarse flint. RIVER TERRACE DEPOSITS
					4.00	33.89		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater encountered at 2.6m bgl. 3) Dynamic probed from 4.0m to 10.0m bgl. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.0m bgl.

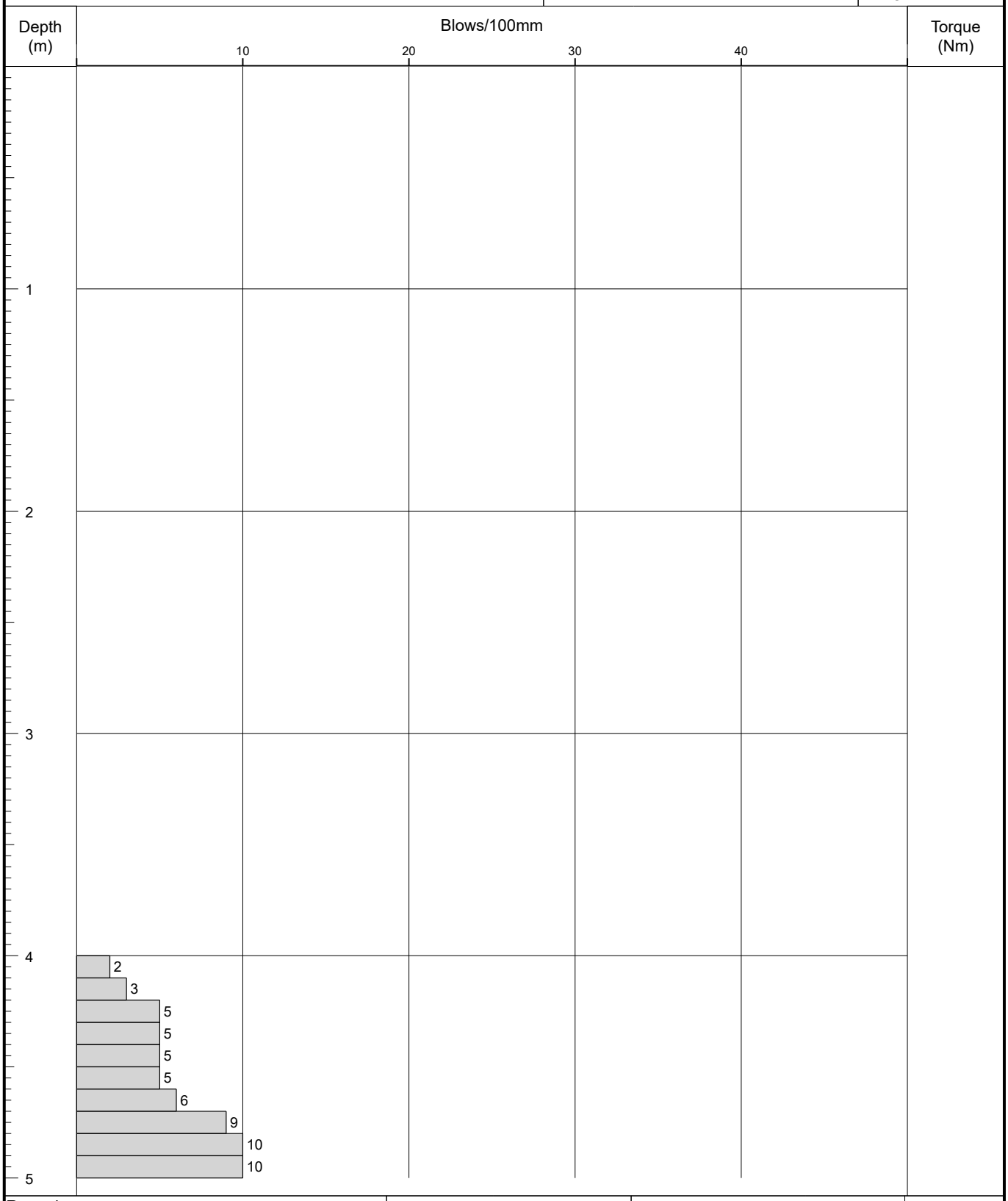
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Probe Log

Borehole No.
DP10
Sheet 1 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords:	472054.09 - 173835.63	Hole Type DP
Location:	Reading		Level:	37.89	Scale 1:25
Client:	Sladen Estates		Dates:	14/07/2022 - 14/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS10

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

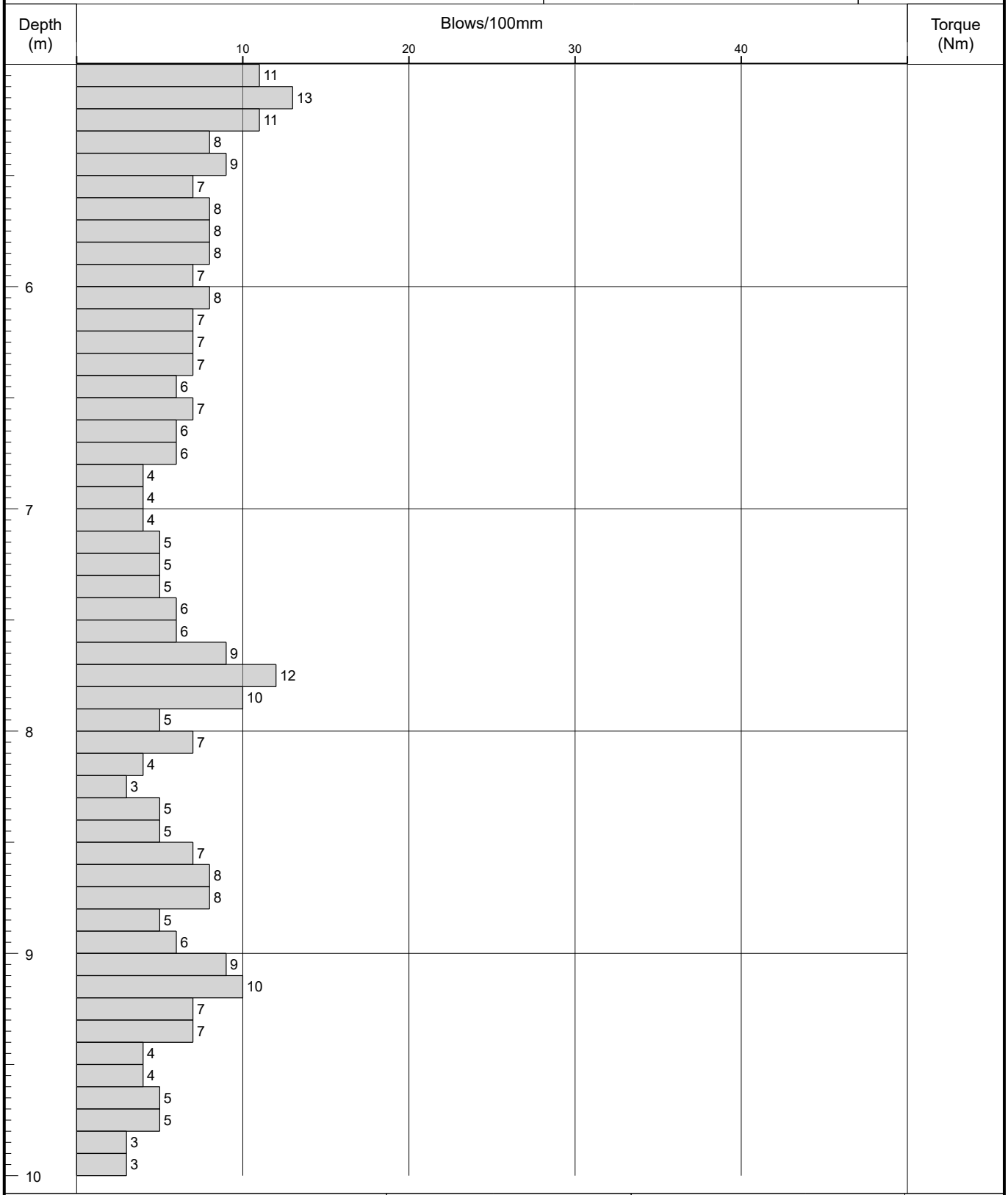
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Probe Log

Borehole No.
DP10
Sheet 2 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 472054.09 - 173835.63	Hole Type DP
Location:	Reading		Level: 37.89	Scale 1:25
Client:	Sladen Estates		Dates: 14/07/2022 - 14/07/2022	Logged By Oakland SI



Remarks				
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS10	Fall Height	750	Cone Base Diameter	50
	Hammer Wt	64	Final Depth	10.00
	Probe Type	DPSH-B	Log Scale	1:25

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Borehole Log

Borehole No. **WS11**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	472124.70 - 173839.70	Hole Type WS
Location:	Reading		Level:	38.00	Scale 1:25
Client:	Sladen Estates		Dates:	13/07/2022 - 13/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.90		MADE GROUND: Tarmac.
		0.30	ES	PID=1				MADE GROUND: Light grey pinkish slightly silty sandy GRAVEL. Gravel of very angular to sub-rounded fine to coarse dolostone. Sand is fine to coarse.
		0.50	ES	PID=1	0.45	37.55		MADE GROUND: Black gravelly fine to coarse SAND. Gravel of very angular to rounded fine to coarse flint, ash, aggregate and clinker.
					0.60	37.40		MADE GROUND: Blackish white slightly sandy silty gravelly CLAY. Gravel of sub-angular to sub-rounded fine to coarse flint, chalk, coal and organic material.
		1.00		N=10 (2,3/5,3,1,1)	0.90	37.10		MADE GROUND: Soft to firm white slightly sandy slightly silty gravelly CLAY. Gravel of sub-angular to sub-rounded fine to coarse chalk.
		1.40	D		1.30	36.70		Firm brown slightly sandy gravelly silty CLAY. Gravel of sub-angular to sub-rounded fine to coarse flint. Sand is fine to coarse. ALLUVIUM
					1.60	36.40		Yellow slightly silty slightly gravelly fine to coarse SAND. Gravel of sub-angular to sub-rounded fine to coarse flint. RIVER TERRACE DEPOSITS
		2.00		N=20 (2,3/3,5,6,6)				
					2.50	35.50		Dark yellow sandy GRAVEL of sub-angular to well-rounded fine to coarse flint. Sand is medium to coarse. RIVER TERRACE DEPOSITS
		3.00		N=13 (1,0/1,3,4,5)				
					4.00	34.00		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater encountered at 3.0m bgl. 3) Dynamic probed from 4.0m to 10.0m bgl. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.0m bgl.

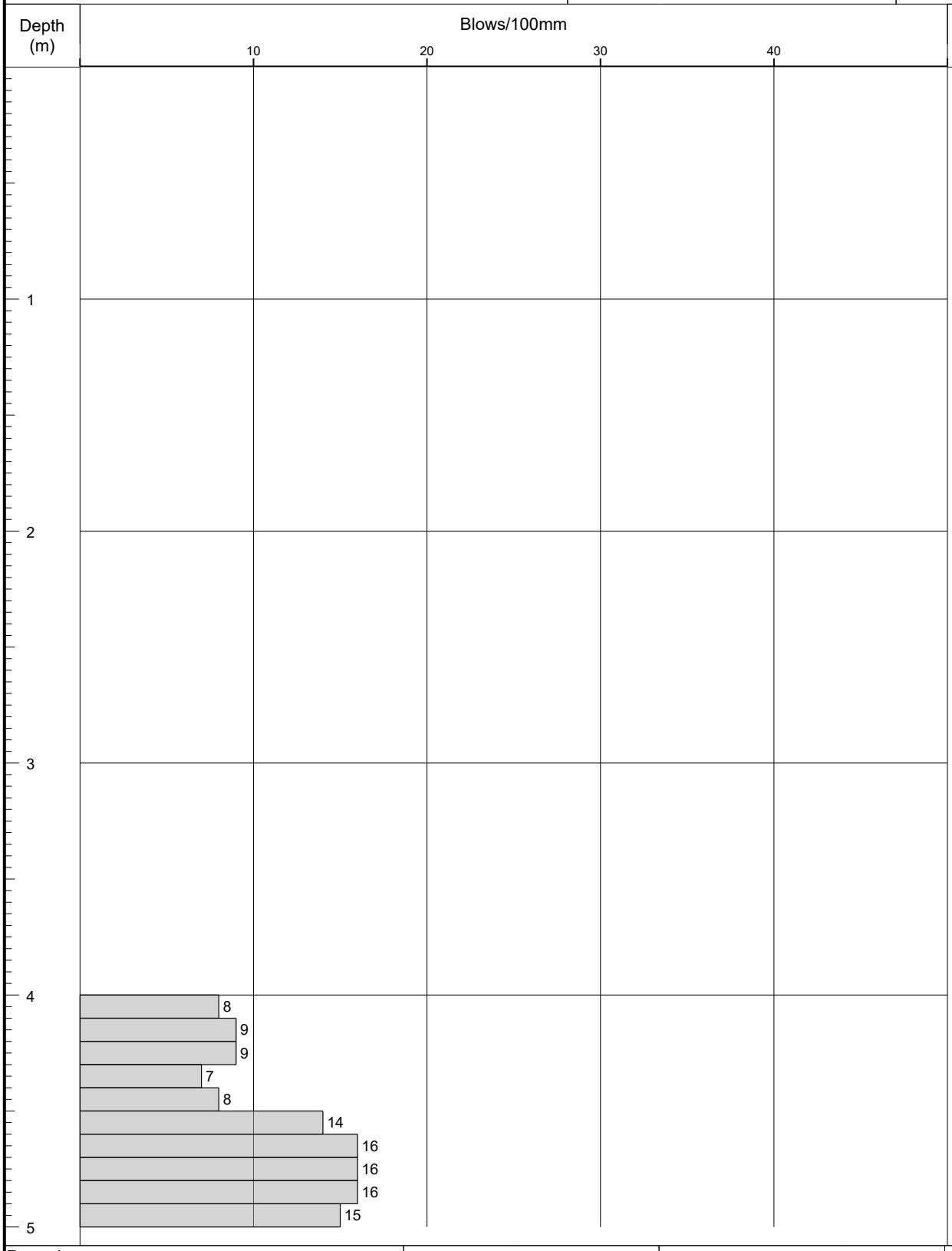
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Probe Log

Borehole No.
DP11
Sheet 1 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 472124.70 - 173839.70	Hole Type DP
Location:	Reading		Level: 38.00	Scale 1:25
Client:	Sladen Estates		Dates: 13/07/2022 - 13/07/2022	Logged By Oakland SI



Remarks

1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS11

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

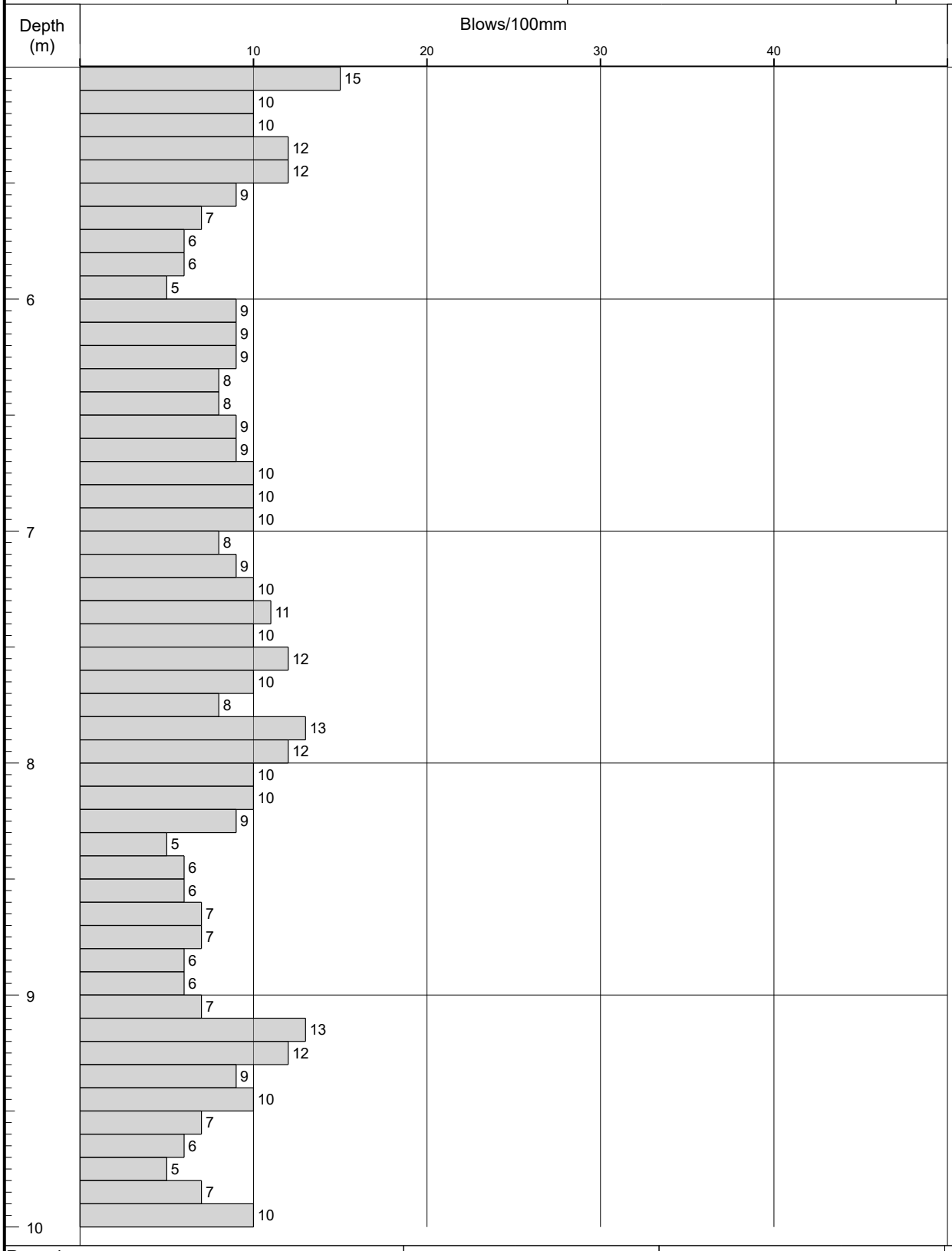
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Probe Log

Borehole No.
DP11
Sheet 2 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 472124.70 - 173839.70	Hole Type DP
Location:	Reading		Level: 38.00	Scale 1:25
Client:	Sladen Estates		Dates: 13/07/2022 - 13/07/2022	Logged By Oakland SI



Remarks		Fall Height	750	Cone Base Diameter	50
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS11		Hammer Wt	64	Final Depth	10.00
		Probe Type	DPSH-B	Log Scale	1:25

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Borehole Log

Borehole No. **WS12**

Sheet 1 of 1

Project Name:	Napier Road	Project No. 080908	Co-ords:	472153.01 - 173839.42	Hole Type WS
Location:	Reading		Level:	38.03	Scale 1:25
Client:	Sladen Estates		Dates:	14/07/2022 - 14/07/2022	Logged By WS

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	37.92		MADE GROUND: Tarmac.
					0.40	37.62		MADE GROUND: Light grey pinkish slightly silty sandy GRAVEL. Gravel of very angular to sub-rounded fine to coarse dolostone. Sand is fine to coarse.
		0.50	ES	PID=1	0.70	37.33		MADE GROUND: Blackish white to blue-grey slightly silty gravelly medium to coarse SAND. Gravel of sub-angular to sub-rounded fine to coarse slag, ash with cobbles of slag.
					0.80	37.22		MADE GROUND: yellow slightly clayey gravelly fine to coarse SAND. Gravel of sub-angular to sub-rounded flint.
		1.00		N=7 (1,1/1,2,2,2)				MADE GROUND: White slightly sandy silty gravelly CLAY. Gravel of sub-angular to sub-rounded fine to medium chalk.
					1.40	36.62		Brownish-red clayey SILT with rare fine to medium flint. ALLUVIUM
		2.00		N=7 (0,1/1,1,2,3)	1.90	36.12		Soft blue-grey organic silty CLAY with rootlets and slight organic odour. ALLUVIUM
	▼				2.30	35.72		Dark yellow slightly silty fine to coarse SAND and GRAVEL of sub-angular to well rounded fine to coarse flint. RIVER TERRACE DEPOSITS
		3.00		N=46 (3,6/12,14,11,9)				
					4.00	34.02		End of borehole at 4.00 m

Remarks

1) Position cleared using GPR and CAT scan prior to excavation. 2) Groundwater encountered at 2.3m bgl. 3) Dynamic probed from 4.0m to 10.0m bgl. 4) Installed with combined gas and groundwater monitoring well. 5) Hole collapsed to 3.0m bgl.

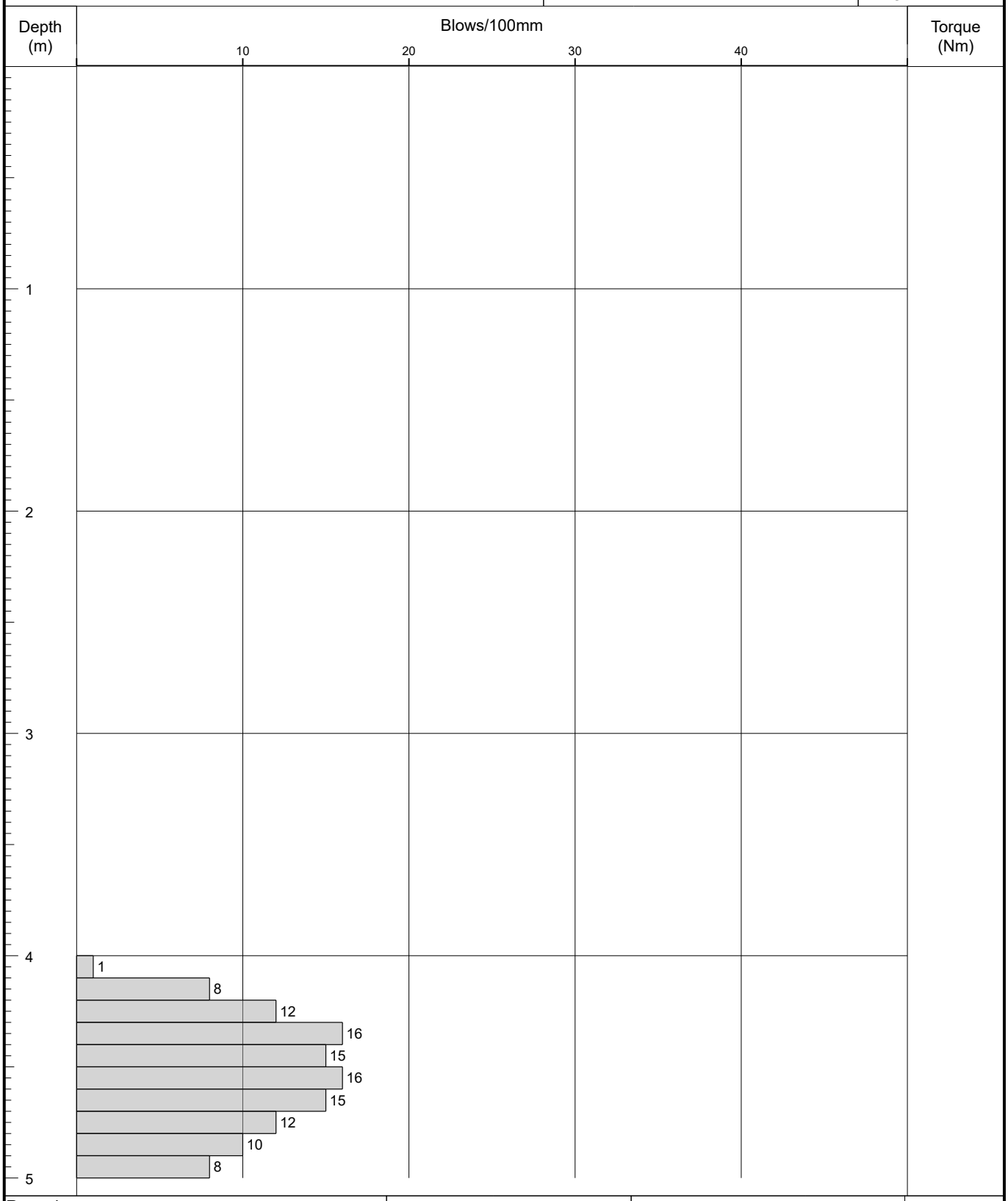
AGS

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Probe Log

Borehole No.
DP12
Sheet 1 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 472153.01 - 173839.42	Hole Type DP
Location:	Reading		Level: 38.03	Scale 1:25
Client:	Sladen Estates		Dates: 14/07/2022 - 14/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS12

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

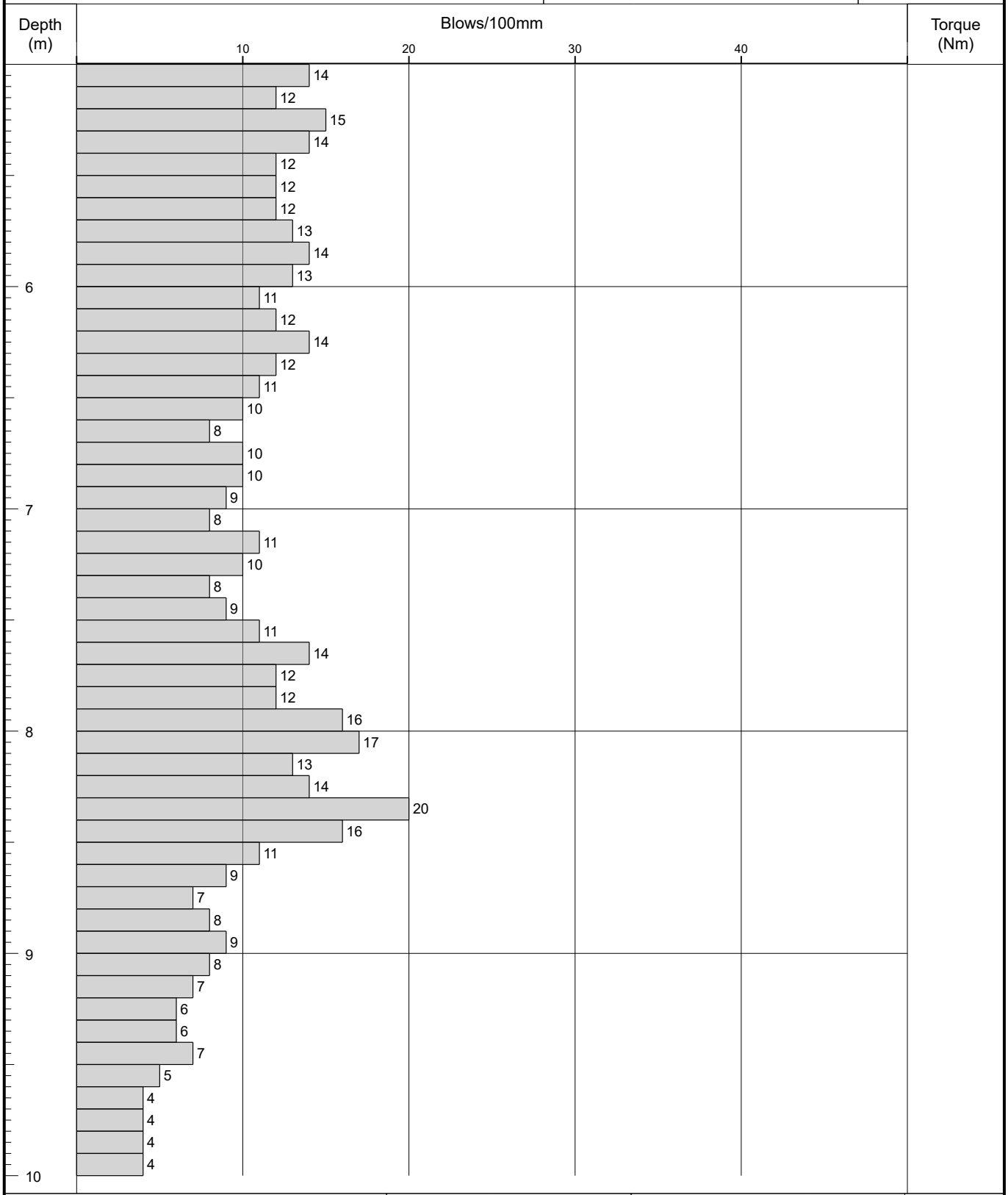
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Probe Log

Borehole No.
DP12
Sheet 2 of 2

Project Name:	Napier Road	Project No. 080908	Co-ords: 472153.01 - 173839.42	Hole Type DP
Location:	Reading		Level: 38.03	Scale 1:25
Client:	Sladen Estates		Dates: 14/07/2022 - 14/07/2022	Logged By Oakland SI



Remarks
1) Follow on dynamic probe from 4.0m to 10.0m bgl within WS12

Fall Height	750	Cone Base Diameter	50
Hammer Wt	64	Final Depth	10.00
Probe Type	DPSH-B	Log Scale	1:25

AGS

Borehole Log

Borehole No. **WS101**

Sheet 1 of 1

Project Name: Napier Road - 1	Project No. 080908-1	Co-ords: 472049.51 - 173845.43	Hole Type WS
Location: Reading		Level: 37.95	Scale 1:20
Client: Sladen Estates		Dates: 05/06/2023 - 05/06/2023	Logged By RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.12	37.83		Tarmacadam. MADE GROUND
					0.25	37.70		Soft greyish brown gravelly SAND. Sand is fine to coarse. Gravels are angular to subrounded, fine to coarse, concrete and brick fragments. MADE GROUND
					0.50	37.45		Soft pinkish grey brown gravelly SAND. Sand is fine to coarse. Gravels are angular to subrounded, fine to coarse brick fragments. MADE GROUND
					0.65	37.30		Soft dark brown to black gravelly silty SAND. Sand is fine to coarse. Gravels are angular to subrounded, fine to coarse brick fragments. MADE GROUND
								Soft greyish-white silty sandy gravelly CLAY. Gravels are subangular to subrounded, fine to coarse chalk and flint. ALLUVIUM
					1.70	36.25		Soft dark greyish green CLAY. ALLUVIUM
	▼				2.00	35.95		Soft brownish CLAY. ALLUVIUM
					2.70	35.25		Yellow brown clayey SAND and GRAVEL. Sand is coarse. Gravels are fine to medium, subangular to subrounded flint. RIVER TERRACE DEPOSITS
					4.00	33.95		End of borehole at 4.00 m

Remarks

1. Groundwater encountered at 2.1m bgl. 2.Termination due at 4.0m to encounter with underlying dense gravels.

Borehole Log

Borehole No. **WS102**

Sheet 1 of 1

Project Name: Napier Road - 1	Project No. 080908-1	Co-ords: 472073.61 - 173846.09	Hole Type WS
Location: Reading		Level: 38.02	Scale 1:20
Client: Sladen Estates		Dates: 05/06/2023 - 05/06/2023	Logged By RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Block Paving. MADE GROUND
					0.17	37.85		Soft greyish brown gravelly SAND. Sand is fine to coarse. Gravels are angular to subrounded, fine to coarse, concrete and brick fragments. MADE GROUND
					0.30	37.72		Soft dark brown gravelly silty SAND. Sand is fine to coarse. Gravels are angular to subrounded, fine to coarse, concrete and brick fragments. MADE GROUND
					0.70	37.32		Soft greyish-white silty sandy gravelly CLAY. Gravels are subangular to subrounded, fine to coarse chalk and flint. ALLUVIUM
					1.70	36.32		Soft to firm greenish brown silty CLAY. ALLUVIUM
					2.50	35.52		Yellow brown clayey SAND and GRAVEL. Sand is coarse. Gravels are fine to medium, subangular to subrounded flint. RIVER TERRACE DEPOSITS
					2.80	35.22		End of borehole at 2.80 m

Remarks

1. Groundwater encountered at 2.5m bgl. 2.Termination due at 2.8m to encounter with underlying dense gravels.

Borehole Log

Borehole No. **WS103**

Sheet 1 of 1

Project Name: Napier Road - 1	Project No. 080908-1	Co-ords: 472133.30 - 173854.80	Hole Type WS
Location: Reading		Level: 38.00	Scale 1:20
Client: Sladen Estates		Dates: 05/06/2023 - 05/06/2023	Logged By RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Block Paving. MADE GROUND
					0.17	37.83		
					0.25	37.75		Loose yellowish grey coarse SAND. MADE GROUND
					0.40	37.60		Soft grey sandy GRAVEL. Gravels are fine to coarse, subangular to subrounded brick and flint. MADE GROUND
					0.55	37.45		Soft to firm black sandy silty CLAY. Sand is coarse.
					0.60	37.40		ALLUVIUM
								Loose black silty sandy GRAVEL. Gravels are fine to coarse, subrounded to subangular flint and chalk. ALLUVIUM
								Soft greyish-white silty sandy CLAY. ALLUVIUM
					1.40	36.60		Soft blackish grey silty CLAY. ALLUVIUM
					2.00	36.00		Firm greyish brown CLAY. ALLUVIUM
	▼				2.40	35.60		Loose orangish brown SAND and GRAVEL. Sand is fine to coarse. Gravels are subangular to subrounded, fine to coarse flint. RIVER TERRACE DEPOSITS
					3.20	34.80		End of borehole at 3.20 m

Remarks

1. Groundwater encountered at 2.4m bgl. 2.Termination due at 3.2m to encounter with underlying dense gravels.

Borehole Log

Borehole No. **WS104**

Sheet 1 of 1

Project Name: Napier Road - 1	Project No. 080908-1	Co-ords: 472160.95 - 173848.79	Hole Type WS
Location: Reading		Level: 37.93	Scale 1:20
Client: Sladen Estates		Dates: 05/06/2023 - 05/06/2023	Logged By RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Block Paving. MADE GROUND
					0.17	37.76		
								Soft greyish brown gravelly SAND. Sand is fine to coarse. Gravels are angular to subrounded, fine to coarse, concrete and brick fragments. MADE GROUND
					0.30	37.63		
								Black sandy GRAVEL. Sand is coarse and often green. Gravels are fine to coarse, subangular to subrounded flint. MADE GROUND
					0.60	37.33		
					0.70	37.23		Brownish orange clayey SAND. Sand is coarse. ALLUVIUM
								Soft greyish-white silty sandy gravelly CLAY. Gravels are subangular to subrounded, fine to coarse chalk and flint. ALLUVIUM
					1.20	36.73		Firm grey slightly sandy CLAY. Sand is coarse. ALLUVIUM
					2.00	35.93		Soft brown CLAY. ALLUVIUM
	▼				2.30	35.63		Loose SAND and GRAVEL. Sand is coarse. Gravels are subangular to subrounded, fine to medium flint. RIVER TERRACE DEPOSITS
					3.60	34.33		End of borehole at 3.60 m

Remarks

1. Groundwater encountered at 2.3m bgl. 2.Termination due at 3.6m to encounter with underlying dense gravels.

Borehole Log

Borehole No. **WS105**

Sheet 1 of 1

Project Name: Napier Road - 1	Project No. 080908-1	Co-ords: 472142.71 - 173847.11	Hole Type WS
Location: Reading		Level: 37.91	Scale 1:20
Client: Sladen Estates		Dates: 05/06/2023 - 05/06/2023	Logged By RR

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.12	37.79		Tarmacadam. MADE GROUND
								Loose greyish GRAVEL and SAND. Gravels are fine to coarse, subangular to subrounded brick and concrete. Sand is fine to coarse. MADE GROUND
					0.60	37.31		Soft greyish-white silty sandy gravelly CLAY. Gravels are subangular to subrounded, fine to coarse chalk and flint. ALLUVIUM
	▼				2.00	35.91		Soft slightly clayey SAND and GRAVEL. Sand is coarse. Gravels are fine to coarse, subangular to subrounded flint. RIVER TERRACE DEPOSITS
					3.00	34.91		Loose orangish brown sandy GRAVEL. Gravels are fine to coarse, subangular to subrounded flint. RIVER TERRACE DEPOSITS
					3.40	34.51		End of borehole at 3.40 m

1 2 3 4

Remarks

1. Groundwater encountered at 2.0m bgl. 2.Termination due at 3.4m to encounter with underlying dense gravels.

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Appendix C Laboratory Testing and Monitoring Results

- Environmental Chemistry Laboratory Results
- Geotechnical Laboratory
- Monitoring Results

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Analytical Report Number : 22-70690

Project / Site name:	Napior Road, Reading	**Samples received on:**	12/07/2022
Your job number:	080908	**Samples instructed on/ Analysis started on:**	12/07/2022
Your order number:	EBLO916	**Analysis completed by:**	19/07/2022
Report Issue Number:	1	**Report issued on:**	19/07/2022
Samples Analysed:	8 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.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345945	2345946	2345947	2345948	2345949
Sample Reference				BH02	BH02	BH05	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.55	0.80	0.60	1.50
Date Sampled				04/07/2022	04/07/2022	08/07/2022	11/07/2022	11/07/2022
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	3.9	8.8	18	6.7	17
Total mass of sample received	kg	0.001	NONE	0.8	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	MWI	MWI	MWI	MWI	MWI

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	9.6	8.2	9.0	8.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	540	-	-	420	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.27	-	-	0.21	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	269	-	-	212	-
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	< 0.5	< 0.5	-	< 0.5
Ammoniacal Nitrogen as NH3	mg/kg	0.5	MCERTS	-	< 0.5	< 0.5	-	< 0.5
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	-	< 0.5	< 0.5	-	< 0.5
Organic Matter (automated)	%	0.1	MCERTS	0.7	3.9	0.8	2.3	3.5

Phenols by HPLC

Catechol	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10	-	< 0.10
Resorcinol	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10	-	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	ISO 17025	-	< 0.30	< 0.30	-	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	ISO 17025	-	< 0.20	< 0.20	-	< 0.20
2-Isopropylphenol	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10	-	< 0.10
Phenol	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10	-	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10	-	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	ISO 17025	-	< 0.30	< 0.30	-	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Total Phenols (HPLC)	mg/kg	1.3	ISO 17025	-	< 1.3	< 1.3	-	< 1.3

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345945	2345946	2345947	2345948	2345949
Sample Reference				BH02	BH02	BH05	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.55	0.80	0.60	1.50
Date Sampled				04/07/2022	04/07/2022	08/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	-	-	1.5	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.3	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	-	12	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	2.8	-
Fluoranthene	mg/kg	0.05	MCERTS	0.53	-	-	20	-
Pyrene	mg/kg	0.05	MCERTS	0.46	-	-	15	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	8.2	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	-	6.9	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	5.1	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-	7.1	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	6.7	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	4.6	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	1.1	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-	5.1	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	0.99	-	-	96.5	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.8	15	3.7	8.8	6.3
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.9	0.2	0.4	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2	< 0.2	0.5	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.1	15	4.3	12	6.9
Copper (aqua regia extractable)	mg/kg	1	MCERTS	35	48	31	28	66
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	410	7.4	42	51
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.9	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.6	13	5.3	14	7.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.5	2.1
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	61	150	19	89	73
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345945	2345946	2345947	2345948	2345949
Sample Reference				BH02	BH02	BH05	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.55	0.80	0.60	1.50
Date Sampled				04/07/2022	04/07/2022	08/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	60	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	440	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	500	< 10	< 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	< 2.0	11	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	30	< 10	29	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	240	18	65	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	< 10	270	26	110	< 10

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Analytical Report Number: 22-70690
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Your Order No: EBLO916

Lab Sample Number				2345945	2345946	2345947	2345948	2345949
Sample Reference				BH02	BH02	BH05	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.55	0.80	0.60	1.50
Date Sampled				04/07/2022	04/07/2022	08/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Chloroethane	µg/kg	1	NONE	-	< 1.0	< 1.0	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	< 1.0	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	< 1.0	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	-	< 1.0
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Styrene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	< 1.0	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0

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Analytical Report Number: 22-70690
Project / Site name: Napier Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345945	2345946	2345947	2345948	2345949
Sample Reference				BH02	BH02	BH05	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.55	0.80	0.60	1.50
Date Sampled				04/07/2022	04/07/2022	08/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0	-	< 1.0

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345945	2345946	2345947	2345948	2345949
Sample Reference				BH02	BH02	BH05	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.55	0.80	0.60	1.50
Date Sampled				04/07/2022	04/07/2022	08/07/2022	11/07/2022	11/07/2022
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
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	-	< 0.05	< 0.05	-	< 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	< 0.1	-	< 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	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	< 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	< 0.05	-	< 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	0.63	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	1.3	1.8	-	0.68
Pyrene	mg/kg	0.05	MCERTS	-	1.3	1.7	-	0.71
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.85	1.1	-	0.5
Chrysene	mg/kg	0.05	MCERTS	-	0.83	0.94	-	0.38
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	0.73	0.61	-	0.32
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.54	1	-	0.39

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Analytical Report Number: 22-70690
Project / Site name: Napier Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345945	2345946	2345947	2345948	2345949
Sample Reference				BH02	BH02	BH05	WS02	WS02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.55	0.80	0.60	1.50
Date Sampled				04/07/2022	04/07/2022	08/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.76	0.98	-	0.37
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	0.45	0.6	-	0.24
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	0.67	0.74	-	0.28

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

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345950	2345951	2345952
Sample Reference				WS01	WS04	WS03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.60	0.80
Date Sampled				11/07/2022	11/07/2022	11/07/2022
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	6.8	4.3	16
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	MWI	MWI	MWI

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.0	9.1	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	-	-	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	89	43	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.045	0.022	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	44.6	21.7	-
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	< 0.5
Ammoniacal Nitrogen as NH3	mg/kg	0.5	MCERTS	-	-	< 0.5
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	-	-	< 0.5
Organic Matter (automated)	%	0.1	MCERTS	2.7	0.4	0.4

Phenols by HPLC

Catechol	mg/kg	0.1	ISO 17025	-	-	< 0.10
Resorcinol	mg/kg	0.1	ISO 17025	-	-	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	ISO 17025	-	-	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	ISO 17025	-	-	< 0.20
2-Isopropylphenol	mg/kg	0.1	ISO 17025	-	-	< 0.10
Phenol	mg/kg	0.1	ISO 17025	-	-	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	ISO 17025	-	-	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	ISO 17025	-	-	< 0.30

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-
Total Phenols (HPLC)	mg/kg	1.3	ISO 17025	-	-	< 1.3

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345950	2345951	2345952
Sample Reference				WS01	WS04	WS03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.60	0.80
Date Sampled				11/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
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	< 0.05	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	0.56	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	0.53	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 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	1.09	< 0.80	-
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	3.4	3.7
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.3	6.5	4
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	12	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	84	4.5	4.4
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.5	7.3	4.8
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	81	14	20
Monoaromatics & Oxygenates						
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345950	2345951	2345952
Sample Reference				WS01	WS04	WS03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.60	0.80
Date Sampled				11/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
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	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	< 10	< 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	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345950	2345951	2345952
Sample Reference				WS01	WS04	WS03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.60	0.80
Date Sampled				11/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
VOCs						
Chloromethane	µg/kg	1	ISO 17025	-	-	< 1.0
Chloroethane	µg/kg	1	NONE	-	-	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	-	< 1.0
Vinyl Chloride	µg/kg	1	NONE	-	-	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	-	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	-	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	-	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	< 1.0
Benzene	µg/kg	1	MCERTS	-	-	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	-	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	-	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	-	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	-	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	-	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	-	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	-	< 1.0
Styrene	µg/kg	1	MCERTS	-	-	< 1.0
Tribromomethane	µg/kg	1	NONE	-	-	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	-	< 1.0

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345950	2345951	2345952
Sample Reference				WS01	WS04	WS03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.60	0.80
Date Sampled				11/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	< 1.0

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Lab Sample Number				2345950	2345951	2345952
Sample Reference				WS01	WS04	WS03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.60	0.80
Date Sampled				11/07/2022	11/07/2022	11/07/2022
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
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	MCERTS	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	MCERTS	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	-	< 0.05
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	MCERTS	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	MCERTS	-	-	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	MCERTS	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	ISO 17025	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	MCERTS	-	-	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	-	< 0.05
Azobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2
Anthraquinone	mg/kg	0.3	MCERTS	-	-	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	-	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	< 0.05

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Analytical Report Number: 22-70690
Project / Site name: Napior Road, Reading
Your Order No: EBLO916

Lab Sample Number				2345950	2345951	2345952
Sample Reference				WS01	WS04	WS03
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.60	0.80
Date Sampled				11/07/2022	11/07/2022	11/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	< 0.05

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

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Analytical Report Number : 22-70690
Project / Site name: Napior Road, Reading

* 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 *
2345945	BH02	None Supplied	0.3	Brown loam and clay with gravel.
2345946	BH02	None Supplied	0.55	Brown loam and sand with gravel.
2345947	BH05	None Supplied	0.8	Brown clay and loam with gravel.
2345948	WS02	None Supplied	0.6	Brown loam and sand with gravel.
2345949	WS02	None Supplied	1.5	Brown loam and sand with gravel.
2345950	WS01	None Supplied	0.5	Brown loam and sand with gravel.
2345951	WS04	None Supplied	0.6	Brown loam and sand with gravel.
2345952	WS03	None Supplied	0.8	Beige loam and clay with gravel.

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Analytical Report Number : 22-70690
Project / Site name: Napier Road, Reading

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
Phenols, speciated, in soil, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
D.O. for Gravimetric Quant if free fibres detected	Dependent option for Gravimetric Quant if Screen/ID positive for free fibres	In house asbestos methods A001 & A006.	A006-PL	D	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
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
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
Ammonia as NH3 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS

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Analytical Report Number : 22-70690
Project / Site name: Napier Road, Reading

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
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
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
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 (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
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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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-70690
Project / Site name: Napior Road, Reading

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH02	None Supplied	S	2345945	c	Total cyanide in soil	L080-PL	c
BH02	None Supplied	S	2345946	c	Free cyanide in soil	L080-PL	c
BH02	None Supplied	S	2345946	c	Total cyanide in soil	L080-PL	c

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Analytical Report Number : 22-71336

Project / Site name:	Napier Road	**Samples received on:**	14/07/2022
Your job number:	080908	**Samples instructed on/ Analysis started on:**	14/07/2022
Your order number:	EBLO918	**Analysis completed by:**	26/07/2022
Report Issue Number:	1	**Report issued on:**	26/07/2022
Samples Analysed:	12 soil samples		

Izabela Wójcik

Signed:

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.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350089	2350090	2350091	2350092	2350093
Sample Reference				WS05	WS05	WS06	WS06	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.00	0.30	0.80	1.20
Date Sampled				12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	14	4.9	6.4	7.1
Total mass of sample received	kg	0.001	NONE	0.8	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	SSZ	SSZ	SSZ	SSZ	SSZ
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	10.5	8.8	9.8	9	8.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammoniacal Nitrogen as NH3	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Organic Matter	%	0.1	MCERTS	-	-	-	-	13
Organic Matter (automated)	%	0.1	MCERTS	0.4	3.1	1.5	1	-
Phenols by HPLC								
Catechol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	ISO 17025	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	ISO 17025	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	ISO 17025	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
Total Phenols								
Total Phenols (HPLC)	mg/kg	1.3	ISO 17025	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.3	10	7	5.4	23
Boron (water soluble)	mg/kg	0.2	MCERTS	1	0.5	0.4	0.4	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	9.7	22	33	8.7
Copper (aqua regia extractable)	mg/kg	1	MCERTS	5.8	19	24	11	18
Lead (aqua regia extractable)	mg/kg	1	MCERTS	2.2	29	35	4.9	39
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	1.6	13	15	11	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	7.1	< 1.0	1.5	9	1.2
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	7.3	82	93	31	62
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350089	2350090	2350091	2350092	2350093
Sample Reference				WS05	WS05	WS06	WS06	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.00	0.30	0.80	1.20
Date Sampled				12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	3.3	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	22	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	70	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	MCERTS	< 10	< 10	96	< 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	12	< 2.0	5.7
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	89	< 10	18
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	200	< 10	18
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	< 10	< 10	300	< 10	42
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350089	2350090	2350091	2350092	2350093
Sample Reference				WS05	WS05	WS06	WS06	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.00	0.30	0.80	1.20
Date Sampled				12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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	1.6
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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350089	2350090	2350091	2350092	2350093
Sample Reference				WS05	WS05	WS06	WS06	WS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	1.00	0.30	0.80	1.20
Date Sampled				12/07/2022	12/07/2022	12/07/2022	12/07/2022	12/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.1	< 0.05	0.67
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	0.9
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	0.71	< 0.05	1.2
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	< 0.05	0.52	8.7	0.45	5.4
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	2	< 0.05	1.3
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	1.2
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.56	20	0.45	4.4
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.55	20	0.45	3.9
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	< 0.05	0.22	13	0.2	2.4
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.46	8.8	0.22	2.5
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.34	14	< 0.05	1.9
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.17	4.5	< 0.05	0.52
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.23	12	< 0.05	1.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	6.8	< 0.05	0.48
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.4	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	8.2	< 0.05	0.85

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

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Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350094	2350095	2350096	2350097	2350098
Sample Reference				WS09	WS09	WS09	WS11	WS11
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	3.50	0.30	0.50
Date Sampled				13/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.1	7.6	12	1.7	6.3
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.4	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	SCA	SCA	N/A	SCA	SCA
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	9.6	9.2	-	9	8.9
Total 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
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	0.5	< 0.5	-	< 0.5	< 0.5
Ammoniacal Nitrogen as NH3	mg/kg	0.5	MCERTS	0.6	< 0.5	-	< 0.5	< 0.5
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	0.6	< 0.5	-	< 0.5	< 0.5
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	1	3.2	-	2	4.5
Phenols by HPLC								
Catechol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	-	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	-	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	ISO 17025	< 0.30	< 0.30	-	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	ISO 17025	< 0.20	< 0.20	-	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	-	< 0.10	< 0.10
Phenol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	-	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	ISO 17025	< 0.10	< 0.10	-	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	ISO 17025	< 0.30	< 0.30	-	< 0.30	< 0.30
Total Phenols								
Total Phenols (HPLC)	mg/kg	1.3	ISO 17025	< 1.3	< 1.3	-	< 1.3	< 1.3
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	7.6	-	5.2	14
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5	0.5	-	< 0.2	1.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	0.5	-	0.8	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	-	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	12	-	6.6	47
Copper (aqua regia extractable)	mg/kg	1	MCERTS	10	20	-	4.5	72
Lead (aqua regia extractable)	mg/kg	1	MCERTS	53	160	-	17	60
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	0.5	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	6.8	-	3.8	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	6.6
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	65	120	-	44	69
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350094	2350095	2350096	2350097	2350098
Sample Reference				WS09	WS09	WS09	WS11	WS11
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	3.50	0.30	0.50
Date Sampled				13/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	25	< 2.0	< 2.0	29
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	49	< 8.0	8.8	44
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	85	< 8.0	53	14
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	160	< 10	61	87
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	3.6	3.2	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	19	190	140	< 2.0	9.4
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	75	1100	420	< 10	16
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	150	1400	210	38	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	240	2600	780	38	28
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350094	2350095	2350096	2350097	2350098
Sample Reference				WS09	WS09	WS09	WS11	WS11
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	3.50	0.30	0.50
Date Sampled				13/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	5.5	-	< 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	3.4	-	< 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	1.7	-	< 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	4.7	-	< 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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350094	2350095	2350096	2350097	2350098
Sample Reference				WS09	WS09	WS09	WS11	WS11
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	3.50	0.30	0.50
Date Sampled				13/07/2022	13/07/2022	13/07/2022	13/07/2022	13/07/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	12	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	1	75	-	< 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	0.5	37	-	< 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	0.91	71	-	< 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	6.9	470	-	< 0.05	0.65
Anthracene	mg/kg	0.05	MCERTS	1.6	180	-	< 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	11	500	-	< 0.05	0.87
Pyrene	mg/kg	0.05	MCERTS	9.3	470	-	< 0.05	0.88
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	5.8	270	-	< 0.05	0.47
Chrysene	mg/kg	0.05	MCERTS	3.4	200	-	< 0.05	0.56
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	4.6	170	-	< 0.05	0.56
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	2	210	-	< 0.05	0.26
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.8	240	-	< 0.05	0.39
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.9	92	-	< 0.05	0.16
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.44	28	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.6	110	-	< 0.05	0.23

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

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Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350099	2350100
Sample Reference				WS10	WS10
Sample Number				None Supplied	None Supplied
Depth (m)				0.60	1.40
Date Sampled				13/07/2022	13/07/2022
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	4.3	4.3
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	SCA	SCA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.4	8.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5
Ammoniacal Nitrogen as NH3	mg/kg	0.5	MCERTS	< 0.5	< 0.5
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	< 0.5	< 0.5
Organic Matter	%	0.1	MCERTS	-	-
Organic Matter (automated)	%	0.1	MCERTS	2.5	1

Phenols by HPLC

Catechol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10
Resorcinol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	ISO 17025	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	ISO 17025	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10
Phenol	mg/kg	0.1	ISO 17025	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	ISO 17025	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	ISO 17025	< 0.30	< 0.30

Total Phenols

Total Phenols (HPLC)	mg/kg	1.3	ISO 17025	< 1.3	< 1.3

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.1	11
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	52	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28	21
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	4.5	2.6
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	67

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0

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Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350099	2350100
Sample Reference				WS10	WS10
Sample Number				None Supplied	None Supplied
Depth (m)				0.60	1.40
Date Sampled				13/07/2022	13/07/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
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 (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	12	< 10
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	22	< 10
VOCs					
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0

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Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350099	2350100
Sample Reference				WS10	WS10
Sample Number				None Supplied	None Supplied
Depth (m)				0.60	1.40
Date Sampled				13/07/2022	13/07/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-71336
Project / Site name: Napier Road
Your Order No: EBLO918

Lab Sample Number				2350099	2350100
Sample Reference				WS10	WS10
Sample Number				None Supplied	None Supplied
Depth (m)				0.60	1.40
Date Sampled				13/07/2022	13/07/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
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	1	< 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	0.82	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.63	< 0.05
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.18	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.27	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 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

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

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Analytical Report Number : 22-71336
Project / Site name: Napier Road

* 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 *
2350089	WS05	None Supplied	0.7	Brown clay.
2350090	WS05	None Supplied	1	Brown clay.
2350091	WS06	None Supplied	0.3	Brown loam and sand with gravel.
2350092	WS06	None Supplied	0.8	Brown loam and sand with clinker and gravel
2350093	WS06	None Supplied	1.2	Brown loam and sand with gravel.
2350094	WS09	None Supplied	0.6	Brown loam and sand with gravel and brick.
2350095	WS09	None Supplied	1.3	Brown clay.
2350096	WS09	None Supplied	3.5	Brown sand with gravel and oil / petroleum.
2350097	WS11	None Supplied	0.3	Brown loam and sand with gravel and tar.
2350098	WS11	None Supplied	0.5	Brown loam and sand with gravel.
2350099	WS10	None Supplied	0.6	Brown loam and sand with gravel.
2350100	WS10	None Supplied	1.4	Brown loam and sand with gravel.

Analytical Report Number : 22-71336
Project / Site name: Napier Road

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
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
Phenols, speciated, in soil, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
D.O. for Gravimetric Quant if free fibres detected	Dependent option for Gravimetric Quant if Screen/ID positive for free fibres	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-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
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
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
Ammonia as NH3 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS

Analytical Report Number : 22-71336
Project / Site name: Napier Road

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
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
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 (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE

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 : 22-73932

Project / Site name:	Napier Road, Reading	**Samples received on:**	27/07/2022
Your job number:		**Samples instructed on/ Analysis started on:**	27/07/2022
Your order number:	EBLO927	**Analysis completed by:**	03/08/2022
Report Issue Number:	1	**Report issued on:**	03/08/2022
Samples Analysed:	3 soil 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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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-73932
Project / Site name: Napier Road, Reading
Your Order No: EBLO927

Lab Sample Number				2365376	2365377	2365378
Sample Reference				WS02	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.30
Date Sampled				14/07/2022	27/07/2022	27/07/2022
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	67	< 0.1
Moisture Content	%	0.01	NONE	12	6.6	22
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE	ASE
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	8.5	9.5	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1700	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.84	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	845	-	-
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	0.7	6.3
Ammoniacal Nitrogen as NH3	mg/kg	0.5	MCERTS	-	0.8	7.6
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	-	0.9	8.1
Organic Matter (automated)	%	0.1	MCERTS	-	1.2	4.4
Phenols by HPLC						
Catechol	mg/kg	0.1	ISO 17025	-	1.2	1.3
Resorcinol	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10
Cresols (o-, m-, p-)	mg/kg	0.3	ISO 17025	-	< 0.30	< 0.30
Total Naphthols (sum of 1- and 2- Naphthol)	mg/kg	0.2	ISO 17025	-	< 0.20	< 0.20
2-Isopropylphenol	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10
Phenol	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10
Trimethylphenol (2,3,5-)	mg/kg	0.1	ISO 17025	-	< 0.10	< 0.10
Total Xylenols and Ethylphenols	mg/kg	0.3	ISO 17025	-	< 0.30	< 0.30
Total Phenols						
Total Phenols (HPLC)	mg/kg	1.3	ISO 17025	-	< 1.3	< 1.3
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.35	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-
Fluorene	mg/kg	0.05	MCERTS	0.53	-	-
Phenanthrene	mg/kg	0.05	MCERTS	1.7	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	0.73	-	-
Pyrene	mg/kg	0.05	MCERTS	0.65	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.36	-	-
Chrysene	mg/kg	0.05	MCERTS	0.42	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	-

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Analytical Report Number: 22-73932
Project / Site name: Napier Road, Reading
Your Order No: EBLO927

Lab Sample Number				2365376	2365377	2365378
Sample Reference				WS02	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.30
Date Sampled				14/07/2022	27/07/2022	27/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	4.71	-	-
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	7.9	21
Boron (water soluble)	mg/kg	0.2	MCERTS	2.2	0.6	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	-	< 1.2	< 1.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	33	13	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120	20	27
Lead (aqua regia extractable)	mg/kg	1	MCERTS	90	12	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.8
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	8.6	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	54	68
Monoaromatics & Oxygenates						
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0
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 (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	-	12	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	17	13

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Analytical Report Number: 22-73932
Project / Site name: Napier Road, Reading
Your Order No: EBLO927

Lab Sample Number				2365376	2365377	2365378
Sample Reference				WS02	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.30
Date Sampled				14/07/2022	27/07/2022	27/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
VOCs						
Chloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	-	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	-	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	-	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-73932
Project / Site name: Napier Road, Reading
Your Order No: EBLO927

Lab Sample Number				2365376	2365377	2365378
Sample Reference				WS02	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.30
Date Sampled				14/07/2022	27/07/2022	27/07/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	< 1.0	< 1.0

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Analytical Report Number: 22-73932
Project / Site name: Napier Road, Reading
Your Order No: EBLO927

Lab Sample Number				2365376	2365377	2365378
Sample Reference				WS02	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.30
Date Sampled				14/07/2022	27/07/2022	27/07/2022
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
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	-	0.65	0.61
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	-	0.82	0.85
Pyrene	mg/kg	0.05	MCERTS	-	0.78	0.69
Butyl benzyl phthalate	mg/kg	0.3	ISO 17025	-	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	0.43	0.39
Chrysene	mg/kg	0.05	MCERTS	-	0.42	0.36
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	0.42	0.36
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	0.15	0.27
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	0.42	0.3

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Analytical Report Number: 22-73932
Project / Site name: Napier Road, Reading
Your Order No: EBLO927

Lab Sample Number				2365376	2365377	2365378
Sample Reference				WS02	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	1.30
Date Sampled				14/07/2022	27/07/2022	27/07/2022
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	-	< 0.05	< 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

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

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Analytical Report Number : 22-73932
Project / Site name: Napier Road, Reading

* 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 *
2365376	WS02	None Supplied	0.5	Brown sand with gravel and vegetation.
2365377	BH01	None Supplied	0.5	Brown sand with gravel and stones.
2365378	BH01	None Supplied	1.3	Brown clay and sand with gravel.

Analytical Report Number : 22-73932
Project / Site name: Napier Road, Reading

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
Phenols, speciated, in soil, by HPLC	Determination of speciated phenols by HPLC.	In house method based on Blue Book Method.	L030-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	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
D.O. for Gravimetric Quant if free fibres detected	Dependent option for Gravimetric Quant if Screen/ID positive for free fibres	In house asbestos methods A001 & A006.	A006-PL	D	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
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
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
Ammonia as NH3 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS

Analytical Report Number : 22-73932
Project / Site name: Napier Road, Reading

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
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
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
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 (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
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

Sample Deviation Report

Analytical Report Number : 22-73932
Project / Site name: Napier Road, Reading

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS02	None Supplied	S	2365376	c	Total cyanide in soil	L080-PL	c

Key: **a** - No sampling date **b** - Incorrect container
c - Holding time **d** - Headspace **e** - Temperature

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Analytical Report Number : 22-70967

Project / Site name:	Napior Road, Reading	**Samples received on:**	12/07/2022
Your job number:	080908	**Samples instructed on/ Analysis started on:**	13/07/2022
Your order number:	EBLO916	**Analysis completed by:**	25/07/2022
Report Issue Number:	1	**Report issued on:**	25/07/2022
Samples Analysed:	2 10:1 WAC Samples		

Signed: Martyna Langer

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

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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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The results included within the report are representative of the samples submitted for analysis.

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Waste Acceptance Criteria Analytical Results

Report No:	**22-70967**						
					Client:	**CURTINS**	
Location	**Napier Road, Reading**						
Lab Reference (Sample Number)	2347906 / 2347907				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	11/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS02						
Depth (m)	1.50						
Solid Waste Analysis							
TOC (%)**	1.6				3%	5%	6%
Loss on Ignition (%) **	3.8				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	3.14				100	--	--
pH (units)**	8.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	18				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0024			0.0194	0.5	2	25
Barium *	0.0137			0.110	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0009			0.0075	0.5	10	70
Copper *	0.0043			0.035	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0039			0.0312	0.5	10	30
Nickel *	0.0030			0.024	0.4	10	40
Lead *	0.0033			0.027	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0027			0.022	4	50	200
Chloride *	15			120	800	15000	25000
Fluoride	0.35			2.8	10	150	500
Sulphate *	14			120	1000	20000	50000
TDS*	100			830	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	4.42			35.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	83						
Moisture (%)	17						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation
** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**22-70967**						
					Client:	**CURTINS**	
Location	**Napier Road, Reading**						
Lab Reference (Sample Number)	2347908 / 2347909				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	11/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS04						
Depth (m)	0.60						
Solid Waste Analysis							
TOC (%)**	0.3				3%	5%	6%
Loss on Ignition (%) **	0.6				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	11				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0070			0.0647	0.5	2	25
Barium *	0.0108			0.101	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0019			0.018	0.5	10	70
Copper *	0.0045			0.042	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0010			0.0089	0.5	10	30
Nickel *	0.0054			0.051	0.4	10	40
Lead *	0.0043			0.040	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.014			0.13	4	50	200
Chloride *	40			380	800	15000	25000
Fluoride	0.10			0.95	10	150	500
Sulphate *	3.4			31	1000	20000	50000
TDS*	130			1200	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	4.48			41.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	96						
Moisture (%)	4.3						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation
** = MCERTS accredited

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Analytical Report Number : 22-70967
Project / Site name: Napier Road, Reading

* 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 *
2347906	WS02	None Supplied	1.5	Brown loam and sand with gravel.
2347908	WS04	None Supplied	0.6	Brown loam and sand with gravel.

Analytical Report Number : 22-70967
Project / Site name: Napior Road, Reading

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
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 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. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	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 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
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025

Analytical Report Number : 22-70967
Project / Site name: Napior Road, Reading

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
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

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 : 22-71344

Project / Site name:	Napier Road	**Samples received on:**	14/07/2022
Your job number:	080908	**Samples instructed on/ Analysis started on:**	14/07/2022
Your order number:	EBLO918	**Analysis completed by:**	26/07/2022
Report Issue Number:	1	**Report issued on:**	26/07/2022
Samples Analysed:	7 10:1 WAC 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

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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Waste Acceptance Criteria Analytical Results

Report No:	**22-71344**						
					Client:	**CURTINS**	
Location	**Napier Road**						
Lab Reference (Sample Number)	2350130 / 2350131				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	12/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS05						
Depth (m)	0.70						
Solid Waste Analysis							
TOC (%)**	0.2				3%	5%	6%
Loss on Ignition (%) **	7.6				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.8				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	48				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0010			< 0.0100	0.5	2	25
Barium *	0.0534			0.441	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0009			0.0071	0.5	10	70
Copper *	0.0066			0.054	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0027			0.0223	0.5	10	30
Nickel *	0.0031			0.026	0.4	10	40
Lead *	0.0012			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	0.0077			0.064	0.1	0.5	7
Zinc *	0.013			0.10	4	50	200
Chloride *	19			160	800	15000	25000
Fluoride	0.20			1.7	10	150	500
Sulphate *	70			580	1000	20000	50000
TDS*	170			1400	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	2.45			20.2	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	88						
Moisture (%)	12						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
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** = MCERTS accredited

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Waste Acceptance Criteria Analytical Results

Report No:	**22-71344**						
					Client:	**CURTINS**	
Location	**Napier Road**						
Lab Reference (Sample Number)	2350132 / 2350133				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	12/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS06						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	0.9				3%	5%	6%
Loss on Ignition (%) **	2.2				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	126				100	--	--
pH (units)**	10.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	26				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0054			0.0507	0.5	2	25
Barium *	0.0076			0.0716	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0035			0.032	0.5	10	70
Copper *	0.0091			0.085	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0015			0.0140	0.5	10	30
Nickel *	0.0044			0.041	0.4	10	40
Lead *	0.0057			0.053	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	0.015			0.14	0.1	0.5	7
Zinc *	0.0085			0.080	4	50	200
Chloride *	6.2			58	800	15000	25000
Fluoride	0.14			1.3	10	150	500
Sulphate *	8.2			77	1000	20000	50000
TDS*	80			750	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.06			75.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	95						
Moisture (%)	4.9						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
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Waste Acceptance Criteria Analytical Results

Report No:	**22-71344**						
					Client:	**CURTINS**	
Location	**Napier Road**						
Lab Reference (Sample Number)	2350134 / 2350135				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	12/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS06						
Depth (m)	1.20						
Solid Waste Analysis							
TOC (%)**	7.3				3%	5%	6%
Loss on Ignition (%) **	38.5				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	27.2				100	--	--
pH (units)**	8.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	13				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0010			< 0.0100	0.5	2	25
Barium *	0.0306			0.259	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0007			0.0058	0.5	10	70
Copper *	0.0022			0.019	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0052			0.0436	0.5	10	30
Nickel *	0.0043			0.036	0.4	10	40
Lead *	0.0050			0.042	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	0.0075			0.063	0.1	0.5	7
Zinc *	0.0047			0.040	4	50	200
Chloride *	7.2			61	800	15000	25000
Fluoride	0.18			1.5	10	150	500
Sulphate *	18			150	1000	20000	50000
TDS*	73			620	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	3.75			31.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	93						
Moisture (%)	7.1						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
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Waste Acceptance Criteria Analytical Results

Report No:	**22-71344**						
					Client:	**CURTINS**	
Location	**Napier Road**						
Lab Reference (Sample Number)	2350136 / 2350137				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	13/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS09						
Depth (m)	1.30						
Solid Waste Analysis							
TOC (%)**	1.9				3%	5%	6%
Loss on Ignition (%) **	3.3				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	130				500	--	--
Total PAH (WAC-17) (mg/kg)	5250				100	--	--
pH (units)**	8.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	20				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0038			0.0293	0.5	2	25
Barium *	0.0092			0.0718	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0011			0.0086	0.5	10	70
Copper *	0.0038			0.030	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0024			0.0184	0.5	10	30
Nickel *	0.0039			0.031	0.4	10	40
Lead *	0.0036			0.028	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	0.011			0.087	0.1	0.5	7
Zinc *	0.0093			0.072	4	50	200
Chloride *	31			240	800	15000	25000
Fluoride	0.23			1.8	10	150	500
Sulphate *	21			160	1000	20000	50000
TDS*	120			930	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	6.48			50.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	92						
Moisture (%)	7.6						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
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Waste Acceptance Criteria Analytical Results

Report No:	**22-71344**						
					Client:	**CURTINS**	
Location	**Napier Road**						
Lab Reference (Sample Number)	2350138 / 2350139				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	13/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS11						
Depth (m)	0.30						
Solid Waste Analysis							
TOC (%)**	1.2				3%	5%	6%
Loss on Ignition (%) **	2.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	51				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	15				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0010			< 0.0100	0.5	2	25
Barium *	0.102			0.989	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0015			0.014	0.5	10	70
Copper *	0.0065			0.063	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0038			0.037	0.4	10	40
Lead *	0.0028			0.027	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0037			0.036	4	50	200
Chloride *	2.2			21	800	15000	25000
Fluoride	0.095			0.92	10	150	500
Sulphate *	2.7			26	1000	20000	50000
TDS*	33			320	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	4.93			47.8	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	98						
Moisture (%)	1.7						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation
** = MCERTS accredited

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This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**22-71344**						
					Client:	**CURTINS**	
Location	**Napier Road**						
Lab Reference (Sample Number)	2350140 / 2350141				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	13/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS11						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	2.6				3%	5%	6%
Loss on Ignition (%) **	6.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	62				500	--	--
Total PAH (WAC-17) (mg/kg)	4.48				100	--	--
pH (units)**	8.5				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	12				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0019			0.0173	0.5	2	25
Barium *	0.0058			0.0541	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0007			0.0070	0.5	10	70
Copper *	0.0012			0.011	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0022			0.0207	0.5	10	30
Nickel *	0.0037			0.034	0.4	10	40
Lead *	0.0033			0.031	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0036			0.034	4	50	200
Chloride *	8.8			83	800	15000	25000
Fluoride	0.25			2.3	10	150	500
Sulphate *	9.9			93	1000	20000	50000
TDS*	65			610	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.10			47.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	94						
Moisture (%)	6.3						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
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Waste Acceptance Criteria Analytical Results

Report No:	**22-71344**						
					Client:	**CURTINS**	
Location	**Napier Road**						
Lab Reference (Sample Number)	2350142 / 2350143				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	13/07/2022				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS10						
Depth (m)	1.40						
Solid Waste Analysis							
TOC (%)**	0.6				3%	5%	6%
Loss on Ignition (%) **	1.8				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	7.9				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	7.9				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.0010			< 0.0100	0.5	2	25
Barium *	0.0083			0.0794	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0005			0.0051	0.5	10	70
Copper *	0.0026			0.025	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0011			0.0110	0.5	10	30
Nickel *	0.0019			0.018	0.4	10	40
Lead *	0.0017			0.016	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0031			0.029	4	50	200
Chloride *	1.0			9.7	800	15000	25000
Fluoride	0.081			0.77	10	150	500
Sulphate *	7.9			76	1000	20000	50000
TDS*	34			320	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	3.28			31.2	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	96						
Moisture (%)	4.3						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.
*= UKAS accredited (liquid eluate analysis only)
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Analytical Report Number : 22-71344
Project / Site name: Napier Road

* 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 *
2350130	WS05	None Supplied	0.7	Brown clay.
2350132	WS06	None Supplied	0.3	Brown loam and sand with gravel.
2350134	WS06	None Supplied	1.2	Brown loam and sand with gravel.
2350136	WS09	None Supplied	1.3	Brown clay.
2350138	WS11	None Supplied	0.3	Brown loam and sand with gravel and tar.
2350140	WS11	None Supplied	0.5	Brown loam and sand with gravel.
2350142	WS10	None Supplied	1.4	Brown loam and sand with gravel.

Analytical Report Number : 22-71344
Project / Site name: Napier Road

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
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 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. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	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 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
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025

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Analytical Report Number : 22-71344
Project / Site name: Napier Road

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
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	ISO 17025
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

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 : 22-77493

Project / Site name:	Napier road	**Samples received on:**	11/08/2022
Your job number:		**Samples instructed on/ Analysis started on:**	11/08/2022
Your order number:	EBLO945	**Analysis completed by:**	18/08/2022
Report Issue Number:	1	**Report issued on:**	18/08/2022
Samples Analysed:	9 water 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.

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Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384898	2384899	2384900	2384901	2384902
Sample Reference				WS2	WS3	WS5	WS6	WS9
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				09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
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	7.4	7.3	7.5	7.1	7.6
Sulphate as SO4	µg/l	45	ISO 17025	156000	62800	188000	60400	56300
Sulphate as SO4	mg/l	0.045	ISO 17025	156	62.8	188	60.4	56.3
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	97	< 15	240	200	12000
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	100	< 15	260	220	12000
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.72	2.94	3.57	3.42	6.03
Nitrate as N	mg/l	0.01	ISO 17025	1.97	0.45	0.81	0.11	0.14
Nitrate as NO3	mg/l	0.05	ISO 17025	8.73	1.98	3.6	0.51	0.61
Hardness - Total	mgCaCO3/l	1	ISO 17025	418	377	471	790	445
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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	0.27
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	40.4
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	28.5
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	30.3
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	1.56
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	8.76
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	4.91
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	0.45
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	0.41
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	115
Heavy Metals / Metalloids								
Boron (dissolved)	µg/l	10	ISO 17025	150	100	77	130	160
Calcium (dissolved)	mg/l	0.012	ISO 17025	150	140	180	310	170
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Magnesium (dissolved)	mg/l	0.005	ISO 17025	8.2	4.1	6.3	5.6	7.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.52	0.41	1.44	0.58	6.25
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	0.02	0.05	0.06	0.05
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	3.1	2.5	2.7	3.2	6.4
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	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	2.6	3.3	6.9	5.1	5.4
Selenium (dissolved)	µg/l	0.6	ISO 17025	1	< 0.6	2	< 0.6	0.9
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.8	3.1	1.6	1.8	7.8

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Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384898	2384899	2384900	2384901	2384902
Sample Reference				WS2	WS3	WS5	WS6	WS9
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				09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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
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
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 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
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	20
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	220
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	340
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	130
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	720

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Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384898	2384899	2384900	2384901	2384902
Sample Reference				WS2	WS3	WS5	WS6	WS9
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				09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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
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

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Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384898	2384899	2384900	2384901	2384902
Sample Reference				WS2	WS3	WS5	WS6	WS9
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				09/08/2022	09/08/2022	09/08/2022	09/08/2022	09/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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

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

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Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384903	2384904	2384905	2384906
Sample Reference				WS10	WS11	WS12	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/08/2022	09/08/2022	09/08/2022	09/08/2022
Time Taken				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	7.5	7.3	7.2	7.4
Sulphate as SO4	µg/l	45	ISO 17025	102000	49800	136000	60400
Sulphate as SO4	mg/l	0.045	ISO 17025	102	49.8	136	60.4
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	< 15	74	310	17
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	< 15	78	330	18
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.76	1.36	2.49	0.82
Nitrate as N	mg/l	0.01	ISO 17025	0.78	6.36	1.17	4.3
Nitrate as NO3	mg/l	0.05	ISO 17025	3.45	28.2	5.17	19
Hardness - Total	mgCaCO3/l	1	ISO 17025	322	381	508	387
Total Phenols							
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 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
Chrysene	µg/l	0.01	ISO 17025	< 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
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 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
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 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
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 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
Heavy Metals / Metalloids							
Boron (dissolved)	µg/l	10	ISO 17025	230	97	200	82
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	140	190	140
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Magnesium (dissolved)	mg/l	0.005	ISO 17025	7.2	5.9	8.7	6.8
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.56	0.25	0.33	0.21
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	0.02	0.04	0.04
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.2	0.6	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	9.8	1.4	1.9	6
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.8	1.9	6.8	7.7
Selenium (dissolved)	µg/l	0.6	ISO 17025	2	3.5	1.1	3
Zinc (dissolved)	µg/l	0.5	ISO 17025	14	1.1	1.4	4.2

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Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384903	2384904	2384905	2384906
Sample Reference				WS10	WS11	WS12	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/08/2022	09/08/2022	09/08/2022	09/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 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
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 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
TPH-CWG - Aliphatic >C8 - C10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 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
TPH-CWG - Aromatic >C8 - C10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384903	2384904	2384905	2384906
Sample Reference				WS10	WS11	WS12	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/08/2022	09/08/2022	09/08/2022	09/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
VOCs							
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 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
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 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
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 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
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 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
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 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
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	88.7	33.4	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 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
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 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
tert-Butylbenzene	µg/l	1	ISO 17025	< 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
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-77493
Project / Site name: Napier road

Lab Sample Number				2384903	2384904	2384905	2384906
Sample Reference				WS10	WS11	WS12	BH02
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/08/2022	09/08/2022	09/08/2022	09/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Butylbenzene	µg/l	1	ISO 17025	< 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
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 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

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

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Analytical Report Number : 22-77493
Project / Site name: Napier road

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
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-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
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-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
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
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-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
Ammonia as NH3 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
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

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Analytical Report Number : 22-77493
Project / Site name: Napier road

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

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 : 22-78702

Project / Site name:	Napier road	**Samples received on:**	18/08/2022
Your job number:		**Samples instructed on/ Analysis started on:**	18/08/2022
Your order number:	EBC0946	**Analysis completed by:**	25/08/2022
Report Issue Number:	1	**Report issued on:**	25/08/2022
Samples Analysed:	8 water 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.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393019	2393020	2393021	2393022	2393023
Sample Reference				WS2	BH02	WS05	WS06	WS09
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				17/08/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
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	7.5	7.0	7.4
Sulphate as SO4	µg/l	45	ISO 17025	150000	59800	166000	57900	88100
Sulphate as SO4	mg/l	0.045	ISO 17025	150	59.8	166	57.9	88.1
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	120	22	160	180	8400
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	130	24	170	190	8900
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	3.35	0.81	3.65	3.75	6.55
Nitrate as N	mg/l	0.01	ISO 17025	1.75	4.27	1.01	0.14	1.94
Nitrate as NO3	mg/l	0.05	ISO 17025	7.76	18.9	4.46	0.61	8.57
Hardness - Total	mgCaCO3/l	1	ISO 17025	443	398	446	867	520
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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	0.5
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	0.24
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	0.74
Heavy Metals / Metalloids								
Boron (dissolved)	µg/l	10	ISO 17025	180	91	87	140	200
Calcium (dissolved)	mg/l	0.012	ISO 17025	160	150	170	340	190
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Magnesium (dissolved)	mg/l	0.005	ISO 17025	9.1	7.4	6.5	5.9	8.1
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.38	0.16	0.83	0.43	2.05
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.2	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	2.5	3.8	2.2	2	3.9
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 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	4.7	6	4	5.7	4.6
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.9	2.3	1.2	1.1	4.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.7	5.7	3.4	4.4	5.7

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Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393019	2393020	2393021	2393022	2393023
Sample Reference				WS2	BH02	WS05	WS06	WS09
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				17/08/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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
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
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 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
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393019	2393020	2393021	2393022	2393023
Sample Reference				WS2	BH02	WS05	WS06	WS09
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				17/08/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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
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

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Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393019	2393020	2393021	2393022	2393023
Sample Reference				WS2	BH02	WS05	WS06	WS09
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				17/08/2022	17/08/2022	17/08/2022	17/08/2022	17/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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

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

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Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393024	2393025	2393026
Sample Reference				WS10	WS11	WS12
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				17/08/2022	17/08/2022	17/08/2022
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	7.3	7.0	7.2
Sulphate as SO4	µg/l	45	ISO 17025	102000	51600	121000
Sulphate as SO4	mg/l	0.045	ISO 17025	102	51.6	121
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	16	< 15	310
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	17	< 15	330
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	3.1	1.84	2.74
Nitrate as N	mg/l	0.01	ISO 17025	0.8	6.72	1.03
Nitrate as NO3	mg/l	0.05	ISO 17025	3.55	29.8	4.57
Hardness - Total	mgCaCO3/l	1	ISO 17025	348	445	521
Total Phenols						
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10
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
Heavy Metals / Metalloids						
Boron (dissolved)	µg/l	10	ISO 17025	260	110	220
Calcium (dissolved)	mg/l	0.012	ISO 17025	130	170	190
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Magnesium (dissolved)	mg/l	0.005	ISO 17025	7.9	6.4	10
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.29	< 0.15	1.32
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	< 0.02	0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.5	1.3
Copper (dissolved)	µg/l	0.5	ISO 17025	8.5	3	1.5
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	0.5
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.7	2.1	8.2
Selenium (dissolved)	µg/l	0.6	ISO 17025	3.2	3.5	1.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	9.7	5	5.2

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Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393024	2393025	2393026
Sample Reference				WS10	WS11	WS12
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				17/08/2022	17/08/2022	17/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
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
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
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 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
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10

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Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393024	2393025	2393026
Sample Reference				WS10	WS11	WS12
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				17/08/2022	17/08/2022	17/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
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	17.7	14.2
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
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

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Analytical Report Number: 22-78702
Project / Site name: Napier road

Your Order No: EBC0946

Lab Sample Number				2393024	2393025	2393026
Sample Reference				WS10	WS11	WS12
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				17/08/2022	17/08/2022	17/08/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
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

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

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Analytical Report Number : 22-78702
Project / Site name: Napier road

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-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
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
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-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
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-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
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
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-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
Ammonia as NH3 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-78702
Project / Site name: Napier road

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

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 : 22-80280

Project / Site name:	Napier Road	**Samples received on:**	25/08/2022
Your job number:		**Samples instructed on/ Analysis started on:**	25/08/2022
Your order number:	EBC0959	**Analysis completed by:**	31/08/2022
Report Issue Number:	1	**Report issued on:**	07/09/2022
Samples Analysed:	4 water 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

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.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-80280
Project / Site name: Napier Road

Your Order No: EBC0959

Lab Sample Number				2402613	2402614	2402615	2402616
Sample Reference				BH03	BH04	BH05	BH07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				24/08/2022	24/08/2022	24/08/2022	24/08/2022
Time Taken				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	7.2	7.4	7.2	7.4
Sulphate as SO4	µg/l	45	ISO 17025	56000	71500	45200	50200
Sulphate as SO4	mg/l	0.045	ISO 17025	56	71.5	45.2	50.2
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	< 15	< 15	< 15	< 15
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	< 15	< 15	< 15	< 15
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	1.36	3.72	1.2	1.62
Nitrate as N	mg/l	0.01	ISO 17025	4.44	4.99	8.13	5.64
Nitrate as NO3	mg/l	0.05	ISO 17025	19.7	22.1	36	25
Hardness - Total	mgCaCO3/l	1	ISO 17025	355	217	304	307
Total Phenols							
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 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
Chrysene	µg/l	0.01	ISO 17025	< 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
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 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
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 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
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 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

Analytical Report Number: 22-80280
Project / Site name: Napier Road

Your Order No: EBC0959

Lab Sample Number				2402613	2402614	2402615	2402616
Sample Reference				BH03	BH04	BH05	BH07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				24/08/2022	24/08/2022	24/08/2022	24/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Boron (dissolved)	µg/l	10	ISO 17025	75	62	65	72
Calcium (dissolved)	mg/l	0.012	ISO 17025	130	78	110	110
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Magnesium (dissolved)	mg/l	0.005	ISO 17025	6.7	5.5	5.3	5.6
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.41	0.32	< 0.15	0.18
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.06	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.3	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	4.5	2.9	0.6	1.4
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	13	12	3.3	7.2
Selenium (dissolved)	µg/l	0.6	ISO 17025	2.9	4.4	2.5	3.4
Zinc (dissolved)	µg/l	0.5	ISO 17025	11	19	1.7	13
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 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
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 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
TPH-CWG - Aliphatic >C8 - C10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 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
TPH-CWG - Aromatic >C8 - C10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10

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Analytical Report Number: 22-80280
Project / Site name: Napier Road

Your Order No: EBC0959

Lab Sample Number				2402613	2402614	2402615	2402616
Sample Reference				BH03	BH04	BH05	BH07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				24/08/2022	24/08/2022	24/08/2022	24/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
VOCs							
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 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
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 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
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 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
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 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
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 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
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	6	26.1	111	16
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 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
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 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
tert-Butylbenzene	µg/l	1	ISO 17025	< 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
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 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
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 22-80280
Project / Site name: Napier Road

Your Order No: EBC0959

Lab Sample Number				2402613	2402614	2402615	2402616
Sample Reference				BH03	BH04	BH05	BH07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				24/08/2022	24/08/2022	24/08/2022	24/08/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

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

Analytical Report Number : 22-80280
Project / Site name: Napier Road

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
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-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
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Nitrate in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-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
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
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-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
Ammonia as NH3 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Nitrate as N in water	Determination of nitrate by reaction with sodium salicylate and colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08,	L078-PL	W	ISO 17025
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

Analytical Report Number : 22-80280
Project / Site name: Napier Road

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

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

UKAS TESTING
4041

Environmental Science

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Analytical Report Number : 22-84619

Project / Site name:	NAV7EK	**Samples received on:**	16/09/2022
Your job number:		**Samples instructed on/ Analysis started on:**	16/09/2022
Your order number:	EBL0968	**Analysis completed by:**	27/09/2022
Report Issue Number:	1	**Report issued on:**	27/09/2022
Samples Analysed:	5 water samples		

Signed:

Joanna Wawrzeczko
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.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-84619
Project / Site name: NAV7EK

Your Order No: EBL0968

Lab Sample Number				2427582	2427583	2427584	2427585	2427586
Sample Reference				BH04	BH05	BH07	WS11	WS12
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				15/09/2022	15/09/2022	15/09/2022	15/09/2022	15/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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
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
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 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
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	U/S*	< 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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-84619
Project / Site name: NAV7EK

Your Order No: EBL0968

Lab Sample Number				2427582	2427583	2427584	2427585	2427586
Sample Reference				BH04	BH05	BH07	WS11	WS12
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				15/09/2022	15/09/2022	15/09/2022	15/09/2022	15/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	8.9	93.1	18.6	29	14.3
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
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

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

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Analytical Report Number : 22-84619
Project / Site name: NAV7EK

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
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
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

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

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

UKAS TESTING 4041

Environmental Science

Client:	Curtins	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-78966
		Date Sampled:	Not Given
		Date Received:	03/08/2022
Contact:	Danny Xu	Date Tested:	25/08/2022
Site Address:	Napier Road	Sampled By:	Not Given

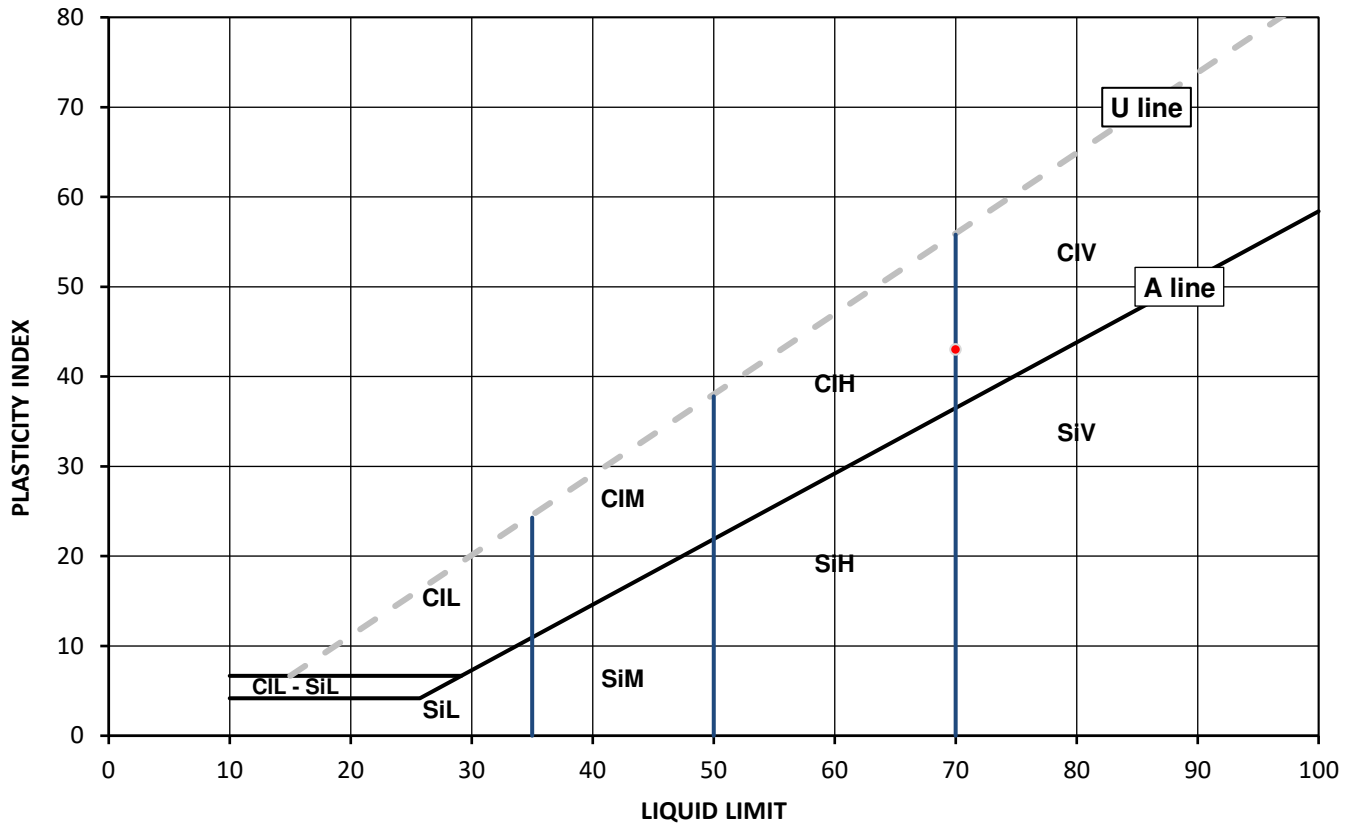
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2394751	Depth Top [m]:	3.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown very gravelly CLAY		

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
24	70	27	43	26



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 ClHO)

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

Remarks:

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.

Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 02/09/2022

GF 236.12

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

UKAS TESTING 4041

Environmental Science

Client:	Curtins	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-78966
		Date Sampled:	Not Given
		Date Received:	03/08/2022
Contact:	Danny Xu	Date Tested:	25/08/2022
Site Address:	Napier Road	Sampled By:	Not Given

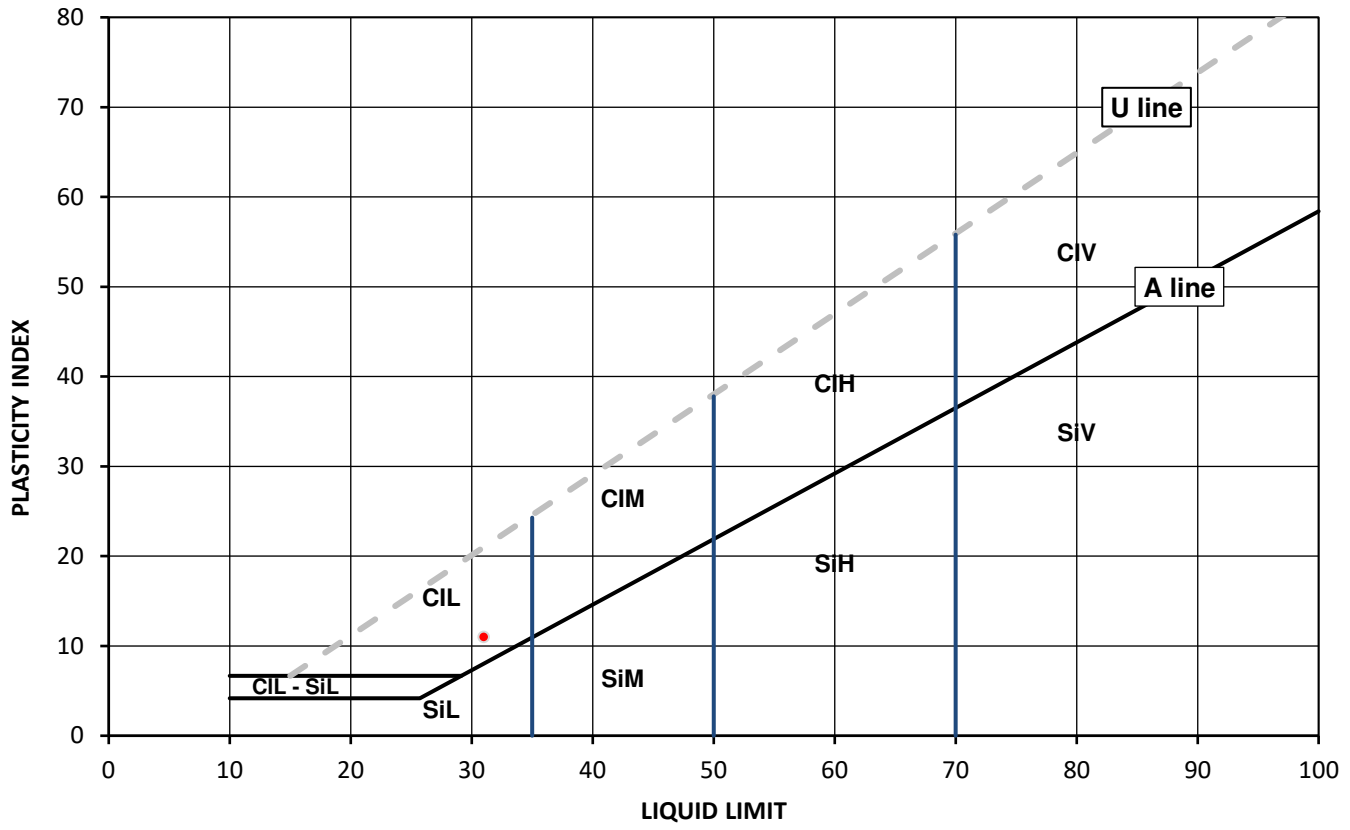
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2394753	Depth Top [m]:	9.50
Hole No.:	BH01	Depth Base [m]:	11.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	White CHALK		

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	31	20	11	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 ClHO)

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

Remarks:

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Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 02/09/2022

GF 236.12

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street, London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78966
Date Sampled: Not Given
Date Received: 03/08/2022
Date Tested: 25/08/2022
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				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
2394751	BH01	Not Given	3.00	Not Given	B	Yellowish brown very gravelly CLAY	Atterberg 4 Point	24		26	70	27	43						
2394753	BH01	Not Given	9.50	11.00	B	White CHALK	Atterberg 4 Point	28		100	31	20	11						
2394754	BH01	Not Given	13.00	14.00	B	White CHALK		26											
2394755	BH01	Not Given	15.30	Not Given	B	White CHALK		22											
2394760	BH01	Not Given	22.86	23.00	C	White CHALK		24											
2394761	BH01	Not Given	23.62	23.90	C	White CHALK		25											
2394763	BH01	Not Given	26.20	26.43	C	White CHALK		23											
2394765	BH01	Not Given	29.09	30.50	C	White CHALK		18											
2394766	BH01	Not Given	31.10	31.30	C	White CHALK		19											
2394768	BH01	Not Given	33.85	34.05	C	White CHALK		19											

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

Monika Siewior
Reporting Specialist
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.

Date Reported: 02/09/2022

GF 238.14

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street, London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78966
Date Sampled: Not Given
Date Received: 03/08/2022
Date Tested: 25/08 - 30/08/2022
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			%				
2394751	BH01	Not Given	3.00	Not Given	B	Yellowish brown very gravelly CLAY		24	Sample was quartered, oven dried at 106.4 °C			
2394753	BH01	Not Given	9.50	11.00	B	White CHALK		28	Sample was quartered, oven dried at 106.4 °C			
2394754	BH01	Not Given	13.00	14.00	B	White CHALK		26	Sample was quartered, oven dried at 106.4 °C			
2394755	BH01	Not Given	15.30	Not Given	B	White CHALK		22	Sample was quartered, oven dried at 106.4 °C			
2394760	BH01	Not Given	22.86	23.00	C	White CHALK		24	Sample was quartered, oven dried at 108.8 °C			
2394761	BH01	Not Given	23.62	23.90	C	White CHALK		25	Sample was quartered, oven dried at 108.7 °C			
2394763	BH01	Not Given	26.20	26.43	C	White CHALK		23	Sample was quartered, oven dried at 108.8 °C			
2394765	BH01	Not Given	29.09	30.50	C	White CHALK		18	Sample was quartered, oven dried at 107 °C			
2394766	BH01	Not Given	31.10	31.30	C	White CHALK		19	Sample was quartered, oven dried at 106 °C			
2394768	BH01	Not Given	33.85	34.05	C	White CHALK		19	Sample was quartered, oven dried at 108.1 °C			

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 02/09/2022

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

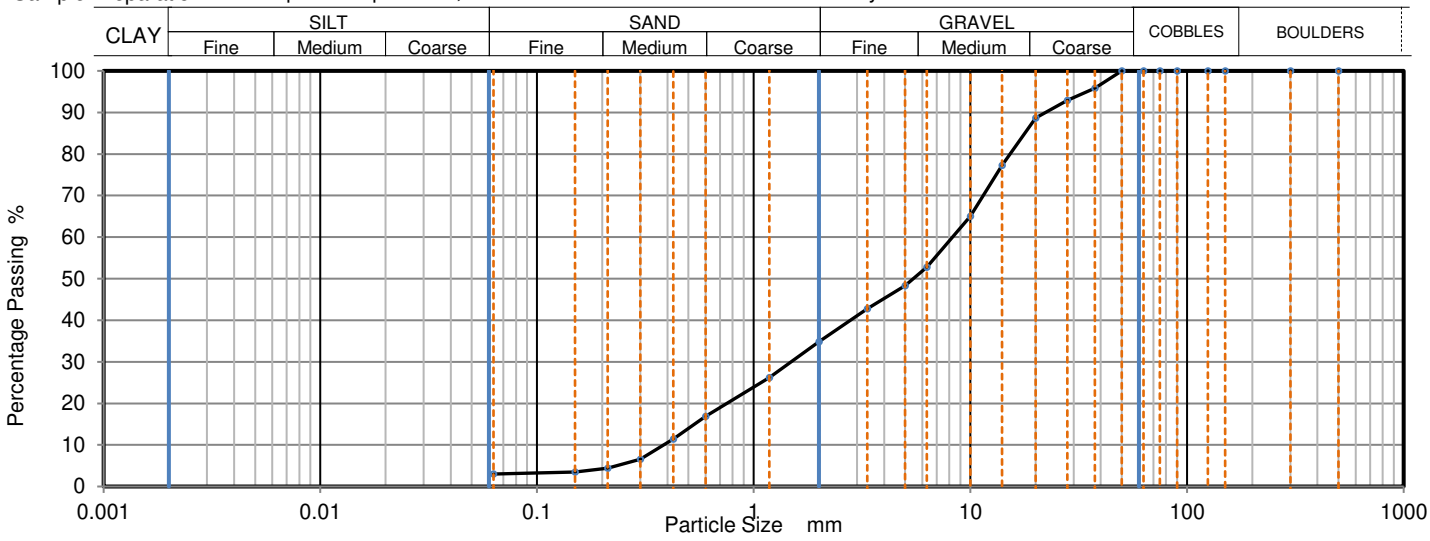
4041

Client:	Curtins	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-78966
		Date Sampled:	Not Given
		Date Received:	03/08/2022
Contact:	Danny Xu	Date Tested:	25/08/2022
Site Address:	Napier Road	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2394752	Depth Top [m]:	5.00
Hole No.:	BH01	Depth Base [m]:	5.90
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	93		
20	89		
14	77		
10	65		
6.3	53		
5	48		
3.35	43		
2	35		
1.18	26		
0.6	17		
0.425	11		
0.3	7		
0.212	4		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	65
Sand	32
Fines <0.063mm	3

Grading Analysis		
D100	mm	50
D60	mm	8.27
D30	mm	1.49
D10	mm	0.384
Uniformity Coefficient		22
Curvature Coefficient		0.7

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

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 02/09/2022

GF 100.21

SUMMARY REPORT

METHOD FOR SATURATION MOISTURE CONTENT OF CHALK

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street, London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78966
Date Sampled: Not Given
Date Received: 03/08/2022
Date Tested: 25/08 - 30/08/2022
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	SMC	Bulk density	Dry density	MC	Preparation
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%	
2394754	BH01	Not Given	13.00	14.00	B	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.97	1.56	26	
2394755	BH01	Not Given	15.30	Not Given	B	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.94	1.56	24	
2394756	BH01	Not Given	16.90	17.00	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.93	1.56	24	
2394758	BH01	Not Given	19.85	20.00	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	26	1.93	1.58	23	
2394760	BH01	Not Given	22.86	23.00	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.92	1.56	23	
2394761	BH01	Not Given	23.62	23.90	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.91	1.56	23	
2394763	BH01	Not Given	26.20	26.43	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.95	1.57	24	
2394764	BH01	Not Given	28.43	28.69	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	23	1.98	1.68	18	
2394765	BH01	Not Given	29.09	30.50	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	22	2.00	1.69	18	
2394766	BH01	Not Given	31.10	31.30	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	1.91	1.61	18	

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

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.

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 02/09/2022

SUMMARY REPORT

METHOD FOR SATURATION MOISTURE CONTENT OF CHALK

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78966
Date Sampled: Not Given
Date Received: 03/08/2022
Date Tested: 25/08 - 30/08/2022
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	SMC	Bulk density	Dry density	MC	Preparation
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%	
2394768	BH01	Not Given	33.85	34.05	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	21	2.05	1.71	20	

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 02/09/2022

GF 132.14

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78966
Date Sampled: Not Given
Date Received: 03/08/2022
Date Tested: 01/09/2022
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 # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
2394757	BH01	Not Given	18.02	18.22	C	White CHALK	WC = 21.4%	1	D	U	YES	97.1	97.5	98.0	72.0	1.2	83.8	0.16	0.21
2394759	BH01	Not Given	20.75	20.95	C	White CHALK	WC = 21.5%	1	D	U	YES	109.5	94.7	94.0	85.0	1.2	89.7	0.14	0.19
2394761	BH01	Not Given	23.62	23.90	C	White CHALK	WC = 19.8%	1	D	U	YES	65.2	89.6	89.0	83.0	1.5	86.3	0.19	0.25
2394762	BH01	Not Given	25.32	25.47	C	White CHALK	WC = 16.3%	1	D	U	YES	69.6	69.7	89.0	83.0	0.5	76.1	0.09	0.10
2394765	BH01	Not Given	29.09	30.50	C	White CHALK	WC = 20.1%	1	I	U	YES	80.4	94.5	94.0	87.0	3.0	102.3	0.29	0.40
2394767	BH01	Not Given	32.90	33.09	C	White CHALK	WC = 20.6%	1	D	U	YES	88.1	9606.0	95.0	86.0	3.4	908.9	0.00	0.02

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 02/09/2022

GF 134.13

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

UKAS TESTING 4041

Environmental Science

Client:	CURTINS	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-74702
		Date Sampled:	Not Given
		Date Received:	27/07/2022
Contact:	Danny Xu	Date Tested:	08/08/2022
Site Address:	Napier Road, Court	Sampled By:	Not Given

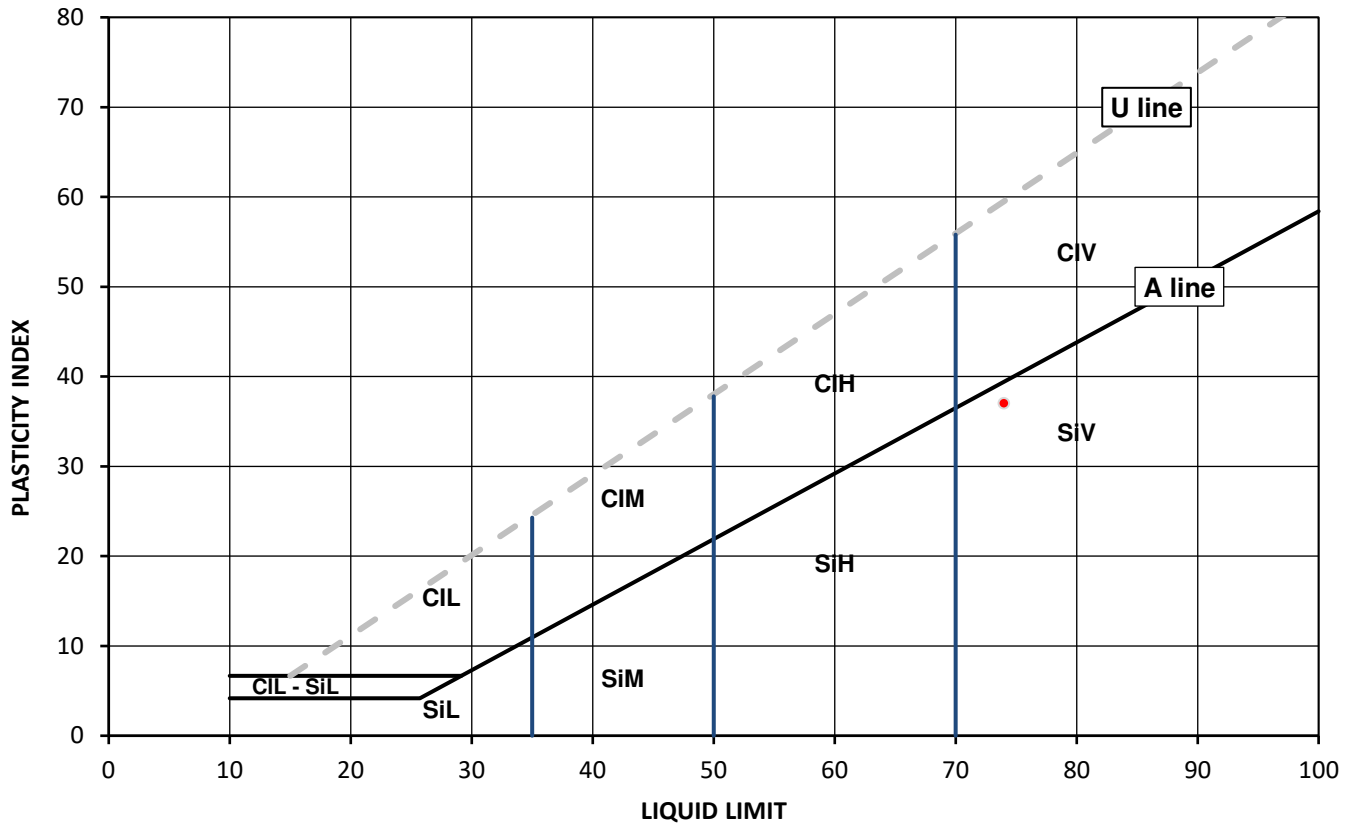
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2369762	Depth Top [m]:	2.00
Hole No.:	BH05	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly gravelly CLAY		

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
5.3	74	37	37	81



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 ClHO)

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

Remarks:

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Signed: Dudzinska Anna

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

Date Reported: 17/08/2022

GF 236.12

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

UKAS TESTING 4041

Environmental Science

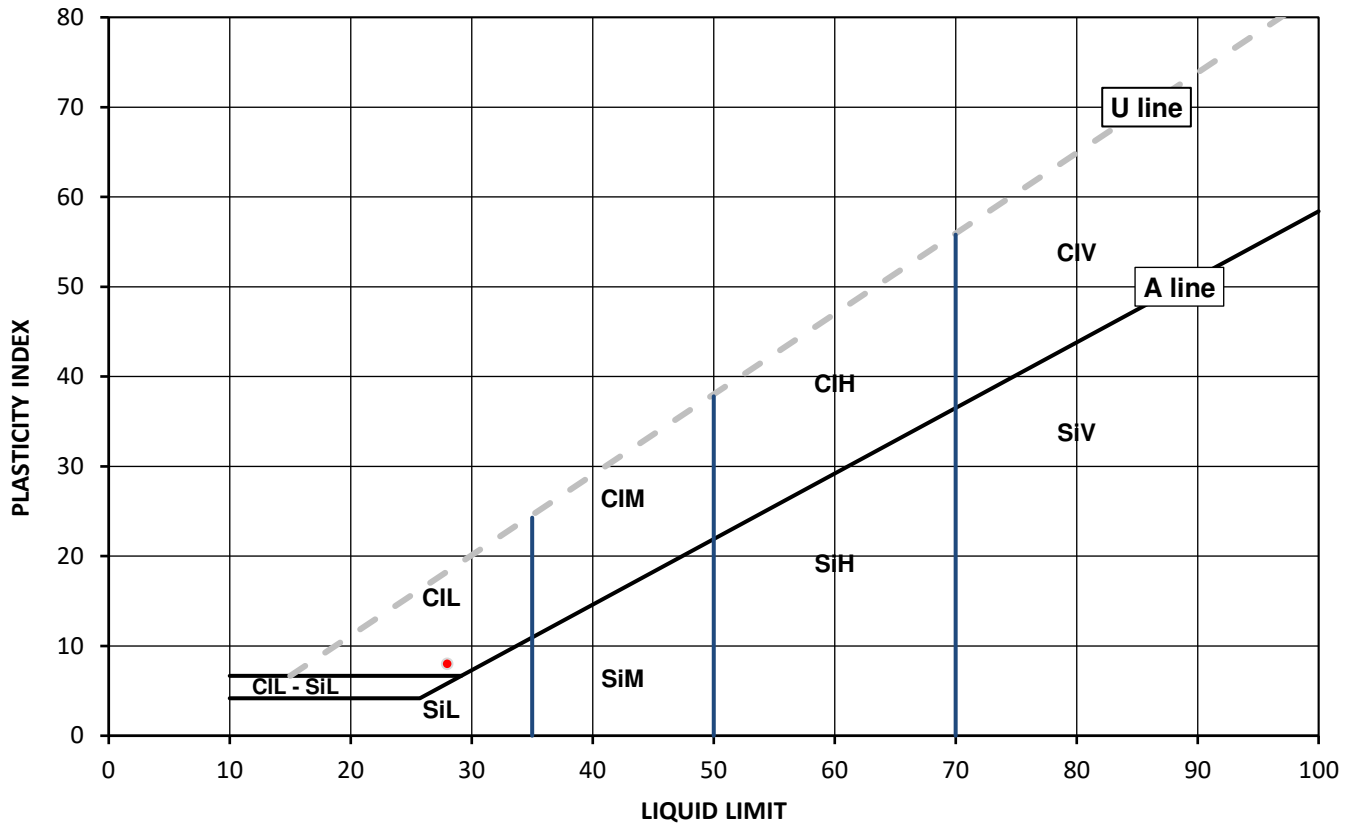
Client:	CURTINS	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-74702
		Date Sampled:	Not Given
		Date Received:	27/07/2022
Contact:	Danny Xu	Date Tested:	08/08/2022
Site Address:	Napier Road, Court	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2369767	Depth Top [m]:	14.00
Hole No.:	BH05	Depth Base [m]:	14.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	White slightly gravelly CHALK with fragments of flintstone		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	28	20	8	96



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 ClHO)

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

Remarks:

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Signed: Dudzinska Anna

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

Date Reported: 17/08/2022

GF 236.12

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street, London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road, Court

Client Reference: 80908
Job Number: 22-74702
Date Sampled: Not Given
Date Received: 27/07/2022
Date Tested: 08/08/2022
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	%		
2369762	BH05	Not Given	2.00	Not Given	B	Brown slightly gravelly CLAY	Atterberg 4 Point	5.3		81	74	37	37						
2369765	BH05	Not Given	10.00	11.50	B	White CHALK		12											
2369766	BH05	Not Given	12.50	13.00	B	White CHALK with flintstone		24											
2369767	BH05	Not Given	14.00	14.50	B	White slightly gravelly CHALK with fragments of flintstone	Atterberg 4 Point	26		96	28	20	8						
2369768	BH05	Not Given	17.50	18.50	B	White CHALK		25											
2369769	BH05	Not Given	20.00	20.50	B	White CHALK		25											
2369770	BH05	Not Given	21.50	22.00	B	White CHALK		27											
2369772	BH05	Not Given	24.52	24.64	C	White CHALK		37											
2369774	BH05	Not Given	27.10	27.28	C	White CHALK		23											
2369777	BH05	Not Given	32.10	32.20	C	White CHALK		20											

Note: # Non accredited; NP - Non plastic

Comments:

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.

Date Reported: 17/08/2022

GF 238.14

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

; 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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street, London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road, Court

Client Reference: 80908
Job Number: 22-74702
Date Sampled: Not Given
Date Received: 27/07/2022
Date Tested: 08/08/2022
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	%		
2369779	BH05	Not Given	34.70	34.90	C	White CHALK		20											

Note: # Non accredited; NP - Non plastic

Comments:

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Signed:

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

Date Reported: 17/08/2022

GF 238.14

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road, Court

Client Reference: 80908
Job Number: 22-74702
Date Sampled: Not Given
Date Received: 27/07/2022
Date Tested: 08/08/2022
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			%				
2369762	BH05	Not Given	2.00	Not Given	B	Brown slightly gravelly CLAY		5.3	Sample was quartered, oven dried at 109 °C			
2369765	BH05	Not Given	10.00	11.50	B	White CHALK		12	Sample was quartered, oven dried at 107.3 °C			
2369766	BH05	Not Given	12.50	13.00	B	White CHALK with flintstone		24	Sample was quartered, oven dried at 107 °C			
2369767	BH05	Not Given	14.00	14.50	B	White slightly gravelly CHALK with fragments of flintstone		26	Sample was quartered, oven dried at 107.3 °C			
2369768	BH05	Not Given	17.50	18.50	B	White CHALK		25	Sample was quartered, oven dried at 107.2 °C			
2369769	BH05	Not Given	20.00	20.50	B	White CHALK		25	Sample was quartered, oven dried at 107.5 °C			
2369770	BH05	Not Given	21.50	22.00	B	White CHALK		27	Sample was quartered, oven dried at 106.9 °C			
2369772	BH05	Not Given	24.52	24.64	C	White CHALK		37	Sample was quartered, oven dried at 106.9 °C			
2369774	BH05	Not Given	27.10	27.28	C	White CHALK		23	Sample was quartered, oven dried at 106.9 °C			
2369777	BH05	Not Given	32.10	32.20	C	White CHALK		20	Sample was quartered, oven dried at 106.9 °C			

Comments:

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.

Signed: Dudzinska Anna

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

Date Reported: 17/08/2022

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road, Court

Client Reference: 80908
Job Number: 22-74702
Date Sampled: Not Given
Date Received: 27/07/2022
Date Tested: 08/08/2022
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			%				
2369779	BH05	Not Given	34.70	34.90	C	White CHALK		20	Sample was quartered, oven dried at 106.9 °C			

Comments:

Signed:

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

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Date Reported: 17/08/2022

GF 099.16

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

UKAS TESTING 4041

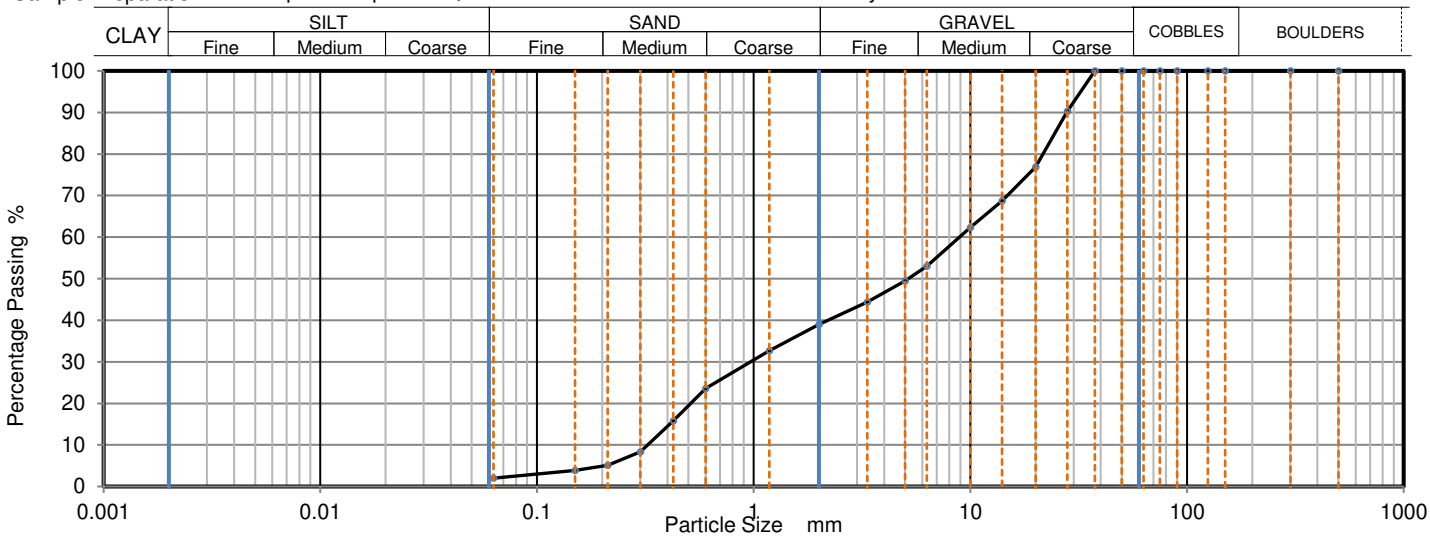
Environmental Science

Client:	CURTINS	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-74702
		Date Sampled:	Not Given
		Date Received:	27/07/2022
Contact:	Danny Xu	Date Tested:	08/08/2022
Site Address:	Napier Road, Court	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2369763	Depth Top [m]:	2.40
Hole No.:	BH05	Depth Base [m]:	3.90
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 107.8 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	90		
20	77		
14	69		
10	62		
6.3	53		
5	50		
3.35	44		
2	39		
1.18	33		
0.6	24		
0.425	16		
0.3	8		
0.212	5		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	61
Sand	36
Fines <0.063mm	3

Grading Analysis		
D100	mm	37.5
D60	mm	8.93
D30	mm	0.964
D10	mm	0.324
Uniformity Coefficient		28
Curvature Coefficient		0.32

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

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Dudzinska Anna

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

Date Reported: 17/08/2022

GF 100.21

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

UKAS TESTING 4041

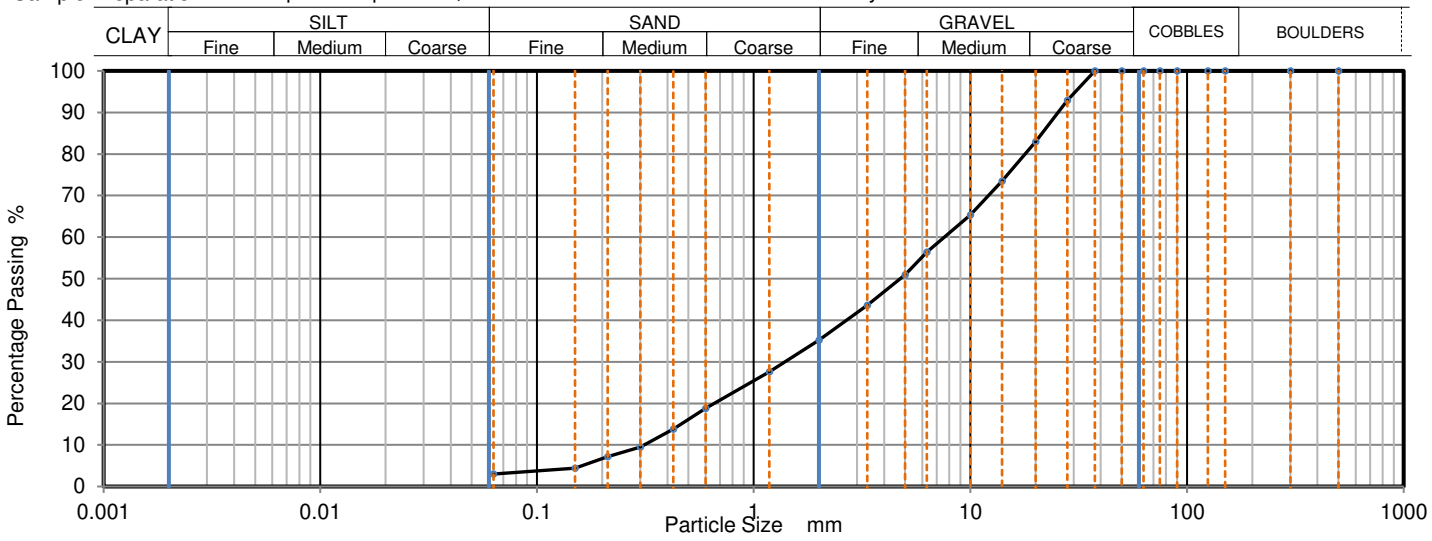
Environmental Science

Client:	CURTINS	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-74702
		Date Sampled:	Not Given
		Date Received:	27/07/2022
Contact:	Danny Xu	Date Tested:	08/08/2022
Site Address:	Napier Road, Court	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2369764	Depth Top [m]:	6.90
Hole No.:	BH05	Depth Base [m]:	8.40
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 107.3 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	83		
14	74		
10	65		
6.3	56		
5	51		
3.35	44		
2	35		
1.18	28		
0.6	19		
0.425	14		
0.3	10		
0.212	7		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	65
Sand	32
Fines <0.063mm	3

Grading Analysis		
D100	mm	37.5
D60	mm	7.61
D30	mm	1.39
D10	mm	0.313
Uniformity Coefficient		24
Curvature Coefficient		0.81

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

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Dudzińska Anna

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

Date Reported: 17/08/2022

GF 100.21

SUMMARY REPORT

METHOD FOR SATURATION MOISTURE CONTENT OF CHALK

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street, London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road, Court

Client Reference: 80908
Job Number: 22-74702
Date Sampled: Not Given
Date Received: 27/07/2022
Date Tested: 08/08-12/08/2022
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	SMC	Bulk density	Dry density	MC	Preparation
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%	
2369765	BH05	Not Given	10.00	11.50	B	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	29	1.86	1.51	23	
2369768	BH05	Not Given	17.50	18.50	B	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	26	1.99	1.59	25	
2369772	BH05	Not Given	24.52	24.64	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.97	1.56	26	
2369774	BH05	Not Given	27.10	27.28	C	White CHALK		23	2.04	1.66	23	
2369775	BH05	Not Given	28.55	28.75	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	1.98	1.62	22	
2369777	BH05	Not Given	32.10	32.20	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	21	2.07	1.73	20	
2369779	BH05	Not Given	34.70	34.90	C	White CHALK		21	2.05	1.71	20	
2369780	BH05	Not Given	36.10	36.30	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	26	1.95	1.58	24	

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

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Signed:

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

Date Reported: 17/08/2022

GF 132.14

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road, Court

Client Reference: 80908
Job Number: 22-74702
Date Sampled: Not Given
Date Received: 27/07/2022
Date Tested: 09/08 - 11/08/2022
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 # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top m	Depth Base m	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN	mm	Is MPa	Is(50) MPa
2369771	BH05	Not Given	22.75	22.85	C	White CHALK	WC = 22.6%	1	A	U	YES	-	92.9	63.0	60.0	0.8	84.2	0.11	0.14
2369773	BH05	Not Given	26.14	26.35	C	White CHALK	WC = 17.4%	1	D	U	YES	105.3	100.0	100.0	93.0	2.3	96.4	0.25	0.33
2369774	BH05	Not Given	27.10	27.28	C	White CHALK	WC = 23.1%	1	D	U	YES	53.6	100.2	100.0	93.0	1.2	96.5	0.12	0.17
2369776	BH05	Not Given	30.36	30.52	C	White CHALK	WC = 16.6%	1	D	U	YES	55.9	99.7	99.0	95.0	0.8	97.3	0.08	0.11
2369778	BH05	Not Given	33.04	33.16	C	White CHALK	WC = 19.0%	1	D	U	YES	73.3	95.3	95.0	85.0	2.1	90.0	0.25	0.33
2369779	BH05	Not Given	34.70	34.90	C	White CHALK	WC = 22.9%	1	D	U	YES	68.4	95.8	95.0	85.0	1.7	90.3	0.21	0.27

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

Signed:

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

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Date Reported: 17/08/2022

GF 134.13

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

4041

Client: Curtins

Client Address: Rose Wharf, Ground Floor,
78-80 East Street, Leeds,
LS9 8EE

Contact: Will Spraggs

Site Address: Napier Road

Client Reference: Not Given
Job Number: 22-77740
Date Sampled: 07/08 - 09/08/2022
Date Received: 11/08/2022
Date Tested: 18/08 - 23/08/2022
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			%				
2386234	BH04	Not Given	15.20	15.50	B	White clayey CHALK		26	Sample was quartered, oven dried at 106 °C			
2386235	BH04	Not Given	16.40	17.00	B	White clayey CHALK		25	Sample was quartered, oven dried at 108.8 °C			
2386236	BH04	Not Given	18.30	Not Given	C	White CHALK		27	Sample was quartered, oven dried at 107.4 °C			
2386238	BH04	Not Given	22.50	Not Given	C	White CHALK		29	Sample was quartered, oven dried at 106.2 °C			
2386239	BH04	Not Given	23.70	Not Given	C	White CHALK		27	Sample was quartered, oven dried at 107.4 °C			
2386240	BH04	Not Given	25.30	Not Given	C	White CHALK		26	Sample was quartered, oven dried at 107.4 °C			
2386241	BH04	Not Given	26.90	Not Given	C	White CHALK		22	Sample was quartered, oven dried at 107 °C			
2386242	BH04	Not Given	28.80	Not Given	C	White CHALK		26	Sample was quartered, oven dried at 106.2 °C			
2386243	BH04	Not Given	30.40	Not Given	C	White CHALK		19	Sample was quartered, oven dried at 106 °C			
2386244	BH07	Not Given	12.00	12.50	B	White clayey CHALK		27	Sample was quartered, oven dried at 106.5 °C			

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 25/08/2022

GF 099.16

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

4041

Client: Curtins

Client Address: Rose Wharf, Ground Floor,
78-80 East Street, Leeds,
LS9 8EE

Contact: Will Spraggs

Site Address: Napier Road

Client Reference: Not Given
Job Number: 22-77740
Date Sampled: 09/08 - 10/08/2022
Date Received: 11/08/2022
Date Tested: 18/08 - 23/08/2022
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			%				
2386245	BH07	Not Given	13.00	14.00	B	White clayey CHALK		29	Sample was quartered, oven dried at 106 °C			
2386246	BH07	Not Given	15.50	15.80	B	White CHALK		30	Sample was quartered, oven dried at 108.8 °C			
2386247	BH07	Not Given	18.20	18.80	B	White CHALK		27	Sample was quartered, oven dried at 107.8 °C			
2386248	BH07	Not Given	20.00	Not Given	C	White CHALK		26	Sample was quartered, oven dried at 106.2 °C			
2386249	BH07	Not Given	21.60	Not Given	C	White CHALK		27	Sample was quartered, oven dried at 106.2 °C			
2386250	BH07	Not Given	22.70	Not Given	C	White CHALK		28	Sample was quartered, oven dried at 106.2 °C			
2386251	BH07	Not Given	23.60	Not Given	C	White CHALK		26	Sample was quartered, oven dried at 107 °C			
2386252	BH07	Not Given	25.40	Not Given	C	White CHALK		21	Sample was quartered, oven dried at 106.2 °C			
2386253	BH07	Not Given	27.50	Not Given	C	White CHALK		24	Sample was quartered, oven dried at 106.2 °C			

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 25/08/2022

GF 099.16

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

UKAS TESTING 4041

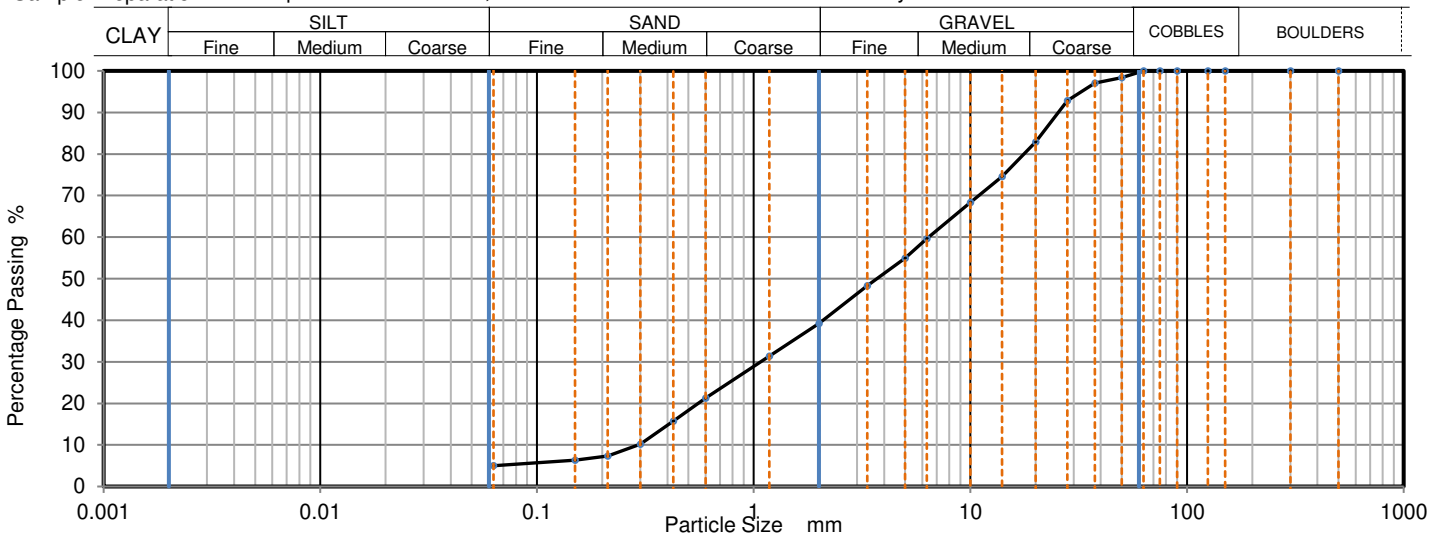
Environmental Science

Client:	Curtins	Client Reference:	Not Given
Client Address:	Rose Wharf, Ground Floor, 78-80 East Street, Leeds, LS9 8EE	Job Number:	22-77740
		Date Sampled:	07/08/2022
		Date Received:	11/08/2022
Contact:	Will Spraggs	Date Tested:	18/08/2022
Site Address:	Napier Road	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2386233	Depth Top [m]:	2.20
Hole No.:	BH04	Depth Base [m]:	3.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown clayey very sandy GRAVEL		
Sample Preparation:	Sample was whole tested, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	98		
37.5	97		
28	93		
20	83		
14	75		
10	68		
6.3	60		
5	55		
3.35	48		
2	39		
1.18	31		
0.6	21		
0.425	16		
0.3	10		
0.212	7		
0.15	6		
0.063	6		

Sample Proportions	% dry mass
Very coarse	0
Gravel	61
Sand	34
Fines <0.063mm	6

Grading Analysis		
D100	mm	63
D60	mm	6.43
D30	mm	1.07
D10	mm	0.292
Uniformity Coefficient		22
Curvature Coefficient		0.61

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

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 25/08/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF THE CALIFORNIA BEARING RATIO (CBR)

Tested in Accordance with: BS 1377-4: 1990: Clause 7

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

UKAS TESTING 4041

Environmental Science

Client:	Curtins	Client Reference:	Not Given
Client Address:	Rose Wharf, Ground Floor, 78-80 East Street, Leeds, LS9 8EE	Job Number:	22-77740
		Date Sampled:	07/08/2022
		Date Received:	11/08/2022
Contact:	Will Spraggs	Date Tested:	24/08/2022
Site Address:	Napier Road	Sampled By:	Not Given

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

Test Results:

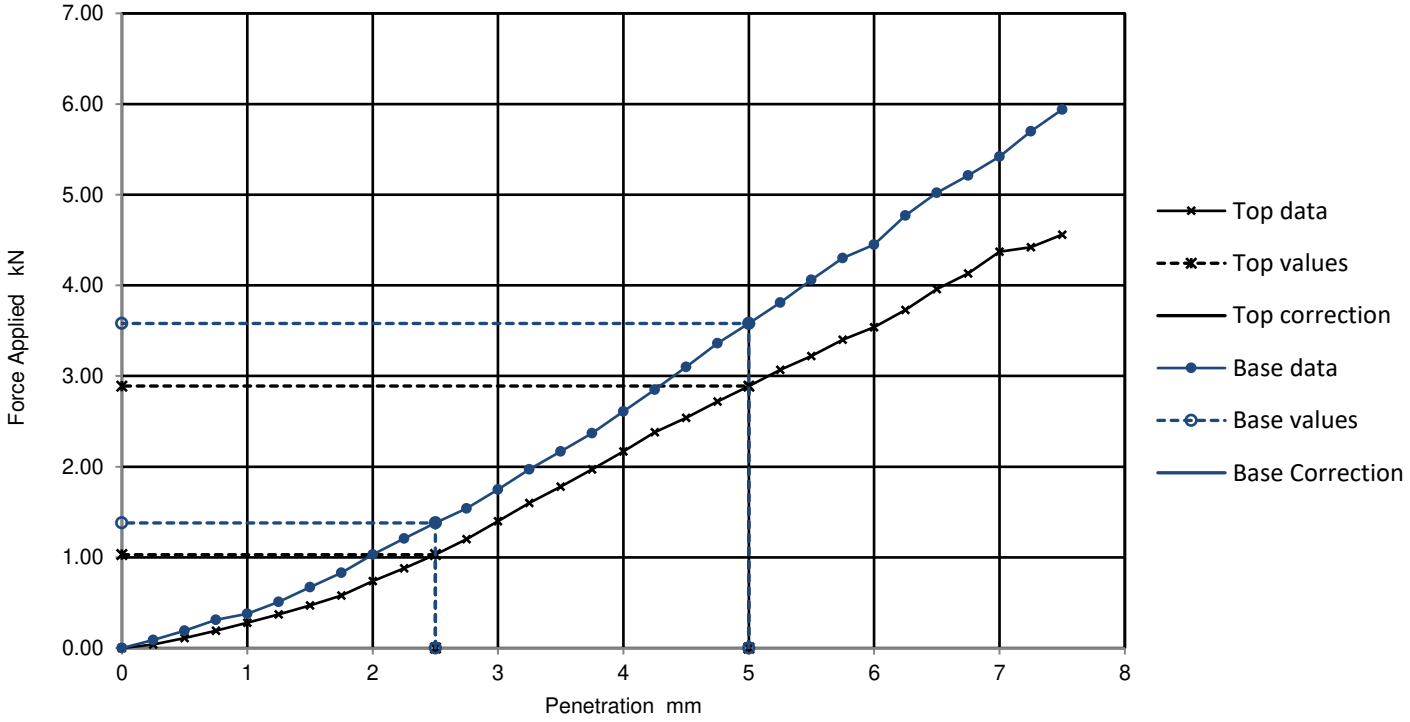
Laboratory Reference:	2386232	Depth Top [m]:	0.40
Hole No.:	BH07	Depth Base [m]:	0.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark brown sandy gravelly CLAY		

Specimen Preparation:

Condition	Remoulded	Soaking details	Not soaked
Details	Recompacted with specified standard effort using 2.5kg rammer	Period of soaking	days
		Time to surface	days
		Amount of swell recorded	mm
Material retained on 20mm sieve removed	15 %	Dry density after soaking	Mg/m3

Initial Specimen details	Bulk density	2.10	Mg/m3	Surcharge applied	8 kg
	Dry density	1.86	Mg/m3		4.9 kPa
	Moisture content	13	%		

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	7.8	14.0	14.0		13
BASE	No	10.0	18.0	18.0		12

Remarks:

Test/ Specimen specific remarks:

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Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 25/08/2022

GF 108.16

SUMMARY REPORT

METHOD FOR SATURATION MOISTURE CONTENT OF CHALK

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

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

4041

Client: Curtins

Client Address: Rose Wharf, Ground Floor,
78-80 East Street, Leeds,
LS9 8EE

Contact: Will Spraggs

Site Address: Napier Road

Client Reference: Not Given
Job Number: 22-77740
Date Sampled: 07/08 - 10/08/2022
Date Received: 11/08/2022
Date Tested: 23/08/2022
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	SMC	Bulk density	Dry density	MC	Preparation
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%	
2386235	BH04	Not Given	16.40	17.00	B	White clayey CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	24	2.01	1.63	24	
2386236	BH04	Not Given	18.30	Not Given	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.00	1.60	25	
2386239	BH04	Not Given	23.70	Not Given	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	28	1.95	1.54	27	
2386240	BH04	Not Given	25.30	Not Given	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.97	1.56	26	
2386246	BH07	Not Given	15.50	15.80	B	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.02	1.62	25	
2386247	BH07	Not Given	18.20	18.80	B	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.01	1.61	25	
2386251	BH07	Not Given	23.60	Not Given	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	29	1.94	1.52	28	
2386254	BH07	Not Given	28.30	Not Given	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	23	2.03	1.68	21	
2386256	BH07	Not Given	32.70	Not Given	C	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.00	1.60	25	

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 25/08/2022

GF 132.14

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: Curtins

Client Address: Rose Wharf, Ground Floor,
78-80 East Street, Leeds,
LS9 8EE

Contact: Will Spraggs

Site Address: Napier Road

Client Reference: Not Given
Job Number: 22-77740
Date Sampled: 07/08 - 10/08/2022
Date Received: 11/08/2022
Date Tested: 19/08/2022
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 # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
2386237	BH04	Not Given	22.40	Not Given	C	White CHALK	WC = 27.6%	1	D	U	YES	65.1	96.6	95.0	88.0	1.0	92.2	0.12	0.15
2386239	BH04	Not Given	23.70	Not Given	C	White CHALK	WC = 27.9%	1	I	U	YES	62.3	110.2	74.0	65.0	1.3	95.5	0.14	0.18
2386242	BH04	Not Given	28.80	Not Given	C	White CHALK	WC = 24.0%	1	D	U	YES	91.1	98.3	98.0	90.0	0.8	94.0	0.09	0.12
2386248	BH07	Not Given	20.00	Not Given	C	White CHALK	WC = 25.8%	1	I	L	YES	44.2	98.5	65.0	44.0	0.5	74.3	0.09	0.11
2386250	BH07	Not Given	22.70	Not Given	C	White CHALK	WC = 28.4%	1	D	U	YES	68.5	92.9	99.0	98.0	0.5	95.4	0.05	0.07
2386252	BH07	Not Given	25.40	Not Given	C	White CHALK	WC = 20.6%	1	D	U	YES	58.0	98.3	97.0	92.0	0.2	95.1	0.02	0.03
2386253	BH07	Not Given	27.50	Not Given	C	White CHALK	WC = 24.3%	1	D	U	YES	54.2	94.2	95.0	86.0	1.0	90.0	0.12	0.15
2386254	BH07	Not Given	28.30	Not Given	C	White CHALK	WC = 22.4%	1	D	U	YES	124.0	98.3	96.0	90.0	1.3	94.1	0.15	0.20
2386257	BH07	Not Given	35.00	Not Given	C	White CHALK	WC = 24.6%	1	D	U	YES	72.1	96.7	98.0	90.0	1.5	93.3	0.17	0.23

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

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Date Reported: 25/08/2022

GF 134.13

SUMMARY REPORT

DETERMINATION OF UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Tested in Accordance with: ISRM, 2007, p153, part 1

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

4041

Client: Curtins

Client Address: Rose Wharf, Ground Floor,
78-80 East Street, Leeds,
LS9 8EE

Contact: Will Spraggs

Site Address: Napier Road

Client Reference: Not Given
Job Number: 22-77740
Date Sampled: 07/08 - 10/08/2022
Date Received: 11/08/2022
Date Tested: 23/08/2022
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	Specimen Dimensions (2)				Bulk density (2)	Water Content (1)	Uniaxial Compression (3)			
		Reference	Depth Top m	Depth Base m	Type			Diameter mm	Length mm	H/D	Orientation of sample	Mg/m3	%	Condition	Stress Rate Mpa/s	Mode of failure	UCS Mpa
2386238	BH04	Not Given	22.50	Not Given	C	White CHALK	Sample is below recommended length to diameter ratio*	96.1	78.8	0.8	Vertical	1.94	28.9	as received	0.0138	MS + AC	2.59
2386241	BH04	Not Given	26.90	Not Given	C	White CHALK	Sample is below recommended length to diameter ratio*	100.0	119.1	1.2	Vertical	2.07	21.9	as received	0.0127	S	3.57
2386243	BH04	Not Given	30.40	Not Given	C	White CHALK	Sample is below recommended length to diameter ratio.	95.4	66.1	0.7	Vertical	2.09	18.8	as received	0.0140	MS + AC	5.36
2386249	BH07	Not Given	21.60	Not Given	C	White CHALK	Sample is below recommended length to diameter ratio*	94.3	161.9	1.7	Vertical	1.97	27.3	as received	0.0143	S	2.09
2386255	BH07	Not Given	29.60	Not Given	C	White CHALK	Sample is below recommended length to diameter ratio.	97.9	125.9	1.3	Vertical	3.18	16.7	as received	0.0133	MS + AC	6.20

Note: 1 - ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS, 2 - ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density, 3 - ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials, above notes apply unless annotated otherwise in the remarks. Compaction machine: VJ Tech AUTOCON - VJT 51-3011; Mode of failure legend: S - Single shear, MS - multiple shear, AC - Axial cleavage, F - Fragmented

Comments: *Duration of test, fell below time specified in ISRM method, 2007, p153, part1.

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 25/08/2022

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road Court

Client Reference: 80908
Job Number: 22-72260
Date Sampled: Not Given
Date Received: 12/07/2022
Date Tested: 26/07/2022
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			%				
2355411	BH02	Not Given	1.20	1.65	B	Brown mottled grey CLAY		93	Sample was quartered, oven dried at 109 °C			
2355414	BH02	Not Given	8.00	8.45	B	White CHALK		23	Sample was quartered, oven dried at 109 °C			
2355415	BH02	Not Given	12.00	12.50	B	White CHALK with flintstone		24	Sample was quartered, oven dried at 109 °C			
2355416	BH02	Not Given	15.00	15.50	B	White CHALK		26	Sample was quartered, oven dried at 109 °C			
2355417	BH02	Not Given	15.50	15.95	B	White CHALK		25	Sample was quartered, oven dried at 108.6 °C			
2355418	BH02	Not Given	18.40	18.80	B	White CHALK with flintstone		26	Sample was quartered, oven dried at 106.9 °C			
2355420	BH02	Not Given	19.90	20.00	U	White CHALK		25	Sample was quartered, oven dried at 109 °C			
2355432	BH02	Not Given	20.20	20.30	U	White CHALK		22	Sample was quartered, oven dried at 106.8 °C			
2355433	BH02	Not Given	24.16	24.31	U	White CHALK		26	Sample was quartered, oven dried at 108.5 °C			
2355430	BH02	Not Given	25.68	26.80	U	White CHALK		19	Sample was quartered, oven dried at 108.6 °C			

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2022

GF 099.16

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road Court

Client Reference: 80908
Job Number: 22-72260
Date Sampled: Not Given
Date Received: 12/07/2022
Date Tested: 26/07/2022
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			%				
2355425	BH02	Not Given	31.65	31.77	U	White CHALK		23	Sample was quartered, oven dried at 109 °C			
2355427	BH02	Not Given	36.40	36.60	U	White CHALK		23	Sample was quartered, oven dried at 109 °C			
2355434	BH02	Not Given	37.44	37.57	U	White CHALK		26	Sample was quartered, oven dried at 108.6 °C			
2355429	BH02	Not Given	40.65	40.98	U	White CHALK		21	Sample was quartered, oven dried at 108.6 °C			

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2022

GF 099.16

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

UKAS TESTING 4041

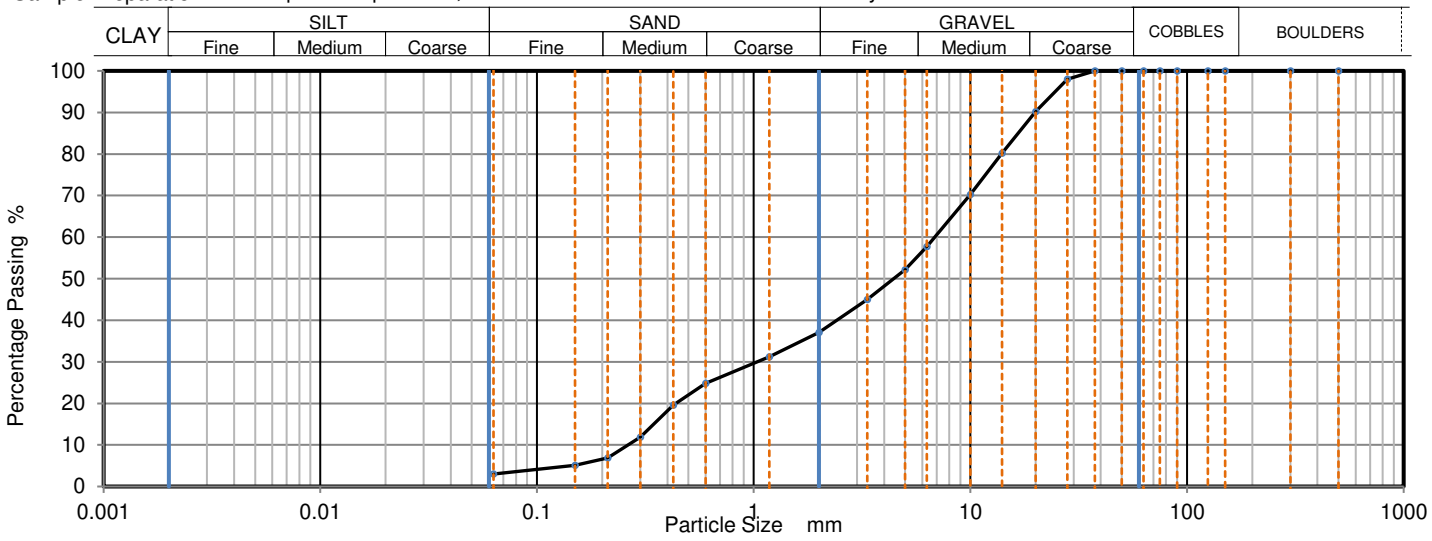
Environmental Science

Client:	CURTINS	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-72260
		Date Sampled:	Not Given
		Date Received:	12/07/2022
Contact:	Danny Xu	Date Tested:	26/07/2022
Site Address:	Napier Road Court	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2355412	Depth Top [m]:	3.00
Hole No.:	BH02	Depth Base [m]:	4.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 108.6 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	90		
14	80		
10	70		
6.3	58		
5	52		
3.35	45		
2	37		
1.18	31		
0.6	25		
0.425	20		
0.3	12		
0.212	7		
0.15	5		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	63
Sand	34
Fines <0.063mm	3

Grading Analysis		
D100	mm	37.5
D60	mm	6.84
D30	mm	1.04
D10	mm	0.263
Uniformity Coefficient		26
Curvature Coefficient		0.6

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

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2022

GF 100.21

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

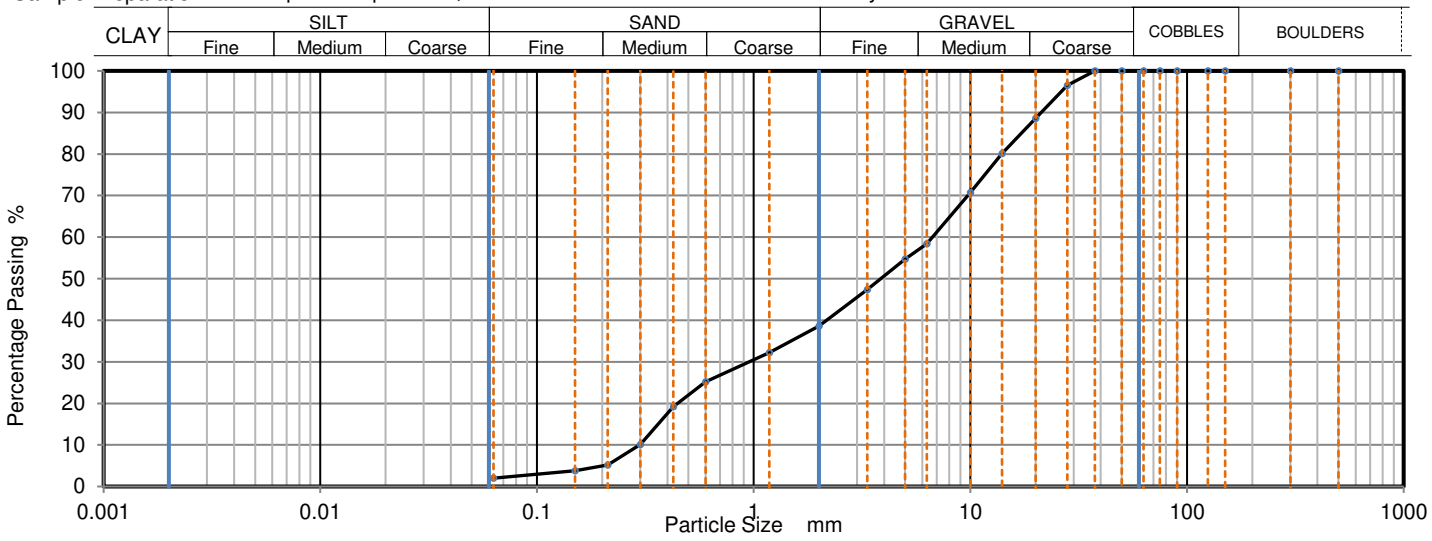
4041

Client:	CURTINS	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-72260
		Date Sampled:	Not Given
		Date Received:	12/07/2022
Contact:	Danny Xu	Date Tested:	26/07/2022
Site Address:	Napier Road Court	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2355413	Depth Top [m]:	5.80
Hole No.:	BH02	Depth Base [m]:	6.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	89		
14	80		
10	71		
6.3	58		
5	55		
3.35	47		
2	39		
1.18	32		
0.6	25		
0.425	19		
0.3	10		
0.212	5		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	61
Sand	36
Fines <0.063mm	2

Grading Analysis		
D100	mm	37.5
D60	mm	6.68
D30	mm	0.954
D10	mm	0.298
Uniformity Coefficient		22
Curvature Coefficient		0.46

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

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2022

GF 100.21

SUMMARY REPORT

METHOD FOR SATURATION MOISTURE CONTENT OF CHALK

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road Court

Client Reference: 80908
Job Number: 22-72260
Date Sampled: Not Given
Date Received: 12/07/2022
Date Tested: 26/07 - 01/08/2022
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	SMC	Bulk density	Dry density	MC	Preparation
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%	
2355419	BH02	Not Given	16.50	17.00	B	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	28	1.95	1.55	26	
2355435	BH02	Not Given	21.74	21.80	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	27	1.96	1.57	25	
2355421	BH02	Not Given	23.00	23.08	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	30	1.93	1.48	30	
2355430	BH02	Not Given	25.68	26.80	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	21	2.08	1.72	21	
2355436	BH02	Not Given	27.36	27.53	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	26	1.98	1.60	24	
2355424	BH02	Not Given	28.08	28.24	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	21	2.06	1.72	20	
2355431	BH02	Not Given	29.65	29.80	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	20	2.09	1.75	19	
2355426	BH02	Not Given	33.60	33.80	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	24	1.99	1.63	22	
2355437	BH02	Not Given	34.09	34.21	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	21	2.09	1.74	20	
2355428	BH02	Not Given	39.25	39.45	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.00	1.60	25	

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

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.

Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2022

GF 132.14

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road Court

Client Reference: 80908
Job Number: 22-72260
Date Sampled: Not Given
Date Received: 12/07/2022
Date Tested: 11/07 - 29/07/2022
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 # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
2355420	BH02	Not Given	19.90	20.00	U	White CHALK	WC = 24.9%	1	A	U	YES	-	99.8	55.0	49.0	0.8	78.9	0.13	0.16
2355421	BH02	Not Given	23.00	23.08	U	White CHALK	WC = 28.7%	1	D	U	YES	55.2	100.2	100.0	96.0	0.8	98.1	0.08	0.11
2355422	BH02	Not Given	23.37	23.50	U	White CHALK	WC = 28.7%	1	D	U	YES	73.2	99.4	99.0	86.0	1.1	92.5	0.12	0.16
2355423	BH02	Not Given	24.01	24.16	U	White CHALK	WC = 22.5%	1	D	U	YES	64.8	100.5	100.0	92.0	1.4	96.2	0.15	0.20
2355430	BH02	Not Given	25.68	26.80	U	White CHALK	WC = 19.2%	1	D	U	YES	65.3	68.3	98.0	96.0	1.1	81.0	0.16	0.20
2355424	BH02	Not Given	28.08	28.24	U	White CHALK	WC = 23.5%	1	D	U	YES	57.7	99.0	99.0	90.0	1.7	94.4	0.19	0.25
2355425	BH02	Not Given	31.65	31.77	U	White CHALK	WC = 22.6%	1	D	U	YES	84.7	97.8	97.0	72.0	2.6	83.9	0.37	0.47
2355426	BH02	Not Given	33.60	33.80	U	White CHALK	WC = 22.5%	1	D	U	YES	92.4	100.4	100.0	88.0	1.8	94.0	0.20	0.27
2355427	BH02	Not Given	36.40	36.60	U	White CHALK	WC = 23.3%	1	D	U	YES	70.4	49.0	21.0	99.0	1.3	69.6	0.26	0.30
2355428	BH02	Not Given	39.25	39.45	U	White CHALK	WC = 21.4%	1	D	U	YES	65.2	100.4	100.0	95.0	1.4	97.7	0.14	0.19

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

Signed:

Monika Siewior
Reporting Specialist
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.

Date Reported: 03/08/2022

GF 134.13

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: CURTINS

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road Court

Client Reference: 80908
Job Number: 22-72260
Date Sampled: Not Given
Date Received: 12/07/2022
Date Tested: 09/07/2022
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 # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top m	Depth Base m	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN	mm	Is MPa	Is(50) MPa
2355429	BH02	Not Given	40.65	40.98	U	White CHALK	WC = 21.0%	1	D	U	YES	87.1	102.4	100.0	96.0	1.0	99.1	0.10	0.13

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 03/08/2022

GF 134.13

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78456
Date Sampled: Not Given
Date Received: 28/07/2022
Date Tested: 23/08 - 26/08/2022
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			%				
2390976	BH03	Not Given	10.50	11.00	D	White CHALK		26	Sample was quartered, oven dried at 107.4 °C			
2390977	BH03	Not Given	12.50	14.00	D	White CHALK		27	Sample was quartered, oven dried at 107.4 °C			
2390978	BH03	Not Given	15.50	17.00	D	White CHALK		27	Sample was quartered, oven dried at 107.4 °C			
2390980	BH03	Not Given	21.02	21.25	U	White CHALK		27	Sample was quartered, oven dried at 107.4 °C			
2390984	BH03	Not Given	27.00	27.25	U	White CHALK		17	Sample was quartered, oven dried at 107.2 °C			

Comments:

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Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 31/08/2022

GF 099.16

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

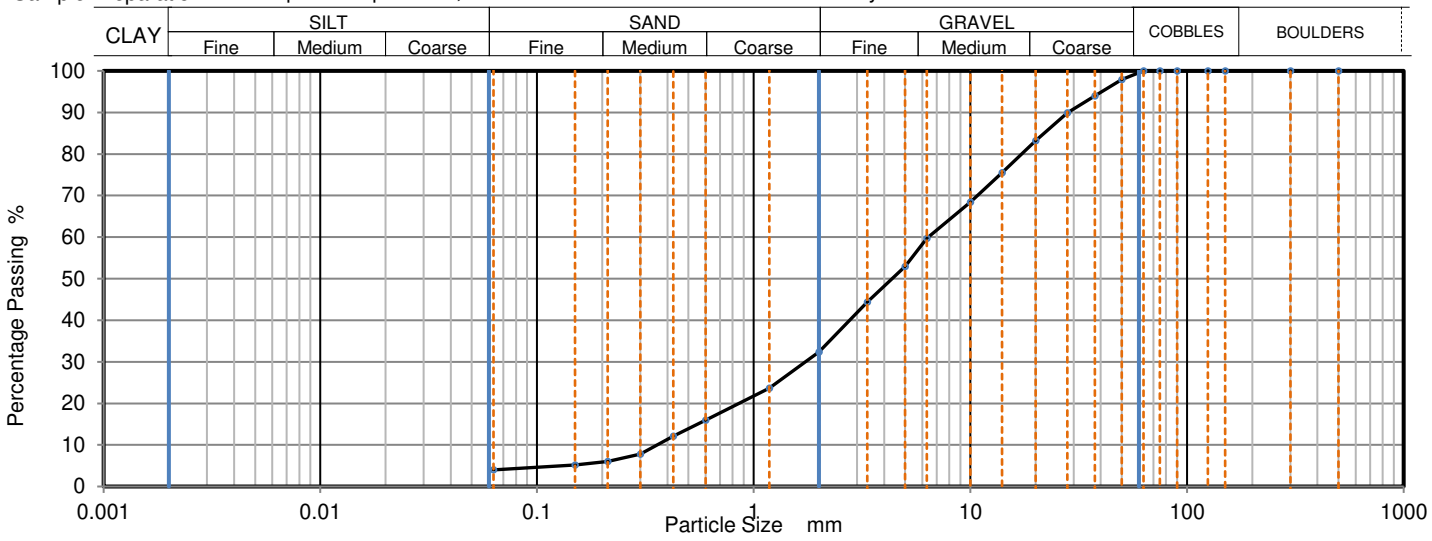
4041

Client:	Curtins	Client Reference:	80908
Client Address:	Units 5/6, 40 Compton Street, London, EC1V 0BD	Job Number:	22-78456
		Date Sampled:	Not Given
		Date Received:	28/07/2022
Contact:	Danny Xu	Date Tested:	23/08/2022
Site Address:	Napier Road	Sampled By:	Not Given

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

Test Results:

Laboratory Reference:	2390975	Depth Top [m]:	4.50
Hole No.:	BH03	Depth Base [m]:	5.00
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly clayey sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 107.3 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	98		
37.5	94		
28	90		
20	83		
14	76		
10	68		
6.3	60		
5	53		
3.35	44		
2	32		
1.18	24		
0.6	16		
0.425	12		
0.3	8		
0.212	6		
0.15	5		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	68
Sand	28
Fines <0.063mm	5

Grading Analysis		
D100	mm	63
D60	mm	6.41
D30	mm	1.73
D10	mm	0.358
Uniformity Coefficient		18
Curvature Coefficient		1.3

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

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

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Signed: Monika Siewior

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 31/08/2022

GF 100.21

SUMMARY REPORT

METHOD FOR SATURATION MOISTURE CONTENT OF CHALK

Tested in Accordance with: BS 1377-2: 1990: Clause 3.3

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78456
Date Sampled: Not Given
Date Received: 28/07/2022
Date Tested: 24/08/2022
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	SMC	Bulk density	Dry density	MC	Preparation
		Reference	Depth Top m	Depth Base m	Type			%	Mg/m3	Mg/m3	%	
2390979	BH03	Not Given	19.51	19.67	U	White CHALK		26	1.99	1.59	25	
2390980	BH03	Not Given	21.02	21.25	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	26	1.99	1.58	26	
2390982	BH03	Not Given	23.80	23.90	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	25	2.00	1.61	24	
2390984	BH03	Not Given	27.00	27.25	U	White CHALK		23	1.95	1.66	17	
2390985	BH03	Not Given	29.00	29.10	U	White CHALK	Supplied lump of chalk fails to comply with volume requirements as per BS1377:2 Clause 3.3.5.1	20	2.05	1.74	18	

Note: SMC - Saturation Moisture Content; MC - Moisture Content

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 31/08/2022

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

Tested in Accordance with: ISRM: 2007, pages 125-132

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

4041

Client: Curtins

Client Address: Units 5/6, 40 Compton Street,
London, EC1V 0BD

Contact: Danny Xu

Site Address: Napier Road

Client Reference: 80908
Job Number: 22-78456
Date Sampled: Not Given
Date Received: 28/07/2022
Date Tested: 23/08 - 25/08/2022
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 # (including water content if measured)	Specimen Reference	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index	
		Reference	Depth Top	Depth Base	Type				Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)
			m	m								mm	mm	mm	mm	kN	mm	MPa	MPa
2390980	BH03	Not Given	21.02	21.25	U	White CHALK	WC = 26.1%	1	D	U	YES	86.6	100.4	100.0	89.0	1.0	94.5	0.11	0.15
2390981	BH03	Not Given	22.63	22.73	U	White CHALK	WC = 24.8%	1	D	U	YES	59.1	95.3	95.0	88.0	0.9	91.6	0.10	0.13
2390983	BH03	Not Given	25.85	26.00	U	White CHALK	WC = 19.4%	1	D	U	YES	84.0	93.9	92.0	89.0	0.9	91.4	0.11	0.14

Note: # non accredited; Test Type: D - Diametral, A - Axial, I - Irregular Lump, B - Block; Direction: L - parallel to planes of weakness, P - perpendicular to planes of weakness, U - unknown or random;
Dimensions: Dps - Distance between platens (platen separation), Dps' - at failure (see ISRM note 6), Lne - Length from platens to nearest free end W - Width of shortest dimension perpendicular to load, P;
Detailed legend for test and dimensions, based on ISRM, is shown above; Size factor, F = (De/50)0.45 for all tests

Comments:

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Signed:

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 31/08/2022

GF 134.13

Danny Xu
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Analytical Report Number : 22-74708

Project / Site name:	Napier Road, Court	**Samples received on:**	27/07/2022
Your job number:	80908	**Samples instructed on/ Analysis started on:**	29/07/2022
Your order number:	EBLO928	**Analysis completed by:**	12/08/2022
Report Issue Number:	1	**Report issued on:**	15/08/2022
Samples Analysed:	13 soil samples		

Signed:

Joanna Wawrzeczko
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.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-74708
Project / Site name: Napier Road, Court
Your Order No: EBLO928

Lab Sample Number				2369790	2369791	2369792	2369793	2369794
Sample Reference				BH05	BH05	BH05	BH05	BH05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	3.90-5.40	6.90-8.40	10.00-11.50	12.50-13.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	< 0.1	37	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	6.3	6	5.6	15	18
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	8.6	8.4	8.7	8.7
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	42	20	31	33	37
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.021	0.01	0.015	0.016	0.019
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	21.1	10	15.3	16.4	18.7

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-74708
Project / Site name: Napier Road, Court
Your Order No: EBLO928

Lab Sample Number				2369795	2369796	2369797	2369798	2369799
Sample Reference				BH05	BH05	BH05	BH05	BH05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				14.00-14.50	17.50-18.50	20.00-20.50	21.50-22.00	22.75-22.85
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	23	20	21	22
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.4	8.3	8.7	8.7
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	35	45	35	40	36
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.017	0.023	0.018	0.02	0.018
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.4	22.6	17.6	20	18.2

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-74708
Project / Site name: Napier Road, Court
Your Order No: EBLO928

Lab Sample Number				2369800	2369801	2369802
Sample Reference				BH05	BH05	BH05
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				26.14-26.35	30.36-30.52	33.04-33.16
Date Sampled				Deviating	Deviating	Deviating
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	17	16	19
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.5	8.5
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	34	95	90
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.017	0.047	0.045
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.2	47.4	45

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-74708
Project / Site name: Napier Road, 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
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.

Sample Deviation Report

Analytical Report Number : 22-74708
Project / Site name: Napier Road, Court

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH05	None Supplied	S	2369790	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369791	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369792	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369793	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369794	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369795	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369796	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369797	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369798	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369799	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369800	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369801	a	None Supplied	None Supplied	None Supplied
BH05	None Supplied	S	2369802	a	None Supplied	None Supplied	None Supplied

Will Spraggs
Curtins
Rose Wharf
Ground Floor
78-80 East Street
Leeds
LS9 8EE

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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 : 22-77742

Project / Site name:	Napier Road	**Samples received on:**	11/08/2022
Your job number:		**Samples instructed on/ Analysis started on:**	11/08/2022
Your order number:	EBLO944	**Analysis completed by:**	25/08/2022
Report Issue Number:	1	**Report issued on:**	25/08/2022
Samples Analysed:	7 soil 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

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.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-77742
Project / Site name: Napier Road
Your Order No: EBLO944

Lab Sample Number				2386260	2386261	2386262	2386263	2386264
Sample Reference				BH04	BH04	BH04	BH04	BH07
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.20-3.70	15.20-15.50	22.40	28.80	15.50-15.80
Date Sampled				07/08/2022	07/08/2022	07/08/2022	07/08/2022	10/08/2022
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	52	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	3.9	17	20	18	11
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.9	1.2	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9	9.5	7.4	7.7	9.7
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.013	0.018	0.028	0.029	0.024

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-77742
Project / Site name: Napier Road
Your Order No: EBLO944

Lab Sample Number				2386265	2386266
Sample Reference				BH07	BH07
Sample Number				None Supplied	None Supplied
Depth (m)				23.60	29.60
Date Sampled				10/08/2022	10/08/2022
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	13	13
Total mass of sample received	kg	0.001	NONE	0.3	0.3
General Inorganics					
pH - Automated	pH Units	N/A	MCERTS	8.9	8.4
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.051

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-77742
Project / Site name: Napier Road

* 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 *
2386260	BH04	None Supplied	2.20-3.70	Light brown sand with gravel and stones.
2386261	BH04	None Supplied	15.20-15.50	Beige clay with chalk.
2386262	BH04	None Supplied	22.4	Beige chalk.**
2386263	BH04	None Supplied	28.8	Beige chalk.**
2386264	BH07	None Supplied	15.50-15.80	Beige clay with chalk and gravel
2386265	BH07	None Supplied	23.6	White clay and sand with chalk.
2386266	BH07	None Supplied	29.6	White clay and sand with chalk.

**NON MCERTS MATRIX

Analytical Report Number : 22-77742
Project / Site name: Napier Road

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

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.

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Analytical Report Number : 22-78460

Project / Site name:	Napier Road	**Samples received on:**	28/07/2022
Your job number:	80908	**Samples instructed on/ Analysis started on:**	16/08/2022
Your order number:	EBLO943	**Analysis completed by:**	30/08/2022
Report Issue Number:	1	**Report issued on:**	30/08/2022
Samples Analysed:	6 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.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-78460
Project / Site name: Napier Road
Your Order No: EBLO943

Lab Sample Number				2390990	2390991	2390992	2390993	2390994
Sample Reference				BH03	BH03	BH03	BH03	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				11.00-12.50	15.50-17.00	19.51-19.67	22.63-22.73	25.85-26.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	17	20	20	16
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.6	0.6	1

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	8.6	9.2	9.2	9.1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.017	0.048	0.06	0.05

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-78460
Project / Site name: Napier Road
Your Order No: EBLO943

Lab Sample Number				2390995
Sample Reference				BH03
Sample Number				None Supplied
Depth (m)				29.00-29.10
Date Sampled				Deviating
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	15
Total mass of sample received	kg	0.001	NONE	1

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.8
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.077

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

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Analytical Report Number : 22-78460
Project / Site name: Napier Road

* 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 *
2390990	BH03	None Supplied	11.00-12.50	Beige clay and sand with gravel and chalk.
2390991	BH03	None Supplied	15.50-17.00	Beige clay and sand with gravel and chalk.
2390992	BH03	None Supplied	19.51-19.67	Beige chalk.**
2390993	BH03	None Supplied	22.63-22.73	Beige chalk.**
2390994	BH03	None Supplied	25.85-26.00	Beige chalk.**
2390995	BH03	None Supplied	29.00-29.10	Beige chalk.**

**Non MCERTS Matrix.

Analytical Report Number : 22-78460
Project / Site name: Napier Road

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

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.

Sample Deviation Report

Analytical Report Number : 22-78460
Project / Site name: Napier Road

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH03	None Supplied	S	2390990	a	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2390991	a	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2390992	a	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2390993	a	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2390994	a	None Supplied	None Supplied	None Supplied
BH03	None Supplied	S	2390995	a	None Supplied	None Supplied	None Supplied

Key: **a** - No sampling date **b** - Incorrect container
c - Holding time **d** - Headspace **e** - Temperature

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Analytical Report Number : 22-78978

Project / Site name:	Napier Road	**Samples received on:**	03/08/2022
Your job number:	80908	**Samples instructed on/ Analysis started on:**	19/08/2022
Your order number:	EBLO951	**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

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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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 22-78978
Project / Site name: Napier Road
Your Order No: EBLO951

Lab Sample Number				2394814	2394815	2394816	2394817	2394818
Sample Reference				BH01	BH01	BH01	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00	5.00-5.90	9.50-11.00	13.00-14.00	16.90-17.00
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
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	1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	5.8	22	20	20
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	8.4	8.7	8.7	8.9
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.43	0.024	0.051	0.033	0.015

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 22-78978
Project / Site name: Napier Road
Your Order No: EBLO951

Lab Sample Number				2394819	2394820	2394821	2394822
Sample Reference				BH01	BH01	BH01	BH01
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				19.85-20.00	25.32-25.47	28.43-28.69	31.10-31.30
Date Sampled				Deviating	Deviating	Deviating	Deviating
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	18	13	17	14
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.4	0.4
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	8.9	9.0	8.6	8.3
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.021	0.057	0.033	0.43

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

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Analytical Report Number : 22-78978
Project / Site name: Napier Road

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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 *
2394814	BH01	None Supplied	3	Brown clay and sand with gravel.
2394815	BH01	None Supplied	5.00-5.90	Brown sand with gravel and stones.
2394816	BH01	None Supplied	9.50-11.00	Beige clay and sand with chalk.
2394817	BH01	None Supplied	13.00-14.00	Beige clay and sand with chalk.
2394818	BH01	None Supplied	16.90-17.00	White chalk.
2394819	BH01	None Supplied	19.85-20.00	White chalk.
2394820	BH01	None Supplied	25.32-25.47	Beige chalk.
2394821	BH01	None Supplied	28.43-28.69	Light grey chalk.
2394822	BH01	None Supplied	31.10-31.30	Light grey chalk.

Analytical Report Number : 22-78978
Project / Site name: Napier Road

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

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.

Sample Deviation Report

Analytical Report Number : 22-78978
Project / Site name: Napier Road

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	None Supplied	S	2394814	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394815	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394816	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394817	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394818	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394819	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394820	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394821	a	None Supplied	None Supplied	None Supplied
BH01	None Supplied	S	2394822	a	None Supplied	None Supplied	None Supplied

Key: **a** - No sampling date **b** - Incorrect container
c - Holding time **d** - Headspace **e** - Temperature

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Tel: 020 7324 2240

MONITORING LOG SHEET

Project:	Napier Road, Reading	**Date:**	25/07/22
Job Number:	B080908	**Visit:**	1
Client:	Sladen Estates	**Weather:**	Overcast, windy
Barometric State:	Steady	**Ground Conditions:**	Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Depth m bgl	Water Level m AOD	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS							
WS02	1015	0.0	0.0	0.0	0.0	1.6	1.6	16.4	0	0	2.10	35.72	3.70	
WS03	1015	0.0	0.0	0.0	0.0	3.1	3.1	16.4	0	0	2.10	35.72	3.50	
WS05	1015	0.0	0.0	0.0	0.0	0.0	0.0	19.0	0	0	2.36	35.51	3.59	
WS06	1015	0.0	0.0	0.0	0.0	0.8	0.8	19.3	0	0	2.43	35.54	3.79	
WS09	1015	0.0	0.0	0.0	0.0	0.3	0.3	19.8	0	0	1.96	35.95	2.80	3
WS10	1015	0.0	0.0	0.0	0.0	0.1	0.1	20.5	0	0	2.60	35.29	3.10	
WS11	1015	0.0	0.0	0.0	0.0	0.5	0.5	20.0	0	0	2.49	35.51	3.70	
WS12	1015	0.0	0.0	0.0	0.0	1.2	1.2	18.9	0	0	2.43	35.60	3.90	
BH02	-	-	-	-	-	-	-	-	-	-	2.39	35.66	7.60	2
BH03	-	-	-	-	-	-	-	-	-	-	-	-	-	1,2
BH04	-	-	-	-	-	-	-	-	-	-	-	-	-	1,2
BH05	-	-	-	-	-	-	-	-	-	-	2.39	35.49	15.10	2
BH07	-	-	-	-	-	-	-	-	-	-	-	-	-	1,2

Notes

1 Not complete at time of monitoring.
2 Groundwater monitoring only
3 Perched groundwater depth

Logged by

WS

1% gas volume = 10,000 ppm
Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.
All other gases recorded at 'steady state' unless otherwise stated

Curtins
Unit 5/6, 40 Compton Street, London, EC1V 0BD
Tel: 020 7324 2240

MONITORING LOG SHEET

Project:	Napier Road, Reading	**Date:**	08/09/2022
Job Number:	B080908	**Visit:**	2
Client:	Sladen Estates	**Weather:**	Hot and Dry
Barometric State:	Steady	**Ground Conditions:**	Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Depth m bgl	Water Level m AOD	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS							
WS02	1027	0.0	0.0	0.0	0.0	1.1	1.1	19.00	0	0	2.18	35.64	3.70	
WS03	1027	0.0	0.0	0.0	0.0	3.1	3.1	15.10	0	0	2.20	35.62	3.50	
WS05	1027	0.0	0.0	0.0	0.0	0.0	0.0	19.90	0	0	2.28	35.59	3.59	
WS06	1026	0.0	0.0	0.0	0.0	1.4	1.4	18.50	0	0	2.36	35.61	3.79	
WS09	1027	0.0	0.0	0.0	0.0	0.3	0.3	20.00	0	0	1.90	36.01	2.80	3
WS10	1027	0.0	0.0	0.0	0.0	1.2	1.2	19.0	0	0	2.34	35.55	3.10	
WS11	1027	0.0	0.0	0.0	0.0	1.7	1.7	17.9	0	0	2.43	35.57	3.70	
WS12	1027	0.0	0.0	0.0	0.0	4.7	4.7	13.7	0	0	2.46	35.57	3.90	
BH02	-	-	-	-	-	-	-	-	-	-	2.40	35.65	7.60	1
BH03	-	-	-	-	-	-	-	-	-	-	2.40	35.52	25.00	1
BH04	-	-	-	-	-	-	-	-	-	-	2.38	35.58	25.00	1
BH05	-	-	-	-	-	-	-	-	-	-	2.39	35.49	25.00	1
BH07	-	-	-	-	-	-	-	-	-	-	-	-	-	2

Notes

1 Groundwater monitoring only
2 Not complete at time of monitoring.
3 Perched groundwater depth

Logged by

WS

1% gas volume = 10,000 ppm
Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.
All other gases recorded at 'steady state' unless otherwise stated

Curtins
Unit 5/6, 40 Compton Street, London, EC1V 0BD
Tel: 020 7324 2240

MONITORING LOG SHEET

Project:	Napier Road, Reading	**Date:**	17/08/22
Job Number:	B080908	**Visit:**	3
Client:	Sladen Estates	**Weather:**	Overcast/storms
Barometric State:	Falling	**Ground Conditions:**	Damp

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Depth m bgl	Water Level m AOD	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS							
WS02	1007	0.0	0.0	0.0	0.0	0.0	0.0	20.9	0	0	2.17	35.65	3.70	
WS03	1005	0.0	0.0	0.0	0.0	3.3	3.3	13.8	0	0	2.18	35.64	3.50	
WS05	1005	0.0	0.0	0.0	0.0	0.0	0.0	19.4	0	0	2.26	35.61	3.59	
WS06	1005	0.0	0.0	0.0	0.0	1.8	1.8	17.9	0	0	2.35	35.62	3.79	
WS09	1005	3.4	0.0	0.0	0.0	0.0	0.0	20.8	0	0	1.92	35.99	2.80	2
WS10	1005	0.0	0.0	0.0	0.0	0.2	0.2	20.6	0	0	2.29	35.60	3.10	
WS11	1004	0.0	0.0	0.0	0.0	0.9	0.9	19.3	0	0	2.40	35.60	3.70	
WS12	1004	0.0	0.0	0.0	0.0	3.7	3.7	16.0	0	0	2.45	35.58	3.90	
BH02	-	-	-	-	-	-	-	-	-	-	2.38	35.67	7.60	1
BH03	-	-	-	-	-	-	-	-	-	-	2.39	35.53	25.00	1
BH04	-	-	-	-	-	-	-	-	-	-	2.36	35.60	25.00	1
BH05	-	-	-	-	-	-	-	-	-	-	2.38	35.50	25.00	1
BH07	-	-	-	-	-	-	-	-	-	-	2.37	35.61	23.00	1

Notes

1 Groundwater monitoring only
2 Perched groundwater depth

Logged by

WS

1% gas volume = 10,000 ppm
Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.
All other gases recorded at 'steady state' unless otherwise stated

Curtins
Unit 5/6, 40 Compton Street, London, EC1V 0BD
Tel: 020 7324 2240

MONITORING LOG SHEET

Project:	Napier Road, Reading	**Date:**	24/08/2022
Job Number:	B080908	**Visit:**	4
Client:	Sladen Estates	**Weather:**	Cloudy and sunny
Barometric State:	Steady	**Ground Conditions:**	Wet from previous night rain

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Depth m bgl	Water Level mAOD	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS							
WS02	1012	0.0	0.0	0.0	0.0	0.9	0.9	19.3	0	0	2.10	35.72	3.70	
WS03	1009	0.0	0.0	0.0	0.0	3.2	3.2	14.9	0	0	2.18	35.64	3.50	
WS05	1010	0.0	0.0	0.0	0.0	0.0	0.0	15.8	0	0	2.25	35.62	3.59	
WS06	1010	0.0	0.0	0.0	0.0	2.0	2.0	17.3	0	0	2.39	35.58	3.79	
WS09	1011	2.8	0.0	0.0	0.0	0.0	0.0	20.8	0	0	1.48	36.43	2.80	2
WS10	1011	0.0	0.0	0.0	0.0	1.8	1.8	17.8	0	0	2.34	35.55	3.10	
WS11	1011	0.0	0.0	0.0	0.0	0.9	0.9	19.3	0	0	2.40	35.60	3.70	
WS12	1012	0.0	0.0	0.0	0.0	2.5	2.5	17.2	0	0	2.45	35.58	3.90	
BH02	-	-	-	-	-	-	-	-	-	-	2.40	35.65	7.60	1
BH03	-	-	-	-	-	-	-	-	-	-	2.39	35.53	25.00	1
BH04	-	-	-	-	-	-	-	-	-	-	2.39	35.57	25.00	1
BH05	-	-	-	-	-	-	-	-	-	-	2.39	35.49	25.00	1
BH07	-	-	-	-	-	-	-	-	-	-	2.38	35.60	23.00	1

Notes

1 Groundwater monitoring only
2 Perched groundwater depth

Logged by

WS

1% gas volume = 10,000 ppm
Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.
All other gases recorded at 'steady state' unless otherwise stated

Curtins
Unit 5/6, 40 Compton Street, London, EC1V 0BD
Tel: 020 7324 2240

MONITORING LOG SHEET

Project: Napier Road, Reading **Date:** 15/09/22
Job Number: B080908 **Visit:** 5
Client: Sladen Estates **Weather:** Cloudy, dry
Barometric State: N/A **Ground Conditions:** Dry

Borehole Reference	Barometric Pressure mb	Flow l/hr		Methane %		Carbon Dioxide %		Oxygen %	Hydrogen Sulphide ppm	Carbon Monoxide ppm	Water Depth m bgl	Water Level m AOD	Borehole Base m bgl	Note
		Max	SS	Max	SS	Max	SS							
WS02	-	-	-	-	-	-	-	-	-	-	2.14	35.68	3.70	**1**
WS03	-	-	-	-	-	-	-	-	-	-	2.14	35.68	3.50	1
WS05	-	-	-	-	-	-	-	-	-	-	2.23	35.64	3.59	1
WS06	-	-	-	-	-	-	-	-	-	-	2.33	35.64	3.79	1
WS09	-	-	-	-	-	-	-	-	-	-	1.58	36.33	2.80	1,2
WS10	-	-	-	-	-	-	-	-	-	-	2.21	35.68	3.10	1
WS11	-	-	-	-	-	-	-	-	-	-	2.40	35.60	3.70	1
WS12	-	-	-	-	-	-	-	-	-	-	2.42	35.61	3.90	1
BH02	-	-	-	-	-	-	-	-	-	-	2.36	35.69	7.60	
BH03	-	-	-	-	-	-	-	-	-	-	2.35	35.57	25.00	
BH04	-	-	-	-	-	-	-	-	-	-	2.34	35.62	25.00	
BH05	-	-	-	-	-	-	-	-	-	-	2.36	35.52	25.00	
BH07	-	-	-	-	-	-	-	-	-	-	2.35	35.63	23.00	

Notes

1 Groundwater Monitoring Only
2 Perched groundwater depth

Logged by

WS

1% gas volume = 10,000 ppm
Flow rate, methane and carbon dioxide reported as 'maximum' (max) and 'steady state' (SS) readings.
All other gases recorded at 'steady state' unless otherwise stated

Groundwater Elevation Measurements Field Data

Date	Borehole Location	Depth to groundwater (m bgl)	Groundwater Level (m AOD)	Purge volume (litres)	Methodology	Comments
25/07/22	WS02	2.10	35.72	10	Bailer	No sheen and no odours
	WS03	2.10	35.72	8	Bailer	No sheen and no odours
	WS05	2.36	35.51	7	Bailer	No sheen and no odours
	WS06	2.43	35.54	8	Bailer	No sheen and no odours
	WS09	2.60	35.31	1.2	Bailer	No sheen and no odours
	WS10	1.96	35.93	7	Bailer	No sheen and no odours
	WS11	2.39	35.61	7	Bailer	No sheen and no odours
	WS12	2.43	35.60	9	Bailer	No sheen and no odours
	BH02	2.39	35.66	30	Bailer	No sheen and no odours
9/8/2022	WS02	2.18	35.639	1.2	Low Flow	No sheen and no odours
	WS03	2.2	35.615	0.9	Low Flow	No sheen and no odours
	WS05	2.28	35.586	1.2	Low Flow	No sheen and no odours
	WS06	2.36	35.605	0.6	Low Flow	No sheen and no odours
	WS09	1.9	36.014	0.9	Low Flow	No sheen and no odours
	WS10	2.34	35.479	0.9	Low Flow	No sheen and no odours
	WS11	2.43	35.385	1.2	Low Flow	No sheen and no odours
	WS12	2.46	35.406	1.2	Low Flow	No sheen and no odours
	BH02	2.4	35.565	1.2	Low Flow	No sheen and no odours
17/08/22	WS02	2.17	35.649	0.9	Low Flow	No sheen and no odours
	WS05	2.26	35.606	1.2	Low Flow	No sheen and no odours
	WS06	2.35	35.615	-	Bailer	Unable to retrieve low flow, no sheen or odours
	WS09	1.92	35.994	0.9	Low Flow	No sheen and no odours
	WS10	2.29	35.596	0.9	Low Flow	No sheen and no odours
	WS11	2.4	35.603	0.9	Low Flow	No sheen and no odours
	WS12	2.45	35.575	-	Bailer	Unable to retrieve low flow, no sheen or odours
	BH02	2.38	35.671	0.6	Low Flow	No sheen and no odours
24/08/2022	BH03	2.39	35.53	-	Bailer	No sheen and no odours
	BH04	2.39	35.57	-	Bailer	No sheen and no odours
	BH05	2.39	35.49	-	Bailer	No sheen and no odours
	BH07	2.38	35.6	-	Bailer	No sheen and no odours
15/09/2022	BH04	2.34	35.62	1.5	Low Flow	No sheen and no odours
	BH05	2.36	35.52	-	Bailer	Unable to retrieve low flow, no sheen or odours
	BH07	2.35	35.63	1.5	Low Flow	No sheen and no odours
	WS11	2.4	35.6	-	Bailer	Very silty - more silt than groundwater
	WS12	2.42	35.61	-	Bailer	Unable to retrieve low flow, no sheen or odours

Groundwater Field Parameters

Monitoring Date	Borehole Location	Purge volume (litres)	Time	Temp (c)	Electrical Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	Ph	Redox	Groundwater Depth (m bgl)
9/8/2022	WS02	0	9:48	16.2	1089	13.8	7.68	-13.2	2.2
		0.3	9:49	17.6	1082	5.3	7.05	-11.5	2.2
		0.6	9:51	17.8	1074	3.1	7.07	-12.8	2.2
		0.9	9:52	17.6	1068	2.6	7.05	-13.3	2.2
		1.2	9:53	17.5	1065	1.8	7.08		2.2
	WS03	0	10:11	17.9	1109	2.5	7.04	-10.9	2.2
		0.3	10:14	17.6	1077	1.4	7.01	-9.3	2.2
		0.6	10:17	17.9	1070	1.1	7.02	-9.7	2.2
		0.9	10:20	17.7	1067	1	7.02	-10.1	2.2
	BH02	0	10:34	16.2	1112	5.3	7.09	-13.9	2.4
		0.4	10:37	17.6	1104	2.6	7.07	-12.8	2.4
		0.8	10:40	17	1104	2.5	7.09	-13.5	2.4
		1.2	10:43	17.2	1106	2.3	7.08	-13.8	2.4
	WS05	0	11:01	18.7	1290	1.9	7.43	-33.5	2.3
		0.3	11:04	18.2	1106	0.8	7.58	-42.4	2.3
		0.6	11:07	18.8	1217	0.4	7.5	-37.5	2.3
		0.9	11:10	18.5	1228	0.3	7.49	-37.3	2.3
		1.2	11:13	18.6	1201	0.4	7.49	-36.6	2.3
	WS06	0	11:30	17.9	1964	0.8	6.83	-2.4	2.4
		0.3	11:33	19.1	1966	0.6	6.9	-2.7	2.4
		0.6	11:36	18.7	1976	0.6	6.93	-3.2	2.4
	WS09	0	11:52	20	2460	2	7.42	-32.9	1.93
		0.3	11:55	20.4	2441	0.8	7.4	-32.1	1.93
		0.6	11:58	20.5	2444	0.6	7.41	-32.3	1.99
		0.9	12:01	20.9	2449	0.6	7.41	-32.5	1.99
	WS10	0	12:21	20.6	899	6.1	7.12	-15.4	2.39
		0.3	12:24	20.1	875	6.9	7.1	-14.8	2.39
		0.6	12:27	20	869	5.3	7.13	-16.1	2.33
		0.9	12:30	20	864	4.8	7.13	-16.2	2.33
	WS11	0	12:52	19.1	1280	2.5	6.96	-6.1	2.4
		0.3	12:58	19.4	1228	1.9	6.9	-3.2	2.4
		0.6	12:59	19.4	1209	1.7	6.91	-3.3	2.4
		0.9	13:01	19.1	1211	1.8	6.92	-3.8	2.4
		1.2	13:04	19	1215	1.7	6.92	-3.9	2.4
	WS12	0	13:28	20.1	1703	2.1	6.98	-7.7	2.4
		0.3	13:31	19.6	1704	1.7	6.94	-5.2	2.4
		0.6	13:34	19.6	1693	1.4	6.94	-5.4	2.4
		0.9	13:37	19.6	1676	1.5	6.95	-5.7	2.4
17/08/2022	WS02	0	9:20	17.7	1068	7.8	7.1	-14.7	2.19
		0.3	9:23	16.9	1054	5.2	7.11	-14.9	2.19
		0.6	9:26	16	1050	4.5	7.1	-14.6	2.19
		0.9	9:31	16.4	1043	3.8	7.1	-14.8	2.19
	BH02	0	9:47	16.8	1111	3.1	7.13	-16.3	2.39
		0.3	9:50	16.1	1104	2.1	7.13	-16.2	2.33
		0.6	9:53	16	1102	2.4	7.11	-15.3	2.39
	WS05	0	10:09	17.8	1271	3.2	7.45	-34.7	2.29
		0.3	10:12	17	1258	0.9	7.43	-33.1	2.23
		0.6	10:15	17	1249	0.8	7.43	-33.4	2.23
		0.9	10:18	17	1246	0.7	7.43	-33.4	2.29
		1.2	10:21	16.9	1243	0.7	7.43	-38.3	2.29
	WS09	0	10:49	19.6	2574	1.4	7.37	-30.1	1.93
		0.3	10:52	19.4	2576	0.9	7.37	-30	1.99
		0.6	10:55	19.4	2579	0.7	7.37	-30.1	1.99
		0.9	10:58	19.4	2577	0.7	7.37	-30.1	1.93
	WS10	0	11:16	16	952	6.9	7.19	-19.8	2.29
		0.3	11:13	16	929	5.7	7.18	-17.9	2.29
		0.6	11:16	16.8	927	6.9	7.13	-16.3	2.29
		0.9	11:19	16.7	911	6.8	7.13	-16.1	2.29
	WS11	0	11:39	16.1	1183	2.7	6.96	-4.2	2.4
		0.3	11:38	16.1	1154	2.3	6.9	-3	2.4
		0.9	11:41	17.5	1183	2.3	6.88	-0.5	2.4
15/09/2022	BH07	0	11:25	16.5	886	16.1	7.2	-45.2	2.35
		0.5	11:29	16	894	13	7.19	-35.4	2.33
		1	11:32	15.8	864	0.66	7.13	-33.1	2.33
		1.5	11:35	15.7	893	0.92	7.1	-32.3	2.35
	BH04	0	11:44	16.6	935	3.7	7.12	-33.8	2.33
		0.5	11:50	15.5	929	1.1	7.09	-31.3	2.33
		1	11:55	15.4	911	0.9	7.08	-30.3	2.33
		1.5	12:00	15.3	913	0.9	7.08	-29.8	2.33

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/06000
Issue Number: 1 **Date:** 27 June, 2023

Client: Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: EBMA/Richard Robinson
Project Name: Napier Road
Project Ref: 080908
Order No: 7390
Date Samples Received: 19/06/23
Date Instructions Received: 19/06/23
Date Analysis Completed: 27/06/23

Approved by:



Gemma Berrisford
Client Manager

UKAS TESTING 1247

Envirolab Job Number: 23/06000

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/06000/1	23/06000/2	23/06000/3	23/06000/4	23/06000/5	23/06000/6	23/06000/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS104	WS105	WS10	BH04	BH05			
Depth to Top										
Depth To Bottom										
Date Sampled	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Ali >C5-C6 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Aro >C5-C7 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w
MTBE $(w)_A^{\#}$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-022w

Envirolab Job Number: 23/06000

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/06000/1	23/06000/2	23/06000/3	23/06000/4	23/06000/5	23/06000/6	23/06000/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS104	WS105	WS10	BH04	BH05			
Depth to Top										
Depth To Bottom										
Date Sampled	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
VOC (w)										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloromethane$_A$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Vinyl Chloride$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromomethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chloroethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Trichlorofluoromethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dichloromethane$_A$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Carbon Disulphide$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloroethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromochloromethane$_A^\#$	<5	<5	<5	<5	<5	<5	<5	µg/l	5	A-T-006w
Chloroform$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
2,2-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloroethane$_A^\#$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Benzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Carbon Tetrachloride$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromomethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromodichloromethane$_A^\#$	<10	<10	<10	<10	<10	<10	<10	µg/l	10	A-T-006w
Trichloroethene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Toluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,3-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Dibromochloromethane$_A^\#$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2-Dibromoethane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Tetrachloroethene$_A$	11	5	35	36	<1	9	103	µg/l	1	A-T-006w

Envirolab Job Number: 23/06000

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/06000/1	23/06000/2	23/06000/3	23/06000/4	23/06000/5	23/06000/6	23/06000/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	WS104	WS105	WS10	BH04	BH05			
Depth to Top										
Depth To Bottom										
Date Sampled	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23	15-Jun-23			
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW			
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Chlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Ethylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
m & p Xylene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromoform$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Styrene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
o-Xylene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,3-Trichloropropane$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Isopropylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
Bromobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
2-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-propylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
4-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
4-Isopropyltoluene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,4-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
sec-Butylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
tert-Butylbenzene$_A^\#$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,3-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
n-butylbenzene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_A^\#$	<2	<2	<2	<2	<2	<2	<2	µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3	<3	<3	µg/l	3	A-T-006w
Hexachlorobutadiene$_A^\#$	<1	<1	<1	<1	<1	<1	<1	µg/l	1	A-T-006w

Envirolab Job Number: 23/06000

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/06000/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH07									
Depth to Top										
Depth To Bottom										
Date Sampled	15-Jun-23									
Sample Type	WATER - GW									
Sample Matrix Code	N/A									
Ali >C5-C6 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
Aro >C5-C7 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - Benzene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1							µg/l	1	A-T-022w
MTBE $(w)_A^{\#}$	<1							µg/l	1	A-T-022w

Lab Sample ID	23/06000/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH07									
Depth to Top										
Depth To Bottom										
Date Sampled	15-Jun-23									
Sample Type	WATER - GW									
Sample Matrix Code	N/A									
VOC (w)										
Dichlorodifluoromethane$_A$	<1							µg/l	1	A-T-006w
Chloromethane$_A$	<10							µg/l	10	A-T-006w
Vinyl Chloride$_A^\#$	<1							µg/l	1	A-T-006w
Bromomethane$_A^\#$	<1							µg/l	1	A-T-006w
Chloroethane$_A^\#$	<1							µg/l	1	A-T-006w
Trichlorofluoromethane$_A^\#$	<1							µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^\#$	<1							µg/l	1	A-T-006w
Dichloromethane$_A$	<5							µg/l	5	A-T-006w
Carbon Disulphide$_A^\#$	<1							µg/l	1	A-T-006w
1,1-Dichloroethene$_A^\#$	<1							µg/l	1	A-T-006w
1,1-Dichloroethane$_A^\#$	<1							µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^\#$	<1							µg/l	1	A-T-006w
Bromochloromethane$_A^\#$	<5							µg/l	5	A-T-006w
Chloroform$_A^\#$	<1							µg/l	1	A-T-006w
2,2-Dichloropropane$_A^\#$	<1							µg/l	1	A-T-006w
1,2-Dichloroethane$_A^\#$	<2							µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^\#$	<1							µg/l	1	A-T-006w
1,1-Dichloropropene$_A^\#$	<1							µg/l	1	A-T-006w
Benzene$_A^\#$	<1							µg/l	1	A-T-006w
Carbon Tetrachloride$_A^\#$	<1							µg/l	1	A-T-006w
Dibromomethane$_A^\#$	<1							µg/l	1	A-T-006w
1,2-Dichloropropane$_A^\#$	<1							µg/l	1	A-T-006w
Bromodichloromethane$_A^\#$	<10							µg/l	10	A-T-006w
Trichloroethene$_A^\#$	<1							µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^\#$	<1							µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^\#$	<1							µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^\#$	<1							µg/l	1	A-T-006w
Toluene$_A^\#$	<1							µg/l	1	A-T-006w
1,3-Dichloropropane$_A^\#$	<1							µg/l	1	A-T-006w
Dibromochloromethane$_A^\#$	<3							µg/l	3	A-T-006w
1,2-Dibromoethane$_A^\#$	<1							µg/l	1	A-T-006w
Tetrachloroethene$_A$	15							µg/l	1	A-T-006w

Envirolab Job Number: 23/06000

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/06000/8							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH07									
Depth to Top										
Depth To Bottom										
Date Sampled	15-Jun-23									
Sample Type	WATER - GW									
Sample Matrix Code	N/A									
1,1,1,2-Tetrachloroethane$_A$	<1							µg/l	1	A-T-006w
Chlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
Ethylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
m & p Xylene$_A^\#$	<1							µg/l	1	A-T-006w
Bromoform$_A^\#$	<1							µg/l	1	A-T-006w
Styrene$_A^\#$	<1							µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_A$	<1							µg/l	1	A-T-006w
o-Xylene$_A^\#$	<1							µg/l	1	A-T-006w
1,2,3-Trichloropropane$_A^\#$	<1							µg/l	1	A-T-006w
Isopropylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
Bromobenzene$_A^\#$	<1							µg/l	1	A-T-006w
2-Chlorotoluene$_A^\#$	<1							µg/l	1	A-T-006w
n-propylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
4-Chlorotoluene$_A^\#$	<1							µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
4-Isopropyltoluene$_A^\#$	<1							µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
1,2-Dichlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
1,4-Dichlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
sec-Butylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
tert-Butylbenzene$_A^\#$	<2							µg/l	2	A-T-006w
1,3-Dichlorobenzene$_A^\#$	<1							µg/l	1	A-T-006w
n-butylbenzene$_A^\#$	<1							µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_A^\#$	<2							µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_A^\#$	<3							µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_A^\#$	<3							µg/l	3	A-T-006w
Hexachlorobutadiene$_A^\#$	<1							µg/l	1	A-T-006w

Report Notes

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and Interpretations expressed are outside our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25ºC / 11550µS/cm @ 20ºC fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: Napier Road

Clients Project No: 080908

Project No: 23/06000

Date Received: 19/06/2023 (am)

Cool Box Temperatures (°C): 17.7

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/06000/1	23/06000/2	23/06000/3	23/06000/4	23/06000/5	23/06000/6	23/06000/7	23/06000/8
Client Sample No								
Client Sample ID/Depth	WS101	WS102	WS104	WS105	WS10	BH04	BH05	BH07
Date Sampled	15/06/23	15/06/23	15/06/23	15/06/23	15/06/23	15/06/23	15/06/23	15/06/23
A-T-006w	27/06/2023	27/06/2023	27/06/2023	27/06/2023	27/06/2023	27/06/2023	27/06/2023	27/06/2023
A-T-022w	22/06/2023	22/06/2023	22/06/2023	22/06/2023	22/06/2023	22/06/2023	22/06/2023	22/06/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/06675
Issue Number: 1 S1 **Date:** 31 July, 2023

Client:
Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: EBMA/Richard Robinson
Project Name: Napier Road
Project Ref: 80908
Order No: 7926
Date Samples Received: 05/07/23
Date Instructions Received: 06/07/23
Date Analysis Completed: 26/07/23

Approved by:



Richard Wong
Client Manager

UKAS TESTING 1247

Envirolab Job Number: 23/06675

Client Project Name: Napier Road

Client Project Ref: 80908

Lab Sample ID	23/06675/1	23/06675/2	23/06675/3	23/06675/4	23/06675/6			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS104	BH05	WS102	WS101	WS10					
Depth to Top										
Depth To Bottom										
Date Sampled	30-Jun-23	30-Jun-23	30-Jun-23	30-Jun-23	30-Jun-23					
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
VOC (w)										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Chloromethane$_A$	<10	<10	<10	<10	<10			µg/l	10	A-T-006w
Vinyl Chloride$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromomethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Chloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Trichlorofluoromethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Dichloromethane$_A$	<5	<5	<5	<5	<5			µg/l	5	A-T-006w
Carbon Disulphide$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1-Dichloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromochloromethane$_A^\#$	<5	<5	<5	<5	<5			µg/l	5	A-T-006w
Chloroform$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
2,2-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dichloroethane$_A^\#$	<2	<2	<2	<2	<2			µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Benzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Carbon Tetrachloride$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Dibromomethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromodichloromethane$_A^\#$	<10	<10	<10	<10	<10			µg/l	10	A-T-006w
Trichloroethene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Toluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,3-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Dibromochloromethane$_A^\#$	<3	<3	<3	<3	<3			µg/l	3	A-T-006w
1,2-Dibromoethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w

Envirolab Job Number: 23/06675

Client Project Name: Napier Road

Client Project Ref: 80908

Lab Sample ID	23/06675/1	23/06675/2	23/06675/3	23/06675/4	23/06675/6			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS104	BH05	WS102	WS101	WS10					
Depth to Top										
Depth To Bottom										
Date Sampled	30-Jun-23	30-Jun-23	30-Jun-23	30-Jun-23	30-Jun-23					
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
Tetrachloroethene$_A$	59	100	5	13	38			µg/l	1	A-T-006w
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Chlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Ethylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
m & p Xylene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromoform$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Styrene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
o-Xylene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2,3-Trichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Isopropylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
2-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
n-propylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
4-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
4-Isopropyltoluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,4-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
sec-Butylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
tert-Butylbenzene$_A^\#$	<2	<2	<2	<2	<2			µg/l	2	A-T-006w
1,3-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
n-butylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_A^\#$	<2	<2	<2	<2	<2			µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3			µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3			µg/l	3	A-T-006w
Hexachlorobutadiene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w

Envirolab Job Number: 23/06675

Client Project Name: Napier Road

Client Project Ref: 80908

Lab Sample ID	23/06675/1	23/06675/2	23/06675/3	23/06675/4	23/06675/6			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS104	BH05	WS102	WS101	WS10					
Depth to Top										
Depth To Bottom										
Date Sampled	30-Jun-23	30-Jun-23	30-Jun-23	30-Jun-23	30-Jun-23					
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
TPH CWG (w) with Clean Up										
Ali >C5-C6 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
Ali >C8-C10 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Ali >C10-C12 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Ali >C12-C16 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Ali >C16-C21 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Ali >C21-C35 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Total Aliphatics $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	Calc-As Recd
Aro >C5-C7 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
Aro >C8-C10 $(w)_A$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Aro >C10-C12 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Aro >C12-C16 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Aro >C16-C21 $(w)_A^{\#}$	<5	<5	<5	<5	<5			µg/l	5	A-T-055w
Aro >C21-C35 $(w)_A$	<10	<10	<10	<10	<10			µg/l	10	A-T-055w
Total Aromatics $(w)_A$	<10	<10	<10	<10	<10			µg/l	10	Calc-As Recd
TPH (Ali & Aro >C5-C35) $(w)_A$	<10	<10	<10	<10	<10			µg/l	10	Calc-As Recd
BTEX - Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
MTBE $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w

Report Notes

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and Interpretations expressed are outside our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25ºC / 11550µS/cm @ 20ºC fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: Napier Road

Clients Project No: 80908

Project No: 23/06675

Date Received: 06/07/2023 (am)

Cool Box Temperatures (°C): 14.5

Lab Sample ID	23/06675/1	23/06675/2	23/06675/3
Client Sample No			
Client Sample ID/Depth	WS104	BH05	WS102
Date Sampled	30/06/23	30/06/23	30/06/23
Deviation Code			
A8 (no NaOH)	✓	✓	✓

Key

A8 (no NaOH) *No NaOH preserved bottle provided (cyanides, sulphide will be deviating)*

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/06675/1	23/06675/2	23/06675/3	23/06675/4	23/06675/6
Client Sample No					
Client Sample ID/Depth	WS104	BH05	WS102	WS101	WS10
Date Sampled	30/06/23	30/06/23	30/06/23	30/06/23	30/06/23
A-T-006w	17/07/2023	17/07/2023	17/07/2023	17/07/2023	17/07/2023
A-T-022w	13/07/2023	13/07/2023	13/07/2023	13/07/2023	13/07/2023
A-T-026w	14/07/2023	14/07/2023	14/07/2023		
A-T-042wTCN	13/07/2023	13/07/2023	13/07/2023		
A-T-055w	12/07/2023	12/07/2023	12/07/2023	12/07/2023	12/07/2023
A-T-072w	13/07/2023	13/07/2023	13/07/2023		
Calc-As Recd	13/07/2023	13/07/2023	13/07/2023	13/07/2023	13/07/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/07167
Issue Number: 1 **Date:** 27 July, 2023

Client:
Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: Richard Robinson
Project Name: Napier Road
Project Ref: 080908
Order No: 8087
Date Samples Received: 11/07/23
Date Instructions Received: 19/07/23
Date Analysis Completed: 27/07/23

Approved by:



Richard Wong
Client Manager

UKAS TESTING 1247

Envirolab Job Number: 23/07167

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/07167/1	23/07167/2	23/07167/3	23/07167/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	BH04						
Depth to Top										
Depth To Bottom										
Date Sampled	06-Jul-23	06-Jul-23	06-Jul-23	06-Jul-23						
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
Ali >C5-C6 $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
Aro >C5-C7 $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - Benzene $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w
MTBE $(w)_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-022w

Envirolab Job Number: 23/07167

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/07167/1	23/07167/2	23/07167/3	23/07167/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	BH04						
Depth to Top										
Depth To Bottom										
Date Sampled	06-Jul-23	06-Jul-23	06-Jul-23	06-Jul-23						
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
VOC (w)										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1				µg/l	1	A-T-006w
Chloromethane$_A$	<10	<10	<10	<10				µg/l	10	A-T-006w
Vinyl Chloride$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Bromomethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Chloroethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Trichlorofluoromethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Dichloromethane$_A$	<5	<5	<5	<5				µg/l	5	A-T-006w
Carbon Disulphide$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,1-Dichloroethene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,1-Dichloroethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Bromochloromethane$_A^{\#}$	<5	<5	<5	<5				µg/l	5	A-T-006w
Chloroform$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
2,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,2-Dichloroethane$_A^{\#}$	<2	<2	<2	<2				µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,1-Dichloropropene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Benzene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Carbon Tetrachloride$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Dibromomethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,2-Dichloropropane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Bromodichloromethane$_A^{\#}$	<10	<10	<10	<10				µg/l	10	A-T-006w
Trichloroethene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Toluene$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,3-Dichloropropane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Dibromochloromethane$_A^{\#}$	<3	<3	<3	<3				µg/l	3	A-T-006w
1,2-Dibromoethane$_A^{\#}$	<1	<1	<1	<1				µg/l	1	A-T-006w
Tetrachloroethene$_A$	12	35	74	15				µg/l	1	A-T-006w

Envirolab Job Number: 23/07167

Client Project Name: Napier Road

Client Project Ref: 080908

Lab Sample ID	23/07167/1	23/07167/2	23/07167/3	23/07167/4				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	BH04						
Depth to Top										
Depth To Bottom										
Date Sampled	06-Jul-23	06-Jul-23	06-Jul-23	06-Jul-23						
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW						
Sample Matrix Code	N/A	N/A	N/A	N/A						
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1				µg/l	1	A-T-006w
Chlorobenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
Ethylbenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
m & p Xylene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
Bromoform$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
Styrene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1				µg/l	1	A-T-006w
o-Xylene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,2,3-Trichloropropane$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
Isopropylbenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
Bromobenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
2-Chlorotoluene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
n-propylbenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
4-Chlorotoluene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
4-Isopropyltoluene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,2-Dichlorobenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,4-Dichlorobenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
sec-Butylbenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
tert-Butylbenzene$_A^\#$	<2	<2	<2	<2				µg/l	2	A-T-006w
1,3-Dichlorobenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
n-butylbenzene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_A^\#$	<2	<2	<2	<2				µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_A^\#$	<3	<3	<3	<3				µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_A^\#$	<3	<3	<3	<3				µg/l	3	A-T-006w
Hexachlorobutadiene$_A^\#$	<1	<1	<1	<1				µg/l	1	A-T-006w

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Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and Interpretations expressed are outside our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25ºC / 11550µS/cm @ 20ºC fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: Napier Road

Clients Project No: 080908

Project No: 23/07167

Date Received: 19/07/2023 (am)

Cool Box Temperatures (°C): 18.6

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples 5 ± 3°C), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/07167/1	23/07167/2	23/07167/3	23/07167/4
Client Sample No				
Client Sample ID/Depth	WS101	WS104	WS105	BH04
Date Sampled	06/07/23	06/07/23	06/07/23	06/07/23
A-T-006w	27/07/2023	27/07/2023	27/07/2023	27/07/2023
A-T-022w	25/07/2023	25/07/2023	25/07/2023	25/07/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/07825
Issue Number: 1 **Date:** 09 August, 2023

Client: Curtins Consulting (Manchester)
Merchant Exchange
17-19 Whitworth Street
Manchester
UK
M1 5WG

Project Manager: EBMA/Will Spraggs
Project Name: Napier Road
Project Ref: Not specified
Order No: 8273
Date Samples Received: 04/08/23
Date Instructions Received: 04/08/23
Date Analysis Completed: 09/08/23

Approved by:



Richard Wong
Client Manager

UKAS TESTING 1247

Envirolab Job Number: 23/07825

Client Project Name: Napier Road

Client Project Ref: Not specified

Lab Sample ID	23/07825/1	23/07825/2	23/07825/3	23/07825/4	23/07825/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS104	WS105	BH04	BH05					
Depth to Top										
Depth To Bottom										
Date Sampled	03-Aug-23	03-Aug-23	03-Aug-23	03-Aug-23	03-Aug-23					
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
Ali >C5-C6 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
Ali >C6-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
Aro >C5-C7 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
Aro >C7-C8 $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - Toluene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - Ethyl Benzene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - m & p Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
BTEX - o Xylene $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w
MTBE $(w)_A^{\#}$	<1	<1	<1	<1	<1			µg/l	1	A-T-022w

Envirolab Job Number: 23/07825

Client Project Name: Napier Road

Client Project Ref: Not specified

Lab Sample ID	23/07825/1	23/07825/2	23/07825/3	23/07825/4	23/07825/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS104	WS105	BH04	BH05					
Depth to Top										
Depth To Bottom										
Date Sampled	03-Aug-23	03-Aug-23	03-Aug-23	03-Aug-23	03-Aug-23					
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
VOC (w)										
Dichlorodifluoromethane$_A$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Chloromethane$_A$	<10	<10	<10	<10	<10			µg/l	10	A-T-006w
Vinyl Chloride$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromomethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Chloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Trichlorofluoromethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
trans 1,2-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Dichloromethane$_A$	<5	<5	<5	<5	<5			µg/l	5	A-T-006w
Carbon Disulphide$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1-Dichloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
cis 1,2-Dichloroethene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromochloromethane$_A^\#$	<5	<5	<5	<5	<5			µg/l	5	A-T-006w
Chloroform$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
2,2-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dichloroethane$_A^\#$	<2	<2	<2	<2	<2			µg/l	2	A-T-006w
1,1,1-Trichloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Benzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Carbon Tetrachloride$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Dibromomethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromodichloromethane$_A^\#$	<10	<10	<10	<10	<10			µg/l	10	A-T-006w
Trichloroethene$_A^\#$	1	<1	<1	<1	<1			µg/l	1	A-T-006w
cis 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
trans 1,3-Dichloropropene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1,2-Trichloroethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Toluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,3-Dichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Dibromochloromethane$_A^\#$	<3	<3	<3	<3	<3			µg/l	3	A-T-006w
1,2-Dibromoethane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Tetrachloroethene$_A$	28	11	81	12	90			µg/l	1	A-T-006w

Envirolab Job Number: 23/07825 **Client Project Name: Napier Road**

Client Project Ref: Not specified

Lab Sample ID	23/07825/1	23/07825/2	23/07825/3	23/07825/4	23/07825/5			Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS103	WS104	WS105	BH04	BH05					
Depth to Top										
Depth To Bottom										
Date Sampled	03-Aug-23	03-Aug-23	03-Aug-23	03-Aug-23	03-Aug-23					
Sample Type	WATER - GW	WATER - GW	WATER - GW	WATER - GW	WATER - GW					
Sample Matrix Code	N/A	N/A	N/A	N/A	N/A					
1,1,1,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Chlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Ethylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
m & p Xylene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromoform$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Styrene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,1,2,2-Tetrachloroethane$_A$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
o-Xylene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2,3-Trichloropropane$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Isopropylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
Bromobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
2-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
n-propylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
4-Chlorotoluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2,4-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
4-Isopropyltoluene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,3,5-Trimethylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,4-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
sec-Butylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
tert-Butylbenzene$_A^\#$	<2	<2	<2	<2	<2			µg/l	2	A-T-006w
1,3-Dichlorobenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
n-butylbenzene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w
1,2-Dibromo-3-chloropropane$_A^\#$	<2	<2	<2	<2	<2			µg/l	2	A-T-006w
1,2,4-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3			µg/l	3	A-T-006w
1,2,3-Trichlorobenzene$_A^\#$	<3	<3	<3	<3	<3			µg/l	3	A-T-006w
Hexachlorobutadiene$_A^\#$	<1	<1	<1	<1	<1			µg/l	1	A-T-006w

Report Notes

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
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A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

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Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
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NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25ºC / 11550µS/cm @ 20ºC fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Curtins Consulting (Manchester), Merchant Exchange, 17-19 Whitworth Street , Manchester, UK, M1 5WG

Project: Napier Road

Clients Project No:

Project No: 23/07825

Date Received: 04/08/2023 (am)

Cool Box Temperatures (°C): 16.3

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/07825/1	23/07825/2	23/07825/3	23/07825/4	23/07825/5
Client Sample No					
Client Sample ID/Depth	WS103	WS104	WS105	BH04	BH05
Date Sampled	03/08/23	03/08/23	03/08/23	03/08/23	03/08/23
A-T-006w	09/08/2023	09/08/2023	09/08/2023	09/08/2023	09/08/2023
A-T-022w	09/08/2023	09/08/2023	09/08/2023	09/08/2023	09/08/2023

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Groundwater Field Parameters

Monitoring Date	Borehole Location	Purge volume (litres)	Time	Temp (c)	Electrical Conductivity (ms/cm)	Dissolved Oxygen (mg/L)	Ph	Redox	Groundwater Depth (m bgl)
06/07/2023	WS101	0.2	11:44	15.2	1019	14.8	7.09	131	2.14
		0.5	11:47	15.5	995	10.4	7.07	108.5	2.14
		1	11:50	15.4	990	15.4	7.06	95.5	2.14
	BH04	0.1	12:17	16.2	954	22.5	7.1	72.8	2.3
		0.4	12:20	16.3	943	17.9	7.03	67.4	2.3
		0.7	12:23	16.1	923	16.4	7.02	65.3	2.3
	WS104	0.5	12:44	17.5	933	15.5	7.09	92.7	2
		0.9	12:47	17	938	10.8	7.01	73.2	2
		1.2	12:50	16.8	937	10.5	7	66.6	2
	WS105	0.6	13:07	16.7	1490	26.3	7.21	78.9	1.93
		1.1	13:10	16.7	1485	25.3	7.19	76.1	1.93
		1.5	13:13	16.7	1483	25.2	7.18	75.7	1.93
30/06/2023	WS104	0.1	10:48	15.3	1405	25.3	7.23	145.4	2.1
		0.5	10:51	15.3	1281	18.4	7.05	124.8	2.1
		0.8	10:54	15.5	1235	16.7	7.02	114.1	2.1
		1.2	10:57	15.5	1211	14.4	7.01	100	2.1
		1.4	11:00	15.5	1192	12.3	7	88.1	2.1
		1.6	11:03	15.5	1171	10.8	7	74.6	2.1
		2	11:07	15.5	1186	10	6.99	66.8	2.1
	WS105	0.3	11:20	15.6	986	35.5	7.12	101.2	1.97
		1	11:25	15.3	953	33.6	7.03	72	1.97
		1.4	11:28	15.2	949	31.4	7.07	62.7	1.97
	BH05	0.4	11:42	14.2	836	14.6	7.19	102.2	2.38
		0.8	11:46	14.1	824	10.2	7.09	81.5	2.38
		1.4	11:49	14.3	821	10.2	7.09	72	2.38
	WS10	0	12:12	14.1	748	49.2	7.55	49.2	2.32
		0.3	12:15	14.5	745	45.8	7.5	45.8	2.32
		0.6	12:18	14.4	780	37	7.3	37	2.32
		0.9	12:21	14.6	789	25.7	7.23	25.7	2.32
		1.3	12:23	14.6	797	21.9	7.2	21.9	2.32
	WS102	0.1	12:38	17.3	4081	10.5	7.31	88.8	2.44
		0.4	12:41	17	4162	9.6	6.99	74.5	2.44
		0.7	12:44	16.8	4141	8.9	6.93	61.6	2.44
		1	12:47	16.8	4145	9.4	6.92	64.9	2.44
	WS101	0.1	13:07	14.7	972	2.3	7.16	54.9	2.08
		0.4	13:10	14.5	964	1.7	7.14	29.4	2.08
		0.7	13:13	14.6	967	1.5	7.13	13.1	2.08
		1	13:16	14.5	974	1.3	7.12	3.3	2.08

Appendix D Tier 1 Screening Criteria

- Curtins Tier 1 Thresholds

Adopted Soil Generic Assessment Criteria
Sandy loam with 6% SOM

curtins

Contaminants	Residential with home grown produce	Residential without home grown produce	Allotments	Commercial	Public open space near residential housing POS_{resi}	Public park POS_{park}
Metals						
Beryllium	***1.7***	***1.7***	***35***	***12***	***2.2***	***63***
Boron	***290***	***11,000***	***45***	***240,000***	***21,000***	***46,000***
Cadmium	**10**[13] 22	**85**[13] 150	**1.8** 3.9	**230** 410	***120*** 220	***560*** 880
Chromium III	***910***	***910***	***18,000***	***8,600***	***1,500***	***33,000***
Chromium VI	***6*** 21	***6*** 21	***1.8*** 170	***33*** 49	***7.7*** 21	***220*** 250
Lead	200	310	80	2,300	630	1,300
Mercury ***(elemental)***	**1**	**1**	**26**	**26**	***16***	**26**[8] [***30***]
Mercury (inorganic)	**170**	**240**	**80**	**3600**	***120***	***240***
Nickel	***130***[10]	***180***[10]	***53***[11]	***980***[10]	***230***	***800***
Vanadium	***410***	***1200***	***91***	***9000***	***2000***	***5000***
Copper	***2400***	***7100***	***520***	***68000***	***12000***	***44000***
Zinc	***3700***	***40000***	***620***	***730000***	***81000***	***170000***
Semi-Metals and non-metals						
Arsenic	**32**[12] 37	**35**[12] 40	**43**[12] 49	**640**[12] 640	***79*** 79	***170*** 170
Antimony		***550***		***7500***	***1500***	***3300***
Selenium	**350**	**600**	**120**	**13000**	***1100***	***1800***
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_6	***160***	***160***	***3900***	***12000***	***600000***	***180000***
$EC_{>6}$ - EC_8	***530***	***530***	***13000***	***40000***	***620000***	***320000***
$EC_{>8}$ - EC_{10}	***150***	***150***	***1700***	***11000***	***13000***	***21000***
EC_{10}-EC_{12}	***760***	***770***	***7300***	***47000***	***13000***	***24000***
EC_{12}-EC_{16}	***4300***	***4400***	***13000***	***90000***	***13000***	***26000***
$EC_{>16}$ - EC_{35}	***110000***	***110000***	***270000***	***1800000***	***250000***	***490000***
$EC>_{35}$ - EC_{44}	***110000***	***110000***	***270000***	***1800000***	***250000***	***490000***
Aromatic risk banded hydrocarbons - TPHCWG method						
$EC>_5$ - EC_7	***300***	***1400***	***57***	***86000***	***56000***	***92000***
$EC>_7$ - EC_8	***660***	***3900***	***120***	***180000***	***56000***	***100000***
$EC_{>8}$ - EC_{10}	***190***	***270***	***51***	***17000***	***5000***	***9300***
EC_{10} - EC_{12}	***380***	***1200***	***74***	***34000***	***5000***	***10000***
EC_{12} - EC_{16}	***660***	***2500***	***130***	***38000***	***5000***	***10000***
$EC_{>16}$ - EC_{21}	***930***	***1900***	***260***	***28000***	***3800***	***7800***
$EC_{>21}$ - EC_{35}	***1700***	***1900***	***1600***	***28000***	***3800***	***7900***
$EC>_{35}$ - EC_{44}	***1700***	***1900***	***1600***	***28000***	***3800***	***7900***
Aliph + Arom EC >44-70	***1900***	***1900***	***3000***	***28000***	3800	7900
Aromatic						
Benzene	**0.33** 0.87	**1.0** 3.3	**0.07** 0.18	**95** 98	***73*** 140	***110*** 230
Ethyl benzene	**350**	**840**	**90**	**2800**[8] [66000]	**2800**[8] [***25000***]	**2800**[8] [***27000***]
Toluene	**610**	**2700**	**120**	**4400**[8] [190000]	**4400**[8] [***56000***]	**4400**[8] [***100000***]
Xylene[9]	**230**	**290**	**160**	**2600**[8] [32000]	**2600**[8] [***43000***]	**2600**[8] [***31000***]
Phenol	**420**	**520**	**280**	**3200**[14] (38000)	**3200**[14] (***10000***)	**3200**[14] (***9300***)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	***13***	***13***	***24***	***1100***	***4900***	***3000***
Acenaphthylene	***920***	***6000***	***160***	***100000***	***15000***	***30000***
Acenaphthene	***1100***	***6000***	***200***	***100000***	***15000***	***30000***
Fluorene	***860***	***4500***	***160***	***71000***	***9900***	***20000***
Phenanthrene	***440***	***1500***	***90***	***23000***	***3100***	***6300***
Anthracene	***11000***	***37000***	***2200***	***540000***	***74000***	***150000***
Fluoranthene	***890***	***1600***	***290***	***23000***	***3100***	***6400***
Pyrene	***2000***	***3800***	***620***	***54000***	***7400***	***15000***
Benz(a)anthracene	***13***	***15***	***13***	***180***	***29***	***62***
Chrysene	***27***	***32***	***19***	***350***	***57***	***120***
Benzo(b)fluoranthene	***3.7***	***4.0***	***3.9***	***45***	***7.2***	***16.0***
Benzo(k)fluoranthene	***100***	***110***	***130***	***1200***	***190***	***440***
Benzo(a)pyrene	***3.0*** 5.0	***3.2*** 5.3	***3.5*** 5.7	***36*** 77	***5.7*** 10	***13*** 21
Indeno(123cd)pyrene	***41***	***46***	***39***	***510***	***82***	***180***
Dibenzo(ah)anthracene	***0.3***	***0.32***	***0.43***	***3.6***	***0.58***	***1.4***
Benzo(ghi)perylene	***350***	***360***	***640***	***4000***	***640***	***1600***
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	***0.0014***	***0.0015***	***0.0018***	***0.12***	***3.5***	***5.4***
Trichloroethene (TCE)	***0.075***	***0.08***	***0.21***	***5.7***	***120***	***120***
1,1,1,2 Tetrachlorethane	***6.4***	***8.2***	***4.4***	***560***	***1400***	***2100***
Tetrachlorethene (PCE)	***0.90***	***0.92***	***3.6***	***95***	***1400***	***1500***
1,1,1 Trichlorethane	***39***	***40***	***240***	***3000***	***140000***	***100000***

Notes

1. All values above are in mg/kg
2. **Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters**, ***numbers in italics are S4ULs***, ***numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters*** and underlined numbers are C4SLs
3. Soil organic matter (SOM) is assumed to be 6% - DEFAULT VALUE
4. Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
5. For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
6. For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
7. For classrooms consider increasing the dust loading fator in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m^{-3}
8. Based on vapour saturation limt as suggested by EA / [ ] model value
9. Lowest of o-, m- and p-xylene
10. Based on comparison of inhalation exposure with inhalation TDI
11. Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
12. Based on a comparison of oral and dermal soil exposure with oral Index Dose only
13. Averaged over and based on lifetime exposure
14. Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
15. NA: Not applicable

Adopted Soil Generic Assessment Criteria
Sandy loam with 2.5% SOM

curtins

Contaminants	Residential with home grown produce	Residential without home grown produce	Allotments	Commercial	Public open space near residential housing POS_{resi}	Public park POS_{park}
Metals						
Beryllium	***1.7***	***1.7***	***35***	***12***	***2.2***	***63***
Boron	***290***	***11,000***	***45***	***240,000***	***21,000***	***46,000***
Cadmium	**10**[13] 22	**85**[13] 150	**1.8** 3.9	**230** 410	***120*** 220	***560*** 880
Chromium III	***910***	***910***	***18,000***	***8,600***	***1,500***	***33,000***
Chromium VI	***6*** 21	***6*** 21	***1.8*** 170	***33*** 49	***7.7*** 21	***220*** 250
Lead	200	310	80	2,300	630	1,300
Mercury ***(elemental)***	**1**	**1**	**26**	**26**	***16***	**26**[8] [***30***]
Mercury (inorganic)	**170**	**240**	**80**	**3600**	***120***	***240***
Nickel	***130***[10]	***180***[10]	***53***[11]	***980***[10]	***230***	***800***
Vanadium	***410***	***1200***	***91***	***9000***	***2000***	***5000***
Copper	***2400***	***7100***	***520***	***68000***	***12000***	***44000***
Zinc	***3700***	***40000***	***620***	***730000***	***81000***	***170000***
Semi-Metals and non-metals						
Arsenic	**32**[12] 37	**35**[12] 40	**43**[12] 49	**640**[12] 640	***79*** 79	***170*** 170
Antimony		***550***		***7500***	***1500***	***3300***
Selenium	**350**	**600**	**120**	**13000**	***1100***	***1800***
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_6	***78***	***78***	***1700***	***5900***	***590000***	***130000***
$EC_{>6}$ - EC_8	***230***	***230***	***5600***	***17000***	***610000***	***220000***
$EC_{>8}$ - EC_{10}	***65***	***65***	***770***	***4800***	***13000***	***18000***
EC_{10}-EC_{12}	***330***	***330***	***4400***	***23000***	***13000***	***23000***
EC_{12}-EC_{16}	***2400***	***2400***	***13000***	***82000***	***13000***	***25000***
$EC_{>16}$ - EC_{35}	***92000***	***92000***	***270000***	***1700000***	***250000***	***480000***
$EC_{>35}$ - EC_{44}	***92000***	***92000***	***270000***	***1700000***	***250000***	***480000***
Aromatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_7	***140***	***690***	***27***	***46000***	***56000***	***84000***
$EC_{>7}$ - EC_8	***290***	***1800***	***51***	***110000***	***56000***	***95000***
$EC_{>8}$ - EC_{10}	***83***	***110***	***21***	***8100***	***5000***	***8500***
EC_{10} - EC_{12}	***180***	***590***	***31***	***28000***	***5000***	***9700***
EC_{12} - EC_{16}	***330***	***2300***	***57***	***37000***	***5100***	***10000***
$EC_{>16}$ - EC_{21}	***540***	***1900***	***110***	***28000***	***3800***	***7700***
$EC_{>21}$ - EC_{35}	***1500***	***1900***	***820***	***28000***	***3800***	***7800***
$EC_{>35}$ - EC_{44}	***1500***	***1900***	***820***	***28000***	***3800***	***7800***
Aliph + Arom EC >44-70	***1800***	***1900***	***2100***	***28000***	3800	7800
Aromatic						
Benzene	**0.16**	**0.49**	**0.035**	**50**	***72***	***100***
Ethyl benzene	**150**	**380**	**39**	**1200**[8] [35000]	**1200**[8] [***24000***]	**1200**[8] [***22000***]
Toluene	**270**	**1300**	**51**	**1900**[8] [110000]	**1900**[8] [***56000***]	**1900**[8] [***95000***]
Xylene[9]	**98**	**120**	**70**	**1200**[8] [14000]	**1200**[8] [***42000***]	**1200**[8] [***23000***]
Phenol	**290**	**420**	**140**	**1500**[14] (35000)	**1500**[14] (***10000***)	**1500**[14] (***8300***)
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	***5.6***	***5.6***	***10***	***460***	***4900***	***1900***
Acenaphthylene	***420***	***4600***	***69***	***97000***	***15000***	***30000***
Acenaphthene	***510***	***4700***	***85***	***97000***	***15000***	***30000***
Fluorene	***400***	***3800***	***67***	***68000***	***9900***	***20000***
Phenanthrene	***220***	***1500***	***38***	***22000***	***3100***	***6200***
Anthracene	***5400***	***35000***	***950***	***540000***	***74000***	***150000***
Fluoranthene	***560***	***1600***	***130***	***23000***	***3100***	***6300***
Pyrene	***1200***	***3800***	***270***	***54000***	***7400***	***15000***
Benz(a)anthracene	***11***	***14***	***6.5***	***170***	***29***	***56***
Chrysene	***22***	***31***	***9.4***	***350***	***57***	***110***
Benzo(b)fluoranthene	***3.3***	***4.0***	***2.1***	***44***	***7.2***	***15***
Benzo(k)fluoranthene	***93***	***110***	***75***	***1200***	***190***	***410***
Benzo(a)pyrene	***2.7***	***3.2***	***2***	***35***	***5.7***	***12***
Indeno(123cd)pyrene	***36***	***46***	***21***	***510***	***82***	***170***
Dibenzo(ah)anthracene	***0.28***	***0.32***	***0.27***	***3.6***	***0.57***	***1.3***
Benzo(ghi)perylene	***340***	***360***	***470***	***4000***	***640***	***1500***
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	***0.00087***	***0.001***	***0.001***	***0.077***	***3.5***	***5***
Trichloroethene (TCE)	***0.034***	***0.036***	***0.091***	***2.6***	***120***	***91***
1,1,1,2 Tetrachlorethane	***2.8***	***3.5***	***1.9***	***250***	***1400***	***1800***
Tetrachlorethene (PCE)	***0.39***	***0.4***	***1.5***	***42***	***1400***	***1100***
1,1,1 Trichlorethane	***18***	***18***	***110***	***1300***	***140000***	***76000***

Notes

1. All values above are in mg/kg
2. **Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters**, ***numbers in italics are S4ULs***, ***numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters*** and underlined numbers are C4SLs
3. Soil organic matter (SOM) is assumed to be 2.5% - DEFAULT VALUE
4. Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
5. For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
6. For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
7. For classrooms consider increasing the dust loading fator in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m^{-3}
8. Based on vapour saturation limt as suggested by EA / [ ] model value
9. Lowest of o-, m- and p-xylene
10. Based on comparison of inhalation exposure with inhalation TDI
11. Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
12. Based on a comparison of oral and dermal soil exposure with oral Index Dose only
13. Averaged over and based on lifetime exposure
14. Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
15. NA: Not applicable

Adopted Soil Generic Assessment Criteria
Sandy loam with 1% SOM

curtins

Contaminants	Residential with home grown produce	Residential without home grown produce	Allotments	Commercial	Public open space near residential housing POS_{resi}	Public park POS_{park}
Metals						
Beryllium	***1.7***	***1.7***	***35***	***12***	***2.2***	***63***
Boron	***290***	***11,000***	***45***	***240,000***	***21,000***	***46,000***
Cadmium	**10**[13] 22	**85**[13] 150	**1.8** 3.9	**230** 410	***120*** 220	***560*** 880
Chromium III	***910***	***910***	***18,000***	***8,600***	***1,500***	***33,000***
Chromium VI	***6*** 21	***6*** 21	***1.8*** 170	***33*** 49	***7.7*** 21	***220*** 250
Lead	200	310	80	2,300	630	1,300
Mercury ***(elemental)***	**1**	**1**	**26**	**26**	***16***	**26**[8] [***30***]
Mercury (inorganic)	**170**	**240**	**80**	**3600**	***120***	***240***
Nickel	***130***[10]	***180***[10]	***53***[11]	***980***[10]	***230***	***800***
Vanadium	***410***	***1200***	***91***	***9000***	***2000***	***5000***
Copper	***2400***	***7100***	***520***	***68000***	***12000***	***44000***
Zinc	***3700***	***40000***	***620***	***730000***	***81000***	***170000***
Semi-Metals and non-metals						
Arsenic	**32**[12] 37	**35**[12] 40	**43**[12] 49	**640**[12] 640	***79*** 79	***170*** 170
Antimony		***550***		***7500***	***1500***	***3300***
Selenium	**350**	**600**	**120**	**13000**	***1100***	***1800***
Inorganic chemicals						
Cyanide	34	34	34	34	34	34
Organic contaminants						
Aliphatic risk banded hydrocarbons - TPHCWG method						
$EC_{>5}$ - EC_6	***42***	***42***	***730***	***3200***	***570000***	***95000***
$EC_{>6}$ - EC_8	***100***	***100***	***2300***	***7800***	***600000***	***150000***
$EC_{>8}$ - EC_{10}	***27***	***27***	***320***	***2000***	***13000***	***14000***
EC_{10}-EC_{12}	***130***	***130***	***2200***	***9700***	***13000***	***21000***
EC_{12}-EC_{16}	***1100***	***1100***	***11000***	***59000***	***13000***	***25000***
$EC_{>16}$ - EC_{35}	***65000***	***65000***	***260000***	***1600000***	***250000***	***450000***
$EC>_{35}$ - EC_{44}	***65000***	***65000***	***260000***	***1600000***	***250000***	***450000***
Aromatic risk banded hydrocarbons - TPHCWG method						
$EC>_5$ - EC_7	***70***	***370***	***13***	***26000***	***56000***	***76000***
$EC>_7$ - EC_8	***130***	***860***	***22***	***56000***	***56000***	***87000***
$EC_{>8}$ - EC_{10}	***34***	***47***	***8.6***	***3500***	***5000***	***7200***
EC_{10} - EC_{12}	***74***	***250***	***13***	***16000***	***5000***	***9200***
EC_{12} - EC_{16}	***140***	***1800***	***23***	***36000***	***5100***	***10000***
$EC_{>16}$ - EC_{21}	***260***	***1900***	***46***	***28000***	***3800***	***7600***
$EC_{>21}$ - EC_{35}	***1100***	***1900***	***370***	***28000***	***3800***	***7800***
$EC>_{35}$ - EC_{44}	***1100***	***1900***	***370***	***28000***	***3800***	***7800***
Aliph + Arom EC >44-70	***1600***	***1900***	***1200***	***28000***	3800	7800
Aromatic						
Benzene	**0.08**	**0.3**	**0.017**	**28**	***72***	***90***
Ethyl benzene	**65**	**170**	**16**	**520**[8] [17000]	**520**[8] ***[24000]***	**520**[8] ***[17000]***
Toluene	**120**	**610**	**22**	**860**[8] [59000]	**860**[8] ***[56000]***	**860**[8] ***[87000]***
Xylene[9]	**41**	**53**	**28**	**480**[8] [69000]	**480**[8] ***[41000]***	**480**[8] ***[17000]***
Phenol	**180**	**310**	**66**	**760**[14] (31000)	**760**[14] ***(10000)***	**760**[14] ***(7600)***
Polycyclic Aromatic Hydrocarbons (PAH)						
Naphthalene	***2.3***	***2.3***	***4.1***	***190***	***4900***	***1200***
Acenaphthylene	***170***	***2900***	***28***	***83000***	***15000***	***29000***
Acenaphthene	***210***	***3000***	***34***	***84000***	***15000***	***29000***
Fluorene	***170***	***2800***	***27***	***63000***	***9900***	***20000***
Phenanthrene	***95***	***1300***	***15***	***22000***	***3100***	***6200***
Anthracene	***2400***	***31000***	***380***	***520000***	***74000***	***150000***
Fluoranthene	***280***	***1500***	***52***	***23000***	***3100***	***6300***
Pyrene	***620***	***3700***	***110***	***54000***	***7400***	***15000***
Benz(a)anthracene	***7.2***	***11***	***2.9***	***170***	***29***	***49***
Chrysene	***15***	***30***	***4.1***	***350***	***57***	***93***
Benzo(b)fluoranthene	***2.6***	***3.9***	***0.99***	***44***	***7.1***	***13***
Benzo(k)fluoranthene	***77***	***110***	***37***	***1200***	***190***	***370***
Benzo(a)pyrene	***2.2***	***3.2***	***0.97***	***35***	***5.7***	***11***
Indeno(123cd)pyrene	***27***	***45***	***9.5***	***500***	***82***	***150***
Dibenzo(ah)anthracene	***0.24***	***0.31***	***0.14***	***3.5***	***0.57***	***1.1***
Benzo(ghi)perylene	***320***	***360***	***290***	***3900***	***640***	***1400***
Chlorinated Aliphatic Hydrocarbons						
Vinyl chloride	***0.00064***	***0.00077***	***0.00055***	***0.059***	***3.5***	***4.8***
Trichloroethene (TCE)	***0.016***	***0.017***	***0.041***	***1.2***	***120***	***70***
1,1,1,2 Tetrachlorethane	***1.2***	***1.5***	***0.79***	***110***	***1400***	***1500***
Tetrachlorethene (PCE)	***0.18***	***0.18***	***0.65***	***19***	***1400***	***810***
1,1,1 Trichlorethane	***8.8***	***9***	***48***	***660***	***140000***	***57000***

Notes

1. All values above are in mg/kg
2. **Numbers in bold are SGVs or GAC that are derived based on SGV report input parameters**, ***numbers in italics are S4ULs***, ***numbers in bold-italics are based on EIC/AGS/CL:AIRE numbers & input parameters*** and underlined numbers are C4SLs
3. Soil organic matter (SOM) is assumed to be 1% - DEFAULT VALUE
4. Soil type is assumed to be sandy loam - DEFAULT SOIL TYPE
5. For residential, the building type is conservatively assumed to be a small terrace house where the development includes bungalows change to more conservative bungalow setting in computer model
6. For commercial, the building type is conservatively assumed to be a pre 1970s office building, where the proposed development comprises houses, flat with living spaces changes setting in model accordingly
7. For classrooms consider increasing the dust loading fator in the 'Soil and Building Data' of the CLEA 1.04 model from 50 to 100µg m^{-3}
8. Based on vapour saturation limt as suggested by EA / [ ] model value
9. Lowest of o-, m- and p-xylene
10. Based on comparison of inhalation exposure with inhalation TDI
11. Based on comparison of oral, dermal, and inhalation exposure with the oral TDI
12. Based on a comparison of oral and dermal soil exposure with oral Index Dose only
13. Averaged over and based on lifetime exposure
14. Based on critical concentration for skin irritation in humans arising from contact with phenol in aqueous solution (number in brackets based on health effects following long term exposure for illustration)
15. NA: Not applicable

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GAC for sites in ENGLAND & WALES

Contaminant	units	GAC **Receptor: Groundwater** Order of selection of GAC: 2000 DWS > 2015 Directions EQS > 2010 Directive EQS > old EQS / 1989 DWS		GAC **Receptor: Freshwater** Order of selection of GAC: 2015 Directive EQS AA > MAC > 2010 EQS > old EQS > 2000 DWS > old UK DWS		GAC **Receptor: Saltwater** Order of selection of GAC: 2015 Directive EQS (saltwater / "other SW") > old EQS > 2000 DWS > old UK DWS	
		GAC	source of GAC	GAC	source of GAC	GAC	source of GAC
pH		...6 - 9	old Directive 2006/44/EC freshwater fish	...6 - 9	old Directive 2006/44/EC freshwater fish	6 - 8.5	DoE Circular 7/89
Aluminium	µg/l	200	DWS 2000 Regs	200	DWS 2000 Regs	200	DWS 2000 Regs
Antimony	µg/l	5	DWS 2000 Regs	5	DWS 2000 Regs	5	DWS 2000 Regs
Arsenic (dissolved)	µg/l	10	DWS 2000 Regs	50	2015 WFD Directions - Schedule 3 Part 2	25	2015 WFD Directions - Schedule 3 Part 2
Barium	**mg/l**	1	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	1	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	1	"Old UK DWS" - Water Supply (Water Quality) Regs 1989
Beryllium		No EQS/DQS					
Boron (total)	**mg/l**	1	DWS 2000 Regs	2	old EQS	2	Old EQS
Cadmium****	µg/l	5	DWS 2000 Regs	≤0.08 D (<40 mg/l $CaCO_3$) 0.08 D (40- <50 mg/l $CaCO_3$) 0.09 D (50- <100 mg/l $CaCO_3$) 0.15 D (100- <200 mg/l $CaCO_3$) 0.25 D (>200 mg/l $CaCO_3$)	2015 WFD Directions - Schedule 3 Part 3	0.2	2015 WFD Directions - Schedule 3 Part 3
Calcium	**mg/l**	250	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	250	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	250	"Old UK DWS" - Water Supply (Water Quality) Regs 1989
Chromium	µg/l	50	DWS 2000 Regs	see CrIII	see CrIII	see CrIII	see CrIII
Chromium III (dissolved)	µg/l	4.7	2015 WFD Directions - Schedule 3 Part 2	4.7	2015 WFD Directions - Schedule 3 Part 2	4.7	2015 WFD Directions - Schedule 3 Part 2
Chromium VI (dissolved)	µg/l	3.4	2015 WFD Directions - Schedule 3 Part 2	3.4	2015 WFD Directions - Schedule 3 Part 2	0.6	2015 WFD Directions - Schedule 3 Part 2
Cobalt	ug/l	3	Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances	3	Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances	3	Council Directive on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community (Dangerous Substances Directive) - List II substances
Copper (dissolved) .	µg/l	2000	DWS 2000 Regs	1 (bioavailable)	2015 WFD Directions - Schedule 3 Part 2	3.76 ug/l (dissolved where DOC <1 mg) 13.76 + (2.677 x ((DOC/2)-0.5)) ug/l dissolved, where DOC >1 mg/l	2015 WFD Directions - Schedule 3 Part 2
Iron	**mg/l**	0.2	DWS 2000 regs	1	2015 WFD Directions - Schedule 3 Part 2	1	2015 WFD Directions - Schedule 3 Part 2
Lead****	µg/l	10	DWS 2000 regs	1.2 (bioavailable)	2015 WFD Directions - Schedule 3 Part 3	1.3	2015 WFD Directions - Schedule 3 Part 3
Magnesium	**mg/l**	50	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	50	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	50	"Old UK DWS" - Water Supply (Water Quality) Regs 1989
Manganese (dissolved)	µg/l	50	DWS 2000 regs	123 (bioavailable)	2015 WFD Directions - Schedule 3 Part 2	50	DWS 2000 regs (no EQS given for saltwater)
Mercury**** .	µg/l	1	DWS 2000 regs	0.07	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value given)	0.07	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value given)
Molybdenum	µg/l	70	WHO				
Nickel****	µg/l	20	DWS 2000 regs	4 (bioavailable)	2015 WFD Directions - Schedule 3 Part 3	8.6	2015 WFD Directions - Schedule 3 Part 3
Potassium	**mg/l**	12	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	12	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	12	"Old UK DWS" - Water Supply (Water Quality) Regs 1989
Selenium	µg/l	10	DWS 2000 regs	10	DWS 2000 regs	10	DWS 2000 regs
Silver (total dissolved)	µg/l	10	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	0.05	old "EQS" DoE (1996) S	1	old "EQS" DoE (1996) S
Sodium	**mg/l**	200	DWS 2000 regs	200	DWS 2000 regs	200	DWS 2000 regs
Tin (inorganic)	µg/l	25 (total)	non-statutory EQS FW DOE 1989	25 (total)	non-statutory EQS FW DOE 1989	10	non-statutory EQS FW DOE 1989
Vanadium	µg/l	20	EQS lowest from HMSO (1989).	20	EQS lowest from HMSO (1989).	100	DoE Circular 7/89
Zinc.	µg/l	5000	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	10.9 **(bioavailable** PLUS Ambient Background Concentration - see separate tab!) See note ®	2015 WFD Directions - Schedule 3 Part 2	6.8 **(dissolved** plus Ambient Background Concentration)	2015 WFD Directions - Schedule 3 Part 2
Cyanide (free)	µg/l	1	2015 WFD Directions - Schedule 3 Part 2	1	2015 WFD Directions - Schedule 3 Part 2	1	2015 WFD Directions - Schedule 3 Part 2
Cyanide (total)	µg/l	50	DWS 2000 Regs	1	2015 WFD Directions - Schedule 3 Part 2	1	2015 WFD Directions - Schedule 3 Part 2
Ammonical Nitrogen (expressed as N)	**mg/l**	0.39	derived from DWS 2000 Regs	n/a	n/a	n/a	n/a
Ammonium as NH4+ (total)	**mg/l**	0.5	DWS 2000 Regs	n/a	n/a	n/a	n/a
Un-ionised Ammonia (NH3 as N)	**mg/l**	n/a	n/a	0.2	2015 WFD Directions - Schedule 3 Part 1. **lowest value for total ammonia as N.** **If fails look at Part 1 !**	0.021	2015 WFD Directions - Schedule 3 Part 2
Bromate	µg/l	10 [F]	DWS 2000 Regs	10 [F]	DWS 2000 Regs	10 [F]	DWS 2000 Regs
Bromine	µg/l	2	non-statutory EA (1997) S - tentative	5	non-statutory EA (1997) S - tentative Protection of Aquatic Life list two substance	10	non-statutory EA (1997) S - tentative
Chloride	**mg/l**	250 [L]	DWS 2000 Regs	250 [L]	DWS 2000 Regs	250 [L]	DWS 2000 Regs
Chlorine	µg/l	2	2015 WFD Directions - Schedule 3 Part 2	2	2015 WFD Directions - Schedule 3 Part 2	10	2015 WFD Directions - Schedule 3 Part 2 (MAC used, as no AA)
Fluoride	µg/l	1500	DWS 2000 regs	1500	DWS 2000 regs	1500	DWS 2000 regs
Nitrate (as NO3)	**mg/l**	50	DWS 2000 regs	50	DWS 2000 regs	50	DWS 2000 regs
Nitrite	µg/l	500 (as NO2)	DWS 2000 regs	10 (as ?)	old freshwater fish EQS	10 (as ?)	old freshwater fish EQS
Phosphorus	µg/l	2200	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	er Schedule 3 Part 1 of 2015 WFD Directions		n/a	n/a
Sulphate	**mg/l**	250 [L]	DWS 2000 regs	400	old EQS	250	old EQS
Anthracene	µg/l	0.1	2015 WFD Directions - Schedule 3 Part 3	0.1	2015 WFD Directions - Schedule 3 Part 3	0.1	2015 WFD Directions - Schedule 3 Part 3
Benzo(a)pyrene	µg/l	0.01	DWS 2000 Regs	0.00017	2015 WFD Directions - Schedule 3 Part 3	0.00017	2015 WFD Directions - Schedule 3 Part 3
Fluoranthene	µg/l	0.0063	2015 WFD Directions - Schedule 3 Part 3	0.0063	2015 WFD Directions - Schedule 3 Part 3	0.0063	2015 WFD Directions - Schedule 3 Part 3
Indeno(123-cd)pyrene	µg/l	n/a	footnote 12	n/a	footnote 12	n/a	footnote 12
Naphthalene	µg/l	2	2015 WFD Directions - Schedule 3 Part 3	2	2015 WFD Directions - Schedule 3 Part 3	2	2015 WFD Directions - Schedule 3 Part 3
PAH Total Sum of 4	µg/l	0.1 [J]	DWS 2000 regs	n/a	n/a	n/a	n/a
PAHs - benzo b; benzo k; benzo ghi and Indeno	µg/l	n/a	n/a	0.00017	use the BaP value to screen each PAH. 2015 WFD Directions - Schedule 3 Part 3	0.00017	use the BaP value to screen each PAH. 2015 WFD Directions - Schedule 3 Part 3

Contaminant	units	GAC Receptor: Groundwater Order of selection of GAC: 2000 DWS > 2015 Directions EQS > 2010 Directive EQS > old EQS / 1989 DWS GAC	source of GAC	GAC Receptor: Freshwater Order of selection of GAC: 2015 Directive EQS AA > MAC > 2010 EQS > old EQS > 2000 DWS > old UK DWS GAC	source of GAC	GAC Receptor: Saltwater Order of selection of GAC: 2015 Directive EQS (saltwater / "other SW") > old EQS > 2000 DWS > old UK DWS GAC	source of GAC
Benzene	µg/l	1	DWS 2000 Regs	10	2015 WFD Directions - Schedule 3 Part 3	8	2015 WFD Directions - Schedule 3 Part 3
Toluene	µg/l	74	2015 WFD Directions - Schedule 3 Part 2	74	2015 WFD Directions - Schedule 3 Part 2	74	2015 WFD Directions - Schedule 3 Part 2
Ethylbenzene	µg/l	20	non-statutory EQS EA/SNIFFER 2001 S	20	non-statutory EQS EA/SNIFFER 2001 S	20	non-statutory EQS EA/SNIFFER 2001 S
Xylene	µg/l	30	2010 Directions: Part 6 EQS	30	2010 Directions: Part 6 EQS	30	2010 Directions: Part 6 EQS
Hydrocarbons (dissolved/emulsions)	µg/l	10	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	10	"Old UK DWS" - Water Supply (Water Quality) Regs 1989	10	"Old UK DWS" - Water Supply (Water Quality) Regs 1989
Phenol	µg/l	7.7	2015 WFD Directions - Schedule 3 Part 2	7.7	2015 WFD Directions - Schedule 3 Part 2	7.7	2015 WFD Directions - Schedule 3 Part 2
2,4-Dichlorophenol	µg/l	4.2	2015 WFD Directions - Schedule 3 Part 2	4.2	2015 WFD Directions - Schedule 3 Part 2	0.42	2015 WFD Directions - Schedule 3 Part 2
2-Chlorophenol	µg/l	50	2010 Directions: Part 6 EQS	50	2010 Directions: Part 6 EQS	50	2010 Directions: Part 6 EQS
3-Chlorophenol	µg/l	50	EQS EA/SNIFFER 1997	50	EQS EA/SNIFFER 1997	50	EA/SNIFFER 1997
4-Chloro-3-methyl-phenol	µg/l	40	2010 Directions: Part 6 EQS	40	2010 Directions: Part 6 EQS	40	2010 Directions: Part 6 EQS
4-Chlorophenol	µg/l	50	EQS EA/SNIFFER 1997	50	EQS EA/SNIFFER 1997	50	EA/SNIFFER 1997
Nonyl phenol (4-nonylphenol)	µg/l	0.3	2015 WFD Directions - Schedule 3 Part 3	0.3	2015 WFD Directions - Schedule 3 Part 3	0.3	2015 WFD Directions - Schedule 3 Part 3
Octylphenol or tetramethylbutyl-phenol	µg/l	0.1	2015 WFD Directions - Schedule 3 Part 3	0.1	2015 WFD Directions - Schedule 3 Part 3	0.01	2015 WFD Directions - Schedule 3 Part 3
1,1,1-TrichloroethAne (1,1,1-TCA)	µg/l	100	2010 Directions: Part 6 EQS	100	2010 Directions: Part 6 EQS	100	2010 Directions: Part 6 EQS
1,1,2-TrichloroethAne (1,1,2-TCA)	µg/l	400	2010 Directions: Part 6 EQS	400	2010 Directions: Part 6 EQS	300	2010 Directions: Part 6 EQS
1,2-Dichloroethane (1,2-DCA)	µg/l	3	DWS 2000 Regs	10	2015 WFD Directions - Schedule 3 Part 3	10	2015 WFD Directions - Schedule 3 Part 3
Brominated diphenyl ethers	µg/l	0.14	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)	0.14	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)	0.014	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)
Butylbenzyl phthalate	µg/l	7.5	2015 WFD Directions - Schedule 3 Part 2	7.5	2015 WFD Directions - Schedule 3 Part 2	0.75	2015 WFD Directions - Schedule 3 Part 2
Chloroform (Trichloromethane) K	µg/l	See : Trihalomethanes - Total		2.5 ug/l	Inland surface waters AA-EQS:	2.5 ug/l	other surface waters AA-EQS:
Di(2-ethlyhexyl)phthalate	µg/l	1.3	2015 WFD Directions - Schedule 3 Part 3	1.3	2015 WFD Directions - Schedule 3 Part 3	1.3	2015 WFD Directions - Schedule 3 Part 3
Dibutyl phthalate	µg/l	8	non-statutory EQS DETR (1998)	8	non-statutory EQS DETR (1998)	8	non-statutory EQS DETR (1998)
Dichlorobenzenes (sum all isomers)	µg/l	20	non-statutory EQS DETR (1998)	20	non-statutory EQS DETR (1998)	20	non-statutory EQS DETR (1998)
Dichloromethane	µg/l	20	2015 WFD Directions - Schedule 3 Part 3	20	2015 WFD Directions - Schedule 3 Part 3	20	2015 WFD Directions - Schedule 3 Part 3
Diethyl phthalate	µg/l	200	non-statutory EQS DETR (1998)	200	non-statutory EQS DETR (1998)	200	non-statutory EQS DETR (1998)
Dimethyl phthalate	µg/l	800	non-statutory EQS DETR (1998)	800	non-statutory EQS DETR (1998)	800	non-statutory EQS DETR (1998)
Dioctyl phthalate	µg/l	20	non-statutory EQS DETR (1998)	20	non-statutory EQS DETR (1998)	40	non-statutory EQS DETR (1998)
Formaldehyde	µg/l	5	non-statutory EQS DoE (1993) S	5	non-statutory EQS DoE (1993) S	5	non-statutory EQS DoE (1993) S
Hexachlorobenzene	µg/l	0.05	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)	0.05	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)	0.05	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)
Hexachlorobutadiene	µg/l	0.6	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)	0.6	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)	0.6	2015 WFD Directions - Schedule 3 Part 3 (MAC value - no AA value)
Pentachloro benzene	µg/l	0.007	2015 WFD Directions - Schedule 3 Part 3	0.007	2015 WFD Directions - Schedule 3 Part 3	0.0007	2015 WFD Directions - Schedule 3 Part 3
Pentachlorophenol	µg/l	0.4	2015 WFD Directions - Schedule 3 Part 3	0.4	2015 WFD Directions - Schedule 3 Part 3	0.4	2015 WFD Directions - Schedule 3 Part 3
Styrene	µg/l	50	non-statutory EQS EA (1995) S	50	non-statutory EQS EA (1995) S	50	non-statutory EQS EA (1995) S
Tetrachloroethene (PCE) (Tetrachloroethylene)	µg/l	10 (with TCE)	DWS 2000 regs	10	2015 WFD Directions - Schedule 3 Part 3	10	2015 WFD Directions - Schedule 3 Part 3
Tetrachloromethane (PCM) (carbon tetrachloride)	µg/l	3	DWS 2000 regs	12	2015 WFD Directions - Schedule 3 Part 3	12	2015 WFD Directions - Schedule 3 Part 3
Tributyl phosphate	µg/l	50	non-statutory EQS DETR (1998)	50	non-statutory EQS DETR (1998)	50	non-statutory EQS DETR (1998)
Tributyltin compounds	µg/l	0.0002	2015 WFD Directions - Schedule 3 Part 3	0.0002	2015 WFD Directions - Schedule 3 Part 3	0.0002	2015 WFD Directions - Schedule 3 Part 3
Trichlorobenzenes	µg/l	0.4	2015 WFD Directions - Schedule 3 Part 3	0.4	2015 WFD Directions - Schedule 3 Part 3	0.4	2015 WFD Directions - Schedule 3 Part 3
Trichloroethene (Trichloroethylene) TCE (total)	µg/l	10 with PCE	DWS 2000 regs	10	2015 WFD Directions - Schedule 3 Part 3	10	2015 WFD Directions - Schedule 3 Part 3
Trichloromethane	µg/l	2.5	2015 WFD Directions - Schedule 3 Part 3	2.5	2015 WFD Directions - Schedule 3 Part 3	2.5	2015 WFD Directions - Schedule 3 Part 3
Trihalomethanes - Total of 4 compounds. See K	µg/l	100 K	DWS 2000 regs	100 K	DWS 2000 regs	100 K	DWS 2000 regs
Triphenyltin (total)	µg/l	0.02	2010 Directions: Part 6 EQS	0.02	2010 Directions: Part 6 EQS	0.008	2010 Directions: Part 6 EQS
Vinyl chloride	µg/l	0.5 E	DWS 2000 regs	0.5 E	DWS 2000 regs	0.5 E	DWS 2000 regs

® This value depends on the bioavailability of a pollutant which is calculated using the UKTAG Metal Bioavailability Assessment Tool.

2010 Directions = "River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Direction 2010" (now revoked & replaced by 2015 directions)

2015 WFD Directions = "The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015", most of which came into force on 22.12.2015.

*** Brominated diphenylether (congeners 28, 47, 99, 100, 153, 154)
****and compounds of these Cd/Hg/Ni/Pb, under WFD

D = dissolved

Footnotes Relating to DWS
E = Value refers to the residual monomer concentration in the water as calculated according
F = Where possible, without compromising disinfection, Member States should strive for a
J = The specified compounds are benzo(b)fluoranthene, benzo(k)fluoranthene,
K = The specified compounds are: chloroform, bromoform, dibromochloromethane, bromodichloromethane
L = the water should not be aggressive

Appendix E Risk Assessment Rationale

The site-specific qualitative risk assessment of environmental harm, as detailed in Section 3.0 of this reporting, is summarised in the table presented hereafter; the principle being to establish connecting links between a hazardous source to a potential receptor via an exposure pathway.

The assessment corresponds with the total site area.

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risk to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected to the hazardous source by one or several exposure pathways such as direct contact for example. Risks are generally managed by isolating the receptor or intercepting the exposure pathway or by isolating or removing the hazard.

Without the three essential components of a source, pathway and receptor there can be no risk. Therefore the presence of hazard on a site does not necessarily mean there is a risk.

By considering where a viable pathway exists which connects a source with a receptor the risk assessment in Section 3.0 and the table presented hereafter identifies where pollutant linkage exists. If there is no pollutant linkage there is no risk and only where a pollutant linkage is established does the risk assessment consider the level of risk.

The risk assessment considers the likelihood of a particular event taking place (accounting for the presence of the hazard and receptor and the integrity of the exposure pathway) in conjunction with the severity of the potential consequence (accounting for the potential severity of the hazard and the sensitivity of the receptor).

In the risk assessment the consequence of the hazard has been classified as severe or medium or mild or minor and the probability (likelihood) of the circumstances actually occurring classified as high likelihood or likely or low likelihood or unlikely.

The consequences and probabilities are subsequently cross-correlated to give a qualitative estimation of the risk using Department of the Environment risk classifications as detailed in the table below and as referenced in CIRIA C552.

		Consequence			
		Severe	**Medium**	**Mild**	**Minor**
Probability (Likelihood)	**High Likelihood**	Very High Risk	High Risk	Moderate Risk	Negligible Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Negligible Risk
	Low Likelihood	Moderate Risk	Moderate/Low Risk	Low Risk	Negligible Risk
	Unlikely	Moderate/Low Risk	Low Risk	Negligible Risk	Negligible Risk

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In accordance with DoE guidance, the following categorisation of **consequence** has been developed.

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem or organisation forming part of such ecosystem.	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health. Pollution of sensitive water resources. A significant change in a particular ecosystem or organism forming part of such ecosystem.	Concentration of a contaminant from site exceeds the generic or site-specific assessment criteria. Leaching of contaminants from a site to a Principal or Secondary A aquifer. Death of a species within a designated nature reserve. Lesser toxic and asphyxiate effects
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater (inc. Secondary B aquifers). Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discoloration of concrete.

In accordance with DoE guidance, the following categorisation of **probability** has been developed.

Classification	Definition
High Likelihood	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.
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.
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.

In accordance with DoE guidance, the following categorisation of **risk** has been developed.

Classification	Definition
Very High Risk	There is a *high probability* that *severe harm* could arise to a designated receptor from an identified hazard at the site without appropriate further action.
High Risk	*Harm* is *likely to arise* to a designated receptor from an identified hazard at the site without appropriate further action.
Moderate Risk	*It is possible* that without appropriate further action *harm could arise* to a designated receptor. It is relatively *unlikely* that any such harm would be *severe,* and if any harm were to occur it is *more likely* that such harm would be *relatively mild.*
Low Risk	*It is possible* that *harm could arise* to a designated receptor from an identified hazard. It is *likely* that, at worst, if any harm was realised any effects would be *mild.*
Negligible Risk	The presence of an identified hazard does not give rise to the potential to cause harm to a designated receptor.

The term ‘risk’ in this instance refers to the risk that the source, pathway, receptor linkage for a given source of contamination is complete. It does not refer to immediate risk to individuals or features present on the site from potential contaminants and is intended to be used as a tool to assess the necessity of further investigation.

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Appendix F Guidance on Importation of Soils for Soft Landscaping

The following section provides guidance with respect to materials to be imported from off-site sources and adopted as part of proposed open space soft landscaping. It is likely quantities to imported is to be specified within the Landscape Architect's drawings (not available at the time of writing) and as such general guidance is given.

In general, all imported construction products should be free of unsuitable material, e.g. putrescible, deleterious and contaminative material, and where the use of recycled or recovered products, is proposed e.g. pulverised fuel ash, the advice of the Engineer sought to confirm suitability.

Sourcing of Materials

Materials are to be placed within soft landscaping areas and will arise from import sources only. The following sub-sections provides guidance with respect to the sourcing of imported soils.

Off-Site Sources

It is anticipated that material is to be imported to the site for use within soft landscaping areas.

It is strongly recommended that should material be imported that the material is sourced from reputable suppliers and comprise materials that have been suitably processed to produce standardised materials.

It is not recommended that materials are imported directly from 'donor' development sites without prior consultation with the Engineer.

Imported material will also require verification testing to ensure suitability for use, and it is strongly advised that the Contractor undertake their own independent verification testing if accepting material from a third party, rather than relying on supplier reports.

Topsoil

Imported topsoil will be required and should be supplied and placed in accordance with the landscape architects' specification but generally, all topsoil will be a minimum of 150 mm thick in soft landscaped areas.

Where topsoil is imported it is to be 'Multipurpose' in accordance with BS 3882:2015 'Specification for Topsoil and Requirements for Use'. In general, the top-soils should not be placed during inclement weather and should be free draining and not over-compacted to prevent water-logging and excessive damage to the soil structure.

The imported topsoil should also be confirmed to be 'suitable for use' at the frequency and as per the analysis outlined in Tables 1 and 2 (below), respectively.

Subsoil

Where imported subsoil is required as part of the landscape architects specification this can be cohesive or granular but should be free-draining and confirmed to be 'suitable for use' at the frequency and as per the analysis outlined in Tables 1 and 2 (below), respectively.

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Suitability of Imported Soils

Imported topsoil and subsoil should not contain concentrations of contaminants that present an unacceptable risk to either the health of future site occupants or to controlled waters.

The Contractor shall be responsible for demonstrating that imported material is 'clean' and therefore suitable for use as part of the capping to soft landscaping areas. This will include the recovery of samples for laboratory testing from both the material source and verification testing of material following delivery to site. The required testing frequencies for materials source types are detailed below. Other sources may be applicable, however testing frequencies shall be confirmed with the Engineer prior to acceptance.

Table 1 *Environmental chemistry testing frequency for imported soils to be adopted within soft landscaping areas*

Source	Testing Frequency
Imported Topsoil (Greenfield/ manufactured)	**At Source:** One sample for every 250m^3 imported is to be tested by the supplier in accordance with Clause 5 of BS 3882:2015. **On-site Validation:** one sample every 250m^3 used (or a minimum of 3 No. samples whichever is greater).
Imported Subsoil (Greenfield/ manufactured)	**On-site Validation:** one sample every 250m^3 used (or a minimum of 3 No. samples whichever is greater).

The environmental chemistry testing requirements are as Table 6.4b below. Additions to the suite and frequency of sampling maybe required based on the source of the imported materials. For example, if the Topsoil is not naturally sourced, e.g. recycled soil, further chemical determinands may be added to the chemical analysis suite at the discretion of the Engineer. In these instances, chemical analysis of the topsoil is to be undertaken at a frequency of one sample every 100m^3 used.

Table 2 *Environmental chemistry analysis suite for imported soils.*

Suite Reference	Environmental Chemistry Analysis
Greenfield or Manufactured Soils Imported to Site for Use as Clean Capping	Total metals: Arsenic, cadmium, chromium, chromium VI, lead, mercury, selenium, copper, nickel, zinc, water soluble boron; pH Soil Organic Matter Asbestos Screening Polycyclic Aromatic Hydrocarbons by GC-MS (Detection Limit 0.1mg/kg for each compound - 16 USEPA speciation), (*With provisional testing of banded Total Petroleum Hydrocarbons (TPH-CWG) if and where any visual or olfactory evidence of contamination is revealed*).

Assessment criteria: Concentrations of the above determinants shall not exceed the *Residential without Homegrown Produce* criteria. Provided in Appendix D.

Definition of 'clean': Where ALL concentrations are less than these values the soils shall be defined as 'clean'.

Soil organic matter (SOM): A review of the thresholds in the Curtins report may be made for specific soil sources whereby the Soil Organic Matter is proving to be at 1%.

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