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Supplementary Phase 2 Ground Investigation Report

Great Western Yard

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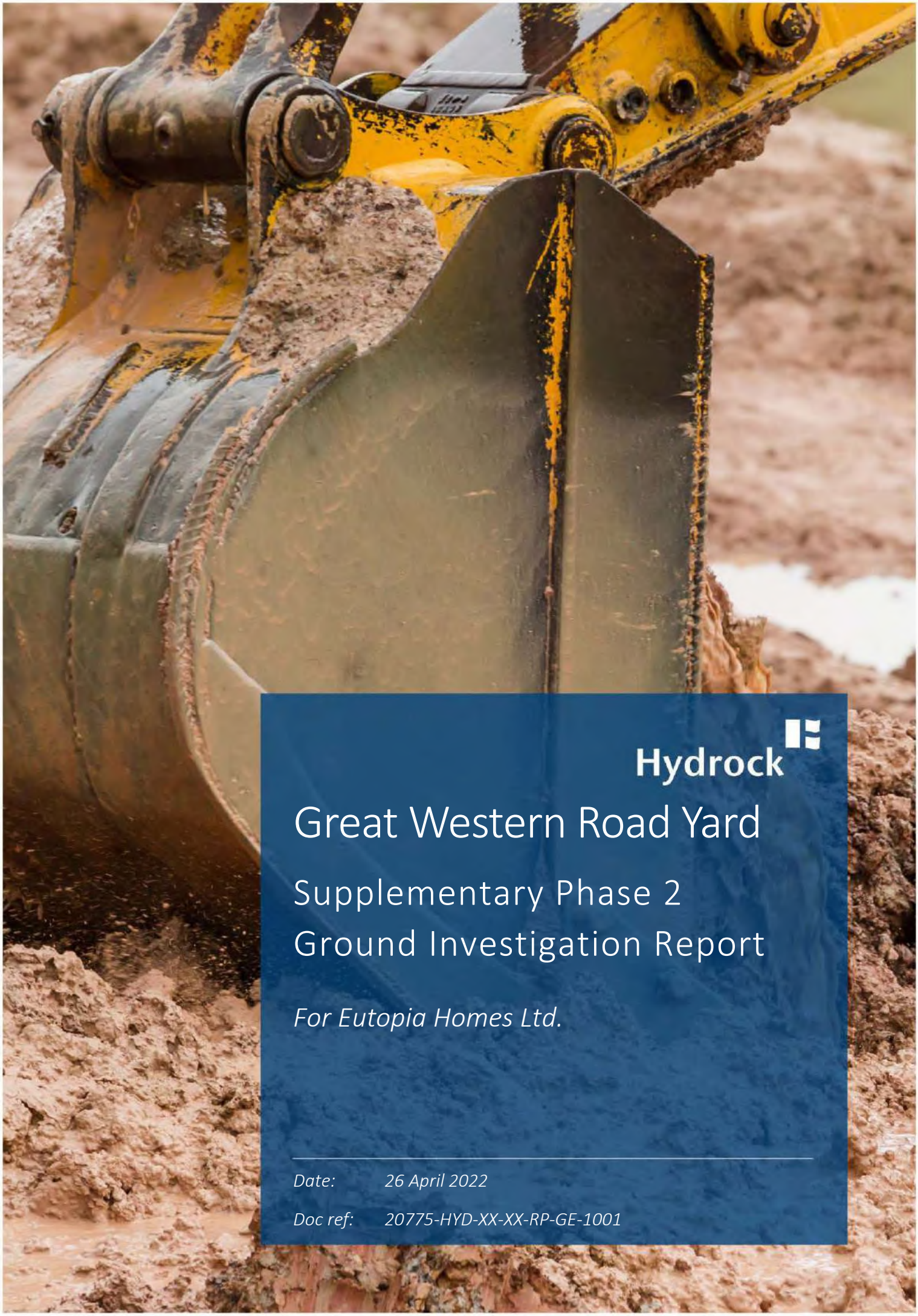

Hydrock

Great Western Road Yard

Supplementary Phase 2 Ground Investigation Report

For Eutopia Homes Ltd.

Date: *26 April 2022*

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Executive Summary

SITE INFORMATION AND SETTING	
Objectives	The works have been commissioned to support the planning application and to assist with the design of the development.
Client	Eutopia Homes Ltd.
Site name and location	Great Western Road Yard, located off Horton Rd, Gloucester GL1 3QA.
Proposed development	The site is to be redeveloped for residential end use, comprising a mixture of low-rise townhouses (1 to 2 storey) and high-rise apartment blocks (3 to 4 storey), public open space (POS), and associated infrastructure.
GROUND MODEL	
Desk-based review of historical reports	The site is described as irregular in shape approximately 450m by 100m comprising former railway sidings with a collection of railway/engine sheds, hardstanding, relict building slabs, ballasted rail, inspection pits, and tank bases. Review of historical Ordnance Survey mapping indicates: • The site has been a railway depot and sidings since at least the earliest mapping in 1883. Various railway sidings, tanks, buildings, and engine sheds have been located across the site over the past 130 years, with the current layout remaining relatively similar to the 1970s. • Extensive railway sidings and depots were also present historically across the surrounding wider area including immediately to the west, south and east. • A sand pit is marked on the 1886 historical map in the east of the site. • A road transport depot was marked in the north of the site from the 1954 mapping (at the location of the now Tenanted Areas). • A gas works was historically present approximately 20 m to the northeast of the site (marked on the historical mapping between 1938 and 2014). • A petrol filling station has been present approximately 100 m to the northeast since the early-1970s. Ground Conditions (British Geological Survey [BGS] records): • Cheltenham Sand and Gravel Superficial Deposits; overlying • Solid Geology (bedrock) of the Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated). The bedrock comprises interbedded limestone, mudstone and siltstone of the Blue Lias and shales and mudstone of the Charmouth Mudstone. Hydrogeology and hydrology: • The Cheltenham Sand and Gravel deposits are classified as a Secondary A Aquifer. The Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated) is classified as a Secondary (undifferentiated) Aquifer. • The site is not in a groundwater Source Protection Zone. The nearest groundwater abstraction was recorded as more than 500 m from the site (historical license). • The River Twyver flows northwest towards the site and a significant section is culverted (approximately 200 m west/southwest of the site at its closest points). The un-culverted section is approximately 250 m southeast (at its closest point). The river joins the River Severn approximately 1.8 km northwest. • The River Twyver is currently (2019 Cycle 2) classified under the Water Framework Directive as 'moderate' • No active surface water abstractions licenses were recorded within 2 km of the site. A non-specialist UXO assessment indicates a low bomb risk. The site is not located in a Radon Affected Area as less than 1% of properties are above the Action Level. Therefore, no radon protection measures are necessary.

	Historical ground investigations: • Two phases of historical ground investigation have been completed by others (Weeks in 1998 and JFHR 2020/2021). • A significant thickness of Made Ground was encountered across the site, generally comprising a granular material associated with the historical railway operations of the site. • The natural ground conditions encountered are generally consistent with the BGS records, comprising Cheltenham Sand and Gravel overlying the Charmouth Mudstone Formation. • Visible asbestos containing material (ACM), asbestos fibres and polycyclic aromatic hydrocarbons (PAHs) identified within Made Ground. • Both the Made Ground and underlying Cheltenham Sand and Gravel were identified to be impacted with petroleum hydrocarbons adjacent to potential sources, notably including the tanks, refuelling infrastructure and interceptor. Further targeted ground investigation was recommended by Hydrock.
Ground and groundwater conditions encountered by investigation	The ground conditions as proven by the investigations undertaken at the site comprise: • Made Ground: encountered from ground level to depths of between 0.10 m and 2.10 m below ground level (bgl), comprising ashy gravelly sand including, clinker, slag and brick; over • Cheltenham Sand and Gravel: encountered to depths of between 1.70 m and 4.70 m bgl, where base proven, comprising orange/brown gravelly sands; over • Charmouth Mudstone Formation: encountered to a maximum proven depth of 14.70m bgl (i.e., base not proven), comprising stiff clays becoming extremely weak mudstone at depth. Shallow groundwater was encountered within the Cheltenham Sand and Gravel at depths between approximately 0.70m bgl and 2.10m bgl. A deeper groundwater body was encountered within the Charmouth Mudstone Formation at depths between approximately of 1.10 m and 2.10m bgl. The groundwater flow direction is generally proven to be towards the west/northwest. Visual and olfactory evidence of petroleum hydrocarbon contamination was identified in soils and on groundwater (i.e., staining, sheens, odours, etc.) in the railway sidings area associated with the historical tanks, refuelling infrastructure and interceptor. Light non-aqueous phase liquid (LNAPL) was identified within soils and measured thicknesses were recorded on top of groundwater within wells in the railway sidings area, notably associated with the historical tanks, refuelling infrastructure and interceptor.
GEOTECHNICAL CONCLUSIONS	
Conclusions of geotechnical assessment	Obstructions associated with historical infrastructure, including rails, foundations, floor slabs and services, should be anticipated. Following breaking out of hardstanding and obstructions, excavations of shallow soils should be readily achievable with standard excavation plant. Heavy duty excavation plant/breaking equipment may be required to break out any obstructions. Excavations during investigation were generally unstable and collapse should be expected from the Made Ground and within the Cheltenham Sand and Gravel below the groundwater table. The rate of water ingress into excavations is likely to be fast. Groundwater control is unlikely to be adequately controlled by sump pumping and alternative methods of dewatering are likely to be required. Foundations are recommended to comprise: • Townhouses: raft with ground improvement (excavate and replace or dynamic compaction). Alternatively, piled foundations. • Apartment blocks (A-D): piled foundations. This should be reviewed when design loads and development proposals are finalised. In addition, the higher tiers of risk assessment are now required due to the risk posed to Controlled Waters from petroleum hydrocarbons (see below) and the findings will need to be considered when proposing reuse of impacted Made Ground and natural soils beneath a raft.

	Shrinkable soils of medium volume change potential may be encountered at depth and the influence of existing trees should be considered in the raft design. In accordance with the NHBC standards, as Made Ground greater than 600mm thick are present at the site, it is recommended that suspended floor slabs with a void be adopted where piled foundations are used. A design CBR of 2.5 % is recommended. Soakaway drainage is considered unsuitable for this site. Buried concrete (Design Chemical Class based on 50 year design life): • DC-1 for the Cheltenham Sand and Gravel. • DS-4 for the Charmouth Mudstone Formation. • DS-3 for the piles.
GEO-ENVIRONMENTAL CONCLUSIONS	
Conclusions of contamination Generic risk assessment	Human health (site-wide): • Pervasive PAHs in Made Ground. • Potential for visible ACM and asbestos fibres in Made Ground. Human health (central portion of railway sidings area): • Petroleum hydrocarbons in Made Ground and Cheltenham Sand and Gravel associated with the historical tanks, refuelling infrastructure and interceptor. The most suitable mitigation for human health comprises the provision of a clean cover system, however, higher tiers of risk assessment are now required due to the risk posed to Controlled Waters from petroleum hydrocarbons (see below) and the findings will need to be considered when proposing reuse of impacted Made Ground and natural soils beneath a clean cover system. Human health (redundant tank near TP219): • Significant petroleum hydrocarbons in the Made Ground surface soils adjacent to the tank. • Impacts require delineation, removal/treatment and verification. Visible ACM recorded in existing/historical buildings during historical surveys. Asbestos demolition survey required and careful removal in line with current guidelines. Plant growth: • Pervasive copper in the Made Ground, however, the provision of clean cover system (human health) will also serve to mitigate risk to plant life. • Tree pits recommended for planting of new trees. Controlled Waters: • The presence of LNAPL and dissolved phase concentrations of petroleum hydrocarbons (significantly in excess of the initial screening value) across the central portion of the railway sidings area currently considered to be an unacceptable risk to Controlled Waters and further works are required for the proposed development. • Higher tiers of risk assessment should be undertaken, encompassing a Detailed Quantitative Risk Assessment (DQRA), and should be supported by the collection of an additional round of groundwater sampling from all accessible wells for petroleum hydrocarbons and semi-volatile organic compounds (SVOCs). Ground gases and vapours: • Characteristic Situation 1, therefore, no ground gas protection measures are required. • Installation of suitable hydrocarbon vapour resistant membranes across all proposed structures as a precautionary approach. Radon: • The site is not in a Radon Affected Area. No radon protection measures are required.

	Water supply pipes: • Brownfield site with organic contamination recorded. Barrier pipe is considered suitable. However, confirmation should be sought from the water supply company.
Proposed mitigation measures	The mitigation measures proposed to remove unacceptable risks include: • The installation of an engineered clean cover system in all soft landscaping areas, including private gardens and POS. • Installation of barrier pipe for water supply pipework. • Completion of higher tiers of risk assessment, encompassing a DQRA, supported by the collection of an additional round of groundwater sampling from all accessible wells for petroleum hydrocarbons and SVOCs. • Installation of hydrocarbon vapour resistant membranes in all new structures. • Delineation, removal/treatment and verification of the impacted surface Made Ground soils adjacent to the redundant tank near TP219. • Asbestos demolition survey, followed by the careful removal in line with current guidance. Subject to the findings of the higher tiers of risk assessment, the methodology for the remediation should be set out in a Remediation Strategy and Verification Plan, which will need to be submitted to the warranty provider and the regulatory authorities for approval. In addition, the production of an MMP and its approval by a Qualified Person will be required to allow reuse of suitable material at the site in accordance with waste regulations. Verification reports by a competent independent geo-environmental specialist will be required following completion of any remedial works (including hydrocarbon vapour resistant membrane installation).
Waste management	The natural unimpacted subsoils are likely to be classified as non-hazardous waste. The majority of the Made Ground soils are likely to be classified as non-hazardous waste, however, soils in the vicinity of significant source areas across the site, notably the historical tank farm and refuelling area (and also hydraulically downgradient), and adjacent to the interceptor, are likely to be hazardous due to their petroleum hydrocarbon fractions. The impacted natural subsoils across the site are likely to be classified as hazardous waste i.e., around the significant source areas within the central portion of the railway sidings area. Any soils containing > 0.1% asbestos or visible asbestos containing materials would be considered as hazardous. The screening and testing undertaken on bituminous bound pavement has indicated that coal tar residues are not present and will likely be classified as non-hazardous waste.
FUTURE CONSIDERATIONS	
Further work	Following the ground investigation works undertaken to date, the following further works will be required: • Demolition asbestos survey. • Discussion with specialists with regard to invasive weeds (Japanese knotweed). • Supplementary ground investigation to confirm design parameters, notably within in the Tenanted Areas. • Discussion and agreement with utility providers regarding the materials suitable for pipework; • Discussions with regulatory bodies and the warranty provider regarding the conclusions of this report. • Discussions with piling Contractors regarding conclusions of this report and design of the piles. • Provision of geotechnical design for the Category 2 structures (including raft foundations), and Earthworks Specification. • Preparation of higher tiers of risk assessment (a DQRA) to determine the risk to Controlled Waters, supported by collection of an additional round of groundwater sampling from all accessible wells.

	• Production of a Remediation Strategy and Verification Plan, subject to findings of higher tiers of risk assessment (and agreement with the regulatory bodies and the warranty provider). • Production of a Materials Management Plan relating to reuse of soils at the site and import of soils to the site. • Remediation and mitigation works. • Verification of the earthworks, MMP, remediation and mitigation works.

This Executive Summary forms part of Hydrock Consultants Limited report number 20775 and should not be used as a separate document.

1. INTRODUCTION

1.1 Terms of reference

In December 2021, Hydrock Consultants Ltd. (Hydrock) was commissioned by Eutopia Homes Ltd. (the Client) to undertake further site investigation, comprising a supplementary Phase 2 Ground Investigation, at the Great Western Road Yard site in Gloucester (hereafter referred to as the 'site').

The site comprises a former large railway sidings known as the Great Western Road Yard (accessed via Horton Road to the east) and is situated immediately to the north of the main railway line into Gloucester railway station (orientated east to west along the southern site boundary). The site also includes a historical road transport depot that was formerly present in the north and is now occupied by four separate tenanted commercial units accessed off the Great Western Road to the north. The 'Tenanted Areas' are currently occupied by FLI Structures (a steel fabricator), Jays Timber Yard, Auto tune and Classic leather (car repair/detailing), and Carlton Motors (a garage). A former car parking area in the far northwest of the site was formerly also a Tenanted Area (leased to the NHS for the nearby hospital), however, this is now accessible as part of the railway sidings area of the site. The entire site, including the Tenanted Areas, was formerly owned by Network Rail.

A Site Location Plan (Ref: 20775-HYD-XX-XX-DR-GE-1000, dated 3 March 2022) is presented in Appendix A. A general site layout plan, along with the Tenanted Areas, is shown on the Network Rail Sale Plan & Lease Overlays drawing (Ref: 6225807, dated 17 May 2018) presented in Appendix A.

Hydrock understands the site is to be redeveloped for residential end use, comprising a mixture of low-rise townhouses (1 to 2 storey) and high-rise apartment blocks (3 to 4 storey), public open space (POS), and associated infrastructure. The Proposed Masterplan Layout drawing by Darling Associates Ltd. (Ref: 03-0-01 [Preliminary], received 28 February 2022) is presented in Appendix A. Within the proposed layout drawing the site is spilt into the following areas:

- Northern Area: containing apartment Blocks A, B and C.
- Southern Area: containing the townhouses and apartment Block D.

The works detailed herein have been undertaken in accordance with Hydrock's fee proposal (Ref: 20775-SWGB-E-0001-02, dated 16 December 2021) and the Client's instructions to proceed (received via email dated 20 December 2021).

1.2 Available information

Hydrock have undertaken a Phase 1 desk-based review of the relevant historical information that was included within the vendor's pack during the sale of the site. In addition, the Client has subsequently had their own additional relevant surveys completed, including a preliminary Phase 2 Ground Investigation, that also forms part of Hydrock's review. Hydrock also completed an updated site reconnaissance survey as part of Phase 1 to ensure that the findings and conclusions within the provided historical information are still valid for the currently proposed development layout.

It is understood that the Client does not have reliance on the following listed documents that were included as part of the vendor's pack of information, however, they have still been reviewed for information purposes as part of the works detailed herein:

- Weeks Technical Services (Weeks). July 1998. Contaminated Land Site Investigation at Gloucester. Ref: G8013V.

- Ove Arup & Partners Ltd. April 2016. Geo-Environmental Desk Study and Preliminary Risk Assessment, Great Western Road Yard, Gloucester. Ref: REP/006/16.
- Ecus Environmental Consultants (Ecus). Great Western Road Goods Yard - Ecological Appraisal. Ref: 12308, dated April 2019.

The following documents were commissioned by the Client and Hydrock is entitled to full reliance upon their contents (they have also been included as Appendix C of this report):

- John F Hunt Regeneration (JFHR). January 2021. Report on Ground Investigation, Gloucester Great Western Road Yard. Ref: 20904. The provided report is marked as 'draft for comment' and is also incomplete and missing Appendix 5 (Site Photographs).
- Ground and Environmental Services (GES). December 2020. Preliminary Geotechnical Ground Investigation, Great Western Yard, Great Western Road, Gloucester. Ref: 12446. This report forms Appendix 9 of the above JFHR report.

The above documents are summarised in Section 2. Their content has been used to formulate the preliminary Ground Model and preliminary Conceptual Site Model (CSM) for the site and were also used to support the design and scope of the supplementary Phase 2 Ground Investigation works undertaken by Hydrock (and detailed herein), therefore, they should be read in conjunction with this report.

1.3 Objectives

The works have been commissioned to support the planning application and to assist with the design of the development.

The objective of the Phase 1 desk-based review is to:

- formulate a preliminary Ground Model and a preliminary CSM for the site to identify and make a preliminary assessment of key geo-environmental and geotechnical risks to the proposed development.

The objective of the supplementary Phase 2 Ground Investigation is:

- to resolve uncertainties identified in the Phase 1 desk-based review of previous investigations by refining and updating the preliminary Ground Model, determining geo-environmental and geotechnical site conditions and identifying key contamination risks by updating and finalising the Conceptual Model in accordance with the principles of Land Contamination: Risk Management (LCRM) (Environment Agency, 2021);
- to identify geo-environmental mitigation requirements to enable development; and
- to provide preliminary geotechnical recommendations for design.

1.4 Scope

The scope of work for this commission comprises:

- a Phase 1 desk-based review of all historical reports and completion of a site reconnaissance survey, to determine the nature of the site and its surroundings, current and former land uses, geology, hydrogeology and hydrology;
- an intrusive supplementary Phase 2 Ground Investigation, including trial pitting, windowless sampling, dynamic probing, rotary coring, cone penetration testing (CPT), ground gas and groundwater monitoring; and

- reporting on the findings of the Phase 1 desk-based review, the ground investigation, and the geo-environmental assessment, and also the provision of initial geotechnical design recommendations based on interpretation of the ground and groundwater conditions encountered.

1.5 Regulatory context and guidance

The investigation work has been carried out in general compliance with recognised best practice, including (but not limited to) BS 5930:2015, BS 10175:2011+A2:2017 and the AGS (2006) 'Good Practice Guidelines for Site Investigations'.

The geo-environmental section of this report is written in broad accordance with BS 10175:2011+ A2:2017, LCRM [Environment Agency, 2021]) and the AGS (2006) 'Good Practice Guidelines for Site Investigations'.

The methods used follow a risk-based approach, the first stage of which is a Phase 1 desk-based review and field reconnaissance, with the potential geo-environmental risk assessed qualitatively using the 'source-pathway-receptor contaminant linkage' concept to assess risk as introduced in the Environmental Protection Act 1990 (EPA, 1990). Potential geotechnical risks are also assessed.

Phase 2 comprises intrusive ground investigation work and testing. The factual information from Phase 1 and Phase 2 are used to develop the CSM. This CSM is based on a Ground Model of the site physical conditions and an exposure model of the possible contaminant linkages. The CSM forms the basis for Generic Quantitative Risk Assessment (GQRA) in accordance with current guidelines. This GQRA might lead to more Detailed Quantitative Risk Assessment (DQRA).

Professional judgement is then used to evaluate the findings of the risk assessments and to provide recommendations for the development.

The geotechnical section of this report is prepared in general accordance with BS EN 1997-1+A1: 2013, BS EN 1997-2:2007 and BS 8004:2015. This report constitutes a Ground Investigation Report (GIR) as described in Part 2 of Eurocode 7 (BS EN 1997-2) (EC7). However, it is not intended to fulfil the requirements of a Geotechnical Design Report (GDR) as specified in EC7.

Where relevant the NHBC Standards (2022), have also been applied.

The geo-environmental and geotechnical aspects are discussed in separate sections. Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements) and the term 'geo-environmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. Designers should take all aspects of the investigation into account.

Remaining uncertainties and recommendations for further work are listed in Section 9 and Section 10.

2. PHASE 1 DESK-BASED REVIEW OF HISTORICAL REPORTS

2.1 Introduction

Hydrock have undertaken a review of the provided information listed in Section 1.2 and the pertinent information from each document is summarised in this section. The documents should still be read in conjunction with this report.

A Phase 1 Desk Study was prepared by Ove Arup & Partners Ltd. (Arup) for Network Rail to support the sale of the site (Ref: REP/006/16, dated 25 April 2016) (hereafter referred to as the 'Arup 2016 Desk Study'). Hydrock generally agree with the findings and conclusions of the report, however, Hydrock understand that the Client cannot place reliance upon its contents. Therefore, the following section includes a summary of the pertinent information and is supplemented by additional information/repeated desk-based searches of freely available information, as required.

Hydrock also undertook a site walkover on the 21 January 2022 to visually assess potential geotechnical hazards, contaminant sources and receptors and ensure that the site conditions as described in the Arup 2016 Desk Study are similar to current conditions. The site walkover survey also facilitated the supplementary Phase 2 ground investigation, notably to inform health and safety planning, and identify any other constraints that may be present on site. Photographs from the site walkover are included in Appendix B. A Site Walkover Plan (Ref: 20775-HYD-XX-XX-DR-GE-1001, dated 22 March 2022), including the photograph locations, is presented in Appendix A.

All of the potential sources of contamination identified from the desk-based review of historical information and Hydrock's supplementary site walkover are presented on the Potential Sources of Contamination drawing (Ref: 20775-HYD-XX-XX-DR-GE-1002, dated 10 March 2022) presented in Appendix A.

2.2 Phase 1 Desk Study review (Arup 2016 Desk Study)

General Site Information:

- The site is located in central Gloucester approximately 200 m east of Gloucester railway station. The National Grid Reference for the approximate centre of the site is 384107E, 218374N.
- The site is described as irregular in shape approximately 450 m by 100 m comprising a former railway sidings with a collection of railway/engine sheds, hardstanding, relict building slabs, ballasted rail, inspection pits, and above ground storage tank (AST) bases.
- Little reference is made to the Tenanted Areas of the site other than a vehicle repair, testing, and servicing site located in the northwest (i.e., Carlton Motors).
- A site walkover survey was undertaken on 20 January 2016, which identified the following significant features across the railway sidings area:
  - Infilled inspection pits to the south of the large engine shed in the east of the site.
  - Approximately 50 m to the west of the large engine shed were concrete tank holders with low brick enclosures (i.e., fuel storage footings for a historical 'tank farm'). Fuel pipework was recessed into the cast in channels in the concrete hardstanding and the associated refilling pumps and pipework were located on the hardstanding area immediately to the east of this area (approximately 20 m west of the large engine shed).
  - Approximately halfway along the southern site boundary was another former brick walled tank holder. Immediately to the west of this area was a large (approximately 10 m by 3 m) open

interceptor surrounded by security rail and fence. No oil was noted on the interceptor. Anecdotal evidence suggested that this was periodically pumped to remove hydrocarbons.
  - An open inspection pit in the west of the railway sidings area. A 'recent' bunded fuel store was recorded adjacent to inspection pit.
  - The existing buildings within the railway sidings area were derelict and in a poor state of repair. Extensive fire damage was also noted. No assessment of the building internals was made.

Site history and surrounding area:

- The historical mapping indicates that the site has been utilised as a railway depot and sidings since at least the earliest mapping in 1883. Various railway sidings, tanks, buildings, and engine sheds have been located across the site over the past 130 years, with the current layout remaining relatively similar to that of the 1970s.
- Extensive railway sidings and depots were also present historically across the surrounding wider area including immediately to the west, south and east.
- A sand pit is marked on the 1886 historical map in the east of the site.
- A road transport depot was marked in the north of the site from the 1954 mapping (at the location of the now Tenanted Areas).
- A gas works was historically present approximately 20 m to the northeast of the site (marked on the historical mapping between 1938 and 2014).
- A petrol filling station has been present approximately 100 m to the northeast since the early-1970s.

Ground Conditions:

- The British Geological Survey (BGS) mapping indicates the site is underlain by:
  - Cheltenham Sand and Gravel Superficial Deposits; overlying
  - Solid Geology (bedrock) of the Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated). The bedrock comprises interbedded limestone, mudstone and siltstone of the Blue Lias and shales and mudstone of the Charmouth Mudstone.

The Arup Phase 1 Desk Study details the ground conditions encountered from an historical Phase 2 Ground Investigation undertaken by Weeks in 1998, however, this is reviewed and summarised separately in Section 2.3.1 below.

Hydrogeology and hydrology:

- The Cheltenham Sand and Gravel deposits are classified by the Environment Agency A as a Secondary A Aquifer. The Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated) is classified as a Secondary (undifferentiated) Aquifer.
- The site is not in a groundwater Source Protection Zone. The nearest groundwater abstraction was recorded as more than 500 m from the site (this is considered to be a historical license).
- The River Twyver flows northwest towards the site and a significant section is culverted (approximately 200 m west/southwest of the site at its closest points). The un-culverted section is approximately 250 m southeast (at its closest point). The river joins the River Severn approximately 1.8 km northwest.
- Approximately 1.25 km west of the site the River Severn splits into the main river body (flowing south towards the Severn Estuary) and a tributary that flows south into Gloucester Docks and on to the Gloucester and Sharpness Canal.

- The Wotton Brook is located 675 m to the northeast of the site (flowing north), however, this is considered hydraulically upgradient and not considered to be at risk from the site.
- No active surface water abstractions licenses were recorded within 2 km of the site.

Hydrock has searched the freely available information on the online Environment Agency Catchment Data Explorer for the River Twyver. The river is currently (2019 Cycle 2) classified under the Water Framework Directive as 'moderate' owing to its ecological status, partly due to heavy metals of copper and zinc, as well as ammonia being recorded as high. In addition, it is reported to be failing its chemical status due to priority hazardous substances, including mercury and its compounds, and polybrominated diphenyl ethers (PBDE). It is also recorded to have a high pH. It is noted that to improve quality within the river has been classified as 'disproportionally expensive'.

Unexploded Ordnance (UXO):

- The Arup 2016 Desk Study reports that the Zetica regional risk maps indicate the site to be within an area of low risk from UXO
- This search has been repeated by Hydrock using Zetica's freely available online mapping tool confirming the low risk based on the most up to date information.

Radon

- The Arup 2016 Desk Study reports that the site is not located in a Radon Affected Area as less than 1% of properties are above the Action Level.
- This search has been repeated by Hydrock using the UK Radon Atlas online mapping tool confirming the low risk. Therefore, no radon protection measures are necessary.

2.3 Review of historical Phase 2 ground investigation works

The pertinent information from the historical intrusive Phase 2 Ground Investigations is summarised in the following subsections.

All exploratory locations are included on the Exploratory Hole Location Plan (EHLP) (Ref: 20755-HYD-XX-XX-DR-GE-1004, dated 03 February 2022) presented in Appendix A.

2.3.1 Weeks. Contaminated Land Site Investigation at Gloucester. Ref: G8013V, dated 27 July 1998 (Weeks 1998 GI).

The site investigation boundary included the current site boundary, with the exception of the Tenanted Areas, and also covered an area of railway sidings further to the west that is to be retained and operated by Network Rail (i.e., is now off site – this is marked as the 'Existing Sidings Off Site' on the Potential Sources of Contamination drawing [Ref: 20775-HYD-XX-XX-DR-GE-1002, dated 10 March 2022] presented in Appendix A).

Ground investigation works undertaken in June 1998 comprising:

- Hand-held window sampler boreholes (WS1-WS5, WS7-WS19, and WS21);
- Rotary auger boreholes (BH1-BH7); and
- Ground gas (vapour only) monitoring and groundwater sampling.

The ground conditions encountered:

- Made Ground was encountered across the site to a maximum depth of 1.60 m below ground level (bgl). This generally comprised dark grey fine to coarse sand of ash including ballast, brick fragments, clinker and cobble and boulders of slag.

- Cheltenham Sand and Gravel across the site beneath the Made Ground to a maximum depth of 4.70m bgl these are recorded as sands with varying proportions of gravel and locally silty and/or clayey;
  - At locations BH4 and WS10 in the west of the site, a typically more cohesive Superficial Deposit was encountered beneath the Made Ground to depths of 2.70 m and 2.80 m bgl, respectively.
- Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated) was encountered beneath the Cheltenham Sand and Gravel to a maximum depth of 7.00m bgl. This was recorded as firm to stiff silty clay.

Groundwater was encountered across the site during monitoring visits at depths between 1.50 m - 2.80 m bgl (95.0 to 94.65 m ordnance datum [OD]). The standpipe in BH7 was noted to have become blocked (potentially an indication of blowing sands present on site).

Significant constraints encountered:

- WS12A, WS13, WS15, WS16 and WS19 all reportedly stopped due to 'lack of progress'. This has been interpreted to represent blowing sands.

The key findings included:

- Visual and olfactory evidence of contamination was encountered within the soils and groundwater, including hydrocarbon odours, staining and sheens in both the Made Ground and underlying Cheltenham Sand and Gravel, notably:
  - Diesel odour noted in BH5 adjacent to the tank holder and interceptor on the southern site boundary.
  - Diesel odour and staining noted in BH6 adjacent to the tank farm in the central portion.
  - Diesel odour and staining noted in WS12A adjacent to a historical tank locations and turntable on southern site boundary.
  - Diesel odour and staining noted in WS15 adjacent to the refuelling infrastructure in the central portion.
  - Diesel odour noted in WS17 to the south of the large engine shed in the east.
- Vapour monitoring recorded elevated readings (in ppm) adjacent to the identified sources, notably at WS115 adjacent to the tank farm and refuelling area.
- Oil was noted in the three water samples collected from drains to the north and south of the tank farm and south of the engine shed.
- Significant concentrations of petroleum hydrocarbons in the eastern portion of the site at BH5 and BH6 (adjacent to the historical tanks and interceptor). The hydrocarbons were predominantly diesel range although concentrations of BTEX (benzene, toluene, ethylbenzene and xylenes) were also recorded, indicating petroleum range.
- Elevated cyanide was detected in groundwater at BH1 in the northwest. The source was not apparent at the time of the investigation.

2.3.2 JFHR. Report on Ground Investigation, Gloucester Great Western Road Yard. Ref: 20904, dated January 2021 (draft) (JFHR 2021 GI).

The findings within the JFHR 2021 GI have generally been split into two separate reports and each have a separate focus (i.e., contamination and geotechnical). The main body of the JFHR 2021 GI report is primarily contamination focused, whereas Appendix 9 is a standalone geotechnically focused report that was prepared by GES (Ref: 12446, dated December 2020 [GES 2020 GI]) that used data collected at

the same time as the JFH 2018 GI. The following subsection of this report summarises both reports for completeness.

Ground investigation works were undertaken by both JFHR and GES in October and November 2020 across the entire site, including the Tenanted Areas in the north along Great Western Road, comprising:

- Cable percussion drilling (BH101-BH103) (undertaken by GES);
- Window sampling (WS101-WS116) (undertaken by GES);
- Trial pitting (TP101-TP134) (undertaken by JFHR); and
- Ground gas and groundwater monitoring (undertaken by GES).

The site walkover undertaken by JFHR as part of their investigation works identified two additional potential sources of contamination in the Tenanted Areas, comprising an oil store area in Carlton Motors and an AST in FLI Structures. These are highlighted on the Potential Sources of Contamination drawing (Ref: 20775-HYD-XX-XX-DR-GE-1002, dated 10 March 2022) presented in Appendix A.

The ground conditions encountered:

- Made Ground was encountered at all exploratory locations to depths between 0.1 m and 2.1 m bgl, with the typical proven depths ranging between 0.6 m and 1.1 m bgl. Surfacing comprised concrete, asphalt and hardcore. This was generally underlain by gravelly sand and sandy gravel, with the sand component predominantly ash and the gravel component of clinker and railway ballast. Anthropogenic materials including brick, concrete, slag, metal and glass were also recorded within the Made Ground.
- Cheltenham Sand and Gravel was encountered at all locations where the Made Ground was penetrated and the base was proven at depths of between 2.1 m and 4.7 m bgl. This generally comprised sand and gravelly sand, with lesser horizons of sandy clay, and the gravel fraction comprising sandstone.
    - At locations TP107, TP108 and TP114 a typically more cohesive Superficial Deposit was encountered beneath the Made Ground. The base of the cohesive material was encountered at 1.60 m bgl within TP108, however, within TP107 and TP114 the material was encountered to the base of the excavations at depths of 2.30 m and 1.70 m bgl, respectively (i.e., base unproven).
- Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated) was encountered where the Cheltenham Sand and Gravel was penetrated and the maximum proven depth was 12 m bgl. The Solid Geology comprised an upper layer of firm becoming stiff with depth closely fissured dark grey slightly silty clay overlying very stiff/hard bluish grey mudstone*. The top of the mudstone was encountered at depths between 6.3 m and 7.9 m bgl.
- Groundwater was recorded in the Cheltenham Sand and Gravel at depths between 1.0 m and 2.5 m bgl. A consistent and distinctive hydraulic gradient was reportedly recorded flowing from east to west.

*The Solid Geology encountered across the site is recorded as clays and mudstone. This is considered to be indicative of the Charmouth Mudstone Formation (rather than the Blue Lias Formation) and hereafter this report will refer to this as simply the 'Charmouth Mudstone Formation'.

Significant constraints encountered:

- Access constraints restricted the placement of exploratory locations. These were associated with live rail operations along the southern site boundary, dense vegetation across the disused sidings, buried assets/services, structurally unsafe buildings, and live operations within the Tenanted Areas.
- Target depths were not reached in the cable percussion boreholes (which were targeted to 15 m bgl) reportedly due to the density of the encountered bedrock. Several window sample boreholes similarly did not reach their target depths reportedly again due to density of the underlying geology and blowing sands withing WS106A. In addition, WS103 refused on a suspected concrete obstruction.
- Ingress of shallow groundwater within the Cheltenham Sand and Gravel also prevented trial pits reaching the underlying Solid Geology due to instability and collapse of the excavations.

The key contamination findings included (JFHR 2021 GI):

- Visual and olfactory evidence was encountered within the soils and groundwater, including hydrocarbon odours, staining and sheens in both the Made Ground and underlying Cheltenham Sand and Gravel, notably.
  - Hydrocarbon odour noted in TP103 within the refuelling infrastructure in the central portion.
  - Strong hydrocarbon odour, staining and sheens noted in TP104 and TP105 within the tank farm in the central portion.
  - Very strong odour noted in TP106 along the western site boundary and hydraulically downgradient of an inspection pit.
  - Sheens noted in TP107 to the west of the AST adjacent to the inspection pit in west.
  - Moderate odour, extensive staining and sheens noted in TP109 which is hydraulically downgradient of the tank farm.
  - Staining noted in TP110 to the north of the tank holder adjacent to the interceptor on the southern site boundary.
  - Moderate odour, extensive staining and sheens noted in TP111, however, the location of this excavation does not appear on the supporting drawings (no further information provided).
  - Strong odour, staining and heavy sheens noted in TP112, TP115 and TP118 surrounding the tank farm and refuelling infrastructure.
  - Odour and staining noted in TP120 within the footprint of a since demolished structure to the northeast of the tank farm.
  - Odours and staining noted in TP122 and TP123 in the former carpark to the northwest, and also adjacent to the redundant AST and refuelling pump.
  - Strong odour and staining noted in TP129 in the eastern yard area of FLI structures.
  - Strong odour and extensive staining noted in TP132 and TP133 hydraulically downgradient of the tank farm.
  - A hydrogen sulphide odour was recorded within the Made Ground at two locations in the northwest of the railway yard area (TP122 and TP131).
- Petroleum hydrocarbons exceedances of the human health Generic Assessment Criteria (GAC) within both the Made Ground and natural soils. The source is considered to be diesel fuel from the former fuel storage facilities and the former fuel dispensing area for the locomotives. The exceedances within the natural soils are more widespread (relative to the Made Ground), therefore, the impacts have likely migrated via the groundwater and a substantial smear zone is considered to be present where groundwater levels have fluctuated.
- BTEX were recorded above the laboratory reporting limit within one sample (TP123 @ 0.4 m bgl), however, this is understood to be a sample from a layer of bitumen/asphalt encountered at this

depth, rather than of soil. Therefore, this is not considered to be representative of concentrations in soil. All other soils samples analysed were below the reporting limit for BTEX compounds.

- Exceedances of GAC used for heavy metals (arsenic, copper, lead and zinc) and polycyclic aromatic hydrocarbons (PAHs). These were considered to be associated with ash, clinker and slag within the Made Ground.
- Asbestos in the form of loose fibres and visible asbestos containing materials (ACM) in the Made Ground at four locations across the site (no spatial trend). Further visible ACMs were considered likely within the buildings/structures that could not be accessed.
- Light Non-Aqueous Phase Liquid (LNAPL) was recorded during groundwater monitoring in two window sample boreholes in the south of the railway sidings area (WS103 and WS115), which is likely associated with the interceptor and historical tank at this location. Suspected weathered diesel globules were observed to be floating on the groundwater from within WS103 (although no measurable thickness recorded). The LNAPL in WS115 was encountered to have a measured thickness up to 500 mm (significantly less during second visit [45 mm]) and presented as a dark brown slightly translucent floating brown layer together with a distinctive diesel odour.
- Two rounds of ground gas monitoring were undertaken (by GES). Elevated concentrations of carbon dioxide were detected with recorded concentrations ranging between 0.1 % and 8.6 % (significantly concentrations were only in excess of 5% at 4 out 19 locations). Methane concentrations were negligible with concentrations typically 0.1 % with a maximum of 0.8 %. Ground gas flow was negligible with typical rates up to 0.2 l/hr (significantly flow above this was only recorded at only 3 out of 19 locations).
- Hydrocarbon vapours were recorded across the site using a photo-ionisation detector (PID) with a maximum concentration of 30.4 ppm. Readings were significantly lower during the second round of monitoring, with typical readings below 1 ppm and a maximum reading of 5.9 ppm.

The JFHR GI report references historical Network Rail asbestos demolition survey records that encountered visible ACMs on the ground outside the footprints of the existing on site buildings and structures, including cement products (roof sheets and flue pipe debris), gasket debris, and cladding coating (paper) debris. The records also detail that in the accessible areas of the fire damaged buildings, asbestos paper lined fibreboard panels and galbestos were reportedly also noted to be strewn across the floors. However, the internals of the existing structures were not accessed by either JFHR or GES.

The following outline remedial measures were recommended (JFHR 2021 GI):

- Excavation of Made Ground within footprint of proposed gardens/soft landscaped areas with installation of an engineered clean cover system, where Made Ground still remains.
- Excavation and disposal, or potential treatment, of soils grossly/significantly impacted by petroleum hydrocarbons.
- Ground gas protection measures with vapour protection dependent on further ground gas monitoring.
- Targeted excavation and management or disposal of visible ACMs in soils.
- Subject to Controlled Waters DQRA, further remediation such as application of remediation products across faces and bases of excavations, direct injection or in situ remediation.
- Reuse of materials in accordance with a Materials Management Plan (MMP).
- Installation of protected water supply pipes.
- Installation of clean service corridors.

The key geotechnical findings included (GES 2020 GI):

- Shallow foundations were proposed for the low-rise housing with a minimum foundation depth of 0.9 m bgl and extending a minimum of 0.3 m into the natural stratum. Foundation depths would need to be increased in areas of previously disturbed ground, services and obstructions and found through the Made Ground on to natural strata.
- An allowable bearing pressure of 120 kN/m^2 was recommended for foundations at a depth of 0.9 m bgl. A line load of 60 kN/m^2 with a minimum foundation width of 0.5 m was recommended. Total settlements were calculated to be in the order of 20 mm.
- SPT 'N' values and the density of the Cheltenham Sand and Gravel varied significantly at 1.2 m and 2 m bgl. Where blowing sands and loose ground conditions are encountered, foundations should be deepened. Depending on the depth that suitable bearing strata is encountered, an alternative foundation solution may be more appropriate.
- Piled foundations were recommended to mitigate the hazard of ground stability from blowing sands or where loads are greater than the above. Bored cast in situ reinforced concrete piles bearing on the Charmouth Mudstone Formation were recommended instead of driven piles. Safe working loads of between 167 kN and 628 kN for single isolated bored piles at 7 m, 8 m and 9 m (with diameters of 300, 450 and 600 mm, respectively) were provided.
- It was recommended that suspended floors are adopted.
- Analytical testing was undertaken on the near surface soils. A design sulphate class of DS-1 and an Aggressive Chemical Environment for Concrete class of AC-1 were recommended. No testing of the underlying Charmouth Mudstone Formation was included.

2.4 Supplementary site reconnaissance survey (Hydrock)

Hydrock undertook a reconnaissance survey in order to ascertain if potential sources of contamination and general site conditions were the same as previously noted and to review access for the ground investigation works. This was undertaken on the 21 January 2022 and a subsequent visit undertaken on the 25 February 2022. The first visit pertained to the railway sidings area and the subsequent visit covered the Tenanted Areas (with the exception of FLI Structures) as access was not agreed during the initial walkover.

Photographs from the site walkover are included in Appendix B. A Site Walkover Plan (Ref: 20775-HYD-XX-XX-DR-GE-1001, dated 22 March 2022), including the photograph locations, is presented in Appendix A.

The potential sources of contamination generally agreed with the historical reports and site walkovers and include the historical tank holders, refuelling infrastructure, interceptor, inspection pits (both infilled and empty), general railway infrastructure (i.e., manholes, gullies etc.) and a flammable store. Two ASTs were now noted to be adjacent to the inspection pit near the western site boundary (one of more modern construction and an older tank with black staining noted on the soils by the outlet). In addition, a potential additional recessed interceptor (overgrown) was noted directly to the northwest of the tank farm in the central portion.

All of the potential Sources of contamination identified from the desk-based review of historical information and Hydrock's supplementary site walkover are presented on the Potential Sources of Contamination drawing (Ref: 20775-HYD-XX-XX-DR-GE-1002, dated March 2022) presented in Appendix A.

Japanese knotweed was observed in the northeast corner of the site. This has also been recorded within the Ecus Ecological Appraisal that was included as part of the vendors pack of information (Ref: 12308, dated April 2019).

Significant access constraints were noted across the site, notably including: large areas of dense vegetation, railway lines, differing ground levels, structurally unsafe buildings, and unfilled inspection pits.

2.5 Reliability of historical data

Data from the historical ground investigation reports have been considered during the preparation of this report, including as part of the assessments, where reliable. The subsection below provides comment as to the reliability of the various data available.

2.5.1 Geological

The geological data from all the historical reports are generally consistent with the BGS geological mapping, which records the Cheltenham Sand and Gravel overlying the Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated).

Exploratory locations along the western periphery of the railway sidings area logged the shallow soils as being cohesive in nature rather than the anticipated granular. Historical BGS records from the wider area surrounding the site to the west, significantly towards the River Severn, also indicate the presence of shallow cohesive soils and do not correspond with mapping records. Further interpretation is required when utilising the geological data from this area of the site.

2.5.2 Soil (Chemical)

The analytical data from the Weeks 1998 GI are considered too old with regards to laboratory methodology and accreditation to be included as part of the final assessment detailed within this report. However, Hydrock has used the data in support of targeting potential sources and as a useful indication of contamination distribution and trends across the site.

The soil data from the JFHR 2021 GI are suitably accredited (ISO, MCERTS etc.) and are considered suitable to be used as part of the final assessment detailed within this report.

2.5.3 Groundwater (Chemical)

Due to the age of the groundwater from the Weeks 1998 report, there has been significant potential for changes to the chemical distribution and concentration (dilution, dispersion and degradation) over time within the groundwater and surface water. As such, whilst the historical data provide good background information and Hydrock has used them to support targeting of potential sources, Hydrock has not used the historical 1998 data in the final assessment.

The groundwater data from the JFHR 2021 GI are suitably accredited (ISO, MCERTS etc.) and are considered suitable to be used as part of the final assessment detailed within this report.

2.5.4 Ground Gas Monitoring

Due to the age of the ground gas (vapour) data from the Weeks 1998 report, and the fact that historical monitoring wells used to record the data are no longer present/serviceable (to replicate the results), Hydrock has not used the data in the final assessment detailed within this report. However, they provide good background information and Hydrock has used the data to support targeting of potential sources.

The ground gas data from the GES 2020 GI are suitable to be used as part of the final assessment detailed within this report. In addition, the monitoring wells are still present and serviceable (to repeat the monitoring) and will be used as part of future ground gas monitoring rounds.

2.5.5 Geotechnical

The geotechnical laboratory data from the GES 2020 GI were undertaken in line with recognised methodologies (BS 1377: Part 2: 1990) and are considered suitable to be used as part of the final assessment detailed within this report.

3. PRELIMINARY CONCEPTUAL SITE MODEL

3.1 Introduction

The preliminary CSM incorporates evidence from the Phase 1 desk-based review, the site walkover, and historical Phase 2 Ground Investigations carried out at the site. The formulation of a preliminary CSM is a key component of the LCRM methodology. The preliminary CSM incorporates a Ground Model of the site physical conditions and an exposure model of the possible contaminant linkages; it forms the basis for GQRA in accordance with current guidelines.

3.2 Ground Model

The preliminary Ground Model provides an understanding of the ground conditions and is the basis for preparing the preliminary geotechnical hazard assessment (Section 3.3) and the preliminary geo-environmental exposure model (Section 3.4).

3.3 Geotechnical hazard identification

3.3.1 Context

The preliminary geotechnical hazard identification has been undertaken in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents HD 41/15 and CD 622.

The following section sets out the identified geotechnical hazards and the development elements potentially affected (see Table I.1 in Appendix I for further information).

3.3.2 Plausible geotechnical hazards

Plausible geotechnical hazards identified at the site are:

- Uncontrolled Made Ground (variable strength and compressibility).
- Shrinkage / swelling of the clay fraction of soils under the influence of vegetation.
- Variable lateral and vertical changes in ground conditions.
- High sulphates present in the soils.
- Attack of buried concrete by aggressive ground conditions (e.g. expansive slag).
- Obstructions.
- Shallow groundwater.
- Changing groundwater conditions.
- Blowing sands and loose Made Ground, leading to difficulty with excavation and collapse of side walls.
- Earthworks – potential unsuitability of site won material to be reused as fill, notably due to contamination.
- Japanese knotweed.

3.3.3 Potential development elements affected

Development elements potentially affected by geotechnical hazards are:

- Buildings – foundations.
- Buildings – floor Slabs
- Roads and pavements.

- Services.
- Gardens.
- Construction staff, vehicles and plant operators.
- Concrete below ground.

Health and safety risks to site Contractors and maintenance workers have not been assessed during these works and will need to be considered separately during design.

The above plausible geotechnical hazards and development elements affected have been carried forward for investigation and assessment. The investigation is presented in Sections 4 and 5 and the assessment is presented in Section 6.

3.4 Geo-environmental exposure model

3.4.1 Context

The preliminary exposure model is used to identify geo-environmental hazards and to establish potential pollution linkages, based on the source-pathway-receptor (SPR) approach.

A viable pollution linkage requires all the components of an SPR to be present. If only one or two are present, there is no linkage and no further assessment is required.

3.4.2 Potential contaminants

For the purpose of this assessment the potential contaminants have been separated according to whether they are likely to have originated from an on-site or off-site source.

All of the potential Sources of contamination identified from the desk-based review of historical information and Hydrock's supplementary site walkover are presented on the Potential Sources of Contamination drawing (Ref: 20775-HYD-XX-XX-DR-GE-1002, 10 dated March 2022) presented in Appendix A.

3.4.2.1 Potential on-site sources of contamination

- Made Ground associated with the historical use of the site, including as a railway sidings and road transport depot, possibly including elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons (S01).
- Made Ground potentially containing asbestos fibres and ACMs from demolition of historical structures (S02).
- Petroleum hydrocarbon fuels, lubricants, and solvents from the operation of the numerous former train refuelling and servicing areas, including leakage from ASTs and associated infrastructure (S03).
- Made ground associated with the historical infilling of the former sand pit in the east of the site, possibly including elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons (S04).
- Coal tar potentially present in the bituminous bound pavements present on site (S05).
- Polychlorinated biphenyls (PCBs) associated with the historical use of railway related equipment and components (S06).
- Pesticides associated with the historical control of weeds and vegetation across the site (S07).
- Ground gases (carbon dioxide and methane) from organic materials in the Made Ground (S08).
- Hydrocarbon vapours from spillages and/or leaks of petroleum hydrocarbons, lubricants and solvents (S09).

- Asbestos within existing buildings (S10).

An electricity substation is located in the northeast of the site. The substation is not considered to be a potential source of PCBs contamination due to following:

- According to the Environmental Industry Profile for electrical engineering works, the use of PCBs in the United Kingdom ceased in the early-1970s. The substation first appeared on the historical OS maps (Appendix C) in 1972.
- The historical exploratory borehole BH101 is located nearby the substation (approximately hydraulically downgradient) and found no visual or olfactory evidence of contamination.
- PCBs are known to be immobile in nature and if present within the substation (and leakages had historically occurred) the contamination would likely be localised (i.e., if significant, it would have been identified during the JFHR 2021 GI).

Hydrock therefore consider the risk of PCB contamination relating to the electricity substation on site to be very low. However, PCBs are still associated with historical use of railway related equipment and components as detailed above.

3.4.2.2 Potential off-site sources of contamination

- Hydrocarbon fuels, lubricants, and solvents from the operation of the refuelling station approximately 100 m northeast of the site, including leakage from USTs, ASTs and associated infrastructure (S11).
- Made Ground associated with the historical use of the surrounding industrial area, including extensive use as railway sidings to the east, south and west, possibly including asbestos and elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons (S12).
- Petroleum hydrocarbon fuels, lubricants, and solvents from the historical operation of the numerous former train refuelling areas and tanks across the surrounding area, including leakage from USTs, ASTs and associated infrastructure (S13).
- Made Ground, associated with the historical gas works approximately 20 m northeast, possibly including asbestos and elevated concentrations of metals, metalloids, PAHs, petroleum hydrocarbons, ammoniacal liquor, foul lime and tar contamination (S14).
- Ground gases (carbon dioxide and methane) from organic materials in the Made Ground associated with the industrial use of the surrounding area (S15).

3.4.3 Potential pathways

The following potential pathways have been identified.

- Ingestion, skin contact, inhalation of dust and outdoor air by people (P01).
- Root uptake by plant life (P02).
- Ground gas (methane and carbon dioxide) ingress via permeable soils and/or construction gaps (P03).
- Hydrocarbon vapour ingress via permeable soils and/or construction gaps (P04).
- Migration of contaminants via leachate migration into the aquifers of the Cheltenham Sand and Gravel and Charmouth Mudstone Formation (P05).
- Migration of contaminants via base flow through the Cheltenham Sand and Gravel and Charmouth Mudstone Formation (P06).
- Surface water via drainage discharge (P07).

3.4.4 Potential receptors

The following potential receptors in relation to the proposed land use have been identified.

- People (site end users, neighbours) (R01).
- Development end use (buildings, utilities and landscaping) (R02).
- Groundwater: Secondary A aquifer status of the Cheltenham Sand and Gravel and the Secondary (undifferentiated) status of the Charmouth Mudstone Formation (R03).
- Surface water: the River Twyver (culverted and un-culverted) approximately 200 m southwest (at its closest point), which is a tributary of the River Severn approximately 1.8 km to the west (R04).

Health and safety risks to site development contractors and maintenance workers have not been assessed as part of this study and will need to be considered separately.

The above sources, pathways and receptors have been considered as part of the preliminary risk assessment in accordance with LCRM, are considered to be plausible in the context of this site, and have been carried forward for investigation and assessment. The investigation is presented in Sections 4 and 5 and the assessment is presented in Section 7. An assessment of the Source – Pathway – Receptor linkages is undertaken following the assessment (Section 7) and is presented in Appendix I (Table J.1).

A Preliminary Conceptual Site Model has been prepared (Ref: 20755-HYD-XX-XX-DR-GE-1003, dated 3 March 2022), presented in Appendix A.

4. GROUND INVESTIGATION

4.1 Investigation rationale

The ground investigation rationale was based on the findings of the preliminary risk assessment and is summarised in Table 4.1.

For the investigation rationale of the historical JFHR 2021 GI, please refer to the report in Appendix C.

Table 4.1: Investigation rationale

Location	Purpose
TP 201-230	To assess shallow ground conditions across the site and target historical features, notably: • Flammable stores (TP201); • Historical tank farm (TP202, TP207 and TP208); • Historical refuelling pumps and infrastructure (TP203 and TP204); • Historical inspection pits (TP205 [east], and TP2224 and TP225 [west]) • Historical tank and turntable (TP209, TP212, TP213 and TP226); • Interceptors (TP213 to TP218 [southern], and TP230 [central]); • Hydraulically downgradient of historical tank farm (TP222 and TP223); and • Existing tanks (redundant) (TP219 to TP221). To allow for visual and olfactory observations and delineate contaminated areas. To allow collection of samples for geotechnical and contamination testing.
BH 201-206	To assess deeper ground conditions across the site and target historical features, notably: • Apartment block (BH201) to inform foundation solution; • Historical tank farm and hydraulically downgradient (BH202 to BH205); and • Interceptor (southern) (BH206). To allow in situ testing (standard penetrations test [SPT]) to be undertaken. To allow for visual and olfactory observations and delineate contaminated areas. To allow collection of samples for geotechnical and contamination testing. Installation of gas and groundwater monitoring and sampling wells.
WS 201-206	To assess shallow ground conditions across the site and target historical features, notably: • Historical refuelling pumps and infrastructure (WS203); • Historical tank farm and hydraulically downgradient (WS204 and WS205); and • Interceptor (southern) (WS206). To allow for visual and olfactory observations and delineate contaminated areas. To allow collection of samples for geotechnical and contamination testing. Installation of gas and groundwater monitoring and sampling wells.
CPT 201-210	To investigate strength profile of the Cheltenham Sand and Gravel and the Charmouth Mudstone Formation across the footprint of the proposed development in the railway sidings area, and inform foundation solution.
DP 201	To investigate strength profile of the Cheltenham Sand and Gravel and the Charmouth Mudstone Formation in the north of the site for the proposed apartment block.

4.2 Constraints

The footprints of existing buildings across the railway sidings area were not investigated as they are in a poor state of repair and extensive fire damage was also noted. Entry to the buildings was not considered safe.

Heavy vegetation and historical railway tracks across the central portion of the railway sidings area restricted access. However, despite this reasonable coverage was achieved. Tree coverage and dense vegetation limited plant access to the former car park in the north west. Consequently, only a windowless sampling rig was able to access this area.

In agreement with Network Rail intrusive investigation and the movement/presence of plant could not be undertaken within 3.5 m of the southern/western site boundary due to the active railway and sidings adjacent to the site.

Access to the Tenanted Areas in the north was not agreed with the current tenants in time for the intrusive ground investigation works. However, a site walkover and ground gas and groundwater monitoring of the historical locations across Carlton Motors and Jays Timber was agreed following the intrusive works.

4.3 Site works

The fieldwork took place between 14 February and 3 March 2022 and is summarised in Table 4.2. The ground investigation exploratory locations were surveyed in using a hand-held GPS and are shown on the Exploratory Hole Location Plan (Ref: 20755-HYD-XX-XX-DR-GE-1004, dated 03 February 2022) in Appendix A.

The exploratory logs, including details of ground conditions, soil sampling, *in situ* testing and any installations, are also presented in Appendix D.

The weather conditions during the Hydrock fieldwork and for the previous week ranged from dry sunshine to overcast, and heavy rain and storms that prompted weather warnings from the MET office.

Table 4.2: Summary of site works

Activity	Method	No.	Depth Maximum / Range (m bgl)	In situ tests	Notes
Drilling, Pitting and Probing					
Boreholes	Dynamic Sampled & Rotary cored	6*	3.30 - 14.70	Hand shear vane (HSV) and SPT	Installations in all holes. Two separate boreholes were completed at BH204 to install shallow and deep wells referenced as BH204D and BH204S.
	Windowless sampler	6	0.10 - 5.00	HSV	Locations 201 - 202 were not completed due equipment malfunction, blowing sands (at other locations), and time constraints. Installations in boreholes 203 - 206.
Trial pits	Machine (JCB 3CX)	40	1.20 - 3.50	HSV	Trial pits to 1.2m bgl also at CPT201 - 210 to enable to CPT testing.
Probes	Dynamic probe	1	6.01	Dynamic probe	NA.
	CPT piezocone	8	1.18 - 15.84	CPT	10 CPT locations were proposed across the footprint of the townhouses, however, due to depth of refusal only 8 locations were completed. A CPT was not undertaken at CPT202 and CPT210, however, a trial pit was still excavated at these locations.

Wells for monitoring groundwater levels and ground gas concentrations, and to facilitate the sampling of groundwater, were installed in all of the completed windowless sampler and dynamic sampled and rotary cored boreholes. A summary of the monitoring well installations is presented in Table 4.3.

Table 4.3: Summary of monitoring installations

Location	Ground level (m OD)	Standpipe diameter (mm)	Screen top and base depth (m bgl)	Screen top and base elevation (m OD)	Strata targeted
BH201	20.14	50	6.00 to 14.70	14.14 to 5.44	Charmouth Mudstone Formation.
BH202	18.70	50	1.30 to 2.30	17.40 to 16.40	Cheltenham Sand and Gravel.
BH203	19.29	50	0.80 to 2.80	18.49 to 16.49	
BH204S	19.23	50	0.50 to 2.50	18.73 to 16.73	
BH204D	19.23	50	4.00 to 5.50	15.23 to 13.73	Charmouth Mudstone Formation.
BH205	19.08	50	0.50 to 2.50	18.58 to 16.58	Cheltenham Sand and Gravel.
BH206	19.35	50	1.00 to 3.00	18.35 to 16.35	
WS203	19.95	50	1.00 to 3.60	18.95 to 16.35	
WS204	19.63	50	0.90 to 1.90	18.73 to 17.73	
WS205	19.35	50	0.90 to 1.90	18.45 to 17.45	
WS206	19.43	50	0.90 to 1.90	18.53 to 17.53	

4.4 Geo-environmental testing

4.4.1 Sampling strategy and protocols

Exploratory hole positions were determined by reference to the site conditions and uncertainties identified in the preliminary CSM. Certain specific features (see Table 4.1) such as the ASTs, pumping infrastructure, and interceptor were targeted for specific investigation, but a reasonably even spacing was used for the remainder of the site, where possible.

Samples were taken, stored and transported in general accordance with BS 10175:2011+A2:2017.

4.4.2 Site screening tests

A PID was used during the fieldwork to screen the soil samples for volatiles and petroleum hydrocarbons. The PID readings are detailed on the exploratory hole logs in Appendix D.

4.4.3 Groundwater sampling techniques

All new groundwater monitoring wells installed (see Table 4.3) were developed by surging the screened section of the well to remove fines and then purging three times well volume, where possible. All Monitoring wells were then left for the groundwater to recover to resting levels prior to sampling (over the course of a week). Groundwater samples were collected using low-flow techniques using a peristaltic pump, multiparameter probe and flow cell.

Low flow purging and sampling involves extracting groundwater at rates comparable to ambient groundwater flow (i.e. typically less than 500 ml/min), so that the hydraulic drawdown is minimised, and the mixing of stagnant water with groundwater from the screened intake area in a well is reduced. The purge water is passed through a flow-cell and field parameters, including temperature, pH, dissolved oxygen, oxidation-reduction potential and electrical conductivity, are recorded at regular

intervals (typically 5 minutes) until stabilisation has occurred. Once field parameters have stabilised a sample is collected for laboratory analysis.

Groundwater samples were also collected from targeted historical wells from the JFHR 2021 GI to evaluate trends. These samples were collected using dedicated disposable bailers.

The particular technique utilised at each monitoring well is summarised in Table 4.4.

Table 4.4: Sampling techniques utilised for the collection of water samples for Geo-environmental analyses

Locations	Sampling Technique
BH201-BH206 (including BH204 S & D), and WS203-WS206.	Low-flow techniques.
WS103, WS105, WS107, and WS116.	Dedicated and disposable bailer.

The stabilised field parameters from the low-flow sampling are presented in Appendix F. The distribution of the stabilised dissolved oxygen and oxidation-reduction potential readings are presented on the drawings (Ref: 20755-HYD-XX-XX-DR-GE-1008, and 1009, respectively, both dated 7 April 2022) presented in Appendix A

4.4.4 Ground gas and vapour monitoring

Monitoring boreholes have been monitored for ground gases and vapours on six occasions in total (including 2 historical). The results are presented in Appendix F.

4.4.5 Geo-environmental laboratory analyses

The chemical test certificates for testing undertaken by Hydrock are provided in Appendix G. Wherever possible, UKAS and MCERTS accredited procedures have been used.

The breakdown of historical chemical testing and test certificates undertaken as part of the JFHR 2021 GI are provided in the relevant report in Appendix C.

The geo-environmental analyses undertaken by Hydrock on soils are summarised in Table 4.5.

Table 4.5: Geo-environmental analyses of soils (Hydrock only)

Determinand Suite	Made Ground Asphalt	Made Ground	Cheltenham Sand and Gravel	Charmouth Mudstone Formation
Hydrock minimum suite of determinands for solids*	-	13	12	4
Speciated aliphatic and aromatic banding Total petroleum hydrocarbons by HS-GC/MS and GC/FID (Hydrock Tier 2 TPH Suite)	-	10	42	3
Volatile organic compounds (VOC target list) by HS-GC/MS	-	4	6	1
Polychlorinated biphenyls (PCB, ICES 7)	-	2	2	-
Pesticide screen	-	2	-	-
Coal tar test suites (speciated polynuclear aromatic hydrocarbons (PAH, by GC-FID), speciated phenols and speciated creosols)	3	-	-	-
Cyanide suite, including total, free and thiocyanate	-	3	-	-
*Hydrock minimum soil suite comprises: As, B (water soluble), Be, Cd, Cr (total), Cr (VI), Cu, Hg, Ni, Pb, S (elemental), Se, V, Zn, cyanide (total), sulfide, pH, asbestos fibres, speciated polynuclear aromatic hydrocarbons (PAH, by GC-FID), total phenols and fraction of organic carbon				

The soils chemical test data (including both Hydrock and historical data) are interpreted and assessed in Sections 7.3 and 7.4.

The geo-environmental analyses undertaken on waters for testing undertaken by Hydrock are summarised in Table 4.6.

Table 4.6: Geo-environmental analyses of waters (Hydrock only)

Determinand Suite	Groundwater	LNAPL (WS115)
Hydrock minimum suite of determinands for waters	12	-
Speciated aliphatic and aromatic banding Total petroleum hydrocarbons by HS-GC/MS and GC/FID (Hydrock Tier 2 TPH Suite)	16	-
Volatile organic compounds (VOC target list) by HS-GC/MS	7	-
Hydrock degradation water suite	7	-
Semi-volatile organic compounds (SVOC target list) by GC-MS	1	-
Polychlorinated biphenyls (PCB, ICES 7)	1	-
Product ID	-	1

The groundwater chemical test data (including both Hydrock and historical data) are interpreted and assessed in Section 7.5.

4.5 Geotechnical testing

4.5.1 Geotechnical laboratory testing

The geotechnical tests undertaken by Hydrock are summarised in Table 4.7 and the test certificates are provided in Appendix E. Wherever possible, UKAS accredited procedures have been used.

The geotechnical tests undertaken as part of the GES 2020 GI are provided in the relevant report in Appendix C.

Table 4.7: Summary of sample numbers for geotechnical tests (Hydrock only)

Test	Made Ground	Superficial Deposits Cohesive	Cheltenham Sand and Gravel	Charmouth Mudstone Formation
Natural moisture content	-	1	-	4
Atterberg limits	-	1	-	3
Particle size distribution (sieve)	2	1	9	-
Sulphate and aggressive chemical environment classification for buried concrete classification (full BRE SD1 suite)	-	1	1	3
Quick undrained triaxial compressive strength	-	-	-	1
Optimum Moisture Content / Maximum Dry Density Relationship (vibrating hammer)	-	-	4	-
Shear Box test set of 3	-	-	3	-
Point Load Strength	-	-	-	2

The geotechnical test data (including both Hydrock and historical data) are summarised in Section 5.7 and interpreted in Section 6.

5. GROUND INVESTIGATION RECORDS AND DATA

5.1 Physical ground conditions

5.1.1 Summary of strata encountered

The following presents a summary of the properties of the ground and groundwater conditions encountered, based on field observations, interpretation of the field data and laboratory test results, taking into account drilling, excavation and sampling methods, transport, handling and specimen preparation.

All relevant data from the Hydrock investigation discussed in Section 4 as well as all reliable data from previous investigations noted in Section 2.3 are used from this point forward (unless specified). The Hydrock ground investigation did not undertake supplementary intrusive works in the Tenanted Areas, however, the historical data that are considered to be reliable have still been used and assessed.

Details of the Hydrock ground investigation works are provided in the exploratory logs (and the CPT report) in Appendix D, historical reports are provided in Appendix C, a summary of the Ground Model is presented in Table 5.1 and the individual strata are described in the subsections below.

Table 5.1: Strata encountered

Stratum	Depth to top (m bgl) (range)	Depth to base (m bgl) (range)	Thickness (m) (range)	Thickness (m) (average)
Made Ground asphalt	GL	0.01 – 0.17	0.01 – 0.17	0.08
Made Ground concrete	GL	0.30 - 0.45	0.30 - 0.45	0.37
Made Ground	GL – 0.17	0.10 – 2.10	0.10 – 2.10	0.70
Cheltenham Sand and Gravel	0.10 – 2.10	>0.60 – 4.70	>0.20 – 4.70	1.92[1]
Superficial Deposits Cohesive	0.65 – 1.70	>1.60 – 3.00	1.10 - 2.35	1.51[2]
Charmouth Mudstone Formation	1.70 – 4.70	>3.00 - >14.70	Not proven	Not proven

[1] The average thickness is based on 37 locations penetrating the full thickness.
[2]The average thickness is based on 3 locations penetrating the full thickness.

5.1.2 Surface covering

The following surface cover was identified during the field reconnaissance and the fieldworks:

- Asphalt hardstanding covers the majority of the north eastern corner and the north western corner of the site.
- Concrete hardstanding, derelict buildings and service trenches occupy large areas predominately across the in the central eastern portion of the railway sidings area, notably around the historical tank farm and pump infrastructure.
- Gravel/hardcore/ballast covered the majoring of the railway sidings area, often heavily vegetated with buddleia and small silver birch trees, notably in the area to the west of the historical tank farm. In places where ballast is present the old rails are still in place often on wooden sleepers but in other areas these are concrete.
- The Tenanted Areas comprise a mix of hardstanding and hardcore. Carlton Motors comprised a garage building and mixture of asphalt and concrete hardstanding. Jays timbers comprised a large Dutch barn style warehouse and concrete hardstanding with the Auto Tune and & Classic leather

business occupying separate warehouse space within these premises. FLI Structures comprised a temporary storage/workshop area, small brick buildings, containers and a large hardcore yard area.

5.1.3 Made Ground: asphalt and concrete

Asphalt thickness ranged from 0.01 m to 0.17 m and was recorded in the north eastern and north western areas of site in the form of car parking and road surfacing. The asphalt in each respective area appeared to be consistent and was found to rest directly upon a granular sub base type material.

Concrete thickness ranged from 0.30 m to 0.45 m and was recorded in CPT204 and BH201. With both being part of concrete slabs associated with historical infrastructure.

5.1.4 Made Ground

The Made Ground was recorded across the entire site to a maximum proven depth of 2.10m bgl. In general, the following main types of Made Ground were encountered (either from ground level [GL] or below the hardstanding):

- 'General' Made Ground: was the most common Made Ground encountered across the entirety of site to a maximum depth of 1.30m bgl and with an average thickness between 0.20m - 0.90m. Comprised a principally granular material described as a black ashy silty sand, with fragments of brick, concrete, slag, metal, wood, general rubbish and limestone.
- 'Sub base/hardcore' Made Ground: typically encountered directly beneath the asphalt or concrete, or as a surface dressing along the southern site boundary (likely to improve trafficability). Comprised a pinkish brown, grey or brown sandy gravel of limestone.
- 'Ballast' Made Ground: typically encountered along and in between all the railway tracks still present onsite. Encountered to maximum depths of between 0.50 m and 0.60 m bgl, however, the typical depths were significantly shallower. Comprised a dark grey to grey silty sandy gravel of limestone.

5.1.5 Cheltenham Sand and Gravel

The Cheltenham Sand and Gravel was encountered underlying the Made Ground across the site and the base of the material was encountered to depths of between 1.70m and 4.70 m, where proven. The base of the materials was generally around 2.5 m to 3.0 m bgl, with a general thickness of approximately 2 m.

The Cheltenham Sand and Gravel generally consisted of orangish brown gravelly fine to coarse sand with localised silty/clayey areas.

There are localised areas of induration recorded within the logs in the vicinity of the historical tank farm. This is noted to be an increase in density and/or compaction state.

In the vicinity of the historical features in the central portion of the railway sidings area, including the tank farm, the refuelling infrastructure, and the interceptor, the Cheltenham Sand and Gravel was impacted by petroleum hydrocarbon contamination and presented visual and olfactory evidence. In these areas the sands were stained grey, mottled black and had significant hydrocarbon odours. The visual and olfactory evidence is discussed in Section 5.3, Table 5.3.

The top of impacted Cheltenham Sand and Gravel was typically encountered from a depth of between 0.50 m and 1.70 m bgl. The base of the impacts was not proven at all locations due to collapse of the trial pits. Where proven the base of the impacts ranged between 1.10 m and 4.30 m bgl (shallowing towards the west away from the historical tank farm and refuelling area as impacts lessen).

5.1.6 Superficial Deposits Cohesive

A shallow cohesive material was encountered in the west of the site that is not consistent with the Cheltenham Sand and Gravel encountered across the reminder of the site. The material since referred to as 'Superficial Deposits Cohesive' was encountered underlying the Made Ground on the western edge of site in TP220. Similar material was also encountered historically at BH4, WS10, TP107, TP108 and TP114 (also in the west of the site), however, the base was not proven in TP107 and TP114. Superficial Deposits Cohesive was encountered to a maximum proven depth of between 1.60 m and 3.00 m bgl with a typical proven thickness between 1.10 m and 2.35 m. This material was generally encountered near the western edge of the central portion of the site and could potentially represent a historical channel feature.

The Superficial Deposits Cohesive material generally consisted of soft greyish brown or brownish grey sand, gravelly clays/silts with varying organic content.

5.1.7 Charmouth Mudstone Formation

The Charmouth Mudstone Formation was encountered underlying the Cheltenham Sand and Gravel across the site and also where the base of the Superficial Deposit Cohesive in the west of the site was proven. The Charmouth Mudstone Formation was proven to a maximum depth of 14.70m bgl (base was not proven).

Charmouth Mudstone Formation generally consisted of stiff to very stiff dark grey clays with varying shell content. At depth becoming an extremely weak to weak locally thinly laminated mudstone with abundant shells and ammonites. The boundary between where the Charmouth Mudstone Formation becomes mudstone was recorded as between 5.20 m - 7.90 m bgl within the borehole locations and interpreted to be between 4.40 m and 6.00 m bgl from the CPT testing.

5.2 Obstructions

Obstructions were encountered in a number of exploratory locations throughout the ground investigations. These intrusive locations are summarised in Table 5.2. Obstructions encountered in previous investigations are detailed in their respective reports.

Table 5.2: Obstructions encountered

Stratum	Location	Depth (m bgl)	Description
Made Ground	TP208	0.60	Pipework.
Made Ground	TP209	0.20 & 1.20	Concrete slabs.
Made Ground	TP212	0.90	Historical structure – likely historical turntable.
Made Ground	TP216	1.10	Old foundations/buildings.
Made Ground	TP218	0.60	Old foundations/buildings.
Made Ground	WS103	2.00	Suspected concrete.

5.2.1 Blowing sands

Blowing sands were encountered in all of the Hydrock windowless sample locations (WS203 to WS206).

The JFHR 2021 GI also recorded one instance of blowing sands in WS106A.

Weeks recorded that WS12A, WS13, WS15, WS16 and WS19 all reportedly stopped due to 'lack of progress'. This has now been interpreted to also represent blowing sands.

5.3 Visual and olfactory evidence of contamination during intrusive works

In addition to the more common man-made constituents (ash, clinker, plastic, slag, etc.) described above in Section 5.1.4, visual and olfactory evidence of contamination was noted across the site and is summarised in Table 5.3 (Hydrock only).

Evidence from the historical investigations is summarised in Section 2.3 and also separately detailed within the JFHR 2021 GI report in Appendix C.

All of the visual and olfactory evidence of contamination from all ground investigation (Hydrock and historical) is summarised on the Visual and Olfactory Evidence of Contamination Plan (Ref: 20755-HYD-XX-XX-DR-GE-1005, 11 dated March 2022) presented in Appendix A.

Table 5.3: Visual and olfactory evidence of contamination during intrusive works (Hydrock ground investigation only)

Location	Depth (m bgl)	Description
BH203	1.50 to 2.80	Moderate hydrocarbon odour.
BH204	1.20 to 2.50	Light hydrocarbon odour.
BH205	1.40 to 2.50	Moderate hydrocarbon odour.
BH206	1.70 to 3.05	Strong hydrocarbon odour.
CPT206	1.10 to 1.20	Strong hydrocarbon odour.
CPT207	1.15 to 1.20	Strong hydrocarbon odour.
CPT208	0.70 to 1.90	Strong hydrocarbon odour.
	1.70	Potential sheen on surface.
TP202	0.70 to 2.00	Very strong hydrocarbon odour.
	1.90	Sheen on groundwater.
TP203	1.05 to 2.00	Strong hydrocarbon odour.
	1.90	Sheen on groundwater.
TP204	0.65 to 2.20	Strong hydrocarbon odour.
	2.20	Sheen on groundwater.
TP205	0.90 to 2.00	Strong hydrocarbon odour.
	2.00	Sheen on groundwater.
TP206	1.10 to 1.80	Strong hydrocarbon odour.
	1.80	Sheen on groundwater.
TP207	1.10 to 1.30	Strong hydrocarbon odour.
TP210	0.80 to 2.00	Strong hydrocarbon odour.
	1.00 and 1.80	Seepage at 1.00 including LNAPL and LNAPL entering excavation at groundwater strike at 1.80.
TP211	1.30 to 2.00	Strong hydrocarbon odour.
	1.30	LNAPL and sheen and on groundwater.
TP213	0.70 to 2.20	Strong hydrocarbon odour.
	2.00	Slight sheen on surface.
TP214	1.20 to 2.00	Strong hydrocarbon odour.
	1.70	Definitive sheen on surface.
TP215	1.10 to 2.20	Strong hydrocarbon odour.
	1.70	Slight sheen on surface.
TP219	0.60 to 1.70	Unknown odour.

Location	Depth (m bgl)	Description
	GL	At adjacent tank approximately 1m away oily residue was noted below an outlet valve.
TP222	1.10 to 2.00	Strong hydrocarbon odour.
	1.40	LNAPL.
TP223	1.20 to 1.90	Strong hydrocarbon odour.
TP226	0.90 to 1.80	Strong hydrocarbon odour.
	1.60	LNAPL flooding excavation.
TP228	1.30 o 2.30	Strong hydrocarbon odour.
	0.80 to 1.30 and 2.00	LNAPL in seepage between 0.80 – 1.30 and sheen of groundwater at 2.00.
TP229	1.30 to 1.90	Light hydrocarbon odour.
TP230	1.00 to 1.0	Very strong hydrocarbon odour.
	1.70	Sheen on groundwater.
WS203	1.20 to 3.60	Strong hydrocarbon odour.
WS204	1.20 to 2.00	Strong hydrocarbon odour.
WS205	1.10 to 2.00	Strong hydrocarbon odour.
WS206	1.20 to 2.00	Strong hydrocarbon odour.

5.4 Groundwater

5.4.1 Groundwater observations and levels (during intrusive works)

Groundwater encountered during the investigation is listed in Table 5.4. A groundwater observation represents the depth at which groundwater was first observed and is likely to be deeper than the actual water table level at that location.

Groundwater strikes were not encountered during the drilling of the boreholes (BH201-BH206) due to the use of a water flush drilling technique.

Table 5.4: Groundwater occurrence during intrusive works

Stratum	Date	Location	Fieldwork	Comment
			Groundwater observation (m bgl)	
Cheltenham Sand and Gravel	16/02/22	TP201	1.30	Fast inflow, causing trial pit to collapse.
		TP202	2.00	
		TP203	1.90	
		TP204	2.20	
		TP205	2.00	
	17/02/22	TP206	1.80	
	16/02/22	TP209	1.80	
	17/02/22	TP210	1.00 & 1.80	1.00 seepage & 1.80 strike. Fast inflow, causing trial pit to collapse.
		TP211	1.30	Fast inflow, causing trial pit to collapse.
		TP213	2.00	
		TP214	1.70	
		TP215	1.70	

Stratum	Date	Location	Fieldwork	Comment
			Groundwater observation (m bgl)	
	21/02/22	TP217	1.70	
		TP219	1.50	
Superficial Deposits Cohesive		TP220	1.80	Seepage
Cheltenham Sand and Gravel		TP221	1.50	Fast inflow, causing trial pit to collapse.
		TP222	1.40 & 1.90	1.40 seepage & 1.90 strike. Fast inflow, causing trial pit to collapse.
		TP223	1.90	Fast inflow, causing trial pit to collapse.
	22/02/22	TP224	1.90	
		TP225	1.50	
		TP226	1.60	
		TP227	2.00	
		TP228	0.80 to 1.30 & 2.00	0.80 to 1.30 seepage & 2.00 strike. Fast inflow, causing trial pit to collapse.
		TP229	1.70	Fast inflow, causing trial pit to collapse.
		TP230	1.70	Fast inflow, causing trial pit to collapse.
		CPT208	1.70	Fast inflow, causing trial pit to collapse.
	21/02/22	CPT210	1.20	Fast inflow.

5.4.2 *Groundwater monitoring (post-intrusive works)*

The results of post-intrusive works groundwater monitoring are presented are summarised in Table 5.5.

Table 5.5: Groundwater level data summary

Stratum	Date range	Location	Post-field monitoring	
			Depth to groundwater (range) (m bgl)	Groundwater elevation (range) (m OD)
Cheltenham Sand and Gravel	27/10/20 to 16/03/22	BH101S	1.78 to 2.12	19.16 - 19.5
Charmouth Mudstone Formation		BH101D	1.75 to 2.07	19.21 – 19.53
Cheltenham Sand and Gravel		BH102	1.16 to 1.36	16.56 – 16.76
Cheltenham Sand and Gravel & Charmouth Mudstone Formation	27/10/20 to 03/11/20	BH103	1.33 to 1.41	17.84 – 17.92
	27/10/20 to 16/03/22	WS101	0.79 to 1.13	18.43 – 18.77
		WS102	0.91 to 1.14	18.24 – 18.47
Made Ground		WS103	1.06 to 1.34	18.17 – 18.49
Made Ground & Cheltenham Sand and		WS104	1.02 to 1.28	19.16 – 19.42

Stratum	Date range	Location	Post-field monitoring	
			Depth to groundwater (range) (m bgl)	Groundwater elevation (range) (m OD)
Gravel & Charmouth Mudstone Formation				
Cheltenham Sand and Gravel & Charmouth Mudstone Formation		WS105	0.97 to 1.56	18.26 – 18.85
Cheltenham Sand and Gravel		WS106a	1.45 to 1.56	No GL datum
Cheltenham Sand and Gravel & Charmouth Mudstone Formation		WS107	1.50 to 1.87	16.17 – 16.54
	27/10/20 to 30/03/22	WS109	1.13 to 1.31	16.86 – 17.04
		WS110	1.32 to 1.43	16.88 – 16.99
		WS111	1.39 to 1.56	17.39 – 17.56
Cheltenham Sand and Gravel	27/10/20 to 08/03/22	WS112	0.73 to 0.77	17.51 - 17.55
Cheltenham Sand and Gravel & Charmouth Mudstone Formation		WS113	0.75 to 0.94	17.34 - 17.53
Cheltenham Sand and Gravel	27/10/20 to 03/11/20	WS114	1.19 to 1.26	17.69 - 17.76
Cheltenham Sand and Gravel & Charmouth Mudstone Formation	27/10/20 to 30/03/22	WS115	1.61 to 1.73	17.55 – 17.67
		WS116	0.97 to 1.30	18.78 – 19.11
Charmouth Mudstone Formation	08/03/22 to 30/03/22	BH201	1.06 to 1.23	18.91 - 19.08
Cheltenham Sand and Gravel		BH202	0.88 to 1.14	17.56 - 17.82
		BH203	1.26 to 1.36	17.93 – 18.03
		BH204S	1.11 to 1.18	18.05 – 18.12
Charmouth Mudstone Formation	16/03/22 to 30/03/22	BH204D	1.09 - 1.18	18.05 – 18.14
Cheltenham Sand and Gravel	08/03/22 to 30/03/22	BH205	1.16 to 1.24	17.84 – 17.92
		BH206	1.44 to 1.51	17.84 – 17.91
		WS203	1.22 to 1.37	18.58 – 18.73
		WS204	1.08 to 1.22	18.41 – 18.55
		WS205	1.06 to 1.15	18.20 – 18.29
		WS206	1.35 to 1.45	17.98 – 18.08

5.4.3 Visual / olfactory evidence of contamination during groundwater monitoring period (post-intrusive works)

Visual and olfactory evidence of contamination was noted in a number of wells during the monitoring and sampling period and is summarised in Table 5.6, with relevant information also presented on the visual and olfactory evidence of petroleum hydrocarbons (Ref: 20755-HYD-XX-XX-DR-GE-1005, 11 dated March 2022) presented in Appendix A.

Evidence from the historical investigations is summarised in Section 2.3 and also detailed within the JFHR 2021 GI report in Appendix C.

Table 5.6: Visual and olfactory evidence of contamination - waters (during post-intrusive works monitoring and sampling period)

Location	Depth to water* (m bgl)	Description
BH203	1.31	Slight hydrocarbon odour
BH204S	1.18	Slight hydrocarbon odour
BH206	1.51	Hydrocarbon odour
WS203	1.37	Slight hydrocarbon odour
WS204	1.20	Slight hydrocarbon odour
WS205	1.15	Slight hydrocarbon odour
WS206	1.43	Slight hydrocarbon odour
WS102	1.06 – 1.22	Very strong hydrocarbon odour noted on JFH monitoring data. LNAPL on top of groundwater during Hydrock monitoring. Measured thicknesses during monitoring period ranging between 50 mm and 80 mm.
WS105	1.08	Slight sheen on water.
WS107	1.68	Potential globules of LNAPL noted on bailer during sampling on 21 March 2022, however, no measurable thickness of LANPL recorded. In addition, well bailed again on 30 March 2022 and no evidence of LNAPL globules but hydrocarbon.
WS115	1.61 – 1.73	LNAPL on top of groundwater. Measured thicknesses during monitoring period ranging between 45 mm and 500 mm.
Interceptor (southern) middle chamber	3.33**	LNAPL on top of water measured on the 30 March 2022 with a thickness of 1550 mm (depth to LNAPL: 1.78 m below top of chamber brickwork), which is essentially the entire depth of the middle chamber. Base of middle chamber measured as 3.35 m below the top of the brickwork.

*depth to groundwater taken during groundwater sampling.
**measured during monitoring event on 30 March 2022.

5.4.4 Groundwater summary

In general, shallow groundwater was encountered within the Cheltenham Sand and Gravel at depths ranging between 0.73m and 2.12m bgl. The groundwater flow direction is generally proven to be towards the west/northwest as shown on the groundwater contour plots (Ref: 20755-HYD-XX-XX-DR-GE-1006 [JFHR 2020 data], dated 28 March 2022, and 1007 [Hydrock data], dated 6 April 2022) presented in Appendix A.

A deeper groundwater body was encountered within the wells installed in the underlying Charmouth Mudstone Formation at head depths recorded between 1.06m and 2.07m bgl. The groundwater flow direction is also generally proven to be towards the west.

LNAPL was measured by Hydrock resting on groundwater at WS102 and WS115. WS102 is located hydraulically downgradient of the historical tank farm and refuelling area, which is considered to be the source of the LNAPL. The JFHR 2020 GI did not record LNAPL at WS102 during their monitoring events shortly after the intrusive works, which suggest that the LNAPL is of low-mobility and has taken significant time to enter the monitoring well at this location. WS115 is adjacent to the interceptor, which is anticipated to be the source of the LNAPL, which itself had a measured thickness of 1550 mm

of LNAPL within the middle chamber. The measured thicknesses of LNAPL at WS115 were consistent throughout Hydrock's monitoring period (see Table 5.6), however, the JFHR 2020 GI measured the thickness at WS115 as 500 mm and 45 mm during their two monitoring visits.

Potential globules of LNAPL were noted at WS107 during bailer sampling, which is located adjacent to the historical AST and fuel pump that are still present in the northwest of the site. However, no measurable thickness of LNAPL was recorded and the well was bailed again the following week and no evidence of LNAPL globules were observed.

During the JFHR 2020 GI, LNAPL was suspected at WS103 adjacent to the historical tank holder on the southern boundary, however, it was noted to 'barely present as a continuous measurable layer'. No evidence of LNAPL (measurable thickness or present in the bailer) was encountered by Hydrock at WS103, however, elevated concentrations of petroleum hydrocarbons were still recorded (discussed in Section 7.5).

LNAPL and sheens were also observed to be on top of the groundwater ingress into the trial pits as listed in Table 5.3. These exploratory locations are also located in the central portion of the railway sidings area, with the likely sources being the historical tanks and refuelling areas across the site.

5.5 Ground gases (carbon dioxide and methane)

Records from the ground gas monitoring boreholes are presented in Appendix F and summarised in Table 5.7. Four monitoring visits have been undertaken by Hydrock (with two historically undertaken) and the monitoring programme is complete, the data are assessed in Section 7.7.

Table 5.7: Range of ground gas data

Stratum	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Steady flow rate (l/hr)	Comment
Made Ground	0.0 – 0.1	0.4 – 2.9	19.0 – 20.4	0.0 – 0.2	-
Cheltenham Sand and Gravel*	0.0 - 0.8	0.0 – 8.8	0.9 – 28.2** (21.6 %)	0.0 – 3.3	**Max oxygen reading of 28.2 % from JFHR 2020 GI – assumed typo. Next maximum reading is 21.6 % shown in parentheses. WS109 – H2S reading 3 ppm. WS111 – H2S reading 2 ppm. BH202 - H2S readings 2 – 8 ppm. CO reading 2 ppm. WS205 - CO readings 1 ppm. H2S reading 1 ppm.
Charmouth Mudstone Formation	0.0 - 0.1	1.5 - 2.7	18.8 - 19.6	0.0 - 0.1	-

*Wells screened across both the Cheltenham Sand and Gravel and the Charmouth Mudstone Formation have been interpreted to be representative of the Cheltenham Sand and Gravel due to its granular nature.

5.6 Organic vapours

The PID readings recorded from the monitoring wells as part of the monitoring programme are summarised in Table 5.8. The data are assessed in Section 7.8.

*Table 5.8: PID readings during monitoring programme above background**

Stratum	Reading (ppm)
Made Ground	0 – 17.8
Cheltenham Sand and Gravel (unimpacted)**	0.0 – 12.6
Cheltenham Sand and Gravel (impacted)**	0.0 – 56.8
Charmouth Mudstone Formation	0.4 – 17.9***

*Background concentration measured as 0.0 ppm. Depth to groundwater taken during groundwater sampling.
**Wells screened across both the Cheltenham Sand and Gravel and the Charmouth Mudstone Formation have been interpreted to be representative of the Cheltenham Sand and Gravel due to its granular nature.
*** A reading of 17.9 ppm was recorded at BH204D during the final monitoring event, however, previous visits are negligible and all other wells similarly installed are typically <1 ppm. Soil and groundwater also suggests petroleum hydrocarbons and VOCs in the Charmouth Mudstone Formation is low risk.

5.7 Geotechnical data

1.1.1 Introduction

Laboratory test results are contained in Appendix E with *in situ* test results shown on the relevant exploratory hole log or datasheet in Appendix D. The following subsections summarise the main findings and provide interpretation, where appropriate.

1.1.2 Plasticity

The volume change potentials in terms of NHBC Standard (Chapter 4.2) with respect to building near trees have been determined from the results of plasticity index tests on samples of soil. These are summarised in Table 5.9.

Table 5.9: Volume change potential

Stratum	No. of tests	Plasticity Index			Modified Plasticity Index			Plasticity designation	Volume Change Potential
		Min.	Max.	Av.	Min.	Max.	Av.		
Cheltenham Sand and Gravel	1	9	9	–	8.82	8.82	–	Medium	Low
Superficial Deposits Cohesive	1	18	18	–	13.7	13.7	–	Medium	Low
Charmouth Mudstone Formation	18	17	39	31.5	16.6	38.2	31	Low & high	Medium

5.7.1 Particle size distribution

Particle Size Distribution test (PSDs) results are summarised in Table 5.10 and summary descriptions and PSD plots of the material analysed are presented in Appendix E.

Table 5.10: PSD results summary

Stratum	No. of tests	Silt/Clay %	Sand %	Gravel %	General description
Made Ground	2	9.0 – 31	34.0 – 44.0	25.0 – 55.0	Clayey very sandy gravel with fragments of slag.
Cheltenham Sand and Gravel	25	0.0 – 26.0	16.5 – 92.0	2.1 – 76.9	Silty gravelly sand.
Superficial Deposits Cohesive	1	30.0	52.0	18.0	Gravelly very clayey sand.

5.7.2 Soil strength

Table 5.11 summarises information pertaining to the shear strength of the soils according to geological stratum. Factual results are summarised for laboratory tests, field tests (e.g., HSV) and uncorrected SPT. Where the SPT is used to infer shear strength by published correlation, this is also tabulated.

Table 5.11: Soil strength results and derived values

Stratum	No. of tests	SPT (N-value) (range)	c_u (kPa)	c' (kPa)	phi' (°)	Method
Cheltenham Sand and Gravel	3	–	–	–	31.5 – 40.5	Shear box
Superficial Deposits Cohesive	3	–	12 – 107	–	–	HSV
Charmouth Mudstone Formation	7	–	70 – 130	–	–	Hand shear vane
	32	5 – >50	22.5 – >225*	–	–	SPT – windowless sampler boreholes.
	27	7 – 50	31.5 – 225*	–	–	SPT – rotary & cable percussion boreholes.
	4	–	79 – 108	–	–	Laboratory triaxial test
	7	1 – 67[1]	33.8 – 250	–	–	CPT correlation

*Correlation with Stroud (1975) based on 'average' plasticity
[1]N60 values from CPT using Lunne et al. (1997)

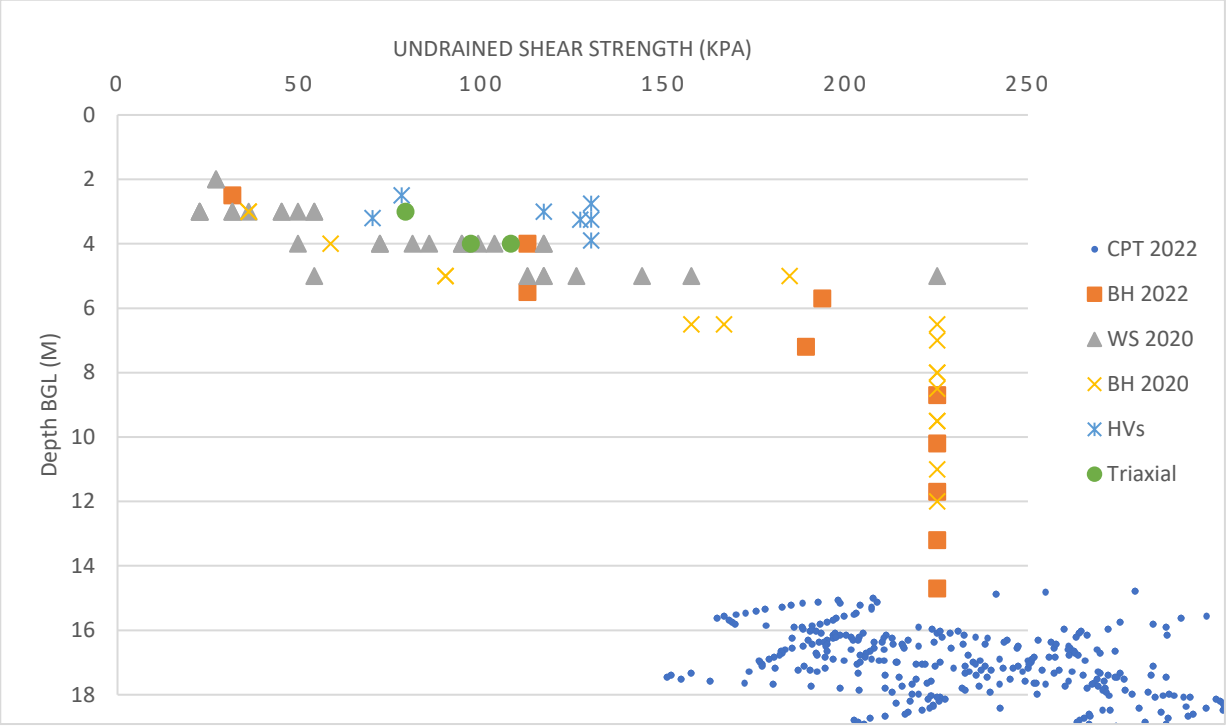

Figure 5.1: Undrained shear strength versus depth summary for the Charmouth Mudstone Formation

The characteristic profile of undrained shear strength taken from the CPT data indicates values to be lower than reported with SPTs and HSVs.

The strength increases linearly with depth, with the CPTs not able to penetrate further than approximately 12.18 - 15.72m bgl.

5.7.3 Relative density

Table 5.12 summarises information pertaining to the relative density of the granular soils according to geological stratum. Factual results are summarised for laboratory tests, field tests (e.g. SPT, CPT, dynamic probe correlation). An SPT 'N' value versus depth profile is summarised in Figure 5.2 and the plots are presented in Appendix E.

Table 5.12: Relative density results and derived values

Stratum	No. of tests	Method	SPT (N-value) (Range)
Cheltenham Sand and Gravel	9	SPT – rotary	2 - 32
	27	SPT – window sample	0 - 38
	7	CPT Correlation	1 – 67[1]
[1]N60 values from CPT using Lunne et al. (1997)			

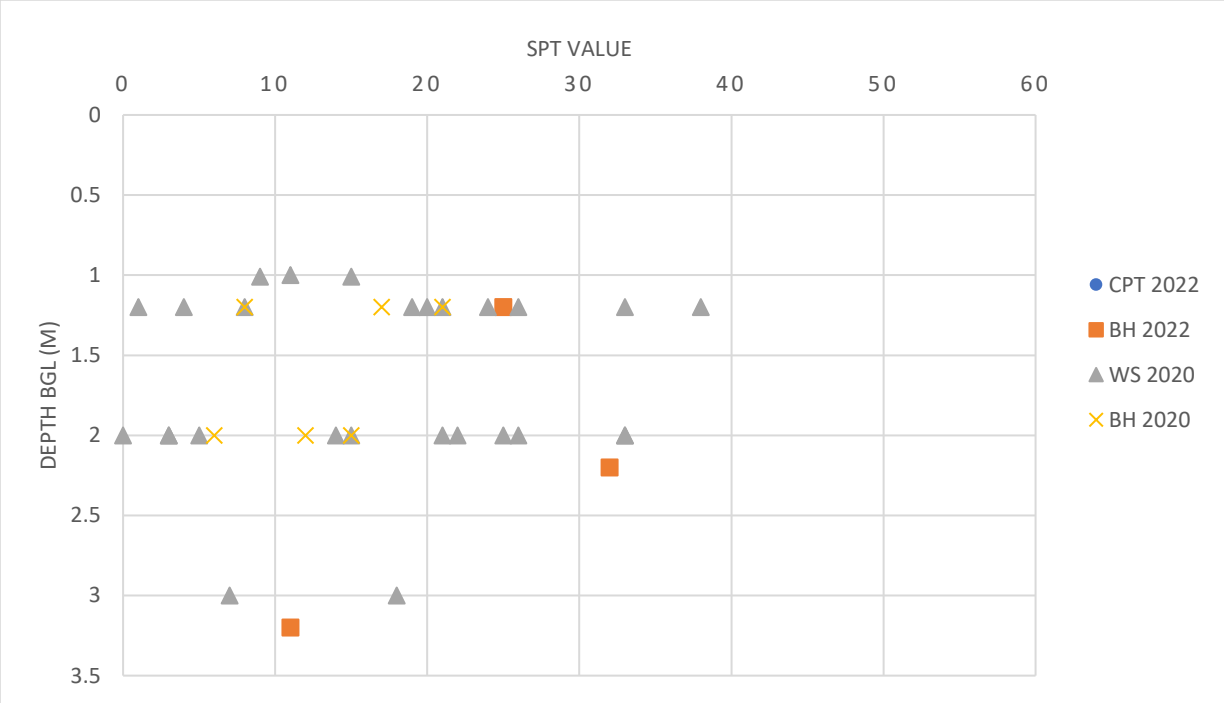

Figure 5.2: SPT Value versus depth summary

The SPT 'N' values show poor correlation between the boreholes, windowless sampler boreholes and CPT data. There are particularly low results when approaching the water table in the Cheltenham Sand and Gravel producing the blowing sands condition, hence it is likely that the *in situ* density is in reality higher than indicated from the SPTs.

It is recommended that CPT data is used to determine design values.

5.7.4 Compaction and moisture content

Table 5.13 presents a summary of the moisture content tests and compaction studies undertaken at the site.

Table 5.13: Compaction study results

Stratum	No. tests	Method	Natural moisture content (%) (range)	Optimum moisture content (%) (range)	Particle density (Mg/m³) (range)	Maximum dry density (Mg/m³) (range)
Cheltenham Sand and Gravel	4	4.5kg Rammer	8.5 - 14	10 – 12	2.50 – 2.75*	1.84 – 2.03

* Assumed

5.7.5 Sulphate content

In accordance with BRE (Special Digest 1), the Design Sulphate (DS) classification and the Aggressive Chemical Environment for Concrete (ACEC) classification are presented in Table 5.14. The assessment summary sheets are presented in Appendix E.

Table 5.14: Aggressive chemical environment concrete classification

Stratum	No. tests	DS	ACEC
Cheltenham Sand and Gravel	7	1	1
Superficial Deposits Cohesive	1	1	1
Charmouth Mudstone Formation	7	4	4

5.7.6 *Intact material strength – rock*

Table 5.15 summarises information pertaining to the strength of the intact rock material (not rock mass) according to geological stratum and, if applicable, weathering zones or other variations within particular strata.

Factual results are summarised for laboratory and field tests. Where point load index tests are used to infer unconfined compressive strength (UCS), this is also tabulated. Rock strength terms follow the method of BS EN ISO 14689-1:2003.

Care should be exercised in using these assumed rock strength parameters for any purpose beyond the scope of this report because it may be that additional sampling and testing is required for certain purposes. The reader should refer to the original test results in Appendix E. Note also that rock mass properties, rather than intact rock material properties, may be more suitable for design purposes.

Table 5.15: Intact rock strength results and derived values

Stratum	No. of tests	Point load index (Range)		Intact shear strength (range)		UCS (MPa) (range)	Method
		Is	$Is_{(50)}$	c' (MPa)	phi'(°)		
Charmouth Mudstone Formation	2	0.07 – 0.32	0.08 – 0.33	-	-	-	Axial point load

6. GEOTECHNICAL ASSESSMENT

6.1 Geotechnical categorization of the proposed development

Eurocode 7, Section 2 advocates the use of geotechnical categorization of the proposed structures to establish the design requirements.

The proposed development is to comprise low-rise residential townhouses (1 to 2 storey) and higher-rise (3 to 4 storey) apartment blocks, with associated gardens, POS and infrastructure.

During the ground investigation blowing sands, a high groundwater table and areas of significant petroleum hydrocarbon impacts were all encountered on site.

Based on the above, for the purposes of this assessment, the proposed structures have been classed as Geotechnical Category 2.

For Category 2 structures, the Geotechnical Category should be re-assessed at the design stage and specific geotechnical design (in addition to this investigation), is required.

Following ground investigation and as part of the assessment provided in the following section, the preliminary geotechnical hazard identification undertaken in Section 3.3 has been updated.

Assessment has been undertaken in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents HD 41/15 and CD 622. The preliminary Geotechnical Risk Register following investigation is provided in Appendix I (Table I.3) and will need to be updated during future design works.

The recommendations made within this section are also subject to the findings of higher tiers of risk assessment (i.e., a DQRA) that are now required to support the remediation mitigation measures for the site (as detailed in Section 7).

6.2 Groundwork

6.2.1 Site preparation

The redevelopment will involve demolition of the existing buildings. This should be undertaken to an appropriate Specification to ensure any asset materials generated are geotechnically suitable for use.

Buried obstructions were encountered during this investigation associated with foundations of historical buildings and railway infrastructure (including rails and sleepers of both wooden and concrete), tanks, inspection pits, below ground chambers, and interceptors (and associated infrastructure), and there is a possibility of further such obstructions being encountered.

Whist not encountered during the ground investigation, topsoil, if present anywhere on the site, should be removed from beneath all building and hardstanding areas.

6.2.2 Groundworks

Following breaking out of hardstanding and obstructions, excavation of shallow soils should be readily undertaken by conventional plant and equipment. However, excavation through any buried construction/intact rock quality strata may require ripping plant/the use of specialist breaking equipment.

Significant collapse of trial pit faces was noted during trial pit excavation, particularly in the natural granular soils where groundwater ingress occurred.

Random and sudden falls should be expected from the faces of near vertically sided excavations put down at the site.

Temporary trench support, or battering of excavation sides, is recommended for all excavations that are to be left open for any length of time and will definitely be required where man entry is required. Particular attention should be paid to excavation at, or close to, site boundaries/adjoining existing roads/structures/buildings, where collapse of excavation faces could have a disproportionate effect.

A risk assessment of the stability of any open excavation should be undertaken by a competent person and appropriate measures adopted to ensure safe working practise in and around open excavations. Further guidance on responsibilities and requirements for working near, and in, excavations can be obtained from the Construction Design and Management Regulations (2015); Construction Information Sheet 47: Inspections and Reports (2005) and HSG47: Avoiding Danger from Underground Services.

To ensure no loads are imposed on the sides of the excavation, spoil should not be placed immediately adjacent to the excavation. Spoil should be placed a suitable distance from the side of the excavation (as assessed by a competent person).

Based on site observations, the rate of water ingress into the proposed excavations is likely to be fast through the Cheltenham Sand and Gravel or at depths below 1.20 m bgl. In these circumstances, groundwater control by sump pumping is unlikely to be sufficient to deal with anticipated flows and alternative methods of dewatering, such as well points, or use of impermeable cut-offs should be allowed for.

However, it should be recognised that groundwater levels may vary from those at the time of the investigation, for example in response to seasonal fluctuations and the timing of construction may dictate the extent of groundwater control required.

Any water pumped from excavations may need to be passed via settlement tanks (to reduce suspended solids) before being discharged to the sewer. Discharge consents may also be required. In addition, due to petroleum hydrocarbons in the groundwater, any water pumped from excavations may need to pass via a treatment plant to reduce concentrations to acceptable limits.

6.2.3 Earthworks/reuse of site-won materials

Whilst Hydrock has not been provided with the specific requirements for earthworks (cut / fill depths and volumes), earthworks will be required to facilitate the installation of a clean cover system in soft landscaping areas, and more significant earthworks may be required to mitigate the petroleum hydrocarbon impacts, subject to the findings of higher tiers of risk assessment that are required (see Section 7.11).

The classification of materials depends on both the proposed end use and whether the material will meet the performance requirements of that end use. Based on Hydrock's understanding, the following assessment is based on the use of General Fill for external areas and Structural Fill for the building footprint, if suitable.

An initial assessment of classification data (see Section 5.7 and Appendix E) has been completed based on Hydrock's understanding of the development and the potential to reuse site-won materials as an

engineered fill material. This is summarised in Table 6.1. It is assumed that there will be limited site won material from the Charmouth Mudstone Formation due to the depth at which is it encountered.

Table 6.1: Preliminary earthworks assessment

Stratum	Proposed end use	Preliminary classification (SHW Series 600)	Comment	Suitability for improvement by the inclusion of binders
Made Ground	External Areas	Class 1A & 2A. General Fill.	Processing to remove oversize and deleterious material required. Only suitable to be used as fill if it is beneath a clean cover system. Only suitable for General Fill if placed beneath a clean cover system or pavement construction thickness.	Unlikely to be suitable.
Cheltenham Sand and Gravel	External Areas	Class 1A General Fill	Wet and dry of optimum, moisture conditioning.	Impacted materials may be suitable if treated through remediation processes, subject to higher tiers of risk assessment, and further detailed design and testing.
Superficial Deposits Cohesive	External Areas	Class 4	Unsuitable for General Fill due to variable strength and organic content.	Unlikely to be suitable.

The earthworks may need to be undertaken under na MMP (see Section 8.3).

Before the use of hydraulic binders is approved, comprehensive testing will need to be completed by a specialist Contractor to satisfy both themselves and the Engineer of the suitability of the soils for treatment and to confirm that the requisite end-performance of the material is achievable. In all instances where improvement by the inclusion of binders is considered, a mix design is required and as part of this design, samples should be checked for swelling, even where very low sulphate values are recorded.

Where it is proposed to reuse site won materials as an engineered fill it will be necessary to develop an appropriate Site-Specific Earthworks Specification. The basis for the Specification should be BS 6031:2009 and the latest version of the SHW, Series 600 Earthworks. Once site proposals have been further defined, more specific consideration will need to be given to the reuse of materials and reference should be made back to Hydrock.

6.3 Foundations

This section provides recommendations for the foundations for townhouses and apartment blocks.

The recommendations in this report are based on the current NHBC Standards (2022).

In accordance with EC7, BS EN 1997-1+A1 (2013) the townhouses and apartment blocks may be suitable for rafts or piles respectively and are considered to be Geotechnical Category 2. Recommendations for Geotechnical Category 2 structures are presented to aid development proposals only. A separate geotechnical design will be required at the design stage.

Subject to detailed geotechnical design, the safe bearing pressures for foundations in this report take into consideration the risk of shear failure of the ground (ultimate limit state). However, they do not assess acceptable limits of settlement (serviceability limit state). Serviceability limit state assessment will need to be undertaken as part of the separate geotechnical design.

6.3.1 Foundation types

On the basis of the ground conditions encountered, the foundation recommendations are summarised in Table 6.2 and illustrated on the preliminary Foundation Zonation Plan (Ref: 20755-HYD-XX-XX-DR-GE-1010, dated 14 April 2022), which is provided in Appendix A.

Table 6.2: Foundation summary

Building Type	Recommended foundation type	Comments
Townhouses	Raft with ground improvement (excavate and replace or dynamic compaction)	In order to minimise the depth of excavation, to mitigate the impact of high groundwater and risk of blowing sands, raft foundations are proposed. The Made Ground and any loose/soft spots will need to be excavated and replaced (either using processed site won granular material or imported fill), or could be compacted in situ using dynamic compaction methods such as Landpac. Any reuse of site-won materials will need to take into account the findings of the higher tiers of risk assessment that are now required (see Section 7.11). Shrinkable soils of medium volume change potential may be encountered at depth and the influence of existing trees should be considered in the raft design. Alternatively, piled foundations could be used.
Apartment Blocks	Piles	Due to the likely loads combined with potential for settlement, piled foundations are recommended for the apartment blocks, extending into the competent mudstone. Due to the presence of Made Ground, suspended floors should be used with the piles. Rafts could potentially be considered subject to confirmation of building layouts and structural design. Any reuse of site-won materials will need to take into account the findings of the higher tiers of risk assessment that are now required (see Section 7.11).

6.3.2 Raft foundations

Shallow spread foundations are not recommended due to the shallow groundwater, blowing sands and impacted materials. Therefore, raft foundations are considered a suitable option, subject to further investigation, site specific design considerations and NHBC approval.

Rafts should be formed on a granular base of compacted suitable granular infill material over the Cheltenham Sand and Gravel, above the water table. It may be possible to reuse granular Made Ground beneath the raft if the material is adequately processed and treated, where applicable (i.e., subject to

the findings of the higher tiers of risk assessment that are now required – see Section 7.11). Alternatively, the Made Ground may be suitable for improvement in situ using dynamic compaction (e.g., Landpac), which can typically improve depths of up to 3 m bgl and would limit the volume of material being excavated. However, the method chosen ultimately depends on the requirement for remediation and the treatment methods used, as these may require excavation of the Made Ground in advance. Any materials replaced as part of remediation will need to be compacted and tested in accordance with an appropriate Earthworks Specification to ensure they remain suitable underneath raft foundations.

In accordance with the NHBC Standards, raft foundations should be designed by an Engineer. The warranty provider should be consulted at an early stage if raft foundations are considered.

Rafts would be classified as Geotechnical Category 2 and will require additional design and reporting as part of a separate geotechnical design. The raft design will need to consider potential differential settlements over the length of each housing block due to variability in the thickness of Made Ground and Cheltenham Sand and Gravel. However, due to the granular nature of the materials, it is likely that the majority of settlements will occur during construction. To aid the designer, a summary of Made Ground and Cheltenham Sand and Gravel thicknesses are shown on the Preliminary Foundation Zonation Plan (Ref: 20755-HYD-XX-XX-DR-GE-1010, dated 14 April 2022) presented in Appendix A.

Where the natural Cheltenham Sand and Gravel is impacted with hydrocarbons, should remedial works be undertaken and that the material is placed back under an Earthworks Specification, this may then be appropriate to allow the construction of rafts.

It is possible that the apartment blocks could also be supported by rafts instead of piled foundations, however, this will depend on the finalised details of the buildings and the structural loads imposed, which may result in excessive settlements. It is recommended that piles are assumed for initial costing purposes.

6.3.3 Piled foundations

Piled foundations are recommended for the apartment blocks, to mitigate the penitential effect of differential settlements that a raft may impose.

Depending on column loads and layouts, piles should extend through the Made Ground and Cheltenham Sand and Gravel, and to a suitable depth into the underlying Charmouth Mudstone Formation.

Bored piles with the use of casing should be suitable to support the foundations for the specific plots. However, the choice of piling system should be undertaken by a specialist piling Contractor and the design of piles is beyond the scope of this report. The decision on pile type and design should take into account the following factors relevant to the site:

- Obstructions in the ground are expected from the previous structures and infrastructure, which could cause piles to stop shallower than the design depths, or to deviate from the vertical, thereby reducing their capacity. In some circumstances, obstructions can lead to pile breakage.
- Pile installation can create preferential pathways for the migration of contaminants to the groundwater.
- Boring of piles through coarse soils can result in loosening of the material, with resultant risk of shaft collapse prior to concreting and reduced shaft friction.

- Groundwater levels are between approximately 0.70 m and 2.10 m bgl and temporary casing will be required through the Cheltenham Sand and Gravel for bored piles. If continuous flight auger (CFA) piles are used, concrete is placed as the auger is withdrawn, which can balance the water pressure if the operation is undertaken carefully.
- The groundwater in the Cheltenham Sand and Gravel is under pressure and gives rise to blowing sands.
- Collapse of the pile shaft can be caused by 'necking' of the pile in blowing sand conditions, leading to pile failure.
- Piles should extend a minimum of five pile diameters into the Charmouth Mudstone Formation to mobilise sufficient shaft friction and end-bearing resistance to carry the required loads without unacceptable settlement.
- Piles should also be designed to cater for the potential down-drag effects of negative skin friction on piles from the recently placed remediated soils.
- Where foundations are constructed on clay soils within the influencing distance of trees design should include for the upper section of the pile to be sleeved or additional length allowed for to resist stresses from clay swelling or shrinkage. In addition, heave protection may be required on the inside faces and underside of the ground beams.

6.3.4 Foundation works risk assessment

A foundation works risk assessment is likely to be necessary for piling as there is a possibility that this could lead to creation of new pathways for migration of contamination and may result in a significant increase in risk of pollution to Controlled Waters.

6.3.5 Working platform

A working platform will be required prior to the arrival on site of tracked piling plant. This should be designed and installed in accordance with BR470 (BRE 2004) based on data on the specific plant in accordance with an FPS certificate for the rig loadings.

6.4 Ground floor slabs

In accordance with the NHBC standards, as Made Ground greater than 600mm thick are present at the site, it is recommended that suspended floor slabs with a void be adopted where piled foundations are used. Where rafts are proposed, the Made Ground should be excavated and replaced with suitable granular fill or alternatively improved in situ using dynamic compaction (e.g., Landpac), subject to the findings of the higher tiers of risk assessment that are now required (see Section 7.11).

Slabs without a void (ground bearing or suspended cast *in situ* onto the ground) may be used if all of the following criteria are satisfied:

- the foundation depth (such as due to the influence of trees) is less than 1.5 m bgl;
- any fill is suitable, well-compacted granular material, and less than 600mm thick;
- it is demonstrated that the soils are not desiccated and are at their equilibrium moisture content; and
- ground floor construction is not undertaken when the surface soils are seasonally desiccated (i.e., during summer and autumn), unless NHBC is satisfied the soil is not desiccated.

Ground floor slabs should be designed to incorporate any ground gas / vapour mitigation discussed later within this report.

6.5 Roads and pavements

It is considered likely an equilibrium California Bearing Ratio (CBR) of 2.5% will be achievable for the Made Ground, which could potentially be increased significantly if the ground improvement option is selected (subject to the findings of the higher tiers of risk assessment that are now required – see Section 7.11). This would need to be verified with additional testing post improvement, which would form part of an earthwork's specification.

Proof rolling of the formation level will be required and any loose or soft spots should be removed and replaced with an engineered fill, in accordance with a suitable Specification. The formation level will also need to be protected during inclement weather from deterioration; all slopes should be trimmed to falls to shed rain water and the surface sealed to limit infiltration.

Prior to the placement of the founding materials and the construction of the road pavement, the sub-formation and formation will need to be inspected and checked in accordance with a suitable Specification to ensure the ground conditions are as expected. All testing should be carried out in accordance with DMRB Pavement Design CD225 (2020) to confirm that the ground conditions at time of construction are consistent with the previous design parameters.

Where the CBR is found to be less than 2.5%, the sub-grade may be unsuitable for both the trafficking of site plant and as support for a permanent foundation, without improvement works being undertaken. Improvement works should be carried out in accordance with DMRB Pavement Design CD225 (2020). In summary, consideration may be given to the following potential remedial techniques:

- excavation and re-engineering or replacement of weaker soils;
- the inclusion of geosynthetic reinforcement within the unbound layers of the capping and sub-grade;
- where cohesive soils are present and they are deemed suitable for treatment with hydraulic binders, to employ modification and/or stabilisation techniques on the formation; and
- where granular soils are present, de-watering and re-engineering the formation.

6.6 Drainage

Drainage via soakaways is considered unsuitable for the site due to the depth of the Made Ground, the significant contamination that has been identified across the site (and the industrial nature of surrounding area), and also the shallow depth of the groundwater.

6.7 Buried concrete

Based on guidelines provided in BRE Special Digest 1 (BRE 2005) and the information presented in Section 5.7.5 (Table 5.14):

- The shallow soils (Cheltenham Sand and Gravel and Superficial Deposits Cohesive) can be classified as Design Sulphate Class DS-1 and ACEC Class AC-1*.
- The deeper soils (Charmouth Mudstone Formation) can be classified as Design Sulphate Class DS-4 and ACEC Class AC-4.
- The ring beams of piles can be classified as Design Sulphate Class DS-1 and ACEC Class AC-1*, which will be constructed within the Cheltenham Sand and Gravel or Superficial Deposits Cohesive.
- Whilst the Charmouth Mudstone Formation is pyritic, due to the minimal disturbance during pile installation and the limited exposure to the atmosphere, the potential to generate sulphuric acid is

reduced, therefore, it is considered that piles can be classified as Design Sulphate Class DS-3 and ACEC Class AC-3.

This equates to a Design Chemical Class[1] of:

- DC-1 for the shallow soils (Cheltenham Sand and Gravel, Superficial Deposits Cohesive);
- DC-4 for the deeper soils (Charmouth Mudstone Formation); and
- DC-3 for piles.

The designer should check and confirm the classification of concrete using the information presented in Appendix D and Appendix E during the design.

[1] The calculated ACEC class can be used in accordance with BS 8500-1+A2 (2019), Table A.9 to select the Designated Concrete (DC) class for an intended working life of 50 years. However, the designer is referred to BS 8500-1+A2 (2019), for full details and notes to Table A.9, including any Additional Protective Measures (APMs).

7. GEO-ENVIRONMENTAL ASSESSMENT

7.1 Updated conceptual model

7.1.1 Updated ground model

The preliminary Ground Model developed from the review of historical reports and Hydrock's field reconnaissance survey (Section 2) has been updated using the findings of the ground investigation and is presented in Section 5. The updated Ground Model is the basis for the geo-environmental assessment presented in this section.

7.1.2 Updated exposure model

Following the ground investigation, the plausible contaminant sources, receptors and pathways identified in the preliminary geo-environmental exposure model (Section 3.4), have been updated or confirmed as follows.

7.1.2.1 Sources

No potential sources have been removed from, or added to, the exposure model.

7.1.2.2 Receptors

No potential receptors have been removed from, or added to, the exposure model.

7.1.2.3 Pathways

No pathways have been removed from, or added to, the exposure model.

Using the updated Ground Model and updated exposure model, generic risk assessment is undertaken as presented below.

7.2 Risk assessment approach

Generic risk assessments have been undertaken in accordance with the principles of LCRM using the CSM that has been updated following the ground investigation.

Firstly, the risks associated with the identified potential contaminant linkages have been estimated using standardised methods (typically involving comparison of site data with published 'screening values'). Secondly, where screening values are exceeded, the result has been evaluated in an authoritative review of the findings with other pertinent information to determine whether or not the exceedance is, or is not acceptable in the site-specific circumstances.

The data sets used in the assessment comprise the analytical results obtained by Hydrock as listed in Section 4 together with any reliable data from the historical investigations as listed in Section 2.3.

In cases where unacceptable risks are indicated, actions such as more advanced stages of risk assessment or remediation are proposed in Section 7.11.

7.3 Human health risk assessment

This is a Tier 2 assessment using soil screening values applicable to the following CLEA land use scenarios (noting the different potential land uses across the proposed development):

- Residential with Plant Uptake due to the townhouses with private gardens.

- Residential without Plant Uptake due to the apartment blocks across the site, which include areas of landscaping.
- Public Open Space (Resi) due to the areas of POS across the site.

Hydrock is not currently aware of the proposed levels or any bulk earthworks and/or materials movements that will be required as part of the proposed development, therefore, all data from across the site have been compared with each CLEA land use scenario listed above.

The soil screening values used are generic assessment criteria (GAC). It should be noted that Category 4 Screening Levels (C4SL) for lead have been used as there is no recognised GAC for lead and the use of the term 'GAC' in this report includes the C4SL for lead.

Statistical testing is used where data sets are suitable. The critical issue is sample numbers. For data sets with low sample numbers or where sampling is targeted at specific areas, individual sample test results are compared directly with the screening values. Larger and non-targeted data sets are subject to statistical testing.

The data sets that are suitable for statistical testing are assessed in Section 7.3.2.

The data sets that are not suitable for statistical testing (i.e., due to sample numbers) are assessed separately in Section 7.3.3.

The phrase 'further assessment required' is used to denote soil concentrations that are equal to, or exceed, a GAC. This does not necessarily mean that the soil is 'contaminated' or not otherwise suitable for use. The assessment and any mitigation required are to ensure the site does not pose an 'unacceptable risk'.

The results of the assessment are presented in Appendix G.

7.3.1 Averaging areas

The entire site has historically been used as railway sidings, with part of the site in the north subsequently developed into a road transport depot and then the Tenanted Areas. Relatively consistent ground conditions have been encountered across the site, notably Made Ground associated with the historical railway sidings, overlying natural soils of the Cheltenham Sand and Gravel (albeit with varying levels of encountered contamination) and Charmouth Mudstone Formation. In addition, Hydrock is not currently aware of the proposed levels or any bulk earthworks and/or materials movements that will be required as part of the proposed development. Therefore, the 'averaging area' used in this report is based on the CSM and the proposed development, and is summarised to be the entire area of the site.

The data are then separated into the following categories:

- Made Ground: although serval different types of Made Ground soils have been identified, including surfacing, railway ballast and general fill type material, it is difficult to determine any pattern(s) to the spatial distribution of the different types of material, with the exception of the general fill, which has been identified across the entire site. In addition, the different materials do not appear to have significantly differing chemical signatures. Therefore, the Made Ground data have been grouped together and assessed as one dataset.
- Made Ground at TP219: this was a sample specifically taken of the significantly black stained Made Ground soils adjacent to the redundant AST near TP219. This is not considered representative of any other Made Ground soils encountered across the site (i.e., it is localised to this location) and has been separated as part of the assessment.

- Natural soils of the Cheltenham Sand and Gravel, split into:
  - » Natural soils of the Cheltenham Sand and Gravel not presenting visual and olfactory evidence of contamination (referred to as 'unimpacted' in the tables below).
  - » Impacted natural soils of the Cheltenham Sand and Gravel presenting visual and olfactory evidence of contamination (referred to as 'impacted' in the tables below).
  - » See Visual and Olfactory Evidence of Petroleum Hydrocarbons drawing (Ref: 20755-HYD-XX-XX-DR-GE-1005, dated 11 March 2022) presented in Appendix A for distribution of locations.
- Natural soils of the Charmouth Mudstone Formation.

The spatial distribution of the pertinent contaminants of particular concern in Made Ground and natural soils, including lead, benzo(a)pyrene, petroleum hydrocarbons, and asbestos, is presented on the drawings (Ref: 20755-HYD-XX-XX-DR-GE-1011 to -1016, all dated 28 March 2022) in Appendix A.

Based on the soil organic matter (SOM) % for the Made Ground soils, GAC based on 6% SOM have been used for all samples collected within the Made Ground (including TP219). Relevant GAC based on the SOM% for the other datasets have been used as well.

7.3.2 Risk estimation - including statistical testing

7.3.2.1 Outliers

The data set for each chemical determinand has been assessed for potential outliers (based on the CSM). No outliers have been removed from each of the above datasets listed in 7.3.1.

7.3.2.2 Statistical assessment

In accordance with the guidance provided by the CIEH (May 2008) the 95th upper confidence level on the true mean (US_{95}) has been calculated from the sample data, where statistical assessment is possible. Where statistical assessment is not possible, i.e., due to sample numbers, these are assessed separately in Section 7.3.3.

Hydrock suite of determinands

Based on a US_{95} exceedance of the GAC, the pervasive chemicals of potential concern (from the Hydrock suite) which require further assessment are summarised in Table 7.1, Table 7.2 and Table 7.3, relevant to the applicable CLEA land use scenario.

Table 7.1: Pervasive chemicals of potential concern for which further assessment is required (residential with plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	US_{95} (mg/kg)	No. samples exceeding generic criterion
Made Ground							
Benz(a)anthracene	8.6	LQM/CIEH + CLEA 1.07	40	0.014	55	9.50	2
Benzo(a)pyrene	1.5	LQM/CIEH + CLEA 1.07	40	0.015	33.5	8.11	13
Benzo(b)fluoranthene	10	LQM/CIEH + CLEA 1.07	40	0.015	47.9	11.37	4
Dibenz(a,h)anthracene	1.4	LQM/CIEH + CLEA 1.07	40	0.023	6.5	1.53	2
Cheltenham Sand and Gravel (unimpacted)							
Lead	200	C4SL	11	4.19	4690	2291.60	1

The presence of pervasive PAHs in Made Ground and a single exceedance of lead in the Cheltenham Sand and Gravel (unimpacted) requires further consideration.

Although it does not appear in the above table, lead also exceeds the GAC within 7 samples of Made Ground (out of a possible 40 samples), however, the concentrations are relatively consistent across the site (i.e., elevated concentrations are not focussed around a specific location, which may have indicated a hotspot), and the exceedances are relatively marginal in nature (i.e., not orders of magnitude with a maximum of 460 mg/kg). The US_{95} is significantly below the GAC, therefore, no further consideration is required. The spatial distribution of lead is shown on the Lead in Made Ground soils drawing (Ref: 20775-HYD-XX-XX-DR-GE-1012, dated 28 March 2022) in Appendix A.

Table 7.2: Pervasive chemicals of potential concern for which further assessment is required (residential without plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	US_{95} (mg/kg)	No. samples exceeding generic criterion
Made Ground							
Benz(a)anthracene	9.4	LQM/CIEH + CLEA 1.07	40	0.014	55	9.50	2
Benzo(a)pyrene	1.6	LQM/CIEH + CLEA 1.07	40	0.015	33.5	8.11	13
Benzo(b)fluoranthene	11	LQM/CIEH + CLEA 1.07	40	0.015	47.9	11.37	3
Dibenz(a,h)anthracene	1.4	LQM/CIEH + CLEA 1.07	40	0.023	6.5	1.53	2
Cheltenham Sand and Gravel (unimpacted)							
Lead	310	C4SL	11	4.19	4690	2291.60	1

The presence of pervasive PAHs in Made Ground and a single exceedance of lead in the Cheltenham Sand and Gravel (unimpacted) requires further consideration.

Table 7.3: Pervasive chemicals of potential concern for which further assessment is required (public open space [resi])

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	US_{95} (mg/kg)	No. samples exceeding generic criterion
Made Ground							
Benzo(a)pyrene	2.6	LQM/CIEH + CLEA 1.07	40	0.015	33.5	8.11	8
Cheltenham Sand and Gravel (unimpacted)							
Lead	630	C4SL	11	4.19	4690	2291.60	1

The presence of pervasive benzo(a)pyrene in Made Ground and a single of exceedance of lead in the Cheltenham Sand and Gravel (unimpacted) requires further consideration.

The above findings are all considered further as part of the risk evaluation in Section 7.3.4.

Petroleum hydrocarbons

Based on a US_{95} exceedance of the GAC, the pervasive petroleum hydrocarbon fractions which require further assessment are summarised in Table 7.4, Table 7.5 and Table 7.6, relevant to the applicable CLEA land use scenario.

Table 7.4: Petroleum hydrocarbons of potential concern for which further assessment is required (residential with plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	US_{95} (mg/kg)	No. samples exceeding generic criterion
Made Ground							
Aliphatics >EC12-EC16	140	LQM/CIEH + CLEA 1.07	38	1	3950	682.89	6
Cheltenham Sand and Gravel (unimpacted)							
No Exceedances							
Cheltenham Sand and Gravel (impacted)							
Aliphatics >EC8-EC10	27	LQM/CIEH + CLEA 1.07	45	0.001	284	72.39	13
Aliphatics >EC10-EC12	48	LQM/CIEH + CLEA 1.07	45	1	1260	445.28	31
Aliphatics >EC12-EC16	24	LQM/CIEH + CLEA 1.07	45	1	5060	2851.92	38
Aromatics >EC8-EC10	35	LQM/CIEH + CLEA 1.07	45	0.001	190	47.10	7
Aromatics >EC10-EC12	75	LQM/CIEH + CLEA 1.07	45	1	360	152.88	22
Aromatics >EC12-EC16	150	LQM/CIEH + CLEA 1.07	45	1	3160	1885.48	35
Aromatics >EC16-EC21	260	LQM/CIEH + CLEA 1.07	45	1	4200	2298.66	33

The presence of pervasive petroleum hydrocarbon fractions in Made Ground and in the impacted Cheltenham Sand and Gravel above the GAC requires further consideration.

Table 7.5: Petroleum hydrocarbons of potential concern for which further assessment is required (residential without plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	US_{95} (mg/kg)	No. samples exceeding generic criterion
Made Ground							
Aliphatics >EC12-EC16	140	LQM/CIEH + CLEA 1.07	38	1	3950	682.89	6
Cheltenham Sand and Gravel (unimpacted)							
No Exceedances							
Cheltenham Sand and Gravel (impacted)							
Aliphatics >EC8-EC10	27	LQM/CIEH + CLEA 1.07	45	0.001	284	72.39	13
Aliphatics >EC10-EC12	48	LQM/CIEH + CLEA 1.07	45	1	1260	445.28	31
Aliphatics >EC12-EC16	24	LQM/CIEH + CLEA 1.07	45	1	5060	2851.92	38

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	US_{95} (mg/kg)	No. samples exceeding generic criterion
Aromatics >EC8-EC10	47	LQM/CIEH + CLEA 1.07	45	0.001	190	47.10	6
Aromatics >EC12-EC16	1800	LQM/CIEH + CLEA 1.07	45	1	3160	1885.48	16
Aromatics >EC16-EC21	1900	LQM/CIEH + CLEA 1.07	45	1	4200	2298.66	14

The presence of pervasive petroleum hydrocarbon fractions in Made Ground and in the impacted Cheltenham Sand and Gravel above the GAC requires further consideration.

Table 7.6: Petroleum hydrocarbons of potential concern for which further assessment is required (public open space [resi])

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	US_{95} (mg/kg)	No. samples exceeding generic criterion
Made Ground							
No Exceedances							
Cheltenham Sand and Gravel (unimpacted)							
No Exceedances							
Cheltenham Sand and Gravel (impacted)							
No Exceedances							

The above findings are all considered further as part of the risk evaluation in Section 7.3.4.

7.3.3 Risk estimation - non-statistical assessment

This subsection assesses the data sets that were not suitable for statistical testing (i.e., due to sample numbers).

Hydrock suite of determinands

Based on individual test results that exceed the GAC, the chemicals of potential concern (from the Hydrock suite) which require further assessment are summarised in Table 7.7, Table 7.8 and

Table 7.9, relevant to the applicable CLEA land use scenario.

Table 7.7: Chemicals of potential concern for which further assessment is required (residential with plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground TP219 (significant black staining)						
No Exceedances						
Cheltenham Sand and Gravel (impacted)						
No Exceedances						
Charmouth Mudstone Formation						
No Exceedances						

Table 7.8: Chemicals of potential concern for which further assessment is required (residential without plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground TP219 (significant black staining)						
No Exceedances						
Cheltenham Sand and Gravel (impacted)						
No Exceedances						
Charmouth Mudstone Formation						
No Exceedances						

Table 7.9: Chemicals of potential concern for which further assessment is required (public open space [resi])

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground TP219 (significant black staining)						
No Exceedances						
Cheltenham Sand and Gravel (impacted)						
No Exceedances						
Charmouth Mudstone Formation						
No Exceedances						

No exceedances have been recorded in the above tables that require further consideration.

Petroleum hydrocarbons

Based on individual test results that exceed the GAC, the petroleum hydrocarbon fractions which require further assessment are summarised in Table 7.10, Table 7.11 and Table 7.12, relevant to the applicable CLEA land use scenario.

Table 7.10: Petroleum hydrocarbons of potential concern for which further assessment is required (residential with plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground TP219 (significant black staining)						
Aliphatics >EC12-EC16	140	LQM/CIEH + CLEA 1.07	1	1900	1900	1
Aliphatics >EC16-EC35	110000	LQM/CIEH + CLEA 1.07	1	110000	110000	1
Aromatics >EC12-EC16	670	LQM/CIEH + CLEA 1.07	1	1100	1100	1
Aromatics >EC16-EC21	930	LQM/CIEH + CLEA 1.07	1	2300	2300	1
Aromatics >EC21-EC35	1700	LQM/CIEH + CLEA 1.07	1	23000	23000	1
Aromatics >EC35-EC44	1700	LQM/CIEH + CLEA 1.07	1	5900	5900	1
Charmouth Mudstone Formation						
No Exceedances						

The presence of pervasive petroleum hydrocarbon fractions in the TP219 sample above the GAC requires further consideration.

Table 7.11: Petroleum hydrocarbons of potential concern for which further assessment is required (residential without plant uptake)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground TP219 (significant black staining)						
Aliphatics >EC12-EC16	140	LQM/CIEH + CLEA 1.07	1	1900	1900	1
Aliphatics >EC16-EC35	110000	LQM/CIEH + CLEA 1.07	1	110000	110000	1
Aromatics >EC12-EC16	1900	LQM/CIEH + CLEA 1.07	1	2300	2300	1
Aromatics >EC16-EC21	1900	LQM/CIEH + CLEA 1.07	1	23000	23000	1
Aromatics >EC21-EC35	1900	LQM/CIEH + CLEA 1.07	1	5900	5900	1
Aromatics >EC35-EC44	140	LQM/CIEH + CLEA 1.07	1	1900	1900	1
Charmouth Mudstone Formation						
No Exceedances						

The presence of pervasive petroleum hydrocarbon fractions in the TP219 sample above the GAC requires further consideration.

Table 7.12: Petroleum hydrocarbons of potential concern for which further assessment is required (public open space [resi])

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground TP219 (significant black staining)						
Aromatics >EC21-EC35	3800	LQM/CIEH + CLEA 1.07	1	23000	23000	1
Aromatics >EC35-EC44	3800	LQM/CIEH + CLEA 1.07	1	5900	5900	1
Charmouth Mudstone Formation						
No Exceedances						

The presence of pervasive petroleum hydrocarbon fractions in the TP219 sample above the GAC requires further consideration.

Volatile organic compounds (VOC)

Based on individual test results, the VOCs which require further assessment are summarised in Table 7.13 (all relevant CLEA land use scenarios summarised in a single table).

Table 7.13: Volatile organic compounds for which further assessment is required (all relevant CLEA land use scenarios)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground						
No Exceedances						
Made Ground TP219 (significant black staining)						
No Exceedances						
Cheltenham Sand and Gravel (unimpacted)						
No Exceedances						
Cheltenham Sand and Gravel (impacted)						
No Exceedances						
Charmouth Mudstone Formation						
No Exceedances						

In some instances, the reporting limit (or detection limit) quoted by the laboratory is greater than the GAC that the compound is being assessed against (i.e., vinyl chloride). As this is an initial screening assessment, further assessment of these compounds has not been undertaken.

The JFHR 2021 GI report records BTEX (benzene, toluene, ethylbenzene and xylenes) above the laboratory method detection limit (MDL) within one sample (TP123 @ 0.4 m bgl), however, this is understood to be a sample from a layer of bitumen/asphalt encountered at this depth, rather than of soil. Therefore, this is not considered to be representative of concentrations in soil. All other soils (Made Ground and natural) sampled by either JFHR or Hydrock are below MDL for BTEX compounds. Therefore, the risk from BTEX is considered to be low and no further consideration is required.

The assessment has not identified any VOCs, which includes chlorinated solvents, that require further consideration. Soil samples from across the site have been analysed for VOCs, notably from the Made Ground and natural soils (both unimpacted and impacted) at the suspected source areas across the site and also hydraulically downgradient. No exceedances of the relevant GAC have been recorded. Therefore, VOCs in soils are not considered to represent a significant risk and no further consideration is required.

Light Non-aqueous phase liquid (LNAPL)

A measurable thickness of LNAPL was recorded in two monitoring wells across the site as summarised in Table 7.14.

Table 7.14: Summary of measurable LANPL

Strata	Location	No. Readings	No. LNAPL detections	Depth to LNAPL (range) (m bgl)	Thickness (mm)
Cheltenham Sand and Gravel	WS102	6	4	0.99 - 1.17	50 - 80
	WS115	7	7	1.34 – 1.42	45 - 500

In addition, LNAPL was recorded within the middle chamber of the interceptor on the southern boundary at a thickness of 1550 mm.

The LNAPL from WS115 was sampled on one occasion for laboratory analysis (product ID) and was identified to be consistent with 'biodegraded diesel'. In addition, LNAPL and sheens were also observed on top of the groundwater during the intrusive works as detailed in Table 5.3.

The presence of LNAPL across the central portion of the railway sidings area requires further consideration.

Polychlorinated biphenyls (PCBs)

Four samples were analysed for the presence of PCBs, which were all below MDL. Therefore, the risk from PCBs is considered to be low.

Pesticides screening

Two samples were screened for the presence of pesticides and both were recorded by the laboratory as 'not-detected'. Therefore, the risk from pesticides is considered to be low.

Cyanide suite

Made Ground soils that were recorded to include 'blue/green' gravels were submitted for analysis of total cyanide, free cyanide and thiocyanate, due to the potential presence of materials from the nearby historical gas works (i.e., 'blue billy'). However, all concentrations were below MDL. Significantly, all Made Ground samples where this was identified, also recorded slag and the discolouration was typically on the inclusions of slag. Therefore, it is considered to be unrelated to the historical gas works and the risk from contaminants associated with the historical gas works is considered to be low.

Asbestos

There is visual evidence of ACM in three exploratory hole locations as summarised in Table 7.15.

Table 7.15: Visual evidence of Asbestos Containing Materials

Location	Depth (m bgl)	Comment
TP120	0.4	Cement debris.
TP120A	0.6	Pipe fragment.
WS114	0.75	Possible ACM – rare fragments of roofing tile.

In addition, asbestos fibres have been identified by laboratory testing of soil samples as summarised in Table 7.16.

Table 7.16: Asbestos in soil samples (laboratory testing)

Location	Depth (m bgl)	% Asbestos (w/w)	Comment
TP120	0.4	<0.001	Fibre bundle (chrysotile)
TP120a	0.6	Not quantified	Loose fibres (amosite)
TP128	0.25	0.0063	Bunch of fibres (chrysotile)

The presence of visible ACM and asbestos fibres in Made Ground soils requires further consideration.

Fibres were recorded within a sample of Made Ground from TP125 at depth of 0.25 m bgl, however, the laboratory has confirmed that these are non-asbestos fibres and no further consideration is required.

7.3.4 Risk evaluation

The screening exercise detailed in Sections 7.3.2 (statistical testing) and 7.3.3 (non-statistical testing) has identified that further assessment is required for the following:

- Pervasive PAHs, including benzo(a)pyrene, in Made Ground soils across the site.
- A single significant exceedance of Lead in Cheltenham Sand and Gravel (unimpacted).
- Pervasive petroleum hydrocarbons in Made Ground soils across the site.
- Pervasive petroleum hydrocarbons in Cheltenham Sand and Gravel (impacted) across the central portion of the railway sidings area, generally around the historical tank farm, refuelling area, and interceptor.
- Significant exceedances of petroleum hydrocarbons in the Made Ground surface soils at TP219.
- Visible ACM and asbestos fibres in Made Ground soils across the site.

These are considered further here to assess if the exceedance may be acceptable with respect to the proposed development. The phrase 'further assessment' does not necessarily mean that the soil is 'contaminated' or not fit for use.

The spatial distribution of the above contaminants in Made Ground and natural soils, including benzo(a)pyrene, petroleum hydrocarbons, and asbestos, is presented on the drawings (Ref: 20755-HYD-XX-XX-DR-GE-1011 to -1016, all dated 28 March 2022) in Appendix A.

PAHs in Made Ground

PAHs, most notably benzo(a)pyrene, were recorded in the Made Ground across the site significantly in excess of the applicable GAC for all CLEA land use scenarios assessed. The spatial distribution of benzo(a)pyrene is presented on the Benzo(a)pyrene in Made Ground Soils drawing (Ref: 20775-HYD-XX-XX-DR-GE-1013, dated 28 March 2022) in Appendix A.

As illustrated on the double ratio plot presented in Appendix G, the source of the PAHs within the Made Ground is likely to be related to burning/combustion of organic materials such as fossil fuels. This correlates with the gravel fraction within the material described to frequently include ash, clinker, coal, and slag. The notably exceptions to this are locations TP105 and WS101, which are located within the source area for petroleum hydrocarbons, therefore, the PAHs are likely to be related to fuel spills.

Significantly, the PAHs do not appear to be significantly leaching from the Made Ground soils and into the underlying natural soils based on the analytical results for both the Cheltenham Sand and Gravel (unimpacted and impacted) and the Charmouth Mudstone Formation.

The significant exceedances within the Made Ground are considered to be an unacceptable risk, which require mitigation for the proposed development. The proposed mitigation measures are presented in Section 7.11 and comprise the installation of a clean cover system or hardstanding cover.

Lead in Cheltenham Sand and Gravel (unimpacted)

A single significantly elevated concentration of lead at TP133 causes the US_{95} to significantly exceed the GAC for all CLEA land use scenarios assessed. However, given this is driven by a single exceedance at TP133, this is not considered to be chemically representative of the lead concentration across the site.

If this single result is removed and the assessment is rerun with the remaining 10 samples, the US_{95} is below the GAC for all CLEA land use scenarios (a revised US_{95} of 21.93 mg/kg).

The source of the significantly elevated lead at TP133 could be from cross-contamination of the sample due to loose granular material from the overlying Made Ground falling into the trial pit excavation and contaminating the sample. Slag and ash was consistently encountered with the Made Ground materials across the site. No visual or olfactory evidence of contamination was noted at the corresponding depth at 0.9 m bgl, however, from 1.0 m bgl the soil become stained grey, which may also have caused some cross-contamination of the sample.

Given the exceedance of lead is localised, and is not considered to be representative of the natural soils encountered across the site, lead within the natural soils is not considered to be a significant risk.

Petroleum hydrocarbons in Made Ground

Across the site, petroleum hydrocarbon fractions were recorded in the Made Ground. The spatial distribution of total petroleum hydrocarbons (TPH) C5-C44 is presented on the TPH in Made Ground Soils drawing (Ref: 20775-HYD-XX-XX-DR-GE-1014, dated 28 March 2022) in Appendix A. The petroleum hydrocarbons detections across the site principally relate to the low to very low mobility heavy end fractions notably between >C16-EC35, which also correspond with the carbon ranges of the PAHs discussed above. In addition, elevated concentrations of petroleum hydrocarbon fractions between >C10-C16 were also recorded more localised to the historical tank locations in the central portion of the railway sidings area, as well as the flammable store and interceptor (suggesting point sources, spills, leaks, etc.). Significant exceedances of the applicable GAC were recorded at these locations.

The exceedances within the Made Ground across the site (individual exceedances and exceedances of the US_{95}) are considered to be an unacceptable risk, which require mitigation for the proposed development. The proposed mitigation measures are presented in Section 7.11 and comprise the installation of a clean cover system or hardstanding cover.

In addition, other mitigation measures may also be required for protection of Controlled Waters due to the significantly elevated concentrations of carbon ranges >C10-C16 in the railway sidings area. This is discussed in Section 7.5.

The risk from hydrocarbon vapours associated with petroleum hydrocarbons is discussed separately in Section 7.78.

Petroleum hydrocarbons in Cheltenham Sand and Gravel

The US_{95} for petroleum hydrocarbons in the unimpacted natural soils (i.e., the soils with no significant visual or olfactory evidence of contamination) is significantly below all the applicable GAC. The spatial distribution of TPH C5-C44 is presented on the TPH in Natural Soils Not Impacted drawing (Ref: 20775-HYD-XX-XX-DR-GE-1015, dated 28 March 2022) in Appendix A.

Only six marginal exceedances of the GAC were recorded and relate to the carbon range C12-C16, which again corresponds with diesel fuel (reducing to a single exceedance for POS [resi] CLEA land use scenario). The statistical analysis suggests that outside of the identified areas of impact, the risk from petroleum hydrocarbons in the natural unimpacted soils is considered to be low.

Where visual and olfactory evidence was recorded within the natural soils, significantly elevated concentrations of petroleum hydrocarbons in excess of the applicable GAC were also recorded. The petroleum hydrocarbon fractions that significantly exceed the GAC are >C10-C21 (i.e., including diesel

range). The spatial distribution of TPH C5-C44 is presented on the TPH in Natural Soils Impacted drawing (Ref: 20775-HYD-XX-XX-DR-GE-1016, dated 28 March 2022) in Appendix A. The drawing shows that the significantly elevated concentrations are focused around the historical tank farm, refuelling area, and interceptor in the central portion of the railway sidings area, as well as hydraulically downgradient of these locations. The impacted natural soils are typically encountered at depths greater than 1 m bgl, corresponding with the groundwater level, however, impacted natural soils have been encountered at shallower depths adjacent to the significant source areas.

All of the data suggest that leaks and spills have occurred during the historical operation of the tanks, refuelling area, and interceptor, and that petroleum hydrocarbons (i.e., free-phase diesel) have locally impacted the Made Ground at these locations, migrated vertically down to the groundwater, and then migrated laterally west/northwest with the groundwater flow direction. The vertical migration of petroleum hydrocarbons in soil is likely to be associated with historical fluctuations in the groundwater elevation across the area (i.e., as the LNAPL has moved up and down with the groundwater table). This is demonstrated further by the petroleum hydrocarbon concentrations in the Cheltenham Sand and Gravel WS203 at 1.8 m bgl (i.e., at the top of the grey staining) and 3.5 bgl (i.e., at the base of the material). The concentrations at 1.8 m bgl are significant elevated, whereas they are only marginal above MDL at 3.5 m bgl (and similarly low within the underlying cohesive Charmouth Mudstone Formation). The western extent of the impacts is shown on the drawing and is indicated to be around BH205, BH203, and TP217.

Given the typical depth of the impacted natural soils, direct contact by future sites users is unlikely across the majority of the site. However, Hydrock is not currently aware of the proposed levels or any bulk earthworks and/or materials movements that will be required as part of the proposed development. Therefore, the exceedances within the impacted natural soils are considered to be an unacceptable risk, which require mitigation for the proposed development. The proposed mitigation measures are presented in Section 7.11 and comprise the installation of a clean cover system or hardstanding cover.

In addition, other mitigation measures will also be required for protection of Controlled Waters. This is discussed in Section 7.5.

The risk from hydrocarbon vapours associated with petroleum hydrocarbons is discussed separately in Section 7.78.

Petroleum hydrocarbons in Made Ground at TP219

Significantly elevated petroleum hydrocarbons were recorded in the surface soils adjacent to TP219 next to the redundant AST near the historical inspection pit in the west of the site. A TPH concentration of 170,000 mg/kg was recorded in a sample from the surface soils that were stained black by the AST outlet, suggesting significant leakage. The petroleum hydrocarbons fractions that exceeded the applicable GAC ranged between C12 and C44, indicating diesel range, as well as other heavier end fractions as well. TP219 did not encounter any significant visual or olfactory evidence of contamination in the underlying natural soils and the confirmatory data were all below MDL.

The exceedances within the Made Ground adjacent to TP219 are considered to be an unacceptable risk, which require mitigation for the proposed development. The proposed mitigation measures are presented in Section 7.11 and comprise the removal and/or possible treatment of the impacted surface soils at this location.

Light Non-aqueous phase liquid (LNAPL)

LNAPL has been encountered across the central portion of the railway sidings area, both on top of the groundwater ingress during the intrusive works, and also as a measurable thickness within monitoring wells. The LNAPL is consistent with biodegraded diesel. The source of the LNAPL is likely to be the historical operation of the tank farm, refuelling area and interceptor. LNAPL has likely migrated on top of the groundwater with the flow direction towards the west/northwest, but also through preferential pathways including the former fuel lines and underground services (as encountered at TP222). Significant LNAPL was also encountered at TP226 ('LNAPL flooded excavation' - see exploratory log), which is downgradient of a historical AST location and historical turntable / wheelhouse, and also several large existing underground manhole type chambers.

Given the typical depth of the LNAPL, direct contact by future sites users is unlikely across the majority of the site. However, the presence of LNAPL is still considered to be an unacceptable risk, which requires mitigation for the proposed development. The proposed mitigation measures are presented in Section 7.11 and comprise the removal of LNAPL and the removal and/or possible treatment of soils significantly impacted with LNAPL.

The risk from hydrocarbon vapours associated with LNAPL is discussed separately in Section 7.7.

Asbestos

Visible ACM was identified as fragments of cement bound debris and pipe fragments within the Made Ground at TP120 and TP120A, respectively. Suspected ACM was also observed at WS114 in the Tenanted Areas. These locations all correspond with historical structures that are no longer present, therefore, their demolition may be the source of the ACM. In addition, the JFHR 2021 GI report references historical Network Rail asbestos demolition survey records that encountered visible ACMs on the ground outside the footprints of the existing (at the time) buildings and structures, including cement products (roof sheets and flue pipe debris), gasket debris, and cladding coating (paper) debris. The records also detail that in the accessible areas of the fire damaged buildings, asbestos paper lined fibreboard panels and galbestos were reportedly also noted to be strewn across the floors.

The internals of the buildings have not been investigated as part of the ground investigation works detailed herein (or as part of the historical ground investigations). Therefore, additional visual ACM could also be present elsewhere across the site.

In addition, asbestos fibres have been detected in 3 samples of the Made Ground soils (out of a possible 59). Two of the samples relate to where the visible ACM was recorded at TP120 and TP120A, however, fibres were also recorded at TP128 in the Tenanted Areas. Two of the samples were quantified at concentrations of <0.001% (TP120) and 0.0063% (TP128) and were both chyrostile. Amosite was also detected (TP120A) but not quantified.

Guidance on the assessment of risk associated with asbestos in soils was published by CIRIA C733 in 2014. This proposed a semi-quantitative risk assessment methodology for asbestos, based on potential for inhalation of airborne fibres. As many factors affect the potential magnitude of fibre inhalation in addition to concentration, it is not practicable to derive generic screening criteria for asbestos concentrations in soil. Risk factors applicable to the site are considered below:

- Limited visible evidence of ACM was noted in the exploratory holes, suggesting that asbestos materials are present only as very minor constituents in the soil.

- Where asbestos was identified by laboratory testing, the concentration was assessed as <0.001% and 0.0063%.
- Two of the three samples recorded chrysotile fibres, which is the least hazardous of the three principle asbestos forms, most commonly associated with asbestos cement products. Amosite was also recorded at one location but not quantified.
- Although the impacted soils might be excavated and disturbed, with consequent potential for fibre release during groundworks, future disturbance is likely to be minimal due to the requirement to import a clean topsoil/subsoil growing medium or hardstanding cover.

Hydrock consider it plausible for asbestos to be present in any of the Made Ground soils, significantly within the footprints of historical and existing buildings (which have not been fully investigated) and asbestos, (even at low concentrations), represents an unacceptable risk and mitigation measures will be required across the site, for both the construction phase and the site end users. The proposed mitigation measures are presented in Section 7.11 and comprise the installation of a clean cover system or hardstanding cover.

7.4 Plant life risk assessment

7.4.1 Risk estimation

Priority phytotoxic chemical concentrations have been screened against published values to determine the likely risk to plant growth and the findings presented in Appendix G.

Based on the individual test results that exceed the GAC, the chemicals of potential concern which require further assessment are summarised in Table 7.17.

Table 7.17: Pervasive chemicals of potential concern for which further assessment is required (risk to plants)

Chemical of potential concern	Generic criterion (mg/kg)	Basis for generic criterion	No. samples	Min. (mg/kg)	Max. (mg/kg)	No. samples exceeding generic criterion
Made Ground						
Copper	200	BS3882 2015	40	7.3	622	8
Made Ground TP219 (significant black staining)						
Boron	3	New Zealand timber 1997	1	8.2	8.2	1
Zinc	300	BS3882 2015	1	1200	1200	1
Cheltenham Sand and Gravel (unimpacted)						
No Exceedances						
Cheltenham Sand and Gravel (impacted)						
No Exceedances						
Charmouth Mudstone Formation						
Boron	3	New Zealand timber 1997	4	2.7	3.6	3

7.4.2 Risk evaluation

Concentrations of copper and zinc within the Made Ground soils (both site-wide and TP219) are significantly elevated when compared to the GAC. The source of the metals is likely to be the anthropogenic inclusions of slag that were encountered within the Made Ground. In addition, boron is marginally in excess of the GAC in the Made Ground at TP219 and also within the Charmouth Mudstone Formation.

Whilst detriment to plant life is difficult to quantify and many of the GAC are based on agricultural crop yields rather than harm to particular plant species, the significant exceedances of copper within the Made Ground indicates the probability of an unacceptable risk to plant life and mitigation may be required. However, notwithstanding the concentrations, there is no suitable growing medium on the site and this will require import as part of the proposed development. The requirement for mitigation of risk to human health (the installation of a clean cover system as discussed in Section 7.3.4) will also serve to mitigate risks to plant life. This should also include the planting of any new trees within tree pits comprised of suitable topsoil/subsoil.

7.5 Pollution of Controlled Waters risk assessment

7.5.1 Risk estimation

The risks to groundwater and surface water from contaminants on site have been assessed in accordance with the Environment Agency (2006) Remedial Targets Methodology (RTM).

Site contaminant loadings are compared with relevant screening values (Water Quality Targets [WQT]), which are linked to the CSM.

Acceptable WQT are defined for protection of human health (based on Drinking Water Standards [DWS]) and for protection of aquatic ecosystems (Environmental Quality Standards ([EQS]).

The data are compared with criteria selected based on which risk scenario is best applicable to the site. The assessment protocol is presented in Table 7.18 below, with the justification for the scenario selected explained in the following text:

- The site is underlain by Made Ground (unproductive strata), Superficial Deposits of Cheltenham Sand and Gravel (Secondary A aquifer) and the Charmouth Mudstone Formation (Secondary [undifferentiated]).
- The site is not in a groundwater Source Protection Zone and there are no known active potable groundwater or surface water abstractions within 2 km of the site.
- The site is in a predominantly industrial/urban area that was historically part of an extensive railway sidings that also covered the surrounding areas to the east, south and west. The surrounding area also historically included other heavy industrial land uses such as a gas works and various depots.
- The River Twyver flows northwest towards the site and a significant section is culverted (approximately 200 m west/southwest of the site at its closest points). The un-culverted section is approximately 250 m southeast (at its closest point). The river joins the River Severn approximately 1.8 km northwest.
- The river is currently (2019 Cycle 2) classified under the Water Framework Directive as 'moderate' owing to its ecological status, partly due to heavy metals of copper and zinc, as well as ammonia being recorded as high. In addition, it is reported to be failing its chemical status due to priority hazardous substances, including mercury and its compounds
- Groundwater flow direction across the site has been proven to flow towards the west/northwest towards the River Twyver and the River Severn.

Future groundwater abstraction from beneath the site or the surrounding area is considered highly unlikely due to the heavily industrial past of the site and, significantly, the much wider area. The receptor is considered to be the River Twyver, therefore, the data are compared against WQT derived for the protection of inland aquatic ecosystems (EQS) only. DWS derived for the protection of human health are not considered further within this report.

Table 7.18: Summary of water quality risk assessment protocol

Hydrock	Water body receptors	Secondary receptors	Example contaminant linkages	RTM level and data used	Water quality targets
B	Groundwater. Surface water.	Aquatic ecosystem.	Contaminants from site leach or seep into a groundwater body that feeds inland surface water by base flow. The surface water may be an aquatic ecosystem.	RTM Level 2 - Groundwater.	EQS (inland)
Notes: Some EQS are water hardness dependent. This is measured either in the receiving surface water or in groundwater (if it is part of the pathway), or is estimated from national maps. Inland waters EQS applicable to freshwater, 'other' waters EQS applicable to coastal or transitional waters. This table and the results of the assessment are considered as a first screening for potential risks of pollution of Controlled Waters. More specific requirements may be stipulated by the relevant Agency.					

As part of the assessment, the groundwater data are split into the groundwater bodies that have been identified across the site (see groundwater summary in Section 5.4). The groundwater bodies and monitoring wells that are screened within them are summarised in Table 7.19.

Table 7.19: Summary of monitoring wells screens for assessment purposes

Body	Well ID	Comment
Shallow groundwater	BH101S, BH102, BH103, W101, WS102, WS103, WS104, WS105, WS107, WS109, WS110, WS111, WS112, WS113, WS114, WS116, BH202, BH203, BH204S, BH205, and BH206.	Wells are either screened entirely in the Cheltenham Sand and Gravel, or across several strata that includes the Cheltenham Sand and Gravel within the screened section. Several of the historical wells from the JFHR 2021 GI installed the screen section across both the Made Ground / Cheltenham Sand and Gravel and the underlying Charmouth Mudstone. However, due to the granular and higher permeability nature of the Made Ground / Cheltenham Sand and Gravel and the cohesive low permeability nature of the Charmouth Mudstone Formation, the wells have still been assessed as part of the shallow groundwater body.
Deep groundwater	BH101D, BH201, and BH204D.	Wells are screened entirely in the Charmouth Mudstone Formation

Three rounds of groundwater sampling have been undertaken as follows:

- **Round 1 & 2:** included as part of part of the JFHR 2021 GI and comprised sampling of 17 wells (reportedly using low-flow techniques) – the data have been included as part of this assessment.
- **Round 3:** included as part of the Hydrock ground investigation detailed herein and comprised:
  - Sampling of the 11 wells installed by Hydrock and also WS101 in the source area. Low-flow techniques were used.
  - Resampling of 4 wells installed as part of the JFHR 2021 GI using a dedicated disposable bailer (WS103, WS105, WS107, and WS116).

In addition to the above, groundwater sampling was included as part of the Weeks 1998 GI, however, due to the age of the data they have not been included within the final assessment but are used as part of the discussion below.

The results of the screening assessment are presented in Appendix G and are summarised in Table 7.20. The spatial distribution of the pertinent contaminants of potential concern are presented on the drawings (Ref: 20775-HYD-XX-XX-DR-GE-1017 to -1020, all dated 7 April 2022) in Appendix A and should be used in conjunction with the below.

There are no WQT for petroleum hydrocarbon fractions in water. However, because of the sensitivity of the water environment to petroleum hydrocarbons, an initial screening exercise is also included.

In some instances, the reporting limit (or MDL) quoted by the laboratory may be greater than the WQT that it is being assessed against. As the current exercise is an initial screening assessment, further assessment of these elements has not been undertaken.

Table 7.20: Chemicals of potential concern for which further assessment is required (Controlled Waters)

Chemical of potential concern	Water quality target (WQT) (µg/l)	Basis for water quality target	No. samples	No. samples above LoD	Min. (µg/l)	Max. (µg/l)	No. samples exceeding WQT and above LoD
Round 1 – Shallow Groundwater (JFHR 2021 GI)							
Copper	1	EQS †	16	11	<0.3	6.95	7
Iron	1000	EQS †	16	7	<19	10700	4
Manganese	123	EQS †	16	16	4.17	1340	12
Nickel	4	EQS †	16	16	1.22	11.3	8
Zinc	12.3	EQS †	16	13	<1	52.7	3
Benzo(a)pyrene	0.00017	EQS	16	5	<0.002	0.18	5
Fluoranthene	0.0063	EQS	16	10	<0.005	0.0734	9
Ali >EC6-EC8	10	Withdrawn PWS*	16	1	<10	31	1
Ali >EC8-EC10	10		16	1	<10	79	1
Ali >EC10-EC12	10		16	2	<10	71	2
Ali >EC12-EC16	10		16	3	<10	97	3
Ali >EC16-EC35	10		16	3	<20	126	3
Aro >EC8-EC10	10		16	1	<10	53	1
Aro >EC10-EC12	10		16	2	<10	47	2
Aro > EC12-EC16	10		16	4	<10	129	4
Aro >EC16-EC21	10		16	2	<10	93	2
Aro >EC21-EC35	10		16	1	<10	104	1
Round 1 – Deep Groundwater (JFHR 2021 GI)							
Nickel	4	EQS †	1	1	4.26	4.26	1
Sulphate	400000	EQS	1	1	1330000	1330000	1
Round 2 – Shallow Groundwater (JFHR 2021 GI)							
Copper	1	EQS †	16	12	<0.3	9.09	6
Nickel	4	EQS †	16	17	1.19	7.88	8
Zinc	12.3	EQS †	16	14	<1	27.4	3
Benzo(a)pyrene	0.00017	EQS	16	2	<0.002	0.101	2
Fluoranthene	0.0063	EQS	16	1	<0.005	0.104	5
Ali >EC10-EC12	10	Withdrawn PWS*	16	1	<10	16	1
Ali >EC12-EC16	10		16	2	<10	13	2
Ali >EC16-EC35	10		16	2	<20	29	2
Aro >EC10-EC12	10		16	1	<10	11	1
Aro > EC12-EC16	10		16	2	<10	116	2
Aro >EC16-EC21	10		16	2	<10	74	2
Aro >EC21-EC35	10		16	1	<10	58	1

Chemical of potential concern	Water quality target (WQT) (µg/l)	Basis for water quality target	No. samples	No. samples above LoD	Min. (µg/l)	Max. (µg/l)	No. samples exceeding WQT and above LoD
Round 2 – Deep Groundwater (JFHR 2021 GI)							
Nickel	4	EQS †	1	1	6.36	6.36	1
Sulphate	400000	EQS	1	1	1410000	1410000	1
Round 3 – Shallow Groundwater (Hydrock)							
Cobalt	3	EQS	10	10	0.5	8.4	4
Copper	1	EQS †	10	10	1.7	6.1	10
Manganese	123	EQS †	10	10	50	1100	9
Nickel	4	EQS †	10	10	3.5	16	8
Lead	1.2	EQS †	10	1	<0.2	6.1	1
Ammoniacal nitrogen	300	EQS	10	10	27	4000	8
Phenol	7.7	EQS	10	1	<1	15	1
Ali >EC10-EC12	10	Withdrawn PWS*	14	1	<10	320	1
Ali >EC12-EC16	10		14	1	<10	3400	1
Ali >EC16-EC35	10		14	1	<10	4600	1
Aro >EC10-EC12	10		14	9	<10	270	9
Aro > EC12-EC16	10		14	9	<10	1100	9
Aro >EC16-EC21	10		14	9	<10	1300	9
Aro >EC21-EC35	10		14	7	<10	290	7
Round 3 – Deep Groundwater (Hydrock)							
Boron	2000	EQS	2	2	700	2200	1
Cadmium	0.08	EQS	2	2	0.03	0.13	1
Copper	1	EQS †	2	2	4.3	7.5	2
Mercury	0.07	EQS	2	1	<0.05	0.49	1
Manganese	123	EQS †	2	2	1.9	170	1
Nickel	4	EQS †	2	2	1	4.2	1
Ammoniacal nitrogen	300	EQS	2	2	170	790	1
Chloride	250000	EQS	2	2	88000	460000	1
Fluoride	1000	EQS	2	2	310	2100	1

Note: the maximum recorded value is compared with the water quality target.
† The EQS for these substances represents a bioavailable concentration, which will be a proportion of the actual dissolved concentrations in water. No site-specific bioavailablity testing was able to be undertaken at the site and therefore the EQS bioavailable represents a conservative screening approach.
* The Water Supply Regulations 1989 and the Private Water Supply Regulations 1991 both contained a prescribed concentration of 10 µg/l for 'dissolved or emulsified hydrocarbons (after extraction with petroleum ether); mineral oils'. This was removed when these Regulations were updated in 2000 (consolidated 2007) and 2009, respectively. However, 10 µg/l is used in this report as an initial screening assessment as it is frequently the preferred approach of the Environment Agency.

A number of other heavy-end SVOC were also detected in the groundwater. However, there are no specific WQTs available for these (see Table 7.21).

Table 7.21: Additional substances recorded in groundwater

Semi-volatile organic compound (SVOC)	Max. Conc. (µg/l)
2-Methylnaphthalene	0.62
Acenaphthylene	0.71
Acenaphthene	2.9
Dibenzofuran	2.7
Fluorene	5.6
Phenanthrene	2.4
Carbazole	6.3

7.5.2 Risk evaluation

Heavy metals

The heavy metals copper and nickel were recorded in excess of the WQT within both the shallow and deep groundwater across the site. The exceedances for both the metals are relatively marginal across the site, and significantly the metals were generally detected in both the shallow and deep groundwater in the east of the site and on the eastern boundary (i.e., BH101S, BH101D and BH201), which is considered to be representative of the off site conditions due to the proven groundwater flow direction (i.e., towards the west/northwest). In addition, copper has been recorded as high within the surface water bodies across the surrounding area (as shown on the Environment Agency online Data Catchment Explorer), therefore, it is considered likely that the concentrations are reflective of background conditions of the surrounding area owing to the heavily industrial past.

Zinc was historically recorded during the JFHR 2020 GI (Rounds 1and 2) to be in excess of the WQT within the shallow groundwater at four locations across the site. The exceedances are relatively marginal (the WQT is 12.3 µg/l and only two of the exceedances have historically been recorded above 20 µg/l with a maximum of 52.7 µg/l) and no exceedances were recorded at the locations sampled during Round 3 in March 2022. Zinc has also been recorded as high within the surface water bodies across the surrounding area (as shown on the Environment Agency online Data Catchment Explorer), therefore, it is considered likely that the concentrations are reflective of background conditions of the surrounding area owing to the heavily industrial past.

A single exceedance of lead was recorded within the shallow groundwater at WS204 in the central portion of the railway sidings area. Again, the exceedance is relatively marginal (6.1 µg/l against a WQT of 1.2 µg/l) and does not appear to be wide-spread or migrating away laterally/off site (i.e., all hydraulically downgradient locations have always been below MDL).

It should also be noted that the EQS for copper, nickel, zinc, and lead represents a bioavailable concentration, which will be a proportion of the actual dissolved concentrations in water. No site-specific bioavailability testing was undertaken at the site and the M-BAT spreadsheet tool was not used to calculate site-specific criteria owing to the significant distance of the receiving surface water body (and significant potential for off site sources). Therefore, the EQS used represent a conservative screening approach. Due to the marginal nature of the exceedances and potential wide-spread concentrations in the surrounding area, the risk to Controlled Waters from copper, nickel, zinc, and lead is considered to be low.

Cobalt was recorded in excess of the WQT within the shallow groundwater at four locations across the site, notably in the central portion of the railway sidings area. As the concentrations of the exceedances

are relatively marginal, ranging between 3.8 µg/l (WS203) and 8.4 µg/l (BH204S) against a WQT of 3 µg/l, and cobalt is not listed as either a priority substance or priority hazardous substance (it is currently listed as non-hazardous pollutant in the United Kingdom), the risk to Controlled Waters from Cobalt is considered to be low.

Single WQT exceedances of cadmium and mercury were recorded within the deep groundwater at BH201. The exceedances are relatively marginal (cadmium: at 0.13 µg/l against a WQT of 0.08 µg/l, and mercury: 0.49 µg/l against a WQT of 0.07 µg/l). Cadmium and mercury are not significantly elevated in the Made Ground, and do not appear to be leaching significantly into the underlying natural soils across the site (concentrations in natural soils are typically below MDL). In addition, cadmium and mercury were not recorded within groundwater in excess of the WQT elsewhere across the site. BH201 is located on the eastern boundary and it is considered plausible that the source of the cadmium and mercury is from an off site source owing to the heavy industrial past of the surrounding area. As the exceedances are relatively marginal, the risk to Controlled Waters from cadmium and mercury is considered to be low.

A single marginal exceedance of boron was also recorded within the deep groundwater at BH201 (2200 µg/l against a WQT of 2000 µg/l). Boron was marginally elevated within soils from the Charmouth Mudstone Formation (see Section 7.4) and is considered to be representative of background concentrations. The risk to Controlled Waters from boron is considered to be low.

Inorganics

Manganese was recorded in excess of the WQT within the shallow and deep groundwater across the site. The most common source of manganese in groundwater is naturally occurring due to weathering of manganese rich minerals in rock. Due to the site wide concentrations, including within wells not located near any apparent on site source areas, and also wells located on the site boundary/hydraulically downgradient of groundwater flow from off site, it is considered plausible that concentrations are reflective of the prevailing chemical status of the underlying groundwater body. The risk to Controlled Waters from manganese is considered to be low.

Ammoniacal nitrogen was recorded in excess of the WQT within the shallow and deep groundwater across the site. The most common source of ammoniacal nitrogen in groundwater is typically associated with sewage water or landfill leachate, neither are currently considered relevant to the site. Another potential source is historical gas works sites due to the generation of the by-product ammoniacal liquor during the manufacturing process. However, the gas works is to the northeast of the site and the groundwater flow direction has been proven to the west/northwest, therefore, any residual contamination associated with the gas works may not have impacted site. In addition, the highest ammoniacal nitrogen concentrations are not recorded in the east of the site (i.e., hydraulically downgradient of the historical gas works) and no spatial distribution trends are apparent. Given that ammonia is recorded to be high within the surface water bodies across the surrounding area (as shown on the Environment Agency online Data Catchment Explorer), it is considered likely that the concentrations are reflective of background conditions. The risk to Controlled Waters from ammoniacal nitrogen is considered to be low.

Sulphate was recorded in excess of the WQT within deep groundwater at BH101D. The Charmouth Mudstone Formation is known to be pyritic/sulphate bearing and it is considered likely that the elevated concentrations are representative of background conditions. The risk to Controlled Waters from sulphate is considered to be low.

Chloride and fluoride were both in excess of the WQT within deep groundwater at BH201 on the eastern boundary of the site. Exceedances were only recorded within the deep groundwater at this location and not within deep groundwater elsewhere, or within shallow groundwater across the site. Due to the proven groundwater flow direction to the west/northwest, BH201 is considered to be hydraulically downgradient of potential off site sources, therefore, the concentrations are considered likely to be reflective of background conditions of the surrounding area owing to the heavily industrial past. The risk to Controlled Waters from chloride and fluoride is considered to be low.

Polychlorinated biphenyls (PCBs)

PCBs were not recorded above the MDL in the shallow groundwater from the central portion of the railway sidings area. This is consistent with both Made Ground and natural soil concentrations, which also did not record PCBs above the MDL. The risk to Controlled Waters from PCBs is considered to be low.

Petroleum hydrocarbons – shallow groundwater

The spatial distribution of TPH in shallow groundwater during the three rounds of groundwater undertaken across the site are presented on the TPH in Groundwater drawings (Ref: 20775-HYD-XX-XX-DR-GE-1017 [Round 1], -1018 [Round 2], and -1019 [Round 3], all dated 7 April 2022) in Appendix A. These drawings should be viewed in conjunction with reading the below.

Several heavier-end petroleum hydrocarbons fractions were recorded in shallow groundwater at concentrations significantly in excess of the initial screening value of 10 µg/l.

During Round 1 in October 2020, heavy-end petroleum hydrocarbons between >C10-C35 were recorded in shallow groundwater within the historical tank farm in the railway sidings area (WS101) and hydraulically downgradient to the west (WS102) with a maximum TPH concentration of 463 µg/l. LNAPL was also measured within WS115 adjacent to the interceptor (since identified as 'biodegraded diesel). In addition, petroleum hydrocarbons were also recorded in the northwest of the site adjacent to the redundant AST and refuelling pump at this location. The associated fractions were between >C6-C16, indicating some lighter-end fractions here as well.

During Round 2 in November 2020, the same fractions were typically recorded at the key source areas again, however, concentrations were notably decreased when compared to the first round. A maximum TPH concentration of 248 µg/l was recorded at WS101 adjacent to the historical tank farm. LNAPL was again measured within WS115 adjacent to the interceptor.

The dissolved phase concentrations recorded during Round 1 and 2 demonstrate that the petroleum hydrocarbon impacts recorded in natural soils of the Cheltenham Sand and Gravel (i.e., where visual and/or olfactory evidence has been recorded) are also present in groundwater at these locations as well. However, the extent of the impacts/lateral migration was unclear due to the absence of further monitoring wells to the west of WS102 and hydraulically downgradient.

The low-level detections that were initially recorded during Round 1 (i.e., concentrations marginally above the MDL at locations WS111 and WS113 in the Tenanted Areas, and also WS116 in the east of the railway sidings area), were below MDL during Round 2. This suggests that concentrations are not a significant risk at these locations and impacts are typically focussed around the historical tanks, refuelling area, and interceptor.

To delineate the extent of the LNAPL and dissolved phase petroleum hydrocarbon plumes within the central portion of the railway sidings area, Hydrock installed additional monitoring wells within the shallow groundwater within the source areas associated with the historical tank farm, the refuelling area, the interceptor, and also hydraulically downgradient of these areas. The Round 3 data show that the highest concentrations were recorded adjacent to the refuelling area (WS203) and decrease moving west/northwest downgradient from the historical tank farm. LNAPL was recorded during Round 3 within WS102 (not previously recorded during Round 1 or 2), which suggests migration of the LNAPL is slow and now relatively immobile. The highest concentrations were also recorded on the southern boundary adjacent to the historical tank holder and interceptor (WS103 and WS206, respectively), which are also downgradient of the significant LNAPL that was encountered at TP226. Again, the concentrations decrease moving west/northwest downgradient from the interceptor.

The western extent of the LNAPL appears to be around TP222 and WS115 since it was not encountered within any excavations or measured within monitoring wells further west. Similarly, the dissolved phase plume has significantly reduced by BH204S and BH203 downgradient of the tank farm and refuelling area, and also by BH206 downgradient of the interceptor. The dissolved phase concentrations are then below MDL by BH205 and BH202 in the west of the railway sidings area. The cohesive material encountered on the western boundary around TP220 and other nearby locations (recorded as 'Superficial Deposits Cohesive' in Section 5.1) may be reducing the lateral migration across the site to some degree and also limiting off site impacts.

The stabilised dissolved oxygen and oxidation reduction values collected during the low-flow sampling are presented on two drawings in Appendix A (Ref: 20755-HYD-XX-XX-DR-GE-1008, and 1009, respectively, both dated 7 April 2022). The spatial distribution of the values provide evidence that degradation and natural attenuation of the petroleum hydrocarbon impacts has historically occurred across the site. Dissolved oxygen is largely depleted in the source areas (WS203, WS204, and WS206 all <0.5 mg/l) and decreases to the west (>1 mg/l by BH205). Similarly, oxidation reduction potential is significantly negative in the source areas (WS203, WS204, and WS206 all approximately -50 mV or lower) and increases (i.e., becomes less negative) to the west. In addition, comparison of recent data against the historical petroleum hydrocarbon concentration in the Weeks 1998 GI also suggests significant attenuation has occurred (i.e., concentrations are orders of magnitude lower)

The maximum TPH concentrations recorded during the three rounds of sampling are summarised on the TPH in Groundwater Summary drawing (Ref: 20775-HYD-XX-XX-DR-GE-1020, dated 7 April 2022) and clearly shows the extents of the petroleum hydrocarbon impacts in the central portion of the railway sidings area.

Petroleum hydrocarbons – deep groundwater

Petroleum hydrocarbons in the deep groundwater were below MDL during all three rounds of sampling, including at BH204D which is hydraulically downgradient of the significant source areas. This demonstrates that the petroleum hydrocarbon impacts are not significantly migrating vertically, which is likely due to LNAPL nature of the impacts (i.e., lighter than water) and also the cohesive and low permeability nature of the underlying Charmouth Mudstone Formation limiting migration. The risk to Controlled Waters within deep groundwater is considered to be low.

Petroleum hydrocarbons – discussion

The site is not within a groundwater Source Protection Zone, no groundwater abstractions are recorded within 2 km of the site, and due to the heavily industrial nature of the site and the much wider

surrounding area, future groundwater abstractions from the relatively thin Cheltenham Sand and Gravel aquifer (typically 2 m or less) on site or hydraulically downgradient are considered unlikely. In addition, the surface water receptor is approximately 200 m to the west of the site (at its closest relevant hydraulically downgradient point) and this section is understood to be culverted, albeit, of unknown age, depth and construction. The LNAPL and dissolved phase petroleum hydrocarbons do not appear to be significantly migrating off site, and, therefore, are not likely to be impacting the water body. However, the presence of LNAPL, and dissolved phase concentrations of petroleum hydrocarbons (significantly in excess of the initial screening value), are currently still considered an unacceptable risk to Controlled Waters and further works are required for the proposed development. The proposed mitigation measures are presented in Section 7.11 and it is recommended that this should comprise higher tiers of risk assessment, encompassing a DQRA, and should be supported by the collection of an additional round of groundwater sampling from all accessible wells for petroleum hydrocarbons (comprising both the historical [JFHR] and newly installed wells [Hydrock]).

Volatiles (VOCs and phenol)

VOCs, including BTEX, were all below MDL in shallow and deep groundwater across the site. This is consistent with both Made Ground and natural soil concentrations, which also did not record VOCs or BTEX above the MDL. The risk to Controlled Waters from VOCs is considered to be low.

A single exceedance of phenol was recorded in shallow groundwater at WS206 adjacent to the interceptor in the railway sidings area. All other locations did not record phenol above MDL in shallow or deep groundwater during any of the groundwater sampling rounds. The exceedance is relatively marginal (15 µg/l against a WQT of 7.7 µg/l), the data do not indicate that phenol is wide-spread/migrating across the site, and phenol is not listed as either a priority substance or priority hazardous substance (it is currently listed as non-hazardous pollutant in the United Kingdom), therefore, the risk to Controlled Waters from phenol is considered to be low.

PAHs and SVOCs

The PAHs benzo(a)pyene and fluoranthene were recorded in excess of the WQT at several locations across the site during the first two rounds of groundwater sampling (JFHR 2021 GI), most notably within the central portion of the railway sidings area. However, both compounds were below MDL during the third round of sampling undertaken by Hydrock.

All SVOCs that have WQTs as part of this assessment were not recorded above the MDL. However, seven heavy-end SVOCs, typically associated with PAHs, were recorded above the MDL but do not have a WQT for their assessment. This is based on the analysis of one sample of shallow groundwater from WS203 adjacent to both the historical tank farm and refuelling area. It is recommended that additional targeted analysis of SVOCs is also undertaken as part of the further works to support the higher tiers of risk assessment that are required for the site (as discussed for the petroleum hydrocarbons above).

7.6 Coal Tar

Three samples of asphalt from across the hardstanding areas (TP201 and CPT201 in the railway sidings area, and DP201 in the north western former car par area) were analysed for the presence of coal tar residue. Coal tar was not identified within any of the asphalt samples, therefore, the risk of coal tar being present within the hardstanding cover on site is considered to be low.

7.7 Ground gases risk assessment

7.7.1 Data

It is judged from the available evidence that the gas generation potential at the site is low due to the following:

- The measured thickness of Made Ground is typically less than 1.0 m deep and is primarily comprised of inert granular material of ash, clinker and coal; and
- Limited organic content has been encountered across the site (in either the Made Ground or underlying natural strata, with rare occurrences only with the Superficial Deposits cohesive identified in along the western boundary in the vicinity BH4, WS10 and TP220).

The sensitivity of the development is considered to be the following:

- Moderate sensitivity across the apartment blocks (Blocks A to D) due to proposed structures comprising flats rather than individual separate dwellings; and
- High sensitivity across the houses due to the individual residential dwellings.

Consequently, and in accordance with CIRIA C665 (Table 5.5a and 5.5b), an appropriate minimum monitoring regime is six, provided other monitoring requirements are also met, such as prevailing atmospheric pressure conditions (for example, BS 8485:2015 +A1:2019 suggests monitoring should include a period of falling atmospheric pressure).

Two rounds of monitoring were completed as part of the JFHR 2021 GI. Hydrock have subsequently completed four monitoring. The monitoring programme is considered complete.

Wells for gas assessment based on layout of proposed development, and some wells for vapour assessment using a PID due to risk of petroleum hydrocarbons.

7.7.2 Assessment

The risks associated with the ground gases methane (CH_4) and carbon dioxide (CO_2) have been assessed using BS 8485:2015 +A1:2019, which cites the guidelines published by CIRIA (Wilson et al 2007) (known as Situation A).

There is an alternative assessment method described by the NHBC (Boyle and Witherington 2007) (known as Situation B). Whilst 'Situation B' may also be suitable for the assessment, it is Hydrock's opinion that the NHBC Guidelines are not at the current time fully aligned with current ground gas risk assessment principles (as described in BS 8485:2015 +A1:2019). As such, 'Situation A' has been chosen as the means by the gas risk will be assessed.

The assessment guidelines published by CIRIA are based on interpretation of the gas concentrations and the gas flow rates, amongst other variables, and are compliant with the model procedures of LCRM. The modified Wilson and Card assessment has been used by comparing the maximum gas concentrations and gas screening values (GSV[2]) in Appendix F with the published table (CIRIA Table 8.5) and the assessment is summarised in Table 7.22. The assessment is presented in Appendix F.

[2] Note: GSV is synonymous with 'site characteristic hazardous gas flow rate' (Q_{hgs}) of BS 8485:2015 +A1:2019 Table.

In addition, Table 7.22 summarises a ternary plot assessment of the data (assessment of ground gas ratios (O_2 + N_2, CO_2 and CH_4)), undertaken in general accordance with guidance by Wilson et. al. (2018). The ternary plot assessment is presented in Appendix F.

Table 7.22: Ground gas risk assessment

	Min	Max	Typical [(i)]	Comment
Steady Flow Rate (l/hr)	0.1	3.3*	<1	Elevated negative flow rates recorded at WS105 when well screen is almost saturated. The supporting risk assessment sheet in Appendix F converts this to absolute (positive) readings for use in the GSV calculation, however, this is not thought to be representative of site conditions and so has been removed from the assessment in this table. In addition, an elevated reading of 3.3 l/hr (positive) is recorded at WS105 when well screen is saturated. Again, this is not considered representative of flow within the unsaturated zone. All other flow rates across the site are negligible (i.e., <1 l/hr).
Methane (%)	0.0	0.8	<1	The typical methane concentration is less than 1 %.
Carbon Dioxide (%)	0.0	8.8	<5%	Elevated concentrations (>5 %) of carbon dioxide have been recorded in WS107, WS109, WS110, WS203 and occasionally in WS111. Assessment of the data on a ternary plot of ground gas ratios indicates the ground gas is likely to represent microbial respiration of organic material in soil and is considered to be of low risk.
Carbon Monoxide (ppm)	0	30	<2	-
Hydrogen Sulphide (ppm)	0	8	<2	-
Oxygen (%)	0.9	28.2 (21.6)	17.5	A value of 28.2 % was recorded within the JFHR 2021 GI, however, this is considered to be erroneous (likely a typo). The next maximum recorded is 21.6% as shown in the parentheses.
Carbon Dioxide GSV (l/hr) typical	0	0.129*	<0.07	CS1 Elevated GSVs at WS105 due to unrepresentative flow readings. These have been discounted and removed from the assessment. All other GSVs across the site indicate CS1.
Methane GSV (l/hr) typical	0	0.0065	<0.07	CS1

[(i)] Hydrock assume that values are considered to be atypical if 95% or more of the remaining data are less than the value under consideration

For the purposes of the calculation, where the recorded gas flow rate is below the manufacturer's limit of detection for the instrument used, the detection limit has been adopted for the gas flow rate.

* High (negative) gas flows in WS105 of -11.8 l/hr, discounted as unrepresentative data.

** A reading of 30 was recorded in WS115, this has been discounted as 500 mm of LNAPL was measured in the well and is likely causing erroneous data within the gas monitor.

As indicated in Table 7.22, the computed GSV for carbon dioxide and methane indicates Characteristic Situation (CS) 1 conditions. Elevated concentrations (>5 %) of carbon dioxide have been recorded in WS107, WS109, WS110, WS203 and occasionally in WS111. Assessment of the data on a ternary plot of ground gas ratios indicates the ground gas is likely to represent microbial respiration of organic material in soil, which is considered low risk.

WS105 recorded elevated negative flow readings (up to -11.8 l/hr), which when converted to an absolute value in the risk assessment table in Appendix F indicate CS2 conditions. However, the negative flow rates indicate an intake of air flow rather than gassing out from the surrounding soil. A positive flow of 3.3 l/hr was recorded at WS105, however, this is likely associated with the saturation of the well screen on this date and is not considered representative of ground gas flow in the unsaturated zone. The flow rates at WS105 are not considered representative and the GSVs are discounted. Notwithstanding this, the ternary plot assessment supports the elevated GSVs not being representative of the ground gas regime beneath the site.

High levels of carbon monoxide were detected in WS115, this however is deemed to be an erroneous reading due to 500 mm of LNAPL being present at the time of monitoring. This amount of LNAPL can affect the performance of the monitoring equipment and the previous visit that detected only 45mm of LNAPL did not record similar results. Measurements have not been consistent within the same wells or across site and the detections of carbon monoxide (and also hydrogen sulphide) can be attributed to low oxygen environments arising from water levels being above the well screens and the breakdown of organic materials within the cohesive materials found to the west of site.

Based on the above assessment, including negligible flow rates (typically <1 l/hr), largely absent methane (typically <1 %), and direct consumption of oxygen to produce carbon dioxide, the proposed development is considered to be CS1 and no mitigation measures for ground gases are required.

7.8 Vapours

As shown in Section 7.5, concentrations of petroleum hydrocarbons in groundwater have been found in excess of the WQTs and LNAPL is present in the central portion of the railway sidings area.

During the monitoring programme, a PID was used to screen the well (at the surface) for hydrocarbon vapours in the well head. Generally, readings were below 10 ppm, however, in areas of significant petroleum hydrocarbon impact, such as in the central portion of the railway sidings area, readings were generally above 50 ppm.

In order to protect future occupants, it is currently considered necessary to install suitable hydrocarbon vapour resistant membranes across all proposed structures as a precautionary approach.

There may be potential to reduce the requirements of such a membrane, i.e., where impacted soils are not present, or in areas where sources of contamination are removed, or where all associated impacted soils have been treated, however, Hydrock consider it would be prudent to adopt cautionary vapour protection across all proposed structures until it is demonstrated otherwise. The findings of the higher tiers of risk assessment that are now required due to the unacceptable risks to Controlled Waters will support the decision if/where the requirement for a hydrocarbon vapour resistant membrane can be removed.

7.9 Construction materials risk assessment

7.9.1 Water pipelines

A formal water pipe investigation and risk assessment is beyond the scope of this report. However, the findings of this investigation have been compared to the threshold values in Water UK HBF (2014), Table 1 as far as is practicable, to give an indication of the possible restrictions to the use of plastic pipes for water supply to the site.

The site is brownfield and organic contamination (PAHs and petroleum hydrocarbons) has been identified in exceedance of the threshold values and Hydrock believes barrier pipe is required. However, confirmation should be sought from the water supply company at the earliest opportunity.

7.9.2 Other construction materials

Plastic pipes for drains and sewers are manufactured from unplasticized poly(vinyl chloride) (PVC-U), polypropylene (PP) or polyethylene (PE). These materials may be affected by the presence of organic compounds in the soil.

In accordance with the British Plastics Federation Guidance (August, 2018), as the concentrations of PAH and the concentrations of petroleum hydrocarbons (TPH) are above 200 mg/kg, the pipework manufacturer should be consulted with regard the suitability of the pipework.

The implications for buried concrete are discussed in Section 6.7.

7.10 Findings of the generic contamination risk assessments

The potential sources, pathways and receptors identified in the desk-base review (Section 2) have been investigated (Sections 4 and 5) and assessed (Sections 7.2 to 7.9). A Source-Pathway-Receptor linkage assessment has been undertaken and is presented in Appendix I (Table J.2).

A summary of the Source-Pathway-Receptor (SPR) contaminant linkages for which the risks may be unacceptable and require mitigation (those that are moderate or higher) are summarised in Table 7.23.

Table 7.23: Residual risks following risk evaluation

Contaminant Linkage				Comments	
Pollutant Linkage	Sources	Pathways	Receptors	General	Mitigation
PL 1.	PAHs in the Made Ground across the site.	Ingestion, inhalation or direct contact.	Human health.	Significant exceedances of the GAC.	Mitigation required in the form of an engineered clean cover system or hardstanding.
PL 2.		Root uptake.	Plant life.	Significant exceedances of the GAC.	Import of clean topsoil for use in clean cover system, including tree pits for new trees.
PL 3.		Water supply pipes.	Human health.	Organic chemicals present in soils in excess of Threshold Values.	Barrier pipe required.
PL 4.	Visible ACM and asbestos fibres in the Made Ground across the site.	Inhalation of fugitive dust.	Site users. Neighbours.	Three instances of visible ACM. Asbestos fibres recorded in soils between <0.001% and 0.0063%.	Mitigation required in the form of an engineered clean cover system or hardstanding. Control measures also required during construction phase to protect site workers and minimise risk to neighbouring properties from fugitive dust.
PL 5.	Petroleum hydrocarbons in Made Ground and natural soils.	Ingestion, inhalation or direct contact.	Human health.	Significant exceedances of the GAC associated with historical sources, including tank farm, refuelling area and interceptor.	Mitigation required in the form of an engineered clean cover system or hardstanding.
PL 6.		Water supply pipes.	Human health.	Organic chemicals present in soils in excess of Threshold Values.	Barrier pipe required.
PL 7.		Leachate migration. Base flow.	Controlled Waters.	LNAPL recorded on top of groundwater within excavations and monitoring wells. Significant exceedances of petroleum hydrocarbons WQT.	Higher tiers of risk assessment to determine if petroleum hydrocarbons are a risk to Controlled Waters, comprising a DQRA supported by additional targeted groundwater sampling. Removal of LNAPL and LNAPL impacted soils.
PL 8.	Hydrocarbon vapours.	Inhalation	Human health.	Elevated PID readings associated with petroleum hydrocarbon impacts.	Installation of hydrocarbon resistant membrane as part of all new structures. This requirement may be removed subject to findings of the higher tiers of risk assessment.

Contaminant Linkage				Comments	
Pollutant Linkage	Sources	Pathways	Receptors	General	Mitigation
PL 9.	Petroleum Hydrocarbons in impacted surface Made Ground adjacent to AST near TP219.	Ingestion, inhalation or direct contact.	Human health.	Black staining and hydrocarbon odours of localised surface soils. Significant exceedances of the GAC in surface soils. Leaching into the underlying natural soils not identified.	Delineation, removal/treatment of the surface Made Ground soils and verification.
PL 10	Asbestos in buildings.	Inhalation of fugitive dust.	Site users. Neighbours.	ACM recorded in existing/historical buildings in historical surveys.	Asbestos demolition survey. Careful removal in line with current guidelines required during demolition.

7.11 Mitigation measures

As shown in Table 7.23 (and subject to regulatory agreement), Hydrock consider the following mitigation is required to ensure the site is suitable for use for the proposed end use. The mitigation measures include:

- The installation of an engineered clean cover system in all soft landscaping areas, including private gardens and POS (PL1, PL2, PL4 and PL5).
- Installation of barrier pipe for water supply pipework (PL3 and PL6).
- Completion of higher tiers of risk assessment, encompassing a DQRA, supported by the collection of an additional round of groundwater sampling from all accessible wells for petroleum hydrocarbons and SVOCs) (PL7).
- Installation of hydrocarbon vapour resistant membranes in all new structures (PL8).
- Delineation, removal/treatment and verification of the impacted surface Made Ground soils adjacent to the AST near TP219 (PL9)
- Asbestos demolition survey, followed by the careful removal in line with current guidance (PL10).

Subject to the findings of the higher tiers of risk assessment, the methodology for the remediation should be set out in a Remediation Strategy and Verification Plan, which will need to be submitted to the warranty provider and the regulatory authorities for approval.

In addition, the production of a MMP and its approval by a Qualified Person will be required to allow reuse of suitable material at the site in accordance with waste regulations.

Verification reports by a competent independent geo-environmental specialist will be required following completion of any remedial works (including hydrocarbon vapour resistant membrane installation).

8. WASTE AND MATERIALS MANAGEMENT

8.1 Introduction

The Waste Framework Directive (WFD) (2009/98/EC) defines waste as '*any substance which the holder discards or intends to discard.*' In a geo-environmental context, the waste is most often 'soil' and the two main scenarios are offsite disposal of the material as a waste and/or reuse of the material on site. For cost and sustainability reasons, reuse is preferred to off-site disposal.

Section 8.2 below describes the key issues relating to off-site disposal to landfill and section 8.3 considers requirements relating to reuse of soils and materials management.

8.2 Waste disposal

8.2.1 Principles

Based on the WFD, any material excavated on site may be classified as waste and it is the responsibility of the producer of a material to determine whether or not it is waste. Where off-site disposal is undertaken, the following guidance applies.

Classification is a staged process:

- A hazardous waste is defined under the WFD as one which possesses one or more of fifteen defined hazardous properties. If a waste is not defined as hazardous, then it is non-hazardous.
- Where the materials are soil, it is then be assigned using the 'List of Waste Codes', which classifies the material as either:
  - » hazardous (17-05-03), which is defined as "*soil and stones containing hazardous substances*"; or
  - » non-hazardous (17-05-04), which is defined as "soil and stones other than those mentioned in 17-05-03".
  - » Hydrock utilise the proprietary assessment tool, HazWasteOnline™ to undertake this assessment.
- Waste Acceptance Criteria (WAC) testing is then undertaken if required, and are only applicable following classification of the waste, and only where the waste is destined for disposal to landfill. The WAC are both qualitative and quantitative. The WAC and the associated laboratory analyses (leaching tests) are not suitable for use in the determination of whether a waste is hazardous or non-hazardous.

It should be noted that some non-hazardous wastes may be suitable for disposal at an inert landfill as non-hazardous waste, subject to meeting the appropriate waste acceptance criteria.

It should be noted that classification must be undertaken on the waste produced, by the waste producer. Necessary sampling frequency to adequately characterise a soil population is defined within WM3.

Further discussion with regards to the characterisation process for different scenarios and waste types is provided below.

Topsoil and Peat

Topsoil and peat are biodegradable, therefore if they are surplus to requirements and cannot be re-used in accordance with a Materials Management Plan, they cannot be classified as inert. As such, topsoil and peat need to be classified by a staged assessment and sampling process and would either be classified as hazardous or non-hazardous, depending upon the results of the assessment.

Greenfield Sites

Waste from completely greenfield sites may be accepted at a landfill as inert waste if it meets the requirements of paragraph 10 (wastes acceptable without testing at landfills for inert waste) of the Landfill (England and Wales) (Amendment) Regulations (2005) ('the Regulations') can be met. Paragraph 10 of the Regulations states, "*soils may be able to be classified as inert waste without testing, if:*

- they are single stream waste of a single waste type;
- there is no suspicion of contamination and they do not contain other material or substances such as metals, asbestos, plastics, chemicals, etc….."

As such, where the site is greenfield and the waste producer is confident about the quality of a soil (i.e. naturally occurring and uncontaminated), further sampling and laboratory testing is not necessary for the Basic Characterisation and this can be undertaken on qualitative Waste Acceptance Criteria testing.

In this instance the waste producer can characterise the waste based on visual assessment and written description of the waste in addition to supporting evidence such as a desk study assessment of the greenfield status. However, it should be noted this characterisation is subject to agreement by the landfill operator who may require testing to be undertaken to confirm classification.

Contaminated or potentially contaminated sites

If the site is brownfield, contaminated or potentially contaminated, the waste must undergo an initial waste classification exercise using background information on the source and origin of the waste and assessment of chemical test data in accordance with Environment Agency Technical Guidance WM3.

If following the initial waste classification exercise, the soils are acceptable for disposal to a non-hazardous landfill, further qualitative Waste Acceptance Criteria (WAC) testing is not required.

However, if soils are potentially able to be disposed to an inert landfill as non-hazardous waste, or require testing to determine if they can be disposed of to a stable non-reactive hazardous or hazardous class of landfill, the next stage of assessment is to undertake qualitative WAC testing. This will determine the Basic Characterisation and the landfill category at which the soils can be accepted.

Hazardous material must be subjected to WAC testing to determine whether it requires treatment before it can be accepted at the hazardous landfill, while non-hazardous material can be tested to determine whether it may be suitable for placement in an inert landfill.

8.2.2 HazWasteOnline™ assessment

As the site is brownfield, in order to inform the preliminary waste characterisation process, Hydrock has undertaken an exercise using the proprietary web-based tool HazWasteOnline™. The output of the HazWasteOnline™ assessment is provided in Appendix H and a summary of the preliminary waste classification is provided below in Section 8.2.4.

It should be noted that some of the soil samples assessed as part of the HazWasteOnline™ are classified as potentially hazardous on account of the designation 'HP3i' (with regards to petroleum hydrocarbons). However, based upon carbon banding of the TPH, the findings of the investigation and the way the petroleum hydrocarbons are distributed within the soil, it is likely that the potential for the soil being hazardous on account of HP3i can be all but discounted and it would be reasonable to assume that the result would indicate that the soil, would be non-hazardous as a result of the TPH content.

8.2.3 WAC Testing

The site is brownfield. However, WAC testing has not been undertaken to date but will be required on the excavated soils that are to be disposed of, to assist with waste disposal options prior to disposal. A summary of the preliminary waste disposal options is provided below in Section 8.2.4.

8.2.4 Preliminary waste disposal options

The site is brownfield and based on the site history and the HazWasteOnline™ assessment, if suitable segregation of different types of waste is put in place, for soils to be disposed of, it is considered that:

- The natural unimpacted subsoils are likely to be classified as non-hazardous waste.
- The majority of the Made Ground soils are likely to be classified as non-hazardous waste, however, soils in the vicinity of significant source areas across the site, notably the historical tank farm and refuelling area (and also hydraulically downgradient), and adjacent to the interceptor, are likely to be hazardous due to their petroleum hydrocarbon fractions.
- The impacted natural subsoils across the site are likely to be classified as hazardous waste i.e., around the significant source areas within the central portion of the railway sidings area.
- Any soils containing > 0.1% asbestos or visible asbestos containing materials would be considered as hazardous.
- The screening and testing undertaken on bituminous bound pavement has indicated that coal tar residues are not present and will likely be classified as non-hazardous waste.

8.2.5 General waste comments

It should be noted that:

- It is the waste producer's responsibility to segregate the waste at source and waste producers must not mix waste materials/streams or dilute hazardous components, for example by mixing with less or non-hazardous waste on site to meet WAC limit values.
- The above preliminary assessment has been made on the basis of the soils tested as part of the ground investigation, using the HazWasteOnline™ assessment. However, the formal classification of waste can only be undertaken on the material to be disposed of, and by the waste producer and the receiving landfill as license conditions vary from landfill to landfill.
- Basic Characterisation should be undertaken in accordance with Environment Agency guidance by the waste producer. Hydrock can assist if required and this report will assist the characterisation.

However, Basic Characterisation does not form part of the current commission and would require further assessment and testing on the wastes actually to be disposed.

- Once the waste producer has undertaken an initial Basic Characterisation on each waste stream, they can manage the soils as part of the on-site processing programme (for example, stockpiling, treatment, screening and separation). The waste producer and landfill operator will then need to agree the suite of compliance testing for regularly generated waste to demonstrate compliance with the initial Basic Characterisation prior to disposal.
- At the time of disposal, additional testing on the excavated soils to be disposed of, will likely be necessary.
- Non-hazardous and hazardous soils require pre-treatment (separation, sorting and screening) prior to disposal.
- The costs for disposal of non-hazardous and hazardous soils are significant compared to disposal of inert material.
- In addition to disposal costs, landfill tax will be applicable. Non-hazardous and hazardous waste will generally be subject to the Standard Rate Landfill Tax. Inert or inactive waste will generally be subject to the Lower Rate Landfill Tax. The landfill tax value changes each April and can be found at https://www.gov.uk/government/publications/rates-and-allowances-landfill-tax/landfill-tax-rates-from-1-april-2013.
- Before a waste producer can move waste to a landfill site for disposal, they need to check the landfill site has the appropriate permit and must have completed the following[3]:
  - » Duty of care transfer note / Hazardous Waste consignment note, including comment as to if pre-treatment has been undertaken; and
  - » Basic Characterisation of the waste, to include: description of the waste; waste code (using list of wastes); composition of the waste (by testing, if necessary) and; WAC testing (if required).

8.3 Materials management

8.3.1 Introduction

Soils that are to remain on site, should be managed and reused in accordance with a Materials Management Plan (MMP), prepared in accordance with 'The Definition of Waste: Development Industry Code of Practice', Version 2 (CL:AIRE), known as the DoWCoP. Where all aspects of the DoWCoP are followed the soils are considered not to be waste, because they were never discarded in the first place.

Version 2 of the DoWCoP clearly sets out the principles and an outline of the requirements of a MMP. The following compliance criteria must be seen to apply to the MMP for the site:

- Factor 1: Protection of human health and protection of the environment.
- Factor 2: Suitability for use, without further treatment.
- Factor 3: Certainty of Use.
- Factor 4: Fixed Quantity of Material.

The reuse of soils at sites should be considered during the planning and development design process so that compliance with issues such as fixed quantity and certainty of use clearly relate to agreed site

[3] ENVIRONMENT AGENCY. November 2010. Guidance on waste acceptance procedures and criteria. Waste acceptance at landfills. The Environment Agency.

levels. Suitability of Use is normally evident from the remediation strategy or the design statement, which form an integral part of a MMP. However, some soils may need to be tested post-excavation to prove they are suitable for use.

Once the MMP is finalised, it must be declared by a Qualified Person (QP). The Declaration is an on-line submission as part of which the QP is required to confirm that the declaration is being made before the relevant works have commenced (i.e. it is not a retrospective application).

Once all material movements have been completed in accordance with the MMP a verification report must be produced, kept for 2 years and provided to the EA on request.

It should be noted that failure to comply with the requirements of the DoWCoP when re-using materials has potentially significant consequences for the waste holder. The risk is that the reused materials are still regarded as a waste that has been illegally deposited. From 1 April 2018, the scope of Landfill Tax has been extended to sites operating without the appropriate environmental disposal permit, and operators of illegal waste sites will now be liable for Landfill Tax. Further information is available at: https://www.gov.uk/government/publications/landfill-tax-disposals-not-made-at-landfill-sites/landfill-tax-disposals-not-made-at-landfill-sites.

If soils are excavated and reused on sites (or moved to another site) without a MMP, exemption, or appropriate Permit in place, anyone who knowingly facilitates the disposal may be '*jointly and severally liable*' to any assessment of tax, fines or prosecution.

8.3.2 Materials management scenarios

The materials management scenarios present on site are discussed below.

It should be noted that more than one scenario may apply, dependent upon where the soils are proposed for reuse.

8.3.2.1 Clean, naturally occurring materials – reused on the site of origin

Where soils are naturally occurring, uncontaminated and are reused on the site they are excavated (i.e. greenfield site with documented site history, with no Made Ground), they will fall outside the Waste Framework Directive (WFD) (i.e. they will not be a waste when reused on the site of origin).

However, there needs to be certainty of that reuse, and evidence is necessary to support this strategy, for example through information provided during the planning process. The onus is on the developer to demonstrate that the materials are not a waste and will never become a waste. As such, a Materials Re-use Strategy is recommended to show certainty. Alternatively, if the volume of material is under 1,000 tonnes, then a U1 waste exemption may be applied for from the Environment Agency.

It may be noted that some 'clean naturally occurring materials' may still fail the 'suitable for use' test, for example, soils with a naturally high organic content may not be suitable for use because of their propensity to produce ground gases such as methane. Rules regarding other more unusual circumstances such as where natural soils contain an unacceptably high mineral content are described in the DoWCoP.

8.3.2.2 Clean, naturally occurring materials – transferred to other sites

Where soils are naturally occurring, uncontaminated and are transferred to other sites (i.e. direct transfer), they will not become waste as long as the transfer is undertaken in accordance with the

DoWCoP. A MMP must be prepared for the receiving site and the materials movement must be noted in the MMP of the Donor site. This movement must have been declared to CL:AIRE prior to the works commencing.

8.3.2.3 Made Ground and other contaminated soils

On sites where Made Ground or contaminated soils are present, any soils excavated will be a waste as soon as they are excavated (even if they are clean, naturally occurring materials), unless they are subject to reuse in accordance with the DoWCoP. As such, for any brownfield site or a site where Made Ground is present and soils are being moved and reused, the materials could be deemed a waste, subject to either:

- a Materials Management Plan (MMP), to prevent the material being classified as a waste following reuse; or
- an exemption (for limited volumes); or
- an environmental permit, dependant on its status.

Other commonly occurring circumstances are:

If Made Ground is being moved between sites, it must be ensured that appropriate permits are in place to ensure the soils are not classified as a waste. Made Ground cannot be moved between sites under DoWCoP alone and would require relevant permits as part of the MMP documentation for the Hub site the material is being treated at.

8.3.2.4 Made Ground and other contaminated soils

All recycled materials (6F2 etc.) must be produced under the 2013 WRAP 'Quality Protocol: Aggregates from inert waste', whether on site or off-site. If they are not, they will be deemed a waste and can only be used on site under a permit. More information can be found at https://www.gov.uk/government/publications/quality-protocol-production-of-aggregates-frm-inert-waste.

8.3.2.5 Geotechnical improvement requirements

Construction activities carried out on uncontaminated soils solely for the purpose of improving geotechnical properties e.g. lime / cement modification, are not generally regarded as waste treatment operations and do not require a permit.

However, should processing be needed (such as screening, treatment or improvement), that would constitute a waste activity and require a mobile treatment permit. This may be as simple as removing oversize material with an excavator bucket, to using a riddle bucket to remove hardcore to full mechanical screening.

9. UNCERTAINTIES AND LIMITATIONS

9.1 Site-specific comments

The Tenanted Areas of the site could not be included as part of the intrusive investigation works due to access constraints at the time of Hydrock's investigation. Historical data from the JFHR 2021 GI have been used as part of the assessments presented in this report, however, Hydrock cannot be held responsible for the collection of third-party data. It is recommended that supplementary confirmatory investigation is still undertaken within the Tenanted Areas, to confirm the absence of significant petroleum hydrocarbon impacts, and also to support the design of the proposed development, significantly for the selection of the foundation option.

The involvement of a suitably qualified specialist is recommended to provide specialist advice regarding the identification of Japanese knotweed in the northeast corner of the site.

9.2 General comments

Hydrock Consultants Limited (Hydrock) has prepared this report in accordance with the instructions of Eutopia Homes Ltd. (the Client), by e-mail dated January 2022 under the terms of appointment for Hydrock, for the sole and specific use of the Client and parties commissioned by them to undertake work where reliance is placed on this report. Any third parties who use the information contained herein do so at their own risk. Hydrock shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared or for use of the report by any parties not defined in Hydrock's appointment.

This report details the findings of work carried out in February through March 2022. The report has been prepared by Hydrock on the basis of available information obtained during the study period. Although every reasonable effort has been made to gather all relevant information, not all potential environmental constraints or liabilities associated with the site may have been revealed.

Hydrock has used reasonable skill, care and diligence in the design of the investigation of the site and in its interpretation of the information obtained. The inherent variation of ground conditions allows only definition of the actual conditions at the locations and depths of trial pits and boreholes at the time of the investigation. At intermediate locations, conditions can only be inferred.

Groundwater data are only representative of the dates on which they were obtained and both levels and quality may vary.

Plans that provide assessment of foundation types and depths are indicative and subject to further design. This design should incorporate a detailed assessment of the influence of trees, influence of cut to fill proposals and geological conditions.

Unless otherwise stated, the recommendations in this report assume that ground levels will remain as existing. If there is to be any re-profiling (e.g. to create development platforms or for flood alleviation) then the recommendations may not apply.

Information provided by third parties has been used in good faith and is taken at face value; however, Hydrock cannot guarantee its accuracy or completeness.

Where the existing report(s) prepared by others have been provided by the Client, it is assumed that these have been either commissioned by the Client, or can be assigned to the Client, and can be relied upon by Hydrock. Should this not be the case Hydrock should be informed immediately as additional

work may be required. Hydrock is not responsible for any factual errors or omissions in the supplied data, or for the opinions and recommendations of others. It is possible that the conditions described may have since changed through natural processes or later activities.

Unless otherwise stated, no assessment has been made for the presence of radioactive substances or unexploded ordnance. Where the phrase 'suitable for use' is used in this report, it is in keeping with the terminology used in planning control and does not imply any specific warranty or guarantee offered by Hydrock.

The chemical analyses reported were scheduled for the purposes of risk assessment with respect to human health, plant life and controlled waters as discussed in the report. Whilst the results may be useful in applying the Hazardous Waste Assessment Methodology given in Environment Agency Technical Guidance WM3, they are not primarily intended for that purpose and additional analysis will be required at the time of disposal to fully classify waste. Discussion and comment with regards to waste classification are preliminary and do not form the requirements of 'Basic Characterisation' as required.

Assessment and testing for the presence of coal tar has only been completed at the locations of exploratory holes undertaken for risk assessment purposes. This investigation is not designed to provide a definitive assessment of the risk from coal tar, nor the waste classification for bituminous bound pavement arisings at the site.

Unless otherwise stated, at the time of this investigation the future routes of water supply pipes had not been established. This investigation and sampling strategy may not be fully compliant with UKWIR recommendations. Consequently, a targeted investigation and specific sampling and chemical testing may be required at a later date once the routes of the supply pipes are known. In addition, it is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

Whilst the preliminary risk assessment process has identified potential risks to construction workers, consideration of occupational health and safety issues is beyond the scope of this report.

The non-specialist UXO screening has been undertaken for the purposes of ground investigation only (i.e., low risk activity in accordance with CIRIA Report C681). Further assessment should be undertaken with regards to other higher risk activities e.g., construction.

Please note that notwithstanding any site observations concerning the presence or otherwise of archaeological sites, asbestos-containing materials or invasive weeds, this report does not constitute a formal survey of these potential constraints and specialist advice should be sought.

Any site boundary line depicted on plans does not imply legal ownership of land.

10. RECOMMENDATIONS FOR FURTHER WORK

Following the ground investigation works undertaken to date, the following further works will be required:

- Demolition asbestos survey.
- Discussion with specialists with regard to invasive weeds (Japanese knotweed).
- Supplementary ground investigation to confirm design parameters, notably within in the Tenanted Areas.
- Discussion and agreement with utility providers regarding the materials suitable for pipework;
- Discussions with regulatory bodies and the warranty provider regarding the conclusions of this report.
- Discussions with piling Contractors regarding conclusions of this report and design of the piles.
- Provision of geotechnical design for the Category 2 structures (including raft foundations), and Earthworks Specification.
- Preparation of higher tiers of risk assessment (a DQRA) to determine the risk to Controlled Waters, supported by collection of an additional round of groundwater sampling from all accessible wells.
- Production of a Remediation Strategy and Verification Plan, subject to findings of higher tiers of risk assessment (and agreement with the regulatory bodies and the warranty provider).
- Production of a Materials Management Plan relating to reuse of soils at the site and import of soils to the site.
- Remediation and mitigation works.
- Verification of the earthworks,MMP, remediation and mitigation works.

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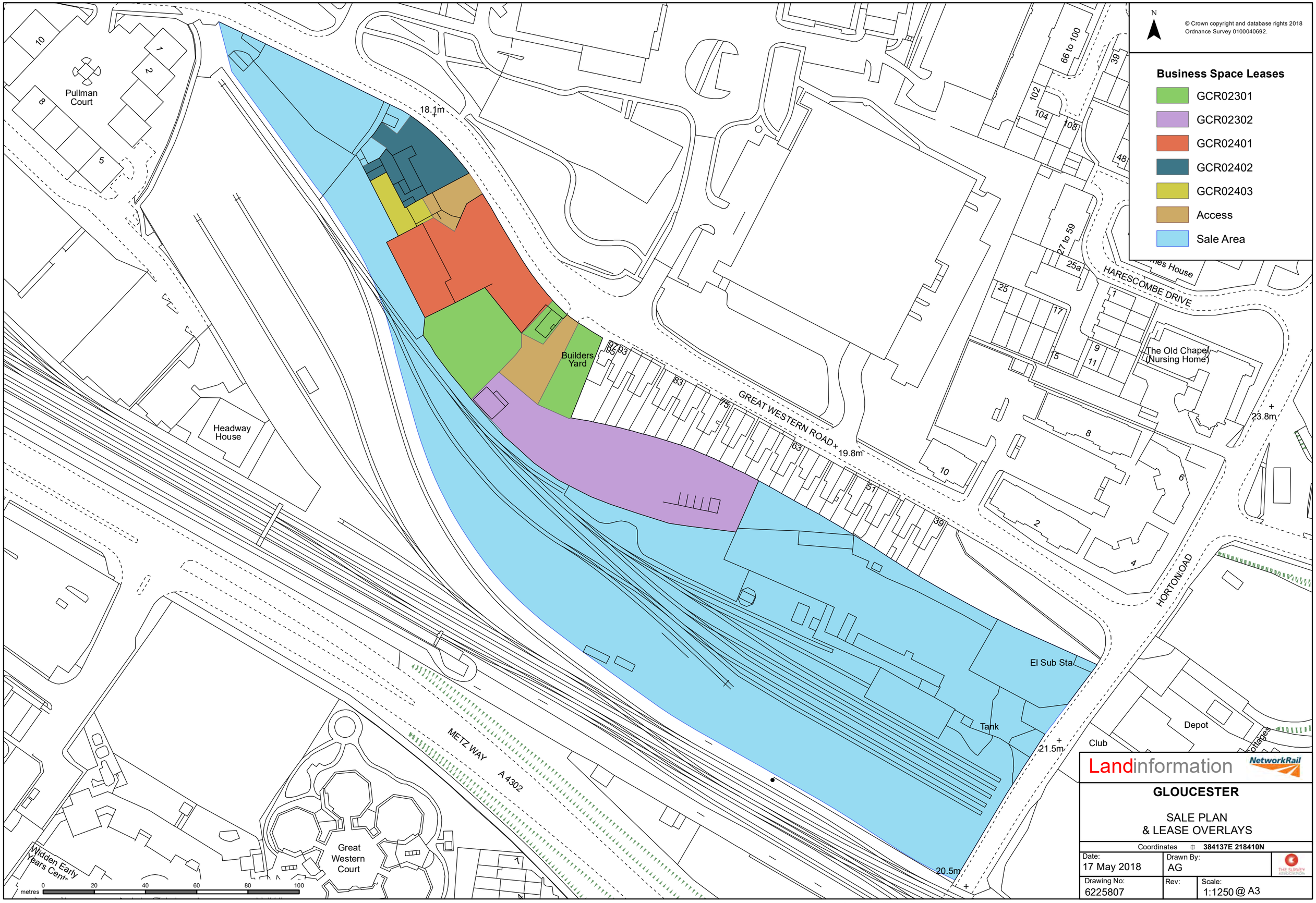
Appendix A Drawings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GCR02302
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HARESCOMBE DRIVE
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El Sub Sta
Tank
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Club
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Landinformation
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SALE PLAN
& LEASE OVERLAYS
Coordinates 384137E 218410N
Date: 17 May 2018
Drawn By: AG
Drawing No: 6225807
Rev:
Scale: 1:1250 @ A3

General Notes

The drawing is copyright of Darling Associates. This drawing shall not be scaled. All dimensions are in mm unless otherwise stated. All dimensions shall be checked on site prior to commencing the works and any discrepancies to be reported to Darling Associates. All works shall conform to the current edition of the building regulations and other statutory requirements. All materials and workmanship shall conform to relevant British Standards. Unless specifically stated, the contents of this drawing do not form part of an application for planning permission. It shall not a used for any other purpose without the express permission of Darling Associates. This drawing may incorporate information from other professionals. Darling Associates cannot accept responsibility for the integrity and accuracy of such information. Any clarification and/or additions tod are required appertaining to such information should be sought from the relevant professione r their appointment representative.

Drawings, specifications and schedules are to be read in conjunction with the following where applicable: Employer's Requirements documents, Agreements in Leaze, Structural Engineer's drawings and specifications, Civil Engineer's drawings and specifications, Survey Drawings, Party Wall Boundary Awards, Other specialist design consultants requirements as appointed by the Main Contractor. Other specialist design sub-contractor's requirements as appointed by the Main Contractor.

0 5m 25m 50m 60m

Key Plan

Notes

REV	NOTES	DATE	BY	AUTH

DARLING ASSOCIATES
ARCHITECTS

[redacted]

DRAWING STATUS
Preliminary

TITLE
Proposed Masterplan Layout

PROJECT
Great Western Yard

SCALE AT A0	SCALE AT A3	
1:500	N.T.S.	
JOB NO.	DRAWING	REV
19050	03-0-01	-

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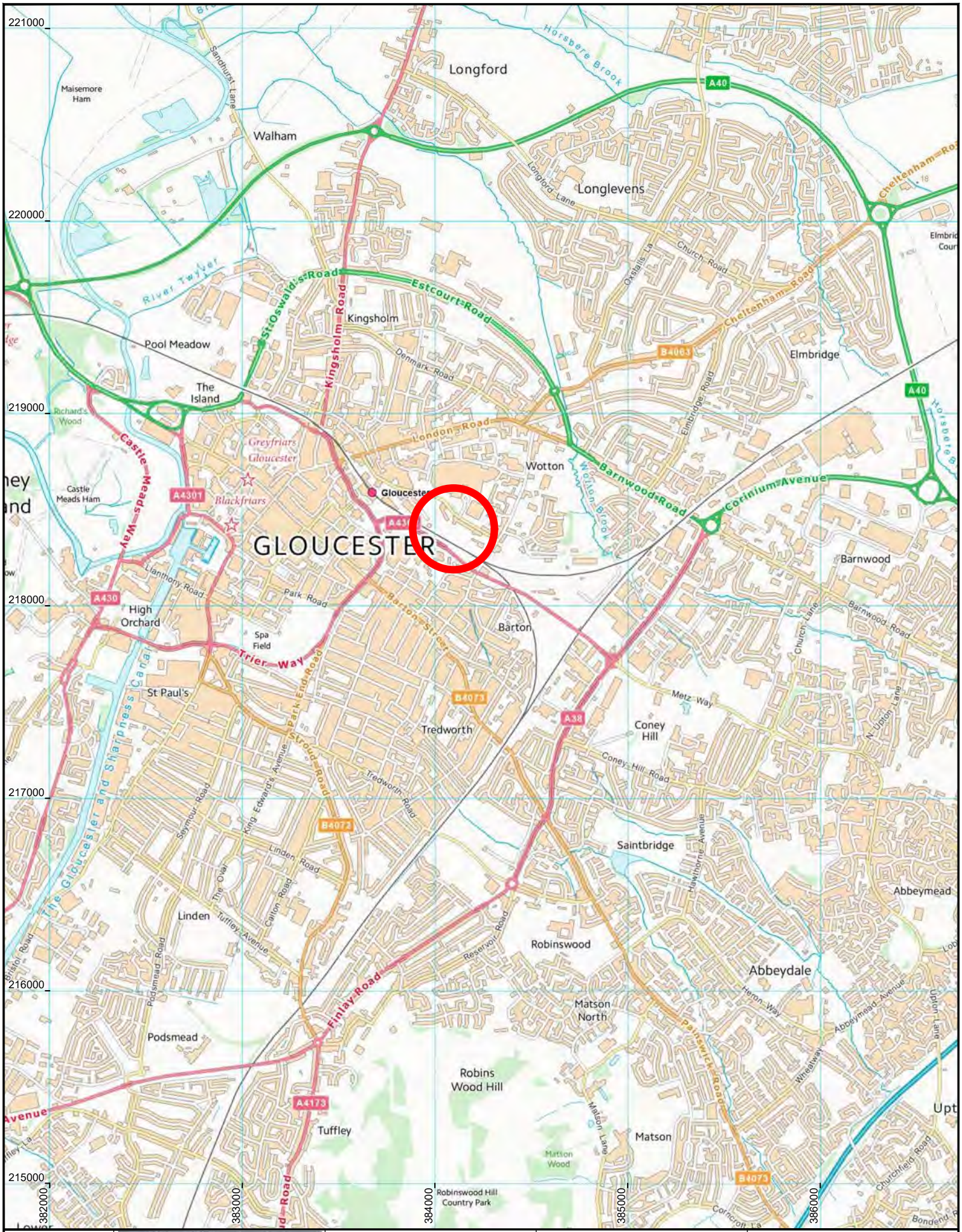

OS NORTH

Site Ref: SO81

0 500
Metres

REV.	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
P1	FIRST ISSUE					
	EP	03/03/22	SW	03/03/22	SW	03/03/22

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CLIENT
EUTOPIA HOMES LTD

PROJECT
GREAT WESTERN ROAD YARD

TITLE
SITE LOCATION PLAN

HYDROCK PROJECT NO.
C-20775-C

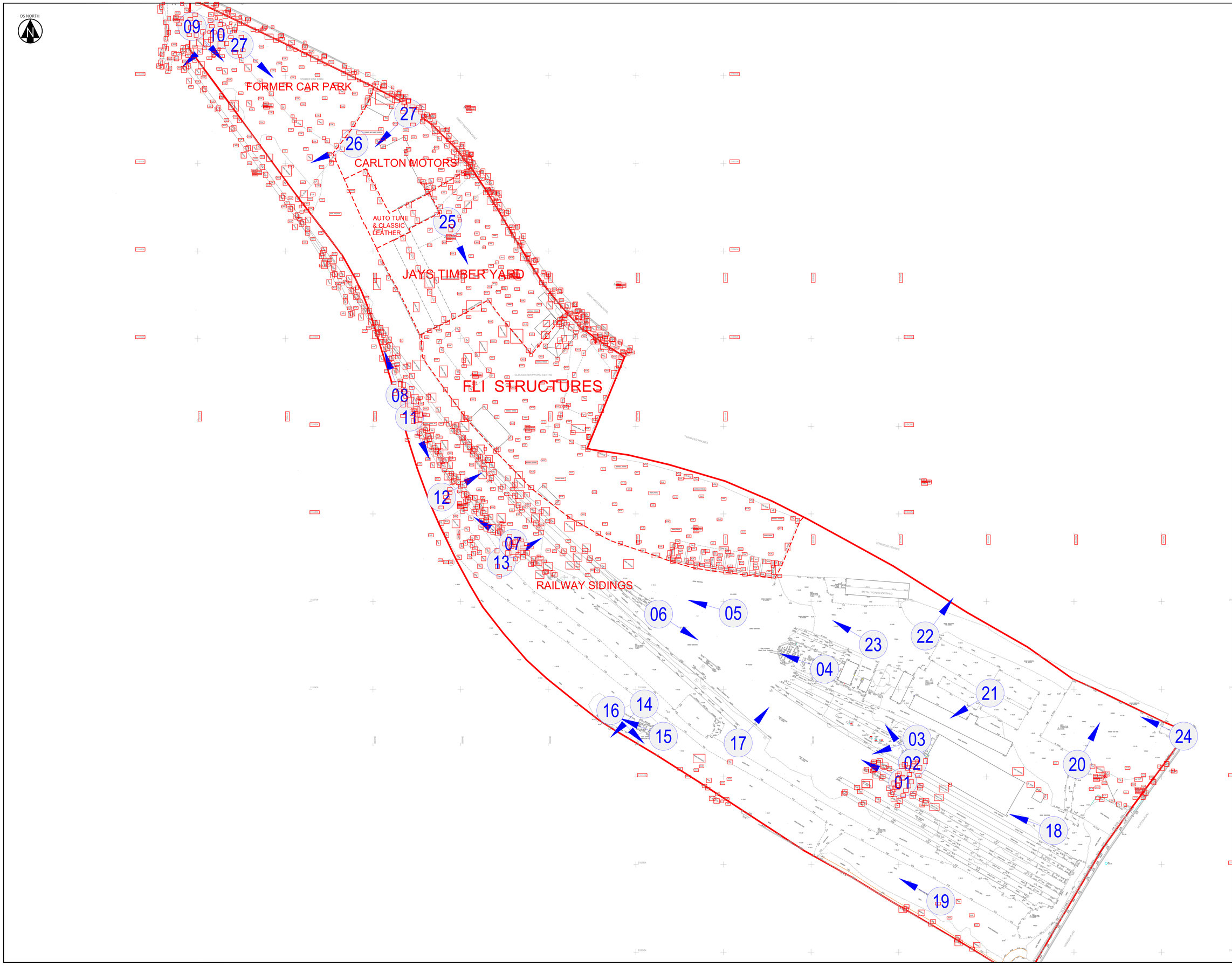
SCALE @ A4
1:25,000

PURPOSE OF ISSUE
SUITABLE FOR INFORMATION

STATUS
S2

DRAWING NO. (PROJECT CODE-ORGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)
20755-HYD-XX-XX-DR-GE-1000

REVISION
P1



KEY

Site investigation boundary

Photo location and reference

Tenanted area boundaries

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

3. This drawing has been based on the following drawings and information: TOPOGRAPHICAL SURVEY_53083/TOPO-1, 53083/TOPO-2, 53083/TOPO-3_ JANUARY 2019.

REV.						
P1	FIRST ISSUE					
	EP	22/03/22	SW	22/03/22	SW	22/03/22
	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

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PROJECT
GREAT WESTERN ROAD YARD

TITLE
SITE WALKOVER PLAN

HYDROCK PROJECT NO.	SCALE @ A0
C-20775-C	1:400

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
20755-HYD-XX-XX-DR-GE-1001	P1

KEY PLAN

Site Boundary

POTENTIAL SOURCES OF CONTAMINATION

- FUEL INFRASTRUCTURE
- INSPECTION PIT
- INTERCEPTOR
- ELECTRICITY SUBSTATION
- SAND PIT
- ROAD TRANSPORT DEPOT
- OVERGROWN RAILS & ASSOCIATED INFRASTRUCTURE
- HISTORICAL STRUCTURES
- EXISTING SIDINGS (OFF SITE)

NOTES

1. Contains OS data © Crown copyright and database right (2022). Licence number: 100023353.
2. Potential signficant sources of contamination based on desk-based review of historical reports and site walkover survey.

REVISIONS

P01 | MK | 10 MARCH 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

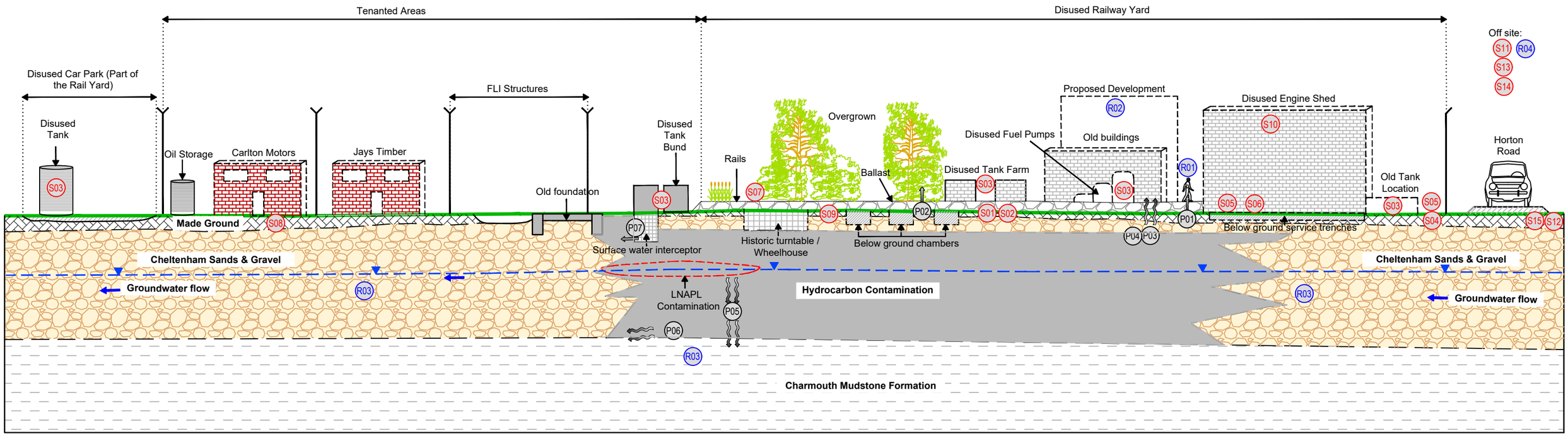
PROJECT
GREAT WESTERN ROAD YARD

TITLE
POTENTIAL SOURCES OF CONTAMINATION

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1002	P01



Potential on-site sources of contamination

S01. Made Ground associated with the historical use of the site, including as a railway siding and road transport depot, possibly including elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons.

S02. Made Ground potentially containing asbestos fibres and ACMs from demolition of historical structures.

S03. Petroleum hydrocarbon fuels, lubricants, and solvents from the operation of the numerous former train refuelling and servicing areas, including leakage from ASTs and associated infrastructure.

S04. Made ground associated with the historical infilling of the former sand pit in the east of the site, possibly including elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons.

S05. Coal tar potentially present in the bituminous bound pavements present on site.

S06. PCBs associated with the historical use of railway related equipment and components.

S07. Pesticides associated with the historical control of weeds and vegetation across the site.

S08. Ground gases (carbon dioxide and methane) from organic materials in the Made Ground.

S09. Hydrocarbon vapours from spillages and/or leaks of petroleum hydrocarbons, lubricants and solvents.

S10. Asbestos within existing buildings.

Potential off-site sources of contamination

S11. Hydrocarbon fuels, lubricants, and solvents from the operation of the refuelling station approximately 100m northeast of the site, including leakage from USTs, ASTs and associated infrastructure.

S12. Made Ground associated with the historical use of the surrounding industrial area, including extensive use as railway sidings to the east, south and west, possibly including asbestos and elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons.

S13. Petroleum hydrocarbon fuels, lubricants, and solvents from the historical operation of the numerous former train refuelling areas and tanks across the surrounding area, including leakage from USTs, ASTs and associated infrastructure.

S14. Made Ground, associated with the historical gas works approximately 20m north east, possibly including asbestos and elevated concentrations of metals, metalloids, PAHs, petroleum hydrocarbons, ammoniacal liquor, foul lime and tar contamination.

S15. Ground gases (carbon dioxide and methane) from organic materials in the Made Ground associated with the industrial use of the surrounding area.

Potential receptors

The following potential receptors in relation to the proposed land use have been identified.

R01. People (site end users, neighbours).

R02. Development end use (buildings, utilities and landscaping).

R03. Groundwater: Secondary A aquifer status of the Cheltenham Sand and Gravels and the Secondary (undifferentiated) status of the Charmouth Mudstone Formation.

R04. Surface water: the River Twyver (culverted and un-culverted) approximately 200 m southwest (at its closest point), which is a tributary of the River Severn approximately 1.8 km to the west (R04).

Potential pathways

The following potential pathways have been identified.

P01. Ingestion, skin contact, inhalation of dust and outdoor air by people.

P02. Root uptake by plant life.

P03. Ground gas (methane and carbon dioxide) ingress via permeable soils and/or construction gaps.

P04. Hydrocarbon vapour ingress via permeable soils and/or construction gaps.

P05. Migration of contaminants via leachate migration into the aquifers of the Cheltenham Sand and Gravels and Charmouth Mudstone Formation.

P06. Migration of contaminants via base flow through the Cheltenham Sand and Gravels and Charmnouth Mudstone Formation.

P07. Surface water via drainage discharge.

KEY

- Existing ground profile
- Conjectural geological boundary
- Groundwater elevation
- Made Ground
- Cheltenham Sands & Gravel
- Hydrocarbon Contamination
- Charmouth Mudstone Formation

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

REV.	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
P1	FIRST ISSUE					
	EP	03/03/22	SW	03/03/22	SW	03/03/22

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CLIENT
EUTOPIA HOMES LTD

PROJECT
GREAT WESTERN ROAD YARD

TITLE
PRELIMINARY CONCEPTUAL SITE MODEL

HYDROCK PROJECT NO. C-20775-C

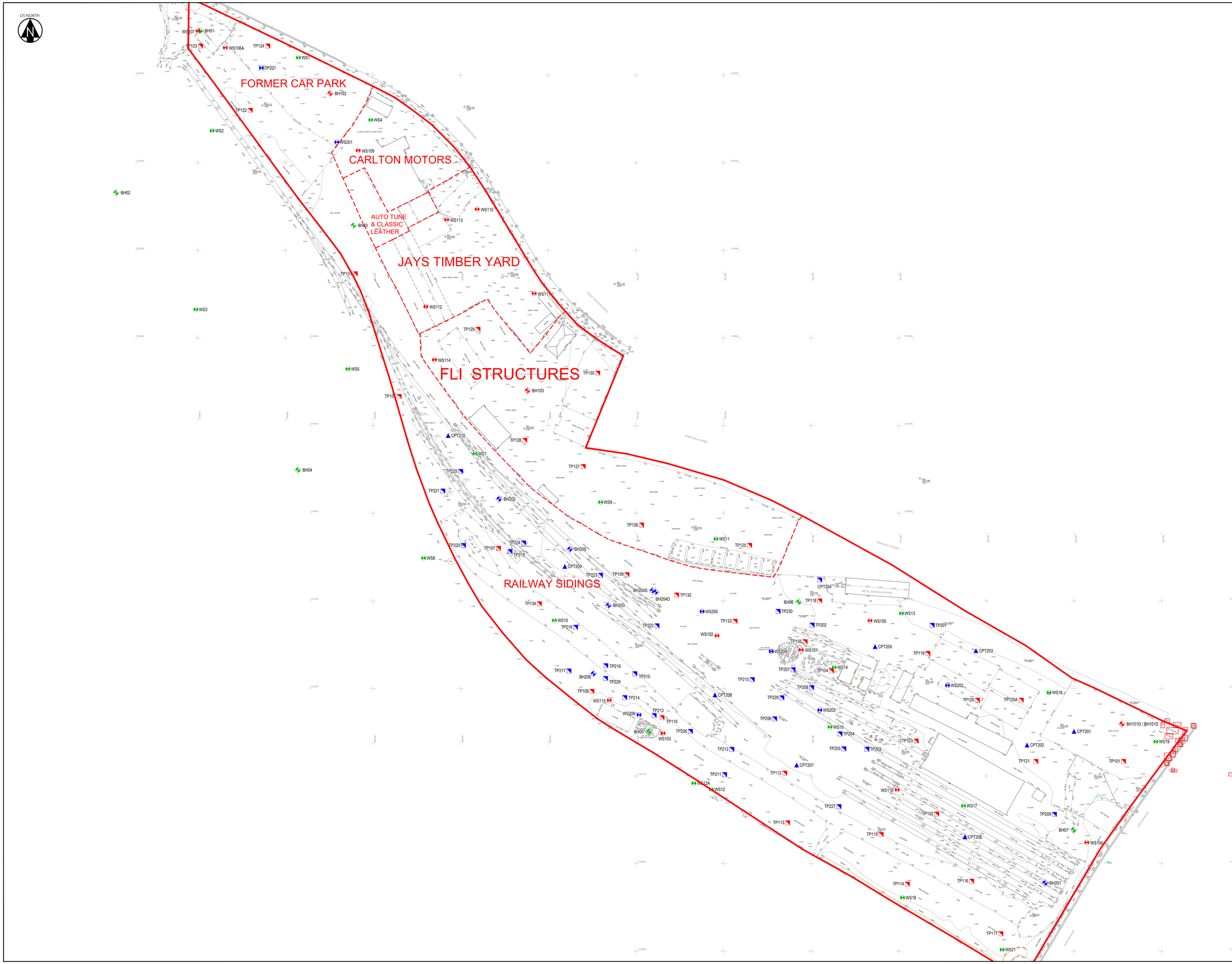
SCALE @ A3 NTS

PURPOSE OF ISSUE SUITABLE FOR INFORMATION

STATUS S2

DRAWING NO. (PROJECT CODE-ORGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 20755-HYD-XX-XX-DR-GE-1003

REVISION P1



KEY

Site investigation boundary

Tenanted area boundaries

Hydrock 2022 Locations

WSi	Window sample hole
BHi	Borehole
TPi	Trial pit
CPTi	CPT Tests
DPi	Dynamic Probes

JFHR & GES 2020 Locations

WSi	Window sample hole
BHi	Borehole
TPi	Trial pit

Weeks 1998 Locations

WSi	Window sample hole
BHi	Borehole

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

3. This drawing has been based on the following drawings and information: TOPOGRAPHICAL SURVEY_53083/TOPO-1, 53083/TOPO-2, 53083/TOPO-3_ JANUARY 2019.

4. Historical exploratory locations from JFHR and Weeks investigations are based on either coordinates, if provided, or georeferencing of their EHLP. TP111 from the JFHR 2020 investigation is not shown on their plan, therefore, the location is unknown.

REV.	REVISION NOTES/COMMENTS					
P1	FIRST ISSUE					
	EP	03/02/22	SW	03/02/22	SW	03/02/22
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CLIENT

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PROJECT

GREAT WESTERN ROAD YARD

TITLE

EXPLORATORY HOLE LOCATION PLAN

HYDROCK PROJECT NO.	SCALE @ A0
C-20775-C	1:400

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
20755-HYD-XX-XX-DR-GE-1004	P1

KEY PLAN

Site Boundary

VISUAL & OLFACTORY EVIDENCE OF PETROLEUM HYDROCARBONS

- LNAPL MEASURED IN WELL
- LNAPL OBSERVED DURING EXCAVATION
- GREY OR BLACK STAINING, SHEEN, ODOUR, ETC.
- NO EVIDENCE (ORANGE SAND & GRAVEL)
- N/A - REFUSAL (OBSTRUCTION, ETC.)

NOTES

1. Contains OS data © Crown copyright and database right (2022). Licence number: 100023353.
2. Visual and olfactory evidence of petroleum hydrocarbons only shown (from all ground investigations). Other evidence of contamination may have been observed - see Hydrock report (2022) and exploratory logs for full details.

REVISIONS

P01 | MK | 11 MARCH 2022 | FIRST ISSUE

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CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
VISUAL AND OLFACTORY EVIDENCE OF PETROLEUM HYDROCARBONS

HYDROCK PROJECT NO.	SCALE @ A3	
20775	1:1250	
PURPOSE OF ISSUE		STATUS
SUITABLE FOR INFORMATION		S2
DRAWING NO.		REVISION
20775-HYD-XX-XX-DR-GE-1005		P01

KEY PLAN

- Site Boundary
- Groundwater elevations (JFHR Oct 2020)
- Groundwater contours (JFHR Oct 2020)

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Groundwater elevations taken from third-party report (JFHR, 2021). Elevations are shown for wells screened within the Cheltenham Sand and Gravels.

REVISIONS

P01 | MK | 28 MARCH 2022 | FIRST ISSUE

Hydrock

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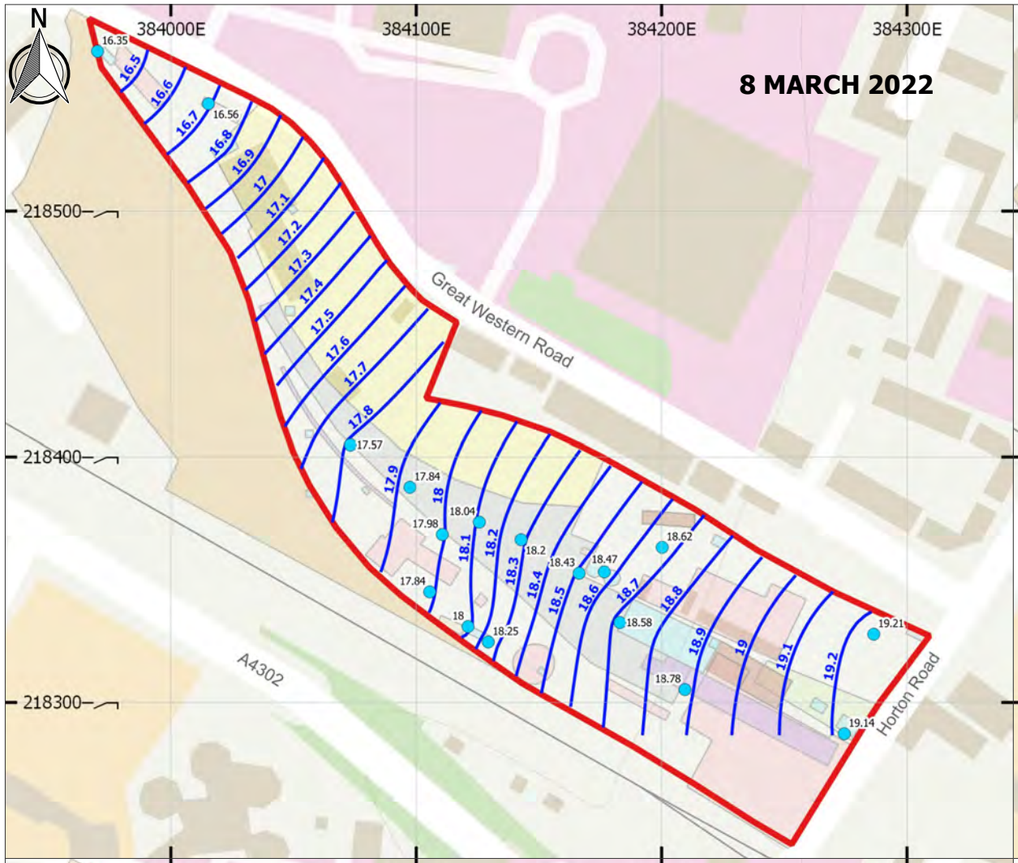
PROJECT
GREAT WESTERN ROAD YARD

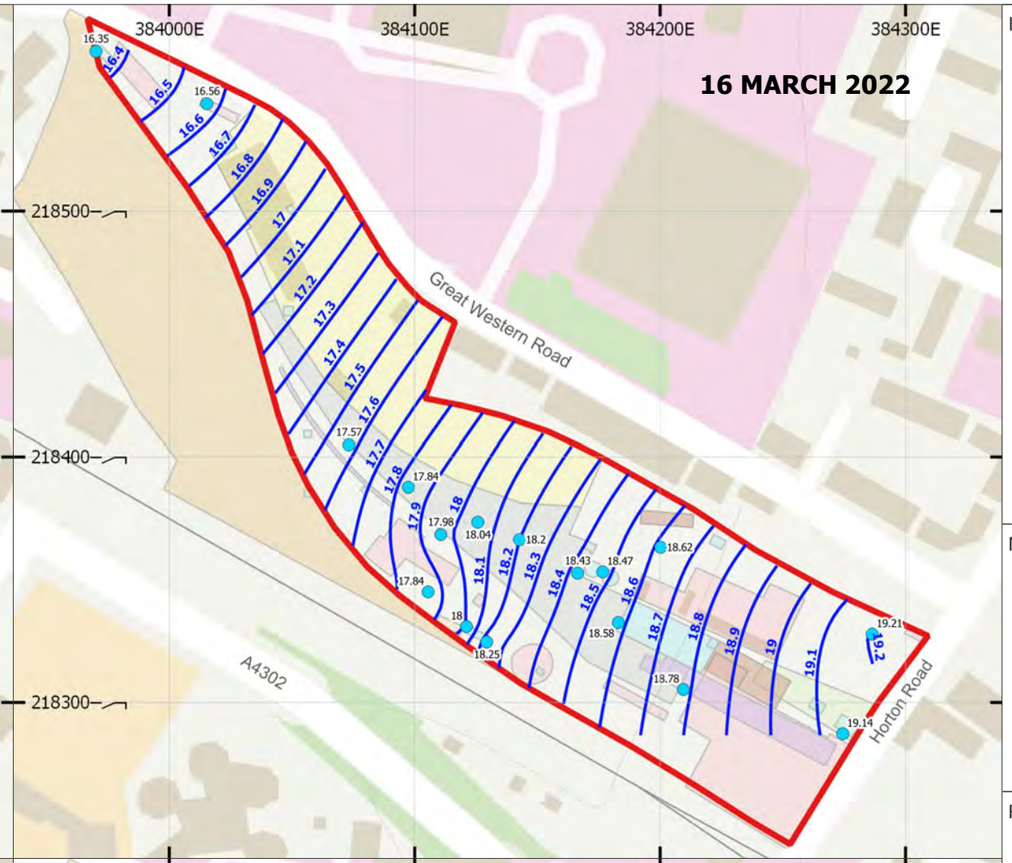
TITLE
GROUNDWATER ELEVATIONS (OCTOBER 2020)

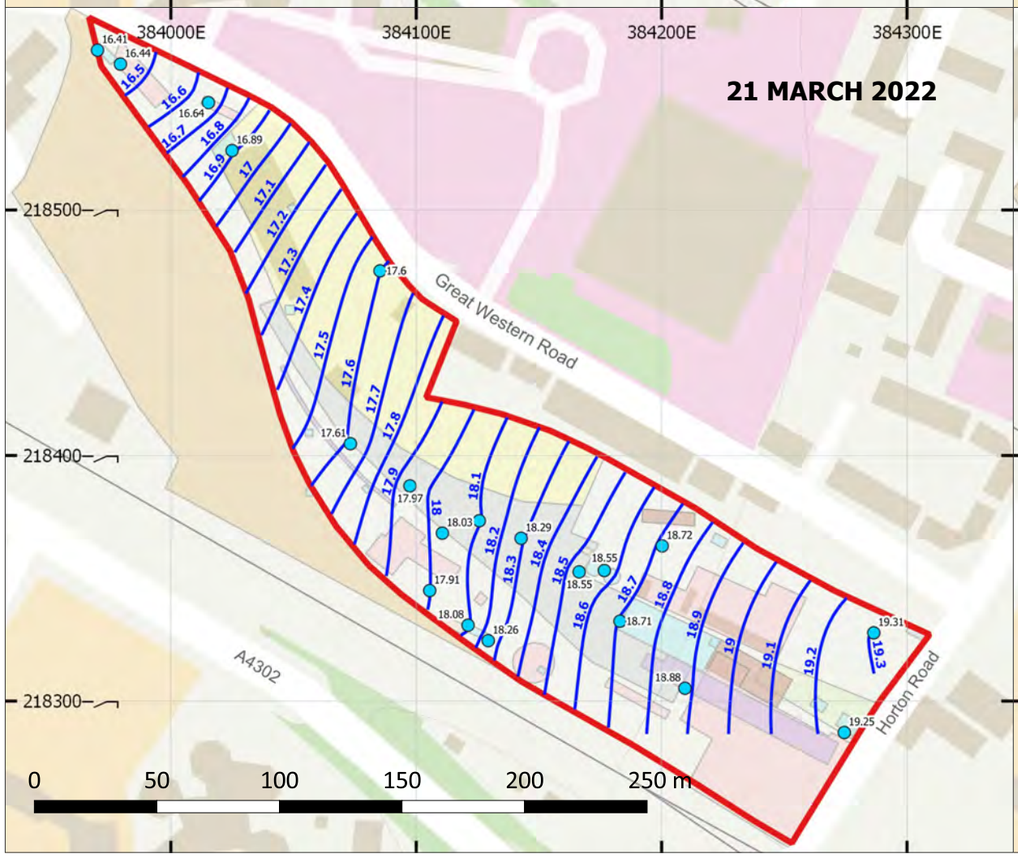
HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

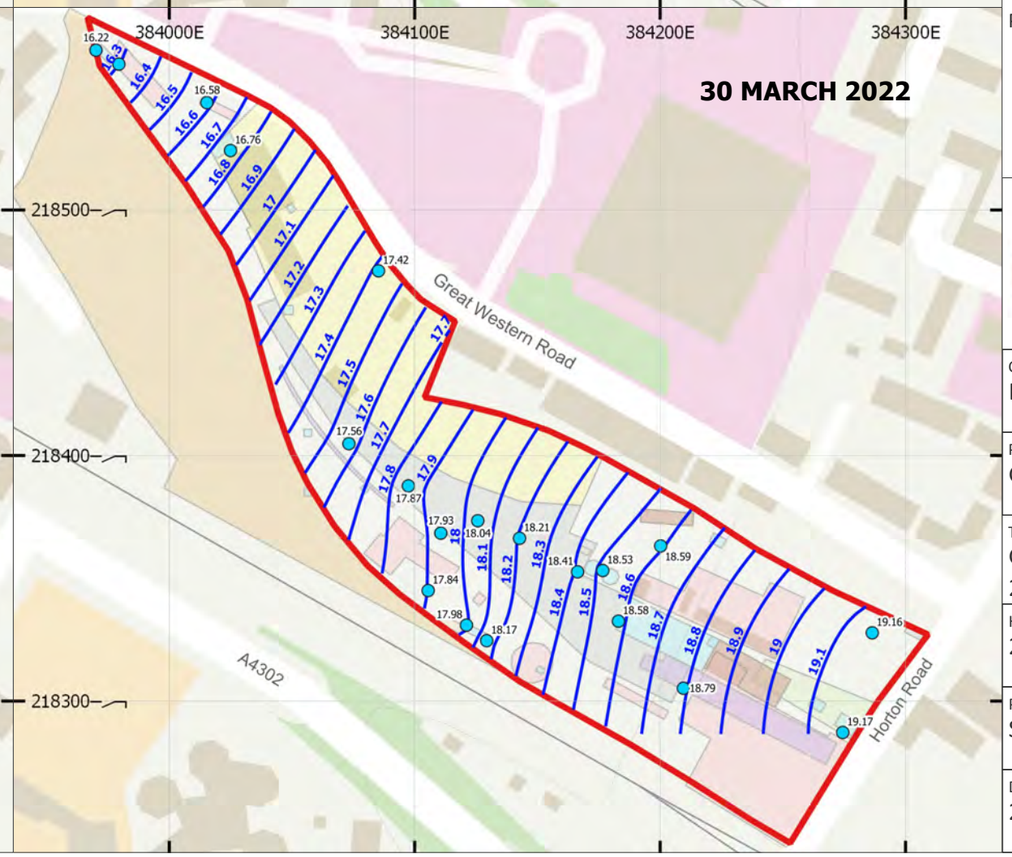
PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1006	P01









KEY PLAN

- Site Boundary
- Groundwater elevations (Hydrock March 2022)
- Groundwater contours (Hydrock March 2022)

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Groundwater elevations from all Hydrock monitoring events in March 2022. Elevations are shown for wells screened within the Cheltenham Sand and Gravels.

REVISIONS

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Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
GROUNDWATER ELEVATIONS (MARCH 2022)

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:2500

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1007	P01

KEY PLAN

Site Boundary

Low-Flow Stabilised Dissolved Oxygen (mg/L)

- 0 - 0.3
- 0.3 - 0.5
- 0.5 - 1.0
- 2.0- 3.0

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Stabilised DO (mg/L) from groundwater sampling event on 16 March 2022. Data shown for wells with screen installed in Cheltenham Sand and Gravels.
3. Groundwater elevations from Hydrock monitoring event on 30 March 2022. Elevations are shown for wells with screen installed in the Cheltenham Sand and Gravels.

REVISIONS

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CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
GROUNDWATER STABILISED DISSOLVED OXYGEN (MARCH 2022)

HYDROCK PROJECT NO.	SCALE @ A3	
20775	1:1250	
PURPOSE OF ISSUE		STATUS
SUITABLE FOR INFORMATION		S2
DRAWING NO.		REVISION
20775-HYD-XX-XX-DR-GE-1008		P01

KEY PLAN

Site Boundary

Low-Flow Stabilised ORP (mg/L)

- -100 -> -50
- -50 -> 0
- 0 -> 50
- 150 -> 250

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Stabilised oxidation-reduction potential (mV) from groundwater sampling event on 16 March 2022. Data shown for wells with screen installed in Cheltenham Sand and Gravels.
3. Groundwater elevations from Hydrock monitoring event on 30 March 2022. Elevations are shown for wells with screen installed in the Cheltenham Sand and Gravels.

REVISIONS

P01 | MK | 7 APRIL 2022 | FIRST ISSUE

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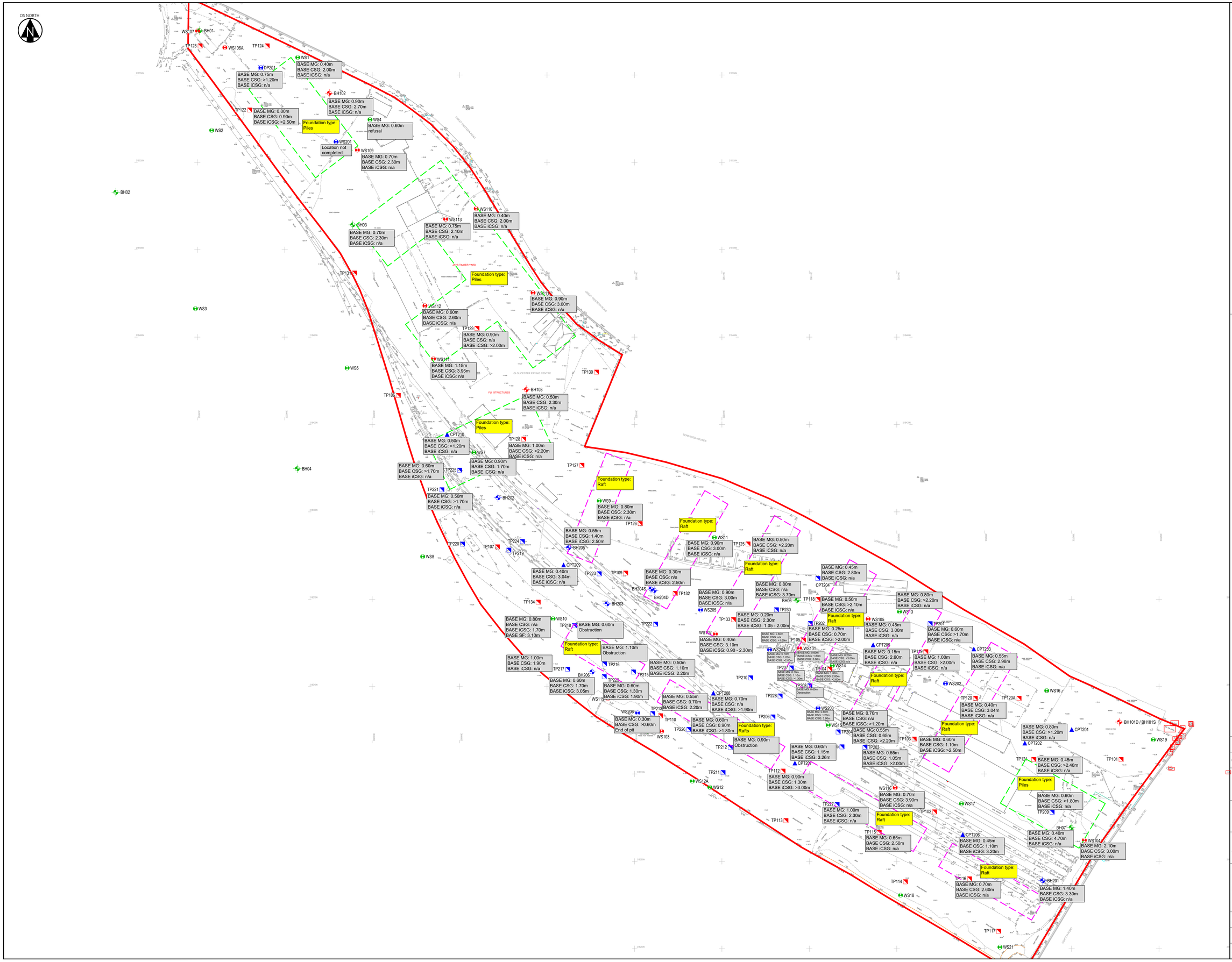
PROJECT
GREAT WESTERN ROAD YARD

TITLE
GROUNDWATER STABILISED OXIDATION-REDUCTION POTENTIAL (MARCH 2022)

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1009	P01



KEY

Site investigation boundary

Housing plots

Apartment plots

Hydrock Locations

WSi	Window sample hole
BHi	Borehole
TPi	Trial pit
CPTi	CPT Tests
DPi	Dynamic Probes

JFH Locations

WSi	Window sample hole
BHi	Borehole
TPi	Trial pit

WEEK Locations

WSi	Window sample hole
BHi	Borehole

Abbreviations

MG - Made Ground
CSG - Cheltenham Sands and Gravel
iCSG - Impacted Cheltenham Sands and Gravel

NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.

2. This drawing is to be read in conjunction with all relevant Engineers' and Service Engineers' drawings and specifications.

3. This drawing has been based on the following drawings and information: TOPOGRAPHICAL SURVEY_53083/TOPO-1, 53083/TOPO-2, 53083/TOPO-3_ JANUARY 2019.

REV.	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
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CLIENT
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PROJECT
GREAT WESTERN ROAD YARD

TITLE
PRELIMINARY FOUNDATION ZONATION PLAN

HYDROCK PROJECT NO.	SCALE @ A0
C-20775-C	1:400

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
20755-HYD-XX-XX-DR-GE-1010	P1

KEY PLAN

Site Boundary

Made Ground asbestos fibres recorded

Yes

No

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. All data are shown from all ground investigations undertaken to date for completeness, including Weeks (1998), JFHR (2021) and Hydrock (2022). However, only data from JFHR (2021) and Hydrock (2022) have been included as part of the final assessment detailed within the Hydrock (2022) report.

REVISIONS

P01 | MK | 28 MARCH 2022 | FIRST ISSUE

Hydrock

CLIENT
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PROJECT
GREAT WESTERN ROAD YARD

TITLE
ASBESTOS FIBRES RECORDED IN MADE GROUND SOILS

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1011	P01

KEY PLAN

Site Boundary

Lead in Made Ground Soils (mg/kg)

- <200 (<GAC)
- 200 - 300
- 300 - 400
- 400 - 500

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. All data are shown from all ground investigations undertaken to date for completeness, including Weeks (1998), JFHR (2021) and Hydrock (2022). However, only data from JFHR (2021) and Hydrock (2022) have been included as part of the final assessment detailed within the Hydrock (2022) report.
3. Generic Assessment Criteria (GAC) based on 'Residential with Plant Uptake' are referred to on this drawing only. Refer to the Hydrock (2022) report for assessments based on other scenairos.

REVISIONS

P01 | MK | 28 MARCH 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
LEAD IN MADE GROUND SOILS

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1012	P01

KEY PLAN

Site Boundary

Benzo(a)pyrene in Made Ground Soils (mg/kg)

- <1.5 (<GAC)
- 1.5 - 4.5
- 4.5 - 15
- >15

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. All data are shown from all ground investigations undertaken to date for completeness, including Weeks (1998), JFHR (2021) and Hydrock (2022). However, only data from JFHR (2021) and Hydrock (2022) have been included as part of the final assessment detailed within the Hydrock (2022) report.
3. Generic Assessment Criteria (GAC) based on 'Residential with Plant Uptake' are referred to on this drawing only. Refer to the Hydrock (2022) report for assessments based on other scenairos.

REVISIONS

P01 | MK | 28 MARCH 2022 | FIRST ISSUE

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CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
BENZO(A)PYRENE IN MADE GROUND SOILS

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1013	P01

KEY PLAN

Site Boundary

TPH in Made Ground Soils (mg/kg)

- <10 (MDL)
- 10 - 100
- 100 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- >10,000

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. All data are shown from all ground investigations undertaken to date for completeness, including Weeks (1998), JFHR (2021) and Hydrock (2022). However, only data from JFHR (2021) and Hydrock (2022) have been included as part of the final assessment detailed within the Hydrock (2022) report.

REVISIONS

P01 | MK | 28 MARCH 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
TOTAL PETROLEUM HYDROCARBONS IN MADE GROUND SOILS

HYDROCK PROJECT NO.	SCALE @ A3	
20775	1:1250	
PURPOSE OF ISSUE		STATUS
SUITABLE FOR INFORMATION		S2
DRAWING NO.		REVISION
20775-HYD-XX-XX-DR-GE-1014		P01

KEY PLAN

Site Boundary

TPH in CHSG not impacted with vis./olf. (mg/kg)

- <10 (MDL)
- 10 - 100
- 100 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- >10,000

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. All data are shown from all ground investigations undertaken to date for completeness, including Weeks (1998), JFHR (2021) and Hydrock (2022). However, only data from JFHR (2021) and Hydrock (2022) have been included as part of the final assessment detailed within the Hydrock (2022) report.
3. See Hydrock drawing 20775-HYD-XX-XX-DR-GE-1005 for exploratory location breakdown of visual/olfactory evidence of petroleum hydrocarbon contamination.

REVISIONS

P01 | MK | 28 MARCH 2022 | FIRST ISSUE

Hydrock

CLIENT
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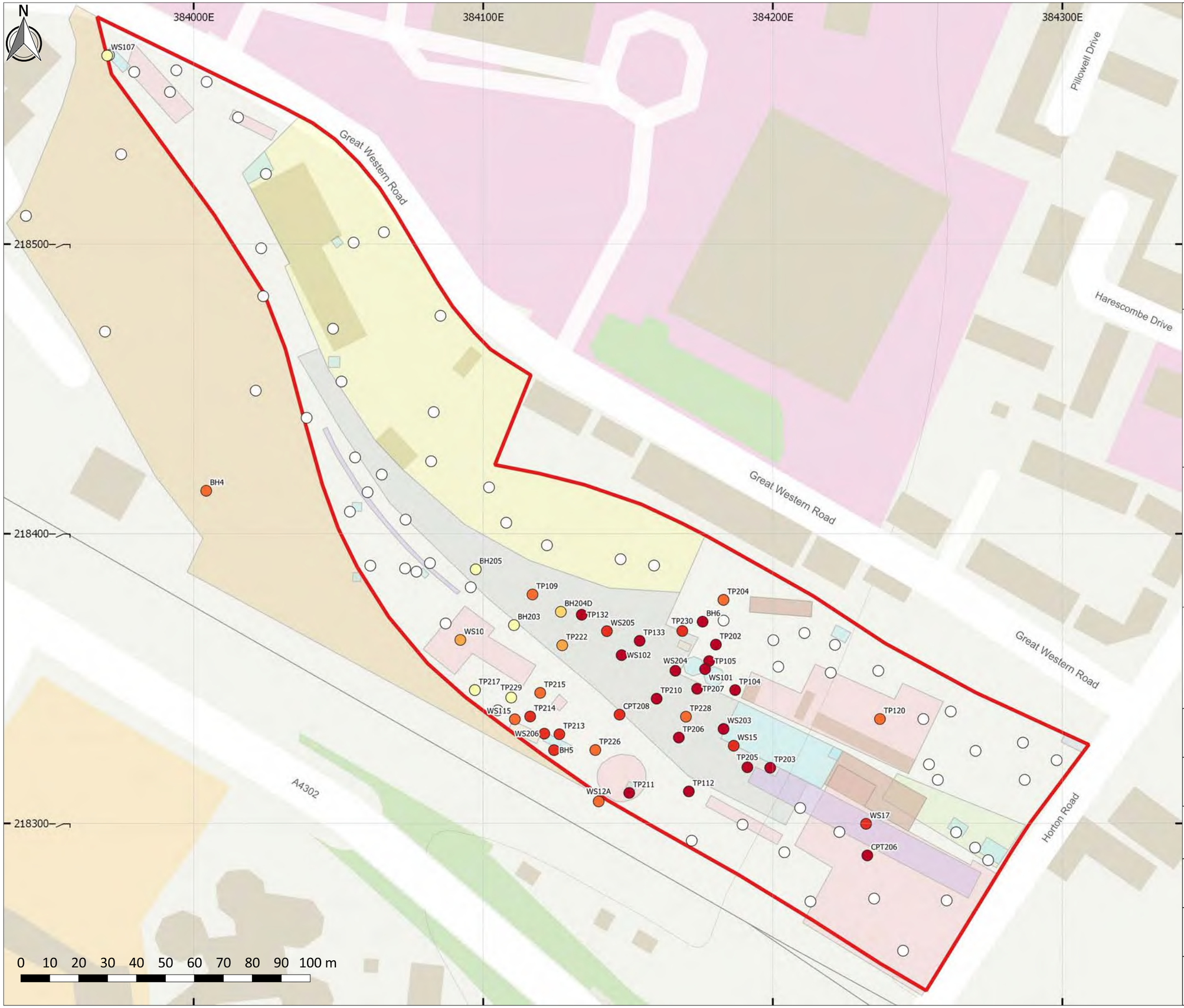
PROJECT
GREAT WESTERN ROAD YARD

TITLE
TOTAL PETROLEUM HYDROCARBONS IN NATURAL SOILS NOT IMPACTED WITH VISUAL/OLFACTORY EVIDENCE

HYDROCK PROJECT NO.	SCALE @ A3	
20775	1:1250	
PURPOSE OF ISSUE		STATUS
SUITABLE FOR INFORMATION		S2
DRAWING NO.		REVISION
20775-HYD-XX-XX-DR-GE-1015		P01



KEY PLAN

Site Boundary

TPH in CHSG impacted with vis./olf. (mg/kg)

- <10 (MDL)
- 10 - 100
- 100 - 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- >10,000
- No evidence of vis./olf. evidence at location

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. All data are shown from all ground investigations undertaken to date for completeness, including Weeks (1998), JFHR (2021) and Hydrock (2022). However, only data from JFHR (2021) and Hydrock (2022) have been included as part of the final assessment detailed within the Hydrock (2022) report.
3. See Hydrock drawing 20775-HYD-XX-XX-DR-GE-1005 for exploratory location breakdown of visual/olfactory evidence of petroleum hydrocarbon contamination.

REVISIONS

P01 | MK | 28 MARCH 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
TOTAL PETROLEUM HYDROCARBONS IN NATURAL SOILS IMPACTED WITH VISUAL/OLFACTORY EVIDENCE

HYDROCK PROJECT NO.	SCALE @ A3	
20775	1:1250	
PURPOSE OF ISSUE		STATUS
SUITABLE FOR INFORMATION		S2
DRAWING NO.		REVISION
20775-HYD-XX-XX-DR-GE-1016		P01

KEY PLAN

Site Boundary

LNAPL MEASURED IN WELL

TPH in groundwater ug/l (Round 1 - Oct 2020 - JFHR)

- <MDL
- 10 - 500
- 500 - 1,000
- 1,000 - 2,000
- >2,000

Groundwater contours 30 March 2022

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Groundwater contour data are shown from the Hydrock monitoring visit on 30 March 2022. Wells with screen section within the CHSG (partially or whole).
3. Groundwater concentration data are shown from the ground investigation undertaken by JFHR (2021). Wells with screen section within the CHSG (partially or whole).

REVISIONS

P01 | MK | 7 APRIL 2022 | FIRST ISSUE

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CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER (ROUND 1 - OCT 2020)

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1017	P01

KEY PLAN

- Site Boundary
- LNAPL MEASURED IN WELL

TPH in groundwater ug/l (Round 1 - Nov 2020 - JFHR)

- <MDL
- 10 - 500
- 500 - 1,000
- 1,000 - 2,000
- >2,000
- Groundwater contours 30 March 2022

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Groundwater contour data are shown from the Hydrock monitoring visit on 30 March 2022. Wells with screen section within the CHSG (partially or whole).
3. Groundwater concentration data are shown from the ground investigation undertaken by JFHR (2021). Wells with screen section within the CHSG (partially or whole).

REVISIONS

P01 | MK | 7 APRIL 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER (ROUND 2 - NOV 2020)

HYDROCK PROJECT NO.	SCALE @ A3
20775	1:1250

PURPOSE OF ISSUE	STATUS
SUITABLE FOR INFORMATION	S2

DRAWING NO.	REVISION
20775-HYD-XX-XX-DR-GE-1018	P01

KEY PLAN

- Site Boundary
- LNAPL MEASURED IN WELL
- LNAPL OBSERVED DURING EXCAVATION

TPH in groundwater ug/l (Round 2 - Nov 2020 - JFHR)

- <MDL
- 10 - 500
- 500 - 1,000
- 1,000 - 2,000
- >2,000
- Groundwater contours 30 March 2022

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Groundwater contour data are shown from the Hydrock monitoring visit on 30 March 2022. Wells with shallow screen section within the MG and/or CHSG (partially or whole).
3. Groundwater concentration data are shown from the ground investigation undertaken by Hydrock (2022). Wells with screen section within the CHSG (partially or whole).

REVISIONS

P01 | MK | 7 APRIL 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER (ROUND 3 - MARCH 2022)

HYDROCK PROJECT NO.	SCALE @ A3	
20775	1:1250	
PURPOSE OF ISSUE		STATUS
SUITABLE FOR INFORMATION		S2
DRAWING NO.		REVISION
20775-HYD-XX-XX-DR-GE-1019		P01

KEY PLAN

- Site Boundary
- LNAPL MEASURED IN WELL
- LNAPL OBSERVED DURING EXCAVATION
- VIS. & OLF. EVIDENCE RECORDED
- NO VIS. & OLF. EVIDENCE (ORANGE SAND & GRAVEL)

TPH in groundwater ug/l (maximum - all data)

- <MDL
- 10 - 500
- 500 - 1,000
- 1,000 - 2,000
- >2,000
- Groundwater contours 30 March 2022

NOTES

1. Contains OS data © Crown copyright and database right (2022). License number: 100023353.
2. Groundwater contour data are shown from the Hydrock monitoring visit on 30 March 2022. Wells with shallow screen section within the MG and/or CHSG (partially or whole).
3. Groundwater concentration data are maximums from all ground investigation data including JFHR (2021) and Hydrock (2022). Wells with screen section within the CHSG (partially or whole).

REVISIONS

P01 | MK | 7 APRIL 2022 | FIRST ISSUE

Hydrock

CLIENT
EUTOPIA HOMES LTD.

PROJECT
GREAT WESTERN ROAD YARD

TITLE
TOTAL PETROLEUM HYDROCARBONS IN GROUNDWATER SUMMARY (MAXIMUM)

HYDROCK PROJECT NO.	SCALE @ A3	
20775	1:1250	
PURPOSE OF ISSUE		STATUS
SUITABLE FOR INFORMATION		S2
DRAWING NO.		REVISION
20775-HYD-XX-XX-DR-GE-1020		P01

Appendix B Field Reconnaissance Photographs

Walkover Photograph 1	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Looking towards service trenches densely overgrown with buddleia.	

Walkover Photograph 2	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Fuel pump and dispensary area in the centre of site.	

Walkover Photograph 3	
Date: 21/01/22	
Direction Photograph Taken: South west	
Description: Fuel pump and dispensary area in the centre of site.	

Walkover Photograph 4	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Tank farm in the centre of site. One tank holder with low brick wall still standing.	

Walkover Photograph 5	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Looking away from the tank farm densely overgrown with buddleia and brambles.	

Walkover Photograph 6	
Date: 21/01/22	
Direction Photograph Taken: South east	
Description: Looking back towards the tank farm densely overgrown with buddleia and brambles.	

Walkover Photograph 7	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Midway along the inspection pit in the west of site.	

Walkover Photograph 8	
Date: 21/01/22	
Direction Photograph Taken: North	
Description: Looking into the gap between Carlton Motors and the active network rail sidings (off site), area densely overgrown.	

Walkover Photograph 9	
Date: 21/01/22	
Direction Photograph Taken: South east	
Description: Fencing around an above ground storage tank and fuel pump in the former car park area in the north of site.	

Walkover Photograph 10	
Date: 21/01/22	
Direction Photograph Taken: South west	
Description: Pump and tank behind the fencing in the previous photo.	

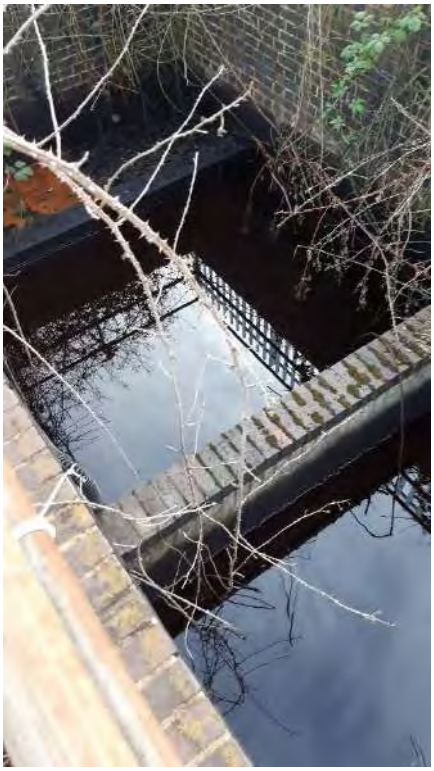
Walkover Photograph 11	
Date: 21/01/22	
Direction Photograph Taken: South east	
Description: Overview of the inspection pit in the west of site.	

Walkover Photograph 12	
Date: 21/01/22	
Direction Photograph Taken: North east	
Description: Above ground storage tank (relatively modern in comparison).	

Walkover Photograph 13	
Date: 21/01/22	
Direction Photograph Taken: North east	
Description: Above ground tank and close up of black oily residue beneath the outlet.	

Walkover Photograph 14	
Date: 21/01/22	
Direction Photograph Taken: South west	
Description: Overview of the tank holder (left) and interceptor (right) on the southern boundary of the site.	

Walkover Photograph 15	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Close up of tank holder adjacent to the interceptor.	

Walkover Photograph 16	
Date: 21/01/22	
Direction Photograph Taken: South east	
Description: Looking into the interceptor, dark black liquid in chambers containing LNAPL (Confirmed with interface probe).	

Walkover Photograph 17	
Date: 21/01/22	
Direction Photograph Taken: North east	
Description: Looking towards the former tank farm and pump infrastructure area in the central portion of the railway sidings area. Area densely overgrown with buddleia.	

Walkover Photograph 18	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Disused engine shed with infilled inspection pits to the left-hand side. Historical AST was located on the raised area to the right of the photo (now removed).	

Walkover Photograph 19	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: General yard area dressed with stone.	

Walkover Photograph 20	
Date: 21/01/22	
Direction Photograph Taken: North east	
Description: Small fenced off area in the north eastern corner of site. Close up of Japanese Knotweed along fence line in the background.	

Walkover Photograph 21	
Date: 21/01/22	
Direction Photograph Taken: Sotuh west	
Description: Burnt out structure and areas of vegetation in the northeast.	

Walkover Photograph 22	
Date: 11/03/22	
Direction Photograph Taken: North west	
Description: Flammable lock up.	

Walkover Photograph 23	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Overgrown buddleia in the areas targeted for investigation.	

Walkover Photograph 24	
Date: 21/01/22	
Direction Photograph Taken: North west	
Description: Sub station in the north eastern corner of site. Appeared relatively modern and in visibly good condition from this distance.	

Walkover Photograph 25	
Date: 21/01/22	
Direction Photograph Taken: South east	
Description: Jays Timber entrance.	

Walkover Photograph 26	
Date: 21/01/22	
Direction Photograph Taken: South west	
Description: Carlton Motors oil waste store.	

Walkover Photograph 27	
Date: 21/01/22	
Direction Photograph Taken: South west	
Description: Carlton Motors entrance.	

Walkover Photograph 28	
Date: 21/01/22	
Direction Photograph Taken: South east	
Description: Northern car park layout.	

Appendix C Previous Reports

GLOUCESTER GREAT WESTERN ROAD YARD

REPORT ON GROUND INVESTIGATION

John F Hunt
REGENERATION

Document Control Sheet

Site: Gloucester Great Western Road Yard

Title: Report on Ground Investigation

Client: Eutopia Homes Ltd

Job No.: 20904

	Name	Position	Initials	Date
Prepared by:	Stuart Carroll	Technical Manager	SJC	Jan 2021
Reviewed by:	Sam Hall	Managing Director	SH	Jan 2021
Approved by:	Ben Williams	Project Director	BW	Jan 2021

Revision	Date	Description	Prepared	Reviewed	Approved
Draft	Jan 2021	Draft for comment by Eutopia Homes	SJC	SH	BW
1					
2					

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2 Site Description

3 Previous Ground Investigation

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9 Geotechnical Assessment

10 Conclusions and Recommendations

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4 Gas and Groundwater Level Monitoring Results

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6 Geochemical Test Results - Soils

7 Geochemical Soils Exceedances Analysis

8 Geochemical Test Results - Groundwater

9 Geotechnical Engineering Report

1 | Introduction

John F Hunt Regeneration Ltd (JFHR) was commissioned by Eutopia Homes Ltd (The Client) to undertake an assessment of ground conditions for a proposed residential development site across a land parcel that includes the former rail depot and sidings known as Gloucester Great Western Road Yard.

Details of the proposed residential end use were provided by Eutopia Homes that indicate a mix of high rise and low-rise dwellings with private gardens and areas of communal soft landscaping and parking.

The purpose of the investigation was to record and assess, where present, ground contamination based on the proposed redevelopment for a residential end use. The investigation has also considered the potential for statutory liability associated with residual groundwater contamination at the site.

The scope of investigation, testing and monitoring as part of these works has not been developed to ensure discharge in full of any future planning condition pertaining to ground contamination. The principal objective has been to target key potential sources / areas of concern including locations where gross hydrocarbon contamination was previously recorded during an historic site investigation undertaken on behalf of Network Rail in the late 1990s.

Based on these initial findings an outline scheme of remediation to render the site suitable for the proposed residential development and to minimise potential environmental liability arising from groundwater contamination is presented.

A preliminary foundation strategy to support the proposed development has been prepared based on observations and results concurrently recorded as part of these investigations. Full details are presented under separate cover in a report prepared by Ground & Environmental Services (GES) Ltd ref. 12446 dated December 2020.

2 | Site Description

2.1 Site Location & Layout

The site is located approximately 1km east of Gloucester City Centre, in an area of mixed residential and industrial / commercial use. The land holding comprises a total of 4 hectares, which forms an elongated parcel some 500m long, orientated lengthwise roughly north-west to south east. The approximate centre of the site is located on national grid reference SO 841 183 (Figure 1).

Ground levels across the site are relatively flat. There is a slight fall from south east to north west with recorded surveyed levels some 23mAOD and 18mAOD respectively.

The site is surrounded by the following features and uses:

- To the north: by Great Western Road and rear gardens to private residential properties that front Great Western Road;
- The east: by Horton Road with industrial / commercial units and a pub on the opposite side that fronts Horton Road;
- To the south: by a mainline railway that is orientated roughly east to west and an area of railway sidings that curves roughly north-west to form the boundary of some of the western area of the site;
- To the west: by railway sidings and an office complex immediately west of north western corner of the site.

Access to the majority of the land holding was gained from the east / south east, off Horton Road.

The subordinate tenanted areas / units listed below are accessed via multiple points all off the south side of Great Western Road.

- Former Gloucester Paving Site (Now occupied by FLI Structures);
- Jays Timber Yard;
- Carlton Motors & Adjacent Vehicle Workshop;
- Discussed car park (previously used / leased to NHS).

The relationship of the tenanted areas to the main site is shown on Figure 2.

The main railway yard consisted of disused sidings, maintenance sheds, inspection sheds and derelict refuelling facilities. No evidence of above ground tanks was noted but the bunds that provided containment to such storage structures remained.

The buildings were derelict and in a poor state of repair. Evidence of extensive fire damage was noted. No assessment of the inside of the buildings was made within the railway yard as the buildings had been declared structurally unsafe.

A legacy tank and dispensing pump was present within a derelict bund within the former car park at the western end of the site.

2.2 Environmental Setting

Geology

Reference was made to the British Geological Survey 1:50,000 scale geological map of the area that indicated that the site is underlain by a superficial geology comprising the Cheltenham Sand and Gravel. The solid geology beneath the site was shown as the Undifferentiated Blue Lias Formation and Charmouth Mudstone Formation. The geological memoir for the area described these strata as follows:

Cheltenham Sand and Gravel
Sand, quartzose, fine- to medium-grained, generally unbedded, with seams of poorly sorted predominantly limestone gravel, especially in the lower part. Sand probably derived by aeolian processes from nearby river terrace deposits. Gravel largely Middle Jurassic ooidal limestone derived probably by solifluction from the nearby Cotswold escarpment, plus ironstone and derived fossils. Rare clay lenticles.

Charmouth Mudstone
Dark grey laminated shales, and dark, pale and bluish grey mudstones; locally concretionary and tabular limestone beds; abundant argillaceous limestone, phosphatic or ironstone (sideritic mudstone) nodules in some areas; organic-rich paper shales at some levels; finely sandy beds in lower part in some areas. The lower boundary is taken at the top of Blue Lias Formation or Scunthorpe Mudstone Formation. The top of the Blue Lias coincides with a marked upward decrease in frequency, thickness, and lateral persistence of limestone beds.

Blue Lias Formation
Thinly interbedded limestone (laminated, nodular, or massive and persistent) and calcareous mudstone or siltstone (locally laminated). Individual limestones are typically 0.10-0.30m thick. In some areas, intervening mudstone units with relatively few limestone beds.

Groundwater

The fan gravel deposits are a water bearing strata that are classified as a secondary aquifer. These are generally important in supplying base flow to rivers and may support minor abstractions and are important in maintaining supplies at a local level. Groundwater Vulnerability Mapping data on the MAGIC website indicates that the underlying superficial deposits across the majority of the site are classed as Medium risk. Those at the extreme western end have been allocated a Medium-High risk ranking.

The Lias Clay formation is classed as unproductive (non-aquifer). These formations do not contain significant quantities of groundwater generally.

Surface Water

Gloucester is located at the eastern edge of the River Severn flood plain between two tributaries that form confluence points with the River Severn to the north and west of the city. The River Twyver is located some 200m to the south of the site flowing in an east to west direction roughly parallel with the mainline railway. Wooton Brook flows to the north of the site and is located 500m east of Horton Road at its nearest point to site. A drinking water protection zone (Surface Water) associated with the River Severn is located some 900m west of the site.

3 | Previous Ground Investigation

A report on a previous ground investigation was provided by Network Rail to Eutopia Homes. This report detailed the observations and results of a Phase 2 Site investigation that was undertaken during 1998.

Whilst much of the data is some 2 decades old it provides a useful source of information on general ground conditions. The general form and layout of the site has also not altered drastically during the intervening period.

The site investigation involved:

- Drilling of 7No. boreholes to depths between 5.0m and 7.0m using a rotary auger;
- Drilling of 20No. shallow boreholes to depths between 0.5m and 3.0m using a hand-held hydraulically driven window sampler;
- Analysis of 40No. soil samples;
- Analysis of 6No. water samples (recovered from the deeper rotary boreholes);
- Analysis of 4No. water samples recovered from the surface water drainage network.

4 | Recent Ground Investigations

4.1 Intrusive Investigations

The site works were carried out between the 5th October and 4th November 2020 and comprised the following:

- Cable Percussion Drilling;
- Window Sampling;
- Trial Pitting (logging by JFHR);
- Soil Gas and Groundwater Level Monitoring.

The positions of the above works on the site are indicated on Figure 3, Exploratory Hole Location Plan.

Selection of the investigation locations took account of the following constraints where present :

- Live rail operations – safe working distances from the mainline railway and operational sidings, and existing contractor's live rail operations;
- Extensive dense vegetation (present across substantial areas of the disused sidings);
- Unrecorded assets and buried services;
- Potentially unsafe buildings and structures (within the disused sidings);
- Live operations and materials storage within tenanted areas (Tenanted areas: Timber Yard and Car Repair Workshop).

Cable Percussion Drilling
Three boreholes, BH101-BH103, were excavated using cable percussion boring methods to depths ranging between 7m and 12m below existing ground level.

During boring, temporary steel casing (150mm diameter) was used to support the sides of the bores. At each test location the target depth of 15m was not achieved due to the density of the ground encountered.

Disturbed (D) soil samples were recovered at regular intervals throughout the boreholes for description and subsequent laboratory testing purposes. In addition, in situ Standard Penetration tests were carried out at regular intervals using the SPT split spoon or cone attachment as appropriate to ground conditions.

Upon completion the boreholes were completed with 50mm diameter soil gas and groundwater monitoring standpipes.

Borehole logs and installation details are presented in Appendix 1.

Window Sample Holes
A total of 16 Window sample holes (WS101 – WS107, WS106A and WS109 to WS116) were excavated using a Dando Terrier window sampling rig to depths generally ranging between 3m and 5m. WS108 was not excavated due to limited access to the proposed location at the time of the investigation.

Several window sample holes did not achieve their target depths due to the density of the ground encountered. These exceptions are listed in the table below.

Table 1: Summary of Refusal / Termination of Drilling Operation.

Investigation Location	Depth (m)	Comments
WS103	2.0	Refusal on suspected concrete.
WS106	0.7	Hand dug trial pit refused in dense Made Ground. Too much water in trial pit.
WS106a	2.0	Blowing sand inside casing.
WS108	0	Location inaccessible due to parked vehicles.

The soils and materials encountered in the holes were logged and representative samples recovered for laboratory analysis. Standard penetration testing was carried out at 1m intervals using the split spoon attachment.

All window sample holes were installed with 50mm diameter dual purpose soil gas and groundwater level monitoring standpipes, except for WS106 which was backfilled with arisings.

Window sample hole logs and installation details are presented in Appendix 2.

Trial Pits
Thirty five trial pits (TP101-134 and TP120a) were excavated across the site using a JCB 3CX mechanical excavator to depths ranging between 0.7m and 3.3m under the supervision of an Environmental Engineer from JFHR. The soils / materials encountered were logged and representative samples were recovered for geochemical analysis. Logs of the trial pits have been presented in Appendix 3.

4.2 Monitoring

Headspace Testing
Samples of the fill and soils arising during drilling and the excavation of trial pits were screened for the presence of Volatile Organic Compounds (VOCs) using a portable ionisation detector (PID) equipped with 10.6 eV build and calibrated to 100ppm isobutylene. The headspace tests were undertaken after the samples had acclimated for at least 15 minutes. The results of the testing are recorded on the logs included in Appendix 3.

Soil Gas and Groundwater Level Monitoring
A soil vapour survey was undertaken by JFHR between the 27th October and 3rd November 2020 and comprised the monitoring of the atmosphere within the standpipes installed in the boreholes and window sample holes. Portable gas monitoring equipment (GA5000) was used to monitor the boreholes for concentrations of carbon dioxide (CO2) carbon monoxide (CO), methane (CH4), Hydrogen Sulfide (H2S) and oxygen (O2).

The soil gas and groundwater level monitoring results are presented in Appendix 4.

Groundwater Sampling
With the exception of WS115, each of the installed monitoring standpipes were developed by pumping five well volumes from each of the monitoring locations. Groundwater samples were recovered as part of the subsequently monitoring rounds after the gas and vapour readings were recorded. All samples were recovered using low flow techniques: peristaltic pump with

SmartTROLL.

4.3 Laboratory Testing

Representative samples of fill and naturally occurring soils were recovered by the supervising Site Chemist / Engineer. They were stored in appropriate sample containers within cool boxes with ice for despatch to the UKAS & MCERTs accredited laboratory under chain of custody.

Samples were tested for some or all of the following parameters:

- Asbestos screen;
- Asbestos quantification - where a positive asbestos identification was recorded;
- Heavy metals including arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, and water-soluble boron;
- Phenols;
- Polyaromatic hydrocarbons (PAH) – USEPA16;
- Total Petroleum Hydrocarbons (TPHCWG);
- Acid digestible and water soluble sulfate;
- pH.

No speciated VOC analysis were considered necessary based on the organoleptic indicators.

5 | Ground Conditions

The encountered ground conditions comprised a surface layer of Made Ground over superficial deposits typical of the Cheltenham Sand and Gravel Formation. Underlying the superficial deposits were soils typical of the Charmouth Mudstone.

5.1 Made Ground

Made Ground was encountered at every investigation location across the site to depths ranging between 0.1m and 2.1m. Where proven, the full thickness of Made Ground was typically found to vary between 0.6m and 1.1m. The full thickness of Made Ground was not proven within WS103 due to machine refusal at 2.0m on a suspected concrete obstruction.

The surface layer comprised a mix of concrete, tarmac and hardcore that was underlain predominantly by gravelly sand with the gravel component comprising clinker and ballast. The sand component was predominantly ash. The Made Ground contained variable quantities of concrete and brick. Metal fragments were also observed locally. Within WS114, fragments of glass, plastic and also possible asbestos containing material were also found.

5.2 Natural Ground

Cheltenham Sand and Gravel Formation
Beneath the Made Ground at all test locations, with the exception of WS103, which met refusal in the Made Ground, were soils typical of the Cheltenham Sand and Gravel Formation.

The soils generally comprised gravelly sands and fine to medium sands with subordinate sandy clay horizons. The gravel component, which comprised fine to medium sandstone, appeared to decrease with depth in the window sample holes.

Due to ground water ingress and trial pit instability, the base of the stratum was not proven in any of the trial pits that were excavated to depths ranging between 1.6m and 3.3m.

The base of the Cheltenham Sand and Gravel was found in all borehole and window sample locations, with the exception of WS106A, at depths ranging between 2.1m and 3.9m. At the location of WS106A the window sample hole met refusal at 2.0m due to 'blowing' sands.

Charmouth Mudstone
Beneath the granular soils of the Cheltenham Sand and Gravel Formation, cohesive soils typical of the Charmouth Mudstone were encountered. These cohesive soils were only found in the boreholes (BH101-BH103) and in window sample holes (WS101, 102, 104, 105 and WS107 to WS116.

The Charmouth Mudstone encountered comprised an upper horizon of closely fissured slightly silty clay and a lower horizon of mudstone. The silty clay horizon was found to the base of all the window sample holes (maximum depth of 5m) and to depths ranging between 6.3m and 7.9m in the boreholes. The base of the lower horizon of mudstone was not proven at any of the borehole locations. The maximum depth of investigation was 12.0m.

5.3 Groundwater

Groundwater levels were monitored on two occasions: 27th October 2020 and 4th November 2020. Observations for NAPL (Non-Aqueous Phase Liquids) were also made using a dual phase interface meter and bailer tube.

Groundwater levels and NAPL observations recorded are presented in Appendix 4.

NAPL presenting as a discrete visible and measurable layer was only encountered within WS103 & WS115 at the eastern and western ends of a legacy bunded structure / interceptor catch pit. Within WS103 the NAPL presented barely presented as a continuous layer of suspected weathered diesel globules floating on the groundwater (LNAPL). The LNAPL layer encountered within WS115 was in excess of 500mm presenting as a dark brown slightly translucent floating brown layer. A distinctive diesel odour was noted.

Groundwater levels within the Cheltenham Sand & Gravel formation were generally found to be between 1.0 and 1.5 m below local ground level. Any analysis of water levels corrected to mAOD indicates a consistent and distinctive hydraulic gradient from east to west.

Groundwater was encountered within the Lyas clay. The water was associated with bands of mudstone within the lower unit of the formation. Water levels within the deeper standpipes indicate sub-artesian condition consistent with a limited confined water body.

It should be noted that groundwater levels may vary due to seasonal fluctuations in rainfall, but in the shorter term, can be affected by antecedent weather conditions or other causes.

5.4 Organoleptic Evidence of Contamination

Details of visual and olfactory indicators of potential contamination encountered within the trial pit excavations are summarised in Table 2 below.

Table 2: Summary of Organoleptic Indicators of Potential Ground Contamination

TP Ref.	Depth	Description	Photograph
TP 101	0.8-1.6m	Ash ballast	TP101 - 1.1m
TP 103	1.9m	Hydrocarbon odour	TP102 - 2.5m
TP 104	0.8m	Strong hydrocarbon odour	TP104 - 2m
TP 104	1.4m	Staining	TP104 - 2m
TP 104		Sheen	TP104 - 2m
TP 105	0.6m	Hydrocarbon odour	TP105 - 0.7m
TP 105		Sheen	TP105 - 1.6m
TP 106	1.5m	Very strong odour	TP106 - 1.6m
TP 107		Sheen	TP107 - 1.4m
TP 109	0.9m	Moderate odour	TP109 - 2.2m
TP 109	0.9m	Extensive staining	TP109 - 0.8 m
TP 109		Sheen	TP109 - 2.2m
TP 110	0.3m	Staining	TP110 - 0.3 & 0.6m
TP 111	1m	Extensive staining	TP111 - 1.1 & 1.9m
TP 111	1.2 & 1.6m	Moderate odour	TP111 - 1.9m
TP 111		Sheen	TP111 - 2.5m

TP Ref.	Depth	Description	Photograph
TP 112	0.9m	Staining	TP112 - 0.9 & 1.3m
TP 112	1.3m	Strong odour of fresh diesel	TP112 -1.3m
TP 112		Heavy sheen	TP112 - 2.3m
TP 115		Sheen	TP115 - 1.5m
TP 118		Sheen	TP118 - 1.4 & 2.1m
TP 120	2m	Odour of medium weathered diesel	TP120 - 2m
TP 120	2m	Staining	TP120 - 2m
TP 122	0.2m	Rotten egg (hydrogen sulfide) odour	TP122 - 0.85m
TP 122	0.9m	Staining	TP122 - 0.85 & 1.5m
TP 123	0.2m	Hydrocarbon odour	TP123 - 0.23m
TP 123	0.4m	Very strong odour of naphthalene	TP123 - 0.4 & 1.3m
TP 123	0.4m	Layer of bitumen	TP123 - 0.4m
TP 129	1.3m	Staining	TP129 - 1.9m
TP 129	1.3m	Strong odour of fresh diesel	TP129 - 1.9m
TP 131	0.3m	Slag with hydrogen sulfide (rotten eggs) odour	TP131 - 0.7m
TP 132	0.75m	Extensive staining	TP132 - 1.3m
	1.9m	Strong odour of weathered diesel	TP132 - 2.3m
TP 133	1m	Extensive staining	TP133 - 1.3 & 2.2m
TP 133	2.2m	Faint odour	TP133 - 1.3 & 2.2m
TP 133		Sheen	TP133 - 1.3 & 2.2m

Site photographs recorded during the investigation are presented in Appendix 5.

6 | Ground Contamination

Copies of the analytical reports for the soil samples tested are presented in Appendix 6. The results have been compared against industry guideline values in the form of Suitable for Use Levels (S4ULs) published by LQM and the Chartered Institute of Environmental Health (CIEH) for a residential with home grown produce end-use. Where S4ULs are not available for the contaminants of concern, reference has been made to published Category 4 Screening Levels. The output for the Tier 1 Risk Assessment is summarised in Table 3 and 4 for the Made Ground and Natural Ground samples analysed respectively.

Table 3: Summary Ground Contamination Recorded Within Made Ground.

Contaminant / Determinand	S4UL (mg/kg)	No. Samples	Min	Max	No. > T1SL	Mean	US95
Asbestos Screen	NAD	48	NADIS	<0.001	3	N/A	N/A
Arsenic	37	21	5.1	96.7	1	20	23
Cadmium	11	21	0.02	0.81	0	0	0
Chromium	910	21	0.9	22.2	0	10	12
Copper	330	21	8.7	622	6	119	182
Lead	11	21	7.5	424	1	90	129
Mercury	180	21	0.1	1.4	0	0	0
Nickel	250	21	5.7	84.6	0	31	37
Selenium			1.0	10	0	2	3
Zinc	300	21	37.3	465	1	107	141
Naphthalene	2.3	29	0.01	0.77	0	0.18	0.24
Acenaphthylene	170	29	0.01	1.02	0	0.18	0.26
Acenaphthene	210	29	0.01	1.74	0	0.23	0.36
Fluorene	170	29	0.01	1.68	0	0.26	0.40
Phenanthrene	95	29	0.02	6.74	0	1.60	2.24
Anthracene	2400	29	0.02	3.59	0	0.53	0.79
Fluoranthene	280	29	0.02	23.10	0	3.44	5.18
Pyrene	620	29	0.02	20.50	0	3.09	4.64
Benzo(a)anthracene	7.2	29	0.01	18.20	1	2.33	3.64
Chrysene	15	29	0.01	20.30	1	2.37	3.79
Benzo(b)fluoranthene	2.6	29	0.02	47.90	8	4.56	7.83
Benzo(k)fluoranthene	77	29	0.01	13.60	0	1,47	2.42
Benzo(a)pyrene	2.2	29	0.02	33.50	6	3.13	5.43
Indeno(1,2,3-cd) pyrene	27	29	0.02	29	1	2.65	4.63
Di-benzo(a,h) anthracene	0.24	29	0.02	6.24	8	0.59	1.01
Benzo(ghi) perylene	320	29	0.02	28.90	0	2.56	4.53
Total EPA-16 PAHs	100	29	0.12	256	1	28.9	46.7
Aliphatics >C5-C6	42	36	0.01	0.2	0	0.04	0.06

Contaminant / Determinand	S4UL (mg/kg)	No. Samples	Min	Max	No. > T1SL	Mean	US95
Aliphatics >C6-C8	100	36	0.01	10.3	0	0.58	1.14
Aliphatics >C8-C10	27	36	0.01	173	2	8.98	18.7
Aliphatics >C10-C12	130	36	1	829	6	71.78	129
Aliphatics >C12-C16	1100	36	1	5,060	10	485.36	827
Aliphatics >C16-C21	2500	36	1	5,550	13	577.25	954
Aliphatics >C21-C35	2500	36	1	2,730	11	238.31	419
Aliphatics >C35-C44	2500	36	1	244	6	24.67	41.9
Total Aliphatics >C10-C44	5000	36	5	14,400	18	1,398	2,368
Total Aliphatics & Aromatics >C10-C44	5000	36	10	19,800	31	2,166	3,472
Aromatics >EC5-EC7	70	36	0.01	0.2	0	0.04	0.06
Aromatics >EC7-EC8	130	36	0.01	0.2	0	0.04	0.06
Aromatics >EC8-EC10	340	36	0.01	116	1	6.01	12.5
Aromatics > EC10-EC12	74	36	1	340	5	27.3	51.8
Aromatics > EC12-EC16	140	36	1	3,160	9	263	476
Aromatics > EC16-EC21	260	36	1	1,730	16	195	310
Aromatics > EC21-EC35	1100	36	1	862	26	220	288
Aromatics >EC35-EC44	550	36	1	564	15	64.9	96.65
Aromatics > EC40-EC44	550	36	1	59.4	1	7.29	10.68
Total Aromatics > EC10-EC44	5000	36	5	5,430	31	769	1,118
Total Aliphatics & Aromatics >C5-C44	5000	36	10	19,900	32	2,182	3,501

Comparison sheets highlighting the individual samples that exceed the respective S4UL have been prepared for both the Made Ground and Natural Ground sample populations. These are presented in Appendix 7.

Table 4: Summary Ground Contamination Recorded Within Natural Ground.

Contaminant / Determinand	S4UL (mg/kg)	No. Samples	Min	Max	No. > T1SL	Mean	US95
Asbestos Screen	NAD	48	NADIS	NADIS	0	N/A	N/A
Arsenic	37	7	11	29.5	0	17.6	23.3
Cadmium	11	7	0.02	0.35	0	0.21	0.30

Contaminant / Determinand	S4UL (mg/kg)	No. Samples	Min	Max	No. > T1SL	Mean	US95
Chromium	910	7	4.66	20	0	11.1	14.7
Copper	330	7	10.6	218	1	49.6	105
Lead	11	7	4.19	4690	0	702	1994
Mercury	180	7	0.14	0.4	0	0.18	0.20
Nickel	250	7	12	71.6	0	24.6	40.1
Zinc	300	7	32.7	92.9	0	62.2	79.9
Naphthalene	2.3	29	0.01	0.90	0	0.19	0.43
Acenaphthylene	170	29	<0.01	0.74	0	0.19	0.42
Acenaphthene	210	29	0.01	2.17	0	0.39	0.98
Fluorene	170	29	<0.01	5.87	0	0.96	2.57
Phenanthrene	95	29	0.005	10.8	0	2.31	5.38
Anthracene	2400	29	0.01	1.80	0	0.34	0.82
Fluoranthene	280	29	0.01	11.6	0	1.84	5.01
Pyrene	620	29	0.01	12.2	0	1.94	5.27
Benzo(a)anthracene	7.2	29	<0.01	7.69	1	1.17	3.29
Chrysene	15	29	<0.01	7.48	0	1.16	3.21
Benzo(b)fluoranthene	2.6	29	0.01	15.1	3	2.29	6.44
Benzo(k)fluoranthene	77	29	<0.01	4.71	0	0.71	2.01
Benzo(a)pyrene	2.2	29	0.01	12.4	3	1.83	5.25
Indeno(1,2,3-cd) pyrene	27	29	0.01	11.3	0	1.67	4.79
Di-benzo(a,h) anthracene	0.24	29	0.02	1.29	3	0.21	0.56
Benzo(ghi) perylene	320	29	0.02	9.02	0	1.35	3.83
Total EPA-16 PAHs	100	29	0.02	102	1	18.52	46.3
Aliphatics >C5-C6	42	43	0	35.7	0	0.06	0.13
Aliphatics >C6-C8	100	43	0	284	0	2.19	6.14
Aliphatics >C8-C10	27	43	0	1,260	11	30.1	70.5
Aliphatics >C10-C12	130	43	0	5,060	14	202	409
Aliphatics >C12-C16	1100	43	0	6,560	13	1,117	2211
Aliphatics >C16-C21	2500	43	0	2,730	3	1,332.	2678
Aliphatics >C21-C35	2500	43	0	400	2	457	941
Aliphatics >C35-C44	2500	43	5	15,500	1	47.8	103
Total Aliphatics >C10-C44	5000	43	0	19,800	11	3,159	6,280
Total Aliphatics & Aromatics >C10-C44	5000	43	0	0.2	13	4,238	8,368
Aromatics >EC5-EC7	70	43	0	0.2	0	0.05	0.11
Aromatics >EC7-EC8	130	43	0	190	0	0.05	0.12

Contaminant / Determinand	S4UL (mg/kg)	No. Samples	Min	Max	No. > T1SL	Mean	US95
Aromatics >EC8-EC10	340	43	0	340	7	20.1	47
Aromatics > EC10-EC12	74	43	0	3,160	12	53.2	110
Aromatics > EC12-EC16	140	43	0	1,730	15	578	1167
Aromatics > EC16-EC21	260	43	0	1,130	14	369	726
Aromatics > EC21-EC35	1100	43	0	167	1	74.0	188
Aromatics >EC35-EC44	550	43	0	18.3	0	7.28	25.4
Aromatics > EC40-EC44	550	43	5	5,430	0	1.25	3.25
Total Aromatics > EC10-EC44	5000	43	0	20,200	1	1,084	2,112
Total Aliphatics & Aromatics >C5-C44	5000	43	0	0	13	4,292	8,470

Analytical results for the recovered groundwater samples that were analysed are presented in Appendix 8.

The results are summarised in Table 5 below. For context the recorded concentrations of the various determinands have been compared against Freshwater Environmental Quality Standards (EQS values). Where published EQS values are not available, reference has been made to drinking water standards.

Table 5: Summary Groundwater Contamination from Two Sampling Rounds.

Contaminant / Determinand	EQS (ug/l)	No. Samples	Min (ug/l)	Max (ug/l)	No. > T1SL
Arsenic	10	34	0.5	20.1	2
Water soluble boron	2000	34	116	895	0
Cadmium	5	34	0.08	0.08	0
Chromium	10	34	1	1	0
Copper	5	34	0.3	9.09	2
Lead	10	34	0.2	0.558	0
Mercury	1	34	0.01	0.01	0
Nickel	20	34	1.19	11.3	0
Selenium	10	34	1	4.67	0
Zinc	15	34	1	52.7	4
Naphthalene	10	34	0.01	0.176	0
Acenaphthylene		34	0.005	0.488	0
Acenaphthene		34	0.005	0.741	0

Contaminant / Determinand	EQS (ug/l)	No. Samples	Min (ug/l)	Max (ug/l)	No. > T1SL
Fluorene	0.02	34	0.005	0.104	7
Phenanthrene	0.02	34	0.005	0.0112	0
Anthracene		34	0.005	0.235	0
Fluoranthene		34	0.005	0.994	0
Pyrene		34	0.005	0.144	0
Benzo(a)anthracene		34	0.005	0.223	0
Chrysene		34	0.005	0.0711	0
Benzo(b)fluoranthene	0.025	34	0.005	0.263	6
Benzo(k)fluoranthene	0.025	34	0.005	0.0881	4
Benzo(a)pyrene	0.03	34	0.002	0.18	4
Indeno(1,2,3-cd) pyrene		34	0.005	0.0466	0
Di-benzo(a,h) anthracene	0.025	34	0.005	0.154	4
Benzo(ghi)perylene	0.025	34	0.005	0.0935	4
Total EPA-16 PAHs		34	0.082	2.54	0
Aliphatics >C5-C6	10	34	10	10	0
Aliphatics >C6-C8	10	34	10	31	1
Aliphatics >C8-C10	10	34	10	79	1
Aliphatics >C10-C12	10	34	10	71	3
Aliphatics >C12-C16 (aq)	10	34	10	97	5
Aliphatics >C16-C21 (aq)	10	34	10	107	3
Aliphatics >C21-C35 (aq)	10	34	10	20	2
Total Aliphatics >C12-C35 (aq)	10	34	10	215	5
Aromatics >EC5-EC7	10	34	10	10	0
Aromatics >EC7-EC8	10	34	10	10	0
Aromatics >EC8-EC10	10	34	10	53	1
Aromatics >EC10-EC12	10	34	10	47	3
Aromatics >EC12-EC16 (aq)	10	34	10	129	6
Aromatics >EC16-EC21 (aq)	10	34	10	93	4
Aromatics >EC21-EC35 (aq)	10	34	10	104	2
Total Aromatics >EC12-EC35 (aq)	10	34	10	248	7

Contaminant / Determinand	EQS (ug/l)	No. Samples	Min (ug/l)	Max (ug/l)	No. > T1SL
Total Aliphatics & Aromatics >C5-35 (aq)	300	34	10	463	3
GRO	50	34	50	283	2
Benzene	30	34	7	7	0
Toluene	50	34	4	4	0
Ethylbenzene	20	34	5	5	0
Sum of Xylenes	30	34	11	11	0

7.1 Preliminary Conceptual Site Model

Potential Source-Pathway-Receptor pollutant linkages involving identified and potential sources of ground contamination recorded as part of the recent and historic investigations are highlighted in Table 6 below, based on the proposed redevelopment of the site for a residential end use not including home grown produce / private gardens.

Table 6: Outline Conceptual Site Model.

Ref	Source	Exposure Pathway	Receptor
SPR1	Made Ground tainted with ash & clinker (Source of elevated arsenic, lead, zinc and various PAH compounds) Hotspots within former railway land and western car park	Ingestion / direct contact with contaminated soil and dust. Inhalation of dust (indoor and outdoor).	Future occupants and site users.
SPR2		Rainwater ingress solubilisation / leaching to groundwater and offsite migration (groundwater baseflow).	Surface water quality and ecology associated with River Twyver.
SPR3	Made Ground tainted with ash & clinker (Source of elevated copper, nickel, and zinc)	Plant uptake.	Plants and trees within proposed soft landscaping.
SPR4	Petroleum hydrocarbons (diesel spills from former bulk fuel oil storage and locomotive refuelling, operation and servicing of rail vehicles plant and machinery) within soils and groundwater.	Intrusion of vapours and nuisance odours into indoor air.	Future occupants.
SPR5		Contact / permeation of polymeric materials.	Water supply pipes and buried services.
SPR6		Lateral migration of NAPL and dissolved phase contamination through groundwater baseflow and migration through surface water drainage.	Surface water quality and ecology associated with River Twyver, Severn Catchment and associated drinking water protection zones.
SPR7		Lateral migration of NAPL and dissolved phase contamination through groundwater baseflow and intrusion of vapours and nuisance odours.	Adjacent land quality and associated habitable spaces.

7.2 Appraisal of Contamination Sources

Main Railway Yard

Residual fuel contamination

Extensive petroleum hydrocarbon contamination has been recorded within Made Ground and naturally occurring soils across and near the 2No. former fuel storage facilities and the former locomotive fuel dispensing area.

The recorded contamination is considered to be consistent with weathered diesel contamination - the primary fuel for locomotives.

The most severe contamination has been found in the immediate vicinity of point sources including the legacy bunded structures where above ground fuel storage tanks (ASTs) were once located. More than 500mm of Light Non-Aqueous Phase Liquid (LNAPL) consistent with diesel contamination was recorded on the groundwater within WS115 drilled near the former fuel tank bund on the southern side of the railway yard adjacent the mainline railway. The encountered NAPL accumulated within two days of drilling and installing the monitoring standpipe.

Significant contamination of the underlying Cheltenham Sand & Gravel formation was found to be present at a large number of locations (TP104, TP105, TP109, TP111, TP112, TP120, TP128, TP132, TP133, WS101, WS102).

The presence of comparatively 'clean' overlying fill / soils at locations remote from the identified point sources (ASTs) and diffuse areas (fuel dispensing platforms) is consistent with diesel contamination having migrated via the groundwater table.

Evidence of gross TPH contamination within soils was recorded below the existing water table, which was generally found to be between 1m and 1.5m below local ground levels during the recent investigation. Information on groundwater levels included in the historic site investigation report (June 1998) revealed a deeper water table with recorded levels between 2.0m and 2.5m bgl. A substantial smear zone is therefore considered to be present where diesel contamination has historically moved up and down with groundwater table fluctuations.

The historic site investigation report recorded very high concentrations of BTEX compounds within two of the boreholes drilled in the vicinity of former fuel storage tanks (BH5 -122mg/l & BH6 – 18mg/l). BTEX contamination was also recorded in drain water samples analysed.

Measurable dissolved phase petroleum hydrocarbons were recorded in the groundwater samples analysed as part of the recent investigations, but the determined concentrations are also orders of magnitude lower than those recorded as part of the historic site investigation. Concentrations of BTEX compounds determined as part of the recent investigations were also orders of magnitude lower. This is indicative of an aged / weathered plume of the residual contamination in which the more mobile and volatile elements of the hydrocarbon mixture have migrated and declined through natural attenuation.

Made Ground

Ash, clinker and related combustion residues are frequently found on former railway land. These

deposits typically contain elevated concentrations of heavy metals notably arsenic, copper, lead and zinc, polyaromatic hydrocarbons (PAHs) and sulfates.

Whist the encountered Made Ground was frequently found to have inclusions of ash, clinker, coal and slag deposits entrained within it, widespread heavy metal contamination was not recorded. Copper was found to be more prevalent within the fill materials at slightly elevated concentrations. The occurrences of elevated arsenic, lead and zinc were determined to be more isolated / sporadic. TP109 was found to be the most severely heavy metal impacted investigation location. The presence of this contamination likely accounts for the lack of established vegetation present within this section of the siding, which was otherwise a heavily overgrown area of the site.

Asbestos Containing Materials

Visually identifiable asbestos containing materials were encountered within the fill material at two locations:

- TP120 @ 0.4m - Cement debris: chrysotile fibres in soil;
- TP120A @0.6m - Pipe fragment and Loose fibre in soil: amosite.

The Demolition Survey Report provided by Network Rail for review also recorded the presence of asbestos containing materials (ACMs) littered on the ground outside of the footprints of existing buildings / above ground structures. Identified ACMs included:

- Cement products including roof sheet and flue pipe debris;
- Gasket debris;
- Cladding coating (paper) debris.

The report also notes extensive debris present on the floors across accessible areas of fire damaged elements of some of the buildings in the form of asbestos paper lined fibreboard panels and galbestos.

Northern Car Park

A degree of petroleum hydrocarbon contamination was recorded in the vicinity of the redundant above ground tank and dispensing pump (WS107). Measurable concentrations of dissolved phase petroleum hydrocarbons were determined in the groundwater at this location. A discrete LNAPL (floating oil) layer was not however observed at this location.

The fill materials across this part of the site were also found to contain a significant proportion of combustion residues in the form of ash and clinker and slag and a significant component of slag. Certain PAH compounds including benzo[a]pyrene were also determined above residential end-use S4ULs were recorded in the fill (WS107).

Detectable concentrations of asbestos loose fibre were not recorded in any of the samples of Made Ground tested.

Jays Timber Yard

Visual and olfactory evidence of petroleum hydrocarbon contamination was encountered in the vicinity of the above ground diesel tank (WS113). Measurable concentrations of aromatic

petroleum hydrocarbons were recorded in the two groundwater samples recovered at this location. The concentrations of certain PAH compounds including benzo[a]pyrene also exceeded the Tier 1 threshold.

The absence of aliphatic hydrocarbons suggests that the groundwater contamination may be derived from an alternate source to the overlying gross oily perched contamination and hydrocarbon odours recorded on the log for the exploratory hole. Fill materials encountered at other locations (WS110, WS111 & WS112) within this part of the site included discrete or rich bands of ash, clinker and charcoal / carbon gravel. These combustion residues may potentially account for the general background aromatic hydrocarbon and PAH contamination recorded in the groundwater across this part of the site.

Carlton Motors & Adjacent Vehicle Workshop

Investigation works across this tenant occupied areas was limited to a single shallow borehole WS109. No visual or olfactory evidence of gross contamination by petroleum hydrocarbons, solvents or other chemicals was encountered within the fill and soils at this investigation location.

Measurable concentrations of petroleum hydrocarbons and polyaromatic hydrocarbons were not recorded in the groundwater samples recovered and tested from this location.

One of the operatives within Carlton Motors indicated that the adjacent workshop / premises had historically been occupied by a tenant who had been involved in disposing used engine oil down the drain. It was further claimed that a blockage had occurred resulting in wider displacement of waste oil beyond the confines of the drain.

Due to the extensive presence of parked cars, it was not possible to confirm these anecdotal claims or potentially delineate any such residual contamination.

Former Gloucester Paving / FLI Structures

Ash, clinker and slag was also encountered within the fill materials across this part of the site and is considered to be the likely source of the encountered PAH contamination.

Asbestos loose fibres were encountered at concentration of 0.006% within the shallow fill horizon at single location (TP128). No visually identifiable (naked eye) discrete fragments of bonded or fibrous asbestos containing materials were noted within the fill materials during excavation.

No evidence of significant residual petroleum hydrocarbon contamination based on organoleptic indicators was encountered, including in the immediate vicinity of the diesel AST used to refuel site vehicles. Further measurable concentrations of such contamination were not recorded in the samples scheduled for testing in the laboratory.

7.3 Risk Assessment – Remediation & Construction Phase

Site Workers

The greatest potential exposure risks will be to site workers involved in the site remediation / construction platform preparations who may potentially be exposed through direct contact with surficial asbestos containing material debris and potential fugitive airborne fibres, grossly

contaminated soils, inhalation of vapours arising from grossly contaminated soils, and potentially contaminated dusts.

The majority of the exposure risks could be adequately controlled through robust segregation of clean and dirty working areas, adequate hygiene and messing facilities and the provision of appropriate PPE.

Prior to works commencing, as part of the preparation for demolition of above ground structures, all curtilages / yard areas surrounding the buildings and those within above ground structures located within the railway yard would need to be litter picked by asbestos trained operatives.

Due to the weathered nature of the residual diesel contamination, the potential for exposure to hazardous compounds including benzene will be reduced. However further monitoring and assessment will be likely required to assess occupational exposure risks for site workers involved in site preparations for redevelopment and future groundworks.

Although there is potential for exposure to contaminated airborne particulates, the thresholds to control dust are likely to be triggered before a significant exposure to airborne contaminated particulates would occur.

Implementation of best practice guidance measures including general damping down to mitigate the generation of fugitive dust should also adequately mitigate the asbestos exposure risk due to the presence of trace loose fibres in the fill materials. Robust clean – dirty working protocols, and provision of suitable and sufficient instruction and training will also ensure this risk is minimised.

There is a degree of increased risk to those construction workers whose work might involve operating in potentially confined excavations. However, this risk is expected to remain relatively low as a significant source of gassing putrescible fill materials has not been encountered, and the residual petroleum hydrocarbon contamination is heavily weathered. Notwithstanding this, where man entry into deeper excavations cannot be reasonably avoided, the implementation of precautionary gas / vapour monitoring is recommended, to confirm it is safe to enter and that special ventilation requirements are not required.

The bulk excavation and handling of soils grossly contaminated with residual petroleum hydrocarbon contamination may generate odours that could give rise to nuisance complaints from local residents and workers in industrial / commercial premises in the vicinity of the site. Working methods that ensure that such impacts are minimised as far as reasonably practicable, will need to be considered as part of the remediation / site preparation works and any follow-on groundworks.

Neighbours & the Public

Risks to neighbours could be adequately managed by ensuring appropriate best practice measures are implemented to control dust and potential run-off including appropriate stockpile management, haul road maintenance and provision of wheel cleaning measures.

Controlled Water Resources

Significant areas of the site are capped by hardstanding. Site preparations will involve the removal

and grubbing up of significant areas of impermeable hard cover, which is currently reducing rainwater infiltration and mobilisation of liquid / soluble contamination.

The remediation and enabling works will need to be carefully planned and sequenced to ensure identified sources of potentially polluting substances / residual contamination are managed appropriately to ensure the risks to groundwater and surface watercourses in hydraulic continuity (River Twyver stream) are minimised during the course of the works.

Further investigations supported by robust Watching Brief and the implementation of a Reactive Discovery Strategy will be needed to clarify the risks posed by residual petroleum hydrocarbons. Detailed Quantitative Risk Assessment (DQRA) underpinned by field tests will be required to develop the conceptual site model, and derive an appropriate framework of remedial targets once the nature and layout for the proposed residential led scheme has crystallised.

NAPL and groundwater grossly contaminated with free-phase hydrocarbons will need to be removed to ensure the protection of local controlled water resources. This combined with a strategy based on removal of soil borne sources of contamination is expected to yield an adequate level of risk reduction. Further investigation and monitoring will likely be required to confirm that the residual contamination is weathered, of relative limited mobility / and that a more onerous programme of in-situ groundwater remediation will not be necessary.

7.4 Risk Assessment - Completed Development

Future Occupants

The majority of the contaminants of concern that pose a risk to human health are associated with the ash and clinker deposits in the Made Ground. These will not pose a risk to future occupants where such materials are capped by buildings and hard standing. The recorded arsenic, lead and PAH compounds including benzo[a]pyrene would however pose a significant risk to the health of residents where such contamination coincides with private gardens and soft landscaped areas via potential exposure pathways including skin contact, accidental ingestion and potentially consumption of home grown produce. Remediation in the form of excavation and removal and/ or capping by provision of clean soil cover systems would be required in such sensitive areas of the scheme.

Due to the presence of extensive hardstanding and granular Made Ground there is likely to be a requirement for clean subsoil and topsoil to be imported as growing medium to support the healthy establishment of plants in landscaped areas. For contamination of the type and nature encountered, a 600mm clean soil cover system comprised of 450mm subsoil overlain by 150mm topsoil would be expected to provide an appropriate level of protection. The clean soils would need to be placed over a permeable geotextile separator / membrane to mark the distinction between clean and potentially contaminated underlying fill / soils. A relatively shallow groundwater table has been encountered. Further inquiries will be required to assess flood risk associated with the plans to develop the site. A capillary break layer of crushed aggregates may be considered necessary to minimise cross contamination from a rising contaminated groundwater body.

PAH compounds and petroleum hydrocarbons have been recorded at elevated concentrations. These could potentially degrade polymeric materials such as LDPE / MDPE used in standard water supply pipes. Specific targeted remediation or engineering measures will be required to

be designed into the scheme, to ensure the integrity of such services and to minimise the risk of occupant exposure through consumption of tainted of drinking water.

The results of the gas monitoring completed indicate that measures to prevent the ingress of hazardous gases and vapours will likely be required as part of the proposed scheme. The recorded concentrations of methane may potentially be associated with positive interference by other hydrocarbons associated with the residual diesel contamination.

Based on the available industry guidance, passively ventilated gas protection measures will be required. The recorded concentrations of methane may potentially be associated with interference by other hydrocarbons associated with residual diesel / fuel contamination. Any gas resistant membrane incorporated into the design of the gas protection measures will also need to have the ability to resist degradation by a variety of volatile and semi volatile organic compounds associated petroleum hydrocarbons found within diesel fuels.

Additional gas / vapour monitoring is likely to be required to characterise the prevailing gas regime based on NHBC / CIRIA assessment frameworks and to confirm the specification of a suitable gas / vapour resistant membrane.

Neighbours & the Public

The proposed form and layout of the development will not increase the risks currently posed to neighbours / the public. The proposed scope of remediation delivered prior to the construction phase will involve a combination of source removal / reduction of contaminant loading through on-site treatment or off-site disposal. This will reduce risk across those areas of the site where there is potential for increased infiltration and mobilisation of contamination in the proposed scheme. Derivation of an appropriate framework of remedial targets designed to be protective of local controlled water resources will ensure residual risk to neighbouring land and the wider public are minimised. Provision of clean cover systems and capping by buildings and hardstanding will also minimise risk associated with erosion and dispersal of potentially contaminated run-off.

Controlled Water Resources

Implementation of a suitable programme of source removal and maintenance of Watching Brief and concurrent implementation of a Reactive Discovery Strategy where suspected contamination is encountered, will ensure that the risks posed by residual petroleum hydrocarbons and other potentially significant sources including hexavalent chromium are appropriately managed prior to commencement of construction during the site preparations. Detailed Quantitative Risk Assessment (DQRA) underpinned by field tests to fine tune the conceptual site model, and derive protective remedial targets will ensure that there is no increased pollution risk as part of the proposed development. Maintenance of Watching Brief and a programme of groundwater monitoring during the groundworks, including future piling operations, will ensure that the risks are minimised.

8 | Outline Remediation Scheme

8.1 Source Removal

The following remedial measures are likely to be required as part of site preparations to reduce the risks arising from the identified pollutant linkages, to render the site suitable for the proposed residential end use and to ensure the protection of local controlled water resources.

Excavation of the ash and clinker tainted Made Ground within the footprint of proposed gardens / soft landscaped areas.

Excavation of fill / soils grossly / significantly impacted by petroleum hydrocarbons including diesel range organics. Such materials may be amenable to recovery and re-use within the scheme through a programme of on-site treatment using ex-situ bioremediation techniques (windrowing and bio piling). Until the results of field testing and Detailed Quantitative Risk Assessment (DQRA) are known, a generic remediation target of 5000mg/kg sum TPHC5-35 will be adopted to judge an acceptable level of residual TPH contamination. Reference will also be made to the respective published suitable 4 use levels (S4ULs) published by LQM / CIEH.

The source removal (excavation and offsite disposal) will be verified by recovery and analysis of validation samples of the faces and bases of the resultant remediation excavation. Further details of the validation strategy are presented in Section 9.5.

In the event of any further significant contamination remaining, additional source removal, inspection, sampling and analysis shall be completed to chase out any unacceptable residual contamination.

Sump pumping and containment for off-site disposal / on-site treatment of any grossly contaminated perched water associated with management of soils / fill materials heavily impacted by diesel range organics.

Targeted excavation and off-site disposal / or on-site management / picking of materials tainted with discrete cement bonded asbestos containing materials.

Subject to the results of supplementary investigations, groundwater sampling and risk assessment, the application of proprietary remediation products across resultant faces and bases of the remediation excavations, or a programme of direct injection / in-situ remediation may be necessary. When targeted across the contaminant smear zone and the saturated aquifer, this approach ,could promote ongoing removal of residual contamination by enhancing the natural attenuation capacity of microbes within the aquifer. Oxygen release compounds (ORC) may be used to remove residual dissolved phase petroleum hydrocarbons such as diesel range organics under aerobic conditions. The redox chemistry of the aquifer may also be manipulated using other formulas to promote the removal of chlorinated solvent contamination (where present). Other products may be used to convert the residual contamination to a more stable, less mobile form, with reduced environmental toxicity (hexavalent chromium may be converted to less mobile, less soluble and less toxic trivalent form).

Remediation excavations will be reclaimed utilising suitable site derived fill / soils that have been inspected and verified as being 'clean' and tested to confirm that they are suitable for use. All materials re-use will be strictly in accordance with a Materials Management Plan (MMP) prepared in line with the Development Industry Definition of Waste Code of Practice published by CL:AIRE, and reviewed and declared by a Qualified Person.

The following will also need to be implemented to achieve the remediation objectives and outline plan described in the preceding sections.

8.2 Asbestos Litter Pick & Watching Brief

An asbestos litter pick will be undertaken by a team of suitably experienced trained operatives. This will ensure that cement bonded materials / cladding debris is removed to minimise the risk of cross contamination with 'clean' demolition / enabling works arisings.

A Watching Brief will continue to be maintained during the course of the remediation / enabling works to enable the segregation and controlled management of such materials where they have not previously been identified or encountered.

8.3 Delineation Investigations & Watching Brief

Additional machine excavated trial pits and boreholes will be advanced to further delineate the extent of identified and potential petroleum hydrocarbon contamination. Additional trial pits will also be excavated across those areas where access has been constrained by existing site operations.

All excavations will be progressed under the supervision of an Environmental / Remediation Scientist. A Watching Brief will be maintained for potential asbestos containing materials and organoleptic indicators of petroleum hydrocarbon and coal tar derived contamination (diesel and creosote in the form of associated distinctive odours and grey / black stained soils). Excavations will also be advanced to confirm the extent of ash / clinker tainted soils as part of the preparation of clean soil cover systems across proposed gardens and soft landscaped areas.

Headspace screening tests will be completed in the field using a portable Photoionization Detector (PID) equipped with a 10.6 eV bulb and calibrated to isobutylene to check for the presence of volatile organic compounds and verify the recorded visual and olfactory observations.

8.4 Engineering / Construction Phase Measures

Consideration will need to be given to the following:

- Installation of protected water supply pipes (e.g. Trigon or product of equivalent chemical resistance), or the excavation and provision of certified clean fill materials along road boxes, and drainage / service corridors. The specification of special measures should be confirmed with the water supply company.
- Incorporation of a suitable durable gas resistant membrane, potentially also with chemical resistance to hydrocarbon vapours (e.g. proprietary foil backed membrane) into oversite construction. The membrane will need to fully span cavity leaf walls, be lapped and taped or seam welded and sealed around service entries. This construction will be required over a suitably designed, passively ventilated subfloor void in line with BRE212 and BRE 414 construction principles.
- In addition to the original SI data, the lines of evidence garnered during the supplementary delineation investigations will be utilised to inform a material handling strategy. This information will be used to plan the selective excavation of contaminated soils from the proposed

gardens / soft landscaped areas where unacceptable risks to future residents are judged to exist. The observations and data will be used to guide the segregation and classification of contaminated fill / soil and allow appropriate off-site disposal pathways to be identified.

- Where contamination or ash and clinker rich Made Ground extends significantly below 0.6m, then further excavation may cease and a geotextile separator / marker layer may be placed across the footprint of the proposed garden to delineate the boundary between the clean cover system and underlying residual contamination (if present). A depth of 600mm (double-dig) of clean soils is generally considered suitable and sufficient for cultivation of homegrown produce and to support the healthy establishment of shrubs / ornamental plantings in most cases.
- Imported soil materials including topsoil shall be compliant with requirements for a Residential end use according. Criteria will be reviewed and specified to take into account whether or not home grown veg is likely to be grown within the designated areas of soft landscaping in accordance with the proposed form and layout of the residential scheme.
- Any additional top soil or sub soil required to achieve the required form / levels of the proposed gardens and landscaped areas within the development should be sampled and tested and verified as being suitable for use, or procured from a reputable supplier with the relevant certification associated with a Factory Production Control Plans / WRAP Protocol.
- It is envisaged that a minimum topsoil thickness of 150mm will be placed over naturally occurring soils, but the advice of a landscape architect should be sought.
- All surplus waste fill / soil materials and construction arisings will be removed from site to appropriately licensed facilities in accordance with the relevant Duty of Care. Supplementary sampling and Waste Acceptance Criteria (WAC) testing may be required to confirm disposal options for certain materials / waste streams.
- A Watching Brief should be maintained during the excavation of service trenches. If suspected contamination is encountered, the advice of an appropriately experienced environmental consultant / scientist should be sought.

8.5 Validation Strategy

All validation sampling and testing and environmental monitoring will be undertaken by competent and experienced environmental specialists. All associated laboratory analysis will be undertaken by a UKAS and MCERTS accredited testing company.

Table 7: Validation Tasks & Scope

Task	Task Description
VT#1	Identified Hotspot Removal Samples of the faces and bases of the remediation excavations will be recovered with at least one sample per 50m^2 of area / exposed surface. Samples will be tested for the relevant contaminant(s) of concern: ■ Metals including lead and zinc, polyaromatic hydrocarbons (PAH) & petroleum hydrocarbons (TPHCWG).
VT#2	Inspections of Formation Post Re-grading Following site preparations including removal of hardstandings to achieve the construction platform, the formation shall be inspected, with attention being paid near potential point sources of contamination (former diesel ASTs), and areas where visible fragments of asbestos containing materials have been 'litter picked'. Additional samples will be recovered for chemical analysis within proposed garden areas.

Task	Task Description
VT#3	Clean Backfill / Topsoil Validation Clean backfill and imported site derived soils will be sampled at a frequency of at least 3 per source, and 1 per 250m^3 for subsoil thereafter and 1 per 100m^3 for topsoil.
VT#4	Inspection Post Enabling Works (Slab Removal) The ground / sub base beneath all former building slabs shall be inspected for potential asbestos containing material debris. 4No. validation samples will be recovered for asbestos screen. Samples will also be tested for metals and PAH where visual evidence of ash and clinker residues is recorded.

All validation samples will be recovered and stored in appropriate sample containers and despatched under chain of custody for analysis by a UKAS / MCERTS accredited laboratory.

Validation samples across suspected TPH hotspots associated with bulk fuel (diesel) storage will be analysed for the following determinands:

- Total Petroleum Hydrocarbons (TPHCWG);
- BTEX compounds.

Further samples and headspace testing with a Portable Photoionisation Detector (PID) would also be completed to provide further lines of evidence to confirm the success of the remediation.

A log / journal of the remediation operations shall be maintained.

The following information shall be recorded:

- Details of waste materials removed from site for recovery / treatment or disposal;
- Materials imported and stockpiled;
- Details of any unacceptable / unsuitable materials encountered / received;
- Details of samples dispatched for laboratory testing;
- Volume of material placed and compacted;
- Plant operating;
- Site photographs including inspections of remediation excavations;
- Drawings confirming the extent of remediation excavations;
- Details of validation sampling and field testing completed;
- Stockpile management and details of approvals based on Materials Classification Tests. Details of any test failures and remedial works completed;
- Details of environmental monitoring, sampling and testing completed including details of any exceedances and remedial actions;
- Details of any complaints received and remedial actions.

This information shall be collated and presented together with the all results of environmental, geotechnical field and laboratory testing and waste transfer notes, in the form of a Validation Report for issue to the regulatory authorities.

9 | Geotechnical Assessment

A copy of the Geotechnical Engineering Report is provided in Appendix 9.

10 | Conclusions and Recommendations

The observations and results of the recent site investigations have revealed that ground conditions are broadly consistent with those encountered as part of the historic site investigation undertaken in 1998. This has revealed a relatively limited thickness of Made Ground (typically less than 1m) across much of the site.

Combustion residues including ash, clinker and slag materials were frequently found entrained within the fill materials, across much of the site, as is commonly found on former railway land. This was considered to be the likely source of the recorded heavy metal contamination including arsenic, copper, zinc, in addition to various PAH compounds.

Extensive petroleum hydrocarbon contamination was recorded in the vicinity of former fuel storage facilities and associated dispensing area. The recorded contamination poses a risk to occupants of any future residential development of the site and potentially to local controlled water resources.

A combination of source removal and engineering measures will need to be implemented to mitigate the risk to ensure:

- The site is rendered suitable for the proposed residential end use;
- The risk of statutory liability is minimised to ensure the protection of controlled water resources.

Source removal will include pumping and recovery of NAPL (floating diesel / oil) encountered in the vicinity of the former fuel storage facilities, and the selective excavation and on-site treatment (bioremediation) of soils grossly contaminated with diesel range organics encountered across a much wider area.

Fill / soil materials with ash and clinker may potentially be suitable for re-use as fill beneath building footprints / hard covered areas or as deeper fill beneath the clean soil cover system within proposed gardens and landscaped areas, where site levels allow. Capacity for materials re-use will be evaluated as specific issues including drainage strategy for the proposed scheme are progressed and likely finished floor levels are established.

There is very little soil present on site that would be considered suitable as growing medium. Appropriate allowances for import of suitable clean subsoil and topsoil should therefore be included in construction phase budgets.

Construction phase budgets will also need to include allowances for the incorporation of gas and hydrocarbon vapour resistant membranes within the oversites, over passively ventilated subfloor voids to mitigate the intrusion of hazardous gases and vapours. Upgraded materials with increased chemical resistance (barrier pipe or ductile iron) for new potable water supplies will also likely be required across much of the site.

Further investigation and monitoring will be required as part of the further evaluation of risks to local controlled water resources. A framework of remedial targets derived through Detailed Quantitative Risk Assessment (DQRA) may be needed to justify an acceptable level of residual contamination with the Environment Agency.

Whilst the proposed programme of source removal (NAPL and grossly contaminated soil), further regulatory reassurance may be secured through the introduction of Oxygen Release Compounds as part of the remediation scheme to ensure capacity of on-going naturally occurring removal of

residual contamination is maintained.

A number of the smaller tenant occupied units were either inaccessible or only limited access could be gained at the time of the recent investigation. Additional investigations will be needed across these areas to confirm the conjectured ground contamination profile and to ensure that the anticipated approaches identified within the Outline Remediation Scheme remain relevant.

Figure 1

Site Location Plan

HM Land Registry
Official copy of title plan

Title number **GR422489**
Ordnance Survey map reference **SO8418SW**
Scale **1:250**
Administrative area **Gloucestershire: Gloucester**

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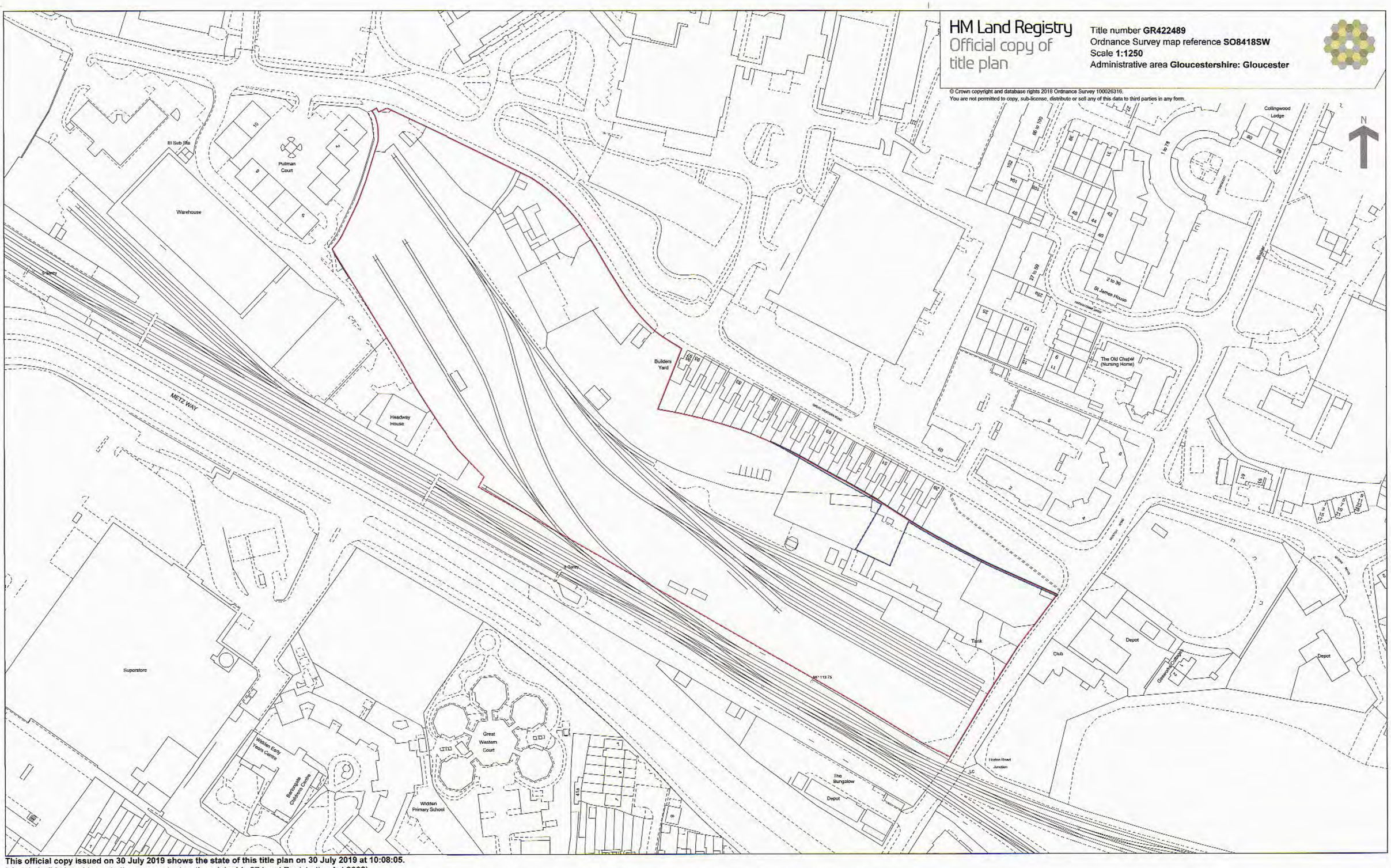


This official copy issued on 30 July 2019 shows the state of this title plan on 30 July 2019 at 10:08:05.
It is admissible in evidence to the same extent as the original (s.67 Land Registration Act 2002).
This title plan shows the general position, not the exact line, of the boundaries. It may be subject to distortions in scale. Measurements scaled from this plan may not match measurements between the same points on the ground.
This title is dealt with by HM Land Registry, Durham Office.

Figure 2

Site Layout Plan

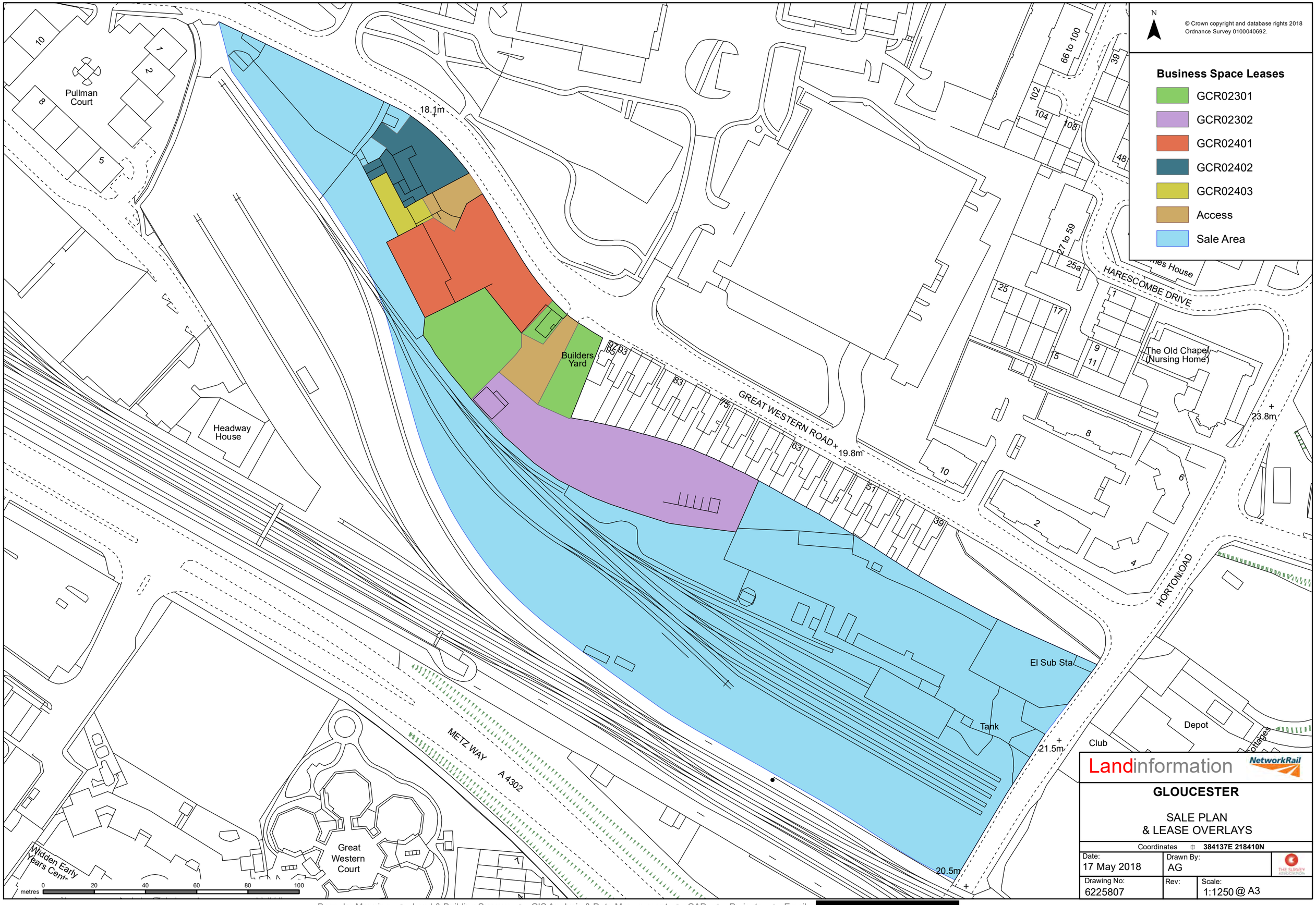

N
© Crown copyright and database rights 2018
Ordnance Survey 0100040692.
Business Space Leases
GCR02301
GCR02302
GCR02401
GCR02402
GCR02403
Access
Sale Area
Pullman Court
Headway House
Builders Yard
GREAT WESTERN ROAD
HARESCOMBE DRIVE
HORTON ROAD
METZ WAY
A 4302
The Old Chapel (Nursing Home)
Great Western Court
Widden Early Years Centre
El Sub Sta
Tank
Depot
Club
18.1m
19.8m
23.8m
21.5m
20.5m
metres
0
20
40
60
80
100
Landinformation
NetworkRail
GLOUCESTER
SALE PLAN
& LEASE OVERLAYS
Coordinates 384137E 218410N
Date: 17 May 2018
Drawn By: AG
Drawing No: 6225807
Rev:
Scale: 1:1250 @ A3

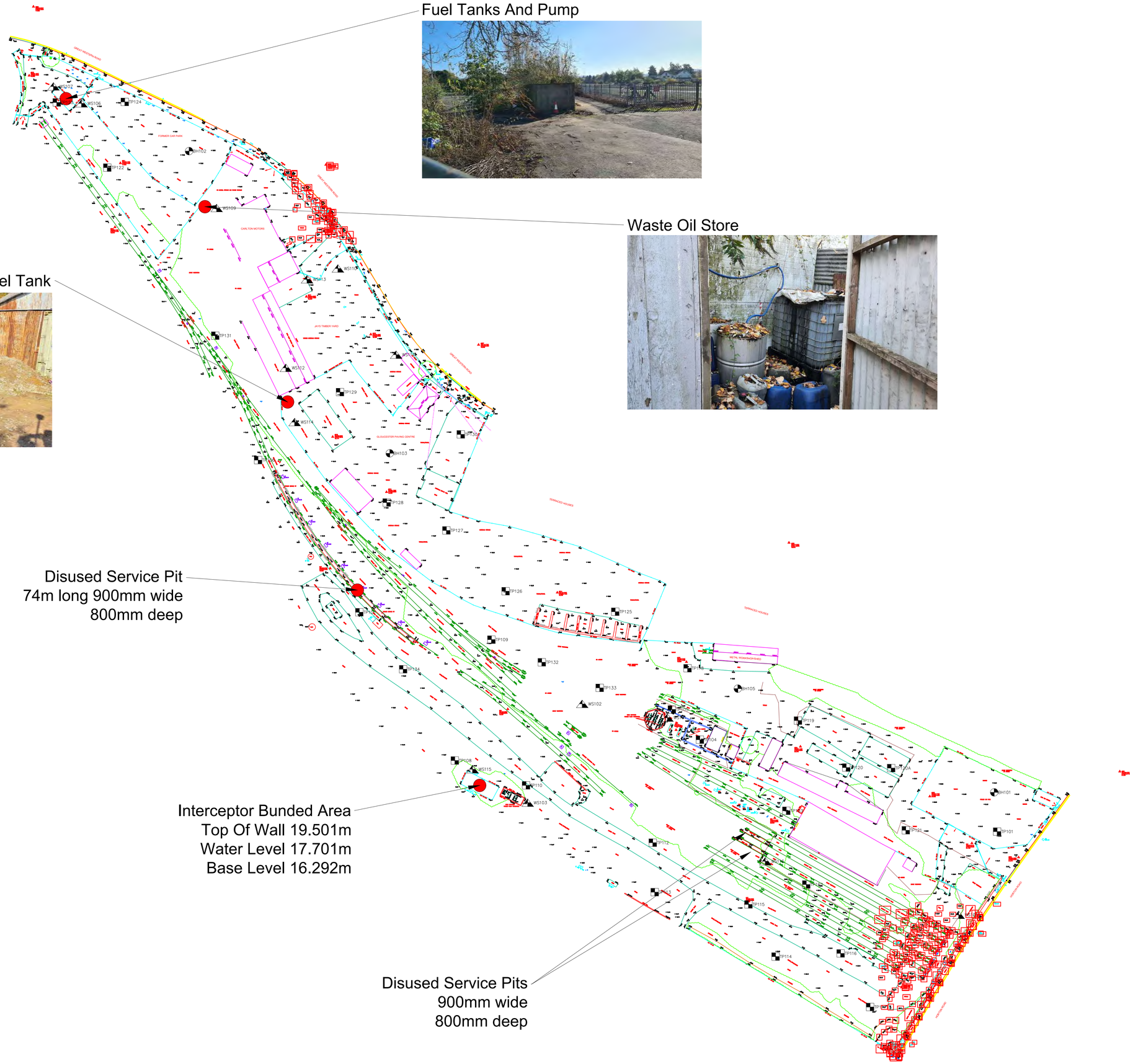
Figure 3

Exploratory Hole Location Plan

Fuel Tanks And Pump

Waste Oil Store

Fuel Tank



Disused Service Pit
74m long 900mm wide
800mm deep

Interceptor Bunded Area
Top Of Wall 19.501m
Water Level 17.701m
Base Level 16.292m

Disused Service Pits
900mm wide
800mm deep

N

MACHINE EXCAVATED TRIAL PIT

CABLE PERCUSSION BOREHOLE

DYNAMIC SAMPLER/PROBE LOCATION

Rev	Date	Details Of Issue	Dwn.	Chk.
B	30/09/20	Proposed locations adjusted	FL	SC
A	29/05/20	First Issue	FL	SC

Issues And Revisions

Project :

GREAT WESTERN YARD, GLOUCESTER

Client :

NETWORK RAIL

Title :

AS-BUILT SI LOCATION PLAN

Scale :	NOT TO SCALE	Drawn :	FL
Size :	A1	Checked :	SC
Sheet No. :	1	Date :	10/11/2020
Dwg No. :	20904/REM/004	Revision :	A

Status: INFORMATION

John F Hunt Regeneration Limited
London Road, Grays
Essex, RM20 4NB
[redacted]

John F Hunt
REGENERATION

Figure 4

Proposed Development Plan

John F Hunt
REGENERATION

DIMENSIONS ARE NOT TO BE SCALED FROM THIS DRAWING
THIS DRAWING IS COPYRIGHT

Option 1
Illustrated Scheme:

Affordable-

Houses-	17	41%
Apartments-	24	59%

Private

Houses-	63	39%
Apartments-	99	61%

Total

Affordable-	41	20%
Private-	162	80%
Total-	203	

REV	DATE	DRAWN	AUTH

STATUS
PRELIMINARY

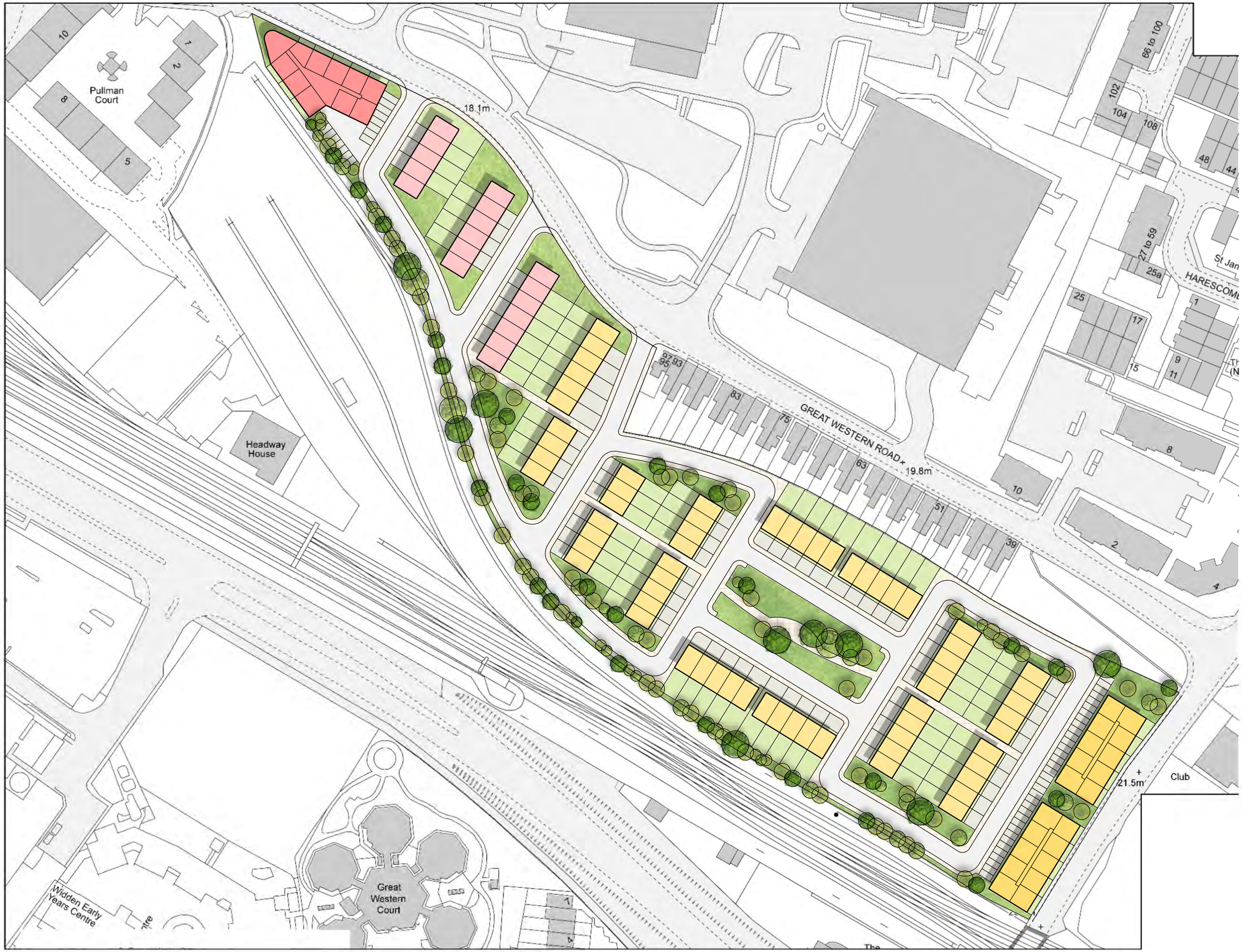
Haskoll
Architects and Designers
www.haskoll.co.uk
[redacted]

DRAWING TITLE
Sketch Proposal - Option 1

CLIENT
Network Rail
PROJECT
Gloucester GWRY

DATE	SCALE
December 2018	1:1250 @ A3
DRAWN	AUTH
JG	JG

DRAWING NUMBER	REVISION
3198-A-1001	A01



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THIS DRAWING IS COPYRIGHT

Option 2
Illustrated Scheme:

Affordable-

Houses-	18	35%
Apartments-	33	65%

Private

Houses-	66	40%
Apartments-	100	60%

Total

Affordable-	51	24%
Private-	166	76%
Total-	217	

REV	DATE	DRAWN	AUTH

STATUS
PRELIMINARY

Haskoll
Architects and Designers
www.haskoll.co.uk
[redacted]

DRAWING TITLE
Sketch Proposal - Option 2

CLIENT
Network Rail
PROJECT
Gloucester GWRY

DATE	SCALE
December 2018	1:1250 @ A3
DRAWN	AUTH
JG	JG

DRAWING NUMBER	REVISION
3198-A-1002	A01

Appendix 1

Cable Percussion Borehole Logs

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG

[redacted]

Borehole No. BH101

Sheet: 1 of 2

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384286.395384286.395 N: 218327.833218327.833	Ground Level (m): 21.28 Local Datum 21.28 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Asphalt	21.18		(0.10)
					MADE GROUND: Brown and black sandy gravelly clay. Gravel is brick			(1.00)
1.20		SS	SN=8	1,1/2,2,2,2	Firm brown sandy CLAY	20.18		1.10
1.20- 1.70		B						(1.20)
			SN=15	1,2/3,3,4,5				
2.00- 2.45		SS				18.98		2.30
2.30- 2.60		D			Medium dense orange brown very gravelly SAND			(0.50)
			SN=8	1,1/1,2,2,3	Stiff to very stiff dark grey slightly silty fissured CLAY	18.48		2.80
3.00- 3.45		SS						
3.80		D						
4.00- 4.45		U100						
4.45- 4.50		CSS						
			SN=20	3,4/4,5,5,6				
5.00- 5.45		SS						(5.10)
6.00		D						
			SN=35	3,5/7,9,12,15				
6.50- 6.95		SS						
7.50		D						
			SN=R	9,14/15,17,18 - 85mm short	Very stiff/hard dark bluish grey MUDSTONE	13.38		7.90
8.00- 8.37		SS						
			SN=R	10,15/16,19,15 - 100mm short				(1.60)
8.80- 8.85		D						
9.00		D						
			SN=R	7,8/10,18,22 - 80mm short		11.78		9.50
9.50- 9.87		SS						

End of Borehole 9.50 m
(Thickness of basal layer

Remarks:

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .1	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG

[redacted]

Borehole No. BH101

Sheet: 2 of 2

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384286.395384286.395 N: 218327.833218327.833	Ground Level (m): 21.28 Local Datum 21.28 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
6-10-20	00:00	9.50	3.00		End of borehole

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
9.50	150	150	3.00

not proven)

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed At (m)	Remarks
2.30 6.50	0.00 3.00			2.00	15	3.00	slow inflow water seepage

Remarks:

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .2	

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. BH101

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384286.395 N: 218327.833	Ground Level (m): 21.28 Local Datum 21.28 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 6 (m)

Installation Type : SP Depth to BASE Response Zone : 9 (m)

Installation Diagram

Depth	Remarks (Elevation)
0.3	Stopcock cover
	Bentonite seal
1	(20.28)
	Slotted standpipe with gravel annulus
3	(18.28)
	Bentonite seal
6	(15.28)
	slotted standpipe with gravel annulus
9	(12.28)
	Bentonite
	End of Hole 9.50 m

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG

[redacted]

Borehole No. BH102

Sheet: 1 of 3

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384015.299384015.299 N: 218543.748218543.748	Ground Level (m): 17.92 Local Datum 17.92 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Concrete	17.72		(0.20) 0.20
					MADE GROUND: Brown and black sandy gravelly clay. Sand is ash. Gravel is brick and concrete.	17.02		(0.70) 0.90
			SN=17	1,1/2,4,5,6	Firm brown slightly gravelly sandy CLAY	16.62		(0.40) 1.30
1.20- 1.65		SS			Medium dense orange brown gravelly SAND			
1.20- 1.70		B						
			SN=12	1,1/2,2,3,5				(1.40)
2.00- 2.45		SS						
2.70		D				15.22		2.70
			SN=8	1,1/1,2,2,3	Stiff to very stiff dark grey slightly silty fissured CLAY			
3.00- 3.45		SS						
3.80		D						
4.00- 4.45		U100						
4.45- 4.50		CSS						
			SN=20	2,3/3,4,5,8				
5.00- 5.45		SS						(5.10)
6.00		D						
			SN=37	4,5/6,8,11,12				
6.50- 6.95		SS						
7.50		D				10.12		7.80
			SN=R	5,7/9,12,16,13 - 25mm short	Very stiff/hard dark bluish grey MUDSTONE			
8.00- 8.43		SS						
9.00		D						
			SN=R	7,8/9,13,16,12 -50mm short				
9.50- 9.90		SS						(4.20)

Remarks:

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .1	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG

[redacted]

Borehole No. BH102

Sheet: 2 of 3

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384015.299384015.299 N: 218543.748218543.748	Ground Level (m): 17.92 Local Datum 17.92 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
10.50		D						
11.00- 11.37		SS	SN=R	7,9/11,17,22 - 80mm short				
11.50		D						
12.00- 12.32		SS	SN=R	9,13/16,19,15 130mm short		5.92		12.00

End of Borehole 12.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .2	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG

[redacted]

Borehole No. BH102

Sheet: 3 of 3

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384015.299384015.299 N: 218543.748218543.748	Ground Level (m): 17.92 Local Datum 17.92 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
7-10-20	00:00	12.00	4.00		End of borehole

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
12.00	150	150	4.00

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed At (m)	Remarks
1.30	0.00				15		

Water Added During Boring

From (m)	To (m)
3.00	12.00

Chiselling Details

From (m)	To (m)	Time Taken (hhmm)	Chiselling Tool Used	Notes
11.50	12.00	01:00		hard ground

Remarks:

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .3	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. BH102
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384015.299 N: 218543.748	Ground Level (m): 17.92 Local Datum 17.92 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 3 (m)

Installation Diagram	Depth	Remarks (Elevation)
	0.3	Stopcock cover
	1	Bentonite seal (16.92)
		Slotted standpipe with gravel annulus
	3	(14.92)
		Bentonite
		End of Hole 12.00 m

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG

[redacted]

Borehole No. BH103

Sheet: 1 of 2

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384082.882384082.882 N: 218441.985218441.985	Ground Level (m): 19.25 Local Datum 19.25 AOD	Date Started:05/10/2020 Date Completed:05/10/2010

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Asphalt	19.15		(0.10)
					MADE GROUND: Brown and black sandy gravel. Gravel is brick and concrete. sand is ash	18.75		(0.40) 0.50
					Loose to medium dense orange brown slightly gravelly SAND. Sand is fine to coarse			
			SN=21	1,2/4,5,7,5				
1.20- 1.65		SS						(1.80)
1.20- 1.70		B						
			SN=6	1,0/1,1,2,2				
2.00- 2.45		SS						
2.30		D				16.95		2.30
					Firm becoming stiff dark grey slightly silty fissured CLAY			
3.00- 3.45		U100						
3.45- 3.50		CSS						
			SN=13	1,2/2,3,4,4				
4.00- 4.45		SS						(4.00)
4.80		D						
			SN=41	2,5/7,9,11,14				
5.00- 5.45		SS						
6.00		D						
						12.95		6.30
			SN=R	5,7/10,16,24 - 80mm short	Very stiff/hard dark bluish grey MUDSTONE			
6.50- 6.87		SS						(0.70)
			SN=R	4,7/11,16,24 - 85mm short		12.25		7.00
7.00- 7.37		SS						

End of Borehole 7.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .1	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG

[redacted]

Borehole No. BH103

Sheet: 2 of 2

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384082.882384082.882 N: 218441.985218441.985	Ground Level (m): 19.25 Local Datum 19.25 AOD	Date Started:05/10/2020 Date Completed:05/10/2010

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
5-10-20	00:00	7.00	2.50		End of borehole

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
7.00	150	150	2.50

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed At (m)	Remarks
1.20 5.50	0.00			0.80	15	2.30	water seepage

Remarks:

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .2	

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. BH103

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384082.882 N: 218441.985	Ground Level (m): 19.25 Local Datum 19.25 AOD	Date Started:05/10/2020 Date Completed:05/10/2010

Installation Date : 05/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram	Depth	Related Remarks (Elevation)
	0.3	Stopcock cover
		Bentonite seal
	1	(18.25)
		Slotted standpipe with gravel annulus
	4	(15.25)
		Bentonite
		End of Hole 7.00 m

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Appendix 2

Window Sample Borehole Logs

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS101

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: concrete, 8mm rebar	-0.35		(0.35)
					MADE GROUND: grey sandy gravel, Subbase	-0.45		0.35 (0.10) 0.45
					MADE GROUND: Dark grey and black gravelly sand, Sand is ash. gravel is fine to coarse clinker	-0.60		(0.15) 0.60
0.70		J TUB			Moist greyish brown sandy GRAVEL, Gravel is fine to coarse sandstone. strong hydrocarbon odour			(0.60)
1.10		J TUB			...from 1.10 water seepage	-1.20		1.20
1.20- 1.65		SPTLS	SN=33	2,7/7,9,8,9	Greyish brown slightly gravelly SAND, Sand is fine to coarse. gravel is fine to medium sandstone. Moderate hydrocarbon odour			(0.60)
1.70		J TUB			...from 1.70 to 1.80 dark grey and strong hydrocarbon odour	-1.80		1.80
2.00- 2.45 2.20- 2.40		SPTLS D	SN=15	1,1/1,3,5,6	Brown and pale brown SAND, Sand is medium to coarse. random fine gravel of sandstone			(1.20)
2.80- 2.90		D				-3.00		3.00
3.00- 3.45		SPTLS	SN=8	1,1/1,2,2,3	Firm to stiff (medium strength) dark grey CLAY, Closely fissured. random fine shell fragments			
3.50- 3.60		D			...from 3.70 becoming stiff to very stiff			(2.00)
4.00- 4.45		SPTLS	SN=21	3,6/4,4,6,7	...from 4.00 lighter grey			
4.70- 4.90		D				-5.00		5.00
5.00- 5.45		SPTLS	SN=26	2,2/4,5,7,10				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS101

Installation Details & Readings

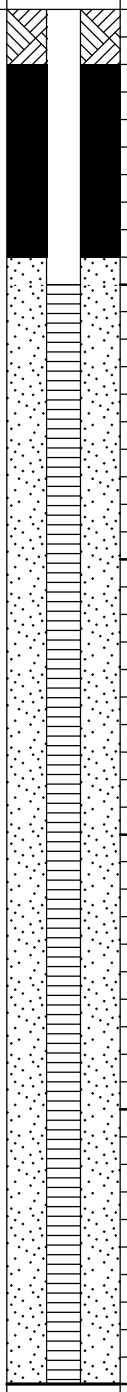
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS102

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
					MADE GROUND: gravel, Rail ballast		(0.25)
0.30		J TUB			MADE GROUND: gravelly sand, Gravel is rail ballast and sandstone	-0.25	0.25 (0.15)
					Orangeish brown gravelly SAND, Sand is fine to coarse. gravel is fine to medium chert and sandstone	-0.40	0.40
0.70		J TUB					(0.50)
1.00		J TUB			Grey and orangeish brown gravelly SAND, Sand is fine to coarse. strong hydrocarbon odour. ...from 0.95 becoming moist to wet	-0.90	0.90
1.20- 1.65		SPTLS	SN=38	8,12/10,10,9,9			(1.10)
1.50- 1.60		D					
						-2.00	2.00
2.10- 2.20		D			Brown and pale brown SAND, Sand is medium to coarse. slight hydrocarbon odour		(0.30)
2.00- 2.45		SPTLS	SN=14	1,0/0,2,4,8.	...from 2.00 sands blowing up casing to 1.5m	-2.30	2.30
					Orangeish brown SAND, Sand is fine to coarse. occasional fine gravel of sandstone		(0.80)
2.80- 2.90		D					
						-3.10	3.10
3.00- 3.45		SPTLS	SN=5	1,0/1,1,1,2	Firm to stiff (medium strength) dark grey CLAY, Closely fissured. rare fine shell fragments. occasional selenite crystals		
3.70- 3.90		D					(1.90)
4.00- 4.45		SPTLS	SN=18	1,3/2,4,6,6	...from 4.00 becoming bluey grey ...from 4.20 becoming stiff to very stiff		
4.70- 4.90		D					
						-5.00	5.00
			SN=32	2,2/5,6,10,11			

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at0.95m in service pit

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS102

Installation Details & Readings

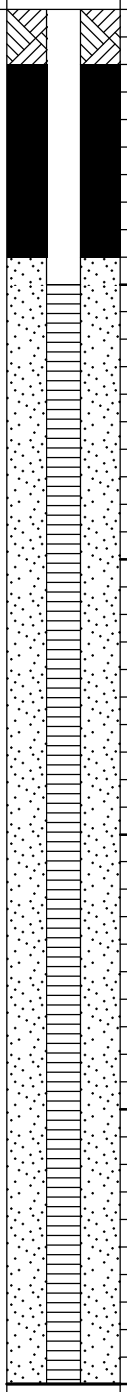
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	[redacted]
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park [redacted]
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS103

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: dark grey and black gravelly sand, Sand is fine to coarse ash. gravel is ballast and clinker			
0.40		J TUB						
0.80		J TUB						(1.40)
1.10		J TUB						
1.20- 1.30		D						
1.21- 1.66		SPTLS	SN=12	1,0/1,5,2,4	...from 1.20 to 1.40 hydrocarbon odour and oliy sheen	-1.40		1.40
					MADE GROUND: brown sand, Sand is fine to coarse	-1.50		(0.10) 1.50
					Grey and pale brown sandy GRAVEL, Gravel is brick sandstone and concrete. strong hydrocarbon odour			(0.50)
1.80- 1.90		D						
						-2.00		2.00
2.00- 2.23		SPTLS	SN=R	blows for 35mm penetration				

End of W/S 2.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1m. Refused at 2m on suspected concrete obstruction

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS103

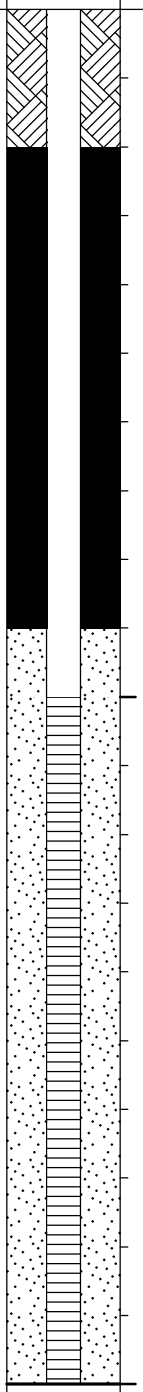
Installation Details & Readings

Sheet: 1 of 3

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
		Flush cover with concrete surround
	0.2	
		Bentonite
	0.9	
	1	(-1.00)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 2.00 m

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS104

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	-0.10		(0.10)
					MADE GROUND: brown with dark grey gravelly sand, Sand is fine to medium	-0.45		(0.35) 0.45
0.40		D J						
					MADE GROUND: yellowish brown with tan gravelly sand, Gravel is brick. frequent whole bricks	-0.95		(0.50) 0.95
0.80		D J						
1.10		D			MADE GROUND: moist to wet brown with pale brown very gravelly sand, Sand is medium to coarse. gravel is fine to coarse sandstone, concrete and brick	-1.20		(0.25) 1.20
1.20- 1.65		SPTLS	SN=37	2,10/2,20,9,6	MADE GROUND: wet grey with red sandy gravel, Gravel comprises fine to coarse brick, concrete and clinker. sand is medium to coarse			
1.50- 1.70		D						(0.90)
						-2.10		2.10
2.00- 2.45		SPTLS	SN=26	4,4/6,6,6,8	Wet brown with pale brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sub angular sandstone.			
2.40- 2.60		D						(0.80)
						-2.90		2.90
					Moist brown slightly clayey SAND, Sand is fine to medium. slight clay binder	-3.00		(0.10) 3.00
3.00- 3.45 3.20- 3.30		SPTLS D	SN=11	0,1/1,2,4,4	Stiff to very stiff (high strength) dark grey CLAY, Closely fissured. random fine shell fragments			
3.80- 3.90		D						(2.00)
4.00- 4.45		SPTLS	SN=21	1,2/3,5,6,7				
4.70- 4.90		D						
						-5.00		5.00
5.00- 5.45		SPTLS	SN=35	2,5/6,7,10,12				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.06m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS104

Installation Details & Readings

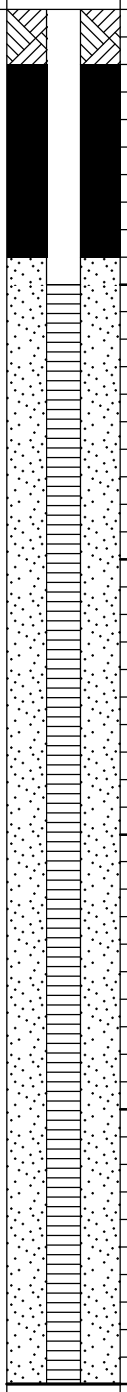
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS105

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
0.30		J TUB			MADE GROUND: dark grey and black very gravelly sand, Sand is medium to coarse ash. gravel is fine to medium clinker. occasional brick	-0.46	(0.46) 0.46
					Orangeish brown very sandy CLAY, Sand is medium to coarse	-0.60	(0.14) 0.60
0.80		J TUB			Moist orangeish brown gravelly SAND ...from 1.00 groundwater	-1.20	(0.60) 1.20
1.20- 1.65		SPTLS	SN=20	0,5/4,4,6,6	Orangeish brown SAND, Sand is fine to coarse. random gravel of sandstone		
1.50- 1.70		D					
2.00- 2.45		SPTLS	SN=21	1,2/4,5,6,6			(1.80)
2.60- 2.80		D				-3.00	3.00
3.00- 3.45		SPTLS	SN=5	0,0/0,1,2,2	Soft to firm (low strength) dark grey CLAY	-3.70	(0.70) 3.70
3.70- 3.90		D			Firm to stiff (medium strength) dark grey CLAY, Random shell fragments. random fine gravel sized mudstone		
4.00- 4.45		SPTLS	SN=22	3,3/4,4,5,9	...from 4.40 becoming very stiff		(1.30)
4.70- 4.90		D			...from 4.75 to 4.85 thin laminations of mudstone/ shale	-5.00	5.00
5.00- 5.45		SPTLS	SN=26	2,3/4,5,7,10			

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.0m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS105

Installation Details & Readings

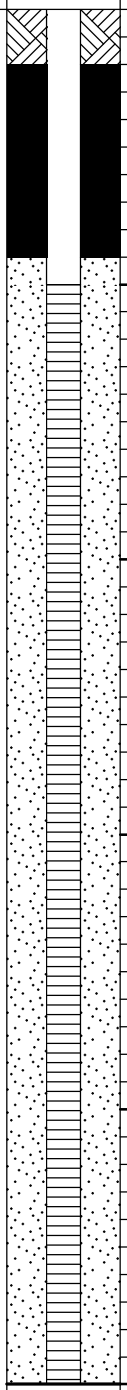
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:07/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park [redacted]
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS106

Equipment & Methods. Dando Terrier _Support Used:None _Backfill: Arisings	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	-0.05		(0.05)
0.20		D			MADE GROUND: brown with grey silty sandy gravel, Gravel is fine to coarse rail ballast. frequent fine roots	-0.20		(0.15) 0.20
0.40		J TUB			MADE GROUND: dark grey with light brown sandy gravel, Gravel is fine to coarse ballast and sandstone. occasional brick and clinker			(0.50)
					...from 0.60 water seepage	-0.70		0.70

End of W/S 0.70 m
(Thickness of basal layer not proven)

Remarks:
Trial pit refused at 0.7m on ground too dense to penetrate. Water at 0.58m upon completion

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS106A

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	-0.05		(0.05)
0.25		J TUB			MADE GROUND: grey and pinkish grey very sandy gravel, Gravel is fine to coarse type 1 and rail ballast	-0.37		(0.32) 0.37
0.40		J TUB			MADE GROUND: Dark grey sandy gravel, Gravel is fine to coarse rail ballast and occasional clinker	-0.70		(0.33) 0.70
0.70		J TUB			Yellowish brown silty clayey SAND, Sand is fine to medium. occasional roots upto 1mm diameter to 1.3m	-1.20		(0.50) 1.20
1.00- 1.45		SPTLS	SN=11	0,0/0,2,3,6				
1.30- 1.40		D			...from 1.13 water strike Orangeish brown slightly gravelly SAND, Sand is fine to coarse. gravel is fine to medium sub angular sandstone	-2.00		(0.80) 2.00
1.90- 2.00		D						
			CN=3	1,3/1,1,0,1				

End of W/S 2.00 m
(Thickness of basal layer not proven)

Remarks:
Hand dug pit to 1.2m. Window sample refused with sand blowing up through casing. DP carried out through base

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
[redacted]

Hole ID. WS106A

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:05/10/2020

Installation Date : 05/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 2 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
		Flush cover with concrete surround
	0.2	
		Bentonite
	0.9	
	1	(-1.00)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 2.00 m
		(-2.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS107

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	-0.05		(0.05)
0.30		J TUB			MADE GROUND: Dark grey sandy gravel, Gravel is medium to coarse rail ballast. occasional cobbles of slag. sand is ash			(0.65)
0.60		J TUB				-0.70		0.70
1.00		D			Orangeish silty slightly clayey SAND, Sand is fine to coarse			(0.40)
1.01- 1.46		SPTLS	SN=15	0,0/1,2,5,7	Orangeish brown slightly silty SAND, Sand is fine to coarse	-1.10		1.10
1.30- 1.40		D			...from 1.25 water level in SPT			(0.45)
1.60- 1.70		J TUB			Moist dark grey SAND, Sand is fine to coarse. slight organic odour	-1.55		1.55
1.90- 2.00		D			Brown with pale brown slightly gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	-1.75		(0.20) 1.75
2.00- 2.45		SPTLS	SN=3	1,2/1,1,0,1				(0.75)
2.40- 2.50		D				-2.50		2.50
2.80- 3.00		D			Stiff to very stiff (high strength) dark grey fissured CLAY, Random selenite crystals			
3.00- 3.45		SPTLS	SN=10	0,0/2,2,3,3				
3.70- 3.90		D			...from 3.60 frequent fine shell fragments			(2.50)
4.00- 4.45		SPTLS	SN=26	3,3/4,6,7,9	...from 4.00 becoming very stiff to hard			
4.70- 4.90		D				-5.00		5.00
5.00- 5.45		SPTLS	SN=50	2,5/8,14,16,12				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.25m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS107

Installation Details & Readings

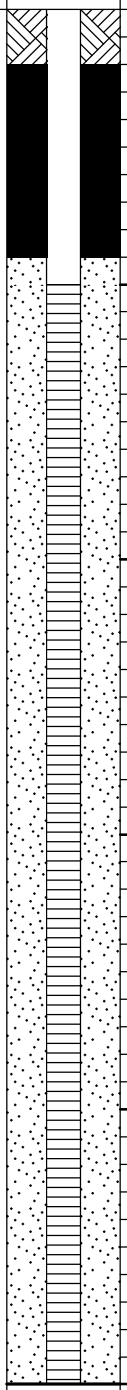
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:05/10/2020

Installation Date : 05/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS109

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: dark grey and pinkish grey sandy gravel, Type 1 hardcore	-0.20		(0.20) 0.20
0.40		J TUB			MADE GROUND: light brown and reddish brown sandy gravel, Gravel is brick and concrete	-0.70		(0.50) 0.70
0.70		J TUB			Moist orangeish brown sandy CLAY, Sand is medium to coarse	-1.10		(0.40) 1.10
1.00		D			Moist to wet orangeish brown clayey SAND	-1.20		(0.10) 1.20
1.30- 1.40		D			Orangeish brown SAND, Sand is medium to coarse			
1.20- 1.65		SPTLS	SN=4	0,1/1,1,1,1		-1.60		(0.40) 1.60
1.60- 1.70		D			Soft (low strength) grey and orangeish brown sandy slightly gravelly CLAY, Sand is fine to coarse. gravel is fine chert	-1.70		(0.10) 1.70
					Orangeish brown SAND, Sand is medium to coarse	-1.90		(0.20) 1.90
					Brown very sandy CLAY, Sand is fine to coarse			
2.00- 2.45		SPTLS	SN=5	2,1/2,1,1,1		-2.30		(0.40) 2.30
					Firm (medium strength) dark grey CLAY, Random fine shell fragments. slightly fissured			
2.80- 2.90		D						
3.00- 3.45		SPTLS	SN=7	1,2/1,2,2,2	...from 3.00 to 4.00 no recovery- possible mudstone cobble pushed down side of hole.	-4.00		(1.70) 4.00
4.00- 4.45		SPTLS	SN=16	4,3/3,4,4,5				

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS109

Installation Details & Readings

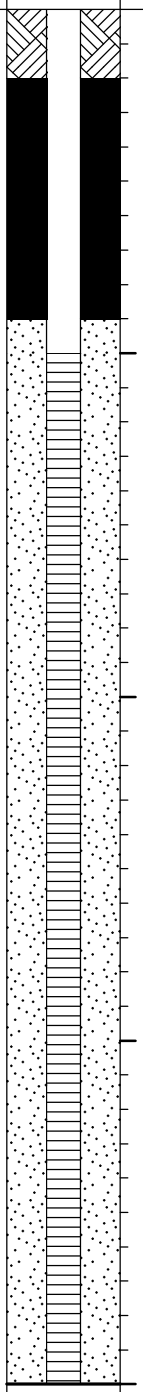
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 4.00 m
	(-4.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS110

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
					MADE GROUND: asphalt	-0.05	(0.05)
0.30		J TUB			MADE GROUND: brownish grey with blackish red sandy gravel, Gravel is brick, concrete, sandstone	-0.40	(0.35) 0.40
0.70		J TUB			Soft (low strength) orangeish brown silty very sandy CLAY, Sand is fine to medium	-0.75	(0.35) 0.75
1.10- 1.20		D			Moist orangeish brown very gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	-1.20	(0.45) 1.20
1.20- 1.65		SPTLS	SN=21	1,5/5,6,5,5	Orangeish brown and pale brown slightly gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone		
1.60- 1.80		D			...from 1.50 to 1.60 clayey sand	-2.00	(0.80) 2.00
2.00- 2.45		SPTLS	SN=6	0,0/0,2,2,2	Soft to firm (low strength) dark grey CLAY		
2.70- 2.90					...from 2.40 becoming slightly fissured		
3.00- 3.45		SPTLS	SN=7	1,1/2,1,2,2	...from 3.00 becoming firm		(3.00)
3.60- 3.70		D			...from 3.50 becoming closely fissured		
4.00- 4.45		SPTLS	SN=11	2,2/2,3,3,3			
4.70- 4.90		D				-5.00	5.00
5.00- 5.45		SPTLS	SN=12	1,2/2,3,3,4			

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.17m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

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Hole ID. WS110

Installation Details & Readings

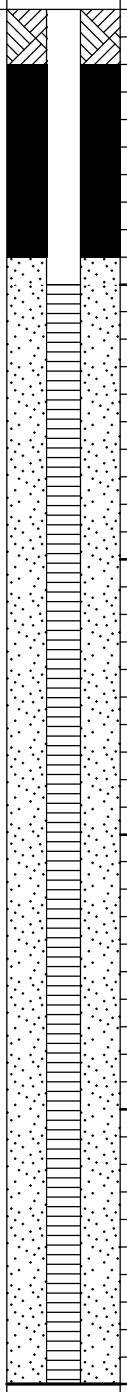
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS111

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	-0.06		(0.06)
					MADE GROUND: Pinkish grey sandyn gravel, Type 1 subbase	-0.20		(0.14) 0.20
0.40		J TUB			MADE GROUND: brownish grey and dark grey sandy gravel, Sand is ash. gravel comprises clinker, concrete, slag and brick. occasional metal fragments	-0.70		(0.50) 0.70
0.80		J TUB			MADE GROUND: orangeish brown with dark grey sandy slightly gravelly clay, Gravel is carbon and brick fragments	-0.90		(0.20) 0.90
					Moist orangeish brown clayey slightly gravelly SAND, Sand is fine to coarse	-1.00		(0.10) 1.00
					Orangeish brown with pale brown slightly gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	-1.20		(0.20) 1.20
1.30- 1.40 1.20- 1.65		D SPTLS	SN=19 19	1,2/3,5,5,6	Wet orangeish brown SAND, Sand is fine to coarse	-1.75		(0.55) 1.75
1.80- 1.90		D			Dark grey slightly gravelly CLAY, Gravel is sub rounded chert	-1.95		(0.20) 1.95
			SN=22	2,3/5,6,6,5	Wet orangeish brown SAND, Random fine gravel of sandstone	-3.00		(1.05) 3.00
2.70- 2.90		D						
			SN=12	0,2/1,3,3,5	Dark grey CLAY, Closely fissured. random shell fragments	-4.00		(1.00) 4.00
3.70- 3.90		D						
			SN=16	1,1/3,3,4,6				

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.1m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS111

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(-1.00)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 4.00 m
		(-4.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS112

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
					MADE GROUND: concrete	-0.10	(0.10) 0.10
0.30		J TUB			MADE GROUND: brown and grey sandy silty gravel, Gravel is medium to coarse concrete and roadstone . random large rusted metal fragments	-0.35	(0.25) 0.35
					Dark grey and brown gravelly SAND, Sand is medium to coarse ash. gravel is concrete and rare brick	-0.60	(0.25) 0.60
					Soft (low strength) orangeish brown silty very sandy CLAY, Sand is fine to coarse	-0.80	(0.20) 0.80
0.90		J TUB			Wet orangeish brown sandy GRAVEL, Gravel is fine to medium sandstone. sand is medium to coarse	-1.00	(0.20) 1.00
					Wet orangeish brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone		(0.40)
1.30- 1.40 1.20- 1.65		D SPTLS	SN=24	4,6/5,6,6,7		-1.40	1.40
					Wet orangeish SAND, Sand is medium to coarse		(1.20)
2.20- 2.30		D	CN=0	1,0/0,0,0,0			
					Firm (medium strength) dark grey CLAY	-2.60	2.60
2.80- 3.00		D					(0.40)
						-3.00	3.00
3.00- 3.45		SPTLS	SN=12	0,1/2,2,4,4			

End of W/S 3.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.02

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS112

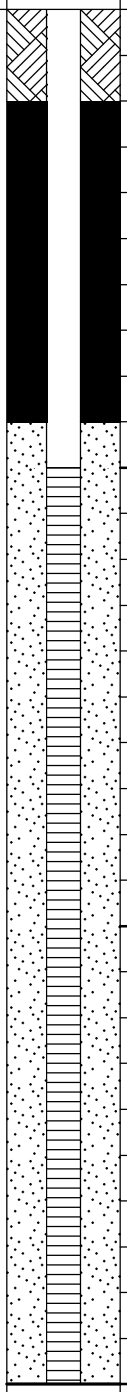
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 3 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(-1.00)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 3.00 m
		(-3.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Ground and Environmental Services Limited

Unit 2 Montpelier Business Park [redacted]
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS113

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	-0.05		(0.05)
					MADE GROUND: pinkish grey sandy gravel, Type 1 subbase	-0.15		(0.10)
0.30		J TUB			MADE GROUND: light grey and dark grey sandy gravel, Gravel is medium to coarse clinker, concrete and occasional brick	-0.50		(0.35) 0.50
0.55		J TUB			MADE GROUND: dark grey and black sandy gravel, Sand is ash. gravel is fine to coarse clinker. slight hydrocarbon odour	-0.75		(0.25) 0.75
					...from 0.55 becoming moist to wet oliy sheen			(0.20)
1.00- 1.10		D			Olive olive and orangeish brown sandy CLAY	-0.95		0.95
					Orangeish brown and olive brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	-1.30		(0.35) 1.30
1.20- 1.65		SPTLS	SN=8	2,4/3,1,1,3	Firm (medium strength) dark grey slightly gravelly CLAY, Gravel is fine to medium sub rounded chert	-1.50		(0.20) 1.50
1.70- 1.80		D			Wet orangeish brown SAND, Sand is medium to coarse	-2.10		(0.60) 2.10
2.00- 2.45		SPTLS	SN=6	0,0/0,1,1,4	Firm to stiff (medium strength) dark grey CLAY			
2.70- 2.90		D						(0.90)
						-3.00		3.00
3.00- 3.45		SPTLS	SN=10	0,0/2,2,3,3				

End of W/S 3.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.1m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS113

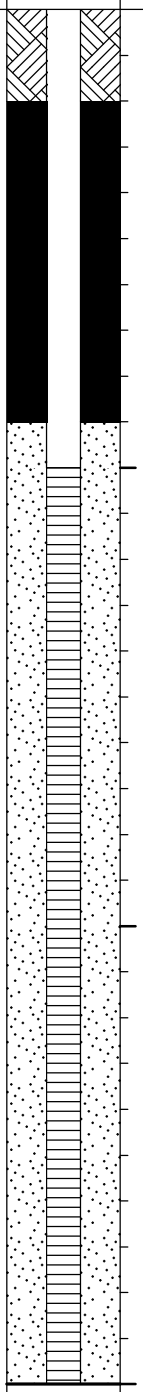
Installation Details & Readings

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 3 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 3.00 m
	(-3.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS114

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: pinkish grey sandy gravel, Gravel is type 1 subbase	-0.15		(0.15) 0.15
0.40		J TUB			MADE GROUND: greyish brown and grey sandy silty gravel, Gravel comprises brick, concrete and tile. frequent metal fragments. rare fragments of roofing tile at 0.75m possibleacm. metal corrugated sheet at 0.7m. occasional plastic and glass fragments			(0.65)
0.75		J TUB				-0.80		0.80
1.00		J TUB			MADE GROUND: dark grey and black gravelly sand, Sand is fine to coarse ash. gravel is fine to medium slag and clinker			(0.35)
1.01- 1.46		SPTLS	SN=9	2,3/1,1,2,5	Moist orangeish brown slightly gravelly SAND, Sand is fine to coarse. gravel is fine to medium sub angular sandstone	-1.15		1.15
1.50- 1.60		D						(0.65)
					Moist to wet orangeish brown SAND, Sand is medium to coarse	-1.80		1.80
2.00- 2.45		SPTLS	SN=33	1,2/4,7,9,13				
2.60- 2.70		D						(2.15)
					...from 2.90 to 3.00 much fine to medium gravel of sandstone			
3.00- 3.45		SPTLS	SN=18	3,4/4,5,3,6				
3.70- 3.90		D						
					Firm to stiff dark grey closely fissured CLAY	-3.95 -4.00		3.95 (0.05) 4.00
4.00- 4.45		SPTLS	SN=19	1,2/4,4,5,6				

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.15m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS114

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:07/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(-1.00)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 4.00 m
		(-4.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 9/10/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS115

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: dark brown gravelly very silty sand, Frequent fine roots. sand is ash.	-0.10		(0.10) 0.10
0.25		D			Dark brown and dark grey gravelly SAND, Sand is fine to coarse ash. gravel is clinker and occasional rail ballast. occasional bricks. occasional metal fragments. occasional roots up to 5mm diameter			
0.60		J TUB						(1.00)
1.10		D				-1.10		1.10
					Moist greyish brown gravelly SAND, Gravel comprises fine to medium sandstone. strong hydrocarbon odour.			
1.40 1.20- 1.65 1.40- 1.50		J SPTLS TUB	SN=1	2,1/0,0,0,1				(0.50)
						-1.60		1.60
					Moist to wet greyish brown gravelly SAND, Gravel comprises fine to coarse sub angular sandstone. strong hydrocarbon odour			(0.30)
						-1.90		1.90
					Moist to wet dark brown and greyish brown SAND, Sand is fine to coarse. strong hydrocarbon odour			
2.20 2.00- 2.45 2.20- 2.30		J SPTLS TUB	SN=33	1,3/5,7,8,13				(0.75)
						-2.65		2.65
					Brown and pale brown slightly gravelly SAND, Sand is medium to coarse. occasional gravel of sandstone			(0.35)
2.80- 2.90		D						
						-3.00		3.00
					Soft to firm (low strength) dark grey CLAY			
3.00- 3.45 3.20- 3.40		SPTLS D	SN=5	1,0/0,2,1,2				(0.60)
						-3.60		3.60
					Stiff to very stiff (high strength) dark grey CLAY, Random fine shell fragments			
3.80- 4.00		D						
			SN=26	1,3/4,6,8,8				(1.40)
						-5.00		5.00
5.00- 5.45		SPTLS	SN=28	2,3/4,6,8,10				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS115

Installation Details & Readings

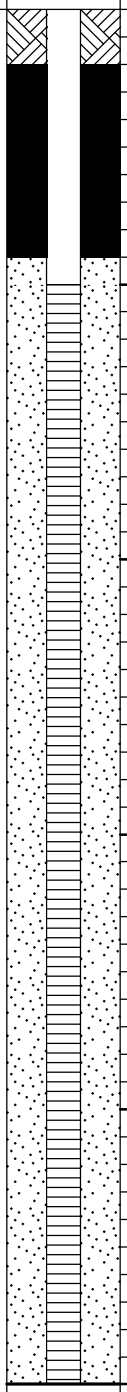
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

Window
Sampler Log No. WS116

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: concrete, 8mm rebar	-0.25		(0.25) 0.25
0.50		J TUB			Dark grey and black gravelly SAND, Sand is ash. gravel is fine to coarse clinker, slag, concrete and brick	-0.70		(0.45) 0.70
1.00		J TUB			Moist orangeish brown gravelly SAND, Gravel is fine to coarse sandstone. sand is medium to coarse ...from 1.00 becoming moist ...from 1.10 water level	-1.20		(0.50) 1.20
1.20- 1.65		SPTLS	SN=26	2,7/6,6,7,7	Moist to wet orangeish brown SAND, Sand is medium to coarse	-1.80		(0.60) 1.80
1.50- 1.70		D			Brown and pale brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	-2.00		(0.20) 2.00
2.20- 2.30		D	CN=25	0,3/4,6,8,7	Orangeish brown and pale brown SAND, Sand is fine to coarse.			
2.70- 2.90		D			...from 2.80 becoming gravelly. gravel is sandstone			(1.90)
			CN=7	4,6/3,2,1,1				
3.60- 3.80		D				-3.90		3.90
4.00- 4.45		SPTLS	SN=23	2,4/4,5,6,8	Dark grey CLAY, Closely fissured . rare fine shell fragments			(1.10)
4.70- 4.90		D				-5.00		5.00
5.00- 5.45		SPTLS	SN=25	2,4/4,6,7,8				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG

[redacted]

Hole ID. WS116

Installation Details & Readings

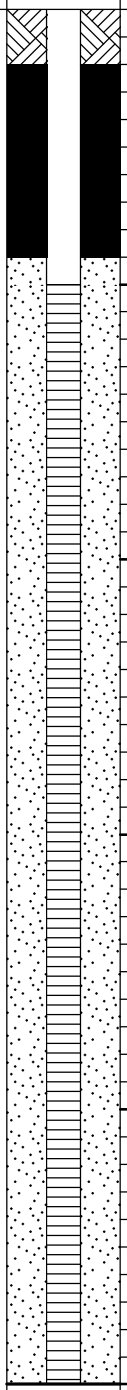
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: J F Hunt Remediation	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:06/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(-1.00)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 5.00 m
	(-5.00)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Appendix 3

Trial Pit Logs

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 101

Sheet: 1 of 2

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384287 N: 218315	Ground Level (m): 21.35 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement, asphalt.	21.30		(0.05)
					MADE GROUND: Very loose dull red brown very sandy angular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse.			(0.45)
0.40		T/MJ/SJ		PID - 0.0ppm				
					MADE GROUND: Railway Ballast: Loose yellow brown, stained dark grey ashy sandy angular to subrounded fine to coarse GRAVEL of ash and clinker. Sand is medium to coarse.	20.85		0.50 (0.35)
					MADE GROUND: Ash Ballast: Black ashy very gravely medium to coarse SAND. Gravel is angular to subrounded fine to coarse sandstone, ash and clinker.	20.50		0.85 (0.75)
1.10		T/MJ/SJ		PID - 0.0ppm				
					Orange brown wet silty gravely medium to coarse SAND. Gravel is angular to subrounded fine to medium sandstone. Sand becomes very wet below 2.6m.	19.75		1.60 (1.70)
2.40		T/MJ/SJ		PID - 0.0ppm				
						18.05		3.30

End of Trial Pit 3.30 m
(Thickness of basal layer

Remarks:
Stability: Unstable .Sides caving in below 2m.
Extensive staining between 0.3 and 0.4m.
Sheen on water surface.
Ground water - medium inflow at 2.4m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No. .1	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt REGENERATION	**John F Hunt Regeneration Limited** London Road, Grays, Essex RM40 4DB	Trial Pit No. 101 Sheet: 2 of 2

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384287 N: 218315	Ground Level (m): 21.35 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
						not proven)		

Remarks:

Stability: Unstable .Sides caving in below 2m.
Extensive staining between 0.3 and 0.4m.
Sheen on water surface.
Ground water - medium inflow at 2.4m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No. .2	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 102

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384223 N: 218297	Ground Level (m): 20.09 AOD	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	19.99		(0.10) 0.10
0.50		T/MJ/SJ		PID - 0.2ppm	Orange brown very moist slightly silty fine to coarse SAND and rounded to subangular fine to medium GRAVEL of sandstone. Becoming increasingly wet and sandy below 0.6m.			(1.30)
						18.69		1.40

End of Trial Pit 1.40 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 0.5m.
Ground water - rapid inflow at 1.4m.
Excavation terminated due to ground water and instability.

Logged By:	Checked By:
S.P.	
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 103

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384216 N: 218322	Ground Level (m): 20.11 AOD	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	20.01		(0.10)
0.15		T/MJ/SJ		PID - 1.4ppm	MADE GROUND: Railway Ballast: Loose brown, stained black, ashy very sandy angular to subrounded fine to medium GRAVEL of granite ash and clinker. Sand is fine to medium.	19.96		0.10 (0.05) 0.15
					MADE GROUND: Soft moist orange brown, stained black, ashy very sandy CLAY with some clinker. Sand is fine to medium.			(0.45)
0.60		T/MJ/SJ		PID - 7.5ppm	Orange brown moist gravely medium to coarse SAND. Gravel is angular to subrounded fine to medium sandstone and flint. Becoming decreasingly gravely below 0.9m.	19.51		0.60 (0.50)
1.10		T/MJ/SJ		PID - 0.3ppm	Stained grey wet slightly gravely SAND. Gravel is subangular fine to coarse sandstone.	19.01		1.10 (1.40)
2.50		T/MJ/SJ		PID - 20.3ppm		17.61		2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.2m.
Plastic membrane at 0.1m.
Metal pipe (presumably from fuel tank) running North to South at 0.45m.
Hydrocarbon odour below 1.9m.
Ground water - medium-fast inflow at 1.5m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 104

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384187 N: 218346	Ground Level (m): 19.57 AOD	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	19.41		(0.16) 0.16
0.40		T/MJ/SJ		PID - 31.9ppm	MADE GRAVEL: Brown, extensively stained black, ashy gravely SAND and soft silty CLAY. Gravel is subangular fine to medium clinker, ash and granite.	18.87		(0.54) 0.70
1.00		T/MJ/SJ		PID - 98.3ppm	MADE GROUND: Medium dense stained black very clayey very sandy angular to subrounded fine to medium GRAVEL of sandstone. Sand is fine to medium.	18.27		(0.60) 1.30
1.50		T/MJ/SJ		PID - 120.6ppm	Soft moist brown, stained black, very clayey SAND and angular to subrounded fine to coarse GRAVEL of sandstone.	17.57		(0.70) 2.00
2.50		T/MJ/SJ		PID - 12.9ppm	Orange brown moist fine to coarse SAND becoming gravely below 2.3m. Gravel is angular to subrounded fine to medium of sandstone and flint.	16.97		(0.60) 2.60

End of Trial Pit 2.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1m.
Very strong hydrocarbon odour below 0.8m and weak below 2m.
Extensive staining at the south end of TP at 1.4m.
Sheen on water surface.
Ground water - medium inflow at 1.35m and medium-strong below 2m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 105

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 284178 N: 218356	Ground Level (m): 19.50 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	19.30		(0.20) 0.20
0.50		T/MJ/SJ		PID - 4.5ppm	MADE GRAVEL: Dark brown, extensively stained black, ashy gravely SAND and silty CLAY. Gravel is subangular fine to medium clinker, ash and granite.	18.90		(0.40) 0.60
1.10		T/MJ/SJ		PID - 58.2ppm	Dark brown moist fine to coarse SAND becoming very gravely below 1.3m. Gravel is angular to subrounded fine to Coarse of sandstone and flint.			(1.00)
1.60		T/MJ/SJ		PID - 53.4ppm		17.90		1.60

End of Trial Pit 1.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 0.9m.
Hydrocarbon odour below 0.6m.
Heavy sheen on water surface.
Ground water - slow inflow at 1.1m
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 106

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 4.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384039 N: 218440	Ground Level (m): 18.55 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Black slightly moist very loose very ashy very gravely fine to coarse SAND. Gravel is fine to medium of ash, clinker and gravel (railway ballast).			(0.40)
0.40		T/MJ/SJ		PID - 0.0ppm		18.15		0.40
					MADE GROUND: Fill: black very loose very ashy SAND with clinker and black slag recovered in medium gravel to large cobbles and bolder fragments. Rare pockets of slag.			(0.45)
0.70		T/MJ/SJ		PID - 0.0ppm		17.70		0.85
					Soft moist dark yellow, stained black-grey, silty very sandy gravely CLAY. Gravel is fine to medium angular to subrounded sandstone.			(0.35)
1.20		T/MJ/SJ		PID - 0.0ppm		17.35		1.20
					Dark yellow moist, wet below 1.5m, slightly clayey silty fine to coarse gravely SAND. Gravel is fine to medium angular to subrounded sandstone.			(0.40)
						16.95		1.60

End of Trial Pit 1.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.2m.
Ground water - slow inflow at 1.5m.
Very strong odour of tar between 0.5-0.85m.
Excavation terminated due to old lead cable (70mm in diameter) at 0.8m and lack of space for arisings after TP was extended to South.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 107

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384073 N: 218388	Ground Level (m): 18.84 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.10		T/MJ/SJ		PID - 0.2ppm	MADE GROUND: Black slightly moist very loose very ashy very gravely fine to coarse SAND. Gravel is fine to medium of ash, clinker and gravel (railway ballast).	18.74		(0.10) 0.10
					MADE GROUND: Very loose dark brown black very ashy clayey very sandy angular to rounded fine to coarse GRAVEL of crushed concrete, brick, sandstone and green and white slag with cobbles and boulders of crushed concrete.			(0.60)
0.60		T/MJ/SJ		PID - 0.1ppm		18.14		0.70
					Dark yellow moist silty clayey slightly gravely SAND becoming increasingly gravely below 1.3. Gravel is angular to rounded fine to medium sandstone.			
1.30		T/MJ/SJ		PID - 0.0ppm				(1.60)
						16.54		2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.8m.
Sheen on water surface.
Ground water - slow inflow at 1.4 and fast at 2.1m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 108

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384105 N: 218339	Ground Level (m): 19.28 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		T/MJ/SJ		PID - 0.5ppm	MADE GROUND: Fill: Very loose black very ashy slightly clayey sandy angular to subrounded fine to bobble size GRAVEL of green slag, red brick, clinker, granite and sandstone. Sand is fine to coarse.	18.88		(0.40)
0.70		T/MJ/SJ		PID - 0.5ppm	MADE GROUND: Fill: Black dry ashy clayey medium to coarse SAND and angular to subrounded fine to cobble size GRAVEL of green slag, clinker, red brick and crushed concrete.	18.43		0.40 (0.45)
1.30		T/MJ/SJ		PID - 0.7ppm	Soft moist, becoming wet below 1.5m, dark yellow brown very sandy gravely CLAY. Gravel is subangular to subrounded fine to medium sandstone.	17.68		0.85 (0.75)
					Dark yellow moist silty slightly gravely fine to medium SAND. Gravel is subrounded to subangular fine to medium sandstone.	17.08		1.60 (0.60)
								2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.3m.
Red brick stepped foundation of an outer wall runs North to South 0.5m deep.
Sheen on water surface.
Ground water - slow-medium inflow at 1.m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 109

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384117 N: 218379	Ground Level (m): 18.94 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Railway ballast: Very loose black very ashy very sandy angular to subangular fine to coarse GRAVEL and black very sandy clayey top soil with some roots and rootlets. Sand is fine to coarse.			(0.30)
0.30		T/MJ/SJ		PID - 0.0ppm		18.64		0.30
					Orange brown, extensively stained grey below 0.9m, moist very clayey very gravely fine to medium SAND. Gravel is angular to subrounded fine to medium sandstone.			(0.90)
0.80		T/MJ/SJ		PID - 0.0ppm				
1.10		T/MJ/SJ		PID - 15.2ppm				
						17.74		1.20
					Orange brown moist fine to coarse SAND becoming gravely below 1.5m . Gravel is angular to subrounded fine to medium of sandstone and flint.			(1.00)
						16.74		2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:

Stability: Unstable .Sides caving in below 0.8m.
Moderate hydrocarbon odour below 0.9m.
Extensive staining below 0.9m.
Sheen on water surface.
Ground water - slow inflow at 1m and medium below 1.2m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 110

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384129 N: 218330	Ground Level (m): 19.40 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Railway ballast: Very loose black and grey ashy very sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse.	19.30		(0.10) 0.10
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Very loose dark brown black very ashy slightly clayey very sandy angular to subrounded GRAVEL of clinker, ash and sandstone. Sand is fine to coarse.	19.10		(0.20) 0.30
					Orange brown moist gravely slightly clayey fine to coarse SAND. Gravel is angular to subrounded fine to medium of sandstone and flint.	18.80		(0.30) 0.60

Remarks:
Extensive staining 0.3-0.4m.
Excavation terminated due to metal pipe at 0.7m running East to West.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 111

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Top soil with ash and clinker	-0.15		(0.15) 0.15
					MADE GROUND: Fill: Black slightly moist very loose very ashy clayey very gravely SAND. Gravel is ungular to subrounded fine to coarse clinker, granite and sandstone.	-0.70		(0.55) 0.70
0.60		T/MJ/SJ		PID - 0.0ppm				
					Orange brown, stained grey below 1m, moist slightly clayey gravely fine to coarse SAND becoming less gravely below 2.2m Gravel is angular to subrounded fine to medium of sandstone and flint.	-2.50		(1.80) 2.50
1.90		T/MJ/SJ		PID - 7.3ppm				
2.40		T/MJ/SJ		PID - 1.1ppm				

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:

Stability: Unstable .Sides caving in below 1.6m.
Extensive grey staining below 1m at the norther end of TP.
Moderate odour of fresh diesel below 1.2m becoming stronger below 1.6m.
Heavy sheen on water surface.
Ground water - medium inflow at 1.8 and fast at 2.3m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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FIG No.	

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Trial Pit No. 112

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384171 N: 218311	Ground Level (m): 19.82 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.			(0.40)
0.40		T/MJ/SJ		PID - 0.0ppm		19.42		0.40
					MADE GROUND: Black slightly moist ashy clayey silty SAND and subrounded fine to coarse GRAVEL of sandstone and clinker.			(0.50)
0.90		T/MJ/SJ		PID - 0.0ppm		18.92		0.90
					Orange brown, stained grey below 1.3m, moist slightly clayey gravely fine to coarse SAND becoming less gravely below 2.3m Gravel is angular to subrounded fine to medium of sandstone.			
1.30		T/MJ/SJ		PID - 1.6ppm				
								(2.10)
2.30		T/MJ/SJ		PID - 10.5ppm				
3.00		T/MJ/SJ		PID - 45.8ppm		16.82		3.00

End of Trial Pit 3.00 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.6m.
Grey staining below 0.9m.
Strong odour of fresh diesel below 1.3m.
Heavy sheen on water surface.
Ground water - slow inflow at 1.6 and medium at 2.3m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 113

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384172 N: 218294	Ground Level (m): 19.66 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.10		T/MJ/SJ		PID - 0.1ppm	MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.	19.56		(0.10) 0.10
					MADE GROUND: Black slightly moist ashy silty very clayey SAND and subrounded fine to coarse GRAVEL of sandstone and clinker.			(0.60)
0.60		T/MJ/SJ		PID - 0.1ppm		18.96		0.70
					Orange brown moist slightly clayey very silty gravely fine to coarse SAND. Gravel is angular to subrounded fine to medium of sandstone.			(0.30)
						18.66		1.00
					Orange brown wet to very wet clayey very silty slightly gravely SAND. Gravel is subangular to subrounded fine to medium of sandstone.			
1.50		T/MJ/SJ		PID - 0.2ppm				(1.30)
						17.36		2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.1m.
Ground water - medium inflow at 1.5m.
Excavation terminated due to ground water and instability.

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Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 114

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 4.50m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384213 N: 218273	Ground Level (m): 20.04 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Fill: Very loose dark brown silty very sandy slightly clayey very angular to subrounded GRAVEL. Sand is fine to coarse.	19.89		(0.15) 0.15
					MADE GROUND: Loose red very sandy very angular to subangular fine to coarse GRAVEL of crushed brick. Sand is fine to coarse.	19.69		(0.20) 0.35
0.80		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Medium dense wet multicolored (black, brown, orange, grey, red) very ashy clayey silty very sandy very angular to rounded fine to coarse GRAVEL of red brick, sandstone, clinker, green slag and ash. Cobbler of red brick and slag, whole red bricks. Sand is fine to coarse.			(1.15)
1.60		T/MJ/SJ		PID - 0.0ppm	Dark orange brown very wet clayey sandy SILT with pockets of yellow medium to corse sand. Sand is fine to coarse.	18.54		1.50 (0.20)
						18.34		1.70

End of Trial Pit 1.70 m
(Thickness of basal layer not proven)

Remarks:

Stability: Unstable .Sides caving in below 0.9m.
TP extended to trench due to concrete abstraction 1m wade at 0.5m across PT.
Metal pipe running West to East at 1.35m at east end of TP.
Brick wall at east end of TP.
Ground water - medium-slow inflow at 1.1m.

Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 115

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384204 N: 218290	Ground Level (m): 20.07 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.10		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.	19.87		(0.20) 0.20
0.50		T/MJ/SJ		PID - 0.2ppm	MADE GROUND: Black slightly moist ashy clayey silty SAND and subrounded fine to coarse GRAVEL of sandstone and clinker.	19.42		(0.45) 0.65
					Very soft wet dark orange brown very sandy gravely CLAY. Gravel is angular to subrounded fine to coarse sandstone. Sand is fine to coarse.	19.17		(0.25) 0.90
1.40		T/MJ/SJ		PID - 0.1ppm	Dark orange brown very wet slightly clayey very silty very gravely fine to coarse SAND with pockets of dark yellow silty sand. Gravel is angular to subrounded fine to medium sandstone.	17.57		(1.60) 2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1m.
TP extended West by 1m due to the metal pipe (50mm diameter) at 0.6m Running North to South.
Sheen on the water surface.
Ground water - medium-slow inflow at 1.5m.
Excavation terminated due to ground water and instability.

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Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 116

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384235 N: 218274	Ground Level (m): 20.16 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Very loose dark brown grey very sandy very angular to sub rounded fine to coarse GRAVEL of granite. Sand is fine to coarse.	20.06		(0.10) 0.10
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.	19.76		(0.30) 0.40
					MADE GROUND: Loose moist dark brown black very sandy angular to subrounded fine to coarse GRAVEL of crushed concrete, red brick, sandstone, clinker and green slag. Cobbles and small boulders of red brick and crush concrete.Sand is fine to coarse.	19.46		(0.30) 0.70
1.40		T/MJ/SJ		PID - 0.0ppm	Orange brown wet to very wet clayey very silty slightly gravely SAND. Gravel is subangular to subrounded fine to medium of sandstone.			(1.90)
2.00		T/MJ/SJ		PID - 0.0ppm		17.56		2.60

End of Trial Pit 2.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 0.8m.
Staining below 0.8m.
Sheen on water surface.
Ground water - slow inflow at 1.4m and medium at 2.3m.
Excavation terminated due to ground water and instability.

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Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 117

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384245 N: 218256	Ground Level (m): 20.12 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Top soil and very loose dark brown grey very sandy very angular to sub rounded fine to coarse GRAVEL of granite.	20.02		(0.10) 0.10
					MADE GROUND: Very loose dark red very sandy very angular to subangular fine to coarse GRAVEL of crushed red brick. Frequent cobbles and whole bricks. Sand is fine to coarse.	19.82		(0.20) 0.30
					MADE GROUND: Fill: Black very ashy slightly clayey fine to coarse SAND and very angular to subrounded fine to coarse GRAVEL of clinker, granite, green slag, sandstone, ash and red brick. Frequent cobbles and whole bricks.			(0.50)
0.80		T/MJ/SJ		PID - 0.0ppm		19.32		0.80
					MADE GROUND: Concrete slab.	19.22		(0.10) 0.90
					MADE GROUND: Black wet gravely medium to coarse SAND of ash and clinker. Gravel is subangular fine to medium ash and clinker.	19.12		(0.10) 1.00
					MADE GROUND: Fill: Black very wet very ashy slightly clayey fine to coarse SAND and very angular to subrounded fine to coarse GRAVEL of clinker, granite, green slag, sandstone, ash and red brick. Frequent cobbles and whole bricks.			(0.80)
1.80		T/MJ/SJ		PID - 0.0ppm		18.32		1.80
					Dark yellow brown very wet gravely silty fine to medium SAND. Gravel is subrounded fine to medium sandstone.	18.22		(0.10) 1.90

End of Trial Pit 1.90 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1m.
Concrete slab 100mm at 0.8m.
Red brick foundation wall from 0.8m on both sides of TP. On south sides extends to 1.8m.
Ground water - fast inflow at 1.05m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 118

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384183 N: 218370	Ground Level (m): 19.62 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Clayey top soil. Roots and rootlets.	19.57		(0.05)
					MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.			(0.20)
0.25		T/MJ/SJ		PID - 0.0ppm		19.37		0.25
0.35		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Black very ashy very clayey fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of clinker, sandstone, ash and red brick.			(0.25)
						19.12		0.50
					Sort very moist dark yellow silty very sandy very gravely CLAY. Gravel is fine to medium sandstone. Sand is fine to coarse.			(0.30)
						18.82		0.80
					Orange brown wet to very wet silty gravely medium to coarse SAND. Gravel is fine to medium sandstone.			
1.10		T/MJ/SJ		PID - 0.0ppm				(1.30)
						17.52		2.10

End of Trial Pit 2.10 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1m.
Staining at the south end of TP at 1.1m.
Slight sheen on water surface.
Ground water - medium inflow at 1.4m.
Excavation terminated due to ground water and instability.

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Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 119

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384220 N: 218352	Ground Level (m): 20.19 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Asphalt.	20.14		(0.05)
					MADE GRAVEL: Very loose black grey ashy very sandy very angular to subrounded GRAVEL of clinker, ash, sandstone and granite. Sand is fine to coarse.			(0.30)
0.30		T/MJ/SJ		PID - 0.0ppm		19.84		0.35
0.60		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Ash ballast: Black grey moist ashy medium to corse SAND and loose subangular fine to coarse GRAVEL of sandstone, ash and clinker. Occasional cobbles of strongly cemented clayey sandstone.			(0.65)
						19.19		1.00
1.60		T/MJ/SJ		PID - 0.0ppm	Dark yellow orange wet medium to coarse SAND with pockets of very clayey SAND and rounded fine to medium GRAVEL of sandstone.			(1.00)
						18.19		2.00

End of Trial Pit 2.00 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1m.Slight odour of tarmac below 0.5m.
Drainage clay pipe 8inch id diameter at 1.2m.
Ground water - medium inflow at 1.2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 120

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384237 N: 218336	Ground Level (m): 20.56 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Lightly reinforced concrete.	20.46		(0.10) 0.10
0.20		T/MJ/SJ		PID - 0.9ppm	MADE GROUND: Fill: Loose moist dark yellow clayey very sandy angular to subrounded fine to coarse GRAVEL of sandstone with frequent bobbles of red brick and whole bricks.	20.21		(0.25) 0.35
0.40		T/MJ/SJ		PID - 2.0ppm	MADE GROUND: Black very loose very sandy ash and clinker FILL with fine to coarse gravel of clinker. Sand is fine to coarse.	19.56		(0.65) 1.00
1.60		T/MJ/SJ		PID - 4.0ppm	Soft wet dark yellow orange very sandy gravely CLAY. Gravel is subangular fine to medium sandstone. Sand is fine to coarse.	18.96		(0.60) 1.60
2.00		T/MJ/SJ		PID - 16.8ppm	Dark orange wet slightly clayey silty slightly gravely fine to coarse SAND. Gravel is subangular fine to medium sandstone.	18.26		(0.70) 2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:

Stability: Unstable .Sides caving in below 1.2m.
Plastic membrane at 0.1m.
Re-bar reinforced pillar at 0.25m 100mm in diameter.
Armored cable running West to East at 1.1m.
Moderate odour of medium weathered diesel below 2m.
Staining at 2.0m.
Sheen on water surface.
Ground water - medium-strong inflow at 2.1m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 121

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384257 N: 218315	Ground Level (m): 20.66 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	20.51		(0.15) 0.15
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Very loose moist dull red, becoming pale yellow below 0.25m, clayey silty very sandy subangular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	20.21		(0.30) 0.45
0.60		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Firm very moist brown, stained black, silty sandy gravely CLAY becoming very gravely below 0,7m. Gravel is angular to subrounded fine to medium sandstone. Sand is fine to coarse.	19.81		(0.40) 0.85
1.50		T/MJ/SJ		PID - 0.0ppm	Orange brown moist clayey silty very gravely medium to coarse SAND becoming less gravely below 1m. Gravel is angular to subrounded fine to coarse sandstone.	18.26		(1.55) 2.40

End of Trial Pit 2.40 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.3m.
Ground water - slow inflow at 2.2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 122

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 383988 N: 218538	Ground Level (m): 18.03 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt.	17.97		(0.06) 0.06
0.20		T/MJ/SJ		PID - 0.3ppm	MADE GROUND: Fill: Very loose moist dull red very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	17.83		(0.14) 0.20
0.65		SD		PID - 0.6ppm	MADE GROUND: Fill: Black moist very ashy fine to coarse SAND and very loose moist dark brown black very ashy angular to subrounded fine to cobble size GRAVEL of ash, green slag, clinker, red brick and sandstone. Occasional boulders of slag.	17.23		(0.60) 0.80
					Soft moist yellow brown silty very sandy CLAY. Sand is fine to medium.	16.93		(0.30) 1.10
1.60		SD		PID - 0.6ppm	Dark yellow very moist very clayey silty gravely fine to coarse SAND. Gravel is subrounded fine to coarse sandstone.	15.53		(1.40) 2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.2m.
Grey staining below 0.9m.
Odour of H2S between 0.2-0.8m.
Heavy sheen on water surface.
Ground water - very slow inflow at 1.5 and medium at 1.9m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

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Trial Pit No. 123

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 383971 N: 218560	Ground Level (m): 18.11 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	18.05		(0.06) 0.06
0.25		T/MJ/SJ		PID - 27.5ppm	MADE GROUND: Fill: Dark brown moist very ashy fine to coarse SAND and very loose, dark brown black very ashy angular to rounded fine to cobble size GRAVEL of clinker, red brick, sand stone and green slag. Small boulders of slag.			(0.94)
0.80		SD		PID - 17.3ppm				
						17.11		1.00
					Dark yellow, stained black grey, wet silty very sandy gravely CLAY with pockets of dark yellow fine to coarse sand. Gravel is subangular to rounded fine to medium sandstone. Sand is fine to coarse.			(1.10)
1.90		SD		PID - 19.6ppm				
						16.01		2.10

End of Trial Pit 2.10 m
(Thickness of basal layer not proven)

Remarks:

Stability: Unstable .Sides caving in below 1.5m.
Heavy staining at 1.4m.
Moderate to strong hydrocarbon odour below 0.2m and very strong odour of naphthaline at 0.4m.
Layer of bitumen 30mm thick at 0.4m.
Ground water - slow-moderate inflow at 2m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 124

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 383994 N: 218560	Ground Level (m): 17.89 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	17.83		(0.06) 0.06
0.20		TUB		PID - 0.1ppm	MADE GROUND: Fill: Dark brown moist ashy silty fine to coarse SAND and very loose brown dull red angular to subangular fine to coarse GRAVEL of ash, clinker, crushed concrete, red brick, green slag, granite and sandstone.	17.69		(0.14) 0.20
					MADE GROUND: Yellow moist very gravely fine to medium SAND. Gravel is fine to medium sandstone.	17.59		(0.10) 0.30
0.50		SD		PID - 0.0ppm	Soft orange brown moist silty very sandy gravely CLAY. Gravel is fine to medium subangular sandstone. Sand is fine to coarse.			(1.20)
1.60		SD		PID - 0.0ppm	Dark orange very moist very clayey silty gravely fine to coarse SAND. Gravel is subrounded fine to medium sandstone.	16.39		1.50 (0.80)
						15.59		2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.6m.
Extensive black staining at the south end of TP at below 0.5m.
Plastic pipe (100mm in diameter) running North to South at 1.35m.
Ground water - slow- medium inflow at 1.8m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 125

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384159 N: 218389	Ground Level (m): 19.62 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt.	19.61		(0.01) 0.01
					MADE GROUND: Brown very sandy coarse red brick FILL. Sand is fine to coarse. Metal fragments, cables and wires.			(0.49)
0.40		TUB		PID - 0.2ppm				
					Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	19.12		0.50
0.70		SD		PID - 0.1ppm				(0.30)
					Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	18.82		0.80
								(1.40)
2.00		MJ/SJ		PID - 0.1ppm				
						17.42		2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.5m.
Black staining between 0.4 -0.75m.
Sheen on the water surface.
Ground water - medium inflow at 1.7m and medium-fast at 2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 126

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384122 N: 218396	Ground Level (m): 19.35 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.25		TUB		PID - 0.1	MADE GROUND: Very loose slightly moist dull red silty very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	19.05		(0.30) 0.30
0.40		SD		PID - 0.2ppm	MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.	18.90		(0.15) 0.45
					Bath stone slab	18.75		(0.15) 0.60
0.80		SD		PID - 0.2ppm	Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	18.25		(0.50) 1.10
2.00		MJ/SJ		PID - 2.0ppm	Dark orange wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	17.15		(1.10) 2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1m.
stone slab 150mm deep at 0.45m.
Grey staining below 0.6m.
Ground water - medium-fast inflow at 2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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London Road, Grays, Essex RM40 4DB

Trial Pit No. 127

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384102 N: 218416	Ground Level (m): 19.28 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.25		TUB			MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.	18.78		(0.50)
					Bath stone slab	18.63		0.50 (0.15) 0.65
1.10		SD			Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	17.98		(0.65) 1.30
2.10		MJ/SJ			Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	16.98		(1.00) 2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.5m.
Bath stone slab 150mm deep at 0.5m.
Grey staining below 0.25m.
Ground water - slow inflow at 2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 128

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 284082 N: 218425	Ground Level (m): 19.21 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					Concrete slab.	19.01		(0.20) 0.20
0.25		TUB		PID - 1.5ppm	MADE GROUND: Dark brown, stained black, moist very clayey silty fine to coarse SAND and very loose very ashy very angular to subangular fine to cobble size GRAVEL of red brick, sandstone, crushed concrete,clinker, old concrete and slag.	18.21		(0.80) 1.00
					Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	17.91		(0.30) 1.30
1.50		MJ/SJ		PID - 3.8ppm	Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	17.01		(0.90) 2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.2m.
Grey staining between 1.0-1.2m.
Moderate hydrocarbon odour below 1.2m.
Excavation terminated due to lack of time.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 129

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384066 N: 218463	Ground Level (m): 18.97 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Very loose slightly moist dull red silty very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.			(0.30)
						18.67		0.30
0.50		TUB		PID - 0.2ppm	MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.			
0.70		SD		PID - 0.4ppm				(0.60)
						18.07		0.90
					Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.			(0.40)
						17.67		1.30
					Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.			(0.70)
						16.97		2.00

End of Trial Pit 2.00 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.5m.
Grey staining between 0.6m - 1.3m.
Strong odour of fresh diesel below 1.3m.
Ground water - slow inflow at 1.7m.
Excavation terminated due to ground water and instability.

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Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 130

Sheet: 1 of 1

Equipment & Methods.
Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m.
Backfill: Arisings

Project Name: Gloucester
Project Location: Great Western Road Yard GL1 3PZ
Client: Eutopia Homes Ltd

Job No: 20904

Co-ordinates:
E: 384107
N: 218448

Ground Level (m): 19.38 AOD

Date Started:12/10/2020
Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	19.28		(0.10) 0.10
0.30		TUB		PID - 0.0ppm	MADE GROUND: Very loose slightly moist dull red silty very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	18.98		(0.30) 0.40
					MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.	18.78		(0.20) 0.60
0.70		SD		PID - 0.0ppm	Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	18.28		(0.50) 1.10
1.10		SD		PID - 0.1ppm	Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	17.38		(0.90) 2.00

End of Trial Pit 2.00 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.3m.
Cobbles and small boulders of paving blocks of dull red sand stone at 0.4m-0.9m.
Grey staining between 0.6m-1.2m.
Ground water - slow inflow at 1.6m.
Excavation terminated due to ground water and instability.

Logged By: S.P.
Checked By:
Scale: 1:17.5
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 131

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384024 N: 218482	Ground Level (m): 18.19 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Black very loose TOP SOIL mixed with 50mm railway BALLAST.	17.89		(0.30) 0.30
0.60		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Black moist very ashy fine to medium SAND and silty subangular fine to cobble size GRAVEL of clinker, ash, grey slag and sandstone.	17.44		(0.45) 0.75
					Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	17.19		(0.25) 1.00
1.20		T/MJ/SJ		PID - 0.0ppm	Dark yellow very wet very silty very gravely fine to medium SAND. Gravel is subangular fine to medium sandstone.	16.89		(0.30) 1.30

End of Trial Pit 1.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.1m.
Slag has faint odour of H2S
Ground water - very slow inflow at 0.7m and medium below 1m.
Excavation terminated due to ground water and instability.

Logged By:	Checked By:
S.P.	
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 132

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384134 N: 218372	Ground Level (m): 19.13 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Black very loose very sandy TOP SOIL mixed with 50mm railway BALLAST. Sand is fine to coarse. Roots and rootlets.			(0.30)
0.30		T/MJ/SJ		PID - 3.4ppm		18.83		0.30
					Dark orange wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.			(0.70)
0.70		T/MJ/SJ		PID - 3.7ppm				
						18.13		1.00
					Dark orange grey, extensively stained, very wet silty gravely SAND. Gravel is subangular fine to medium sandstone.			(1.30)
1.30		T/MJ/SJ		PID - 65.4ppm				
						16.83		2.30
					Dark orange brown very wet slightly silty slightly gravely SAND. Gravel is ungular fine sandstone.			(0.20)
						16.63		2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:

Stability: Unstable .Sides caving in below 1.2m.
Strong odour of weathered diesel below 1.9m.
Extensive staining at 0.75m.
Sheen on water surface.
Ground water - slow inflow at 1m and medium below 2.3m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 133

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384154 N: 218363	Ground Level (m): 19.33 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.20		T/MJ/SJ		PID - 1.2ppm	MADE GROUND: Fill: Black very ashy coarse SAND and very loose very angular to subrounded fine to coarse GRAVEL of clinker, ash, crushed concrete, brick, sandstone and granite. Rare roots and rootlets.	19.13		(0.20) 0.20
0.45		T/MJ/SJ		PID - 0.1ppm	Medium firm dark orange brown very sandy gravely CLAY. Gravel is subangular fine to coarse sandstone. Sand is fine to coarse.	18.73		(0.40) 0.60
0.90		T/MJ/SJ		PID - 0.0ppm	Dark orange brown very moist clayey very gravely SAND. Gravel is subangular to rounded fine to coarse sandstone.	18.33		(0.40) 1.00
1.30		T/MJ/SJ		PID - 60.0ppm	Stained grey very wet very silty gravely SAND. Gravel is subangular to rounded fine to coarse sandstone.	17.33		(1.00) 2.00
					Dark orange brown very wet very silty gravely SAND. Gravel is subangular to rounded fine to coarse sandstone.	17.03		(0.30) 2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:

Stability: Unstable .Sides caving in below 1.2m.
Week odour below 2.2m.
Extensive staining between 1.05 and 1.3m.
Sheen on water surface.
Ground water - moderate-slow inflow at 1.3m.
Running sand below 1.5m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 134

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384087 N: 218369	Ground Level (m): 19.24 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Black very loose ashy very sandy TOP SOIL mixed with 50mm RAILWAY BALLAST. Sand is fine to coarse. Roots and rootlets.	19.04		(0.20) 0.20
0.40		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Black moist very ashy very clayey fine to medium silty SAND and very loose subangular fine to cobble size GRAVEL of clinker, ash, grey slag, granite, brick, crushed concrete and sandstone.	18.59		(0.45) 0.65
0.70		T/MJ/SJ		PID - 0.0ppm	Soft very moist dark yellow, stained black at the top, silty very sandy slightly gravely CLAY. Gravel is subrounded fine to medium sandstone. Sand is fine to coarse.	18.24		(0.35) 1.00
1.70		T/MJ/SJ		PID - 0.0ppm	Dark yellow moist very clayey fine to medium SAND with pockets of pale yellow fine to medium sand.	17.04		(1.20) 2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.6m.
Red brick masonry structure (walk way) 100mm deep at 0.5m.
Wooden beam at 1.35m at the west end of TP.
Ground water - slow-medium inflow at 1.7m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 120a

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384252 N: 218336	Ground Level (m): 20.67 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Concrete slab	20.57		(0.10) 0.10
					MADE GROUND: Fill: Black moist very ashy coarse SAND and very loose very angular to subangular fine to cobble size GRAVEL of ash, clinker, sandstone, red and yellow brick.			(0.50)
0.60		T/MJ/SJ		PID - 0.0ppm		20.07		0.60
0.80		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Black moist coarse SAND and subangular fine to cobble size GRAVEL of coal. Rare briquette of preform coal, red brick and masonry structure.			(0.50)
						19.57		1.10
					Dark orange brown wet very silty fine to coarse SAND and subrounded fine to coarse GRAVEL of sandstone.			(1.40)
2.00		T/MJ/SJ		PID - 0.0ppm				
						18.17		2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:
Stability: Unstable .Sides caving in below 1.4m.
Plastic membrane at 0.1m.
Old clay pipe with fragments of bonded bitumen running North to South at 0.5m 100mm in diameter.
Ground water - medium-slow inflow at 2.0m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Appendix 4

Gas and Groundwater Level Monitoring Results

John F Hunt
REGENERATION

JOB DETAILS

Location	Gloucester			Engineer	S.P.
Date	27.10.2020	Job No	20904	Time	10:00

METEOROLOGICAL AND SITE INFORMATION

State of ground			Dry	X	Moist		Wet				
Wind			Calm	X	Light		Moderate		Strong		
Cloud cover			None		Slight	X	Cloudy		Overcast	Temperature	15°C
Precipitation			None	X	Slight		Moderate		Heavy		
Barometric pressure, mb		994									

INSTRUMENTATION USED:	Type	GA5000	Serial No	

BH/WS	Depth to GW m	Time s	PID ppm	Flow l/h	CH_4 %	CO_2 %	O_2 %	CO ppm	H_2S ppm	Bal %	Comments
BH 101S	1.94	30	0.7	0.1	0	5.67	13.8	0	0	78	
BH 101S		120			0	5.9	14.1	0	0	80	
BH 101D	1.86	30	0.5	0.1	0	1.3	19.5	0	0	78.7	
BH 101D		120			0	1.5	19.6	1	0	78.9	
BH 102	1.23	30	0.1	0	0	1.5	15.6	0	0	80.5	
BH 102		120			0	1.7	15.6	0	0	80.9	
BH 103	1.41	30	0.4	0.2	0	2.3	27.9	2	0	80	
BH 103		120			0	2.3	28.2	4	0	81.8	
WS 101	0.94	30	9.4	1.3	0	0	19.9	0	0	78.3	
WS 101		120			0.5	0.1	20.3	2	0	79.1	
WS 102	1.09	30	-	-	-	-	-	-	-	-	Valve is blocked
WS 103	0.98	120	17.8	0.1	0	0	19.6	0	0	79.1	Strong odour
WS 103		30			0	0.4	20.2	0	0	79.4	
WS 104	1.12	120	0.2	0	0	1.2	18.7	0	0	78.9	
WS 104		30			0	1.5	19.2	0	0	79.3	
WS 105	1.03	120	0.2	0	0	2.3	19	0	0	77.3	
WS 105		30			0	3	19.6	1	0	77.4	
WS 106	1.56	120	0	0.2	0	1	18.8	0	0	78.6	
WS 106		30			0	1.6	19.1	0	0	79.4	
WS 107	1.58	120	22.6	0.2		6.3	9	0	0	80.7	
WS 107		30			0	8	9.8	0	0	82.2	
WS 109	1.16	120	8.6	0.1	0	7.2	9	0	0	91	
WS 109		30			0	8	9.2	0	0	92.8	
WS 110	1.43	120	0	0.1	0	6.8	9.9	0	0	81.7	
WS 110		30			0	7.5	10.2	0	0	82.3	
WS 111	1.45	120	0	0.1	0	1.2	16.8	0	0	79.9	
WS 111		30			0	1.9	17.3	0	0	80.8	
WS 112	0.77	120	0.1	2.4	0	1.9	20	3.8	0	77.2	
WS 112		30			0	2.3	20.1	5	0	77.6	
WS 113	0.94	120	0.3	-	-	-	-	-	-	-	Valve is blocked
WS 114	1.26	120	0.1	0.2	0	0.7	20.3	0	0	79.9	
WS 114		30			0	0.9	21	0	0	80.4	
WS 115	1.73	120	30.4	0.1	0	1.9	16.1	0	0	78.9	45 mm product
WS 115		30			0	3	16.6	2	0	80.4	
WS 116	1.1	120	0	0.1	0	0.3	19.7	0	0	79	
WS 116		30				0.3	20.2	0	0	79.5	

JOB DETAILS

Location	Gloucester			Engineer	S.P.
Date	03.11.2020	Job No	20904	Time	09:00

METEOROLOGICAL AND SITE INFORMATION

Start of ground			Dry	x	Moist		Wet				
Wind		x	Calm		Light		Moderate		Strong		
Cloud cover			None	x	Slight		Cloudy		Overcast	Temperature	12°C
Precipitation			None	x	Slight		Moderate		Heavy		
Barometric pressure, mb		1003									

INSTRUMENTATION USED:	Type	GA5000	Serial No	

BH/WS	Depth to GW m	Time s	PID ppm	Flow l/h	CH_4 %	CO_2 %	O_2 %	CO ppm	H_2S ppm	Bal %	Comments
BH 101S	1.78	30	0.2	0	0	3	16.2	0	0	75.9	
BH 101S		120		0	0.1	4.7	16.9	1	0	78.2	
BH 101D	1.75	30	0.8	0	0	2	18.3	1.8	0	78	
BH 101D		120		0	0.1	2.7	18.8	3	0	78.4	
BH 102	1.16	30	0.8	0.2	0	0	18,2	0	0	78.9	
BH 102		120		0.2	0.1	1	19.4	0	0	79.5	
BH 103	1.33	30	0.8	0.1	0	1.6	16.8	0	0	77.3	
BH 103		120		0.1	0.2	2.1	19.9	0	0	78	
WS 101	0.79	30	1.8	0.4	0.2	1.1	20	0	0	77	Moderate odour
WS 101		120		0.4	0.8	1.4	20.3	3	0	77.7	
WS 102	0.91	30	1.3	0	0	0	19.4	0	0	78.2	Very strong odour
WS 102		120		0	0.1	0.3	21.4	0	0	78.2	
WS 103	1.06	120	0.5	0	0	0	18.6	0	0	78	Strong odour
WS 103		30		0.1	0.1	0.7	20.4	0	0	78.8	
WS 104	1.02	120	0.8	0	0	0	20	0	0	77.9	
WS 104		30		0.1	0.1	0.1	21.6	0	0	78.2	
WS 105	0.97	120	0	1.6	0	2.4	16.9	1	0	75.8	
WS 105		30		3.3	0.1	3.9	19.9	3	0	76.1	
WS 106	1.45	120	1.1	0	0.1	1.3	17.4	1	0	79	Running silt
WS 106		30		0.1	0.1	2.5	18.2	1	0	79.2	
WS 107	1.5	120	2.8	0	0	5.9	10.5	0	0	79.9	
WS 107		30		0	0.1	8.2	11.2	1	0	80.5	
WS 109	1.13	120	0.9	0	0	6.3	6.3	0	0	82.1	
WS 109		30		0	0.2	8.6	9	1	0	82.2	
WS 110	1.32	120	0.7	0	0	3.7	13.5	1	0	80	
WS 110		30		0	0	5.7	14.2	0	0	80	
WS 111	1.39	120	0.7	0	0.1	0.2	20.5	0	0	77.9	
WS 111		30		0.1	0.1	0.5	21.5	1	0	78.2	
WS 112	0.73	120	0.9	0.1	0	0.6	19.5	0	0	77.9	
WS 112		30		0.1	0.1	1.2	20.5	0	0	78.2	
	0.75	30	1.1	1	0.1	2.7	15.9	2	0	77	
WS 113		120		1.7	0.1	4.1	18.8	4	0	77	
WS 114	1.19	120	0.9	0	0	1	14.8	0	0	77.3	
WS 114		30		0	0.1	1.5	20.8	1	0	77.5	
WS 115	1.73	120	5.9	0	0.5	1.6	13.6	27	0	79.9	500 mm product
WS 115		30		0.1	0.8	3	15.4	30	0	80	
WS 116	0.97	120	0.1	0	0	0.1	10	0	0	78	
WS 116		30		0	0.1	0.3	20.8	1	0	78.8	

Appendix 5

Site Photographs

Appendix 6

Geochemical Test Results - Soils

John F Hunt
REGENERATION

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

John F Hunt Remediation Ltd
London Road
GRAYS
ESSEX
RM20 4DB

Attention: Stuart Carroll

CERTIFICATE OF ANALYSIS

Date of report Generation:	25 October 2020
Customer:	John F Hunt Remediation Ltd
Sample Delivery Group (SDG):	201009-65
Your Reference:	Gloucester Great Western Road Yard
Location:	Gloucester Great Western Road Yard
Report No:	572504

This report has been revised and directly supersedes 572377 in its entirety.

We received 49 samples on Friday October 09, 2020 and 38 of these samples were scheduled for analysis which was completed on Sunday October 25, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23000559	TP102		0.50	05/10/2020
23001754	TP103		0.15	06/10/2020
23001752	TP103		0.60	06/10/2020
23001755	TP103		1.10	06/10/2020
23001745	TP103		2.50	06/10/2020
23001750	TP104		0.40	06/10/2020
23001753	TP104		1.00	06/10/2020
23001740	TP104		1.50	06/10/2020
23001742	TP104		2.50	06/10/2020
23001743	TP105		0.50	06/10/2020
23001751	TP105		1.10	06/10/2020
23001748	TP105		1.60	06/10/2020
23001741	TP109		0.30	06/10/2020
23000547	TP109		0.80	06/10/2020
23000549	TP109		1.10	05/10/2020
23000516	TP114		0.80	07/10/2020
23000519	TP114		1.60	07/10/2020
23000524	TP116		0.40	07/10/2020
23000525	TP116		1.10	07/10/2020
23000526	TP116		2.40	07/10/2020
23000521	TP117		0.80	07/10/2020
23000522	TP117		1.80	07/10/2020
23000550	TP132		0.30	06/10/2020
23000551	TP132		0.70	05/10/2020
23000554	TP132		1.30	06/10/2020
23000555	TP133		0.20	05/10/2020
23000556	TP133		0.45	06/10/2020
23000557	TP133		0.90	05/10/2020
23000558	TP133		1.30	06/10/2020
23000528	WS101		0.70	06/10/2020
23000529	WS101		1.10	06/10/2020
23000504	WS101		1.70	07/10/2020
23000530	WS102		1.00	06/10/2020
23000532	WS102		1.55	06/10/2020
23000533	WS103		0.80	06/10/2020
23000535	WS103		1.85	06/10/2020
23000536	WS104		0.40	06/10/2020
23000505	WS105		0.30	07/10/2020
23000506	WS105		0.80	07/10/2020
23000539	WS106		0.40	06/10/2020
23000542	WS107		0.30	06/10/2020
23000544	WS107		0.60	06/10/2020
23000545	WS107		1.65	06/10/2020
23000494	WS115		0.60	06/10/2020
23000495	WS115		1.45	05/10/2020
23000496	WS115		2.25	06/10/2020
23000507	WS116		0.50	07/10/2020
23000513	WS116		1.00	07/10/2020
23000540	WS106A		0.40	06/10/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23000559			23001754			23001752			23001755			23001750			23001740			23001743	
Customer Sample Reference			TP102			TP103			TP103			TP103			TP104			TP104			TP105	
AGS Reference																						
Depth (m)			0.50			0.15			0.60			1.10			0.40			1.50			0.50	
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 18		X				X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 20	X			X	X			X			X			X			X			
Boron Water Soluble	All	NDPs: 0 Tests: 18		X				X			X			X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 36		X				X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 36			X				X			X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 18		X				X			X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 18		X				X			X			X			X			X		
pH	All	NDPs: 0 Tests: 18		X				X			X			X			X			X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 18		X				X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 35		X				X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 36		X				X			X			X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 36			X				X			X			X			X			X	

23000526	TP116		2.40	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
23000525	TP116		1.10	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
23000524	TP116		0.40	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											
23000519	TP114		1.60	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
23000549	TP109		1.10	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
23000547	TP109		0.80	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											
23001741	TP109		0.30	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											
23001748	TP105		1.60	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
23001751	TP105		1.10	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
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TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23000522					23000550					23000554					23000555					23000557					23000558					23000528					23000529				
Customer Sample Reference			TP117					TP132					TP132					TP133					TP133					TP133					WS101					WS101				
AGS Reference																																									
Depth (m)			1.80					0.30					1.30					0.20					0.90					1.30					0.70					1.10				
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 18				X					X			X							X						X
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 20			X					X			X							X						
Boron Water Soluble	All	NDPs: 0 Tests: 18				X					X			X							X					
EPH CWG GC (S)	All	NDPs: 0 Tests: 36	X			X		X			X			X				X			X					X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 36		X			X		X			X			X		X			X				X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 18				X					X			X							X					
PAH by GCMS	All	NDPs: 0 Tests: 18				X					X			X							X					
pH	All	NDPs: 0 Tests: 18				X					X			X							X					
Phenols by HPLC (S)	All	NDPs: 0 Tests: 18				X					X			X							X					
Sample description	All	NDPs: 0 Tests: 35	X			X		X			X			X				X			X					X
TPH CWG GC (S)	All	NDPs: 0 Tests: 36	X			X		X			X			X				X			X					X
VOC MS (S)	All	NDPs: 0 Tests: 36		X			X		X			X			X		X			X				X		

23000539	WS106		0.40	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S		X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S			X										
23000506	WS105		0.80	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S					X						X	X	
23000505	WS105		0.30	1kg TUB with Handle (ALE260)	S			X										
23000536	WS104		0.40	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S		X		X	X		X	X	X	X		X	
				1kg TUB with Handle (ALE260)	S			X										
23000535	WS103		1.85	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S					X						X	X	
23000533	WS103		0.80	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S		X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S			X										
23000532	WS102		1.55	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S					X						X	X	
23000530	WS102		1.00	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S					X						X	X	
23000504	WS101		1.70	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S					X						X	X	
23000529	WS101		1.10	60g VOC (ALE215)	S						X							X

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

	Lab Sample No(s)		23000542	23000545			23000494		23000495		23000513	
	Customer Sample Reference		WS107	WS107			WS115		WS115		WS116	
	AGS Reference											
	Depth (m)		0.30	1.65			0.60		1.45		1.00	
	Container		1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)
	Sample Type		S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 18	X				X					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 20	X			X						
Boron Water Soluble	All	NDPs: 0 Tests: 18	X				X					
EPH CWG GC (S)	All	NDPs: 0 Tests: 36	X	X			X		X		X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 36	X		X			X		X		X
Metals in solid samples by OES	All	NDPs: 0 Tests: 18	X				X					
PAH by GCMS	All	NDPs: 0 Tests: 18	X				X					
pH	All	NDPs: 0 Tests: 18	X				X					
Phenols by HPLC (S)	All	NDPs: 0 Tests: 18	X				X					
Sample description	All	NDPs: 0 Tests: 35	X	X			X		X		X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 36	X	X			X		X		X	
VOC MS (S)	All	NDPs: 0 Tests: 36	X		X			X		X		X

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
23000559	TP102	0.50	Dark Brown	Loamy Sand	Stones	None
23001752	TP103	0.60	Dark Brown	Sandy Loam	Vegetation	Stones
23001755	TP103	1.10	Light Brown	Loamy Sand	Vegetation	Stones
23001740	TP104	1.50	Dark Brown	Sandy Loam	Vegetation	Stones
23001750	TP104	0.40	Dark Brown	Sandy Loam	Vegetation	Stones
23001743	TP105	0.50	Dark Brown	Sandy Loam	Stones	Vegetation
23001748	TP105	1.60	Dark Brown	Sandy Loam	Vegetation	Stones
23001751	TP105	1.10	Light Brown	Sand	Vegetation	Stones
23000547	TP109	0.80	Dark Brown	Loamy Sand	Stones	Vegetation
23000549	TP109	1.10	Dark Brown	Loamy Sand	Stones	Vegetation
23001741	TP109	0.30	Dark Brown	Sandy Loam	Vegetation	Stones
23000519	TP114	1.60	Dark Brown	Sandy Silt Loam	Stones	Vegetation
23000524	TP116	0.40	Dark Brown	Loamy Sand	Stones	Brick
23000525	TP116	1.10	Dark Brown	Sand	Stones	None
23000526	TP116	2.40	Dark Brown	Sand	Stones	Vegetation
23000522	TP117	1.80	Light Brown	Sandy Silt Loam	Stones	None
23000550	TP132	0.30	Dark Brown	Loamy Sand	Stones	Vegetation
23000554	TP132	1.30	Dark Brown	Sand	Stones	None
23000555	TP133	0.20	Dark Brown	Loamy Sand	Stones	Vegetation
23000557	TP133	0.90	Dark Brown	Loamy Sand	Stones	Vegetation
23000558	TP133	1.30	Dark Brown	Loamy Sand	Stones	Vegetation
23000504	WS101	1.70	Light Brown	Loamy Sand	Stones	None
23000528	WS101	0.70	Dark Brown	Loamy Sand	Stones	None
23000529	WS101	1.10	Dark Brown	Sand	Stones	Oil/Petroleum
23000530	WS102	1.00	Dark Brown	Sandy Silt Loam	Stones	None
23000532	WS102	1.55	Dark Brown	Sand	Stones	Oil/Petroleum
23000533	WS103	0.80	Dark Brown	Sand	Stones	None
23000535	WS103	1.85	Light Brown	Sandy Loam	Vegetation	Stones
23000536	WS104	0.40	Dark Brown	Sand	Vegetation	Brick
23000506	WS105	0.80	Light Brown	Loamy Sand	Stones	None
23000539	WS106	0.40	Dark Brown	Sand	Stones	None
23000542	WS107	0.30	Black	Loamy Sand	Stones	Vegetation
23000545	WS107	1.65	Dark Brown	Sandy Loam	Vegetation	Stones
23000494	WS115	0.60	Dark Brown	Loamy Sand	Stones	Vegetation
23000495	WS115	1.45	Dark Brown	Sandy Loam	Vegetation	Stones
23000513	WS116	1.00	Dark Brown	Loamy Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP102	TP103	TP103	TP104	TP104	TP105
Depth (m)			0.50	0.60	1.10	0.40	1.50	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			05/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000559	23001752	23001755	23001750	23001740	23001743
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	10	13	11	15	11	13
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M	0.0115 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 @ M	0.0115 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M	<0.01 @ M
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 @ M	0.023 @ M	<0.015 @ M	<0.015 @ M	<0.015 @ M	<0.015 @ M
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 @ M	0.046 @ M	<0.035 @ M	<0.035 @ M	<0.035 @ M	<0.035 @ M
pH	1 pH Units	TM133	8.77 M	7.9 M	8.56 M	7.45 M	8.18 M	7.41 M
Arsenic	<0.6 mg/kg	TM181	13.3 M	16.8 M	11 M	25.1 M	13.4 M	14.2 M
Cadmium	<0.02 mg/kg	TM181	<0.02 M	0.185 M	0.209 M	<0.2 M	0.195 M	0.598 M
Chromium	<0.9 mg/kg	TM181	11.2 M	20 M	6.91 M	20.4 M	4.66 M	22.2 M
Copper	<1.4 mg/kg	TM181	14.7 M	54.6 M	10.6 M	50.4 M	13.5 M	51 M
Lead	<0.7 mg/kg	TM181	11.1 M	68.3 M	4.19 M	42 M	5.93 M	89.2 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	<0.14 M	<1.4 M	<0.14 M	<0.14 M
Nickel	<0.2 mg/kg	TM181	15.5 M	21.9 M	12 M	30.2 M	15.1 M	23.6 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<10 #	<1 #	<1 #
Zinc	<1.9 mg/kg	TM181	50.6 M	78 M	32.7 M	94.1 M	50.1 M	140 M
Boron, water soluble	<1 mg/kg	TM222	1.22 M	<1 M	<1 M	<1 M	<1 M	1.36 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0129 M	0.0741 M	0.0083 M	0.484 M	0.0243 M	0.0359 M

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP105	TP105	TP109	TP109	TP109	TP114
Depth (m)			1.10	1.60	0.30	0.80	1.10	1.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	05/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23001751	23001748	23001741	23000547	23000549	23000519
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	10	10	15	15	13	30
Phenol	<0.01 mg/kg	TM062 (S)			<0.01 @ M	<0.01 M		
Cresols	<0.01 mg/kg	TM062 (S)			<0.01 @ M	<0.01 M		
Xylenols	<0.015 mg/kg	TM062 (S)			<0.015 @ M	<0.015 M		
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)			<0.035 @ M	<0.035 M		
pH	1 pH Units	TM133			8.01 M	8.57 M		
Arsenic	<0.6 mg/kg	TM181			96.7 M	11.8 M		
Cadmium	<0.02 mg/kg	TM181			0.206 M	0.299 M		
Chromium	<0.9 mg/kg	TM181			<9 M	9.58 M		
Copper	<1.4 mg/kg	TM181			242 M	15.7 M		
Lead	<0.7 mg/kg	TM181			248 M	18.1 M		
Mercury	<0.14 mg/kg	TM181			<1.4 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181			84.6 M	12.7 M		
Selenium	<1 mg/kg	TM181			<10 #	<1 #		
Zinc	<1.9 mg/kg	TM181			149 M	42.2 M		
Boron, water soluble	<1 mg/kg	TM222			<1 M	<1 M		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243			0.0258 M	0.0091 M		

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP116	TP116	TP116	TP117	TP132	TP132
Depth (m)			0.40	1.10	2.40	1.80	0.30	1.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	07/10/2020	07/10/2020	07/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000524	23000525	23000526	23000522	23000550	23000554
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	5.4	12	10	19	17	12
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M				<0.01 @ M	
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 @ M				<0.01 @ M	
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 @ M				<0.015 @ M	
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 @ M				<0.035 @ M	
pH	1 pH Units	TM133	9.17 M				7.99 M	
Arsenic	<0.6 mg/kg	TM181	7.71 M				17.4 M	
Cadmium	<0.02 mg/kg	TM181	0.2 M				0.296 M	
Chromium	<0.9 mg/kg	TM181	9.85 M				9.22 M	
Copper	<1.4 mg/kg	TM181	23.9 M				69.5 M	
Lead	<0.7 mg/kg	TM181	29.4 M				84.8 M	
Mercury	<0.14 mg/kg	TM181	<0.14 M				<0.14 M	
Nickel	<0.2 mg/kg	TM181	8.3 M				25.5 M	
Selenium	<1 mg/kg	TM181	<1 #				<1 #	
Zinc	<1.9 mg/kg	TM181	62.8 M				165 M	
Boron, water soluble	<1 mg/kg	TM222	<1 M				1 M	
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0181 M				0.06 M	

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP133	TP133	TP133	WS101	WS101	WS101
Depth (m)			0.20	0.90	1.30	0.70	1.10	1.70
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			05/10/2020	05/10/2020	06/10/2020	06/10/2020	06/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000555	23000557	23000558	23000528	23000529	23000504
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	18	10	11	8.6	13	14
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M	<0.01 @ M		<0.01 @ M		
Cresols	<0.01 mg/kg	TM062 (S)	0.0122 @ M	<0.01 @ M		<0.01 @ M		
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 @ M	<0.015 @ M		<0.015 @ M		
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 @ M	<0.035 @ M		<0.035 @ M		
pH	1 pH Units	TM133	7.77 M	8.45 M		8.19 M		
Arsenic	<0.6 mg/kg	TM181	14.2 M	27.5 M		18.6 M		
Cadmium	<0.02 mg/kg	TM181	0.0739 M	0.35 M		<0.02 M		
Chromium	<0.9 mg/kg	TM181	12.9 M	13.5 M		1.3 M		
Copper	<1.4 mg/kg	TM181	73.2 M	20 M		15.1 M		
Lead	<0.7 mg/kg	TM181	28.8 M	4690 M		7.53 M		
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M		<0.14 M		
Nickel	<0.2 mg/kg	TM181	45.3 M	23.1 M		38.5 M		
Selenium	<1 mg/kg	TM181	<1 #	<1 #		<1 #		
Zinc	<1.9 mg/kg	TM181	79 M	89.1 M		85.2 M		
Boron, water soluble	<1 mg/kg	TM222	1.21 M	1.01 M		<1 M		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	<0.004 M	0.0142 M		0.322 M		

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS102	WS102	WS103	WS103	WS104	WS105
Depth (m)			1.00	1.55	0.80	1.85	0.40	0.80
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000530	23000532	23000533	23000535	23000536	23000506
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	7.3	10	25	13	12	12
Phenol	<0.01 mg/kg	TM062 (S)			<0.01 @ M		<0.01 @ M	
Cresols	<0.01 mg/kg	TM062 (S)			<0.01 @ M		<0.01 @ M	
Xylenols	<0.015 mg/kg	TM062 (S)			<0.015 @ M		<0.015 @ M	
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)			<0.035 @ M		<0.035 @ M	
pH	1 pH Units	TM133			8.14 M		8.9 M	
Arsenic	<0.6 mg/kg	TM181			25.9 M		22.9 M	
Cadmium	<0.02 mg/kg	TM181			<0.02 M		0.433 M	
Chromium	<0.9 mg/kg	TM181			14.9 M		8.91 M	
Copper	<1.4 mg/kg	TM181			622 M		37.6 M	
Lead	<0.7 mg/kg	TM181			424 M		128 M	
Mercury	<0.14 mg/kg	TM181			0.317 M		<0.14 M	
Nickel	<0.2 mg/kg	TM181			35.3 M		11.3 M	
Selenium	<1 mg/kg	TM181			<1 #		<1 #	
Zinc	<1.9 mg/kg	TM181			183 M		112 M	
Boron, water soluble	<1 mg/kg	TM222			<1 M		<1 M	
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243			0.0189 M		0.0161 M	

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS106	WS107	WS107	WS115	WS115	WS116
Depth (m)			0.40	0.30	1.65	0.60	1.45	1.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	05/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000539	23000542	23000545	23000494	23000495	23000513
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	6	6.6	15	12	18	13
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 @ M	<0.01 M		<0.01 @ M		
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 @ M	<0.01 M		<0.01 @ M		
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 @ M	<0.015 M		<0.015 @ M		
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 @ M	<0.035 M		<0.035 @ M		
pH	1 pH Units	TM133	9.1 M	8.52 M		8.2 M		
Arsenic	<0.6 mg/kg	TM181	5.07 M	10.5 M		19 M		
Cadmium	<0.02 mg/kg	TM181	0.0783 M	0.316 M		<0.02 M		
Chromium	<0.9 mg/kg	TM181	15.3 M	8.41 M		<0.9 M		
Copper	<1.4 mg/kg	TM181	16.4 M	21.2 M		114 M		
Lead	<0.7 mg/kg	TM181	9.87 M	25.8 M		79.8 M		
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M		0.225 M		
Nickel	<0.2 mg/kg	TM181	35.3 M	14.3 M		40.1 M		
Selenium	<1 mg/kg	TM181	2.1 #	<1 #		<1 #		
Zinc	<1.9 mg/kg	TM181	37.3 M	53.2 M		110 M		
Boron, water soluble	<1 mg/kg	TM222	1.39 M	<1 M		<1 M		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.108 M	0.0158 M		0.0218 M		

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP102	TP103	TP103	TP104	TP104	TP105
Depth (m)			0.50	0.60	1.10	0.40	1.50	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			05/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000559	23001752	23001755	23001750	23001740	23001743
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	95.8	91.8	94.7	92.5	102	97.7
Acenaphthene-d10 % recovery**	%	TM218	87.5	88.6	85.5	88.1	107	106
Phenanthrene-d10 % recovery**	%	TM218	93.7	97.7	91.5	99.1	96.6	95.4
Chrysene-d12 % recovery**	%	TM218	126	112	100	96.5	111	119
Perylene-d12 % recovery**	%	TM218	119	115	100	91.9	109	115
Naphthalene	<9 µg/kg	TM218	<9 @ M	246 @ M	<9 @ M	10.7 @ M	897 @ M	308 @ M
Acenaphthylene	<12 µg/kg	TM218	<12 @ M	561 @ M	<12 @ M	<12 @ M	738 @ M	284 @ M
Acenaphthene	<8 µg/kg	TM218	<8 @ M	501 @ M	<8 @ M	12.1 @ M	2170 @ M	904 @ M
Fluorene	<10 µg/kg	TM218	<10 @ M	812 @ M	<10 @ M	35.2 @ M	5870 @ M	1800 @ M
Phenanthrene	<15 µg/kg	TM218	<15 @ M	5040 @ M	<15 @ M	85.8 @ M	10800 @ M	2880 @ M
Anthracene	<16 µg/kg	TM218	<16 @ M	1800 @ M	<16 @ M	<16 @ M	413 @ M	<16 @ M
Fluoranthene	<17 µg/kg	TM218	<17 @ M	11600 @ M	<17 @ M	189 @ M	724 @ M	241 @ M
Pyrene	<15 µg/kg	TM218	<15 @ M	12200 @ M	<15 @ M	142 @ M	862 @ M	441 @ M
Benz(a)anthracene	<14 µg/kg	TM218	<14 @ M	7690 @ M	<14 @ M	101 @ M	135 @ M	<14 @ M
Chrysene	<10 µg/kg	TM218	<10 @ M	7480 @ M	<10 @ M	106 @ M	212 @ M	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 @ M	15100 @ M	<15 @ M	143 @ M	136 @ M	34.8 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 @ M	4710 @ M	<14 @ M	45.9 @ M	27.7 @ M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 @ M	12400 @ M	<15 @ M	84.9 @ M	72.2 @ M	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 @ M	11300 @ M	<18 @ M	74.6 @ M	54.6 @ M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M	1290 @ M	<23 @ M	<23 @ M	<23 @ M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 @ M	9020 @ M	<24 @ M	54.6 @ M	47.1 @ M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	102000	<118	1080	23200	6890

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Customer Sample Ref.			TP109	TP109	TP116	TP132	TP133	TP133
Depth (m)			0.30	0.80	0.40	0.30	0.20	0.90
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	07/10/2020	06/10/2020	05/10/2020	05/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23001741	23000547	23000524	23000550	23000555	23000557
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	93.9	85.7	89.4	94.5	84.2	84.5
Acenaphthene-d10 % recovery**	%	TM218	88.4	82.9	83.9	92.2	84.5	85.2
Phenanthrene-d10 % recovery**	%	TM218	93.9	77.8	89.5	95.9	81.4	84.9
Chrysene-d12 % recovery**	%	TM218	97.8	85.6	98.5	129	93.8	94.1
Perylene-d12 % recovery**	%	TM218	86.1	81.6	90.7	106	75.7	82.8
Naphthalene	<9 µg/kg	TM218	366 @ M	<9 M	36.5 @ M	768 @ M	108 @ M	<9 @ M
Acenaphthylene	<12 µg/kg	TM218	129 @ M	<12 M	<12 @ M	<60 @ M	<12 @ M	<12 @ M
Acenaphthene	<8 µg/kg	TM218	185 @ M	<8 M	<8 @ M	<40 @ M	<8 @ M	<8 @ M
Fluorene	<10 µg/kg	TM218	399 @ M	<10 M	<10 @ M	111 @ M	18 @ M	<10 @ M
Phenanthrene	<15 µg/kg	TM218	1660 @ M	<15 M	53.5 @ M	614 @ M	179 @ M	<15 @ M
Anthracene	<16 µg/kg	TM218	475 @ M	<16 M	<16 @ M	290 @ M	68.5 @ M	<16 @ M
Fluoranthene	<17 µg/kg	TM218	1460 @ M	<17 M	64 @ M	577 @ M	117 @ M	<17 @ M
Pyrene	<15 µg/kg	TM218	1240 @ M	<15 M	56.5 @ M	627 @ M	106 @ M	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218	866 @ M	<14 M	47.7 @ M	431 @ M	86.9 @ M	<14 @ M
Chrysene	<10 µg/kg	TM218	1010 @ M	<10 M	53.2 @ M	530 @ M	114 @ M	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218	1730 @ M	<15 M	86.7 @ M	693 @ M	173 @ M	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218	506 @ M	<14 M	28.9 @ M	213 @ M	35.5 @ M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218	787 @ M	<15 M	46.2 @ M	304 @ M	47.3 @ M	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	1340 @ M	<18 M	54.5 @ M	369 @ M	79.7 @ M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	195 @ M	<23 M	<23 @ M	<115 @ M	<23 @ M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	1180 @ M	<24 M	52.7 @ M	448 @ M	85.3 @ M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	13500	<118	580	5970	1220	<118

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS101	WS103	WS104	WS106	WS107	WS115
Depth (m)			0.70	0.80	0.40	0.40	0.30	0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000528	23000533	23000536	23000539	23000542	23000494
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	94	85.3	95.3	85.5	92.5	89.7
Acenaphthene-d10 % recovery**	%	TM218	91.5	85.1	86.5	85.1	87.5	88.2
Phenanthrene-d10 % recovery**	%	TM218	98	82.2	93.8	82.3	91.5	87
Chrysene-d12 % recovery**	%	TM218	121	77.1	129	73.9	102	85.7
Perylene-d12 % recovery**	%	TM218	114	70.2	120	72	97	79.8
Naphthalene	<9 µg/kg	TM218	155 @ M	124 M	<90 @ M	<45 M	<450 @ M	148 M
Acenaphthylene	<12 µg/kg	TM218	184 @ M	73.9 M	233 @ M	<60 M	<600 @ M	<60 M
Acenaphthene	<8 µg/kg	TM218	249 @ M	41.6 M	<80 @ M	<40 M	<400 @ M	113 M
Fluorene	<10 µg/kg	TM218	1360 @ M	98.7 M	<100 @ M	<50 M	<500 @ M	85 M
Phenanthrene	<15 µg/kg	TM218	2480 @ M	650 M	1880 @ M	341 M	1340 @ M	1180 M
Anthracene	<16 µg/kg	TM218	85 @ M	146 M	396 @ M	<80 M	<800 @ M	329 M
Fluoranthene	<17 µg/kg	TM218	264 @ M	802 M	4400 @ M	479 M	3150 @ M	2100 M
Pyrene	<15 µg/kg	TM218	256 @ M	657 M	3500 @ M	411 M	3790 @ M	1790 M
Benz(a)anthracene	<14 µg/kg	TM218	46.2 @ M	409 M	2620 @ M	224 M	1860 @ M	1350 M
Chrysene	<10 µg/kg	TM218	72.5 @ M	444 M	2500 @ M	267 M	1660 @ M	1310 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	49.5 @ M	565 M	3440 @ M	398 M	4460 @ M	2200 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	19.4 @ M	221 M	1110 @ M	144 M	1290 @ M	805 M
Benzo(a)pyrene	<15 µg/kg	TM218	45.4 @ M	374 M	2070 @ M	259 M	2800 @ M	1430 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	26.3 @ M	283 M	1410 @ M	228 M	3240 @ M	1190 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 @ M	47.1 M	331 @ M	<115 M	<1150 @ M	190 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	30.3 @ M	228 M	1400 @ M	224 M	2940 @ M	1040 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	5320	5170	25300	2970	26500	15300

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP102	TP103	TP103	TP104	TP104	TP105
Depth (m)			0.50	0.60	1.10	0.40	1.50	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			05/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000559	23001752	23001755	23001750	23001740	23001743
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	102	117 @	121	130 @	95 3 @	80.3 @
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	11.5 @	<10	<100 @	263 3 @	<50 @
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	49.5 @	11.2	2610 @	35700 3 @	1040 @
Aliphatics >C8-C10	<10 µg/kg	TM089	11.2	110 @	16.8	22000 @	284000 3 @	7630 @
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	4990	<1000	<1000	981000	392000
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000	112000	<1000	1700	4970000	3950000
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000	150000	2710	5960	6560000	5230000
Aliphatics >C21-C35	<1000 µg/kg	TM414	<1000	20300	<1000	2700	2560000	1450000
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	400000	44100
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000	288000	<5000	10400	15500000	11100000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000	453000	11300	13700	19700000	13800000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10 @	<10	<100 @	<200 3 @	<50 @
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10 @	<10	<100 @	<200 3 @	<50 @
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	73.6 @	11.2	14700 @	190000 3 @	5090 @
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	1250	<1000	<1000	202000	84700
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000	24300	<1000	<1000	2550000	1320000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000	55900	3340	<1000	1220000	1130000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	<1000	76400	3330	1330	216000	171000
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000	7160	<1000	<1000	<10000	<5000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000	1030	<1000	<1000	<10000	<5000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000	165000	7750	<5000	4200000	2710000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000	453000	<10000	53100	20200000	13800000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50	171 @	<50	24700 @	320000 3 @	8670 @
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	73.6 @	<50	14700 @	190000 3 @	5090 @
GRO >C5-C10	<20 µg/kg	TM089	<20	245 @	<20	39400 @	510000 3 @	13800 @

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP105	TP105	TP109	TP109	TP109	TP114
Depth (m)			1.10	1.60	0.30	0.80	1.10	1.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	05/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23001751	23001748	23001741	23000547	23000549	23000519
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	90.1 @	89.6 @	49.5 @	96.7	87.8	118
Aliphatics >C5-C6	<10 µg/kg	TM089	310 @	305 @	11.7 @	<10	16.1	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	3810 @	8310 @	57.3 @	<10	38	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	44800 @	68100 @	72.5 @	<10	1120	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414	662000	445000	16200	<1000	51500	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414	4330000	3260000	207000	<1000	752000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414	6120000	4980000	338000	13300	824000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414	1520000	1190000	165000	7260	276000	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414	47900	52000	<1000	<1000	41800	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	12700000	9920000	726000	20700	1950000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	16300000	12700000	1400000	40900	2320000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<200 @	<200 @	<10 @	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<200 @	<200 @	<10 @	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	29900 @	45400 @	48 @	<10	750	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414	135000	99900	9620	<1000	5890	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	2120000	1670000	120000	1870	181000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	1220000	882000	76200	2630	167000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	122000	95900	336000	11500	22600	3720
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<10000	<5000	128000	4200	<2000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<10000	<5000	9790	<1000	<2000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	3610000	2750000	670000	20200	378000	5590
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	16400000	12800000	1400000	40900	2330000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	49000 @	76700 @	142 @	<50	1180	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	29900 @	45400 @	<50 @	<50	750	<50
GRO >C5-C10	<20 µg/kg	TM089	78900 @	122000 @	142 @	<20	1930	<20

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP116	TP116	TP116	TP117	TP132	TP132
Depth (m)			0.40	1.10	2.40	1.80	0.30	1.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	07/10/2020	07/10/2020	07/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000524	23000525	23000526	23000522	23000550	23000554
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	93.6	115	101	113	70.3	94
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	39.9	<100
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10	<10	105	1000
Aliphatics >C8-C10	<10 µg/kg	TM089	10.6	10.2	32.2	<10	121	34600
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	1550	577000
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000	<1000	5500	<1000	26500	3340000
Aliphatics >C16-C21	<1000 µg/kg	TM414	8750	<1000	9740	<1000	55600	4970000
Aliphatics >C21-C35	<1000 µg/kg	TM414	9040	<1000	1650	<1000	<1000	1740000
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	1180	155000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	18500	<5000	16900	<5000	85600	10800000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	184000	<10000	20200	<10000	1340000	14400000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<100
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<100
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	21.1	<10	81.1	23100
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	4020	203000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	18300	2210000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	1240	<1000	<1000	<1000	397000	1120000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	140000	<1000	1560	<1000	726000	121000
Aromatics >EC35-EC44	<1000 µg/kg	TM414	24600	<1000	<1000	<1000	108000	<5000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	4540	<1000	<1000	<1000	13900	<5000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	166000	<5000	<5000	<5000	1250000	3660000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	184000	<10000	16900	<10000	1340000	14500000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50	<50	<50	<50	266	35600
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50	<50	<50	81.1	23100
GRO >C5-C10	<20 µg/kg	TM089	<20	<20	<20	<20	347	58600

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP133	TP133	TP133	WS101	WS101	WS101
Depth (m)			0.20	0.90	1.30	0.70	1.10	1.70
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			05/10/2020	05/10/2020	06/10/2020	06/10/2020	06/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000555	23000557	23000558	23000528	23000529	23000504
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	79.4	105	91.2 3	99	97.1	97.7 3 @
Aliphatics >C5-C6	<10 µg/kg	TM089	13.4	<10	<200 3	<200	146	206 3 @
Aliphatics >C6-C8	<10 µg/kg	TM089	40.3	18.9	2410 3	1100	671	16400 3 @
Aliphatics >C8-C10	<10 µg/kg	TM089	43.9	51.1	75500 3	36500	9210	161000 3 @
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	<1000	617000	199000	402000	219000
Aliphatics >C12-C16	<1000 µg/kg	TM414	3490	1420	4330000	1710000	2880000	1660000
Aliphatics >C16-C21	<1000 µg/kg	TM414	57700	66400	4480000	1870000	3100000	1660000
Aliphatics >C21-C35	<1000 µg/kg	TM414	19800	10300	1350000	591000	1000000	512000
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	139000	86900	121000	79400
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	81900	78700	10900000	4460000	7510000	4130000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	495000	186000	14300000	6010000	10200000	5430000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<200 3	<200	<100	<200 3 @
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<200 3	<200	<100	<200 3 @
Aromatics >EC8-EC10	<10 µg/kg	TM089	29.3	33.3	50300 3	24300	6140	108000 3 @
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	<1000	194000	45300	124000	59900
Aromatics > EC12-EC16	<1000 µg/kg	TM414	4150	<1000	1680000	810000	1470000	680000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	63500	62500	1440000	638000	977000	529000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	306000	39900	104000	56500	88200	36900
Aromatics >EC35-EC44	<1000 µg/kg	TM414	39300	4140	<5000	<1000	<5000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	5350	<1000	<5000	<1000	<5000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	413000	107000	3420000	1550000	2660000	1310000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	495000	186000	14500000	6070000	10200000	5720000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	97.6	69.9	77900 3	37600	10000	178000 3 @
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50	50300 3	24300	6140	108000 3 @
GRO >C5-C10	<20 µg/kg	TM089	97.6	69.9	128000 3	61900	16200	285000 3 @

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS102	WS102	WS103	WS103	WS104	WS105
Depth (m)			1.00	1.55	0.80	1.85	0.40	0.80
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000530	23000532	23000533	23000535	23000536	23000506
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	93	94.3	50 4	118	79	76.5
Aliphatics >C5-C6	<10 µg/kg	TM089	<100	<200	<10 4	164	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	413	640	43.9 4	599	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	22700	8260	22.6 4	4230	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414	462000	531000	<1000	96000	1390	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414	3320000	4090000	4890	664000	13900	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414	3890000	4010000	2760	775000	55800	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414	1070000	1190000	4350	290000	118000	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414	180000	189000	<1000	29100	148000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	8920000	10000000	12500	1850000	337000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	12100000	13300000	77300	2530000	944000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<100	<200	<10 4	<100	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<100	<200	<10 4	<100	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	15100	5510	14.6 4	2820	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414	86900	156000	<1000	15100	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	1660000	1710000	9030	365000	3640	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	1300000	1300000	18100	265000	13500	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	94800	116000	34900	25800	507000	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<2000	<5000	2280	<2000	83200	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<2000	<5000	<1000	<2000	28600	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	3150000	3290000	64800	674000	608000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	12100000	13300000	77300	2540000	944000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	23100	8900	66.5 4	4990	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	15100	5510	<50 4	2820	<50	<50
GRO >C5-C10	<20 µg/kg	TM089	38200	14400	66.5 4	7810	<20	<20

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS106	WS107	WS107	WS115	WS115	WS116
Depth (m)			0.40	0.30	1.65	0.60	1.45	1.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	05/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000539	23000542	23000545	23000494	23000495	23000513
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	75	61 4	97.8	55 4	84.6	103
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10 4	10.5	<10 4	14.6	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	14.9	36.4 4	37.4	<10 4	25.6	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	64.2 4	164	<10 4	129	10.4
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	29400	<1000	<1000	28900	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000	197000	<1000	5330	285000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414	1020	310000	2700	7990	357000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414	6550	50100	<1000	22000	113000	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414	12200	6330	<1000	<1000	5910	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	20000	593000	<5000	35900	790000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	82400	2150000	<10000	446000	1030000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10 4	<10	<10 4	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10 4	<10	<10 4	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	42.8 4	109	<10 4	86.6	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	2140	<1000	<1000	4330	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000	137000	<1000	2590	105000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	1030	176000	<1000	22000	94400	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	30200	677000	<1000	243000	29600	3310
Aromatics >EC35-EC44	<1000 µg/kg	TM414	31100	564000	<1000	142000	9860	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	17800	59400	<1000	<1000	3190	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	62400	1560000	<5000	411000	243000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	82400	2150000	<10000	446000	1030000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50	101 4	212	<50 4	170	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50 4	109	<50 4	86.6	<50
GRO >C5-C10	<20 µg/kg	TM089	<20	101 4	321	<20 4	256	<20

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CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP102	TP103	TP103	TP104	TP104	TP105
Depth (m)			0.50	0.60	1.10	0.40	1.50	0.50
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			05/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000559	23001752	23001755	23001750	23001740	23001743
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	114	108	113	111 @	103 @	109 @
Toluene-d8**	%	TM116	101	97.6	99.7	93.2 @	97.5 @	92.8 @
4-Bromofluorobenzene**	%	TM116	96.2	96.4	104	92.1 @	98.1 @	91.1 @
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<200 @ M	<2000 @ M	<200 @ M
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<180 @ M	<1800 @ M	<180 @ M
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<140 @ M	<1400 @ M	<140 @ M
Ethylbenzene	<4 µg/kg	TM116	<4 M	<4 M	<4 M	<80 @ M	<800 @ M	<80 @ M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<200 @ #	<2000 @ #	<200 @ #
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<200 @ M	<2000 @ M	<200 @ M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	<0.02	<0.02	<0.4 @	<4 @	<0.4 @
Sum of BTEX	<40 µg/kg	TM116	<40	<40	<40	<800 @	<8000 @	<800 @

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP105	TP105	TP109	TP109	TP109	TP114
Depth (m)			1.10	1.60	0.30	0.80	1.10	1.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	05/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23001751	23001748	23001741	23000547	23000549	23000519
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	108 @	110 @	107 @	103	108	108
Toluene-d8**	%	TM116	88.8 @	86.9 @	90.3 @	102	100	102
4-Bromofluorobenzene**	%	TM116	80.3 @	78.1 @	80.3 @	94.8	96.1	83
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 @ M	<200 @ M	<200 @ M	<10 M	<200 M	<10 M
Benzene	<9 µg/kg	TM116	<180 @ M	<180 @ M	<180 @ M	<9 M	<180 M	<9 M
Toluene	<7 µg/kg	TM116	<140 @ M	<140 @ M	<140 @ M	<7 M	<140 M	<7 M
Ethylbenzene	<4 µg/kg	TM116	<80 @ M	<80 @ M	<80 @ M	<4 M	<80 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<200 @ #	<200 @ #	<200 @ #	<10 #	<200 #	<10 #
o-Xylene	<10 µg/kg	TM116	<200 @ M	<200 @ M	<200 @ M	<10 M	<200 M	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4 @	<0.4 @	<0.4 @	<0.02	<0.4	<0.02
Sum of BTEX	<40 µg/kg	TM116	<800 @	<800 @	<800 @	<40	<800	<40

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP116	TP116	TP116	TP117	TP132	TP132
Depth (m)			0.40	1.10	2.40	1.80	0.30	1.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	07/10/2020	07/10/2020	07/10/2020	06/10/2020	06/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000524	23000525	23000526	23000522	23000550	23000554
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	96.8	106	109	118	108	107
Toluene-d8**	%	TM116	92.2	97.7	101	103	92.2	96.6
4-Bromofluorobenzene**	%	TM116	75.1	102	98.6	94.5	82.4	87.9
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<200 M	<200 M
Benzene	<9 µg/kg	TM116	<9 M	<9 M	<9 M	<9 M	<180 M	<180 M
Toluene	<7 µg/kg	TM116	<7 M	<7 M	<7 M	<7 M	<140 M	<140 M
Ethylbenzene	<4 µg/kg	TM116	<4 M	<4 M	<4 M	<4 M	<80 M	<80 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<10 #	<10 #	<10 #	<200 #	<200 #
o-Xylene	<10 µg/kg	TM116	<10 M	<10 M	<10 M	<10 M	<200 M	<200 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	<0.02	<0.02	<0.02	<0.4	<0.4
Sum of BTEX	<40 µg/kg	TM116	<40	<40	<40	<40	<800	<800

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP133	TP133	TP133	WS101	WS101	WS101
Depth (m)			0.20	0.90	1.30	0.70	1.10	1.70
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			05/10/2020	05/10/2020	06/10/2020	06/10/2020	06/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000555	23000557	23000558	23000528	23000529	23000504
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	117	117	107	109	107	111
Toluene-d8**	%	TM116	97.3	102	93.8	99.2	99.3	92.1
4-Bromofluorobenzene**	%	TM116	84.4	98.7	82	93	88.8	82.2
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<200 M	<200 M	<200 M	<200 M	<200 M
Benzene	<9 µg/kg	TM116	<180 M	<180 M	<180 M	<180 M	<180 M	<180 M
Toluene	<7 µg/kg	TM116	<140 M	<140 M	<140 M	<140 M	<140 M	<140 M
Ethylbenzene	<4 µg/kg	TM116	<80 M	<80 M	<80 M	<80 M	<80 M	<80 M
p/m-Xylene	<10 µg/kg	TM116	<200 #	<200 #	<200 #	<200 #	<200 #	<200 #
o-Xylene	<10 µg/kg	TM116	<200 M	<200 M	<200 M	<200 M	<200 M	<200 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Sum of BTEX	<40 µg/kg	TM116	<800	<800	<800	<800	<800	<800

11:24:36 25/10/2020

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS102	WS102	WS103	WS103	WS104	WS105
Depth (m)			1.00	1.55	0.80	1.85	0.40	0.80
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000530	23000532	23000533	23000535	23000536	23000506
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	116	109	106	108	105	104
Toluene-d8**	%	TM116	94.6	98.3	99.5	95.7	102	97.9
4-Bromofluorobenzene**	%	TM116	87.6	87.6	85.4	86.8	95.8	96.9
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<200 M	<200 M	<200 M	<200 M	<10 M
Benzene	<9 µg/kg	TM116	<180 M	<180 M	<180 M	<180 M	<180 M	<9 M
Toluene	<7 µg/kg	TM116	<140 M	<140 M	<140 M	<140 M	<140 M	<7 M
Ethylbenzene	<4 µg/kg	TM116	<80 M	<80 M	<80 M	<80 M	<80 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<200 #	<200 #	<200 #	<200 #	<200 #	<10 #
o-Xylene	<10 µg/kg	TM116	<200 M	<200 M	<200 M	<200 M	<200 M	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4	<0.4	<0.4	<0.4	<0.4	<0.02
Sum of BTEX	<40 µg/kg	TM116	<800	<800	<800	<800	<800	<40

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS106	WS107	WS107	WS115	WS115	WS116
Depth (m)			0.40	0.30	1.65	0.60	1.45	1.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	06/10/2020	06/10/2020	05/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
Lab Sample No.(s)			23000539	23000542	23000545	23000494	23000495	23000513
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	118	116	116	108	104	103
Toluene-d8**	%	TM116	101	91.9	99.3	101	101	101
4-Bromofluorobenzene**	%	TM116	93.9	79.2	103	88.6	93.6	89.8
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<200 M	<10 M	<200 M	<200 M	<10 M
Benzene	<9 µg/kg	TM116	<180 M	<180 M	<9 M	<180 M	<180 M	<9 M
Toluene	<7 µg/kg	TM116	<140 M	<140 M	<7 M	<140 M	<140 M	<7 M
Ethylbenzene	<4 µg/kg	TM116	<80 M	<80 M	<4 M	<80 M	<80 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<200 #	<200 #	<10 #	<200 #	<200 #	<10 #
o-Xylene	<10 µg/kg	TM116	<200 M	<200 M	<10 M	<200 M	<200 M	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4	<0.4	<0.02	<0.4	<0.4	<0.02
Sum of BTEX	<40 µg/kg	TM116	<800	<800	<40	<800	<800	<40

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+$@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP102 0.50 SOLID 05/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000559 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP103 0.15 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23001754 TM048	22/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP103 0.60 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23001752 TM048	22/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP103 1.10 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23001755 TM048	22/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP104 0.40 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23001750 TM048	22/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP104 1.50 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23001740 TM048	22/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP105 0.50 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23001743 TM048	22/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP109 0.30 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23001741 TM048	22/10/20	Eva Guerra	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG: 201009-65 **Client Reference:** Gloucester Great Western Rd **Report Number:** 572504
Location: Gloucester Great Western R **Order Number:** R/16909/20904/1005 **Superseded Report:** 572377

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP109 0.80 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000547 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP116 0.40 SOLID 07/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000524 TM048	23/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP132 0.30 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000550 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP133 0.20 SOLID 05/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000555 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP133 0.90 SOLID 05/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000557 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS101 0.70 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000528 TM048	22/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS103 0.80 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000533 TM048	22/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS104 0.40 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000536 TM048	22/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS105 0.30 SOLID 07/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000505 TM048	23/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS106 0.40 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000539 TM048	22/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS107 0.30 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000542 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS115 0.60 SOLID 06/10/2020 00:00:00 09/10/2020 06:00:00 201009-65 23000494 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-65	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572504
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	572377

Test Completion Dates

Lab Sample No(s)	23000559	23001752	23001754	23001755	23001740	23001750	23001743	23001748	23001751	23000547
Customer Sample Ref.	TP102	TP103	TP103	TP103	TP104	TP104	TP105	TP105	TP105	TP109
AGS Ref.										
Depth	0.50	0.60	0.15	1.10	1.50	0.40	0.50	1.60	1.10	0.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	20-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020			20-Oct-2020
Asbestos ID in Solid Samples	21-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020			21-Oct-2020
Boron Water Soluble	20-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020			20-Oct-2020
EPH CWG GC (S)	20-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
GRO by GC-FID (S)	19-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020
Metals in solid samples by OES	20-Oct-2020	22-Oct-2020		22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020			20-Oct-2020
PAH by GCMS	22-Oct-2020	22-Oct-2020		22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020			20-Oct-2020
pH	19-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020			20-Oct-2020
Phenols by HPLC (S)	20-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020			20-Oct-2020
Sample description	17-Oct-2020	19-Oct-2020		19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020
TPH CWG GC (S)	20-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
VOC MS (S)	19-Oct-2020	21-Oct-2020		21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020

Lab Sample No(s)	23000549	23001741	23000519	23000524	23000525	23000526	23000522	23000550	23000554	23000555
Customer Sample Ref.	TP109	TP109	TP114	TP116	TP116	TP116	TP117	TP132	TP132	TP133
AGS Ref.										
Depth	1.10	0.30	1.60	0.40	1.10	2.40	1.80	0.30	1.30	0.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)		21-Oct-2020		22-Oct-2020				20-Oct-2020		20-Oct-2020
Asbestos ID in Solid Samples		22-Oct-2020		23-Oct-2020				21-Oct-2020		21-Oct-2020
Boron Water Soluble		21-Oct-2020		20-Oct-2020				19-Oct-2020		19-Oct-2020
EPH CWG GC (S)	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
GRO by GC-FID (S)	19-Oct-2020	21-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Metals in solid samples by OES		22-Oct-2020		23-Oct-2020				20-Oct-2020		20-Oct-2020
PAH by GCMS		22-Oct-2020		22-Oct-2020				22-Oct-2020		20-Oct-2020
pH		21-Oct-2020		22-Oct-2020				20-Oct-2020		19-Oct-2020
Phenols by HPLC (S)		21-Oct-2020		23-Oct-2020				20-Oct-2020		20-Oct-2020
Sample description	17-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
TPH CWG GC (S)	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
VOC MS (S)	19-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020

Lab Sample No(s)	23000557	23000558	23000504	23000528	23000529	23000530	23000532	23000533	23000535	23000536
Customer Sample Ref.	TP133	TP133	WS101	WS101	WS101	WS102	WS102	WS103	WS103	WS104
AGS Ref.										
Depth	0.90	1.30	1.70	0.70	1.10	1.00	1.55	0.80	1.85	0.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	20-Oct-2020			20-Oct-2020				20-Oct-2020		20-Oct-2020
Asbestos ID in Solid Samples	21-Oct-2020			22-Oct-2020				22-Oct-2020		22-Oct-2020
Boron Water Soluble	20-Oct-2020			20-Oct-2020				20-Oct-2020		20-Oct-2020
EPH CWG GC (S)	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
GRO by GC-FID (S)	19-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020
Metals in solid samples by OES	21-Oct-2020			20-Oct-2020				21-Oct-2020		20-Oct-2020
PAH by GCMS	20-Oct-2020			25-Oct-2020				20-Oct-2020		22-Oct-2020
pH	20-Oct-2020			20-Oct-2020				19-Oct-2020		20-Oct-2020
Phenols by HPLC (S)	20-Oct-2020			20-Oct-2020				20-Oct-2020		20-Oct-2020
Sample description	17-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020
TPH CWG GC (S)	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
VOC MS (S)	19-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020

Lab Sample No(s)	23000505	23000506	23000539	23000542	23000545	23000494	23000495	23000513
Customer Sample Ref.	WS105	WS105	WS106	WS107	WS107	WS115	WS115	WS116
AGS Ref.								
Depth	0.30	0.80	0.40	0.30	1.65	0.60	1.45	1.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)			20-Oct-2020	20-Oct-2020		20-Oct-2020		
Asbestos ID in Solid Samples	23-Oct-2020		22-Oct-2020	21-Oct-2020		21-Oct-2020		
Boron Water Soluble			20-Oct-2020	20-Oct-2020		20-Oct-2020		
EPH CWG GC (S)		21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020
GRO by GC-FID (S)		21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020
Metals in solid samples by OES			20-Oct-2020	20-Oct-2020		20-Oct-2020		
PAH by GCMS			20-Oct-2020	22-Oct-2020		20-Oct-2020		
pH			20-Oct-2020	20-Oct-2020		20-Oct-2020		
Phenols by HPLC (S)			20-Oct-2020	19-Oct-2020		20-Oct-2020		
Sample description		19-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020
TPH CWG GC (S)		21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020
VOC MS (S)		21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

General

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

John F Hunt Remediation Ltd
London Road
GRAYS
ESSEX
RM20 4DB

Attention: Stuart Carroll

CERTIFICATE OF ANALYSIS

Date of report Generation:	23 October 2020
Customer:	John F Hunt Remediation Ltd
Sample Delivery Group (SDG):	201009-96
Your Reference:	Gloucester Great Western Road Yard
Location:	Gloucester Great Western Road Yard
Report No:	572324

We received 31 samples on Friday October 09, 2020 and 26 of these samples were scheduled for analysis which was completed on Friday October 23, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23000498	TP101		0.40	07/10/2020
23000499	TP101		1.10	07/10/2020
23000500	TP101		2.40	07/10/2020
22998380	TP112		0.40 - 0.40	08/10/2020
22998397	TP112		0.90 - 0.90	08/10/2020
22998388	TP112		1.30 - 1.30	08/10/2020
22998395	TP112		2.30 - 2.30	08/10/2020
22998376	TP112		3.00 - 3.00	08/10/2020
22998389	TP113		0.10 - 0.10	08/10/2020
22998386	TP113		0.60 - 0.60	08/10/2020
22998393	TP113		1.50 - 1.50	08/10/2020
22998392	TP115		0.10 - 0.10	08/10/2020
22998384	TP115		0.50 - 0.50	08/10/2020
22998383	TP115		1.40 - 1.40	08/10/2020
22998398	TP118		0.25 - 0.25	07/10/2020
22998401	TP118		0.35 - 0.35	07/10/2020
22998399	TP118		1.10 - 1.10	07/10/2020
22998405	TP119		0.30 - 0.30	07/10/2020
22998404	TP119		0.60 - 0.60	07/10/2020
22998407	TP119		1.60 - 1.60	07/10/2020
22998390	TP120		0.20 - 0.20	08/10/2020
22998385	TP120		0.40 - 0.40	08/10/2020
22998394	TP120		1.60 - 1.60	08/10/2020
22998382	TP120		2.00 - 2.00	08/10/2020
22998403	TP121		0.30 - 0.30	08/10/2020
22998396	TP121		0.60 - 0.60	08/10/2020
22998381	TP121		1.50 - 1.50	08/10/2020
22998377	TP120A		0.60 - 0.60	08/10/2020
22998378	TP120A		0.80 - 0.80	08/10/2020
22998387	TP120A		2.00 - 2.00	08/10/2020
22998375	TP120a Pipe Fragment		0.60 - 0.60	

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23000498			23000500		22998380		22998397			22998388		22998395		22998376		22998389		22998386	
Customer Sample Reference			TP101			TP101		TP112		TP112			TP112		TP112		TP112		TP113		TP113	
AGS Reference																						
Depth (m)			0.40			2.40		0.40 - 0.40		0.90 - 0.90			1.30 - 1.30		2.30 - 2.30		3.00 - 3.00		0.10 - 0.10		0.60 - 0.60	
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 8		X						X										X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 16	X					X	X									X	X			
Boron Water Soluble	All	NDPs: 0 Tests: 8		X						X										X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 18		X		X				X		X		X		X				X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 18			X		X				X		X		X		X				X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 8		X						X										X		
PAH by GCMS	All	NDPs: 0 Tests: 8		X						X										X		
pH	All	NDPs: 0 Tests: 8		X						X										X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 8		X						X										X		
Sample description	All	NDPs: 0 Tests: 18		X		X				X		X		X		X				X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 18		X		X				X		X		X		X				X		
VOC MS (S)	All	NDPs: 0 Tests: 18			X		X				X		X		X		X				X	

22998385	TP120		0.40 - 0.40	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											
22998390	TP120		0.20 - 0.20	1kg TUB with Handle (ALE260)	S		X											
22998407	TP119		1.60 - 1.60	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
22998404	TP119		0.60 - 0.60	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											
22998405	TP119		0.30 - 0.30	1kg TUB with Handle (ALE260)	S		X											
22998399	TP118		1.10 - 1.10	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
22998401	TP118		0.35 - 0.35	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X		X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											
22998398	TP118		0.25 - 0.25	1kg TUB with Handle (ALE260)	S		X											
22998383	TP115		1.40 - 1.40	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
22998392	TP115		0.10 - 0.10	1kg TUB with Handle (ALE260)	S		X											
22998393	TP113		1.50 - 1.50	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
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TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			22998382		22998403		22998396			22998377		22998387		22998375
Customer Sample Reference			TP120		TP121		TP121			TP120A		TP120A		TP120a Pipe Fragment
AGS Reference														
Depth (m)			2.00 - 2.00		0.30 - 0.30		0.60 - 0.60			0.60 - 0.60		2.00 - 2.00		0.60 - 0.60
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	BAG
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 8					X			X				
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 16			X	X			X					X
Boron Water Soluble	All	NDPs: 0 Tests: 8					X			X				
EPH CWG GC (S)	All	NDPs: 0 Tests: 18	X				X			X		X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 18		X				X			X		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 8					X			X				
PAH by GCMS	All	NDPs: 0 Tests: 8					X			X				
pH	All	NDPs: 0 Tests: 8					X			X				
Phenols by HPLC (S)	All	NDPs: 0 Tests: 8					X			X				
Sample description	All	NDPs: 0 Tests: 18	X				X			X		X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 18	X				X			X		X		
VOC MS (S)	All	NDPs: 0 Tests: 18		X				X			X		X	

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
23000498	TP101	0.40	Dark Brown	Sand	Stones	None
23000500	TP101	2.40	Dark Brown	Silty Sand	None	None
22998376	TP112	3.00 - 3.00	Dark Brown	Loamy Sand	Stones	None
22998388	TP112	1.30 - 1.30	Light Brown	Loamy Sand	Stones	None
22998395	TP112	2.30 - 2.30	Dark Brown	Sand	Vegetation	Stones
22998397	TP112	0.90 - 0.90	Black	Loamy Sand	Stones	None
22998386	TP113	0.60 - 0.60	Dark Brown	Sandy Loam	Stones	None
22998393	TP113	1.50 - 1.50	Light Brown	Loamy Sand	None	None
22998383	TP115	1.40 - 1.40	Light Brown	Sand	None	Stones
22998399	TP118	1.10 - 1.10	Light Brown	Sand	Stones	Vegetation
22998401	TP118	0.35 - 0.35	Dark Brown	Sand	Stones	Concrete/Aggregate
22998404	TP119	0.60 - 0.60	Dark Brown	Sand	Stones	N/A
22998407	TP119	1.60 - 1.60	Dark Brown	Loamy Sand	Stones	None
22998382	TP120	2.00 - 2.00	Dark Brown	Sand	Stones	N/A
22998385	TP120	0.40 - 0.40	Dark Brown	Loamy Sand	Stones	Vegetation
22998396	TP121	0.60 - 0.60	Dark Brown	Loamy Sand	Vegetation	Stones
22998377	TP120A	0.60 - 0.60	Dark Brown	Sand	Stones	None
22998387	TP120A	2.00 - 2.00	Dark Brown	Sand	Vegetation	Stones

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP101	TP101	TP112	TP112	TP112	TP112
Depth (m)			0.40	2.40	0.90 - 0.90	1.30 - 1.30	2.30 - 2.30	3.00 - 3.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	07/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			23000498	23000500	22998397	22998388	22998395	22998376
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	4.8	16	19	7.3	12	16
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M		<0.01 M			
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M		<0.01 M			
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M		<0.015 M			
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 M		<0.035 M			
pH	1 pH Units	TM133	8.97 M		8.13 M			
Arsenic	<0.6 mg/kg	TM181	7.6 M		29.5 M			
Cadmium	<0.02 mg/kg	TM181	0.279 M		<0.2 M			
Chromium	<0.9 mg/kg	TM181	5.14 M		11.6 M			
Copper	<1.4 mg/kg	TM181	19.2 M		218 M			
Lead	<0.7 mg/kg	TM181	27.7 M		119 M			
Mercury	<0.14 mg/kg	TM181	<0.14 M		<1.4 M			
Nickel	<0.2 mg/kg	TM181	5.7 M		71.6 M			
Selenium	<1 mg/kg	TM181	<1 #		<10 #			
Zinc	<1.9 mg/kg	TM181	62.1 M		92.9 M			
Boron, water soluble	<1 mg/kg	TM222	<1 M		<1 M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0075 M		0.0221 M			

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP113	TP113	TP115	TP118	TP118	TP119
Depth (m)			0.60 - 0.60	1.50 - 1.50	1.40 - 1.40	0.35 - 0.35	1.10 - 1.10	0.60 - 0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			22998386	22998393	22998383	22998401	22998399	22998404
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	14	12	14	14	13	14
Phenol	<0.01 mg/kg	TM062 (S)	0.0116 M			<0.01 M		<0.01 M
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M			<0.01 M		<0.01 M
Xylenols	<0.015 mg/kg	TM062 (S)	0.0812 M			<0.015 M		<0.015 M
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	0.0928 M			<0.035 M		<0.035 M
pH	1 pH Units	TM133	8.14 M			8.41 M		7.97 M
Arsenic	<0.6 mg/kg	TM181	24.1 M			13.2 M		25.7 M
Cadmium	<0.02 mg/kg	TM181	0.0347 M			0.372 M		0.123 M
Chromium	<0.9 mg/kg	TM181	6.61 M			6.87 M		<0.9 M
Copper	<1.4 mg/kg	TM181	188 M			82.3 M		235 M
Lead	<0.7 mg/kg	TM181	63.3 M			34.8 M		144 M
Mercury	<0.14 mg/kg	TM181	0.333 M			<0.14 M		0.21 M
Nickel	<0.2 mg/kg	TM181	28.4 M			27.1 M		64.3 M
Selenium	<1 mg/kg	TM181	<1 #			<1 #		<1 #
Zinc	<1.9 mg/kg	TM181	106 M			61.1 M		143 M
Boron, water soluble	<1 mg/kg	TM222	<1 M			<1 M		2.61 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0226 M			0.0284 M		0.0624 M

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP119	TP120	TP120	TP121	TP120A	TP120A
Depth (m)			1.60 - 1.60	0.40 - 0.40	2.00 - 2.00	0.60 - 0.60	0.60 - 0.60	2.00 - 2.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			22998407	22998385	22998382	22998396	22998377	22998387
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	9.1	14	12	13	20	12
Phenol	<0.01 mg/kg	TM062 (S)		<0.01 M		<0.01 M	<0.01 M	
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M		<0.01 M	<0.01 M	
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M		<0.015 M	0.025 M	
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)		<0.035 M		<0.035 M	<0.035 M	
pH	1 pH Units	TM133		8.27 M		8.19 M	8.03 M	
Arsenic	<0.6 mg/kg	TM181		24.5 M		20.4 M	24.7 M	
Cadmium	<0.02 mg/kg	TM181		0.377 M		<0.02 M	0.814 M	
Chromium	<0.9 mg/kg	TM181		10.7 M		21.9 M	14.8 M	
Copper	<1.4 mg/kg	TM181		426 M		26.2 M	397 M	
Lead	<0.7 mg/kg	TM181		273 M		31.5 M	237 M	
Mercury	<0.14 mg/kg	TM181		<0.14 M		0.241 M	0.245 M	
Nickel	<0.2 mg/kg	TM181		29.7 M		28.9 M	42.2 M	
Selenium	<1 mg/kg	TM181		<1 #		<1 #	<1 #	
Zinc	<1.9 mg/kg	TM181		134 M		91.4 M	465 M	
Boron, water soluble	<1 mg/kg	TM222		2.24 M		<1 M	1.93 M	
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.123 M		0.0058 M	0.101 M	

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP101	TP112	TP113	TP118	TP119	TP120
Depth (m)			0.40	0.90 - 0.90	0.60 - 0.60	0.35 - 0.35	0.60 - 0.60	0.40 - 0.40
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			23000498	22998397	22998386	22998401	22998404	22998385
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	83.8	87.9	18	90.7	87.6	88.3
Acenaphthene-d10 % recovery**	%	TM218	75.8	83.7	17.4	85.9	87.4	87.2
Phenanthrene-d10 % recovery**	%	TM218	81.9	85	16.6	93.7	95.4	81.4
Chrysene-d12 % recovery**	%	TM218	84.5	97.7	15.5	123	100	73.2
Perylene-d12 % recovery**	%	TM218	75.9	70.6	14.2	99.5	74.2	70.4
Naphthalene	<9 µg/kg	TM218	<90 ♦ M	130 M	137 M	290 M	154 M	107 M
Acenaphthylene	<12 µg/kg	TM218	<120 ♦ M	32.8 M	<12 M	42.5 M	21.4 M	<60 M
Acenaphthene	<8 µg/kg	TM218	<80 ♦ M	16.1 M	135 M	870 M	113 M	<40 M
Fluorene	<10 µg/kg	TM218	<100 ♦ M	36.1 M	60.3 M	369 M	119 M	<50 M
Phenanthrene	<15 µg/kg	TM218	<150 ♦ M	338 M	359 M	5960 M	1370 M	714 M
Anthracene	<16 µg/kg	TM218	<160 ♦ M	128 M	133 M	1430 M	326 M	132 M
Fluoranthene	<17 µg/kg	TM218	337 ♦ M	504 M	650 M	11300 M	2350 M	1250 M
Pyrene	<15 µg/kg	TM218	326 ♦ M	476 M	513 M	10200 M	1970 M	1100 M
Benz(a)anthracene	<14 µg/kg	TM218	212 ♦ M	367 M	349 M	6510 M	1900 M	563 M
Chrysene	<10 µg/kg	TM218	228 ♦ M	435 M	328 M	6130 M	1960 M	647 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	509 ♦ M	773 M	580 M	8370 M	2890 M	881 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	176 ♦ M	219 M	222 M	3390 M	928 M	391 M
Benzo(a)pyrene	<15 µg/kg	TM218	301 ♦ M	313 M	357 M	6700 M	1730 M	547 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	348 ♦ M	274 M	331 M	5030 M	1290 M	458 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<230 ♦ M	69.1 M	70.3 M	894 M	343 M	<115 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	331 ♦ M	285 M	343 M	4570 M	1150 M	401 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	2770	4400	4570	72000	18600	7200

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CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP121	TP120A				
Depth (m)			0.60 - 0.60	0.60 - 0.60				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			08/10/2020	08/10/2020				
Sample Time			.	.				
Date Received			09/10/2020	09/10/2020				
SDG Ref			201009-96	201009-96				
Lab Sample No.(s)			22998396	22998377				
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	94.8	93.3				
Acenaphthene-d10 % recovery**	%	TM218	86.8	91.4				
Phenanthrene-d10 % recovery**	%	TM218	94	88.8				
Chrysene-d12 % recovery**	%	TM218	122	88.3				
Perylene-d12 % recovery**	%	TM218	117	81.4				
Naphthalene	<9 µg/kg	TM218	<9 M	577 M				
Acenaphthylene	<12 µg/kg	TM218	<12 M	172 M				
Acenaphthene	<8 µg/kg	TM218	<8 M	569 M				
Fluorene	<10 µg/kg	TM218	<10 M	402 M				
Phenanthrene	<15 µg/kg	TM218	<15 M	5780 M				
Anthracene	<16 µg/kg	TM218	<16 M	1490 M				
Fluoranthene	<17 µg/kg	TM218	<17 M	10700 M				
Pyrene	<15 µg/kg	TM218	<15 M	9290 M				
Benz(a)anthracene	<14 µg/kg	TM218	<14 M	6810 M				
Chrysene	<10 µg/kg	TM218	<10 M	6100 M				
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M	10300 M				
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M	4150 M				
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M	6980 M				
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	5490 M				
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	1130 M				
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M	5220 M				
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	75200				

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP101	TP101	TP112	TP112	TP112	TP112
Depth (m)			0.40	2.40	0.90 - 0.90	1.30 - 1.30	2.30 - 2.30	3.00 - 3.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	07/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			23000498	23000500	22998397	22998388	22998395	22998376
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	111	98.4	51.1 4	94.1	98	117
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	12.4 4	<200	<200	<200
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	26 4	1790	10300	2600
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	42.2 4	48700	173000	30300
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	<1000	4200	829000	672000	285000
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000	<1000	5970	5060000	3740000	1530000
Aliphatics >C16-C21	<1000 µg/kg	TM414	3210	<1000	6440	5550000	4110000	1900000
Aliphatics >C21-C35	<1000 µg/kg	TM414	4510	<1000	1600	2730000	2000000	826000
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	<1000	244000	157000	96000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	8670	<5000	18200	14400000	10700000	4650000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	71700	<10000	459000	19800000	14900000	6290000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10 4	<200	<200	<200
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10 4	<200	<200	<200
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	28.5 4	32500	116000	20200
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	<1000	4560	340000	308000	131000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000	<1000	12900	3160000	2420000	874000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	1190	<1000	35500	1730000	1280000	567000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	29900	<1000	298000	203000	166000	74100
Aromatics >EC35-EC44	<1000 µg/kg	TM414	31900	<1000	89800	<10000	<10000	<2000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	8260	<1000	<1000	<10000	<10000	<2000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	63100	<5000	441000	5430000	4190000	1650000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	71700	<10000	459000	19900000	15200000	6350000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50	<50	80.6 4	50500	184000	32900
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50	<50 4	32500	116000	20200
GRO >C5-C10	<20 µg/kg	TM089	<20	<20	80.6 4	83000	299000	53200

10:18:40 23/10/2020

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP113	TP113	TP115	TP118	TP118	TP119
Depth (m)			0.60 - 0.60	1.50 - 1.50	1.40 - 1.40	0.35 - 0.35	1.10 - 1.10	0.60 - 0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			22998386	22998393	22998383	22998401	22998399	22998404
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	11.2 4	98.6	98.7	69 4	112	46 4
Aliphatics >C5-C6	<10 µg/kg	TM089	12.8 4	<10	<10	<10 4	<10	<10 4
Aliphatics >C6-C8	<10 µg/kg	TM089	27.8 4	<10	11.6	<10 4	<10	<10 4
Aliphatics >C8-C10	<10 µg/kg	TM089	58 4	<10	22	<10 4	<10	<10 4
Aliphatics >C10-C12	<1000 µg/kg	TM414	1520	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414	5640	<1000	<1000	1310	<1000	19000
Aliphatics >C16-C21	<1000 µg/kg	TM414	13600	<1000	<1000	2940	<1000	31200
Aliphatics >C21-C35	<1000 µg/kg	TM414	24300	<1000	<1000	6580	<1000	8930
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	45100	<5000	<5000	11200	<5000	59600
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	586000	<10000	<10000	221000	<10000	652000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10 4	<10	<10	<10 4	<10	<10 4
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10 4	<10	<10	<10 4	<10	<10 4
Aromatics >EC8-EC10	<10 µg/kg	TM089	38.3 4	<10	15.1	<10 4	<10	<10 4
Aromatics > EC10-EC12	<1000 µg/kg	TM414	1350	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	15600	<1000	<1000	3280	<1000	2090
Aromatics > EC16-EC21	<1000 µg/kg	TM414	34800	<1000	<1000	40300	<1000	73600
Aromatics > EC21-EC35	<1000 µg/kg	TM414	286000	<1000	<1000	142000	<1000	427000
Aromatics >EC35-EC44	<1000 µg/kg	TM414	203000	<1000	<1000	24300	<1000	88800
Aromatics > EC40-EC44	<1000 µg/kg	TM414	2480	<1000	<1000	3960	<1000	6380
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	541000	<5000	<5000	210000	<5000	592000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	586000	<10000	<10000	221000	<10000	652000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	98.6 4	<50	<50	<50 4	<50	<50 4
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50 4	<50	<50	<50 4	<50	<50 4
GRO >C5-C10	<20 µg/kg	TM089	98.6 4	<20	<20	<20 4	<20	<20 4

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP119	TP120	TP120	TP121	TP120A	TP120A
Depth (m)			1.60 - 1.60	0.40 - 0.40	2.00 - 2.00	0.60 - 0.60	0.60 - 0.60	2.00 - 2.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			22998407	22998385	22998382	22998396	22998377	22998387
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	98.4	48.9 4	99 3	104	24.2 4	96.4
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10 4	<200 3	<10	<10 4	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10 4	757 3	<10	<10 4	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10 4	168000 3	<10	<10 4	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	1300	1260000	<1000	1200	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000	6210	776000	<1000	3900	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000	12700	6260	<1000	7150	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414	<1000	27600	1470	<1000	14000	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000	47800	2040000	<5000	26400	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000	346000	2320000	<10000	530000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10 4	<200 3	<10	<10 4	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10 4	<200 3	<10	<10 4	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10 4	112000 3	<10	<10 4	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	<1000	37600	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000	4400	235000	<1000	10300	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000	9380	1280	<1000	66400	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	<1000	235000	<1000	1320	315000	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000	49400	<1000	<1000	111000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000	2500	<1000	<1000	10200	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000	298000	276000	<5000	503000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000	346000	2600000	<10000	530000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50	<50 4	169000 3	<50	<50 4	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50 4	112000 3	<50	<50 4	<50
GRO >C5-C10	<20 µg/kg	TM089	<20	<20 4	281000 3	<20	<20 4	<20

10:18:40 23/10/2020

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP101	TP101	TP112	TP112	TP112	TP112
Depth (m)			0.40	2.40	0.90 - 0.90	1.30 - 1.30	2.30 - 2.30	3.00 - 3.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	07/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			23000498	23000500	22998397	22998388	22998395	22998376
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	106	111	112	117	117	116
Toluene-d8**	%	TM116	103	101	99.2	94.8	94.7	96.3
4-Bromofluorobenzene**	%	TM116	95.4	99.1	90.8	88	83	85.6
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<10 M	<200 M	<200 M	<200 M	<200 M
Benzene	<9 µg/kg	TM116	<180 M	<9 M	<180 M	<180 M	<180 M	<180 M
Toluene	<7 µg/kg	TM116	<140 M	<7 M	<140 M	<140 M	<140 M	<140 M
Ethylbenzene	<4 µg/kg	TM116	<80 M	<4 M	<80 M	<80 M	<80 M	<80 M
p/m-Xylene	<10 µg/kg	TM116	<200 #	<10 #	<200 #	<200 #	<200 #	<200 #
o-Xylene	<10 µg/kg	TM116	<200 M	<10 M	<200 M	<200 M	<200 M	<200 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4	<0.02	<0.4	<0.4	<0.4	<0.4
Sum of BTEX	<40 µg/kg	TM116	<800	<40	<800	<800	<800	<800

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP113	TP113	TP115	TP118	TP118	TP119
Depth (m)			0.60 - 0.60	1.50 - 1.50	1.40 - 1.40	0.35 - 0.35	1.10 - 1.10	0.60 - 0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			22998386	22998393	22998383	22998401	22998399	22998404
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	96	112	106	118	107	113
Toluene-d8**	%	TM116	93.5	100	100	99.7	101	99.1
4-Bromofluorobenzene**	%	TM116	70.1	99.8	97.8	90.1	96.3	82.9
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M	<10 M	<200 M
Benzene	<9 µg/kg	TM116	<180 M	<9 M	<9 M	<180 M	<9 M	<180 M
Toluene	<7 µg/kg	TM116	<140 M	<7 M	<7 M	<140 M	<7 M	<140 M
Ethylbenzene	<4 µg/kg	TM116	<80 M	<4 M	<4 M	<80 M	<4 M	<80 M
p/m-Xylene	<10 µg/kg	TM116	<200 #	<10 #	<10 #	<200 #	<10 #	<200 #
o-Xylene	<10 µg/kg	TM116	<200 M	<10 M	<10 M	<200 M	<10 M	<200 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4	<0.02	<0.02	<0.4	<0.02	<0.4
Sum of BTEX	<40 µg/kg	TM116	<800	<40	<40	<800	<40	<800

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP119	TP120	TP120	TP121	TP120A	TP120A
Depth (m)			1.60 - 1.60	0.40 - 0.40	2.00 - 2.00	0.60 - 0.60	0.60 - 0.60	2.00 - 2.00
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			07/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-96	201009-96	201009-96	201009-96	201009-96	201009-96
Lab Sample No.(s)			22998407	22998385	22998382	22998396	22998377	22998387
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	105	114	117	106	109	107
Toluene-d8**	%	TM116	101	98	99.8	101	98.3	101
4-Bromofluorobenzene**	%	TM116	97.2	82.3	104	84.1	80.5	96.9
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<200 M	<200 M	<10 M	<200 M	<10 M
Benzene	<9 µg/kg	TM116	<9 M	<180 M	<180 M	<9 M	<180 M	<9 M
Toluene	<7 µg/kg	TM116	<7 M	<140 M	<140 M	<7 M	<140 M	<7 M
Ethylbenzene	<4 µg/kg	TM116	<4 M	<80 M	<80 M	<4 M	<80 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	<10 #	<200 #	<200 #	<10 #	<200 #	<10 #
o-Xylene	<10 µg/kg	TM116	<10 M	<200 M	<200 M	<10 M	<200 M	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	<0.4	<0.4	<0.02	<0.4	<0.02
Sum of BTEX	<40 µg/kg	TM116	<40	<800	<800	<40	<800	<40

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Cust. Sample Ref.	Depth (m)	Sample Type	Date Sampled	Date Received	SDG	Original Sample	Method Number	Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
TP101	0.40	SOLID	07/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	23000498	TM048	22/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP112	0.40 - 0.40	SOLID	08/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	22998380	TM048	22/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP112	0.90 - 0.90	SOLID	08/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	22998397	TM048	22/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP113	0.10 - 0.10	SOLID	08/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	22998389	TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP113	0.60 - 0.60	SOLID	08/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	22998386	TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP115	0.10 - 0.10	SOLID	08/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	22998392	TM048	22/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP118	0.25 - 0.25	SOLID	07/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	22998398	TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP118	0.35 - 0.35	SOLID	07/10/2020 00:00:00	09/10/2020 06:00:00	201009-96	22998401	TM048	22/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG: 201009-96 **Client Reference:** Gloucester Great Western Rd **Report Number:** 572324
Location: Gloucester Great Western R **Order Number:** R/16909/20904/1005 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP119 0.30 - 0.30 SOLID 07/10/2020 00:00:00 09/10/2020 06:00:00 201009-96 22998405 TM048	22/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP119 0.60 - 0.60 SOLID 07/10/2020 00:00:00 09/10/2020 06:00:00 201009-96 22998404 TM048	22/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP120 0.20 - 0.20 SOLID 08/10/2020 00:00:00 09/10/2020 06:00:00 201009-96 22998390 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP120 0.40 - 0.40 SOLID 08/10/2020 00:00:00 09/10/2020 06:00:00 201009-96 22998385 TM048	21/10/2020	James Richards	Fibre bundles in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP121 0.30 - 0.30 SOLID 08/10/2020 00:00:00 09/10/2020 06:00:00 201009-96 22998403 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP121 0.60 - 0.60 SOLID 08/10/2020 00:00:00 09/10/2020 06:00:00 201009-96 22998396 TM048	22/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP120A 0.60 - 0.60 SOLID 08/10/2020 00:00:00 09/10/2020 06:00:00 201009-96 22998377 TM048	22/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP120a Pipe Fragment 0.60 - 0.60 SOLID 09/10/2020 06:00:00 201009-96 22998375 TM048	21/10/20	Andrzej Ferfecki	loose fibres in soil	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-96	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572324
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23000498	23000500	22998376	22998380	22998388	22998395	22998397	22998386	22998389	22998393
Customer Sample Ref.	TP101	TP101	TP112	TP112	TP112	TP112	TP112	TP113	TP113	TP113
AGS Ref.										
Depth	0.40	2.40	3.00 - 3.00	0.40 - 0.40	1.30 - 1.30	2.30 - 2.30	0.90 - 0.90	0.60 - 0.60	0.10 - 0.10	1.50 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	20-Oct-2020						21-Oct-2020	21-Oct-2020		
Asbestos ID in Solid Samples	22-Oct-2020			22-Oct-2020			22-Oct-2020	21-Oct-2020	21-Oct-2020	
Boron Water Soluble	19-Oct-2020						21-Oct-2020	21-Oct-2020		
EPH CWG GC (S)	20-Oct-2020	20-Oct-2020	20-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020		20-Oct-2020
GRO by GC-FID (S)	19-Oct-2020	19-Oct-2020	20-Oct-2020		20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020		20-Oct-2020
Metals in solid samples by OES	20-Oct-2020						23-Oct-2020	22-Oct-2020		
PAH by GCMS	22-Oct-2020						22-Oct-2020	21-Oct-2020		
pH	19-Oct-2020						20-Oct-2020	20-Oct-2020		
Phenols by HPLC (S)	20-Oct-2020						20-Oct-2020	20-Oct-2020		
Sample description	17-Oct-2020	17-Oct-2020	19-Oct-2020		19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020		19-Oct-2020
TPH CWG GC (S)	20-Oct-2020	20-Oct-2020	20-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020		20-Oct-2020
VOC MS (S)	19-Oct-2020	19-Oct-2020	20-Oct-2020		20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020		20-Oct-2020

Lab Sample No(s)	22998383	22998392	22998398	22998399	22998401	22998404	22998405	22998407	22998382	22998385
Customer Sample Ref.	TP115	TP115	TP118	TP118	TP118	TP119	TP119	TP119	TP120	TP120
AGS Ref.										
Depth	1.40 - 1.40	0.10 - 0.10	0.25 - 0.25	1.10 - 1.10	0.35 - 0.35	0.60 - 0.60	0.30 - 0.30	1.60 - 1.60	2.00 - 2.00	0.40 - 0.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)					21-Oct-2020	20-Oct-2020				21-Oct-2020
Asbestos ID in Solid Samples		22-Oct-2020	21-Oct-2020		22-Oct-2020	22-Oct-2020	22-Oct-2020			21-Oct-2020
Boron Water Soluble					21-Oct-2020	19-Oct-2020				21-Oct-2020
EPH CWG GC (S)	20-Oct-2020			21-Oct-2020	21-Oct-2020	20-Oct-2020		20-Oct-2020	20-Oct-2020	20-Oct-2020
GRO by GC-FID (S)	20-Oct-2020			20-Oct-2020	20-Oct-2020	19-Oct-2020		20-Oct-2020	20-Oct-2020	20-Oct-2020
Metals in solid samples by OES					22-Oct-2020	20-Oct-2020				21-Oct-2020
PAH by GCMS					22-Oct-2020	22-Oct-2020				20-Oct-2020
pH					20-Oct-2020	19-Oct-2020				19-Oct-2020
Phenols by HPLC (S)					20-Oct-2020	20-Oct-2020				20-Oct-2020
Sample description	19-Oct-2020			19-Oct-2020	19-Oct-2020	17-Oct-2020		19-Oct-2020	19-Oct-2020	19-Oct-2020
TPH CWG GC (S)	20-Oct-2020			21-Oct-2020	21-Oct-2020	20-Oct-2020		20-Oct-2020	20-Oct-2020	20-Oct-2020
VOC MS (S)	20-Oct-2020			20-Oct-2020	20-Oct-2020	19-Oct-2020		20-Oct-2020	20-Oct-2020	20-Oct-2020

Lab Sample No(s)	22998390	22998396	22998403	22998377	22998387	22998375
Customer Sample Ref.	TP120	TP121	TP121	TP120A	TP120A	TP120a Pipe Fra gment
AGS Ref.						
Depth	0.20 - 0.20	0.60 - 0.60	0.30 - 0.30	0.60 - 0.60	2.00 - 2.00	0.60 - 0.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)		21-Oct-2020		21-Oct-2020		
Asbestos ID in Solid Samples	21-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020		21-Oct-2020
Boron Water Soluble		21-Oct-2020		21-Oct-2020		
EPH CWG GC (S)		20-Oct-2020		20-Oct-2020	21-Oct-2020	
GRO by GC-FID (S)		20-Oct-2020		20-Oct-2020	20-Oct-2020	
Metals in solid samples by OES		22-Oct-2020		22-Oct-2020		
PAH by GCMS		22-Oct-2020		21-Oct-2020		
pH		20-Oct-2020		20-Oct-2020		
Phenols by HPLC (S)		20-Oct-2020		20-Oct-2020		
Sample description		19-Oct-2020		19-Oct-2020	19-Oct-2020	
TPH CWG GC (S)		20-Oct-2020		20-Oct-2020	21-Oct-2020	
VOC MS (S)		20-Oct-2020		20-Oct-2020	20-Oct-2020	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

General

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

John F Hunt Remediation Ltd
London Road
GRAYS
ESSEX
RM20 4DB

Attention: Stuart Carroll

CERTIFICATE OF ANALYSIS

Date of report Generation:	23 October 2020
Customer:	John F Hunt Remediation Ltd
Sample Delivery Group (SDG):	201010-94
Your Reference:	Gloucester Great Western Road Yard
Location:	Gloucester Great Western Road Yard
Report No:	572411

We received 32 samples on Saturday October 10, 2020 and 13 of these samples were scheduled for analysis which was completed on Friday October 23, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23010678	TP106		0.40 - 0.40	09/10/2020
23010680	TP106		0.70 - 0.70	09/10/2020
23010679	TP106		1.20 - 1.20	09/10/2020
23010685	TP107		0.10 - 0.10	09/10/2020
23010706	TP107		0.60 - 0.60	09/10/2020
23010696	TP107		1.30 - 1.30	09/10/2020
23010704	TP108		0.30 - 0.30	09/10/2020
23010705	TP108		0.70 - 0.70	09/10/2020
23010684	TP108		1.30 - 1.30	09/10/2020
23010702	TP110		0.30 - 0.30	08/10/2020
23010701	TP111		0.60 - 0.60	08/10/2020
23010695	TP111		1.90 - 1.90	08/10/2020
23010703	TP111		2.40 - 2.40	08/10/2020
23010682	TP131		0.30 - 0.30	09/10/2020
23010697	TP131		0.60 - 0.60	09/10/2020
23010692	TP131		1.20 - 1.20	09/10/2020
23010691	TP134		0.40 - 0.40	09/10/2020
23010681	TP134		0.70 - 0.70	09/10/2020
23010690	TP134		1.70 - 1.70	09/10/2020
23010694	WS109		0.40 - 0.40	08/10/2020
23010700	WS109		0.70 - 0.70	08/10/2020
23010698	WS110		0.30 - 0.30	08/10/2020
23010699	WS110		0.70 - 0.70	08/10/2020
23010708	WS111		0.40 - 0.40	08/10/2020
23010707	WS111		0.80 - 0.80	08/10/2020
23010709	WS112		0.30 - 0.30	08/10/2020
23010687	WS112		0.90 - 0.90	08/10/2020
23010683	WS113		0.30 - 0.30	08/10/2020
23010693	WS113		0.55 - 0.55	08/10/2020
23010686	WS114		0.40 - 0.40	07/10/2020
23010677	WS114		0.75 - 0.75	07/10/2020
23010688	WS114		1.00 - 1.00	07/10/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23010678			23010685		23010696		23010704		23010705			23010684		23010702		23010701		23010695		23010703	
Customer Sample Reference			TP106			TP107		TP107		TP108		TP108			TP108		TP110		TP111		TP111		TP111	
AGS Reference																								
Depth (m)			0.40 - 0.40			0.10 - 0.10		1.30 - 1.30		0.30 - 0.30		0.70 - 0.70			1.30 - 1.30		0.30 - 0.30		0.60 - 0.60		1.90 - 1.90		2.40 - 2.40	
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4		X							X													
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 7	X			X			X	X						X								
Boron Water Soluble	All	NDPs: 0 Tests: 4		X							X													
EPH CWG GC (S)	All	NDPs: 0 Tests: 10		X			X				X		X			X		X		X		X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 10			X			X				X		X			X		X		X		X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 4		X							X													
PAH by GCMS	All	NDPs: 0 Tests: 4		X							X													
pH	All	NDPs: 0 Tests: 4		X							X													
Phenols by HPLC (S)	All	NDPs: 0 Tests: 4		X							X													
Sample description	All	NDPs: 0 Tests: 10		X			X				X		X			X		X		X		X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 10		X			X				X		X			X		X		X		X		
VOC MS (S)	All	NDPs: 0 Tests: 10			X			X				X		X			X		X		X		X	

14:57:03 23/10/2020

23010690	TP134		1.70 - 1.70	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S				X							X	X	
23010691	TP134		0.40 - 0.40	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X			X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											
23010682	TP131		0.30 - 0.30	60g VOC (ALE215)	S						X							X
				250g Amber Jar (ALE210)	S	X		X	X			X	X	X	X	X	X	
				1kg TUB with Handle (ALE260)	S		X											

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
23010678	TP106	0.40 - 0.40	Dark Brown	Loamy Sand	Stones	Brick
23010696	TP107	1.30 - 1.30	Light Brown	Sand	Vegetation	Stones
23010684	TP108	1.30 - 1.30	Light Brown	Sandy Loam	Vegetation	Stones
23010705	TP108	0.70 - 0.70	Dark Brown	Loamy Sand	Stones	Brick
23010695	TP111	1.90 - 1.90	Dark Brown	Sand	Stones	Vegetation
23010701	TP111	0.60 - 0.60	Dark Brown	Loamy Sand	Stones	Vegetation
23010703	TP111	2.40 - 2.40	Dark Brown	Sand	Stones	Vegetation
23010682	TP131	0.30 - 0.30	Dark Brown	Sand	Stones	Brick
23010690	TP134	1.70 - 1.70	Light Brown	Sand	Stones	Vegetation
23010691	TP134	0.40 - 0.40	Dark Brown	Loamy Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP106	TP107	TP108	TP108	TP111	TP111
Depth (m)			0.40 - 0.40	1.30 - 1.30	0.70 - 0.70	1.30 - 1.30	0.60 - 0.60	1.90 - 1.90
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/10/2020	09/10/2020	09/10/2020	09/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref			201010-94	201010-94	201010-94	201010-94	201010-94	201010-94
Lab Sample No.(s)			23010678	23010696	23010705	23010684	23010701	23010695
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	11	13	16	17	19	9.5
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 M		<0.01 M			
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 M		<0.01 M			
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 M		<0.015 M			
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	<0.035 M		<0.035 M			
pH	1 pH Units	TM133	8.23 M		8.5 M			
Arsenic	<0.6 mg/kg	TM181	15.1 M		32.5 M			
Cadmium	<0.02 mg/kg	TM181	0.48 M		<0.02 M			
Chromium	<0.9 mg/kg	TM181	10.2 M		2.6 M			
Copper	<1.4 mg/kg	TM181	102 M		183 M			
Lead	<0.7 mg/kg	TM181	57.6 M		125 M			
Mercury	<0.14 mg/kg	TM181	<0.14 M		0.196 M			
Nickel	<0.2 mg/kg	TM181	33.6 M		57.8 M			
Selenium	<1 mg/kg	TM181	<1 #		<1 #			
Zinc	<1.9 mg/kg	TM181	69.8 M		86.4 M			
Boron, water soluble	<1 mg/kg	TM222	<1 M		1.08 M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0296 M		0.0718 M			

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP111	TP131	TP134	TP134		
Depth (m)			2.40 - 2.40	0.30 - 0.30	0.40 - 0.40	1.70 - 1.70		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			08/10/2020	09/10/2020	09/10/2020	09/10/2020		
Sample Time			.	.	.	.		
Date Received			10/10/2020	10/10/2020	10/10/2020	10/10/2020		
SDG Ref			201010-94	201010-94	201010-94	201010-94		
Lab Sample No.(s)			23010703	23010682	23010691	23010690		
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	17	3.9	14	14		
Phenol	<0.01 mg/kg	TM062 (S)		0.0104 M	<0.01 M			
Cresols	<0.01 mg/kg	TM062 (S)		<0.01 M	<0.01 M			
Xylenols	<0.015 mg/kg	TM062 (S)		<0.015 M	<0.015 M			
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)		<0.035 M	<0.035 M			
pH	1 pH Units	TM133		8.58 M	8.4 M			
Arsenic	<0.6 mg/kg	TM181		6.58 M	21.4 M			
Cadmium	<0.02 mg/kg	TM181		0.292 M	<0.02 M			
Chromium	<0.9 mg/kg	TM181		6.99 M	2.46 M			
Copper	<1.4 mg/kg	TM181		23.6 M	97.1 M			
Lead	<0.7 mg/kg	TM181		26.7 M	49.5 M			
Mercury	<0.14 mg/kg	TM181		<0.14 M	0.142 M			
Nickel	<0.2 mg/kg	TM181		8 M	31.9 M			
Selenium	<1 mg/kg	TM181		<1 #	<1 #			
Zinc	<1.9 mg/kg	TM181		70.1 M	47.9 M			
Boron, water soluble	<1 mg/kg	TM222		<1 M	1.19 M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0077 M	0.0336 M			

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CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP106	TP108	TP131	TP134		
Depth (m)			0.40 - 0.40	0.70 - 0.70	0.30 - 0.30	0.40 - 0.40		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			09/10/2020	09/10/2020	09/10/2020	09/10/2020		
Sample Time			.	.	.	.		
Date Received			10/10/2020	10/10/2020	10/10/2020	10/10/2020		
SDG Ref			201010-94	201010-94	201010-94	201010-94		
Lab Sample No.(s)			23010678	23010705	23010682	23010691		
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	92.4	85	103	88.4		
Acenaphthene-d10 % recovery**	%	TM218	87.9	81.1	95.3	83.1		
Phenanthrene-d10 % recovery**	%	TM218	91.5	84.2	104	90.3		
Chrysene-d12 % recovery**	%	TM218	96.8	85.5	124	98.1		
Perylene-d12 % recovery**	%	TM218	75.9	71.4	117	83.3		
Naphthalene	<9 µg/kg	TM218	187 M	53.1 M	220 M	60.9 M		
Acenaphthylene	<12 µg/kg	TM218	<24 M	60.2 M	138 M	49.1 M		
Acenaphthene	<8 µg/kg	TM218	112 M	15.1 M	156 M	39.8 M		
Fluorene	<10 µg/kg	TM218	90.7 M	35.3 M	117 M	42.7 M		
Phenanthrene	<15 µg/kg	TM218	1690 M	336 M	1630 M	447 M		
Anthracene	<16 µg/kg	TM218	281 M	96.7 M	752 M	149 M		
Fluoranthene	<17 µg/kg	TM218	2180 M	709 M	3200 M	981 M		
Pyrene	<15 µg/kg	TM218	1800 M	623 M	2820 M	1010 M		
Benz(a)anthracene	<14 µg/kg	TM218	1140 M	486 M	2170 M	548 M		
Chrysene	<10 µg/kg	TM218	1110 M	535 M	2050 M	628 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	1720 M	622 M	3710 M	956 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	540 M	168 M	1380 M	210 M		
Benzo(a)pyrene	<15 µg/kg	TM218	1060 M	403 M	2440 M	498 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	958 M	258 M	2320 M	410 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	165 M	72.7 M	457 M	101 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	816 M	222 M	2000 M	355 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	13900	4700	25600	6490		

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CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP106	TP107	TP108	TP108	TP111	TP111
Depth (m)			0.40 - 0.40	1.30 - 1.30	0.70 - 0.70	1.30 - 1.30	0.60 - 0.60	1.90 - 1.90
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/10/2020	09/10/2020	09/10/2020	09/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref			201010-94	201010-94	201010-94	201010-94	201010-94	201010-94
Lab Sample No.(s)			23010678	23010696	23010705	23010684	23010701	23010695
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	29.4	109	17.2	105	68.1	96 3
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<200 3
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10	10.8	50.4	8860 3
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10	12	59	162000 3
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	2160	618000
Aliphatics >C12-C16	<1000 µg/kg	TM414	1460	<1000	1820	<1000	5410	3420000
Aliphatics >C16-C21	<1000 µg/kg	TM414	1390	<1000	1550	<1000	3480	4280000
Aliphatics >C21-C35	<1000 µg/kg	TM414	2630	<1000	1900	<1000	<1000	1440000
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	<1000	135000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	6040	<5000	5830	<5000	12000	9890000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	310000	<10000	23200	<10000	851000	13700000
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<200 3
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<200 3
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	<10	39.4	108000 3
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	<1000	181000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	1880	<1000	1760	<1000	7290	1970000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	14000	<1000	3740	<1000	33600	1510000
Aromatics > EC21-EC35	<1000 µg/kg	TM414	183000	<1000	10800	<1000	623000	115000
Aromatics >EC35-EC44	<1000 µg/kg	TM414	105000	<1000	<1000	<1000	175000	<10000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000	<1000	<1000	<1000	7940	<10000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	304000	<5000	17400	<5000	839000	3780000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	310000	<10000	23200	<10000	851000	14000000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50	<50	<50	<50	109	171000 3
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50	<50	<50	<50	108000 3
GRO >C5-C10	<20 µg/kg	TM089	<20	<20	<20	<20	109	279000 3

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CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP111	TP131	TP134	TP134		
Depth (m)			2.40 - 2.40	0.30 - 0.30	0.40 - 0.40	1.70 - 1.70		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			08/10/2020	09/10/2020	09/10/2020	09/10/2020		
Sample Time			.	.	.	.		
Date Received			10/10/2020	10/10/2020	10/10/2020	10/10/2020		
SDG Ref			201010-94	201010-94	201010-94	201010-94		
Lab Sample No.(s)			23010703	23010682	23010691	23010690		
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	106	52.2	38.3	104		
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/kg	TM089	37.5	<10	<10	15.2		
Aliphatics >C8-C10	<10 µg/kg	TM089	61.7	<10	<10	19.9		
Aliphatics >C10-C12	<1000 µg/kg	TM414	24200	<1000	<1000	<1000		
Aliphatics >C12-C16	<1000 µg/kg	TM414	159000	1720	1360	<1000		
Aliphatics >C16-C21	<1000 µg/kg	TM414	226000	3030	4080	<1000		
Aliphatics >C21-C35	<1000 µg/kg	TM414	74300	12200	15400	<1000		
Aliphatics >C35-C44	<1000 µg/kg	TM414	6640	<1000	<1000	<1000		
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	490000	17300	21700	<5000		
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	668000	240000	157000	<10000		
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/kg	TM089	41.1	<10	<10	12.9		
Aromatics > EC10-EC12	<1000 µg/kg	TM414	6980	<1000	<1000	<1000		
Aromatics > EC12-EC16	<1000 µg/kg	TM414	101000	12400	2240	<1000		
Aromatics > EC16-EC21	<1000 µg/kg	TM414	63800	28100	5450	<1000		
Aromatics > EC21-EC35	<1000 µg/kg	TM414	5940	138000	102000	<1000		
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000	44300	25400	<1000		
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000	2400	3740	<1000		
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	178000	223000	135000	<5000		
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	668000	240000	157000	<10000		
Total Aliphatics >C5-C10	<50 µg/kg	TM089	99.2	<50	<50	<50		
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50	<50	<50		
GRO >C5-C10	<20 µg/kg	TM089	99.2	<20	<20	<20		

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CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP106	TP107	TP108	TP108	TP111	TP111
Depth (m)			0.40 - 0.40	1.30 - 1.30	0.70 - 0.70	1.30 - 1.30	0.60 - 0.60	1.90 - 1.90
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			09/10/2020	09/10/2020	09/10/2020	09/10/2020	08/10/2020	08/10/2020
Sample Time			.	.	.	.	.	.
Date Received			10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref			201010-94	201010-94	201010-94	201010-94	201010-94	201010-94
Lab Sample No.(s)			23010678	23010696	23010705	23010684	23010701	23010695
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	107	105	112	122	103	108
Toluene-d8**	%	TM116	91.5	95.2	91.7	97.9	91.6	89.9
4-Bromofluorobenzene**	%	TM116	82.6	96.6	81.2	90	77.4	86.3
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<200 M	<10 M	<200 M	<10 M	<200 M	<200 M
Benzene	<9 µg/kg	TM116	<180 M	<9 M	<180 M	<9 M	<180 M	<180 M
Toluene	<7 µg/kg	TM116	<140 M	<7 M	<140 M	<7 M	<140 M	<140 M
Ethylbenzene	<4 µg/kg	TM116	<80 M	<4 M	<80 M	<4 M	<80 M	<80 M
p/m-Xylene	<10 µg/kg	TM116	<200 #	<10 #	<200 #	<10 #	<200 #	<200 #
o-Xylene	<10 µg/kg	TM116	<200 M	<10 M	<200 M	<10 M	<200 M	<200 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.4	<0.02	<0.4	<0.02	<0.4	<0.4
Sum of BTEX	<40 µg/kg	TM116	<800	<40	<800	<40	<800	<800

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP111	TP131	TP134	TP134		
Depth (m)			2.40 - 2.40	0.30 - 0.30	0.40 - 0.40	1.70 - 1.70		
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			08/10/2020	09/10/2020	09/10/2020	09/10/2020		
Sample Time			.	.	.	.		
Date Received			10/10/2020	10/10/2020	10/10/2020	10/10/2020		
SDG Ref			201010-94	201010-94	201010-94	201010-94		
Lab Sample No.(s)			23010703	23010682	23010691	23010690		
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	122	106	107	119		
Toluene-d8**	%	TM116	95.7	92.7	88.6	96.8		
4-Bromofluorobenzene**	%	TM116	92.5	86.6	76.3	88.2		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 M	<200 M	<200 M	<10 M		
Benzene	<9 µg/kg	TM116	<9 M	<180 M	<180 M	<9 M		
Toluene	<7 µg/kg	TM116	<7 M	<140 M	<140 M	<7 M		
Ethylbenzene	<4 µg/kg	TM116	<4 M	<80 M	<80 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116	<10 #	<200 #	<200 #	<10 #		
o-Xylene	<10 µg/kg	TM116	<10 M	<200 M	<200 M	<10 M		
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02	<0.4	<0.4	<0.02		
Sum of BTEX	<40 µg/kg	TM116	<40	<800	<800	<40		

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP106 0.40 - 0.40 SOLID 09/10/2020 00:00:00 10/10/2020 06:00:00 201010-94 23010678 TM048	22/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP107 0.10 - 0.10 SOLID 09/10/2020 00:00:00 10/10/2020 06:00:00 201010-94 23010685 TM048	22/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP108 0.30 - 0.30 SOLID 09/10/2020 00:00:00 10/10/2020 06:00:00 201010-94 23010704 TM048	22/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP108 0.70 - 0.70 SOLID 09/10/2020 00:00:00 10/10/2020 06:00:00 201010-94 23010705 TM048	22/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP110 0.30 - 0.30 SOLID 08/10/2020 00:00:00 10/10/2020 06:00:00 201010-94 23010702 TM048	22/10/202022 /10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP131 0.30 - 0.30 SOLID 09/10/2020 00:00:00 10/10/2020 06:00:00 201010-94 23010682 TM048	22/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP134 0.40 - 0.40 SOLID 09/10/2020 00:00:00 10/10/2020 06:00:00 201010-94 23010691 TM048	22/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	201010-94	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	572411
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23010678	23010685	23010696	23010684	23010704	23010705	23010702	23010695	23010701	23010703
Customer Sample Ref.	TP106	TP107	TP107	TP108	TP108	TP108	TP110	TP111	TP111	TP111
AGS Ref.										
Depth	0.40 - 0.40	0.10 - 0.10	1.30 - 1.30	1.30 - 1.30	0.30 - 0.30	0.70 - 0.70	0.30 - 0.30	1.90 - 1.90	0.60 - 0.60	2.40 - 2.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	21-Oct-2020					22-Oct-2020				
Asbestos ID in Solid Samples	22-Oct-2020	22-Oct-2020			22-Oct-2020	22-Oct-2020	22-Oct-2020			
Boron Water Soluble	21-Oct-2020					21-Oct-2020				
EPH CWG GC (S)	21-Oct-2020		21-Oct-2020	21-Oct-2020		21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020
GRO by GC-FID (S)	21-Oct-2020		21-Oct-2020	21-Oct-2020		21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020
Metals in solid samples by OES	22-Oct-2020					22-Oct-2020				
PAH by GCMS	22-Oct-2020					23-Oct-2020				
pH	21-Oct-2020					21-Oct-2020				
Phenols by HPLC (S)	21-Oct-2020					21-Oct-2020				
Sample description	20-Oct-2020		20-Oct-2020	20-Oct-2020		20-Oct-2020		20-Oct-2020	20-Oct-2020	20-Oct-2020
TPH CWG GC (S)	21-Oct-2020		21-Oct-2020	21-Oct-2020		21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020
VOC MS (S)	21-Oct-2020		21-Oct-2020	21-Oct-2020		21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020

Lab Sample No(s)	23010682	23010690	23010691
Customer Sample Ref.	TP131	TP134	TP134
AGS Ref.			
Depth	0.30 - 0.30	1.70 - 1.70	0.40 - 0.40
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	21-Oct-2020		22-Oct-2020
Asbestos ID in Solid Samples	22-Oct-2020		22-Oct-2020
Boron Water Soluble	21-Oct-2020		21-Oct-2020
EPH CWG GC (S)	21-Oct-2020	21-Oct-2020	21-Oct-2020
GRO by GC-FID (S)	21-Oct-2020	21-Oct-2020	21-Oct-2020
Metals in solid samples by OES	22-Oct-2020		22-Oct-2020
PAH by GCMS	22-Oct-2020		22-Oct-2020
pH	21-Oct-2020		21-Oct-2020
Phenols by HPLC (S)	21-Oct-2020		21-Oct-2020
Sample description	20-Oct-2020	20-Oct-2020	20-Oct-2020
TPH CWG GC (S)	21-Oct-2020	21-Oct-2020	21-Oct-2020
VOC MS (S)	21-Oct-2020	21-Oct-2020	21-Oct-2020

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

General

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

John F Hunt Remediation Ltd
London Road
GRAYS
ESSEX
RM20 4DB

Attention: Stuart Carroll

CERTIFICATE OF ANALYSIS

Date of report Generation:	04 November 2020
Customer:	John F Hunt Remediation Ltd
Sample Delivery Group (SDG):	201014-100
Your Reference:	Gloucester Great Western Road Yard
Location:	Gloucester Great Western Road Yard
Report No:	574040

We received 15 samples on Wednesday October 14, 2020 and 15 of these samples were scheduled for analysis which was completed on Wednesday November 04, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23031241	TP122		0.20 - 0.20	12/10/2020
23031239	TP122		0.65 - 0.65	12/10/2020
23031240	TP123		0.25 - 0.25	12/10/2020
23031242	TP123		0.40 - 0.40	12/10/2020
23031254	TP124		0.20 - 0.20	12/10/2020
23031249	TP125		0.25 - 0.25	12/10/2020
23031247	TP125		2.00 - 2.00	12/10/2020
23031250	TP126		0.25 - 0.25	12/10/2020
23031246	TP126		2.00 - 2.00	12/10/2020
23031248	TP127		0.25 - 0.25	12/10/2020
23031245	TP127		2.10 - 2.10	12/10/2020
23031251	TP128		0.25 - 0.25	12/10/2020
23031243	TP128		1.50 - 1.50	12/10/2020
23031253	TP129		0.50 - 0.50	12/10/2020
23031252	TP130		0.30 - 0.30	12/10/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)	23031241	23031239	23031240	23031242	23031254	23031249	23031247	23031250	23031246	23031248	23031245	23031251	23031243	23031253
Customer Sample Reference	TP122	TP122	TP123	TP123	TP124	TP125	TP125	TP126	TP126	TP127	TP127	TP128	TP128	TP129
AGS Reference														
Depth (m)	0.20 - 0.20	0.65 - 0.65	0.25 - 0.25	0.40 - 0.40	0.20 - 0.20	0.25 - 0.25	2.00 - 2.00	0.25 - 0.25	2.00 - 2.00	0.25 - 0.25	2.10 - 2.10	0.25 - 0.25	1.50 - 1.50	0.50 - 0.50
Container	1kg TUB with Handle (ALE260)	BAG	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil) — All — NDPs: 1 Tests: 4		N																
				X		X				X								X
Asbestos ID in Solid Samples — All — NDPs: 1 Tests: 10		N																
	X		X	X		X	X			X			X			X		X
Asbestos Quantification - Full — All — NDPs: 0 Tests: 1																		
												X						
Boron Water Soluble — All — NDPs: 1 Tests: 4		N																
				X		X				X								X
EPH CWG GC (S) — All — NDPs: 1 Tests: 8		N																
				X		X	X		X	X	X		X					X
GRO by GC-FID (S) — All — NDPs: 1 Tests: 8		N																
					X	X		X	X	X	X			X	X			X
Metals in solid samples by OES — All — NDPs: 1 Tests: 4		N																
				X		X				X								X
PAH by GCMS — All — NDPs: 1 Tests: 4		N																
				X		X				X								X
pH — All — NDPs: 1 Tests: 4		N																
				X		X				X								X
Phenols by HPLC (S) — All — NDPs: 1 Tests: 4		N																
				X		X				X								X
Sample description — All — NDPs: 1 Tests: 8		N																
				X		X	X		X	X	X		X					X
TPH CWG GC (S) — All — NDPs: 1 Tests: 8		N																
				X		X	X		X	X	X		X					X
VOC MS (S) — All — NDPs: 1 Tests: 8		N																
					X	X		X	X	X	X			X	X			X

23031252	TP130		0.30 - 0.30	1kg TUB with Handle (ALE260)	S				X														

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
23031242	TP123	0.40 - 0.40	Dark Brown	Sandy Loam	Stones	Vegetation
23031247	TP125	2.00 - 2.00	Light Brown	Sand	Stones	Vegetation
23031249	TP125	0.25 - 0.25	Dark Brown	Loamy Sand	Stones	Vegetation
23031246	TP126	2.00 - 2.00	Light Brown	Sand	Stones	Vegetation
23031245	TP127	2.10 - 2.10	Light Brown	Sand	Stones	Vegetation
23031248	TP127	0.25 - 0.25	Light Brown	Sandy Loam	Stones	Vegetation
23031243	TP128	1.50 - 1.50	Dark Brown	Loamy Sand	Stones	Vegetation
23031253	TP129	0.50 - 0.50	Dark Brown	Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP123	TP125	TP125	TP126	TP127	TP127
Depth (m)			0.40 - 0.40	0.25 - 0.25	2.00 - 2.00	2.00 - 2.00	0.25 - 0.25	2.10 - 2.10
Sample Type			Unspecified Solid (UNS)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
Sample Time			.	.	.	.	.	.
Date Received			14/10/2020	14/10/2020	14/10/2020	14/10/2020	14/10/2020	14/10/2020
SDG Ref			201014-100	201014-100	201014-100	201014-100	201014-100	201014-100
Lab Sample No.(s)			23031242	23031249	23031247	23031246	23031248	23031245
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024	11	4.8	15	9.6	5.2	12
Phenol	<0.01 mg/kg	TM062 (S)	2.56	<0.01 M			<0.01 M	
Cresols	<0.01 mg/kg	TM062 (S)	13.6	<0.01 M			<0.01 M	
Xylenols	<0.015 mg/kg	TM062 (S)	44	<0.015 M			<0.015 M	
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)	60.1	<0.035 M			<0.035 M	
pH	1 pH Units	TM133	8.38	8.68 M			8.97 M	
Arsenic	<0.6 mg/kg	TM181	501	8.42 M			7.9 M	
Cadmium	<0.02 mg/kg	TM181	6.21	0.224 M			0.238 M	
Chromium	<0.9 mg/kg	TM181	<9	7.7 M			10.1 M	
Copper	<1.4 mg/kg	TM181	2600	8.67 M			22.1 M	
Lead	<0.7 mg/kg	TM181	4470	52.2 M			42.1 M	
Mercury	<0.14 mg/kg	TM181	1.49	<0.14 M			<0.14 M	
Nickel	<0.2 mg/kg	TM181	19.7	9.12 M			8.44 M	
Selenium	<1 mg/kg	TM181	<10	<1 #			<1 #	
Zinc	<1.9 mg/kg	TM181	6010	125 M			81.7 M	
Boron, water soluble	<1 mg/kg	TM222	2.16	<1 M			<1 M	
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243	0.0977	0.0355 M			0.0176 M	

13:35:13 04/11/2020

Validated

CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP128	TP128	TP129			
Depth (m)			0.25 - 0.25	1.50 - 1.50	0.50 - 0.50			
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)			
Date Sampled			12/10/2020	12/10/2020	12/10/2020			
Sample Time			.	.	.			
Date Received			14/10/2020	14/10/2020	14/10/2020			
SDG Ref			201014-100	201014-100	201014-100			
Lab Sample No.(s)			23031251	23031243	23031253			
AGS Reference								
Component	**LOD/Units**	**Method**						
Moisture Content Ratio (% of as received sample)	%	PM024		16	4			
Phenol	<0.01 mg/kg	TM062 (S)			<0.01 M			
Cresols	<0.01 mg/kg	TM062 (S)			<0.01 M			
Xylenols	<0.015 mg/kg	TM062 (S)			<0.015 M			
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)			<0.035 M			
pH	1 pH Units	TM133			8.79 M			
Arsenic	<0.6 mg/kg	TM181			7.82 M			
Cadmium	<0.02 mg/kg	TM181			0.431 M			
Chromium	<0.9 mg/kg	TM181			8.24 M			
Copper	<1.4 mg/kg	TM181			24.1 M			
Lead	<0.7 mg/kg	TM181			64.1 M			
Mercury	<0.14 mg/kg	TM181			<0.14 M			
Nickel	<0.2 mg/kg	TM181			11.7 M			
Selenium	<1 mg/kg	TM181			<1 #			
Zinc	<1.9 mg/kg	TM181			78.7 M			
Boron, water soluble	<1 mg/kg	TM222			<1 M			
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243			<0.004 M			
Asbestos Quantification - Gravimetric - %	<0.001 %	TM304	0.0063 #					
Asbestos Quantification - PCOM Evaluation - %	<0.001 %	TM304	<0.001 #					
Additional Asbestos Components (Using TM048)		TM304	None #					
Analysts Comments		TM304	N/C					
Asbestos Quantification - Total - %	<0.001 %	TM304	0.0063 #					

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CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP123	TP125	TP127	TP129		
Depth (m)			0.40 - 0.40	0.25 - 0.25	0.25 - 0.25	0.50 - 0.50		
Sample Type			Unspecified Solid (UNS)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
Date Sampled			12/10/2020	12/10/2020	12/10/2020	12/10/2020		
Sample Time			.	.	.	.		
Date Received			14/10/2020	14/10/2020	14/10/2020	14/10/2020		
SDG Ref			201014-100	201014-100	201014-100	201014-100		
Lab Sample No.(s)			23031242	23031249	23031248	23031253		
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene-d8 % recovery**	%	TM218	153	90.7	88.4	87.8		
Acenaphthene-d10 % recovery**	%	TM218	129	84.9	84	83.7		
Phenanthrene-d10 % recovery**	%	TM218	87	90.2	87.6	89		
Chrysene-d12 % recovery**	%	TM218	76	98.1	86.5	89.4		
Perylene-d12 % recovery**	%	TM218	65	92.3	80.3	84.2		
Naphthalene	<9 µg/kg	TM218	1410000	<45 M	<45 M	128 M		
Acenaphthylene	<12 µg/kg	TM218	354000	<60 M	788 M	1020 M		
Acenaphthene	<8 µg/kg	TM218	107000	<40 M	147 M	1740 M		
Fluorene	<10 µg/kg	TM218	369000	<50 M	201 M	1680 M		
Phenanthrene	<15 µg/kg	TM218	1290000	603 M	925 M	6740 M		
Anthracene	<16 µg/kg	TM218	312000	144 M	600 M	3590 M		
Fluoranthene	<17 µg/kg	TM218	852000	1510 M	4800 M	23100 M		
Pyrene	<15 µg/kg	TM218	680000	1310 M	4540 M	20500 M		
Benz(a)anthracene	<14 µg/kg	TM218	269000	764 M	3630 M	18200 M		
Chrysene	<10 µg/kg	TM218	221000	793 M	3570 M	20300 M		
Benzo(b)fluoranthene	<15 µg/kg	TM218	266000	1040 M	6380 M	47900 M		
Benzo(k)fluoranthene	<14 µg/kg	TM218	94300	383 M	2080 M	13600 M		
Benzo(a)pyrene	<15 µg/kg	TM218	217000	814 M	4560 M	33500 M		
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	121000	547 M	3630 M	29000 M		
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	20400	<115 M	714 M	6240 M		
Benzo(g,h,i)perylene	<24 µg/kg	TM218	122000	548 M	3590 M	28900 M		
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	6710000	8450	40200	256000		

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CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP123	TP125	TP125	TP126	TP127	TP127
Depth (m)			0.40 - 0.40	0.25 - 0.25	2.00 - 2.00	2.00 - 2.00	0.25 - 0.25	2.10 - 2.10
Sample Type			Unspecified Solid (UNS)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
Sample Time			.	.	.	.	.	.
Date Received			14/10/2020	14/10/2020	14/10/2020	14/10/2020	14/10/2020	14/10/2020
SDG Ref			201014-100	201014-100	201014-100	201014-100	201014-100	201014-100
Lab Sample No.(s)			23031242	23031249	23031247	23031246	23031248	23031245
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	96.9	89.6 2	114	104	77.1 2	126
Aliphatics >C5-C6	<10 µg/kg	TM089	418	<10 2	<10	<10	<10 2	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	885	<10 2	<10	<10	16.9 2	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	22700	<10 2	<10	<10	28.5 2	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414	48100	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414	89200	<1000	<1000	<1000	16200	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414	724000	4940	<1000	<1000	16300	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414	22600000	54500	<1000	<1000	14700	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414	6430000	28500	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	29900000	88500	<5000	<5000	48200	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	33900000	189000	<10000	<10000	629000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089	1270	<10 2	<10	<10	<10 2	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	2350	<10 2	<10	<10	<10 2	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	15100	<10 2	<10	<10	19 2	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414	49400	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414	44800	<1000	<1000	<1000	12700	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414	143000	8690	<1000	<1000	75300	1160
Aromatics > EC21-EC35	<1000 µg/kg	TM414	3800000	79500	1170	<1000	418000	1360
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<20000	12100	<1000	<1000	74900	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<20000	6180	<1000	<1000	12700	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	4060000	100000	<5000	<5000	581000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	34000000	189000	<10000	<10000	629000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089	24000	<50 2	<50	<50	<50 2	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	18700	<50 2	<50	<50	<50 2	<50
GRO >C5-C10	<20 µg/kg	TM089	42700	<20 2	<20	<20	<20 2	<20

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CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP128	TP129				
Depth (m)			1.50 - 1.50	0.50 - 0.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			12/10/2020	12/10/2020				
Sample Time			.	.				
Date Received			14/10/2020	14/10/2020				
SDG Ref			201014-100	201014-100				
Lab Sample No.(s)			23031243	23031253				
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	84	77.2 2				
Aliphatics >C5-C6	<10 µg/kg	TM089	14.3	<10 2				
Aliphatics >C6-C8	<10 µg/kg	TM089	26.2	<10 2				
Aliphatics >C8-C10	<10 µg/kg	TM089	73.8	<10 2				
Aliphatics >C10-C12	<1000 µg/kg	TM414	<5000	<5000				
Aliphatics >C12-C16	<1000 µg/kg	TM414	<5000	11100				
Aliphatics >C16-C21	<1000 µg/kg	TM414	<5000	11500				
Aliphatics >C21-C35	<1000 µg/kg	TM414	21000	6180				
Aliphatics >C35-C44	<1000 µg/kg	TM414	<5000	<5000				
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	26200	31700				
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	1620000	1110000				
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10 2				
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10 2				
Aromatics >EC8-EC10	<10 µg/kg	TM089	48.8	<10 2				
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<5000	<5000				
Aromatics > EC12-EC16	<1000 µg/kg	TM414	7180	5300				
Aromatics > EC16-EC21	<1000 µg/kg	TM414	284000	76600				
Aromatics > EC21-EC35	<1000 µg/kg	TM414	1130000	862000				
Aromatics >EC35-EC44	<1000 µg/kg	TM414	167000	134000				
Aromatics > EC40-EC44	<1000 µg/kg	TM414	18300	15200				
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	1590000	1080000				
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	1620000	1110000				
Total Aliphatics >C5-C10	<50 µg/kg	TM089	114	<50 2				
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50	<50 2				
GRO >C5-C10	<20 µg/kg	TM089	114	<20 2				

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CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP123	TP125	TP125	TP126	TP127	TP127
Depth (m)			0.40 - 0.40	0.25 - 0.25	2.00 - 2.00	2.00 - 2.00	0.25 - 0.25	2.10 - 2.10
Sample Type			Unspecified Solid (UNS)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
Sample Time			.	.	.	.	.	.
Date Received			14/10/2020	14/10/2020	14/10/2020	14/10/2020	14/10/2020	14/10/2020
SDG Ref			201014-100	201014-100	201014-100	201014-100	201014-100	201014-100
Lab Sample No.(s)			23031242	23031249	23031247	23031246	23031248	23031245
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	168	109 2	118	106	116 2	103
Toluene-d8**	%	TM116	80.5	90.9 2	97.3	97.3	94.9 2	97.1
4-Bromofluorobenzene**	%	TM116	73.2	74.1 2	96.3	96	84.3 2	99.2
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<100	<10 2 M	<10 M	<10 M	<100 2 M	<10 M
Benzene	<9 µg/kg	TM116	495	<9 2 M	<9 M	<9 M	<90 2 M	<9 M
Toluene	<7 µg/kg	TM116	654	<7 2 M	<7 M	<7 M	<70 2 M	<7 M
Ethylbenzene	<4 µg/kg	TM116	120	<4 2 M	<4 M	<4 M	<40 2 M	<4 M
p/m-Xylene	<10 µg/kg	TM116	1260	<10 2 #	<10 #	<10 #	<100 2 #	<10 #
o-Xylene	<10 µg/kg	TM116	738	<10 2 M	<10 M	<10 M	<100 2 M	<10 M
Sum of Detected Xylenes	<0.02 mg/kg	TM116	2	<0.02 2	<0.02	<0.02	<0.2 2	<0.02
Sum of BTEX	<40 µg/kg	TM116	3270	<40 2	<40	<40	<400 2	<40

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CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			TP128	TP129				
Depth (m)			1.50 - 1.50	0.50 - 0.50				
Sample Type			Soil/Solid (S)	Soil/Solid (S)				
Date Sampled			12/10/2020	12/10/2020				
Sample Time			.	.				
Date Received			14/10/2020	14/10/2020				
SDG Ref			201014-100	201014-100				
Lab Sample No.(s)			23031243	23031253				
AGS Reference								
Component	**LOD/Units**	**Method**						
Dibromofluoromethane**	%	TM116	125	109 2				
Toluene-d8**	%	TM116	91.5	97 2				
4-Bromofluorobenzene**	%	TM116	80.8	93.7 2				
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<100 M	<100 2 M				
Benzene	<9 µg/kg	TM116	<90 M	<90 2 M				
Toluene	<7 µg/kg	TM116	<70 M	<70 2 M				
Ethylbenzene	<4 µg/kg	TM116	<40 M	<40 2 M				
p/m-Xylene	<10 µg/kg	TM116	<100 #	<100 2 #				
o-Xylene	<10 µg/kg	TM116	<100 M	<100 2 M				
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.2	<0.2 2				
Sum of BTEX	<40 µg/kg	TM116	<400	<400 2				

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CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

Cust. Sample Ref.	Depth (m)	Sample Type	Date Sampled	Date Received	SDG	Original Sample	Method Number	Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
TP122	0.20 - 0.20	SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031241	TM048	23/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP123	0.25 - 0.25	SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031240	TM048	23/10/20	Eva Guerra	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP123	0.40 - 0.40	MISC_SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031242	TM048	23/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
TP124	0.20 - 0.20	SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031254	TM048	23/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP125	0.25 - 0.25	SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031249	TM048	23/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
TP126	0.25 - 0.25	SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031250	TM048	24/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP127	0.25 - 0.25	SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031248	TM048	23/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
TP128	0.25 - 0.25	SOLID	12/10/2020 00:00:00	14/10/2020 06:00:00	201014-100	23031251	TM048	23/10/20	Eva Guerra	bunch of fibres in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP129 0.50 - 0.50 SOLID 12/10/2020 00:00:00 14/10/2020 06:00:00 201014-100 23031253 TM048	23/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP130 0.30 - 0.30 SOLID 12/10/2020 00:00:00 14/10/2020 06:00:00 201014-100 23031252 TM048	23/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Asbestos Quantification - Full

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+$@	Sample deviation (see appendix)

		Additional Asbestos Components	Analysts Comments	Asbestos Quantification - Gravimetric - %	Asbestos Quantification - PCOM	Asbestos Quantification - Total - %
Cust. Sample Ref.	TP128	None (#)	N/C	0.0063 (#)	<0.001 (#)	0.0063 (#)
Depth (m)	0.25 - 0.25					
Sample Type	SOLID					
Date Sampled	12/10/2020 00:00:00					
Date Receieved	14/10/2020 06:00:00					
SDG	201014-100					
Original Sample	23031251					
Method Number	TM304					

Validated

CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Notification of NDPs (No determination possible)

Date Received : 14/10/2020 13:42:02

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
23031239	TP122	0.65 - 0.65	Boron Water Soluble	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	pH	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	PAH by GCMS	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	Phenols by HPLC (S)	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	EPH CWG GC (S)	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	TPH CWG GC (S)	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	Metals in solid samples by OES	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	Asbestos ID in Solid Samples	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	Anions by Kone (soil)	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	Sample description	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	VOC MS (S)	Sample unsuitable for analysis
23031239	TP122	0.65 - 0.65	GRO by GC-FID (S)	Sample unsuitable for analysis

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM304	HSE Contract research Report no 83/1996	Asbestos Quantification in Soil: Fibres identified by morphology only
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	201014-100	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574040
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23031241	23031240	23031242	23031254	23031247	23031249	23031246	23031250	23031245	23031248
Customer Sample Ref.	TP122	TP123	TP123	TP124	TP125	TP125	TP126	TP126	TP127	TP127
AGS Ref.										
Depth	0.20 - 0.20	0.25 - 0.25	0.40 - 0.40	0.20 - 0.20	2.00 - 2.00	0.25 - 0.25	2.00 - 2.00	0.25 - 0.25	2.10 - 2.10	0.25 - 0.25
Type	Soil/Solid (S)	Soil/Solid (S)	Unspecified So	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)			23-Oct-2020			23-Oct-2020				23-Oct-2020
Asbestos ID in Solid Samples	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020		23-Oct-2020		24-Oct-2020		23-Oct-2020
Boron Water Soluble			24-Oct-2020			23-Oct-2020				23-Oct-2020
EPH CWG GC (S)			23-Oct-2020		23-Oct-2020	23-Oct-2020	23-Oct-2020		23-Oct-2020	23-Oct-2020
GRO by GC-FID (S)			23-Oct-2020		23-Oct-2020	22-Oct-2020	23-Oct-2020		23-Oct-2020	22-Oct-2020
Metals in solid samples by OES			27-Oct-2020			23-Oct-2020				23-Oct-2020
PAH by GCMS			26-Oct-2020			26-Oct-2020				24-Oct-2020
pH			22-Oct-2020			22-Oct-2020				22-Oct-2020
Phenols by HPLC (S)			23-Oct-2020			23-Oct-2020				23-Oct-2020
Sample description			21-Oct-2020		21-Oct-2020	21-Oct-2020	21-Oct-2020		21-Oct-2020	21-Oct-2020
TPH CWG GC (S)			23-Oct-2020		23-Oct-2020	23-Oct-2020	23-Oct-2020		23-Oct-2020	23-Oct-2020
VOC MS (S)			23-Oct-2020		23-Oct-2020	22-Oct-2020	23-Oct-2020		23-Oct-2020	22-Oct-2020

Lab Sample No(s)	23031243	23031251	23031253	23031252
Customer Sample Ref.	TP128	TP128	TP129	TP130
AGS Ref.				
Depth	1.50 - 1.50	0.25 - 0.25	0.50 - 0.50	0.30 - 0.30
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)			23-Oct-2020	
Asbestos ID in Solid Samples		23-Oct-2020	23-Oct-2020	23-Oct-2020
Asbestos Quantification - Full		04-Nov-2020		
Boron Water Soluble			23-Oct-2020	
EPH CWG GC (S)	23-Oct-2020		23-Oct-2020	
GRO by GC-FID (S)	23-Oct-2020		22-Oct-2020	
Metals in solid samples by OES			23-Oct-2020	
PAH by GCMS			24-Oct-2020	
pH			22-Oct-2020	
Phenols by HPLC (S)			23-Oct-2020	
Sample description	21-Oct-2020		21-Oct-2020	
TPH CWG GC (S)	23-Oct-2020		23-Oct-2020	
VOC MS (S)	23-Oct-2020		22-Oct-2020	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

General

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

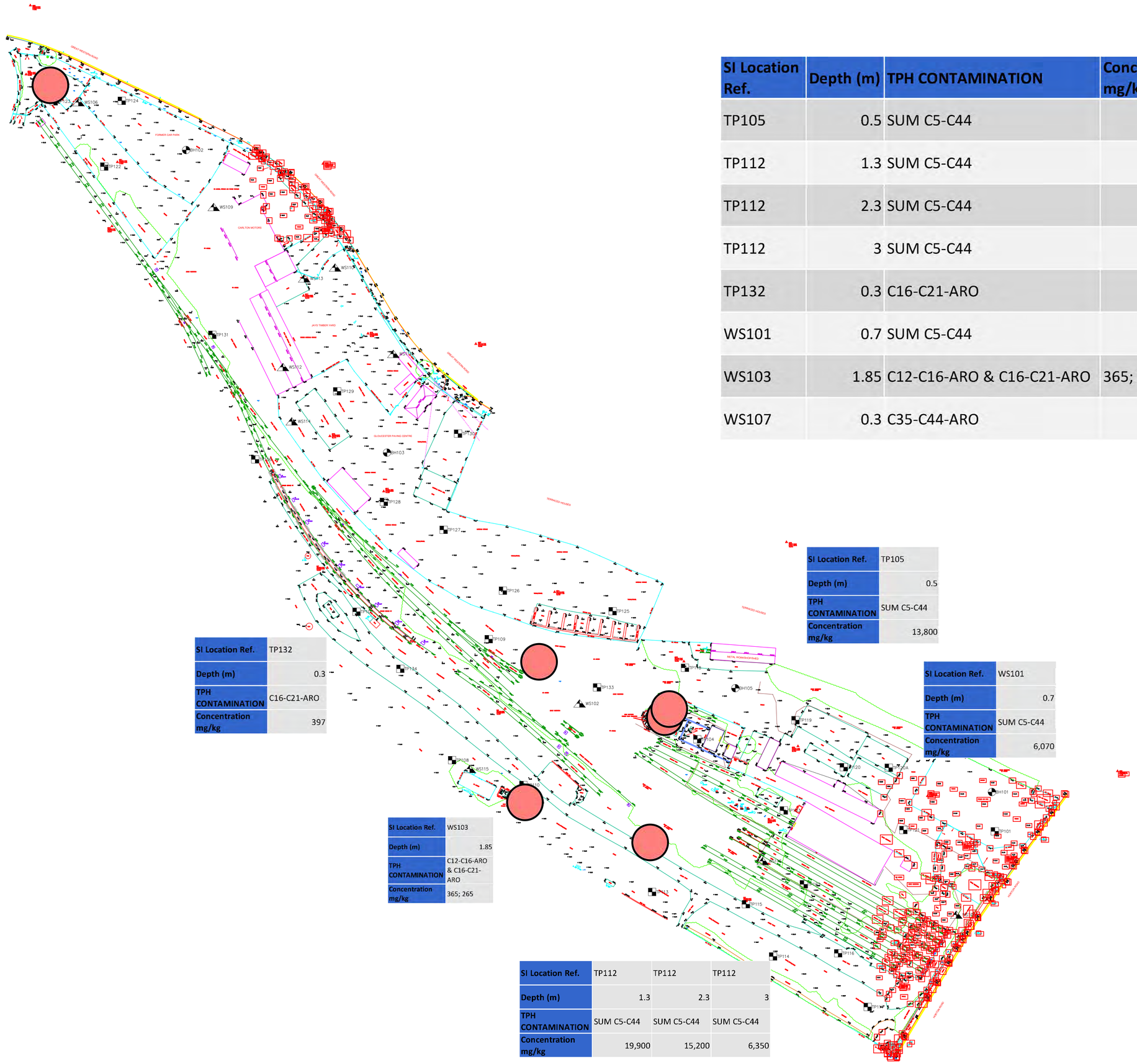
The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix 7

Geochemical Soils Exceedances Analysis

John F Hunt
REGENERATION

SI Location Ref.	WS107
Depth (m)	0.3
TPH CONTAMINATION	C35-C44-ARO
Concentration mg/kg	564



SI Location Ref.	TP105
Depth (m)	0.5
TPH CONTAMINATION	SUM C5-C44
Concentration mg/kg	13,800

SI Location Ref.	TP132
Depth (m)	0.3
TPH CONTAMINATION	C16-C21-ARO
Concentration mg/kg	397

SI Location Ref.	WS101
Depth (m)	0.7
TPH CONTAMINATION	SUM C5-C44
Concentration mg/kg	6,070

SI Location Ref.	WS103
Depth (m)	1.85
TPH CONTAMINATION	C12-C16-ARO & C16-C21-ARO
Concentration mg/kg	365; 265

SI Location Ref.	TP112	TP112	TP112
Depth (m)	1.3	2.3	3
TPH CONTAMINATION	SUM C5-C44	SUM C5-C44	SUM C5-C44
Concentration mg/kg	19,900	15,200	6,350

SI Location Ref.	Depth (m)	TPH CONTAMINATION	Concentration mg/kg
TP105	0.5	SUM C5-C44	13,800
TP112	1.3	SUM C5-C44	19,900
TP112	2.3	SUM C5-C44	15,200
TP112	3	SUM C5-C44	6,350
TP132	0.3	C16-C21-ARO	397
WS101	0.7	SUM C5-C44	6,070
WS103	1.85	C12-C16-ARO & C16-C21-ARO	365; 265
WS107	0.3	C35-C44-ARO	564

N

MACHINE EXCAVATED TRIAL PIT

CABLE PERCUSSION BOREHOLE

DYNAMIC SAMPLER/PROBE LOCATION

Rev	Date	Details Of Issue	Dwn.	Chk.
B	30/09/20	Proposed locations adjusted	FL	SC
A	29/05/20	First Issue	FL	SC

Issues And Revisions

Project :

GREAT WESTERN YARD, GLOUCESTER

Client :

NETWORK RAIL

Title :

MADE GROUND TPH EXCEEDANCES

Scale :	NOT TO SCALE	Drawn :	FL
Size :	A1	Checked :	SC
Sheet No. :	1	Date :	14/01/2021
Dwg No. :	20904/REM/005	Revision :	A

Status: INFORMATION

John F Hunt Regeneration Limited
London Road, Grays
[redacted]

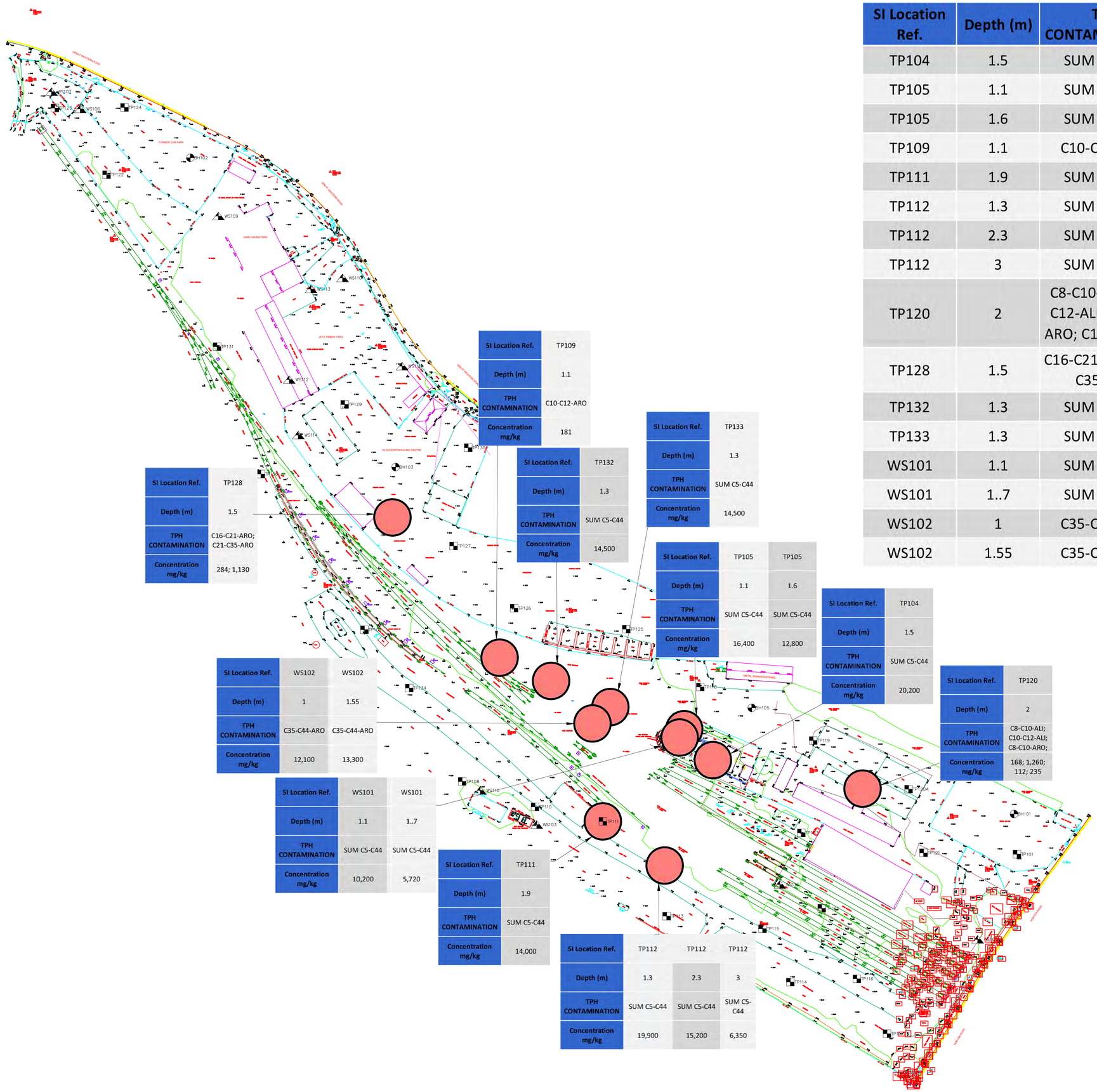
John F Hunt REGENERATION

ALS

					Customer Sample ID	TP101	TP102	TP103	TP103	TP104	TP105	TP106	TP107	TP108	TP108	TP109	TP110	TP111	TP111	TP112	TP112	TP112	TP112	TP112	TP113	TP113	TP115	TP116	TP118	TP118	TP119	TP119	TP120
					Depth	0.40-	0.50-	0.15-	0.60-	0.40-	0.50-	0.40-0.40	0.10-0.10	0.30-0.30	0.70-0.70	0.30-	0.30-0.30	0.60-0.60	2.40-2.40	0.40-0.40	0.90-0.90	1.30-1.30	2.30-2.30	3.00-3.00	0.10-0.10	0.60-0.60	0.10-0.10	0.40-	0.25-0.25	0.35-0.35	0.30-0.30	0.60-0.60	0.20-0.20
SDG(s):	201009-65,201009-96,201010-94,201014-100				**AGS Id**																												
Customer:	John F Hunt Remediation Ltd GRAYS (11751)				**Sample Type**	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Client Reference / Location:	Gloucester Great Western Road Yard				**Sampled Date**	10/7/2020	10/5/2020	10/6/2020	10/6/2020	10/6/2020	10/6/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/6/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/7/2020	10/7/2020	10/7/2020	10/7/2020	10/7/2020	10/8/2020
Order no:	R/16909/20904/1005				**Sample Received Date**	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/9/2020	10/10/2020	10/10/2020	10/10/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020
					Final Instruction Date	10/26/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/13/2020	10/10/2020	10/10/2020	10/10/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/13/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020
All results expressed on a dry weight basis					**Report Completed Date**	11/4/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/23/2020	10/23/2020	10/23/2020	10/23/2020	10/25/2020	10/23/2020	10/23/2020	10/23/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	10/25/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020
					SDG	201009-96	201009-65	201009-65	201009-65	201009-65	201009-65	201010-94	201010-94	201010-94	201010-94	201009-65	201010-94	201010-94	201010-94	201009-96	201009-96	201009-96	201009-96	201009-96	201009-96	201009-96	201009-96	201009-65	201009-96	201009-96	201009-96	201009-96	201009-96
					Lab Sample Number	23000498	23000559	23001754	23001752	23001750	23001743	23010678	23010685	23010704	23010705	23001741	23010702	23010701	23010703	22998380	22998397	22998388	22998395	22998376	22998389	22998386	22998392	23000524	22998398	22998401	22998405	22998404	22998390
					Sample Temperature	6.4	6.4	6.4	6.4	6.4	6.4	10.0	10.0	10.0	10.0	6.4	10.0	10.0	10.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	6.4	4.2	4.2	4.2	4.2	4.2
					Sample Time																												
Analysis	**Test**	**Method**	**Units**	**0**	**LOD**																												
Sample Description																																	
	Colour	PM024	No units			Dark Brown	Dark Brown	-	Dark Brown	Dark Brown	Dark Brown	Dark Brown	-	-	Dark Brown	Dark Brown	-	Dark Brown	Dark Brown	-	Black	Light Brown	Dark Brown	Dark Brown	-	Dark Brown	-	Dark Brown	-	Dark Brown	-	Dark Brown	-
	Description	PM024	No units			Sand	Loamy Sand	-	Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	-	-	Loamy Sand	Sandy Loam	-	Loamy Sand	Sand	-	Loamy Sand	Loamy Sand	Sand	Loamy Sand	-	Sandy Loam	-	Loamy Sand	-	Sand	-	Sand	-
	Inclusion 1)	PM024	No units			Stones	Stones	-	Vegetation	Vegetation	Stones	Stones	-	-	Stones	Vegetation	-	Stones	Stones	-	Stones	Stones	Vegetation	Stones	-	Stones	-	Stones	-	Stones	-	Stones	-
	Inclusion 2)	PM024	No units			None	None	-	Stones	Stones	Vegetation	Brick	-	-	Brick	Stones	-	Vegetation	Vegetation	-	None	None	Stones	None	-	None	-	Brick	-	Concrete/Aggregate	-	N/A	-
	Moisture Content Ratio (% of as received sample)	PM024	%			4.8	10	-	13	15	13	11	-	-	16	15	-	19	17	-	19	7.3	12	16	-	14	-	5.4	-	14	-	14	-
Asbestos																																	
	Asbestos Quantification - Gravimetric - %	TM304	%		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Date of Analysis	TM048	No units			22/10/2020	21/10/20	22/10/20	22/10/2020	22/10/2020	22/10/2020	22/10/2020	22/10/2020	22/10/20	22/10/2020	22/10/20	10/2020	22/10/2020	22/10/2020	-	22/10/2020	22/10/2020	-	-	-	21/10/2020	21/10/20	22/10/2020	23/10/2020	21/10/2020	22/10/2020	22/10/2020	22/10/2020	21/10/20
	Analysed By	TM048	No units			lames Richards	ndrzej Ferfecki	Andrzej Ferfecki	ieszka Chelmowska	Paul Poynton	Paul Poynton	ara Urbanek-Walsh	ara Urbanek-Walsh	Andrzej Ferfecki	James Richards	Eva Guerra	Paul Poynton	-	-	ieszka Chelmowska	Marcin Magdziarek	-	-	-	James Richards	Andrzej Ferfecki	ieszka Chelmowska	Marcin Magdziarek	James Richards	Marcin Magdziarek	ieszka Chelmowska	Paul Poynton	Andrzej Ferfecki
	Asbestos Quantification - PCOM Evaluation - %	TM304	%		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Additional Asbestos Components (Using TM048)	TM304	No units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Analysts Comments	TM304	No units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos Quantification - Total - %	TM304	%		<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysotile (White) Asbestos	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Amosite (Brown) Asbestos	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Crocidolite (Blue) Asbestos	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Fibrous Anthophyllite	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Fibrous Tremolite	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Fibrous Actinolite	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Non-Asbestos Fibre	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Comments	TM048	No units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics																																	
	Water Soluble Sulphate as SO4 2:1 Extract	TM243	g/l	0.5	<0.004	0.0075	0.0129	-	0.0741	0.484	0.0359	0.0296	-	-	0.0718	0.0258	-	-	-	-	0.0221	-	-	-	-	0.0226	-	0.0181	-	0.0284	-	0.0624	-
	pH	TM133	pH Units	5	1	8.97	8.77	-	7.9	7.45	7.41	8.23	-	-	8.5	8.01	-	-	-	-	8.13	-	-	-	-	8.14	-	9.17	-	8.41	-	7.97	-
Metals - (Solids)																																	
	Boron, water soluble	TM222	mg/kg	3	1	1	1.22	-	1	1	1.36	1	-	-	1.08	1	-	-	-	-	1	-	-	-	-	1	-	1	-	1	-	2.61	-
	Arsenic	TM181	mg/kg	37	0.6	7.6	13.3	-	16.8	25.1	14.2	15.1	-	-	32.5	96.7	-	-	-	-	29.5	-	-	-	-	24.1	-	7.71	-	13.2	-	25.7	-
	Cadmium	TM181	mg/kg	11	0.02	0.279	0.02	-	0.185	0.2	0.598	0.48	-	-	0.02	0.206	-	-	-	-	0.2	-	-	-	-	0.0347	-	0.2	-	0.372	-	0.123	-
	Chromium	TM181	mg/kg	910	0.9	5.14	11.2	-	20	20.4	22.2	10.2	-	-	2.6	9	-	-	-	-	11.6	-	-	-	-	6.61	-	9.85	-	6.87	-	0.9	-
	Copper	TM181	mg/kg	200	1.4	19.2	14.7	-	54.6	50.4	51	102	-	-	183	242	-	-	-	-	218	-	-	-	-	188	-	23.9	-	82.3	-	235	-
	Lead	TM181	mg/kg	330	0.7	27.7	11.1	-	68.3	42	89.2	57.6	-	-	125	248	-	-	-	-	119	-	-	-	-	63.3	-	29.4	-	34.8	-	144	-
	Mercury	TM181	mg/kg	11	0.14	0.14	0.14	-	0.14	1.4	0.14	0.14	-	-	0.196	1.4	-	-	-	-	1.4	-	-	-	-	0.333	-	0.14	-	0.14	-	0.21	-
	Nickel	TM181	mg/kg	180	0.2	5.7	15.5	-	21.9	30.2	23.6	33.6	-	-	57.8	84.6	-	-	-	-	71.6	-	-	-	-	28.4	-	8.3	-	27.1	-	64.3	-
	Selenium	TM181	mg/kg	250	1	1	1	-	1	10	1	1	-	-	1	10	-	-	-	-	10	-	-	-	-	1	-	1	-	1	-	1	-
	Zinc	TM181	mg/kg	300	1.9	62.1	50.6	-	78	94.1	140	69.8	-	-	86.4	149	-	-	-	-	92.9	-	-	-	-	106	-	62.8	-	61.1	-	143	-
Phenols																																	
	Phenol	TM062 (S)	mg/kg		0.01	0.01	0.01	-	0.0115	0.01	0.01	0.01	-	-	0.01	0.01	-	-	-	-	0.01	-	-	-	-	0.0116	-	0.01	-	0.01	-	0.01	-
	Cresols	TM062 (S)	mg/kg		0.01	0.01	0.01	-	0.0115	0.01	0.01	0.01	-	-	0.01	0.01	-	-	-	-	0.01	-	-	-	-	0.01	-	0.01	-	0.01	-	0.01	-
	Xylenols	TM062 (S)	mg/kg		0.015	0.015	0.015	-	0.023	0.015	0.015	0.015	-	-	0.015	0.015	-	-	-	-	0.015	-	-	-	-	0.0812	-	0.015	-	0.015	-	0.015	-
	Phenols, Total Detected monohydric	TM062 (S)	mg/kg		0.035	0.035	0.035	-	0.046	0.035	0.035	0.035	-	-	0.035	0.035	-	-	-	-	0.035	-	-	-	-	0.0928	-	0.035	-	0.035	-	0.035	-
Gasoline Range Organ																																	
	Total Aliphatics >C5-C10	TM089	µg/kg		50	50	50	-	171	24700	8670	50	-	-	50	142	-	109	99.2	-	80.6	50500	184000	32900	-	98.6	-	50	-	50	-	50	-
	Total Aromatics >EC5-EC10	TM089	µg/kg		50	50	50	-	73.6	14700	5090	50	-	-	50	50	-	50	50	-	50	32500	116000	20200	-	50	-	50	-	50	-	50	-
	GRO >C5-C10	TM089	µg/kg		20	20	20	-	245	39400	13800	20	-	-	20	142	-	109	99.2	-	80.6	83000	299000	53200	-	98.6	-	20	-	20	-	20	-
TPH Criteria Working (																																	
	GRO Surrogate % recovery**	TM089	%			111	102	-	117	130	80.3	29.4	-	-	17.2	49.5	-	68.1	106	-	51.1	94.1	98	117	-	11.2	-	93.6	-	69	-	46	-
	Aliphatics >C5-C6	TM089	µg/kg	42000	10	10	10	-	11.5	100	50	10	-	-	10	11.7	-	10	10	-	12.4	200	200	200	-	12.8	-	10	-	10	-	10	-
	Aliphatics >C6-C8	TM089	µg/kg	100000	10	10	10	-	49.5	2610	1040	10	-	-	10	57.3	-	50.4	37.5	-	26	1790	10300	2600	-	27.8	-	10	-	10	-	10	-
	Aliphatics >C8-C10	TM089	µg/kg	27000	10	10	11.2	-	110	22000	7630	10	-	-	10	72.5	-	59	61.7	-	42.2	48700	173000	30300	-	58	-	10.6	-	10	-	10	-
	Aliphatics >C10-C12	TM414	µg/kg	130000	1000	1000	1000	-	4990	1000	392000	1000	-	-	1000	16200	-	2160	24200	-	4200	829000	672000	285000	-	1520	-	1000	-	1000	-	1000	-
	Aliphatics >C12-C16	TM414	µg/kg	1100000	1000	1000	1000	-	112000	1700	3950000	1460	-	-	1820	207000	-	5410	159000	-	5970	5060000	3740000	1530000	-	5640	-	1000	-	1310	-	19000	-
	Aliphatics >C16-C21	TM414	µg/kg	2500000	1000	3210	1000	-	150000	5960	5230000	1390	-	-	1550	338000	-	3480	226000	-	6440	5550000	4110000	1900000	-	13600	-	8750	-	2940	-	31200	-
	Aliphatics >C21-C35	TM414	µg/kg	2500000	1000	4510	1000	-	20300	2700	1450000	2630	-	-	1900	165000	-	1000	74300	-	1600	2730000	2000000	826000	-	24300	-	9040	-	6580	-	8930	-
	Aliphatics >C35-C44	TM414	µg/kg	2500000	1000	1000	1000	-	1000	1000	44100	1000	-	-	1000	1000	-	1000	6640	-	1000	244000	157000	96000	-	1000	-	1000	-	1000	-	1000	-
	Total Aliphatics >C10-C44	TM414	µg/kg	5000000	5000	8670	5000	-	288000	10400	11100000	6040	-	-	5830	726000	-	12000	490000	-	18200	14400000	10700000	4650000	-	45100	-	18500	-	11200	-	59600	-
	Total Aliphatics & Aromatics >C10-C44	TM414	µg/kg	5000000	10000	71700	10000	-	453000	13700	13800000	310000	-	-	23200	1400000	-	851000	668000	-	459000	19800000	14900000	6290000	-	586000	-	184000	-	221000	-	652000	-
	Aromatics >EC5-EC7	TM089	µg/kg	70000	10	10	10	-	10	100	50	10	-	-	10	10	-	10	10	-	10	200	200	200	-	10	-	10	-	10	-	10	-
	Aromatics >EC7-EC8	TM089	µg/kg	130000	10	10	10	-	10	100	50	10	-	-	10	10	-	10	10	-	10	200	200	200	-	10	-	10	-	10	-	10	-
	Aromatics >EC8-EC10	TM089	µg/kg	34000	10	10	10	-	73.6	14700	5090	10	-	-	10	48	-	39.4	41.1	-	28.5	32500	116000	20200	-	38.3	-	10	-	10	-	10	-
	Aromatics > EC10-EC12	TM414	µg/kg	74000	1000	1000	1000	-	1250	1000	84700	1000	-	-	1000	9620	-	1000	6980	-	4560	340000	308000	131000	-	1350	-	1000	-	1000	-	1000	-
	Aromatics > EC12-EC16	TM414	µg/kg	140000	1000	1000	1000	-	24300	1000	1320000	1880	-	-	1760	120000	-	7290	101000	-	12900	3160000	2420000	874000	-	15600	-	1000	-	3280	-	2090	-
	Aromatics > EC16-EC21	TM414	µg/kg	260000	1000	1190	1000	-	55900	1000	1130000	14000	-	-	3740	76200	-	33600	63800	-	35500	1730000	1280000	567000	-	34800	-	1240	-	40300	-	73600	-
	Aromatics > EC21-EC35	TM414	µg/kg	1100000	1000	29900	1000	-	76400	1330	171000	183000	-	-	10800	336000	-	623000	5940	-	298000	203000	166000	74100	-	286000	-	140000	-	142000	-	427000	-
	Aromatics >EC35-EC44	TM414	µg/kg	550000	1000	31900	1000	-	7160	1000	5000	105000	-	-	1000	128000	-	175000	1000	-	89800	10000	10000	2000	-	203000	-	24600	-	24300	-	88800	-
	Aromatics > EC40-EC44	TM414	µg/kg	550000	1000	8260	1000	-	1030	1000	5000	1000	-	-	1000	9790	-	7940	1000	-	1000	10000	10000	2000	-	2480	-	4540	-	3960	-	6380	-
	Total Aromatics > EC10-EC44	TM414	µg/kg	5000000	5000	63100	5000	-	165000	5000	2710000	304000	-	-	17400	670000	-	839000	178000	-	441000	5430000	4190000	1650000	-	541000	-	166000	-	210000	-	592000	-
	Total Aliphatics & Aromatics >C5-C44	TM414	µg/kg	5000000	10000	71700	10000	-	453000	53100	13800000	310000	-	-	23200	1400000	-	851000	668000	-	459000	19900000	15200000	6350000	-	586000	-	184000	-	221000	-	652000	-
Polyaromatic Hydroca																																	
	Naphthalene-d8 % recovery**	TM218	%			83.8	95.8	-	91.8	92.5	97.7	92.4	-	-	85	93.9	-	-	-	-	87.9	-	-	-	-	18	-	89.4	-	90.7	-	87.6	-
	Acenaphthene-d10 % recovery**	TM218	%			75.8	87.5	-	88.6	88.1	106	87.9	-	-	81.1	88.4	-	-	-	-	83.7	-	-	-	-	17.4	-	83.9	-	85.9	-	87.4	-
	Phenanthrene-d10 % recovery**	TM218	%			81.9	93.7	-	97.7	99.1	95.4	91.5	-	-	84.2	93.9	-	-	-	-	85	-	-	-	-	16.6	-	89.5	-	93.7	-	95.4	-
	Chrysene-d12 % recovery**	TM218	%			84.5	126	-	112	96.5	119	96.8	-	-	85.5	97.8	-	-	-	-	97.7	-	-	-	-	15.5	-	98.5	-	123	-	100	-
	Perylene-d12 % recovery**	TM218	%			75.9	119	-	115	91.9	115	75.9	-	-	71.4	86.1	-	-	-	-	70.6	-	-	-	-	14.2	-	90.7	-	99.5	-	74.2	-
	Naphthalene	TM218	µg/kg	2300	9	90	9	-	246	10.7	308	187	-	-	53.1	366	-	-	-	-	130	-	-	-	-	137	-	36.5	-	290	-	154	-
	Acenaphthylene	TM218	µg/kg	170000	12	120	12	-	561	12	284	24	-	-	60.2	129	-	-	-	-	32.8	-	-	-	-	12	-	12	-	42.5	-	21.4	-
	Acenaphthene	TM218	µg/kg	210000	8	80	8	-	501	12.1	904	112	-	-	15.1	185	-	-	-	-	16.1	-	-	-	-	135	-	8	-	870	-	113	-
	Fluorene	TM218	µg/kg	170000	10	100	10	-	812	35.2	1800	90.7	-	-	35.3	399	-	-	-	-	36.1	-	-	-	-	60.3	-	10	-	369	-	119	-
	Phenanthrene	TM218	µg/kg	95000	15	150	15	-	5040	85.8	2880	1690	-	-	336	1660	-	-	-	-	338	-	-	-	-	359	-	53.5	-	5960	-	1370	-
	Anthracene	TM218	µg/kg	2400000	16	160	16	-	1800	16	16	281	-	-	96.7	475	-	-	-	-	128	-	-	-	-	133	-	16	-	1430	-	326	-
	Fluoranthene	TM218	µg/kg	280000	17	337	17	-	11600	189	241	2180	-	-	709	1460	-	-	-	-	504	-	-	-	-	650	-	64	-	11300	-	2350	-
	Pyrene	TM218	µg/kg	620000	15	326	15	-	12200	142	441	1800	-	-	623	1240	-	-	-	-	476	-	-	-	-	513	-	56.5	-	10200	-	1970	-
	Benz(a)anthracene	TM218	µg/kg	7200	14	212	14	-	7690	101	14	1140	-	-	486	866	-	-	-	-	367	-	-	-	-	349	-	47.7	-	6510	-	1900	-
	Chrysene	TM218	µg/kg	15000	10	228	10	-	7480	106	10	1110	-	-	535	1010	-	-	-	-	435	-	-	-	-	328	-	53.2	-	6130	-	1960	-
	Benzo(b)fluoranthene	TM218	µg/kg	2600	15	509	15	-	15100	143	34.8	1720	-	-	622	1730	-	-	-	-	773	-	-	-	-	580	-	86.7	-	8370	-	2890	-
	Benzo(k)fluoranthene	TM218	µg/kg	77000	14	176	14	-	4710	45.9	14	540	-	-	168	506	-	-	-	-	219	-	-	-	-	222	-	28.9	-	3390	-	928	-
	Benzo(a)pyrene	TM218	µg/kg	2200	15	301	15	-	12400	84.9	15	1060	-	-	403	787	-	-	-	-	313	-	-	-	-	357	-	46.2	-	6700	-	1730	-
	Indeno(1,2,3-cd)pyrene	TM218	µg/kg	27000	18	348	18	-	11300	74.6	18	958	-	-	258	1340	-	-	-	-	274	-	-	-	-	331	-	54.5	-	5030	-	1290	-
	Dibenzo(a,h)anthracene	TM218	µg/kg	240	23	230	23	-	1290	23	23	165	-	-	72.7	195	-	-	-	-	69.1	-	-	-	-	70.3	-	23	-	894	-	343	-
	Benzo(g,h,i)perylene	TM218	µg/kg	320000	24	331	24	-	9020	54.6	24	816	-	-	222	1180	-	-	-	-	285	-	-	-	-	343	-	52.7	-	4570	-	1150	-
	PAH, Total Detected USEPA 16	TM218	µg/kg	100000	118	2770	118	-	102000	1080	6890	13900	-	-	4700	13500	-	-	-	-	4400	-	-	-	-	4570	-	580	-	72000	-	18600	-
Volatile Organic Comp																																	
	Dibromofluoromethane**	TM116	%			106	114	-	108	111	109	107	-	-	112	107	-	103	122	-	112	117	117	116	-	96	-	96.8	-	118	-	113	-
	Toluene-d8**	TM116	%			103	101	-	97.6	93.2	92.8	91.5	-	-	91.7	90.3	-	91.6	95.7	-	99.2	94.8	94.7	96.3	-	93.5	-	92.2	-	99.7	-	99.1	-
	4-Bromofluorobenzene**	TM116	%			95.4	96.2	-	96.4	92.1	91.1	82.6	-	-	81.2	80.3	-	77.4	92.5	-	90.8	88	83	85.6	-	70.1	-	75.1	-	90.1	-	82.9	-
	Methyl Tertiary Butyl Ether	TM116	µg/kg		10	200	10	-	10	200	200	200	-	-	200	200	-	200	10	-	200	200	200	200	-	200	-	10	-	200	-	200	-
	Benzene	TM116	µg/kg	87	9	180	9	-	9	180	180	180	-	-	180	180	-	180	9	-	180	180	180	180	-	180	-	9	-	180	-	180	-
	Toluene	TM116	µg/kg	130000	7	140	7	-	7	140	140	140	-	-	140	140	-	140	7	-	140	140	140	140	-	140	-	7	-	140	-	140	-
	Ethylbenzene	TM116	µg/kg	47000	4	80	4	-	4	80	80	80	-	-	80	80	-	80	4	-	80	80	80	80	-	80	-	4	-	80	-	80	-
	p/m-Xylene	TM116	µg/kg		10	200	10	-	10	200	200	200	-	-	200	200	-	200	10	-	200	200	200	200	-	200	-	10	-	200	-	200	-
	o-Xylene	TM116	µg/kg		10	200	10	-	10	200	200	200	-	-	200	200	-	200	10	-	200	200	200	200	-	200	-	10	-	200	-	200	-
	Sum of Detected Xylenes	TM116	mg/kg	56000	0.02	0.4	0.02	-	0.02	0.4	0.4	0.4	-	-	0.4	0.4	-	0.4	0.02	-	0.4	0.4	0.4	0.4	-	0.4	-	0.02	-	0.4	-	0.4	-
	Sum of BTEX	TM116	µg/kg	6000	40	800	40	-	40	800	800	800	-	-	800	800	-	800	40	-	800	800	800	800	-	800	-	40	-	800	-	800	-

ALS

					Customer Sample ID	TP120	TP121	TP121	TP122	TP123	TP124	TP125	TP125	TP126	TP127	TP128	TP129	TP130	TP131	TP132	TP133	TP134	TP120A\20a Pipe Fragment		WS101	WS103	WS103	WS104	WS105	WS106	WS107	WS115
					Depth	0.40-0.40	0.30-0.30	0.60-0.60	0.20-0.20	0.25-0.25	0.20-0.20	0.25-0.25	2.00-2.00	0.25-0.25	0.25-0.25	0.25-0.25	0.50-0.50	0.30-0.30	0.30-0.30	0.30-	0.20-	0.40-0.40	0.60-0.60	0.60-0.60	0.70-	0.80-	1.85-	0.40-	0.30-	0.40-	0.30-	0.60-
SDG(s):	201009-65,201009-96,201010-94,201014-100				AGS Id																											
Customer:	John F Hunt Remediation Ltd GRAYS (11751)				Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Client Reference / Location:	Gloucester Great Western Road Yard				Sampled Date	10/8/2020	10/8/2020	10/8/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/9/2020	10/6/2020	10/5/2020	10/9/2020	10/8/2020		10/6/2020	10/6/2020	10/6/2020	10/6/2020	10/7/2020	10/6/2020	10/6/2020	10/6/2020
Order no:	R/16909/20904/1005				Sample Received Date	10/9/2020	10/9/2020	10/9/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/14/2020	10/10/2020	10/9/2020	10/9/2020	10/10/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020
					Final Instruction Date	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/10/2020	10/13/2020	10/13/2020	10/10/2020	10/26/2020	10/26/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020
All results expressed on a dry weight basis					Report Completed Date	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	10/23/2020	10/25/2020	10/25/2020	10/23/2020	11/4/2020	11/4/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020
					SDG	201009-96	201009-96	201009-96	201014-100	201014-100	201014-100	201014-100	201014-100	201014-100	201014-100	201014-100	201014-100	201014-100	201010-94	201009-65	201009-65	201010-94	201009-96	201009-96	201009-65	201009-65	201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
					Lab Sample Number	22998385	22998403	22998396	23031241	23031240	23031254	23031249	23031247	23031250	23031248	23031251	23031253	23031252	23010682	23000550	23000555	23010691	22998377	22998375	23000528	23000533	23000535	23000536	23000505	23000539	23000542	23000494
					Sample Temperature	4.2	4.2	4.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	10.0	6.4	6.4	10.0	4.2	4.2	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
					Sample Time																											
Analysis	**Test**	**Method**	**Units**	**0**	**LOD**																											
Sample Description																																
	Colour	PM024	No units			Dark Brown	-	Dark Brown	-	-	-	Dark Brown	Light Brown	-	Light Brown	-	Dark Brown	-	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	-	Dark Brown	Dark Brown	Light Brown	Dark Brown	-	Dark Brown	Black	Dark Brown
	Description	PM024	No units			Loamy Sand	-	Loamy Sand	-	-	-	Loamy Sand	Sand	-	Sandy Loam	-	Sand	-	Sand	Loamy Sand	Loamy Sand	Loamy Sand	Sand	-	Loamy Sand	Sand	Sandy Loam	Sand	-	Sand	Loamy Sand	Loamy Sand
	Inclusion 1)	PM024	No units			Stones	-	Vegetation	-	-	-	Stones	Stones	-	Stones	-	Stones	-	Stones	Stones	Stones	Stones	Stones	-	Stones	Stones	Vegetation	Vegetation	-	Stones	Stones	Stones
	Inclusion 2)	PM024	No units			Vegetation	-	Stones	-	-	-	Vegetation	Vegetation	-	Vegetation	-	Vegetation	-	Brick	Vegetation	Vegetation	Vegetation	None	-	None	None	Stones	Brick	-	None	Vegetation	Vegetation
	Moisture Content Ratio (% of as received sample)	PM024	%			14	-	13	-	-	-	4.8	15	-	5.2	-	4	-	3.9	17	18	14	20	-	8.6	25	13	12	-	6	6.6	12
Asbestos																																
	Asbestos Quantification - Gravimetric - %	TM304	%		<0.001	<0.001	-	-	-	-	-	-	-	-	-	0.0063	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Date of Analysis	TM048	No units			21/10/2020	21/10/2020	22/10/2020	23/10/2020	23/10/20	23/10/2020	23/10/2020	-	24/10/2020	23/10/2020	23/10/20	23/10/2020	23/10/2020	22/10/20	21/10/20	21/10/20	22/10/20	22/10/2020	21/10/20	22/10/2020	22/10/20	-	22/10/2020	23/10/2020	22/10/2020	21/10/2020	21/10/2020
	Analysed By	TM048	No units			James Richards	James Richards	Marcin Magdziarek	Marcin Magdziarek	Eva Guerra	Marcin Magdziarek	ara Urbanek-Walsh	-	James Richards	James Richards	Eva Guerra	Paul Poynton	James Richards	Andrzej Ferfecki	Andrzej Ferfecki	Andrzej Ferfecki	Andrzej Ferfecki	Marcin Magdziarek	Andrzej Ferfecki	ieszka Chelmowska	Andrzej Ferfecki	-	James Richards	ieszka Chelmowska	Marcin Magdziarek	James Richards	James Richards
	Asbestos Quantification - PCOM Evaluation - %	TM304	%		<0.001	<0.001	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Additional Asbestos Components (Using TM048)	TM304	No units			None	-	-	-	-	-	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Analysts Comments	TM304	No units			N/C	-	-	-	-	-	-	-	-	-	N/C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos Quantification - Total - %	TM304	%		<0.001	<0.001	-	-	-	-	-	-	-	-	-	0.0063	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysotile (White) Asbestos	TM048	No units			Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Amosite (Brown) Asbestos	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Crocidolite (Blue) Asbestos	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Fibrous Anthophyllite	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Fibrous Tremolite	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Fibrous Actinolite	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Non-Asbestos Fibre	TM048	No units			Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
	Comments	TM048	No units			Fibre bundles in soil	-	-	-	-	-	-	-	-	- unch of fibres in soil		-	-	-	-	-	-	-	loose fibres in soil	-	-	-	-	-	-	-	-
Inorganics																																
	Water Soluble Sulphate as SO4 2:1 Extract	TM243	g/l	0.5	<0.004	0.123	-	0.0058	-	-	-	0.0355	-	-	0.0176	-	<0.004	-	0.0077	0.06	<0.004	0.0336	0.101	-	0.322	0.0189	-	0.0161	-	0.108	0.0158	0.0218
	pH	TM133	pH Units	5	1	8.27	-	8.19	-	-	-	8.68	-	-	8.97	-	8.79	-	8.58	7.99	7.77	8.4	8.03	-	8.19	8.14	-	8.9	-	9.1	8.52	8.2
Metals - (Solids)																																
	Boron, water soluble	TM222	mg/kg	3	1	2.24	-	1	-	-	-	1	-	-	1	-	1	-	1	1	1.21	1.19	1.93	-	1	1	-	1	-	1.39	1	1
	Arsenic	TM181	mg/kg	37	0.6	24.5	-	20.4	-	-	-	8.42	-	-	7.9	-	7.82	-	6.58	17.4	14.2	21.4	24.7	-	18.6	25.9	-	22.9	-	5.07	10.5	19
	Cadmium	TM181	mg/kg	11	0.02	0.377	-	0.02	-	-	-	0.224	-	-	0.238	-	0.431	-	0.292	0.296	0.0739	0.02	0.814	-	0.02	0.02	-	0.433	-	0.0783	0.316	0.02
	Chromium	TM181	mg/kg	910	0.9	10.7	-	21.9	-	-	-	7.7	-	-	10.1	-	8.24	-	6.99	9.22	12.9	2.46	14.8	-	1.3	14.9	-	8.91	-	15.3	8.41	0.9
	Copper	TM181	mg/kg	200	1.4	426	-	26.2	-	-	-	8.67	-	-	22.1	-	24.1	-	23.6	69.5	73.2	97.1	397	-	15.1	622	-	37.6	-	16.4	21.2	114
	Lead	TM181	mg/kg	330	0.7	273	-	31.5	-	-	-	52.2	-	-	42.1	-	64.1	-	26.7	84.8	28.8	49.5	237	-	7.53	424	-	128	-	9.87	25.8	79.8
	Mercury	TM181	mg/kg	11	0.14	0.14	-	0.241	-	-	-	0.14	-	-	0.14	-	0.14	-	0.14	0.14	0.14	0.142	0.245	-	0.14	0.317	-	0.14	-	0.14	0.14	0.225
	Nickel	TM181	mg/kg	180	0.2	29.7	-	28.9	-	-	-	9.12	-	-	8.44	-	11.7	-	8	25.5	45.3	31.9	42.2	-	38.5	35.3	-	11.3	-	35.3	14.3	40.1
	Selenium	TM181	mg/kg	250	1	1	-	1	-	-	-	1	-	-	1	-	1	-	1	1	1	1	1	-	1	1	-	1	-	2.1	1	1
	Zinc	TM181	mg/kg	300	1.9	134	-	91.4	-	-	-	125	-	-	81.7	-	78.7	-	70.1	165	79	47.9	465	-	85.2	183	-	112	-	37.3	53.2	110
Phenols																																
	Phenol	TM062 (S)	mg/kg		0.01	0.01	-	0.01	-	-	-	0.01	-	-	0.01	-	0.01	-	0.0104	0.01	0.01	0.01	0.01	-	0.01	0.01	-	0.01	-	0.01	0.01	0.01
	Cresols	TM062 (S)	mg/kg		0.01	0.01	-	0.01	-	-	-	0.01	-	-	0.01	-	0.01	-	0.01	0.01	0.0122	0.01	0.01	-	0.01	0.01	-	0.01	-	0.01	0.01	0.01
	Xylenols	TM062 (S)	mg/kg		0.015	0.015	-	0.015	-	-	-	0.015	-	-	0.015	-	0.015	-	0.015	0.015	0.015	0.015	0.025	-	0.015	0.015	-	0.015	-	0.015	0.015	0.015
	Phenols, Total Detected monohydric	TM062 (S)	mg/kg		0.035	0.035	-	0.035	-	-	-	0.035	-	-	0.035	-	0.035	-	0.035	0.035	0.035	0.035	0.035	-	0.035	0.035	-	0.035	-	0.035	0.035	0.035
Gasoline Range Organ																																
	Total Aliphatics >C5-C10	TM089	µg/kg		50	50	-	50	-	-	-	50	50	-	50	-	50	-	50	266	97.6	50	50	-	37600	66.5	4990	50	-	50	101	50
	Total Aromatics >EC5-EC10	TM089	µg/kg		50	50	-	50	-	-	-	50	50	-	50	-	50	-	50	81.1	50	50	50	-	24300	50	2820	50	-	50	50	50
	GRO >C5-C10	TM089	µg/kg		20	20	-	20	-	-	-	20	20	-	20	-	20	-	20	347	97.6	20	20	-	61900	66.5	7810	20	-	20	101	20
TPH Criteria Working (																																
	GRO Surrogate % recovery**	TM089	%			48.9	-	104	-	-	-	89.6	114	-	77.1	-	77.2	-	52.2	70.3	79.4	38.3	24.2	-	99	50	118	79	-	75	61	55
	Aliphatics >C5-C6	TM089	µg/kg	42000	10	10	-	10	-	-	-	10	10	-	10	-	10	-	10	39.9	13.4	10	10	-	200	10	164	10	-	10	10	10
	Aliphatics >C6-C8	TM089	µg/kg	100000	10	10	-	10	-	-	-	10	10	-	16.9	-	10	-	10	105	40.3	10	10	-	1100	43.9	599	10	-	14.9	36.4	10
	Aliphatics >C8-C10	TM089	µg/kg	27000	10	10	-	10	-	-	-	10	10	-	28.5	-	10	-	10	121	43.9	10	10	-	36500	22.6	4230	10	-	10	64.2	10
	Aliphatics >C10-C12	TM414	µg/kg	130000	1000	1300	-	1000	-	-	-	1000	1000	-	1000	-	5000	-	1000	1550	1000	1000	1200	-	199000	1000	96000	1390	-	1000	29400	1000
	Aliphatics >C12-C16	TM414	µg/kg	1100000	1000	6210	-	1000	-	-	-	1000	1000	-	16200	-	11100	-	1720	26500	3490	1360	3900	-	1710000	4890	664000	13900	-	1000	197000	5330
	Aliphatics >C16-C21	TM414	µg/kg	2500000	1000	12700	-	1000	-	-	-	4940	1000	-	16300	-	11500	-	3030	55600	57700	4080	7150	-	1870000	2760	775000	55800	-	1020	310000	7990
	Aliphatics >C21-C35	TM414	µg/kg	2500000	1000	27600	-	1000	-	-	-	54500	1000	-	14700	-	6180	-	12200	1000	19800	15400	14000	-	591000	4350	290000	118000	-	6550	50100	22000
	Aliphatics >C35-C44	TM414	µg/kg	2500000	1000	1000	-	1000	-	-	-	28500	1000	-	1000	-	5000	-	1000	1180	1000	1000	1000	-	86900	1000	29100	148000	-	12200	6330	1000
	Total Aliphatics >C10-C44	TM414	µg/kg	5000000	5000	47800	-	5000	-	-	-	88500	5000	-	48200	-	31700	-	17300	85600	81900	21700	26400	-	4460000	12500	1850000	337000	-	20000	593000	35900
	Total Aliphatics & Aromatics >C10-C44	TM414	µg/kg	5000000	10000	346000	-	10000	-	-	-	189000	10000	-	629000	-	1110000	-	240000	1340000	495000	157000	530000	-	6010000	77300	2530000	944000	-	82400	2150000	446000
	Aromatics >EC5-EC7	TM089	µg/kg	70000	10	10	-	10	-	-	-	10	10	-	10	-	10	-	10	10	10	10	10	-	200	10	100	10	-	10	10	10
	Aromatics >EC7-EC8	TM089	µg/kg	130000	10	10	-	10	-	-	-	10	10	-	10	-	10	-	10	10	10	10	10	-	200	10	100	10	-	10	10	10
	Aromatics >EC8-EC10	TM089	µg/kg	34000	10	10	-	10	-	-	-	10	10	-	19	-	10	-	10	81.1	29.3	10	10	-	24300	14.6	2820	10	-	10	42.8	10
	Aromatics > EC10-EC12	TM414	µg/kg	74000	1000	1000	-	1000	-	-	-	1000	1000	-	1000	-	5000	-	1000	4020	1000	1000	1000	-	45300	1000	15100	1000	-	1000	2140	1000
	Aromatics > EC12-EC16	TM414	µg/kg	140000	1000	4400	-	1000	-	-	-	1000	1000	-	12700	-	5300	-	12400	18300	4150	2240	10300	-	810000	9030	365000	3640	-	1000	137000	2590
	Aromatics > EC16-EC21	TM414	µg/kg	260000	1000	9380	-	1000	-	-	-	8690	1000	-	75300	-	76600	-	28100	397000	63500	5450	66400	-	638000	18100	265000	13500	-	1030	176000	22000
	Aromatics > EC21-EC35	TM414	µg/kg	1100000	1000	235000	-	1320	-	-	-	79500	1170	-	418000	-	862000	-	138000	726000	306000	102000	315000	-	56500	34900	25800	507000	-	30200	677000	243000
	Aromatics >EC35-EC44	TM414	µg/kg	550000	1000	49400	-	1000	-	-	-	12100	1000	-	74900	-	134000	-	44300	108000	39300	25400	111000	-	1000	2280	2000	83200	-	31100	564000	142000
	Aromatics > EC40-EC44	TM414	µg/kg	550000	1000	2500	-	1000	-	-	-	6180	1000	-	12700	-	15200	-	2400	13900	5350	3740	10200	-	1000	1000	2000	28600	-	17800	59400	1000
	Total Aromatics > EC10-EC44	TM414	µg/kg	5000000	5000	298000	-	5000	-	-	-	100000	5000	-	581000	-	1080000	-	223000	1250000	413000	135000	503000	-	1550000	64800	674000	608000	-	62400	1560000	411000
	Total Aliphatics & Aromatics >C5-C44	TM414	µg/kg	5000000	10000	346000	-	10000	-	-	-	189000	10000	-	629000	-	1110000	-	240000	1340000	495000	157000	530000	-	6070000	77300	2540000	944000	-	82400	2150000	446000
Polyaromatic Hydroca																																
	Naphthalene-d8 % recovery**	TM218	%			88.3	-	94.8	-	-	-	90.7	-	-	88.4	-	87.8	-	103	94.5	84.2	88.4	93.3	-	94	85.3	-	95.3	-	85.5	92.5	89.7
	Acenaphthene-d10 % recovery**	TM218	%			87.2	-	86.8	-	-	-	84.9	-	-	84	-	83.7	-	95.3	92.2	84.5	83.1	91.4	-	91.5	85.1	-	86.5	-	85.1	87.5	88.2
	Phenanthrene-d10 % recovery**	TM218	%			81.4	-	94	-	-	-	90.2	-	-	87.6	-	89	-	104	95.9	81.4	90.3	88.8	-	98	82.2	-	93.8	-	82.3	91.5	87
	Chrysene-d12 % recovery**	TM218	%			73.2	-	122	-	-	-	98.1	-	-	86.5	-	89.4	-	124	129	93.8	98.1	88.3	-	121	77.1	-	129	-	73.9	102	85.7
	Perylene-d12 % recovery**	TM218	%			70.4	-	117	-	-	-	92.3	-	-	80.3	-	84.2	-	117	106	75.7	83.3	81.4	-	114	70.2	-	120	-	72	97	79.8
	Naphthalene	TM218	µg/kg	2300	9	107	-	9	-	-	-	45	-	-	45	-	128	-	220	768	108	60.9	577	-	155	124	-	90	-	45	450	148
	Acenaphthylene	TM218	µg/kg	170000	12	60	-	12	-	-	-	60	-	-	788	-	1020	-	138	60	12	49.1	172	-	184	73.9	-	233	-	60	600	60
	Acenaphthene	TM218	µg/kg	210000	8	40	-	8	-	-	-	40	-	-	147	-	1740	-	156	40	8	39.8	569	-	249	41.6	-	80	-	40	400	113
	Fluorene	TM218	µg/kg	170000	10	50	-	10	-	-	-	50	-	-	201	-	1680	-	117	111	18	42.7	402	-	1360	98.7	-	100	-	50	500	85
	Phenanthrene	TM218	µg/kg	95000	15	714	-	15	-	-	-	603	-	-	925	-	6740	-	1630	614	179	447	5780	-	2480	650	-	1880	-	341	1340	1180
	Anthracene	TM218	µg/kg	2400000	16	132	-	16	-	-	-	144	-	-	600	-	3590	-	752	290	68.5	149	1490	-	85	146	-	396	-	80	800	329
	Fluoranthene	TM218	µg/kg	280000	17	1250	-	17	-	-	-	1510	-	-	4800	-	23100	-	3200	577	117	981	10700	-	264	802	-	4400	-	479	3150	2100
	Pyrene	TM218	µg/kg	620000	15	1100	-	15	-	-	-	1310	-	-	4540	-	20500	-	2820	627	106	1010	9290	-	256	657	-	3500	-	411	3790	1790
	Benz(a)anthracene	TM218	µg/kg	7200	14	563	-	14	-	-	-	764	-	-	3630	-	18200	-	2170	431	86.9	548	6810	-	46.2	409	-	2620	-	224	1860	1350
	Chrysene	TM218	µg/kg	15000	10	647	-	10	-	-	-	793	-	-	3570	-	20300	-	2050	530	114	628	6100	-	72.5	444	-	2500	-	267	1660	1310
	Benzo(b)fluoranthene	TM218	µg/kg	2600	15	881	-	15	-	-	-	1040	-	-	6380	-	47900	-	3710	693	173	956	10300	-	49.5	565	-	3440	-	398	4460	2200
	Benzo(k)fluoranthene	TM218	µg/kg	77000	14	391	-	14	-	-	-	383	-	-	2080	-	13600	-	1380	213	35.5	210	4150	-	19.4	221	-	1110	-	144	1290	805
	Benzo(a)pyrene	TM218	µg/kg	2200	15	547	-	15	-	-	-	814	-	-	4560	-	33500	-	2440	304	47.3	498	6980	-	45.4	374	-	2070	-	259	2800	1430
	Indeno(1,2,3-cd)pyrene	TM218	µg/kg	27000	18	458	-	18	-	-	-	547	-	-	3630	-	29000	-	2320	369	79.7	410	5490	-	26.3	283	-	1410	-	228	3240	1190
	Dibenzo(a,h)anthracene	TM218	µg/kg	240	23	115	-	23	-	-	-	115	-	-	714	-	6240	-	457	115	23	101	1130	-	23	47.1	-	331	-	115	1150	190
	Benzo(g,h,i)perylene	TM218	µg/kg	320000	24	401	-	24	-	-	-	548	-	-	3590	-	28900	-	2000	448	85.3	355	5220	-	30.3	228	-	1400	-	224	2940	1040
	PAH, Total Detected USEPA 16	TM218	µg/kg	100000	118	7200	-	118	-	-	-	8450	-	-	40200	-	256000	-	25600	5970	1220	6490	75200	-	5320	5170	-	25300	-	2970	26500	15300
Volatile Organic Comp																																
	Dibromofluoromethane**	TM116	%			114	-	106	-	-	-	109	118	-	116	-	109	-	106	108	117	107	109	-	109	106	108	105	-	118	116	108
	Toluene-d8**	TM116	%			98	-	101	-	-	-	90.9	97.3	-	94.9	-	97	-	92.7	92.2	97.3	88.6	98.3	-	99.2	99.5	95.7	102	-	101	91.9	101
	4-Bromofluorobenzene**	TM116	%			82.3	-	84.1	-	-	-	74.1	96.3	-	84.3	-	93.7	-	86.6	82.4	84.4	76.3	80.5	-	93	85.4	86.8	95.8	-	93.9	79.2	88.6
	Methyl Tertiary Butyl Ether	TM116	µg/kg		10	200	-	10	-	-	-	10	10	-	100	-	100	-	200	200	200	200	200	-	200	200	200	200	-	200	200	200
	Benzene	TM116	µg/kg	87	9	180	-	9	-	-	-	9	9	-	90	-	90	-	180	180	180	180	180	-	180	180	180	180	-	180	180	180
	Toluene	TM116	µg/kg	130000	7	140	-	7	-	-	-	7	7	-	70	-	70	-	140	140	140	140	140	-	140	140	140	140	-	140	140	140
	Ethylbenzene	TM116	µg/kg	47000	4	80	-	4	-	-	-	4	4	-	40	-	40	-	80	80	80	80	80	-	80	80	80	80	-	80	80	80
	p/m-Xylene	TM116	µg/kg		10	200	-	10	-	-	-	10	10	-	100	-	100	-	200	200	200	200	200	-	200	200	200	200	-	200	200	200
	o-Xylene	TM116	µg/kg		10	200	-	10	-	-	-	10	10	-	100	-	100	-	200	200	200	200	200	-	200	200	200	200	-	200	200	200
	Sum of Detected Xylenes	TM116	mg/kg	56000	0.02	0.4	-	0.02	-	-	-	0.02	0.02	-	0.2	-	0.2	-	0.4	0.4	0.4	0.4	0.4	-	0.4	0.4	0.4	0.4	-	0.4	0.4	0.4
	Sum of BTEX	TM116	µg/kg	6000	40	800	-	40	-	-	-	40	40	-	400	-	400	-	800	800	800	800	800	-	800	800	800	800	-	800	800	800



SI Location Ref.	Depth (m)	TPH CONTAMINATION	Concentration mg/kg
TP104	1.5	SUM C5-C44	20,200
TP105	1.1	SUM C5-C44	16,400
TP105	1.6	SUM C5-C44	12,800
TP109	1.1	C10-C12-ARO	181
TP111	1.9	SUM C5-C44	14,000
TP112	1.3	SUM C5-C44	19,900
TP112	2.3	SUM C5-C44	15,200
TP112	3	SUM C5-C44	6,350
TP120	2	C8-C10-ALI; C10-C12-ALI; C8-C10-ARO; C12-C16ARO	168; 1,260; 112; 235
TP128	1.5	C16-C21-ARO; C21-C35-ARO	284; 1,130
TP132	1.3	SUM C5-C44	14,500
TP133	1.3	SUM C5-C44	14,500
WS101	1.1	SUM C5-C44	10,200
WS101	1..7	SUM C5-C44	5,720
WS102	1	C35-C44-ARO	12,100
WS102	1.55	C35-C44-ARO	13,300

N

MACHINE EXCAVATED TRIAL PIT

CABLE PERCUSSION BOREHOLE

DYNAMIC SAMPLER/PROBE LOCATION

Rev	Date	Details Of Issue	Dwn	Chk
B	30/09/20	Proposed locations adjusted	FL	SC
A	29/05/20	First Issue	FL	SC

Issues And Revisions

Project :

GREAT WESTERN YARD, GLOUCESTER

Client :

NETWORK RAIL

Title :

NATURAL GROUND TPH EXCEEDANCES

Scale :	NOT TO SCALE	Drawn :	FL
Size :	A1	Checked :	SC
Sheet No.	1	Date :	14/01/2021
Dwg No. :	20904/REM/006	Revision :	A

Status: INFORMATION

John F Hunt Regeneration Limited
London Road, Grays
Essex, RM20 4DB
[redacted]

John F Hunt REGENERATION

ALS

SDG(s):	201009-65,201009-96,201010-94,201014-100
Customer:	John F Hunt Remediation Ltd GRAYS (11751)
Client Reference / Location:	Gloucester Great Western Road Yard
Order no:	R/16909/20904/1005

All results expressed on a dry weight basis

Analysis	Test	Method	Units	LOD	Customer Sample ID	TP101	TP102	TP103	TP103	TP104	TP105	TP105	TP107	TP108	TP109	TP109	TP111	TP111	TP112	TP112	TP112	TP112	TP113	TP114	TP115	TP116	TP116	TP117	TP118	TP119	TP120	TP125	TP126
					Depth	2.40-	0.50-	0.60-	1.10-	1.50-	1.10-	1.60-	1.30-1.30	1.30-1.30	0.80-	1.10-	1.90-1.90	2.40-2.40	0.90-0.90	1.30-1.30	2.30-2.30	3.00-3.00	1.50-1.50	1.60-	1.40-1.40	1.10-	2.40-	1.80-	1.10-1.10	1.60-1.60	2.00-2.00	2.00-2.00	2.00-2.00
					AGS Id																												
					Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
					Sampled Date	10/7/2020	10/5/2020	10/6/2020	10/6/2020	10/6/2020	10/6/2020	10/6/2020	10/9/2020	10/9/2020	10/6/2020	10/5/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/8/2020	10/7/2020	10/8/2020	10/7/2020	10/7/2020	10/7/2020	10/7/2020	10/7/2020	10/8/2020	10/12/2020	10/12/2020
					Sample Received Date	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/10/2020	10/10/2020	10/9/2020	10/9/2020	10/10/2020	10/10/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/14/2020	10/14/2020
					Final Instruction Date	10/26/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/10/2020	10/10/2020	10/13/2020	10/13/2020	10/10/2020	10/10/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/13/2020	10/26/2020	10/13/2020	10/13/2020	10/13/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020
					Report Completed Date	11/4/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/23/2020	10/23/2020	10/25/2020	10/25/2020	10/23/2020	10/23/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	10/25/2020	11/4/2020	10/25/2020	10/25/2020	10/25/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020	11/4/2020
					SDG	201009-96	201009-65	201009-65	201009-65	201009-65	201009-65	201009-65	201010-94	201010-94	201009-65	201009-65	201010-94	201010-94	201009-96	201009-96	201009-96	201009-96	201009-96	201009-65	201009-96	201009-65	201009-65	201009-65	201009-96	201009-96	201009-96	201014-100	201014-100
					Lab Sample Number	23000500	23000559	23001752	23001755	23001740	23001751	23001748	23010696	23010684	23000547	23000549	23010695	23010703	22998397	22998388	22998395	22998376	22998393	23000519	22998383	23000525	23000526	23000522	22998399	22998407	22998382	23031247	23031246
					Sample Temperature	6.4	6.4	6.4	6.4	6.4	6.4	6.4	10.0	10.0	6.4	6.4	10.0	10.0	4.2	4.2	4.2	4.2	4.2	6.4	4.2	6.4	6.4	6.4	4.2	4.2	4.2	4.0	4.0
					Sample Time																												
Sample Description																																	
	Colour	PM024	No units			Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Light Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Light Brown
	Description	PM024	No units			Silty Sand	Loamy Sand	Sandy Loam	Loamy Sand	Sandy Loam	Sand	Sandy Loam	Sand	Sandy Loam	Loamy Sand	Loamy Sand	Sand	Sand	Loamy Sand	Loamy Sand	Sand	Loamy Sand	Loamy Sand	Sandy Silt Loam	Sand	Sand	Sand	Sandy Silt Loam	Sand	Loamy Sand	Sand	Sand	Sand
	Inclusion 1)	PM024	No units			None	Stones	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	None	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
	Inclusion 2)	PM024	No units			None	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Vegetation	Vegetation	Vegetation	None	None	Stones	None	None	Vegetation	Stones	None	Vegetation	None	Vegetation	None	N/A	Vegetation	Vegetation
	Moisture Content Ratio (% of as received sample)	PM024	%			16	10	13	11	11	10	10	13	17	15	13	9.5	17	19	7.3	12	16	12	30	14	12	10	19	13	9.1	12	15	9.6
Asbestos																																	
	Asbestos Quantification - Gravimetric - %	TM304	%	<0.001		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Date of Analysis	TM048	No units			-	21/10/20	22/10/2020	22/10/2020	22/10/2020	-	-	-	-	21/10/2020	-	-	-	22/10/2020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Analysed By	TM048	No units			-	Andrzej Ferfecki	ieszka Chelmowska	ieszka Chelmowska	ara Urbanek-Walsh	-	-	-	-	James Richards	-	-	-	Marcin Magdziarek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Additional Asbestos Components (Using TM048)	TM304	No units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Analysts Comments	TM304	No units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos Quantification - Total - %	TM304	%	<0.001		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysotile (White) Asbestos	TM048	No units			-	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Amosite (Brown) Asbestos	TM048	No units			-	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Crocidolite (Blue) Asbestos	TM048	No units			-	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fibrous Anthophyllite	TM048	No units			-	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fibrous Tremolite	TM048	No units			-	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fibrous Actinolite	TM048	No units			-	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Non-Asbestos Fibre	TM048	No units			-	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Comments	TM048	No units			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics																																	
	Water Soluble Sulphate as SO4 2:1 Extract	TM243	g/l	<0.004	0.5	-	0.0129	0.0741	0.0083	0.0243	-	-	-	-	0.0091	-	-	-	0.0221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	pH	TM133	pH Units		5	-	8.77	7.9	8.56	8.18	-	-	-	-	8.57	-	-	-	8.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals - (Solids)																																	
	Boron, water soluble	TM222	mg/kg		3	-	1.22				-	-	-	-		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Arsenic	TM181	mg/kg	0.6	37	-	13.3	16.8	11	13.4	-	-	-	-	11.8	-	-	-	29.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cadmium	TM181	mg/kg	0.02	11	-	0.02	0.185	0.209	0.195	-	-	-	-	0.299	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chromium	TM181	mg/kg	0.9	910	-	11.2	20	6.91	4.66	-	-	-	-	9.58	-	-	-	11.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Copper	TM181	mg/kg	0.4	200	-	14.7	54.6	10.6	13.5	-	-	-	-	15.7	-	-	-	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lead	TM181	mg/kg	0.7	330	-	11.1	68.3	4.19	5.93	-	-	-	-	18.1	-	-	-	119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mercury	TM181	mg/kg	0.14	11	-	0.14	0.14	0.14	0.14	-	-	-	-	0.14	-	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Nickel	TM181	mg/kg	0.2	180	-	15.5	21.9	12	15.1	-	-	-	-	12.7	-	-	-	71.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Selenium	TM181	mg/kg		250	-					-	-	-	-		-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Zinc	TM181	mg/kg	0.9	300	-	50.6	78	32.7	50.1	-	-	-	-	42.2	-	-	-	92.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																																	
	Phenol	TM062 (S)	mg/kg	0.01		-	0.01	0.0115	0.01	0.01	-	-	-	-	0.01	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cresols	TM062 (S)	mg/kg	0.01		-	0.01	0.0115	0.01	0.01	-	-	-	-	0.01	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Xylenols	TM062 (S)	mg/kg	0.015		-	0.015	0.023	0.015	0.015	-	-	-	-	0.015	-	-	-	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenols, Total Detected monohydric	TM062 (S)	mg/kg	0.035		-	0.035	0.046	0.035	0.035	-	-	-	-	0.035	-	-	-	0.035	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gasoline Range Organ																																	
	Total Aliphatics >C5-C10	TM089	µg/kg	50		50	50	171	50	320000	49000	76700	50	50	50	1180	171000	99.2	80.6	50500	184000	32900	50	50	50	50	50	50	50	50	169000	50	50
	Total Aromatics >EC5-EC10	TM089	µg/kg	50		50	50	73.6	50	190000	29900	45400	50	50	50	750	108000	50	50	32500	116000	20200	50	50	50	50	50	50	50	50	112000	50	50
	GRO >C5-C10	TM089	µg/kg	20		20	20	245	20	510000	78900	122000	20	20	20	1930	279000	99.2	80.6	83000	299000	53200	20	20	20	20	20	20	20	20	281000	0	20
TPH Criteria Working C																																	
	GRO Surrogate % recovery**	TM089	%			98.4	102	117	121	95	90.1	89.6	109	105	96.7	87.8	96	106	51.1	94.1	98	117	98.6	118	98.7	115	101	113	112	98.4	99	0	104
	Aliphatics >C5-C6	TM089	µg/kg	42000	0	0	0	11.5	0	263	310	305	0	0	0	16.1	200	0	12.4	200	200	200	0	0	0	0	0	0	0	0	200	0	0
	Aliphatics >C6-C8	TM089	µg/kg	100000	0	0	0	49.5	11.2	35700	3810	8310	0	10.8	0	38	8860	37.5	26	1790	10300	2600	0	0	11.6	0	0	0	0	0	757	0	0
	Aliphatics >C8-C10	TM089	µg/kg	27000	0	0	11.2	110	16.8	284000	44800	68100	0	12	0	1120	162000	61.7	42.2	48700	173000	30300	0	0	22	10.2	32.2	0	0	0	168000	0	0
	Aliphatics >C10-C12	TM414	µg/kg	130000	0	0	0	4990	0	981000	662000	445000	0	0	0	51500	618000	24200	4200	829000	672000	285000	0	0	0	0	0	0	0	0	1260000	0	0
	Aliphatics >C12-C16	TM414	µg/kg	1100000	0	0	0	112000	0	4970000	4330000	3260000	0	0	0	752000	3420000	159000	5970	5060000	3740000	1530000	0	0	0	0	5500	0	0	0	776000	0	0
	Aliphatics >C16-C21	TM414	µg/kg	2500000	0	0	0	150000	2710	6560000	6120000	4980000	0	0	13300	824000	4280000	226000	6440	5550000	4110000	1900000	0	0	0	0	9740	0	0	0	6260	0	0
	Aliphatics >C21-C35	TM414	µg/kg	2500000	0	0	0	20300	0	2560000	1520000	1190000	0	0	7260	276000	1440000	74300	1600	2730000	2000000	826000	0	0	0	0	1650	0	0	0	1470	0	0
	Aliphatics >C35-C44	TM414	µg/kg	2500000	0	0	0	0	0	400000	47900	52000	0	0	0	41800	135000	6640	0	244000	157000	96000	0	0	0	0	0	0	0	0	0	0	0
	Total Aliphatics >C10-C44	TM414	µg/kg	5000000	5000	5000	5000	288000	5000	15500000	12700000	9920000	5000	5000	20700	1950000	9890000	490000	18200	14400000	10700000	4650000	5000	5000	5000	5000	16900	5000	5000	5000	2040000	5000	5000
	Total Aliphatics & Aromatics >C10-C44	TM414	µg/kg	5000000	0	0	0	453000	11300	19700000	16300000	12700000	0	0	40900	2320000	13700000	668000	459000	19800000	14900000	6290000	0	0	0	0	20200	0	0	0	2320000	0	0
	Aromatics >EC5-EC7	TM089	µg/kg	70000	0	0	0	0	0	200	200	200	0	0	0	0	200	0	0	200	200	200	0	0	0	0	0	0	0	0	200	0	0
	Aromatics >EC7-EC8	TM089	µg/kg	130000	0	0	0	0	0	200	200	200	0	0	0	0	200	0	0	200	200	200	0	0	0	0	0	0	0	0	200	0	0
	Aromatics >EC8-EC10	TM089	µg/kg	34000	0	0	0	73.6	11.2	190000	29900	45400	0	0	0	750	108000	41.1	28.5	32500	116000	20200	0	0	15.1	0	21.1	0	0	0	112000	0	0
	Aromatics > EC10-EC12	TM414	µg/kg	74000	0	0	0	1250	0	202000	135000	99900	0	0	0	5890	181000	6980	4560	340000	308000	131000	0	0	0	0	0	0	0	0	37600	0	0
	Aromatics > EC12-EC16	TM414	µg/kg	140000	0	0	0	24300	0	2550000	2120000	1670000	0	0	1870	181000	1970000	101000	12900	3160000	2420000	874000	0	0	0	0	0	0	0	0	235000	0	0
	Aromatics > EC16-EC21	TM414	µg/kg	260000	0	0	0	55900	3340	1220000	1220000	882000	0	0	2630	167000	1510000	63800	35500	1730000	1280000	567000	0	0	0	0	0	0	0	0	1280	0	0
	Aromatics > EC21-EC35	TM414	µg/kg	1100000	0	0	0	76400	3330	216000	122000	95900	0	0	11500	22600	115000	5940	298000	203000	166000	74100	0	3720	0	0	1560	0	0	0	0	1170	0
	Aromatics >EC35-EC44	TM414	µg/kg	550000	0	0	0	7160	0	0	0	5000	0	0	4200	2000	0	0	89800	0	0	2000	0	0	0	0	0	0	0	0	0	0	0
	Aromatics > EC40-EC44	TM414	µg/kg	550000	0	0	0	1030	0	0	0	5000	0	0	0	2000	0	0	0	0	0	2000	0	0	0	0	0	0	0	0	0	0	0
	Total Aromatics > EC10-EC44	TM414	µg/kg	5000000	5000	5000	5000	165000	7750	4200000	3610000	2750000	5000	5000	20200	378000	3780000	178000	441000	5430000	4190000	1650000	5000	5590	5000	5000	5000	5000	5000	5000	276000	5000	5000
	Total Aliphatics & Aromatics >C5-C44	TM414	µg/kg	5000000	0	0	0	453000	0	20200000	16400000	12800000	0	0	40900	2330000	14000000	668000	459000	19900000	15200000	6350000	0	0	0	0	16900	0	0	0	2600000	0	0
Polyaromatic Hydrocar																																	
	Naphthalene-d8 % recovery**	TM218	%			-	95.8	91.8	94.7	102	-	-	-	-	85.7	-	-	-	87.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthene-d10 % recovery**	TM218	%			-	87.5	88.6	85.5	107	-	-	-	-	82.9	-	-	-	83.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene-d10 % recovery**	TM218	%			-	93.7	97.7	91.5	96.6	-	-	-	-	77.8	-	-	-	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysene-d12 % recovery**	TM218	%			-	126	112	100	111	-	-	-	-	85.6	-	-	-	97.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Perylene-d12 % recovery**	TM218	%			-	119	115	100	109	-	-	-	-	81.6	-	-	-	70.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Naphthalene	TM218	µg/kg	2300	9	-	9	246	9	897	-	-	-	-	9	-	-	-	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthylene	TM218	µg/kg	170000	2	-	2	561	2	738	-	-	-	-	2	-	-	-	32.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthene	TM218	µg/kg	210000	8	-	8	501	8	2170	-	-	-	-	8	-	-	-	16.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fluorene	TM218	µg/kg	170000	0	-	0	812	0	5870	-	-	-	-	0	-	-	-	36.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	TM218	µg/kg	95000	5	-	5	5040	5	10800	-	-	-	-	5	-	-	-	338	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Anthracene	TM218	µg/kg	2400000	6	-	6	1800	6	413	-	-	-	-	6	-	-	-	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	TM218	µg/kg	280000	7	-	7	11600	7	724	-	-	-	-	7	-	-	-	504	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Pyrene	TM218	µg/kg	620000	5	-	5	12200	5	862	-	-	-	-	5	-	-	-	476	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benz(a)anthracene	TM218	µg/kg	7200	4	-	4	7690	4	135	-	-	-	-	4	-	-	-	367	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysene	TM218	µg/kg	15000	0	-	0	7480	0	212	-	-	-	-	0	-	-	-	435	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(b)fluoranthene	TM218	µg/kg	2600	5	-	5	15100	5	136	-	-	-	-	5	-	-	-	773	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(k)fluoranthene	TM218	µg/kg	77000	4	-	4	4710	4	27.7	-	-	-	-	4	-	-	-	219	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene	TM218	µg/kg	2200	5	-	5	12400	5	72.2	-	-	-	-	5	-	-	-	313	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	TM218	µg/kg	27000	8	-	8	11300	8	54.6	-	-	-	-	8	-	-	-	274	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dibenzo(a,h)anthracene	TM218	µg/kg	240	23	-	23	1290	23	23	-	-	-	-	23	-	-	-	69.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	TM218	µg/kg	320000	24	-	24	9020	24	47.1	-	-	-	-	24	-	-	-	285	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	PAH, Total Detected USEPA 16	TM218	µg/kg	100000	18	-	18	102000	18	23200	-	-	-	-	18	-	-	-	4400	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Comp																																	
	Dibromofluoromethane**	TM116	%			111	114	108	113	103	108	110	105	122	103	108	108	122	112	117	117	116	112	108	106	106	109	118	107	105	117	118	106
	Toluene-d8**	TM116	%			101	101	97.6	99.7	97.5	88.8	86.9	95.2	97.9	102	100	89.9	95.7	99.2	94.8	94.7	96.3	100	102	100	97.7	101	103	101	101	99.8	97.3	97.3
	4-Bromofluorobenzene**	TM116	%			99.1	96.2	96.4	104	98.1	80.3	78.1	96.6	90	94.8	96.1	86.3	92.5	90.8	88	83	85.6	99.8	83	97.8	102	98.6	94.5	96.3	97.2	104	96.3	96
	Methyl Tertiary Butyl Ether	TM116	µg/kg		0	0	0	0	0	2000	200	200	0	0	0	200	200	0	200	200	200	200	0	0	0	0	0	0	0	0	200	0	0
	Benzene	TM116	µg/kg	87	9	9	9	9	9	800	80	80	9	9	9	80	80	9	80	80	80	80	9	9	9	9	9	9	9	9	80	9	9
	Toluene	TM116	µg/kg	130000	7	7	7	7	7	400	40	40	7	7	7	40	40	7	40	40	40	40	7	7	7	7	7	7	7	7	40	7	7
	Ethylbenzene	TM116	µg/kg	47000	4	4	4	4	4	800	80	80	4	4	4	80	80	4	80	80	80	80	4	4	4	4	4	4	4	4	80	4	4
	p/m-Xylene	TM116	µg/kg		0	0	0	0	0	2000	200	200	0	0	0	200	200	0	200	200	200	200	0	0	0	0	0	0	0	0	200	0	0
	o-Xylene	TM116	µg/kg		0	0	0	0	0	2000	200	200	0	0	0	200	200	0	200	200	200	200	0	0	0	0	0	0	0	0	200	0	0
	Sum of Detected Xylenes	TM116	mg/kg	56000	0.02	0.02	0.02	0.02	0.02	4	<0.4	<0.4	0.02	0.02	0.02	<0.4	<0.4	0.02	<0.4	<0.4	<0.4	<0.4	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	<0.4	0.02	0.02
	Sum of BTEX	TM116	µg/kg	6000	40	40	40	40	40	8000	800	800	40	40	40	800	800	40	800	800	800	800	40	40	40	40	40	40	40	40	800	40	40

ALS

SDG(s): 201009-65,201009-96,201010-94,201014-100
Customer: John F Hunt Remediation Ltd GRAYS (11751)
Client Reference / Location: Gloucester Great Western Road Yard
Order no: R/16909/20904/1005

All results expressed on a dry weight basis

				Customer Sample ID	TP127	TP128	TP132	TP133	TP133	TP134	TP120A	WS101	WS101	WS102	WS102	WS105	WS107	WS115	WS116
				Depth	2.10-2.10	1.50-1.50	1.30-	0.90-	1.30-	1.70-1.70	2.00-2.00	1.10-	1.70-	1.00-	1.55-	0.80-	1.65-	1.45-	1.00-
				AGS Id															
				Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
				Sampled Date	10/12/2020	10/12/2020	10/6/2020	10/5/2020	10/6/2020	10/9/2020	10/8/2020	10/6/2020	10/7/2020	10/6/2020	10/6/2020	10/7/2020	10/6/2020	10/5/2020	10/7/2020
				Sample Received Date	10/14/2020	10/14/2020	10/9/2020	10/9/2020	10/9/2020	10/10/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020	10/9/2020
				Final Instruction Date	10/26/2020	10/26/2020	10/13/2020	10/13/2020	10/13/2020	10/10/2020	10/26/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020	10/13/2020
				Report Completed Date	11/4/2020	11/4/2020	10/25/2020	10/25/2020	10/25/2020	10/23/2020	11/4/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020	10/25/2020
				SDG	201014-100	201014-100	201009-65	201009-65	201009-65	201010-94	201009-96	201009-65	201009-65	201009-65	201009-65	201009-65	201009-65	201009-65	201009-65
				Lab Sample Number	23031245	23031243	23000554	23000557	23000558	23010690	22998387	23000529	23000504	23000530	23000532	23000506	23000545	23000495	23000513
				Sample Temperature	4.0	4.0	6.4	6.4	6.4	10.0	4.2	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
				Sample Time															
Analysis	**Test**	**Method**	**Units**	**LOD**															
Sample Description																			
	Colour	PM024	No units		Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown
	Description	PM024	No units		Sand	Loamy Sand	Sand	Loamy Sand	Loamy Sand	Sand	Sand	Sand	Loamy Sand	Sandy Silt Loam	Sand	Loamy Sand	Sandy Loam	Sandy Loam	Loamy Sand
	Inclusion 1)	PM024	No units		Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Vegetation	Vegetation	Stones
	Inclusion 2)	PM024	No units		Vegetation	Vegetation	None	Vegetation	Vegetation	Vegetation	Stones	Oil/Petroleum	None	None	Oil/Petroleum	None	Stones	Stones	Vegetation
	Moisture Content Ratio (% of as received sample)	PM024	%		12	16	12	10	11	14	12	13	14	7.3	10	12	15	18	13
Asbestos																			
	Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Date of Analysis	TM048	No units		-	-	-	21/10/2020	-	-	-	-	-	-	-	-	-	-	-
	Analysed By	TM048	No units		-	-	-	James Richards	-	-	-	-	-	-	-	-	-	-	-
	Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Additional Asbestos Components (Using TM048)	TM304	No units		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Analysts Comments	TM304	No units		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Asbestos Quantification - Total - %	TM304	%	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Chrysotile (White) Asbestos	TM048	No units		-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
	Amosite (Brown) Asbestos	TM048	No units		-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
	Crocidolite (Blue) Asbestos	TM048	No units		-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
	Fibrous Anthophyllite	TM048	No units		-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
	Fibrous Tremolite	TM048	No units		-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
	Fibrous Actinolite	TM048	No units		-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
	Non-Asbestos Fibre	TM048	No units		-	-	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
	Comments	TM048	No units		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inorganics																			
	Water Soluble Sulphate as SO4 2:1 Extract	TM243	g/l	0.5 <0.004	-	-	-	0.0142	-	-	-	-	-	-	-	-	-	-	-
	pH	TM133	pH Units	5	-	-	-	8.45	-	-	-	-	-	-	-	-	-	-	-
Metals - (Solids)																			
	Boron, water soluble	TM222	mg/kg	3	-	-	-	1.01	-	-	-	-	-	-	-	-	-	-	-
	Arsenic	TM181	mg/kg	37 0.6	-	-	-	27.5	-	-	-	-	-	-	-	-	-	-	-
	Cadmium	TM181	mg/kg	11 0.02	-	-	-	0.35	-	-	-	-	-	-	-	-	-	-	-
	Chromium	TM181	mg/kg	910 0.9	-	-	-	13.5	-	-	-	-	-	-	-	-	-	-	-
	Copper	TM181	mg/kg	200 0.4	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-
	Lead	TM181	mg/kg	330 0.7	-	-	-	4690	-	-	-	-	-	-	-	-	-	-	-
	Mercury	TM181	mg/kg	11 0.14	-	-	-	0.14	-	-	-	-	-	-	-	-	-	-	-
	Nickel	TM181	mg/kg	180 0.2	-	-	-	23.1	-	-	-	-	-	-	-	-	-	-	-
	Selenium	TM181	mg/kg	250	-	-	-		-	-	-	-	-	-	-	-	-	-	-
	Zinc	TM181	mg/kg	300 0.9	-	-	-	89.1	-	-	-	-	-	-	-	-	-	-	-
Phenols																			
	Phenol	TM062 (S)	mg/kg	0.01	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-
	Cresols	TM062 (S)	mg/kg	0.01	-	-	-	0.01	-	-	-	-	-	-	-	-	-	-	-
	Xylenols	TM062 (S)	mg/kg	0.015	-	-	-	0.015	-	-	-	-	-	-	-	-	-	-	-
	Phenols, Total Detected monohydric	TM062 (S)	mg/kg	0.035	-	-	-	0.035	-	-	-	-	-	-	-	-	-	-	-
Gasoline Range Organ																			
	Total Aliphatics >C5-C10	TM089	µg/kg	50	50	114	35600	69.9	77900	50	50	10000	178000	23100	8900	50	212	170	50
	Total Aromatics >EC5-EC10	TM089	µg/kg	50	50	50	23100	50	50300	50	50	6140	108000	15100	5510	50	109	86.6	50
	GRO >C5-C10	TM089	µg/kg	20	20	114	58600	69.9	128000	20	20	16200	285000	38200	14400	20	321	256	20
TPH Criteria Working C																			
	GRO Surrogate % recovery**	TM089	%		126	84	94	105	91.2	104	96.4	97.1	97.7	93	94.3	76.5	97.8	84.6	103
	Aliphatics >C5-C6	TM089	µg/kg	42000 0	0	14.3	0	0	200	0	0	146	206	0	200	0	10.5	14.6	0
	Aliphatics >C6-C8	TM089	µg/kg	100000 0	0	26.2	1000	18.9	2410	15.2	0	671	16400	413	640	0	37.4	25.6	0
	Aliphatics >C8-C10	TM089	µg/kg	27000 0	0	73.8	34600	51.1	75500	19.9	0	9210	161000	22700	8260	0	164	129	10.4
	Aliphatics >C10-C12	TM414	µg/kg	130000 0	0	5000	577000	0	617000	0	0	402000	219000	462000	531000	0	0	28900	0
	Aliphatics >C12-C16	TM414	µg/kg	1100000 0	0	5000	3340000	1420	4330000	0	0	2880000	1660000	3320000	4090000	0	0	285000	0
	Aliphatics >C16-C21	TM414	µg/kg	2500000 0	0	5000	4970000	66400	4480000	0	0	3100000	1660000	3890000	4010000	0	2700	357000	0
	Aliphatics >C21-C35	TM414	µg/kg	2500000 0	0	21000	1740000	10300	1350000	0	0	1000000	512000	1070000	1190000	0	0	113000	0
	Aliphatics >C35-C44	TM414	µg/kg	2500000 0	0	5000	155000	0	139000	0	0	121000	79400	180000	189000	0	0	5910	0
	Total Aliphatics >C10-C44	TM414	µg/kg	5000000 5000	5000	26200	10800000	78700	10900000	5000	5000	7510000	4130000	8920000	10000000	5000	5000	790000	5000
	Total Aliphatics & Aromatics >C10-C44	TM414	µg/kg	5000000 0	0	1620000	14400000	186000	14300000	0	0	10200000	5430000	12100000	13300000	0	0	1030000	0
	Aromatics >EC5-EC7	TM089	µg/kg	70000 0	0	0	0	0	200	0	0	0	200	0	200	0	0	0	0
	Aromatics >EC7-EC8	TM089	µg/kg	130000 0	0	0	0	0	200	0	0	0	200	0	200	0	0	0	0
	Aromatics >EC8-EC10	TM089	µg/kg	34000 0	0	48.8	23100	33.3	50300	12.9	0	6140	108000	15100	5510	0	109	86.6	0
	Aromatics > EC10-EC12	TM414	µg/kg	74000 0	0	5000	203000	0	194000	0	0	124000	59900	86900	156000	0	0	4330	0
	Aromatics > EC12-EC16	TM414	µg/kg	140000 0	0	7180	2210000	0	1680000	0	0	1470000	680000	1660000	1710000	0	0	105000	0
	Aromatics > EC16-EC21	TM414	µg/kg	260000 0	1160	284000	1120000	62500	1440000	0	0	977000	529000	1300000	1300000	0	0	94400	0
	Aromatics > EC21-EC35	TM414	µg/kg	1100000 0	1360	1130000	121000	39900	104000	0	0	88200	36900	94800	116000	0	0	29600	3310
	Aromatics >EC35-EC44	TM414	µg/kg	550000 0	0	167000	5000	4140	5000	0	0	5000	0	2000	5000	0	0	9860	0
	Aromatics > EC40-EC44	TM414	µg/kg	550000 0	0	18300	5000	0	5000	0	0	5000	0	2000	5000	0	0	3190	0
	Total Aromatics > EC10-EC44	TM414	µg/kg	5000000 5000	5000	1590000	3660000	107000	3420000	5000	5000	2660000	1310000	3150000	3290000	5000	5000	243000	5000
	Total Aliphatics & Aromatics >C5-C44	TM414	µg/kg	5000000 0	0	1620000	14500000	186000	14500000	0	0	10200000	5720000	12100000	13300000	0	0	1030000	0
Polyaromatic Hydrocar																			
	Naphthalene-d8 % recovery**	TM218	%		-	-	-	84.5	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthene-d10 % recovery**	TM218	%		-	-	-	85.2	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene-d10 % recovery**	TM218	%		-	-	-	84.9	-	-	-	-	-	-	-	-	-	-	-
	Chrysene-d12 % recovery**	TM218	%		-	-	-	94.1	-	-	-	-	-	-	-	-	-	-	-
	Perylene-d12 % recovery**	TM218	%		-	-	-	82.8	-	-	-	-	-	-	-	-	-	-	-
	Naphthalene	TM218	µg/kg	2300 9	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthylene	TM218	µg/kg	170000 2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
	Acenaphthene	TM218	µg/kg	210000 8	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-
	Fluorene	TM218	µg/kg	170000 0	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Phenanthrene	TM218	µg/kg	95000 5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
	Anthracene	TM218	µg/kg	2400000 6	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-
	Fluoranthene	TM218	µg/kg	280000 7	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-
	Pyrene	TM218	µg/kg	620000 5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
	Benz(a)anthracene	TM218	µg/kg	7200 4	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
	Chrysene	TM218	µg/kg	15000 0	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-
	Benzo(b)fluoranthene	TM218	µg/kg	2600 5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
	Benzo(k)fluoranthene	TM218	µg/kg	77000 4	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-
	Benzo(a)pyrene	TM218	µg/kg	2200 5	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
	Indeno(1,2,3-cd)pyrene	TM218	µg/kg	27000 8	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-
	Dibenzo(a,h)anthracene	TM218	µg/kg	240 23	-	-	-	23	-	-	-	-	-	-	-	-	-	-	-
	Benzo(g,h,i)perylene	TM218	µg/kg	320000 24	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-
	PAH, Total Detected USEPA 16	TM218	µg/kg	100000 18	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Comp																			
	Dibromofluoromethane**	TM116	%		103	125	107	117	107	119	107	107	111	116	109	104	116	104	103
	Toluene-d8**	TM116	%		97.1	91.5	96.6	102	93.8	96.8	101	99.3	92.1	94.6	98.3	97.9	99.3	101	101
	4-Bromofluorobenzene**	TM116	%		99.2	80.8	87.9	98.7	82	88.2	96.9	88.8	82.2	87.6	87.6	96.9	103	93.6	89.8
	Methyl Tertiary Butyl Ether	TM116	µg/kg	0	0	0	200	200	200	0	0	200	200	200	200	0	0	200	0
	Benzene	TM116	µg/kg	87 9	9	90	80	80	80	9	9	80	80	80	80	9	9	80	9
	Toluene	TM116	µg/kg	130000 7	7	70	40	40	40	7	7	40	40	40	40	7	7	40	7
	Ethylbenzene	TM116	µg/kg	47000 4	4	40	80	80	80	4	4	80	80	80	80	4	4	80	4
	p/m-Xylene	TM116	µg/kg	0	0	0	200	200	200	0	0	200	200	200	200	0	0	200	0
	o-Xylene	TM116	µg/kg	0	0	0	200	200	200	0	0	200	200	200	200	0	0	200	0
	Sum of Detected Xylenes	TM116	mg/kg	56000 0.02	0.02	0.2	<0.4	<0.4	<0.4	0.02	0.02	<0.4	<0.4	<0.4	<0.4	0.02	0.02	<0.4	0.02
	Sum of BTEX	TM116	µg/kg	6000 40	40	400	800	800	800	40	40	800	800	800	800	40	40	800	40

Appendix 8

Geochemical Test Results - Groundwater

John F Hunt
REGENERATION

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

John F Hunt Remediation Ltd
London Road
GRAYS
ESSEX
RM20 4DB

Attention: Stuart Carroll

CERTIFICATE OF ANALYSIS

Date of report Generation:	10 November 2020
Customer:	John F Hunt Remediation Ltd
Sample Delivery Group (SDG):	201028-29
Your Reference:	Gloucester Great Western Road Yard
Location:	Gloucester Great Western Road Yard
Report No:	574887

This report has been revised and directly supersedes 574753 in its entirety.

We received 18 samples on Wednesday October 28, 2020 and 18 of these samples were scheduled for analysis which was completed on Tuesday November 10, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23126598	BH102		3.50	20/10/2020
23126599	BH103		2.50	21/10/2020
23126597	BH101D		8.00	20/10/2020
23126600	BH101S		3.00	20/10/2020
23126578	WS101		3.50	21/10/2020
23126580	WS102		3.50	20/10/2020
23126581	WS103		1.50	21/10/2020
23126582	WS104		3.00	20/10/2020
23126584	WS105		3.00	20/10/2020
23126585	WS107		3.50	20/10/2020
23126588	WS109		2.00	21/10/2020
23126589	WS110		3.00	21/10/2020
23126591	WS111		1.50	21/10/2020
23126593	WS112		1.50	21/10/2020
23126594	WS113		2.00	21/10/2020
23126595	WS114		2.00	21/10/2020
23126601	WS115		2.80 - 2.80	
23126596	WS116		2.50	20/10/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23126598				23126599				23126597				23126600				23126578			
Customer Sample Reference			BH102				BH103				BH101D				BH101S				WS101			
AGS Reference																						
Depth (m)			3.50				2.50				8.00				3.00				3.50			
Container			0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Anions by Kone (w)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 18			X				X				X				X				X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 17	X				X				X				X				X		
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Ferric Iron	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Ferrous Iron	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Fluoride	All	NDPs: 0 Tests: 17	X				X				X				X				X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17				X				X				X				X			
Mercury Dissolved	All	NDPs: 0 Tests: 17			X				X				X				X				X
Nitrite by Kone (w)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17	X				X				X				X				X		

23126585	WS107		3.50	Vial (ALE297)	GW												X			
				HNO3 Filtered (ALE204)	GW				X									X		
				H2SO4 (ALE244)	GW															
				0.5l glass bottle (ALE227)	GW	X	X	X		X	X	X	X	X	X	X			X	X
23126584	WS105		3.00	Vial (ALE297)	GW												X			
				HNO3 Filtered (ALE204)	GW				X									X		
				H2SO4 (ALE244)	GW															
				0.5l glass bottle (ALE227)	GW	X	X	X		X	X	X	X	X	X	X			X	X
23126582	WS104		3.00	Vial (ALE297)	GW												X			
				HNO3 Filtered (ALE204)	GW				X									X		
				H2SO4 (ALE244)	GW															
				0.5l glass bottle (ALE227)	GW	X	X	X		X	X	X	X	X	X	X			X	X
23126581	WS103		1.50	Vial (ALE297)	GW												X			
				HNO3 Filtered (ALE204)	GW				X									X		
				H2SO4 (ALE244)	GW															
				0.5l glass bottle (ALE227)	GW	X	X	X		X	X	X	X	X	X	X			X	X
23126580	WS102		3.50	Vial (ALE297)	GW												X			
				HNO3 Filtered (ALE204)	GW				X									X		
				H2SO4 (ALE244)	GW															
				0.5l glass bottle (ALE227)	GW	X	X	X		X	X	X	X	X	X	X			X	X
23126578	WS101		3.50	Vial (ALE297)	GW												X			

Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)					23126598				23126599				23126597				23126600				23126578		
Customer Sample Reference					BH102				BH103				BH101D				BH101S				WS101		
AGS Reference																							
Depth (m)					3.50				2.50				8.00				3.00				3.50		
Container					0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type					GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
pH Value	All	NDPs: 0 Tests: 17			X				X				X				X				X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 17				X				X				X				X				X	
Redox Potential	All	NDPs: 0 Tests: 17			X				X				X				X				X		
Total Dissolved Solids	All	NDPs: 0 Tests: 17			X				X				X				X				X		
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 17				X				X				X				X				X	
TPH CWG (W)	All	NDPs: 0 Tests: 17			X				X				X				X				X		

23126585	WS107		3.50	Vial (ALE297)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW				X						X		
				0.5l glass bottle (ALE227)	GW		X				X		X				X
23126584	WS105		3.00	Vial (ALE297)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW				X						X		
				0.5l glass bottle (ALE227)	GW		X				X		X				X
23126582	WS104		3.00	Vial (ALE297)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW				X						X		
				0.5l glass bottle (ALE227)	GW		X				X		X				X
23126581	WS103		1.50	Vial (ALE297)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW				X						X		
				0.5l glass bottle (ALE227)	GW		X				X		X				X
23126580	WS102		3.50	Vial (ALE297)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW				X						X		
				0.5l glass bottle (ALE227)	GW		X				X		X				X
23126578	WS101		3.50	Vial (ALE297)	GW												

Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23126588				23126589				23126591				23126593				23126594			
Customer Sample Reference			WS109				WS110				WS111				WS112				WS113			
AGS Reference																						
Depth (m)			2.00				3.00				1.50				1.50				2.00			
Container			0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Anions by Kone (w)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 18			X				X		X		X				X				X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 17	X				X				X				X				X		
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 1																			
Ferric Iron	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Ferrous Iron	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Fluoride	All	NDPs: 0 Tests: 17	X				X				X				X				X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1																			
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17				X				X				X				X			
Mercury Dissolved	All	NDPs: 0 Tests: 17			X				X				X				X				X

12:43:55 10/11/2020

23126596	WS116		2.50	Vial (ALE297)	GW																		
				HNO3 Filtered (ALE204)	GW				X														
				H2SO4 (ALE244)	GW																		
23126601	WS115		2.80 - 2.80	0.5l glass bottle (ALE227)	GW		X				X												
				60g VOC (ALE215)	S																		
				250g Amber Jar (ALE210)	S																		
23126595	WS114		2.00	Vial (ALE297)	GW																		
				HNO3 Filtered (ALE204)	GW																		
				H2SO4 (ALE244)	GW																		
23126594	WS113		2.00	0.5l glass bottle (ALE227)	GW		X		X		X		X		X		X		X		X		
				Vial (ALE297)	GW																		X

Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23126588				23126589				23126591				23126593				23126594			
Customer Sample Reference			WS109				WS110				WS111				WS112				WS113			
AGS Reference																						
Depth (m)			2.00				3.00				1.50				1.50				2.00			
Container			0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Nitrite by Kone (w)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
pH Value	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 17		X				X				X				X				X	
Redox Potential	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Sample description	All	NDPs: 0 Tests: 1																			
Total Dissolved Solids	All	NDPs: 0 Tests: 17	X				X				X				X				X		
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 17		X				X				X				X				X	
TPH CWG (W)	All	NDPs: 0 Tests: 17	X				X				X				X				X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 1																			
VOC MS (S)	All	NDPs: 0 Tests: 1																			

23126596	WS116		2.50	Vial (ALE297)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW				X				X				
				0.5l glass bottle (ALE227)	GW	X	X	X		X		X		X			
23126601	WS115		2.80 - 2.80	60g VOC (ALE215)	S												X
				250g Amber Jar (ALE210)	S						X				X		
23126595	WS114		2.00	Vial (ALE297)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW				X				X				
				0.5l glass bottle (ALE227)	GW	X	X	X		X		X		X			
23126594	WS113		2.00	Vial (ALE297)	GW												

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
23126601	WS115	2.80 - 2.80	Light Brown	Sand	Stones	Vegetation

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH102	BH103	BH101D	BH101S	WS101	WS102
Depth (m)			3.50	2.50	8.00	3.00	3.50	3.50
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			20/10/2020	21/10/2020	20/10/2020	20/10/2020	21/10/2020	20/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126598	23126599	23126597	23126600	23126578	23126580
AGS Reference								
Component	**LOD/Units**	**Method**						
Alkalinity, Total as CaCO3	<2 mg/l	TM043	324 #	350 #	393 #	413 #	356	405
Oxygen, dissolved	<0.3 mg/l	TM046	10.2	9.81	9.98	9.96	9.14	10.5
Carbon, Organic (diss.filt)	<3 mg/l	TM090	<3	<3	<3	<3	5.95	17.7
Organic Carbon, Total	<3 mg/l	TM090	<3 @ #	<3 @ #	<3 @ #	<3 @ #	4.86 @	16.8 @
Fluoride	<0.5 mg/l	TM104	<0.5 #	<0.5 #	<0.5 #	<0.5 #	<0.5	<0.5
Redox potential	mV	TM110	143	156	154	142	152	158
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	0.96 #	0.997 #	2.95 #	0.851 #	0.628	0.722
Dissolved solids, Total (meter)	<5 mg/l	TM123	750 #	806 #	2470 #	671 #	509	583
Iron, Ferric	<0.05 mg/l	TM125	0.341	<0.05	0.792	<0.05	6.08	8.39
Iron, Ferrous	<0.1 mg/l	TM125	<0.1 2 #	<0.1 2 #	<0.1 2 #	<0.1 2 #	<0.1 2	<0.1 2
Antimony (diss.filt)	<1 µg/l	TM152	<1 #	<1 #	<1 #	<1 #	<1	<1
Arsenic (diss.filt)	<0.5 µg/l	TM152	0.629 #	<0.5 #	0.654 #	<0.5 #	2.73	11.1
Barium (diss.filt)	<0.2 µg/l	TM152	89.2 #	65 #	23.2 #	39.7 #	102 #	107 #
Boron (diss.filt)	<10 µg/l	TM152	578 #	569 #	772 #	343 #	179	326
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08	<0.08
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #	<1 #	<1 #	<1	<1
Copper (diss.filt)	<0.3 µg/l	TM152	0.458 #	1.74 #	<0.3 #	2.37 #	<0.3	<0.3
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2	<0.2
Manganese (diss.filt)	<3 µg/l	TM152	715 #	502 #	117 #	73 #	648	364
Molybdenum (diss.filt)	<3 µg/l	TM152	<3 #	<3 #	4.51 #	<3 #	<3	<3
Nickel (diss.filt)	<0.4 µg/l	TM152	5.69 #	3.88 #	4.26 #	2.43 #	3.85	2.55
Selenium (diss.filt)	<1 µg/l	TM152	<1 #	1.1 #	3.48 #	2.34 #	<1	<1
Zinc (diss.filt)	<1 µg/l	TM152	2.01 #	13.2 #	3.9 #	2.84 #	<1	1.06
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.341 #	<0.019 #	0.792 #	<0.019 #	6.08	8.68
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01	<0.01
Nitrite as NO2	<0.05 mg/l	TM184	<0.05 2 #	0.327 2 #	<0.05 2 #	<0.05 2 #	0.071 2	<0.05 2
Sulphate	<2 mg/l	TM184	171 #	135 #	1330 #	58.3 #	46.3	39.2
Chloride	<2 mg/l	TM184	55.9 #	59.7 #	124 #	32.2 #	8.3	17.3
Nitrate as NO3	<0.3 mg/l	TM184	<0.3	57.8	<0.3	0.741	1.5	0.561
pH	<1 pH Units	TM256	7.84 @ #	7.3 #	7.17 @ #	7.18 @ #	7.4	7.21 @
Phenol	<0.002 mg/l	TM259	<0.002 #	<0.002 #	<0.002 #	<0.002 #	<0.002	<0.002
Cresols	<0.006 mg/l	TM259	<0.006 #	<0.006 #	<0.006 #	<0.006 #	<0.006	0.01
Xylenols	<0.008 mg/l	TM259	<0.008 #	<0.008 #	<0.008 #	<0.008 #	<0.008	<0.008

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH102	BH103	BH101D	BH101S	WS101	WS102
Depth (m)			3.50	2.50	8.00	3.00	3.50	3.50
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			20/10/2020	21/10/2020	20/10/2020	20/10/2020	21/10/2020	20/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126598	23126599	23126597	23126600	23126578	23126580
AGS Reference								
Component	**LOD/Units**	**Method**						
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016 #	<0.016 #	<0.016 #	<0.016 #	<0.016	<0.016

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS103	WS104	WS105	WS107	WS109	WS110
Depth (m)			1.50	3.00	3.00	3.50	2.00	3.00
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			21/10/2020	20/10/2020	20/10/2020	20/10/2020	21/10/2020	21/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126581	23126582	23126584	23126585	23126588	23126589
AGS Reference								
Component	**LOD/Units**	**Method**						
Alkalinity, Total as CaCO3	<2 mg/l	TM043	454	288	392	458	406	413
Oxygen, dissolved	<0.3 mg/l	TM046	9.63	10.5	11	9.56	9.47	9.14
Carbon, Organic (diss.filt)	<3 mg/l	TM090	9.02	<3	3.15	9.13	3.63	3.23
Organic Carbon, Total	<3 mg/l	TM090	9.06 @	<3 @	<3 @	8.06 @	<3 @	<3 @
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Redox potential	mV	TM110	147	146	144	162	147	158
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	0.801	0.584	0.691	0.892	0.746	1
Dissolved solids, Total (meter)	<5 mg/l	TM123	619	454	546	690	588	774
Iron, Ferric	<0.05 mg/l	TM125	0.13	<0.05	<0.05	10.7	<0.05	<0.05
Iron, Ferrous	<0.1 mg/l	TM125	<0.1 2	<0.1 2	<0.1 2	<0.1 2	<0.1 2	<0.1 2
Antimony (diss.filt)	<1 µg/l	TM152	4.03	<1	<1	<1	<1	<1
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.1	<0.5	<0.5	6.27	<0.5	<0.5
Barium (diss.filt)	<0.2 µg/l	TM152	137 #	50.6 #	40.5 #	158 #	83.8 #	114 #
Boron (diss.filt)	<10 µg/l	TM152	140	191	199	198	192	507
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1
Copper (diss.filt)	<0.3 µg/l	TM152	6.95	0.484	0.366	<0.3	1.56	1.2
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Manganese (diss.filt)	<3 µg/l	TM152	127	4.17	58.9	671	90.6	877
Molybdenum (diss.filt)	<3 µg/l	TM152	4.85	<3	<3	<3	<3	<3
Nickel (diss.filt)	<0.4 µg/l	TM152	6.99	1.22	2.7	3.15	4.87	5.58
Selenium (diss.filt)	<1 µg/l	TM152	1.79	<1	2.38	<1	<1	<1
Zinc (diss.filt)	<1 µg/l	TM152	15.1	<1	<1	4	11.1	1.82
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.13	<0.019	<0.019	10.7	<0.019	<0.019
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrite as NO2	<0.05 mg/l	TM184	0.075 2	0.071 2	<0.05 2	<0.05 2	0.265 2	0.265 2
Sulphate	<2 mg/l	TM184	43.5	41.7	32.2	113	37.3	78.1
Chloride	<2 mg/l	TM184	9.6	18.9	7.7	8.3	18.9	70.7
Nitrate as NO3	<0.3 mg/l	TM184	3.53	8.03	4.43	<0.3	0.539	26.8
pH	<1 pH Units	TM256	7.09	7.8 @	7.18 @	7.12 @	7.34	7.32
Phenol	<0.002 mg/l	TM259	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Xylenols	<0.008 mg/l	TM259	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS103	WS104	WS105	WS107	WS109	WS110
Depth (m)			1.50	3.00	3.00	3.50	2.00	3.00
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			21/10/2020	20/10/2020	20/10/2020	20/10/2020	21/10/2020	21/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126581	23126582	23126584	23126585	23126588	23126589
AGS Reference								
Component	**LOD/Units**	**Method**						
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Customer Sample Ref.			WS111	WS112	WS113	WS114	WS115	WS116
Depth (m)			1.50	1.50	2.00	2.00	2.80 - 2.80	2.50
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Unspecified Solid (UNS)	Ground Water (GW)
Date Sampled			21/10/2020	21/10/2020	21/10/2020	21/10/2020	-	20/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126591	23126593	23126594	23126595	23126601	23126596
AGS Reference								
Component	**LOD/Units**	**Method**						
Alkalinity, Total as CaCO3	<2 mg/l	TM043	429 #	378 #	463 #	406 #		369 #
Oxygen, dissolved	<0.3 mg/l	TM046	10.3	10.1	9.72	10.6		10.6
Carbon, Organic (diss.filt)	<3 mg/l	TM090	3.52	3.29	4.1	<3		5.33
Organic Carbon, Total	<3 mg/l	TM090	<3 @ #	3.13 @ #	3.47 @ #	<3 @ #		5.47 @ #
Fluoride	<0.5 mg/l	TM104	<0.5 #	<0.5 #	<0.5 #	<0.5 #		<0.5 #
Redox potential	mV	TM110	160	159	160	150		158
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	0.975 #	0.95 #	0.975 #	1.15 #		0.704 #
Dissolved solids, Total (meter)	<5 mg/l	TM123	776 #	748 #	765 #	947 #		547 #
Iron, Ferric	<0.05 mg/l	TM125	<0.05	<0.05	0.0538	<0.05		1.07
Iron, Ferrous	<0.1 mg/l	TM125	<0.1 2 #	<0.1 2 #	<0.1 2 #	<0.1 2 #		<0.1 2 #
Antimony (diss.filt)	<1 µg/l	TM152	<1 #	<1 #	<1 #	<1 #		<1 #
Arsenic (diss.filt)	<0.5 µg/l	TM152	<0.5 #	<0.5 #	<0.5 #	<0.5 #		0.786 #
Barium (diss.filt)	<0.2 µg/l	TM152	131 2 #	70.6 #	402 #	110 #		64.9 #
Boron (diss.filt)	<10 µg/l	TM152	379 #	738 #	570 #	602 #		196 #
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 #	<0.08 #	<0.08 #		<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #	<1 #	<1 #		<1 #
Copper (diss.filt)	<0.3 µg/l	TM152	2.26 #	1.27 #	0.68 #	<0.3 #		<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152	0.326 #	0.213 #	<0.2 #	<0.2 #		<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152	249 #	378 #	1340 #	765 #		578 #
Molybdenum (diss.filt)	<3 µg/l	TM152	<3 #	4.12 #	<3 #	<3 #		<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152	7.58 #	2.57 #	6.45 #	11.3 #		4.65 #
Selenium (diss.filt)	<1 µg/l	TM152	3.54 #	1.48 #	1.8 #	<1 #		<1 #
Zinc (diss.filt)	<1 µg/l	TM152	52.7 #	3.86 #	3.75 #	3.6 #		3.28 #
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019 #	<0.019 #	0.0538 #	<0.019 #		1.07 #
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #	<0.01 #	<0.01 #	<0.01 #		<0.01 #
Nitrite as NO2	<0.05 mg/l	TM184	0.232 2 #	0.581 2 #	0.359 2 #	0.078 2 #		0.085 2 #
Sulphate	<2 mg/l	TM184	78.9 #	80.6 #	69.1 #	143 #		44.3 #
Chloride	<2 mg/l	TM184	57.1 #	53.9 #	50.7 #	128 #		16.7 #
Nitrate as NO3	<0.3 mg/l	TM184	38	24.3	11	14.1		0.963
pH	<1 pH Units	TM256	7.31 #	7.13 #	7.19 #	7.45 #		7.57 @ #
Phenol	<0.002 mg/l	TM259	<0.002 #	<0.002 #	<0.002 #	<0.002 #		<0.002 #
Cresols	<0.006 mg/l	TM259	<0.006 #	<0.006 #	<0.006 #	<0.006 #		<0.006 #
Xylenols	<0.008 mg/l	TM259	<0.008 #	<0.008 #	<0.008 #	<0.008 #		<0.008 #

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS111	WS112	WS113	WS114	WS115	WS116
Depth (m)			1.50	1.50	2.00	2.00	2.80 - 2.80	2.50
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Unspecified Solid (UNS)	Ground Water (GW)
Date Sampled			21/10/2020	21/10/2020	21/10/2020	21/10/2020	-	20/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126591	23126593	23126594	23126595	23126601	23126596
AGS Reference								
Component	**LOD/Units**	**Method**						
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016 #	<0.016 #	<0.016 #	<0.016 #		<0.016 #
Moisture Content Ratio (% of as received sample)	%	PM024					0 §	

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CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH102	BH103	BH101D	BH101S	WS101	WS102
Depth (m)			3.50	2.50	8.00	3.00	3.50	3.50
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			20/10/2020	21/10/2020	20/10/2020	20/10/2020	21/10/2020	20/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126598	23126599	23126597	23126600	23126578	23126580
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 @ #	0.0126 @ #	<0.01 @ #	<0.01 @ #	<0.01 @	0.131 @
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.00843 @ #	<0.005 @ #	<0.005 @ #	0.124 @	0.349 @
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 @ #	<0.005 @ #	<0.005 @ #	<0.005 @ #	0.13 @	0.503 @
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0734 @ #	<0.005 @ #	0.00777 @ #	0.0306 @	0.0179 @
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.00584 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0241 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	0.235 @
Fluorene (aq)	<0.005 µg/l	TM178	0.00524 @ #	0.0103 @ #	<0.005 @ #	<0.005 @ #	0.0748 @	0.815 @
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.058 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
Pyrene (aq)	<0.005 µg/l	TM178	0.00928 @ #	0.0689 @ #	<0.005 @ #	0.00646 @ #	0.0508 @	0.0146 @
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0246 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.114 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0421 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002 @ #	0.0598 @ #	<0.002 @ #	<0.002 @ #	<0.002 @	<0.002 @
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0203 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0628 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.051 @ #	<0.005 @ #	<0.005 @ #	<0.005 @	<0.005 @
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082 @ #	0.636 @ #	<0.082 @ #	<0.082 @ #	0.411 @	2.06 @

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CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS103	WS104	WS105	WS107	WS109	WS110
Depth (m)			1.50	3.00	3.00	3.50	2.00	3.00
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			21/10/2020	20/10/2020	20/10/2020	20/10/2020	21/10/2020	21/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126581	23126582	23126584	23126585	23126588	23126589
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @	<0.01 @
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	0.0294 @	<0.005 @	<0.005 @
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	0.0296 @	<0.005 @	<0.005 @
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	0.00844 @	<0.005 @	<0.005 @
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	0.00504 @	<0.005 @	<0.005 @
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	0.00825 @	<0.005 @	<0.005 @
Fluorene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	0.0252 @	<0.005 @	<0.005 @
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Pyrene (aq)	<0.005 µg/l	TM178	<0.005 @	0.00781 @	<0.005 @	0.0068 @	0.0057 @	0.0275 @
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002 @	<0.002 @	<0.002 @	<0.002 @	<0.002 @	<0.002 @
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082 @	<0.082 @	<0.082 @	0.113 @	<0.082 @	<0.082 @

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS111	WS112	WS113	WS114	WS116
Depth (m)			1.50	1.50	2.00	2.00	2.50
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			21/10/2020	21/10/2020	21/10/2020	21/10/2020	20/10/2020
Sample Time			.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126591	23126593	23126594	23126595	23126596
AGS Reference							
Component	**LOD/Units**	**Method**					
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 @ #	<0.01 @ #	<0.01 @ #	0.0188 @ #	<0.01 @ #
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0063 @ #	<0.005 @ #	<0.005 @ #	0.00965 @ #
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 @ #	<0.005 @ #	<0.005 @ #	<0.005 @ #	<0.005 @ #
Fluoranthene (aq)	<0.005 µg/l	TM178	0.0117 @ #	0.0337 @ #	0.0665 @ #	0.0234 @ #	0.00586 @ #
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 @ #	<0.005 @ #	<0.005 @ #	<0.005 @ #	<0.005 @ #
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.014 @ #	<0.005 @ #	0.0123 @ #	<0.005 @ #
Fluorene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0073 @ #	<0.005 @ #	0.00807 @ #	0.00932 @ #
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 @ #	0.0152 @ #	0.0218 @ #	0.00988 @ #	<0.005 @ #
Pyrene (aq)	<0.005 µg/l	TM178	0.0408 @ #	0.0385 @ #	0.223 @ #	0.0266 @ #	0.0137 @ #
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @ #	<0.005 @ #	<0.005 @ #	<0.005 @ #	<0.005 @ #
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	0.109 @ #	0.0279 @ #	0.263 @ #	0.0266 @ #	<0.005 @ #
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	0.0299 @ #	0.0113 @ #	0.0813 @ #	0.00845 @ #	<0.005 @ #
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	0.0643 @ #	0.0161 @ #	0.18 @ #	0.0154 @ #	<0.002 @ #
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	0.0466 @ #	<0.005 @ #	0.0167 @ #	0.0106 @ #	<0.005 @ #
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	0.089 @ #	0.00853 @ #	0.104 @ #	<0.005 @ #	<0.005 @ #
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	0.081 @ #	0.0157 @ #	0.0935 @ #	0.0135 @ #	<0.005 @ #
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	0.473 @ #	0.195 @ #	1.05 @ #	0.173 @ #	<0.082 @ #

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS115					
Depth (m)			2.80 - 2.80					
Sample Type			Unspecified Solid (UNS)					
Date Sampled			-					
Sample Time			.					
Date Received			28/10/2020					
SDG Ref			201028-29					
Lab Sample No.(s)			23126601					
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM089	111 §					
Aliphatics >C5-C6	<10 µg/kg	TM089	<10 §					
Aliphatics >C6-C8	<10 µg/kg	TM089	21 §					
Aliphatics >C8-C10	<10 µg/kg	TM089	61 §					
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000 §					
Aliphatics >C12-C16	<1000 µg/kg	TM414	1050 §					
Aliphatics >C16-C21	<1000 µg/kg	TM414	2130 §					
Aliphatics >C21-C35	<1000 µg/kg	TM414	<1000 §					
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000 §					
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000 §					
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000 §					
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10 §					
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10 §					
Aromatics >EC8-EC10	<10 µg/kg	TM089	41 §					
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000 §					
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000 §					
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000 §					
Aromatics > EC21-EC35	<1000 µg/kg	TM414	<1000 §					
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000 §					
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000 §					
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000 §					
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000 §					
Total Aliphatics >C5-C10	<50 µg/kg	TM089	82 §					
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50 §					
GRO >C5-C10	<20 µg/kg	TM089	82 §					

Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH102	BH103	BH101D	BH101S	WS101	WS102
Depth (m)			3.50	2.50	8.00	3.00	3.50	3.50
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			20/10/2020	21/10/2020	20/10/2020	20/10/2020	21/10/2020	20/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126598	23126599	23126597	23126600	23126578	23126580
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	95	96	101	90	95 1	100 1
GRO >C5-C12	<50 µg/l	TM245	<50 #	<50 #	<50 #	<50 #	<50 1	67 1
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 1	<3 1
Benzene	<7 µg/l	TM245	<7 #	<7 #	<7 #	<7 #	<7 1	<7 1
Toluene	<4 µg/l	TM245	<4 #	<4 #	<4 #	<4 #	<4 1	<4 1
Ethylbenzene	<5 µg/l	TM245	<5 #	<5 #	<5 #	<5 #	<5 1	<5 1
m,p-Xylene	<8 µg/l	TM245	<8 #	<8 #	<8 #	<8 #	<8 1	<8 1
o-Xylene	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 1	<3 1
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11 1	<11 1
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28 1	<28 1
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	<10 1
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	<10 1
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	<10 1
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	31 1
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	89	97
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	107	98
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	19	20
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	215	215
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	<10 1
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	<10 1
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	<10 1
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10 1	20 1
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	129	122
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	93	59
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	222	181
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	458	463
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10	<10	<10	<10	126	118

Validated

CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS103	WS104	WS105	WS107	WS109	WS110
Depth (m)			1.50	3.00	3.00	3.50	2.00	3.00
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			21/10/2020	20/10/2020	20/10/2020	20/10/2020	21/10/2020	21/10/2020
Sample Time			.	.	.	.	.	.
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	201028-29
Lab Sample No.(s)			23126581	23126582	23126584	23126585	23126588	23126589
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	97	105	101	98	89	97
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	283	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	31	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	79	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	71	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	53	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	47	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	18	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	18	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10	<10	301	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10

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CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS111	WS112	WS113	WS114	WS116	
Depth (m)			1.50	1.50	2.00	2.00	2.50	
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	
Date Sampled			21/10/2020	21/10/2020	21/10/2020	21/10/2020	20/10/2020	
Sample Time			.	.	.	.	.	
Date Received			28/10/2020	28/10/2020	28/10/2020	28/10/2020	28/10/2020	
SDG Ref			201028-29	201028-29	201028-29	201028-29	201028-29	
Lab Sample No.(s)			23126591	23126593	23126594	23126595	23126596	
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	95	97	92	93	103	
GRO >C5-C12	<50 µg/l	TM245	<50 #	<50 #	<50 #	<50 #	<50 #	
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 #	
Benzene	<7 µg/l	TM245	<7 #	<7 #	<7 #	<7 #	<7 #	
Toluene	<4 µg/l	TM245	<4 #	<4 #	<4 #	<4 #	<4 #	
Ethylbenzene	<5 µg/l	TM245	<5 #	<5 #	<5 #	<5 #	<5 #	
m,p-Xylene	<8 µg/l	TM245	<8 #	<8 #	<8 #	<8 #	<8 #	
o-Xylene	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 #	
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	31	<10	<10	<10	<10	
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	58	<10	<10	<10	<10	
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	89	<10	<10	<10	<10	
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	17	
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	104	<10	<10	
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	104	<10	17	
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	89	<10	104	<10	17	
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	58	<10	<10	<10	<10	

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CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS115
Depth (m)			2.80 - 2.80
Sample Type			Unspecified Solid (UNS)
Date Sampled			-
Sample Time			.
Date Received			28/10/2020
SDG Ref			201028-29
Lab Sample No.(s)			23126601
AGS Reference			
Component	**LOD/Units**	**Method**	
Dibromofluoromethane**	%	TM116	109 §
Toluene-d8**	%	TM116	98.8 §
4-Bromofluorobenzene**	%	TM116	98.8 §
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 §
Benzene	<9 µg/kg	TM116	<9 §
Toluene	<7 µg/kg	TM116	<7 §
Ethylbenzene	<4 µg/kg	TM116	<4 §
p/m-Xylene	<10 µg/kg	TM116	<10 §
o-Xylene	<10 µg/kg	TM116	<10 §
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02 §
Sum of BTEX	<40 µg/kg	TM116	<40 §

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Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) by Headspace GC-FID (C4-C12)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM110	BS 1377: Part 3 1990	Redox Potential
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM125	DIN 38405 D17	Determination of Total/Ferrous Iron
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

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CERTIFICATE OF ANALYSIS

SDG:	201028-29	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	574887
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	574753

Test Completion Dates

Lab Sample No(s)	23126598	23126599	23126597	23126600	23126578	23126580	23126581	23126582	23126584	23126585
Customer Sample Ref.	BH102	BH103	BH101D	BH101S	WS101	WS102	WS103	WS104	WS105	WS107
AGS Ref.										
Depth	3.50	2.50	8.00	3.00	3.50	3.50	1.50	3.00	3.00	3.50
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	03-Nov-2020	04-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020
Anions by Kone (w)	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020
Conductivity (at 20 deg.C)	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020
Dissolved Metals by ICP-MS	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
Dissolved Organic/Inorganic Carbon	04-Nov-2020	04-Nov-2020	04-Nov-2020	06-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020	04-Nov-2020	03-Nov-2020	05-Nov-2020
Dissolved Oxygen by Probe	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020
EPH CWG (Aliphatic) Aqueous GC (W)	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020
EPH CWG (Aromatic) Aqueous GC (W)	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020
Ferric Iron	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
Ferrous Iron	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020
Fluoride	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020
GRO by GC-FID (W)	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020
Mercury Dissolved	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	02-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020
Nitrite by Kone (w)	04-Nov-2020	04-Nov-2020	04-Nov-2020	02-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020
PAH Spec MS - Aqueous (W)	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020
pH Value	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020
Phenols by HPLC (W)	03-Nov-2020	03-Nov-2020	04-Nov-2020	04-Nov-2020	03-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	04-Nov-2020
Redox Potential	04-Nov-2020	02-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	02-Nov-2020	04-Nov-2020	02-Nov-2020	04-Nov-2020	02-Nov-2020
Total Dissolved Solids	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	03-Nov-2020	02-Nov-2020
Total Organic and Inorganic Carbon	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020
TPH CWG (W)	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020

Lab Sample No(s)	23126588	23126589	23126591	23126593	23126594	23126595	23126601	23126596
Customer Sample Ref.	WS109	WS110	WS111	WS112	WS113	WS114	WS115	WS116
AGS Ref.								
Depth	2.00	3.00	1.50	1.50	2.00	2.00	2.80 - 2.80	2.50
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Unspecified So	Ground Water
Alkalinity as CaCO3	04-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020		03-Nov-2020
Anions by Kone (w)	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020		04-Nov-2020
Conductivity (at 20 deg.C)	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020		02-Nov-2020
Dissolved Metals by ICP-MS	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020		09-Nov-2020
Dissolved Organic/Inorganic Carbon	03-Nov-2020	03-Nov-2020	03-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020		04-Nov-2020
Dissolved Oxygen by Probe	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020		02-Nov-2020
EPH CWG (Aliphatic) Aqueous GC (W)	05-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020		05-Nov-2020
EPH CWG (Aromatic) Aqueous GC (W)	05-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020		05-Nov-2020
EPH CWG GC (S)							10-Nov-2020	
Ferric Iron	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020		06-Nov-2020
Ferrous Iron	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020		03-Nov-2020
Fluoride	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020		04-Nov-2020
GRO by GC-FID (W)	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020		29-Oct-2020
Mercury Dissolved	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020		03-Nov-2020
Nitrite by Kone (w)	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020		04-Nov-2020
PAH Spec MS - Aqueous (W)	03-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020		03-Nov-2020
pH Value	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020		03-Nov-2020
Phenols by HPLC (W)	03-Nov-2020	04-Nov-2020	04-Nov-2020	03-Nov-2020	04-Nov-2020	04-Nov-2020		03-Nov-2020
Redox Potential	04-Nov-2020	04-Nov-2020	02-Nov-2020	02-Nov-2020	04-Nov-2020	04-Nov-2020		02-Nov-2020
Sample description							07-Nov-2020	
Total Dissolved Solids	02-Nov-2020	02-Nov-2020	02-Nov-2020	02-Nov-2020	03-Nov-2020	02-Nov-2020		02-Nov-2020
Total Organic and Inorganic Carbon	05-Nov-2020	04-Nov-2020	05-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020		05-Nov-2020
TPH CWG (W)	05-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020		05-Nov-2020
TPH CWG GC (S)							10-Nov-2020	
VOC MS (S)							09-Nov-2020	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

General

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

John F Hunt Remediation Ltd
London Road
GRAYS
ESSEX
RM20 4DB

Attention: Stuart Carroll

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 November 2020
Customer:	John F Hunt Remediation Ltd
Sample Delivery Group (SDG):	201106-75
Your Reference:	Gloucester Great Western Road Yard
Location:	Gloucester Great Western Road Yard
Report No:	576576

We received 18 samples on Friday November 06, 2020 and 17 of these samples were scheduled for analysis which was completed on Saturday November 21, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.
The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

[redacted]

Sonia McWhan

Operations Manager

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23191192	BH102		1.30	04/11/2020
23191193	BH103		1.80	04/11/2020
23191190	BH101D		2.30	03/11/2020
23191191	BH101S		2.30	03/11/2020
23191212	NO ID			
23191194	WS101		1.30	03/11/2020
23191195	WS102		1.50	03/11/2020
23191197	WS103		1.50	03/11/2020
23191198	WS104		1.50	03/11/2020
23191201	WS105		1.50	03/11/2020
23191202	WS107		2.00	04/11/2020
23191204	WS109		1.60	04/11/2020
23191205	WS110		1.80	04/11/2020
23191207	WS111		1.90	04/11/2020
23191208	WS112		1.20	04/11/2020
23191209	WS113		1.30	04/11/2020
23191210	WS114		1.70	04/11/2020
23191211	WS116		1.50	03/11/2020

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)						23191192					23191193					23191190					23191191					23191194	
Customer Sample Reference						BH102					BH103					BH101D					BH101S					WS101	
AGS Reference																											
Depth (m)						1.30					1.80					2.30					2.30					1.30	
Container						0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	H2SO4 (ALE244)
Sample Type						UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL
Anions by Kone (w)	All	NDPs: 0 Tests: 17					X				X				X				X				X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17							X				X				X				X						
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17				X					X				X				X				X				
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17				X					X				X				X				X				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17								X				X				X				X					
Mercury Dissolved	All	NDPs: 0 Tests: 17							X				X				X				X						
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17				X					X				X				X				X				
pH Value	All	NDPs: 0 Tests: 17					X				X				X				X				X				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 17						X				X				X				X				X			X
TPH CWG (W)	All	NDPs: 0 Tests: 17				X					X				X				X				X				

23191202	WS107		2.00	H2SO4 (ALE244)	UNL									X	
				500ml Plastic (ALE208)	UNL	X							X		
				0.5l glass bottle (ALE227)	UNL			X	X			X			X
23191201	WS105		1.50	Vial (ALE297)	UNL					X					
				HNO3 Filtered (ALE204)	UNL		X				X				
				H2SO4 (ALE244)	UNL									X	
				0.5l glass bottle (ALE227)	UNL	X		X	X			X	X		X
23191198	WS104		1.50	Vial (ALE297)	UNL					X					
				HNO3 Filtered (ALE204)	UNL		X				X				
				H2SO4 (ALE244)	UNL									X	
				0.5l glass bottle (ALE227)	UNL	X		X	X			X	X		X
23191197	WS103		1.50	Vial (ALE297)	UNL					X					
				HNO3 Filtered (ALE204)	UNL		X				X				
				H2SO4 (ALE244)	UNL									X	
				0.5l glass bottle (ALE227)	UNL	X		X	X			X	X		X
23191195	WS102		1.50	Vial (ALE297)	UNL					X					
				HNO3 Filtered (ALE204)	UNL		X				X				
				H2SO4 (ALE244)	UNL									X	
				0.5l glass bottle (ALE227)	UNL	X		X	X			X	X		X
23191194	WS101		1.30	Vial (ALE297)	UNL					X					
				HNO3 Filtered (ALE204)	UNL		X				X				

Validated

CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23191202							23191204							23191205							23191207							23191208	
Customer Sample Reference			WS107							WS109							WS110							WS111							WS112	
AGS Reference																																
Depth (m)			2.00							1.60							1.80							1.90							1.20	
Container			HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)
Sample Type			UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL	UNL
Anions by Kone (w)	All	NDPs: 0 Tests: 17				X					X					X						X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 17	X					X					X					X				
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17			X					X					X						X	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 17			X					X					X						X	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 17		X					X					X					X			
Mercury Dissolved	All	NDPs: 0 Tests: 17	X					X					X					X				
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 17			X					X					X						X	
pH Value	All	NDPs: 0 Tests: 17				X					X					X						X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 17					X					X					X					
TPH CWG (W)	All	NDPs: 0 Tests: 17			X					X					X						X	

23191211	WS116		1.50	Vial (ALE297)	UNL										x										
				HNO3 Filtered (ALE204)	UNL				x								x								
				H2SO4 (ALE244)	UNL																		x		
				0.5l glass bottle (ALE227)	UNL		x				x		x						x		x				x
23191210	WS114		1.70	Vial (ALE297)	UNL										x										
				HNO3 Filtered (ALE204)	UNL				x								x								
				H2SO4 (ALE244)	UNL																		x		
				500ml Plastic (ALE208)	UNL		x														x				
				0.5l glass bottle (ALE227)	UNL						x		x						x						x
23191209	WS113		1.30	Vial (ALE297)	UNL										x										
				HNO3 Filtered (ALE204)	UNL				x								x								
				H2SO4 (ALE244)	UNL																		x		
				500ml Plastic (ALE208)	UNL		x														x				
				0.5l glass bottle (ALE227)	UNL						x		x						x						x
23191208	WS112		1.20	Vial (ALE297)	UNL										x										
				HNO3 Filtered (ALE204)	UNL				x								x								
				H2SO4 (ALE244)	UNL																		x		

Validated

CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH102	BH103	BH101D	BH101S	WS101	WS102
Depth (m)			1.30	1.80	2.30	2.30	1.30	1.50
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
Date Sampled			04/11/2020	04/11/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020
Sample Time			.	.	.	.	.	.
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	201106-75
Lab Sample No.(s)			23191192	23191193	23191190	23191191	23191194	23191195
AGS Reference								
Component	**LOD/Units**	**Method**						
Arsenic (diss.filt)	<0.5 µg/l	TM152	0.794	0.557	1.14	<0.5	4.64	20.1
Boron (diss.filt)	<10 µg/l	TM152	549	460	895	393	164	385
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1
Copper (diss.filt)	<0.3 µg/l	TM152	<0.3	2.42	0.354	0.785	<0.3	1.01
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2	<0.2	<0.2	<0.2	0.249
Nickel (diss.filt)	<0.4 µg/l	TM152	5.24	2.58	6.36	1.19	4.57	3.51
Selenium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	4.04	<1	<1
Zinc (diss.filt)	<1 µg/l	TM152	3.17	27.4	<1	6.01	<1	2.86
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphate	<2 mg/l	TM184	166	128	1410	58.3	84.5	33.3
pH	<1 pH Units	TM256	7.28	7.38	7.24	6.96	7.15	6.91
Phenol	<0.002 mg/l	TM259	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259	<0.006	<0.006	<0.006	<0.006	<0.006	0.02
Xylenols	<0.008 mg/l	TM259	<0.008	<0.008	<0.008	<0.008	<0.008	0.01
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	<0.016	<0.016	<0.016	<0.016	0.03

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS103	WS104	WS105	WS107	WS109	WS110
Depth (m)			1.50	1.50	1.50	2.00	1.60	1.80
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
Date Sampled			03/11/2020	03/11/2020	03/11/2020	04/11/2020	04/11/2020	04/11/2020
Sample Time			.	.	.	.	.	.
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	201106-75
Lab Sample No.(s)			23191197	23191198	23191201	23191202	23191204	23191205
AGS Reference								
Component	**LOD/Units**	**Method**						
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.31	0.731	<0.5	4.36	<0.5	<0.5
Boron (diss.filt)	<10 µg/l	TM152	116	168	184	135	168	503
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1
Copper (diss.filt)	<0.3 µg/l	TM152	4	0.754	0.359	<0.3	1.64	0.655
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nickel (diss.filt)	<0.4 µg/l	TM152	6.46	1.22	1.95	3.91	3.18	5.8
Selenium (diss.filt)	<1 µg/l	TM152	4.67	4.49	2.98	1.91	<1	<1
Zinc (diss.filt)	<1 µg/l	TM152	13.2	1.21	1.32	4.24	19.4	<1
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulphate	<2 mg/l	TM184	34.4	46.7	30.7	58.7	19.9	68.1
pH	<1 pH Units	TM256	7.01	7.35	7.1	6.94	6.77	7.11
Phenol	<0.002 mg/l	TM259	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Xylenols	<0.008 mg/l	TM259	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016

12:16:22 21/11/2020

Validated

CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS111	WS112	WS113	WS114	WS116	
Depth (m)			1.90	1.20	1.30	1.70	1.50	
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	
Date Sampled			04/11/2020	04/11/2020	04/11/2020	04/11/2020	03/11/2020	
Sample Time			.	.	.	.	.	
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	
Lab Sample No.(s)			23191207	23191208	23191209	23191210	23191211	
AGS Reference								
Component	**LOD/Units**	**Method**						
Arsenic (diss.filt)	<0.5 µg/l	TM152	<0.5	<0.5	1.07	<0.5	0.584	
Boron (diss.filt)	<10 µg/l	TM152	364	757	530	603	214	
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	<0.08	<0.08	<0.08	
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	
Copper (diss.filt)	<0.3 µg/l	TM152	1.25	9.09	0.462	0.324	<0.3	
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	0.558	<0.2	<0.2	<0.2	
Nickel (diss.filt)	<0.4 µg/l	TM152	6.88	1.98	6.4	7.88	4.44	
Selenium (diss.filt)	<1 µg/l	TM152	2.73	3.49	<1	<1	<1	
Zinc (diss.filt)	<1 µg/l	TM152	1.78	2.52	1.37	3.1	1.73	
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	
Sulphate	<2 mg/l	TM184	68.3	75.7	61.5	150	47.1	
pH	<1 pH Units	TM256	7.07	7.19	7.19	7.18	7.08	
Phenol	<0.002 mg/l	TM259	<0.002	<0.002	<0.002	<0.002	<0.002	
Cresols	<0.006 mg/l	TM259	<0.006	<0.006	<0.006	<0.006	<0.006	
Xylenols	<0.008 mg/l	TM259	<0.008	<0.008	<0.008	<0.008	<0.008	
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	<0.016	<0.016	<0.016	<0.016	

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CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH102	BH103	BH101D	BH101S	WS101	WS102
Depth (m)			1.30	1.80	2.30	2.30	1.30	1.50
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
Date Sampled			04/11/2020	04/11/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020
Sample Time			.	.	.	.	.	.
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	201106-75
Lab Sample No.(s)			23191192	23191193	23191190	23191191	23191194	23191195
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 @	0.0186 @	0.0126 @	<0.01 @	<0.01 @	0.176
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 @	0.0215 @	0.00697 @	<0.005 @	0.119 @	0.488
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 @	0.00651 @	<0.005 @	<0.005 @	0.00724 @	0.741
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	0.104 @	<0.005 @	<0.005 @	<0.005 @	0.0125
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	0.0112 @	<0.005 @	<0.005 @	<0.005 @	<0.005
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 @	0.0322 @	0.00739 @	<0.005 @	0.025 @	0.117
Fluorene (aq)	<0.005 µg/l	TM178	<0.005 @	0.0128 @	0.00915 @	<0.005 @	<0.005 @	0.994
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 @	0.144 @	<0.005 @	<0.005 @	<0.005 @	<0.005
Pyrene (aq)	<0.005 µg/l	TM178	<0.005 @	0.0991 @	<0.005 @	<0.005 @	0.0443 @	0.012
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	0.0711 @	<0.005 @	<0.005 @	<0.005 @	<0.005
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	0.207 @	<0.005 @	<0.005 @	<0.005 @	<0.005
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	0.0881 @	<0.005 @	<0.005 @	<0.005 @	<0.005
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002 @	0.101 @	<0.002 @	<0.002 @	<0.002 @	<0.002
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005 @	<0.005
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005 @	0.154 @	<0.005 @	<0.005 @	<0.005 @	<0.005
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005 @	0.093 @	<0.005 @	<0.005 @	<0.005 @	<0.005
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082 @	1.16 @	<0.082 @	<0.082 @	0.195 @	2.54

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CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS103	WS104	WS105	WS107	WS109	WS110
Depth (m)			1.50	1.50	1.50	2.00	1.60	1.80
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
Date Sampled			03/11/2020	03/11/2020	03/11/2020	04/11/2020	04/11/2020	04/11/2020
Sample Time			.	.	.	.	.	.
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	201106-75
Lab Sample No.(s)			23191197	23191198	23191201	23191202	23191204	23191205
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01 @	<0.01	0.0118	0.0273	<0.01	<0.01
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	0.0229	<0.005	<0.005
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	0.00709	<0.005	0.0126
Anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	0.00815	<0.005	<0.005	<0.005
Fluorene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	0.0083	0.0232	0.00822	<0.005
Chrysene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene (aq)	<0.005 µg/l	TM178	0.0157 @	<0.005	<0.005	0.0078	<0.005	0.0133
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002 @	<0.002	<0.002	<0.002	<0.002	<0.002
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005 @	<0.005	<0.005	<0.005	<0.005	<0.005
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082 @	<0.082	<0.082	0.0883	<0.082	<0.082

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CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS111	WS112	WS113	WS114	WS116	
Depth (m)			1.90	1.20	1.30	1.70	1.50	
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	
Date Sampled			04/11/2020	04/11/2020	04/11/2020	04/11/2020	03/11/2020	
Sample Time			.	.	.	.	.	
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	
Lab Sample No.(s)			23191207	23191208	23191209	23191210	23191211	
AGS Reference								
Component	**LOD/Units**	**Method**						
Naphthalene (aq)	<0.01 µg/l	TM178	<0.01	<0.01	<0.01	<0.01	<0.01	
Acenaphthene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.0273	0.00629	0.00516	
Acenaphthylene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	
Fluoranthene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.0676	0.00565	<0.005	
Anthracene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.00501	<0.005	<0.005	
Phenanthrene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.00608	0.0101	<0.005	
Fluorene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.013	0.0108	0.0102	
Chrysene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	
Pyrene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.144	0.0117	0.0139	
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.0106	<0.005	<0.005	
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.00525	<0.005	<0.005	
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002	<0.002	0.00775	<0.002	<0.002	
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	<0.082	<0.082	0.286	<0.082	<0.082	

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CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			BH102	BH103	BH101D	BH101S	WS101	WS102
Depth (m)			1.30	1.80	2.30	2.30	1.30	1.50
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
Date Sampled			04/11/2020	04/11/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020
Sample Time			.	.	.	.	.	.
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	201106-75
Lab Sample No.(s)			23191192	23191193	23191190	23191191	23191194	23191195
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	84	109	109	109	111	102
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	16
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	13
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	13
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	11
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	116	109
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	74	39
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	58	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	248	148
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	248	200
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10

Validated

CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS103	WS104	WS105	WS107	WS109	WS110
Depth (m)			1.50	1.50	1.50	2.00	1.60	1.80
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)
Date Sampled			03/11/2020	03/11/2020	03/11/2020	04/11/2020	04/11/2020	04/11/2020
Sample Time			.	.	.	.	.	.
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	201106-75
Lab Sample No.(s)			23191197	23191198	23191201	23191202	23191204	23191205
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	107	107	106	107	105	105
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	10	11	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	10	11	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	10	11	29	<10	<10
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10

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CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	mCERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+§@	Sample deviation (see appendix)

Customer Sample Ref.			WS111	WS112	WS113	WS114	WS116	
Depth (m)			1.90	1.20	1.30	1.70	1.50	
Sample Type			Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	Unspecified Liquid (UNL)	
Date Sampled			04/11/2020	04/11/2020	04/11/2020	04/11/2020	03/11/2020	
Sample Time			.	.	.	.	.	
Date Received			06/11/2020	06/11/2020	06/11/2020	06/11/2020	06/11/2020	
SDG Ref			201106-75	201106-75	201106-75	201106-75	201106-75	
Lab Sample No.(s)			23191207	23191208	23191209	23191210	23191211	
AGS Reference								
Component	**LOD/Units**	**Method**						
GRO Surrogate % recovery**	%	TM245	101	105	104	107	109	
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	<50	<50	
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	<10	<10	<10	<10	<10	

12:16:22 21/11/2020

Table of Results - Appendix

Method No	Reference	Description
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	201106-75	**Client Reference:**	Gloucester Great Western Rd	**Report Number:**	576576
Location:	Gloucester Great Western R	**Order Number:**	R/16909/20904/1005	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23191192	23191193	23191190	23191191	23191194	23191195	23191197	23191198	23191201	23191202
Customer Sample Ref.	BH102	BH103	BH101D	BH101S	WS101	WS102	WS103	WS104	WS105	WS107
AGS Ref.										
Depth	1.30	1.80	2.30	2.30	1.30	1.50	1.50	1.50	1.50	2.00
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Anions by Kone (w)	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020
Dissolved Metals by ICP-MS	21-Nov-2020	21-Nov-2020	21-Nov-2020	19-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020
EPH CWG (Aliphatic) Aqueous GC (W)	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020
EPH CWG (Aromatic) Aqueous GC (W)	17-Nov-2020	17-Nov-2020	19-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	19-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020
GRO by GC-FID (W)	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
Mercury Dissolved	19-Nov-2020	18-Nov-2020	19-Nov-2020	18-Nov-2020	19-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	19-Nov-2020	19-Nov-2020
PAH Spec MS - Aqueous (W)	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	19-Nov-2020	13-Nov-2020	19-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
pH Value	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
Phenols by HPLC (W)	18-Nov-2020	19-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	19-Nov-2020	19-Nov-2020	18-Nov-2020	19-Nov-2020	19-Nov-2020
TPH CWG (W)	17-Nov-2020	17-Nov-2020	19-Nov-2020	17-Nov-2020	17-Nov-2020	18-Nov-2020	19-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020

Lab Sample No(s)	23191204	23191205	23191207	23191208	23191209	23191210	23191211
Customer Sample Ref.	WS109	WS110	WS111	WS112	WS113	WS114	WS116
AGS Ref.							
Depth	1.60	1.80	1.90	1.20	1.30	1.70	1.50
Type	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq	Unspecified Liq
Anions by Kone (w)	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020
Dissolved Metals by ICP-MS	21-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020	21-Nov-2020
EPH CWG (Aliphatic) Aqueous GC (W)	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020
EPH CWG (Aromatic) Aqueous GC (W)	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020	17-Nov-2020
GRO by GC-FID (W)	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
Mercury Dissolved	19-Nov-2020	18-Nov-2020	18-Nov-2020	19-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020
PAH Spec MS - Aqueous (W)	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
pH Value	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020	13-Nov-2020
Phenols by HPLC (W)	19-Nov-2020	18-Nov-2020	18-Nov-2020	19-Nov-2020	18-Nov-2020	19-Nov-2020	18-Nov-2020
TPH CWG (W)	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020	18-Nov-2020

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

General

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. **Sample Deviations**

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Matrix interference**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to late arrival of instructions or samples**
§	**Sampled on date not provided**

19. **Asbestos**

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Appendix 9

Geotechnical Engineering Report

John F Hunt
REGENERATION

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG
[redacted]

Great Western Yard, Great Western Road, Gloucester

Preliminary Geotechnical Ground Investigation

Eutopia Homes Ltd

Document Reference: 12446 December 2020

air quality assessment contaminated land ecology environmental audits noise assessment
environmental impact assessments flood risk assessments geotechnical engineering ground investigation
hydrogeology noxious weeds remediation design risk assessments waste management

Site: Land at Great Western Yard, Gloucester

Document Reference No: 12446

Quality Management

Prepared by:	**CSS**
Reviewed by:	**KM**
Authorised by:	**CSS**
Date	**December 2020**
Revision	**0**

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2. Window Sample Logs and Installation Details
3. Trial Pit Logs (JF Hunt Remediation)
4. Groundwater Level and Soil Gas Monitoring (JF Hunt Remediation)
5. Laboratory Test Results

1 INTRODUCTION

Ground and Environmental Services Ltd (GES) was commissioned by John F Hunt Remediation Ltd on behalf of Eutopia Homes Ltd (The Client) to undertake a Preliminary Geotechnical Ground Investigation on a proposed redevelopment site on land at Great Western Road, Gloucester.

It was understood that the proposed redevelopment of the site would comprise the development of a disused railway yard and neighbouring light industrial premises to a residential end use with associated hardstanding and soft landscaping.

The purpose of the ground investigation was to determine the ground profile and to provide guideline recommendations for the design of foundations for new structures on the site. This report specifically excludes comment or advice with regards to contaminated land or pollution related issues.

2 SITE LOCATION AND LAYOUT

The site is located approximately 1km east of Gloucester City Centre and was centred of approximate national grid reference SO 841 183.

The northern boundary of the site was delineated by Great Western Road and also rear gardens to private residential properties that front Great Western Road. The eastern boundary of the site was delineated by Horton Road. The southern boundary was delineated by a mainline railway which runs east-west and an area of railway sidings which curves north west to form the boundary of some of the western part of the site. Further west of the railway sidings and immediately west of the site in the north western corner was an office complex.

The main access to the site was gained from the east off Horton Road with multiple access points to the northern part of the site gained directly off Great Western Road.

The main access point off Horton Road leads into railway land which consisted of disused sidings, maintenance sheds, inspection sheds and refuelling facilities.

The northern part of the site was accessed directly off Great Western Yard. The westernmost part of this area which was accessed from the north western corner of the site was occupied by a disused car park. Immediately east of the car park was a car servicing facility and a timber yard. A large open storage area was located to the west of the timber yard and was being operated by a steel fixing company.

The surrounding area is made up of a mix of residential, commercial and industrial uses.

3 GEOLOGICAL SETTING

Reference was made to the British Geological Survey 1:50,000 scale geological map of the area which indicated that the site is underlain by a superficial geology comprising of the Cheltenham Sand and Gravel. The solid geology beneath the site was shown as the Undifferentiated Blue Lias Formation and Charmouth Mudstone Formation

The geological memoir for the area described these strata as follows:

Cheltenham Sand and Gravel

Sand, quartzose, fine- to medium-grained, generally unbedded, with seams of poorly sorted predominantly limestone gravel, especially in the lower part. Sand probably derived by aeolian processes from nearby river terrace deposits. Gravel largely Middle Jurassic ooidal limestone derived probably by solifluction from the nearby Cotswold escarpment, plus ironstone and derived fossils. Rare clay lenticles.

Charmouth Mudstone

Dark grey laminated shales, and dark, pale and bluish grey mudstones; locally concretionary and tabular limestone beds; abundant argillaceous limestone, phosphatic or ironstone (sideritic mudstone) nodules in some areas; organic-rich paper shales at some levels; finely sandy beds in lower part in some areas. The lower boundary is taken at the top of Blue Lias Formation or Scunthorpe Mudstone Formation. The top of the Blue Lias coincides with a marked upward decrease in frequency, thickness and lateral persistence of limestone beds.

Blue Lias Formation

Thinly interbedded limestone (laminated, nodular, or massive and persistent) and calcareous mudstone or siltstone (locally laminated). Individual limestones are typically 0.10-0.30m thick. In some areas, intervening mudstone units with relatively few limestone beds

4 INTRUSIVE INVESTIGATION

4.1 FIELDWORK

The site works were carried out between the 5th October and 9th October 2020 and comprised the following:

- Cable Percussion Drilling;
- Window Sampling;
- Trial Pitting (logging by JF Hunt Remediation).
- Soil Gas and Groundwater Level Monitoring.

The positions of the above works on the site are indicated on Figure 1, Exploratory Hole Location Plan.

Cable Percussion Drilling

Three boreholes, BH101-BH103, were excavated using cable percussion boring methods to depths ranging between 7m and 12m below existing ground level.

During boring, temporary steel casing (150mm diameter) was used to support the sides of the bores. At each test location the target depth of 15m was not achieved due to the density of the ground encountered.

Disturbed (D) soil samples were recovered at regular intervals throughout the boreholes for description and subsequent laboratory testing purposes. In addition, in situ Standard Penetration tests were carried out at regular intervals using the SPT split spoon or cone attachment as appropriate to ground conditions.

Upon completion the boreholes were completed with 50mm diameter soil gas and groundwater monitoring standpipes.

Borehole logs and installation details are presented in Appendix 1.

Window Sample Holes

A total of 16 Window sample holes (WS101 – WS107, WS106A and WS109 to WS116) were excavated using a Dando Terrier window sampling rig to depths generally ranging between 3m and 5m. WS108 was not excavated due to limited access to the proposed location at the time of the investigation.

Several window sample holes did not achieve their target depths due to the density of the ground encountered. Depths achieved are tabulated below:

Window Sample Hole (WS)	Depth (m)	Comment
103	2.0	Refusal on suspected concrete
106	0.7	Hand dug trial pit refused in dense Made Ground. Too much water in trial pit
106A	2.0	Blowing sand inside casing

The soils and materials encountered in the holes were logged and representative samples recovered for laboratory analysis. Standard penetration testing was carried out at 1m intervals using the split spoon attachment.

All window sample holes were installed with 50mm diameter dual purpose soil gas and groundwater level monitoring standpipes, except for WS106 which was backfilled with arisings.

Window sample hole logs and installation details are presented in Appendix 2.

Trial Pits

Thirty five trial pits (TP101-134 and TP120a) were excavated across the site using a JCB 3CX mechanical excavator to depths ranging between 0.7m and 3.3m under the supervision of an Environmental Engineer from J F Hunt.

The soils/materials encountered were logged and representative samples were recovered for contamination analysis.

Logs of the trial pits have been presented in Appendix 3.

Soil Gas and Groundwater Level Monitoring

A soil vapour survey was undertaken by JF Hunt Remediation between the 27th October and 3rd November 2020 and comprised the monitoring of the atmosphere within the standpipes installed in the boreholes and window sample holes. Portable gas monitoring equipment (GA5000) was used to monitor the boreholes for concentrations of carbon dioxide (CO_2) carbon monoxide (CO), methane (CH_4), Hydrogen Sulphide (H_2S) and oxygen (O_2).

The soil gas and groundwater level monitoring results are presented in Appendix 4.

4.2 GROUNDWATER

The information below provides a summary of groundwater observations during the post fieldwork monitoring programme carried out by J F Hunt Remediation.

Monitoring point no.	Water Levels (mbgl) – monitoring dates	
	27/10/20	3/11/20
BH101S BH101D	1.94 1.86	1.78 1.75
BH102	1.23	1.16
BH103	1.41	1.33
WS101	0.94	0.79
WS102	1.09	0.91
WS103	0.95	1.06
WS104	1.12	1.02
WS105	1.03	0.97
WS106A	1.56	1.45
WS107	1.58	1.5
WS109	1.16	1.13
WS110	1.43	1.32
WS111	1.45	1.39
WS112	0.77	0.73
WS113	0.94	0.75
WS114	1.26	1.19
WS115	1.73	1.73
WS116	1.1	0.97

It should be noted that groundwater levels may vary due to seasonal fluctuations in rainfall, but in the shorter term, can be affected by antecedent weather conditions or other causes.

5 LABORATORY TESTING

The following range of laboratory tests were scheduled, and the results are presented in Appendix 5.

i. Determination of Natural Moisture Content (17no.).
ii. Determination of Liquid and Plastic Limit (17no.).
iii. Determination of Particle Size Distribution (17no.).
iv. Determination of Undrained Shear Strength in Triaxial Compression (3no.).
v. Determination of pH (9no.).
vi. Determination of water soluble sulphate (9no.).

6 EVALUATION OF GROUND CONDITIONS

6.1 GROUND PROFILE

The ground conditions composed a surface layer of Made Ground over superficial deposits typical of the Cheltenham Sand and Gravel Formation. Underlying the superficial deposits were soils typical of the Charmouth Mudstone.

Made Ground:

Made Ground was encountered at every test location across the site to depths ranging between 0.1m and 2.1m although was generally found to depths ranging between 0.6m and 1.1m. The full thickness of Made Ground was not proven at the location of WS103 which met refusal at 2.0m on a suspected concrete obstruction.

The surface layer comprised a mix of concrete, tarmac and hardcore which was underlain predominantly by a gravelly sand with the gravel component comprising clinker and ballast. The sand component was predominantly ash. Amongst the Made Ground materials were variable quantities of concrete and brick. Locally metal fragments were also observed. At the location of WS114 fragments of glass, plastic and also possible asbestos containing material were also found.

Cheltenham Sand and Gravel Formation

Beneath the Made Ground at all test locations, with the exception of WS3 which met refusal in the Made Ground, were soils typical of the Cheltenham Sand and Gravel Formation.

The soils generally comprised gravelly sands and fine to medium sands with subordinate sandy clay horizons. The gravel component, which comprised fine to medium sandstone, appeared to decrease with depth in the window sample holes.

Due to ground water ingress and trial pit instability the base of the stratum was not proven in any of the trial pits which were excavated to depths ranging between 1.6m and 3.3m.

The base of the Cheltenham Sand and Gravel was found in all borehole and window sample locations, with the exception of WS106A, at depths ranging between 2.1m and 3.9m. At the location of WS106A the window sample hole met refusal at 2.0m due to ‘blowing’ sands.

Charmouth Mudstone

Beneath the granular soils of the Cheltenham Sand and Gravel Formation were cohesive soils typical of the Charmouth Mudstone. As described above these cohesive soils were only found in the boreholes (BH101-BH103) and in the window sample hole (WS101, 102, 104, 105 and WS107 to WS116.

The Charmouth Mudstone stratum comprised an upper horizon of closely fissured slightly silty clay and a lower horizon of mudstone. The silty clay horizon was found to the base of all the window sample holes (maximum depth of 5m) and to depths ranging between 6.3m and 7.9m in the boreholes. The base of the lower horizon of mudstone was not proven at any of the borehole locations with a maximum depth of investigation of 12.0m.

6.2 ENGINEERING PROPERTIES

The engineering properties of the principal strata, as discussed above, can be assessed based upon a combination of in situ observations and laboratory test results. A summary of the engineering properties is given below.

Cheltenham Sand and Gravel Formation

SPT testing in this stratum at a depth of 1m recorded N values in the range 1 to 38 (very loose to dense) although the majority of the test results were in the range 8 to 20 (medium dense).

At a depth of 2m the N values ranged between 0 and 33 (very loose- dense). It is considered likely that the N values of 3, 3 and 0 which were recorded at 2m in the locations of WS106A, WS107 and WS112 respectively were influenced by 'boiling sands' and may not be representative of the actual in situ density.

See Figure 2 for plot of SPT N v Depth. Figure 3 provides a plot of corrected N60 values against depth. The N60 value taking into account energy ratios (Er) of 72.4% and 74.2% for the window sampling and cable percussion test equipment used.

Particle size distribution testing recorded relatively uniformly graded slightly gravelly to very gravelly sands with silt/clay contents in the range 3.1% to 12.1%. Uniformity coefficients were found to generally range between 2 and 11.

For preliminary foundation design purposes the following parameters may be used for consideration of shallow foundations founding at a minimum depth of 2m:

SPT N	=	8
Angle of shearing resistance	=	30^0 (estimated)

Charmouth Mudstone

SPT testing in the upper horizon of the Charmouth Mudstone (i.e. slightly silty clays) recorded N values in the range 5 to 50 (soft to firm to very stiff) although the majority of the test results were in the range 8 to 30 (firm to very stiff). Tactile observations indicated the soils were firm to stiff.

SPT testing in the lower horizon of mudstone which was encountered in the boreholes only achieved partial penetration. The test results are tabulated below

Test location	Test Depth (mbgl)	Test result
BH101	8.0	50 blows for 215mm penetration
BH101	8.5	50 blows for 200mm penetration
BH101	9.5	50 blows for 220mm penetration
BH102	8.0	50 blows for 275mm penetration
BH102	9.5	50 blows for 225mm penetration
BH102	11	50 blows for 220mm penetration
BH102	12	50 blows for 170mm penetration
BH103	6.5	50 blows for 220mm penetration
BH103	7.0	50 blows for 215mm penetration

Quick undrained triaxial tests carried out on U100 samples recorded undrained shear strengths in the range 79 to 108kN/m^2 indicating stiff clay soils.

Figures 2, 3 and 4 present SPT'N', N_{60} corrected values and undrained shear strength with depth profiles respectively. A correlation factor of 5 x N_{60} was used in estimating undrained shear strength from the in situ test data. The results indicated an increase in strength with depth profile, which is typical of overconsolidated clay soils.

Classification testing recorded clays of low to high plasticity with plasticity indices in the range 9 to 39%. NHBC guidance classifies these soils as having a low to medium shrink/swell potential with the majority of tests classified as medium shrink/swell potential.

For preliminary design of foundations the following values may be used:

Undrained Shear strength (lower bound)	Refer to design line presented on Figure 4.
Coefficient of Compressibility	m_v = 0.2m^2/MN (typical value)

7 ENGINEERING DESIGN

7.1 OUTLINE FOUNDATION DESIGN

It is understood that the proposed development comprises a mix of low rise two storey accommodation and three to four storey blocks of apartments. It was understood that the apartment blocks are to be located in the north western corner of the site and in the easternmost part of the site adjacent to Horton Road. The middle part of the site is to be given over to the low rise housing.

At the time of reporting, applied structural loads from the proposed development were unknown. For preliminary foundation design purposes, a line load of 60kN/m run was assumed for the low rise housing and a column load of 300kN was assumed for the apartment blocks.

In deliberation of suitable foundation options consideration was given to the geotechnical hazards and risks as presented below:

Geotechnical Hazard	Qualitative Risk & Consequences	Possible Risk Reduction Measures
Existing underground structures such as service runs and old footings.	**Very High** Implication for foundation depth and economic feasibility of shallow foundations.	New foundations to be constructed in undisturbed ground or alternatively disturbed ground to be removed and replaced with suitable engineering fill.
Variations in stiffness of ground below foundation depth that could give rise to unacceptable total and differential settlement.	**Medium to high** Large span buildings would be particularly sensitive to differential settlement. Would result in cracking of superstructure if conventional brickwork or brick cladding is used.	Calculate likely magnitude of settlement and determine if within acceptable tolerances. Make foundations act as reinforced beams. Consider ground treatment to improve ground conditions or adopt deep foundation. Include movement joints in terraces.
Groundwater	**High** Implications on temporary works	Shoring of trenches. Prevent water ingress into foundation trenches using sump pumping or sheet piles.
Running Sands	**High** Implications on temporary works	Shoring of trenches. Prevent water ingress into foundation trenches using sump pumping or sheet piles
Shrinkage/swelling of foundation soils due to the action of tree roots.	**Very low** Foundation movement and cracking of brickwork.	None required

Based upon the findings of the ground investigation initial consideration has been given to founding the proposed low rise housing on shallow foundations founding within the Cheltenham Sand and Gravel Formation. In addition, for the apartment blocks and where the thickness of Made Ground precludes the use of shallow foundations for the low rise housing, the use of a piled foundation solution has also been assessed.

Shallow Foundations – low rise development

For preliminary design purposes the feasibility of adopting shallow foundations founded within the Cheltenham Sand and Gravel Formation has been considered.

Foundation Depths

Given the ground conditions encountered near surface it is recommended that a minimum foundation depth of 0.9m is adopted. It is recommended that foundations are extended 0.3m into the natural stratum.

Note also that foundation depths would need to be increased in areas previously disturbed from historical development on the site. Other forms of disturbance that may affect founding depths are:

- the removal of disused services
- the relocation of existing services
- the removal of other underground obstructions

It should be noted that where foundation depths need to be extended below the groundwater table ground instability may occur as running sands were observed in the trial pits and 'boiling' sands were observed in some window sample holes. It is recommended that further targeted ground investigation is carried out prior to final design to confirm the feasibility of adopting a shallow foundation solution.

Allowable Bearing Pressures

Based on field observations, in situ testing and laboratory test results, a maximum allowable bearing pressure of 120 kN/m^2 is recommended for foundations placed at a depth of 0.9m. Adopting a line load of 60 kN/m run a minimum foundation width of 0.5m is therefore recommended.

Preliminary settlement calculations indicated total settlements would be in the order of 20 mm. Immediate settlement would be approximately 50% of the total settlement, the remainder being long term consolidation settlement.

<u>Piled Foundations</u>

As an alternative to a shallow foundation solution and to mitigate the hazard of ground stability from running sands the use of a piled foundation solution has been assessed.

Given the location of the site, which is in a mixed commercial/residential area, it is recommended that a form of bored cast in situ reinforced concrete piles should be used to support the proposed development rather than a driven pile.

Conventional bored cast in situ piles would not normally require casing through the soils as found on this site. CFA piles would also not normally require casing through soils of the type found on this site. However, the piling contractor should be made aware of water ingress and the potential for running sands. The suitability of these methods of piling for use on this site should be checked with a piling contractor to ensure all factors have been taken into consideration. It should be noted all pile types would require reinforcement.

The piling contractor should be made aware of the presence of near surface underground obstructions such as existing services and remnants of old footings, which if left in situ, may restrict piling progress.

For preliminary guidance purposes safe working loads have been calculated for bored cast in situ reinforced concrete piles constructed within the Charmouth Mudstone. The soil profile is based upon the results of this ground investigation.

The following factors have been considered in the preliminary design:

1) An adhesion factor 'alpha' of 0.45 has been adopted in the calculation positive shaft friction and a bearing capacity factor Nc = 9 for end bearing.
2) Any positive and negative contributions to shaft friction from the Made Ground or within 1.5m of the pile cap have been ignored. A pile cap depth of 0.5m was assumed.
3) An overall factor of safety of 3 has been applied to obtain safe working loads. This factor is often reduced to 2 or 2.5 where pile load testing is carried out (resulting in a more economic design).
4) Values of undrained shear strength used in calculations are based on the design line plotted on a graph of undrained shear strength versus depth for the Charmouth Mudstone. See Figure 4.

The table below indicates safe working loads for single isolated bored piles of various diameters and lengths where settlement should be of the order of 0.5 % of pile diameter.

Safe Working Loads of Single Isolated Bored Piles		
Pile Penetration into Charmouth Mudstone (m)	Pile Diameter (mm)	Safe Working Load (kN)
5 (pile toe at 7m)	300	167
	450	296
	600	458
6 (pile toe at 8m)	300	209
	450	359
	600	543
7 (pile toe at 9m)	300	252
	450	423
	600	628

In keeping with generally accepted good practice and to avoid large diameter or undesirably long piles the high anticipated design loads may be supported by groups of

piles. A specialist piling contractor should be consulted with regards to pile group action once the final foundation layout is known.

7.2 GROUND FLOORS

The NHBC guidance advises that suspended ground floors should be adopted when the plasticity index (PI) of the founding soils is greater than 10%. In addition, where the depth of fill would be greater than 600mm within a self-contained area, the floor construction over the whole of that area is required to be self-supporting and independent of the fill.

Based upon the findings of this ground investigation it is recommended that suspended floors are adopted.

7.3 TEMPORARY WORKS

Excavations in excess of 1.2m depth maybe required in connection with the proposed development on this site. If there is a requirement for personnel to enter into excavations, then the need for trench side support should be considered for any depth of excavation and, therefore, appropriate equipment should be available on site prior to excavation proceeding. A site-specific risk assessment should be carried out where man entry into excavations is required.

A relatively high groundwater level was noted during this ground investigation therefore provision should be made to supporting the trenches using shoring methods. Based upon the composition of the soils encountered it is considered that sump pumping maybe effective in dealing with groundwater, however a field trial should be undertaken to assess its efficacy.

The base of foundation excavations should be inspected and any soft loose, organic or otherwise deleterious material at foundation level removed and replaced with lean mix concrete. The soils encountered will be liable to softening/loosening when exposed to surface water infiltration. In order to avoid deterioration of the prepared formation the base of foundations should be blinded with concrete as soon as practical after excavation and particularly if there is delay before placing foundation concrete.

7.4 CHEMICAL ATTACK ON BURIED CONCRETE

The results of the chemical testing indicated a concentration of water-soluble sulphate in the near surface soils in the range between <10 and 446 mg/l as SO_4. pH values were slightly alkaline with a range between 8.3 and 8.8 pH units.

In accordance with BRE Special Digest 1 (SD1:2005) entitled ‘Concrete in Aggressive Ground’ a design sulphate class for the site of DS-1 is recommended. Using SD1 an ACEC (Aggressive Chemical Environment for Concrete) class of AC-1 is recommended.

8 CONCLUSIONS AND RECOMMENDATIONS

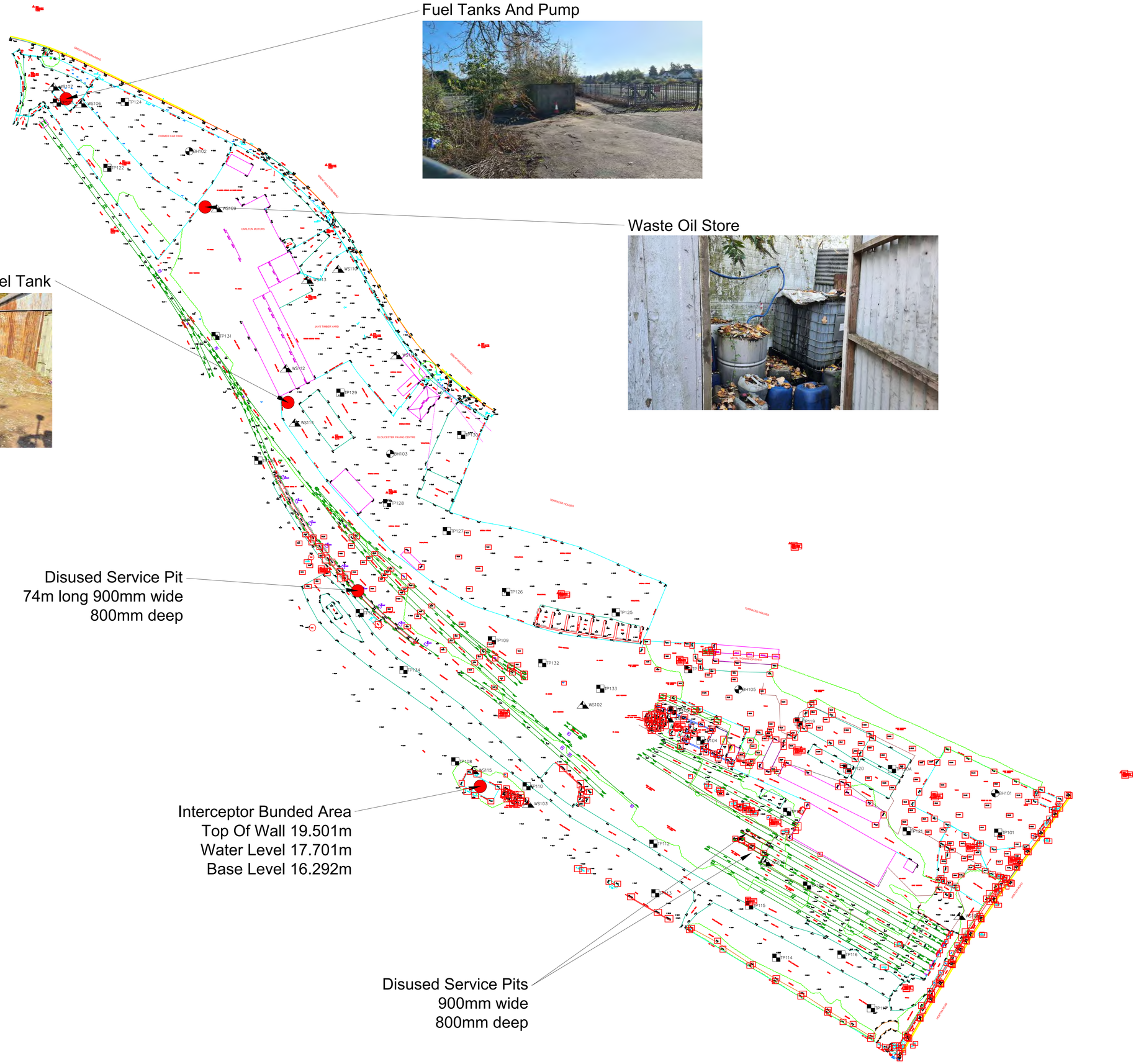
Based on the site investigation, intrusive works and subsequent data assessment, the following conclusions and recommendations have been drawn in respect of the land at Great Western Yard, Gloucester, Exeter.

- The ground investigation found soils of the Cheltenham Sand and Gravel Formation beneath a significant thickness of Made Ground. Soils typical of the Charmouth Mudstone were found beneath the Cheltenham Sand and Gravel Formation
- The proposed development comprises a mix of three/four storey apartment block accommodation and low rise two storey housing. For preliminary foundation design purposes a column load of 300kN run was adopted for the three/four storey accommodation and 60kN/m run was adopted for the two storey development.
- The feasibility of adopting a shallow foundation solution founding within the Cheltenham Sand and Gravel Formation was assessed.
- Based on field observations, in situ testing and laboratory test results, a maximum allowable bearing of 120kN/m^2 was recommended for foundations placed at a minimum depth of 0.9m depth. For a typical line load of 60kN/m a minimum foundation width of 0.5m was recommended. Settlements would be in the order of 20mm with approximately 50% of the predicted settlement immediate.
- During the ground investigation a high groundwater table was found and a running sands ground stability hazard was identified. Therefore should the thickness of Made Ground necessitate the deepening of foundations the use of shallow foundations is maybe considered marginal. Further targeted ground would be required to assess their feasibility prior to final design.
- An alternative of a piled foundation solution was also assessed. Pile safe working loads have been presented for a range of pile diameters and pile embedment lengths.
- Suspended floor slabs were recommended.
- Groundwater control measures maybe required whilst excavating foundation trenches. The feasibility of adopting sump pumping should be assessed in a field trial.
- A design sulphate class of DS-1 and an ACEC class of AC-1 was recommended.

Fuel Tanks And Pump

Waste Oil Store

Fuel Tank



N

MACHINE EXCAVATED TRIAL PIT

CABLE PERCUSSION BOREHOLE

DYNAMIC SAMPLER/PROBE LOCATION

Rev	Date	Details Of Issue	Dwn.	Chk.
B	30/09/20	Proposed locations adjusted	FL	SC
A	29/05/20	First Issue	FL	SC

Issues And Revisions

Project :

GREAT WESTERN YARD, GLOUCESTER

Client :

NETWORK RAIL

Title :

AS-BUILT SI LOCATION PLAN

Scale :	NOT TO SCALE	Drawn :	FL
Size :	A1	Checked :	SC
Sheet No. :	1	Date :	10/11/2020
Dwg No. :	20904/REM/004	Revision :	A

Status: INFORMATION

John F Hunt Regeneration Limited
London Road, Grays
Essex, RM20 4NB
[redacted]

John F Hunt REGENERATION

Figure 2: Great Western Yard, Great Western Road, Gloucester
SPT N-Depth Profile

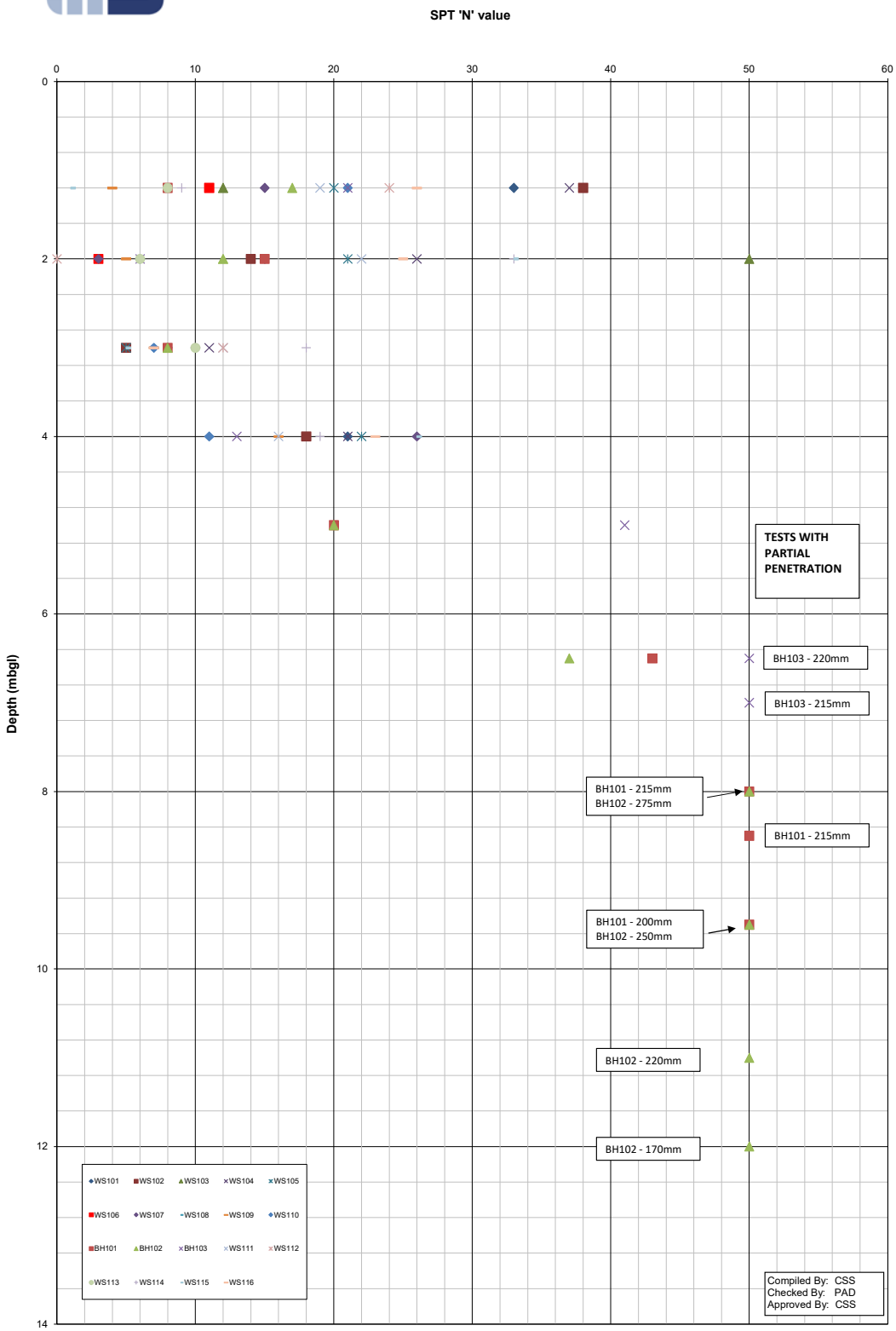


Figure 3: Great Western Yard, Great Western Road, Gloucester
N60-Depth Profile

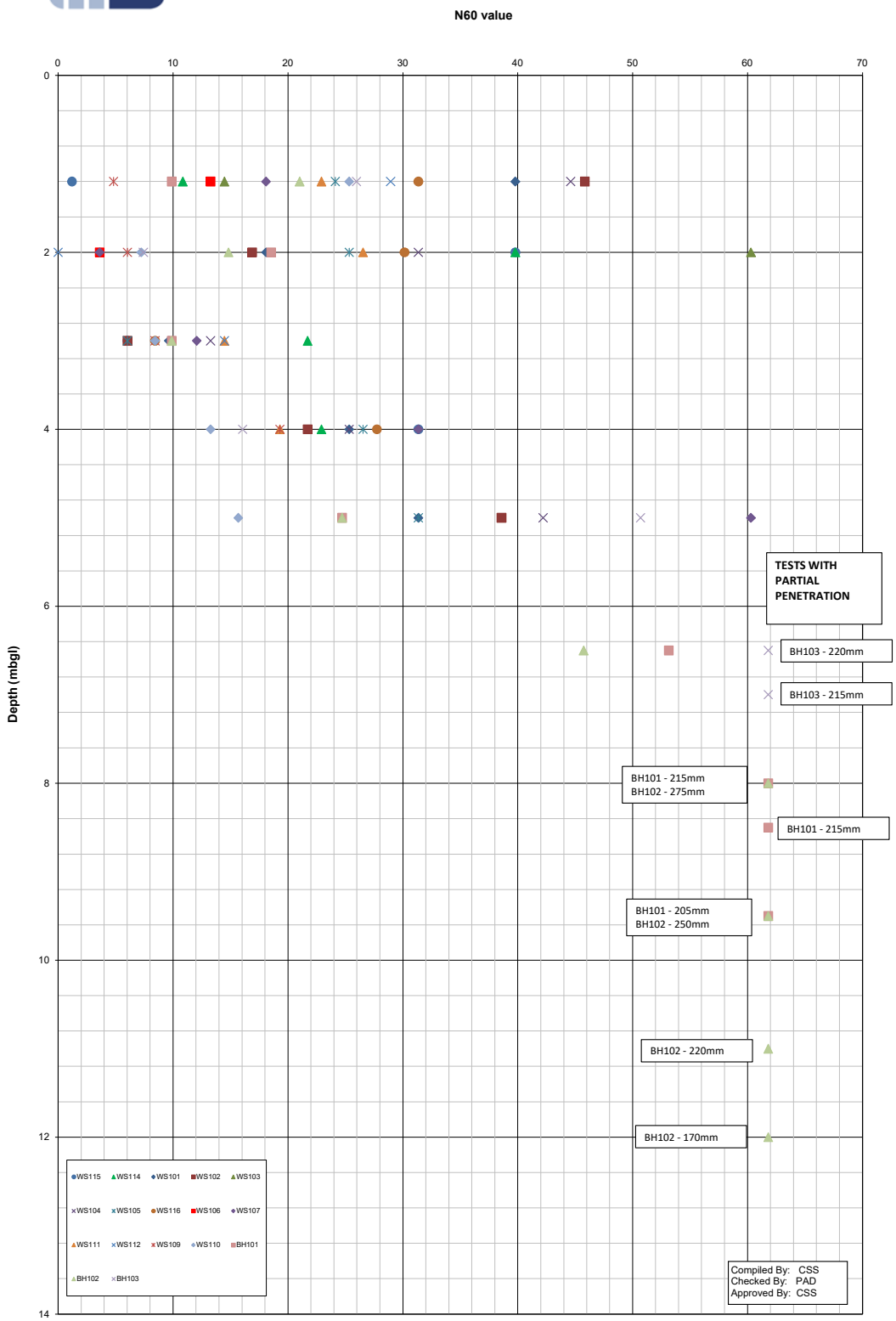
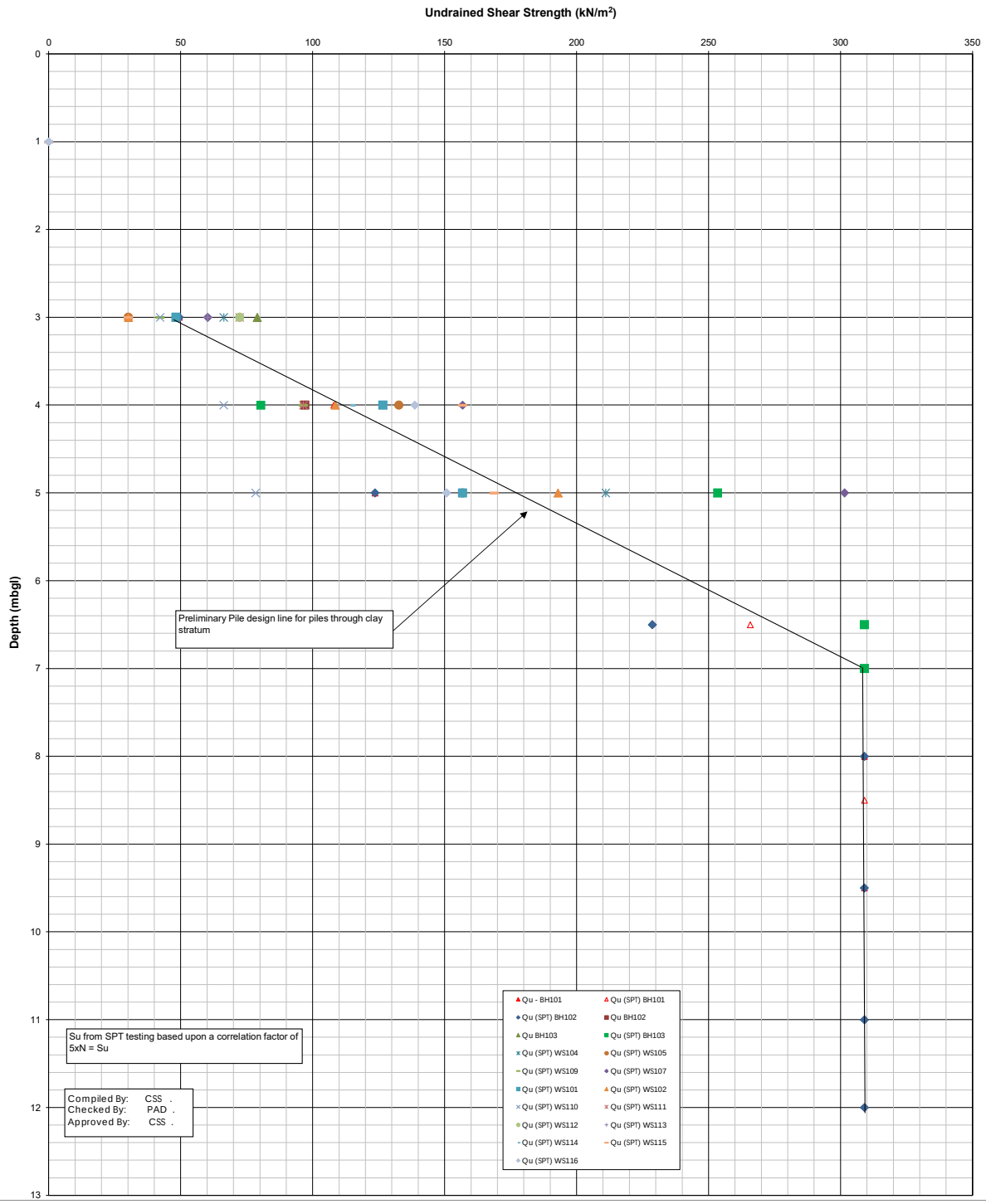


Figure 4: Great Western Yard, Great Western Road, Gloucester
Charmouth Mudstone



APPENDIX 1

BOREHOLE LOGS
AND INSTALLATION DETAILS

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG
Tel: 01233 646237

Borehole No. BH101

Equipment & Methods.
Dando 2500
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384286.395384286.395
N: 218327.833218327.833

Ground Level (m): 21.28 Local Datum
21.28 AOD

Date Started:06/10/2020
Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Asphalt	21.18		(0.10)
					MADE GROUND: Brown and black sandy gravelly clay. Gravel is brick			(1.00)
1.20		SS	SN=8	1,1/2,2,2,2	Firm brown sandy CLAY	20.18		1.10
1.20- 1.70		B						(1.20)
			SN=15	1,2/3,3,4,5				
2.00- 2.45		SS				18.98		2.30
2.30- 2.60		D			Medium dense orange brown very gravelly SAND			(0.50)
			SN=8	1,1/1,2,2,3	Stiff to very stiff dark grey slightly silty fissured CLAY	18.48		2.80
3.00- 3.45		SS						
3.80		D						
4.00- 4.45		U100						
4.45- 4.50		CSS						
			SN=20	3,4/4,5,5,6				
5.00- 5.45		SS						(5.10)
6.00		D						
			SN=35	3,5/7,9,12,15				
6.50- 6.95		SS						
7.50		D						
			SN=R	9,14/15,17,18 - 85mm short	Very stiff/hard dark bluish grey MUDSTONE	13.38		7.90
8.00- 8.37		SS						
			SN=R	10,15/16,19,15 - 100mm short				(1.60)
8.80- 8.85		D						
9.00		D						
			SN=R	7,8/10,18,22 - 80mm short		11.78		9.50
9.50- 9.87		SS						

End of Borehole 9.50 m
(Thickness of basal layer

Remarks:

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:

FIG No. .1

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG
Tel: 01233 646237

Borehole No. BH101

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384286.395384286.395 N: 218327.833218327.833	Ground Level (m): 21.28 Local Datum 21.28 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
6-10-20	00:00	9.50	3.00		End of borehole

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
9.50	150	150	3.00

not proven)

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed At (m)	Remarks
2.30 6.50	0.00 3.00			2.00	15	3.00	slow inflow water seepage

Remarks:

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By:	Checked By:
CS	PAD
Scale: 1:50	Approved By:
FIG No. .2	

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

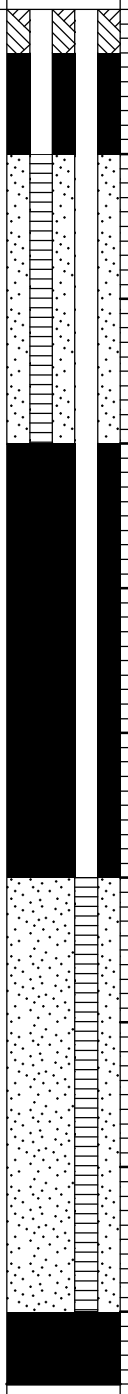
Hole ID. BH101
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384286.395 N: 218327.833	Ground Level (m): 21.28 Local Datum 21.28 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 6 (m)

Installation Type : SP Depth to BASE Response Zone : 9 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.3	Stopcock cover
		Bentonite seal
	1	(20.28)
		Slotted standpipe with gravel annulus
	3	(18.28)
		Bentonite seal
	6	(15.28)
		slotted standpipe with gravel annulus
	9	(12.28)
		Bentonite
		End of Hole 9.50 m

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG
Tel: 01233 646237

Borehole No. BH102

Equipment & Methods.
Dando 2500
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384015.299384015.299
N: 218543.748218543.748

Ground Level (m): 17.92 Local Datum
17.92 AOD

Date Started:07/10/2020
Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Concrete	17.72		(0.20) 0.20
					MADE GROUND: Brown and black sandy gravelly clay. Sand is ash. Gravel is brick and concrete.	17.02		(0.70) 0.90
			SN=17	1,1/2,4,5,6	Firm brown slightly gravelly sandy CLAY	16.62		(0.40) 1.30
1.20- 1.65		SS			Medium dense orange brown gravelly SAND			
1.20- 1.70		B						
			SN=12	1,1/2,2,3,5				(1.40)
2.00- 2.45		SS						
2.70		D				15.22		2.70
			SN=8	1,1/1,2,2,3	Stiff to very stiff dark grey slightly silty fissured CLAY			
3.00- 3.45		SS						
3.80		D						
4.00- 4.45		U100						
4.45- 4.50		CSS						
			SN=20	2,3/3,4,5,8				
5.00- 5.45		SS						(5.10)
6.00		D						
			SN=37	4,5/6,8,11,12				
6.50- 6.95		SS						
7.50		D						
			SN=R	5,7/9,12,16,13 - 25mm short	Very stiff/hard dark bluish grey MUDSTONE	10.12		7.80
8.00- 8.43		SS						
9.00		D						
			SN=R	7,8/9,13,16,12 -50mm short				
9.50- 9.90		SS						(4.20)

Remarks:

Logged By: CS
Checked By: PAD
Scale: 1:50
Approved By:
FIG No. .1

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG
Tel: 01233 646237

Borehole No. BH102

Equipment & Methods.
Dando 2500
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384015.299384015.299
N: 218543.748218543.748

Ground Level (m): 17.92 Local Datum
17.92 AOD

Date Started:07/10/2020
Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
10.50		D						
11.00- 11.37		SS	SN=R	7,9/11,17,22 - 80mm short				
11.50		D						
12.00- 12.32		SS	SN=R	9,13/16,19,15 130mm short		5.92		12.00

End of Borehole 12.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: CS
Checked By: PAD
Scale: 1:50
Approved By:
FIG No. .2

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG
Tel: 01233 646237

Borehole No. BH102

Equipment & Methods.
Dando 2500
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384015.299384015.299
N: 218543.748218543.748

Ground Level (m): 17.92 Local Datum
17.92 AOD

Date Started:07/10/2020
Date Completed:07/10/2020

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
7-10-20	00:00	12.00	4.00		End of borehole

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
12.00	150	150	4.00

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed At (m)	Remarks
1.30	0.00				15		

Water Added During Boring

From (m)	To (m)
3.00	12.00

Chiselling Details

From (m)	To (m)	Time Taken (hhmm)	Chiselling Tool Used	Notes
11.50	12.00	01:00		hard ground

Remarks:

Logged By: CS
Checked By: PAD
Scale: 1:50
Approved By:
FIG No. .3

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. BH102

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384015.299 N: 218543.748	Ground Level (m): 17.92 Local Datum 17.92 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 3 (m)

Installation Diagram	Depth	Remarks (Elevation)
	0.3	Stopcock cover
	1	Bentonite seal (16.92)
		Slotted standpipe with gravel annulus
	3	(14.92)
		Bentonite
		End of Hole 12.00 m

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG
Tel: 01233 646237

Borehole No. BH103

Equipment & Methods.
Dando 2500
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384082.882384082.882
N: 218441.985218441.985

Ground Level (m): 19.25 Local Datum
19.25 AOD

Date Started:05/10/2020
Date Completed:05/10/2010

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Asphalt	19.15		(0.10)
					MADE GROUND: Brown and black sandy gravel. Gravel is brick and concrete. sand is ash	18.75		(0.40) 0.50
					Loose to medium dense orange brown slightly gravelly SAND. Sand is fine to coarse			
			SN=21	1,2/4,5,7,5				
1.20- 1.65		SS						(1.80)
1.20- 1.70		B						
			SN=6	1,0/1,1,2,2				
2.00- 2.45		SS						
2.30		D				16.95		2.30
					Firm becoming stiff dark grey slightly silty fissured CLAY			
3.00- 3.45		U100						
3.45- 3.50		CSS						
			SN=13	1,2/2,3,4,4				
4.00- 4.45		SS						(4.00)
4.80		D						
			SN=41	2,5/7,9,11,14				
5.00- 5.45		SS						
6.00		D						
						12.95		6.30
			SN=R	5,7/10,16,24 - 80mm short	Very stiff/hard dark bluish grey MUDSTONE			
6.50- 6.87		SS						(0.70)
			SN=R	4,7/11,16,24 - 85mm short		12.25		7.00
7.00- 7.37		SS						

End of Borehole 7.00 m
(Thickness of basal layer not proven)

Remarks:

Logged By: CS
Checked By: PAD
Scale: 1:50
Approved By:
FIG No. .1

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park,
Dencora Way, Ashford,
Kent TN23 4FG
Tel: 01233 646237

Borehole No. BH103

Equipment & Methods.
Dando 2500
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384082.882384082.882
N: 218441.985218441.985

Ground Level (m): 19.25 Local Datum
19.25 AOD

Date Started:05/10/2020
Date Completed:05/10/2010

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
5-10-20	00:00	7.00	2.50		End of borehole

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
7.00	150	150	2.50

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed At (m)	Remarks
1.20 5.50	0.00			0.80	15	2.30	water seepage

Remarks:

Logged By: CS
Checked By: PAD
Scale: 1:50
Approved By:
FIG No. .2

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. BH103
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando 2500 _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384082.882 N: 218441.985	Ground Level (m): 19.25 Local Datum 19.25 AOD	Date Started:05/10/2020 Date Completed:05/10/2010

Installation Date : 05/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram	Depth	Related Remarks (Elevation)
	0.3	Stopcock cover
		Bentonite seal
	1	(18.25)
		Slotted standpipe with gravel annulus
	4	(15.25)
		Bentonite
		End of Hole 7.00 m

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

APPENDIX 2

WINDOW SAMPLE LOGS
AND INSTALLATION DETAILS

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS101

Sheet: 1 of 1

Equipment & Methods.
Dando Terrier
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384176.365384176.365
N: 218352.997218352.997

Ground Level (m): 19.56 Local Datum
19.56 AOD

Date Started:06/10/2020
Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: concrete, 8mm rebar			(0.35)
						19.21		0.35
					MADE GROUND: grey sandy gravel, Subbase	19.11		(0.10) 0.45
					MADE GROUND: Dark grey and black gravelly sand, Sand is ash. gravel is fine to coarse clinker	18.96		(0.15) 0.60
0.70		J TUB			Moist greyish brown sandy GRAVEL, Gravel is fine to coarse sandstone. strong hydrocarbon odour			(0.60)
1.10		J TUB			...from 1.10 water seepage	18.36		1.20
1.20- 1.65		SPTLS	SN=33	2,7/7,9,8,9	Greyish brown slightly gravelly SAND, Sand is fine to coarse. gravel is fine to medium sandstone. Moderate hydrocarbon odour			(0.60)
1.70		J TUB			...from 1.70 to 1.80 dark grey and strong hydrocarbon odour	17.76		1.80
					Brown and pale brown SAND, Sand is medium to coarse. random fine gravel of sandstone			
2.00- 2.45 2.20- 2.40		SPTLS D	SN=15	1,1/1,3,5,6				(1.20)
2.80- 2.90		D						
						16.56		3.00
3.00- 3.45		SPTLS	SN=8	1,1/1,2,2,3	Firm to stiff (medium strength) dark grey CLAY, Closely fissured. random fine shell fragments			
3.50- 3.60		D						
					...from 3.70 becoming stiff to very stiff			(2.00)
4.00- 4.45		SPTLS	SN=21	3,6/4,4,6,7	...from 4.00 lighter grey			
4.70- 4.90		D						
						14.56		5.00
5.00- 5.45		SPTLS	SN=26	2,2/4,5,7,10				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By: CS
Checked By:
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

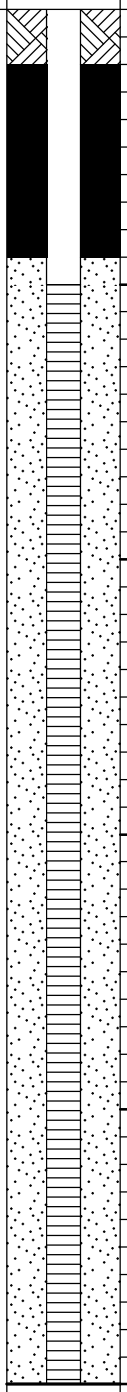
Hole ID. WS101
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384176.365 N: 218352.997	Ground Level (m): 19.56 Local Datum 19.56 AOD	Date Started:06/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(18.56)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(14.56)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS102

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384147.66384147.66 N: 218357.62218357.62	Ground Level (m): 19.38 Local Datum 19.38 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
					MADE GROUND: gravel, Rail ballast	19.13	(0.25)
0.30		J TUB			MADE GROUND: gravelly sand, Gravel is rail ballast and sandstone	18.98	0.25 (0.15) 0.40
0.70		J TUB			Orangeish brown gravelly SAND, Sand is fine to coarse. gravel is fine to medium chert and sandstone	18.48	(0.50) 0.90
1.00		J TUB			Grey and orangeish brown gravelly SAND, Sand is fine to coarse. strong hydrocarbon odour. ...from 0.95 becoming moist to wet	17.38	(1.10) 2.00
1.20- 1.65		SPTLS	SN=38	8,12/10,10,9,9			
1.50- 1.60		D					
2.10- 2.20		D			Brown and pale brown SAND, Sand is medium to coarse. slight hydrocarbon odour ...from 2.00 sands blowing up casing to 1.5m	17.08	(0.30) 2.30
2.00- 2.45		SPTLS	SN=14	1,0/0,2,4,8.			
					Orangeish brown SAND, Sand is fine to coarse. occasional fine gravel of sandstone	16.28	(0.80) 3.10
2.80- 2.90		D					
3.00- 3.45		SPTLS	SN=5	1,0/1,1,1,2	Firm to stiff (medium strength) dark grey CLAY, Closely fissured. rare fine shell fragments. occasional selenite crystals		
3.70- 3.90		D					(1.90)
4.00- 4.45		SPTLS	SN=18	1,3/2,4,6,6	...from 4.00 becoming bluey grey ...from 4.20 becoming stiff to very stiff	14.38	5.00
4.70- 4.90		D					
			SN=32	2,2/5,6,10,11			

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at0.95m in service pit

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

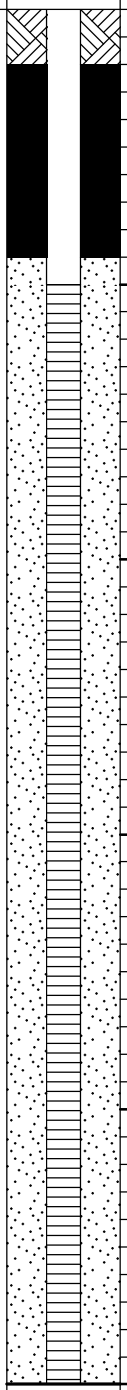
Hole ID. WS102
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384147.66 N: 218357.62	Ground Level (m): 19.38 Local Datum 19.38 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(18.38)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(14.38)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS103

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384129.298384129.298 N: 218324.356218324.356	Ground Level (m): 19.51 Local Datum 19.51 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: dark grey and black gravelly sand, Sand is fine to coarse ash. gravel is ballast and clinker			
0.40		J TUB						
0.80		J TUB						(1.40)
1.10		J TUB						
1.20- 1.30		D						
1.21- 1.66		SPTLS	SN=12	1,0/1,5,2,4	...from 1.20 to 1.40 hydrocarbon odour and oliy sheen	18.11		1.40
					MADE GROUND: brown sand, Sand is fine to coarse	18.01		(0.10) 1.50
					Grey and pale brown sandy GRAVEL, Gravel is brick sandstone and concrete. strong hydrocarbon odour			(0.50)
1.80- 1.90		D						
2.00- 2.23		SPTLS	SN=R	blows for 35mm penetration		17.51		2.00

End of W/S 2.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1m. Refused at 2m on suspected concrete obstruction

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

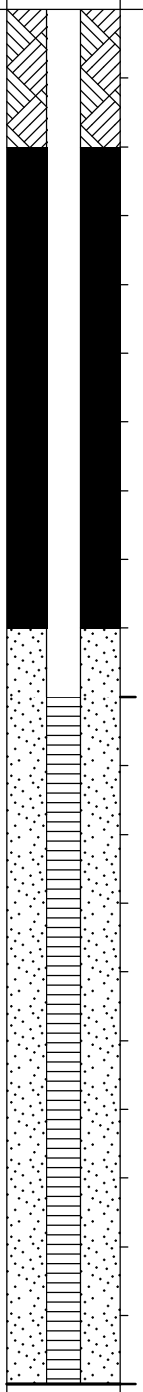
Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS103
Installation Details & Readings

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384129.298 N: 218324.356	Ground Level (m): 19.51 Local Datum 19.51 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Remarks (Elevation)
		
		Flush cover with concrete surround
	0.2	
		Bentonite
	0.9	
	1	(18.51)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 2.00 m

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS104

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384274.419384274.419 N: 218286.59218286.59	Ground Level (m): 20.44 Local Datum 20.44 AOD	Date Started:05/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	20.34		(0.10) 0.10
					MADE GROUND: brown with dark grey gravelly sand, Sand is fine to medium			(0.35)
0.40		D J				19.99		0.45
					MADE GROUND: yellowish brown with tan gravelly sand, Gravel is brick. frequent whole bricks			(0.50)
0.80		D J				19.49		0.95
1.10		D			MADE GROUND: moist to wet brown with pale brown very gravelly sand, Sand is medium to coarse. gravel is fine to coarse sandstone, concrete and brick	19.24		(0.25) 1.20
1.20- 1.65		SPTLS	SN=37	2,10/2,20,9,6	MADE GROUND: wet grey with red sandy gravel, Gravel comprises fine to coarse brick, concrete and clinker. sand is medium to coarse			
1.50- 1.70		D						(0.90)
						18.34		2.10
2.00- 2.45		SPTLS	SN=26	4,4/6,6,6,8	Wet brown with pale brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sub angular sandstone.			
2.40- 2.60		D						(0.80)
						17.54		2.90
					Moist brown slightly clayey SAND, Sand is fine to medium. slight clay binder	17.44		(0.10) 3.00
3.00- 3.45 3.20- 3.30		SPTLS D	SN=11	0,1/1,2,4,4	Stiff to very stiff (high strength) dark grey CLAY, Closely fissured. random fine shell fragments			
3.80- 3.90		D						(2.00)
4.00- 4.45		SPTLS	SN=21	1,2/3,5,6,7				
4.70- 4.90		D						
						15.44		5.00
5.00- 5.45		SPTLS	SN=35	2,5/6,7,10,12				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.06m

Logged By: CS	Checked By:
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS104

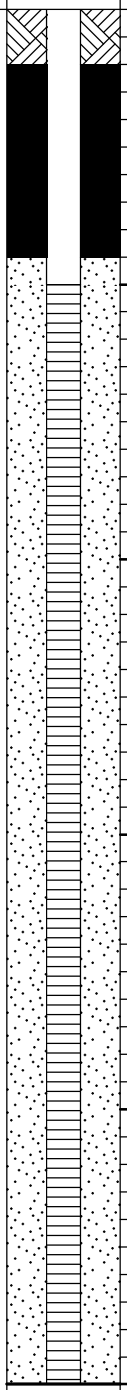
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384274.419 N: 218286.59	Ground Level (m): 20.44 Local Datum 20.44 AOD	Date Started:05/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(19.44)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(15.44)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS105

Equipment & Methods.
Dando Terrier
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384200.071384200.071
N: 218362.762218362.762

Ground Level (m): 19.82 Local Datum
19.82 AOD

Date Started:07/10/2020
Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		J TUB			MADE GROUND: dark grey and black very gravelly sand, Sand is medium to coarse ash. gravel is fine to medium clinker. occasional brick	19.36		(0.46) 0.46
					Orangeish brown very sandy CLAY, Sand is medium to coarse	19.22		(0.14) 0.60
0.80		J TUB			Moist orangeish brown gravelly SAND ...from 1.00 groundwater	18.62		(0.60) 1.20
1.20- 1.65		SPTLS	SN=20	0,5/4,4,6,6	Orangeish brown SAND, Sand is fine to coarse. random gravel of sandstone			
1.50- 1.70		D						
2.00- 2.45		SPTLS	SN=21	1,2/4,5,6,6				(1.80)
2.60- 2.80		D						
3.00- 3.45		SPTLS	SN=5	0,0/0,1,2,2	Soft to firm (low strength) dark grey CLAY	16.82		3.00 (0.70) 3.70
3.70- 3.90		D			Firm to stiff (medium strength) dark grey CLAY, Random shell fragments. random fine gravel sized mudstone	16.12		
4.00- 4.45		SPTLS	SN=22	3,3/4,4,5,9	...from 4.40 becoming very stiff			(1.30)
4.70- 4.90		D			...from 4.75 to 4.85 thin laminations of mudstone/ shale	14.82		5.00
5.00- 5.45		SPTLS	SN=26	2,3/4,5,7,10				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.0m

Logged By: CS
Checked By:
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS105

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384200.071 N: 218362.762	Ground Level (m): 19.82 Local Datum 19.82 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(18.82)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(14.82)

Compiled By: CS	Checked By:
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS106

Equipment & Methods.
Dando Terrier
_Support Used:None
_Backfill: Arisings

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 383979.071383979.071
N: 218559.824218559.824

Ground Level (m): 18.01 Local Datum
18.01 AOD

Date Started:05/10/2020
Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	17.96		(0.05)
0.20		D			MADE GROUND: brown with grey silty sandy gravel, Gravel is fine to coarse rail ballast. frequent fine roots	17.81		(0.15) 0.20
0.40		J TUB			MADE GROUND: dark grey with light brown sandy gravel, Gravel is fine to coarse ballast and sandstone. occasional brick and clinker			(0.50)
					...from 0.60 water seepage	17.31		0.70

End of W/S 0.70 m
(Thickness of basal layer not proven)

Remarks:
Trial pit refused at 0.7m on ground too dense to penetrate. Water at 0.58m upon completion

Logged By: CS
Checked By:
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS106A

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	-0.05		(0.05)
0.25		J			MADE GROUND: grey and pinkish grey very sandy gravel, Gravel is fine to coarse type 1 and rail ballast			(0.32)
0.40		TUB J TUB				-0.37		0.37
					MADE GROUND: Dark grey sandy gravel, Gravel is fine to coarse rail ballast and occasional clinker			(0.33)
0.70		J TUB				-0.70		0.70
					Yellowish brown silty clayey SAND, Sand is fine to medium. occasional roots upto 1mm diameter to 1.3m			(0.50)
1.00- 1.45		SPTLS	SN=11	0,0/0,2,3,6		-1.20		1.20
1.30- 1.40		D			...from 1.13 water strike Orangeish brown slightly gravelly SAND, Sand is fine to coarse. gravel is fine to medium sub angular sandstone			(0.80)
1.90- 2.00		D				-2.00		2.00
			CN=3	1,3/1,1,0,1				

End of W/S 2.00 m
(Thickness of basal layer not proven)

Remarks:
Hand dug pit to 1.2m. Window sample refused with sand blowing up through casing. DP carried out through base

Logged By:	Checked By:
CS	PAD
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS106A

Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: N:	Ground Level (m):	Date Started:05/10/2020 Date Completed:05/10/2020

Installation Date : 05/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 2 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
		Flush cover with concrete surround
	0.2	
		Bentonite
	0.9	
	1	(-1.00)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 2.00 m
		(-2.00)

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS107

Sheet: 1 of 1

Equipment & Methods.
Dando Terrier
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 383969.634383969.634
N: 218565.519218565.519

Ground Level (m): 18.04 Local Datum
18.04 AOD

Date Started:05/10/2020
Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	17.99		(0.05)
0.30		J TUB			MADE GROUND: Dark grey sandy gravel, Gravel is medium to coarse rail ballast. occasional cobbles of slag. sand is ash			(0.65)
0.60		J TUB				17.34		0.70
					Orangeish silty slightly clayey SAND, Sand is fine to coarse			(0.40)
1.00		D				16.94		1.10
1.01- 1.46		SPTLS	SN=15	0,0/1,2,5,7	Orangeish brown slightly silty SAND, Sand is fine to coarse			
1.30- 1.40		D			...from 1.25 water level in SPT			(0.45)
						16.49		1.55
1.60- 1.70		J TUB			Moist dark grey SAND, Sand is fine to coarse. slight organic odour			(0.20)
						16.29		1.75
1.90- 2.00		D			Brown with pale brown slightly gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone			
2.00- 2.45		SPTLS	SN=3	1,2/1,1,0,1				(0.75)
2.40- 2.50		D				15.54		2.50
					Stiff to very stiff (high strength) dark grey fissured CLAY, Random selenite crystals			
2.80- 3.00		D						
3.00- 3.45		SPTLS	SN=10	0,0/2,2,3,3				
3.70- 3.90		D			...from 3.60 frequent fine shell fragments			(2.50)
4.00- 4.45		SPTLS	SN=26	3,3/4,6,7,9	...from 4.00 becoming very stiff to hard			
4.70- 4.90		D				13.04		5.00
5.00- 5.45		SPTLS	SN=50	2,5/8,14,16,12				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.25m

Logged By:	Checked By:
CS	PAD
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

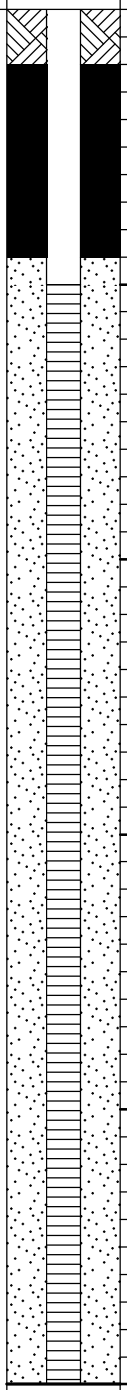
Hole ID. WS107
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 383969.634 N: 218565.519	Ground Level (m): 18.04 Local Datum 18.04 AOD	Date Started:05/10/2020 Date Completed:05/10/2020

Installation Date : 05/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(17.04)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(13.04)

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window Sampler Log No. WS109

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384024.568384024.568 N: 218524.567218524.567	Ground Level (m): 18.17 Local Datum 18.17 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
					MADE GROUND: dark grey and pinkish grey sandy gravel, Type 1 hardcore	17.97	(0.20) 0.20
0.40		J TUB			MADE GROUND: light brown and reddish brown sandy gravel, Gravel is brick and concrete	17.47	(0.50) 0.70
0.70		J TUB			Moist orangeish brown sandy CLAY, Sand is medium to coarse	17.07	(0.40) 1.10
1.00		D			Moist to wet orangeish brown clayey SAND	16.97	(0.10) 1.20
1.30- 1.40		D			Orangeish brown SAND, Sand is medium to coarse	16.57	(0.40) 1.60
1.20- 1.65		SPTLS	SN=4	0,1/1,1,1,1			
1.60- 1.70		D			Soft (low strength) grey and orangeish brown sandy slightly gravelly CLAY, Sand is fine to coarse. gravel is fine chert	16.47	(0.10) 1.70
					Orangeish brown SAND, Sand is medium to coarse	16.27	(0.20) 1.90
					Brown very sandy CLAY, Sand is fine to coarse	15.87	(0.40) 2.30
2.00- 2.45		SPTLS	SN=5	2,1/2,1,1,1			
					Firm (medium strength) dark grey CLAY, Random fine shell fragments. slightly fissured		
2.80- 2.90		D					
3.00- 3.45		SPTLS	SN=7	1,2/1,2,2,2	...from 3.00 to 4.00 no recovery- possible mudstone cobble pushed down side of hole.	14.17	(1.70) 4.00
4.00- 4.45		SPTLS	SN=16	4,3/3,4,4,5			

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By:	Checked By:
CS	PAD
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

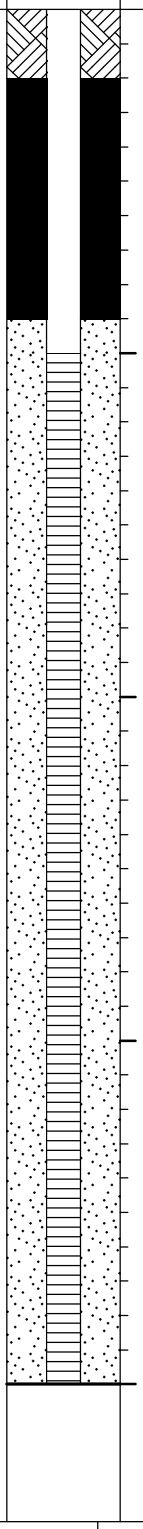
Hole ID. WS109
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384024.568 N: 218524.567	Ground Level (m): 18.17 Local Datum 18.17 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(17.17)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 4.00 m
		(14.17)

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS110

Equipment & Methods.
Dando Terrier
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384065.406384065.406
N: 218504.229218504.229

Ground Level (m): 18.31 Local Datum
18.31 AOD

Date Started:08/10/2020
Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	18.26		(0.05)
0.30		J TUB			MADE GROUND: brownish grey with blackish red sandy gravel, Gravel is brick, concrete, sandstone	17.91		(0.35) 0.40
0.70		J TUB			Soft (low strength) orangeish brown silty very sandy CLAY, Sand is fine to medium	17.56		(0.35) 0.75
1.10- 1.20		D			Moist orangeish brown very gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	17.11		(0.45) 1.20
1.20- 1.65		SPTLS	SN=21	1,5/5,6,5,5	Orangeish brown and pale brown slightly gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone			
1.60- 1.80		D			...from 1.50 to 1.60 clayey sand	16.31		(0.80) 2.00
2.00- 2.45		SPTLS	SN=6	0,0/0,2,2,2	Soft to firm (low strength) dark grey CLAY			
2.70- 2.90					...from 2.40 becoming slightly fissured			
3.00- 3.45		SPTLS	SN=7	1,1/2,1,2,2	...from 3.00 becoming firm			
3.60- 3.70		D			...from 3.50 becoming closely fissured			(3.00)
4.00- 4.45		SPTLS	SN=11	2,2/2,3,3,3				
4.70- 4.90		D				13.31		5.00
5.00- 5.45		SPTLS	SN=12	1,2/2,3,3,4				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.17m

Logged By: CS
Checked By: PAD
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS110

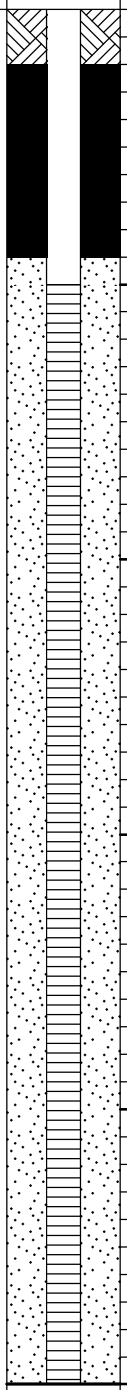
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384065.406 N: 218504.229	Ground Level (m): 18.31 Local Datum 18.31 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(17.31)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(13.31)

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS111

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384085.005384085.005 N: 218475.204218475.204	Ground Level (m): 18.95 Local Datum 18.95 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: asphalt	18.89		(0.06)
					MADE GROUND: Pinkish grey sandyn gravel, Type 1 subbase	18.75		(0.14) 0.20
0.40		J TUB			MADE GROUND: brownish grey and dark grey sandy gravel, Sand is ash. gravel comprises clinker, concrete, slag and brick. occasional metal fragments	18.25		(0.50) 0.70
0.80		J TUB			MADE GROUND: orangeish brown with dark grey sandy slightly gravelly clay, Gravel is carbon and brick fragments	18.05		(0.20) 0.90
					Moist orangeish brown clayey slightly gravelly SAND, Sand is fine to coarse	17.95		(0.10) 1.00
					Orangeish brown with pale brown slightly gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	17.75		(0.20) 1.20
1.30- 1.40 1.20- 1.65		D SPTLS	SN=19 19	1,2/3,5,5,6	Wet orangeish brown SAND, Sand is fine to coarse	17.20		(0.55) 1.75
1.80- 1.90		D			Dark grey slightly gravelly CLAY, Gravel is sub rounded chert	17.00		(0.20) 1.95
			SN=22	2,3/5,6,6,5	Wet orangeish brown SAND, Random fine gravel of sandstone	15.95		(1.05) 3.00
2.70- 2.90		D						
			SN=12	0,2/1,3,3,5	Dark grey CLAY, Closely fissured. random shell fragments	14.95		(1.00) 4.00
3.70- 3.90		D						
			SN=16	1,1/3,3,4,6				

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.1m

Logged By:	Checked By:
CS	PAD
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS111
Installation Details & Readings

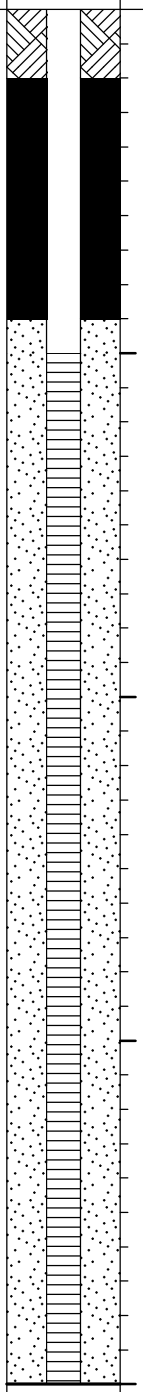
Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384085.005 N: 218475.204	Ground Level (m): 18.95 Local Datum 18.95 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram



Depth	Remarks (Elevation)
0.2	Flush cover with concrete surround
	Bentonite
0.9	
1	(17.95)
	50mm diameter stanbdpipe with 3-5mm gravel annulus
	End of Hole 4.00 m
	(14.95)

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS112

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384056.98384056.98 N: 218474.634218474.634	Ground Level (m): 18.28 Local Datum 18.28 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
					MADE GROUND: concrete	18.18	(0.10) 0.10
0.30		J TUB			MADE GROUND: brown and grey sandy silty gravel, Gravel is medium to coarse concrete and roadstone . random large rusted metal fragments	17.93	(0.25) 0.35
					Dark grey and brown gravelly SAND, Sand is medium to coarse ash. gravel is concrete and rare brick	17.68	(0.25) 0.60
					Soft (low strength) orangeish brown silty very sandy CLAY, Sand is fine to coarse	17.48	(0.20) 0.80
0.90		J TUB			Wet orangeish brown sandy GRAVEL, Gravel is fine to medium sandstone. sand is medium to coarse	17.28	(0.20) 1.00
					Wet orangeish brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone		(0.40)
1.30- 1.40 1.20- 1.65		D SPTLS	SN=24	4,6/5,6,6,7		16.88	1.40
					Wet orangeish SAND, Sand is medium to coarse		(1.20)
2.20- 2.30		D	CN=0	1,0/0,0,0,0			
					Firm (medium strength) dark grey CLAY	15.68	2.60
2.80- 3.00		D					(0.40)
						15.28	3.00
3.00- 3.45		SPTLS	SN=12	0,1/2,2,4,4			

End of W/S 3.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.02

Logged By:	Checked By:
CS	PAD
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS112

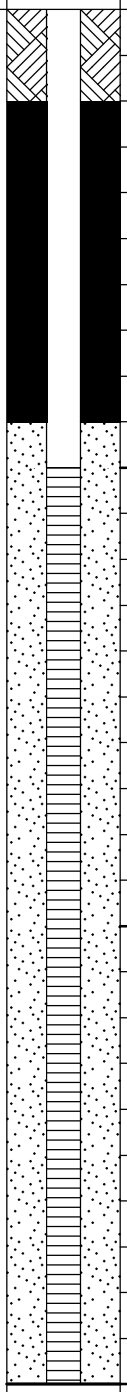
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384056.98 N: 218474.634	Ground Level (m): 18.28 Local Datum 18.28 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 3 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(17.28)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 3.00 m
		(15.28)

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window Sampler Log No. WS113

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384055.004384055.004 N: 218500.574218500.574	Ground Level (m): 18.28 Local Datum 18.28 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Depth (Thick) (m)
Depth (m)	No.	Type	Result				
					MADE GROUND: asphalt	18.23	(0.05)
					MADE GROUND: pinkish grey sandy gravel, Type 1 subbase	18.13	(0.16)
0.30		J TUB			MADE GROUND: light grey and dark grey sandy gravel, Gravel is medium to coarse clinker, concrete and occasional brick		(0.35)
0.55		J TUB			MADE GROUND: dark grey and black sandy gravel, Sand is ash. gravel is fine to coarse clinker. slight hydrocarbon odour	17.78	0.50
					...from 0.55 becoming moist to wet oliy sheen	17.53	(0.25) 0.75
					Olive olive and orangeish brown sandy CLAY	17.33	(0.20) 0.95
1.00- 1.10		D			Orangeish brown and olive brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone		(0.35)
1.20- 1.65		SPTLS	SN=8	2,4/3,1,1,3	Firm (medium strength) dark grey slightly gravelly CLAY, Gravel is fine to medium sub rounded chert	16.98	1.30
					Wet orangeish brown SAND, Sand is medium to coarse	16.78	(0.20) 1.50
1.70- 1.80		D					(0.60)
2.00- 2.45		SPTLS	SN=6	0,0/0,1,1,4	Firm to stiff (medium strength) dark grey CLAY	16.18	2.10
2.70- 2.90		D					(0.90)
						15.28	3.00
3.00- 3.45		SPTLS	SN=10	0,0/2,2,3,3			

End of W/S 3.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.1m

Logged By:	Checked By:
CS	PAD
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

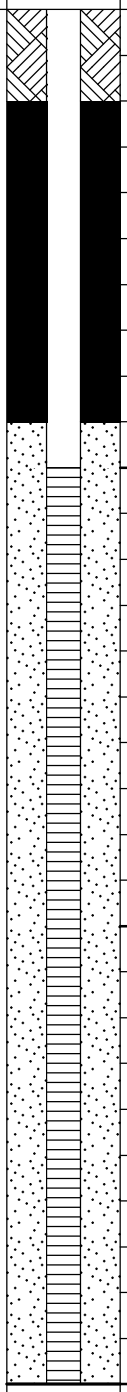
Hole ID. WS113
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384055.004 N: 218500.574	Ground Level (m): 18.28 Local Datum 18.28 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Installation Date : 08/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 3 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(17.28)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 3.00 m
		(15.28)

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS114

Equipment & Methods.
Dando Terrier
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384050.838384050.838
N: 218452.504218452.504

Ground Level (m): 18.95 Local Datum
18.95 AOD

Date Started:07/10/2020
Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: pinkish grey sandy gravel, Gravel is type 1 subbase	18.80		(0.15) 0.15
0.40		J TUB			MADE GROUND: greyish brown and grey sandy silty gravel, Gravel comprises brick, concrete and tile. frequent metal fragments. rare fragments of roofing tile at 0.75m possibleacm. metal corrugated sheet at 0.7m. occasional plastic and glass fragments			(0.65)
0.75		J TUB				18.15		0.80
1.00		J TUB			MADE GROUND: dark grey and black gravelly sand, Sand is fine to coarse ash. gravel is fine to medium slag and clinker			(0.35)
1.01- 1.46		SPTLS	SN=9	2,3/1,1,2,5	Moist orangeish brown slightly gravelly SAND, Sand is fine to coarse. gravel is fine to medium sub angular sandstone	17.80		1.15
1.50- 1.60		D						(0.65)
					Moist to wet orangeish brown SAND, Sand is medium to coarse	17.15		1.80
2.00- 2.45		SPTLS	SN=33	1,2/4,7,9,13				
2.60- 2.70		D						(2.15)
					...from 2.90 to 3.00 much fine to medium gravel of sandstone			
3.00- 3.45		SPTLS	SN=18	3,4/4,5,3,6				
3.70- 3.90		D						
					Firm to stiff dark grey closely fissured CLAY	15.00 14.95		3.85 (0.05) 4.00
4.00- 4.45		SPTLS	SN=19	1,2/4,4,5,6				

End of W/S 4.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.15m

Logged By: CS
Checked By: PAD
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

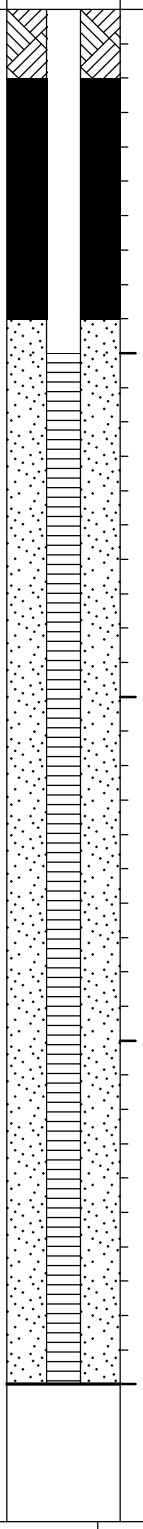
Hole ID. WS114
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384050.838 N: 218452.504	Ground Level (m): 18.95 Local Datum 18.95 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 4 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(17.95)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 4.00 m
		(14.95)

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window Sampler Log No. WS115

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384110.732384110.732 N: 218335.611218335.611	Ground Level (m): 19.28 Local Datum 19.28 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: dark brown gravelly very silty sand, Frequent fine roots. sand is ash.	19.18		(0.10) 0.10
0.25		D			Dark brown and dark grey gravelly SAND, Sand is fine to coarse ash. gravel is clinker and occasional rail ballast. occasional bricks. occasional metal fragments. occasional roots up to 5mm diameter			
0.60		J TUB						(1.00)
1.10		D				18.18		1.10
1.40 1.20- 1.65 1.40- 1.50		J SPTLS TUB	SN=1	2,1/0,0,0,1	Moist greyish brown gravelly SAND, Gravel comprises fine to medium sandstone. strong hydrocarbon odour.			(0.50)
					Moist to wet greyish brown gravelly SAND, Gravel comprises fine to coarse sub angular sandstone. strong hydrocarbon odour	17.68		1.60 (0.30)
					Moist to wet dark brown and greyish brown SAND, Sand is fine to coarse. strong hydrocarbon odour	17.38		1.90
2.20 2.00- 2.45 2.20- 2.30		J SPTLS TUB	SN=33	1,3/5,7,8,13				(0.75)
					Brown and pale brown slightly gravelly SAND, Sand is medium to coarse. occasional gravel of sandstone	16.63		2.65
2.80- 2.90		D						(0.35)
					Soft to firm (low strength) dark grey CLAY	16.28		3.00
3.00- 3.45 3.20- 3.40		SPTLS D	SN=5	1,0/0,2,1,2				(0.60)
					Stiff to very stiff (high strength) dark grey CLAY, Random fine shell fragments	15.68		3.60
3.80- 4.00		D						
			SN=26	1,3/4,6,8,8				(1.40)
						14.28		5.00
5.00- 5.45		SPTLS	SN=28	2,3/4,6,8,10				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By:	Checked By:
CS	PAD
Scale: 1:30	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

Hole ID. WS115

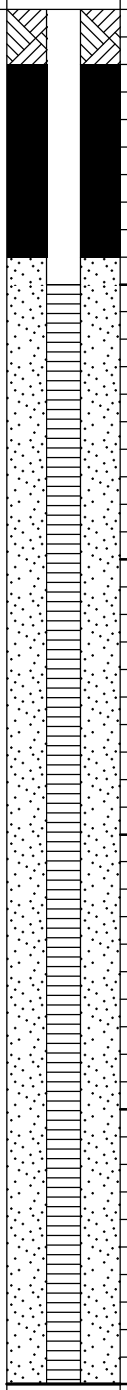
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384110.732 N: 218335.611	Ground Level (m): 19.28 Local Datum 19.28 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Installation Date : 06/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(18.28)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(14.28)

Compiled By: CS	Checked By: PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

GSG PIEZO/STANDPIPE LOG LOGS.GPJ GSG-AGS3-STD TEMPLATE.GDT 10/12/20

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
Tel: 01233 646237

Window
Sampler Log No. WS116

Sheet: 1 of 1

Equipment & Methods.
Dando Terrier
_Backfill: 50mm Installation

Project Name: Great Western Yard
Project Location: Great Western Road, Gloucester
Client: Eutopia Homes Ltd

Job No: 12446

Co-ordinates:
E: 384209.315384209.315
N: 218304.634218304.634

Ground Level (m): 20.08 Local Datum
20.08 AOD

Date Started:06/10/2020
Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: concrete, 8mm rebar	19.83		(0.25) 0.25
0.50		J TUB			Dark grey and black gravelly SAND, Sand is ash. gravel is fine to coarse clinker, slag, concrete and brick	19.38		(0.45) 0.70
1.00		J TUB			Moist orangeish brown gravelly SAND, Gravel is fine to coarse sandstone. sand is medium to coarse ...from 1.00 becoming moist ...from 1.10 water level	18.88		(0.50) 1.20
1.20- 1.65		SPTLS	SN=26	2,7/6,6,7,7	Moist to wet orangeish brown SAND, Sand is medium to coarse	18.28		(0.60) 1.80
1.50- 1.70		D			Brown and pale brown gravelly SAND, Sand is medium to coarse. gravel is fine to medium sandstone	18.08		(0.20) 2.00
2.20- 2.30		D	CN=25	0,3/4,6,8,7	Orangeish brown and pale brown SAND, Sand is fine to coarse.			
2.70- 2.90		D			...from 2.80 becoming gravelly. gravel is sandstone			(1.90)
			CN=7	4,6/3,2,1,1				
3.60- 3.80		D				16.18		3.90
4.00- 4.45		SPTLS	SN=23	2,4/4,5,6,8	Dark grey CLAY, Closely fissured . rare fine shell fragments			(1.10)
4.70- 4.90		D				15.08		5.00
5.00- 5.45		SPTLS	SN=25	2,4/4,6,7,8				

End of W/S 5.00 m
(Thickness of basal layer not proven)

Remarks:
Water at 1.2m

Logged By: CS
Checked By: PAD
Scale: 1:30
Approved By:
FIG No.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Ground and Environmental Services Limited

Unit 2 Montpelier Business Park
Dencora Way, Ashford
Kent TN23 4FG
T: 01233 646237

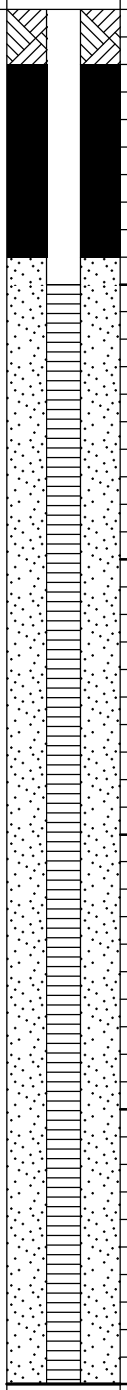
Hole ID. WS116
Installation Details & Readings

Sheet: 1 of 1

Equipment & Methods. Dando Terrier _Backfill: 50mm Installation	Project Name: Great Western Yard Project Location: Great Western Road, Gloucester Client: Eutopia Homes Ltd	Job No: 12446
Co-ordinates: E: 384209.315 N: 218304.634	Ground Level (m): 20.08 Local Datum 20.08 AOD	Date Started:06/10/2020 Date Completed:07/10/2020

Installation Date : 07/10/2020 Depth to TOP Response Zone : 1 (m)

Installation Type : SP Depth to BASE Response Zone : 5 (m)

Installation Diagram	Depth	Depth Related Remarks (Elevation)
	0.2	Flush cover with concrete surround
		Bentonite
	0.9	
	1	(19.08)
		50mm diameter stanbdpipe with 3-5mm gravel annulus
		End of Hole 5.00 m
		(15.08)

Compiled By:	Checked By:
CS	PAD
Scale:	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

APPENDIX 3

TRIAL PIT LOGS (JF HUNT REMEDIATION)

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 101

Sheet: 1 of 2

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384287 N: 218315	Ground Level (m): 21.35 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement, asphalt.	21.30		(0.05)
					MADE GROUND: Very loose dull red brown very sandy angular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse.			(0.45)
0.40		T/MJ/SJ		PID - 0.0ppm				
					MADE GROUND: Railway Ballast: Loose yellow brown, stained dark grey ashy sandy angular to subrounded fine to coarse GRAVEL of ash and clinker. Sand is medium to coarse.	20.85		0.50 (0.35)
					MADE GROUND: Black ashy very gravely medium to coarse SAND. Gravel is angular to subrounded fine to coarse sandstone, ash and clinker.	20.50		0.85 (0.75)
1.10		T/MJ/SJ		PID - 0.0ppm				
					Orange brown wet silty gravely medium to coarse SAND. Gravel is angular to subrounded fine to medium sandstone. Sand becomes very wet below 2.6m.	19.75		1.60 (1.70)
2.40		T/MJ/SJ		PID - 0.0ppm				
						18.05		3.30

End of Trial Pit 3.30 m
(Thickness of basal layer

Remarks:
Stability: UnstableExtensive staining between 0.3 and 0.4m.
Sheen on water surface.
Sides caving in below 2m.
Ground water - medium inflow at 2.4m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No. .1	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited
London Road, Grays, Essex RM40 4DB

Trial Pit No. 101

Sheet: 2 of 2

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384287 N: 218315	Ground Level (m): 21.35 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
						not proven)		

Remarks:
Stability: UnstableExtensive staining between 0.3 and 0.4m.
Sheen on water surface.
Sides caving in below 2m.
Ground water - medium inflow at 2.4m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No. .2	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 102

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384223 N: 218297	Ground Level (m): 20.09 AOD	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	19.99		(0.10) 0.10
0.50		T/MJ/SJ		PID - 0.2ppm	Orange brown very moist slightly silty fine to coarse SAND and rounded to subangular fine to medium GRAVEL of sandstone. Becoming increasingly wet and sandy below 0.6m.			(1.30)
						18.69		1.40

End of Trial Pit 1.40 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableSides caving in below 0.5m.
Ground water - rapid inflow at 1.4m.
Excavation terminated due to ground water and instability.

Logged By:	Checked By:
S.P.	
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 103

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384216 N: 218322	Ground Level (m): 20.11 AOD	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	20.01		(0.10) 0.10
0.15		T/MJ/SJ		PID - 1.4ppm	MADE GROUND: Railway Ballast: Loose brown, stained black, ashy very sandy angular to subrounded fine to medium GRAVEL of granite ash and clinker. Sand is fine to medium.	19.96		(0.05) 0.15
					MADE GROUND: Soft moist orange brown, stained black, ashy very sandy CLAY with some clinker. Sand is fine to medium.			(0.45)
0.60		T/MJ/SJ		PID - 7.5ppm		19.51		0.60
					Orange brown moist gravely medium to coarse SAND. Gravel is angular to subrounded fine to medium sandstone and flint. Becoming decreasingly gravely below 0.9m.			(0.50)
1.10		T/MJ/SJ		PID - 0.3ppm		19.01		1.10
					Grey wet slightly gravely SAND. Gravel is subangular fine to coarse sandstone.			(1.40)
2.50		T/MJ/SJ		PID - 20.3ppm		17.61		2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstablePlastic membrane at 0.1m.
Metal pipe (presumably from fuel tank) running North to South at 0.45m.
Hydrocarbon odour below 1.9m.
Sides caving in below 1.2m.
Ground water - medium-fast inflow at 1.5m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 104

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384187 N: 218346	Ground Level (m): 19.57 AOD	Date Started:05/10/2020 Date Completed:05/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	19.41		(0.16) 0.16
0.40		T/MJ/SJ		PID - 31.9ppm	MADE GRAVEL: Brown, extensively stained black, ashy gravely SAND and soft silty CLAY. Gravel is subangular fine to medium clinker, ash and granite.	18.87		(0.54) 0.70
1.00		T/MJ/SJ		PID - 98.3ppm	MADE GROUND: Medium dense stained black very clayey very sandy angular to subrounded fine to medium GRAVEL of sandstone. Sand is fine to medium.	18.27		(0.60) 1.30
1.50		T/MJ/SJ		PID - 120.6ppm	Soft moist brown, stained black, very clayey SAND and angular to subrounded fine to coarse GRAVEL of sandstone.	17.57		(0.70) 2.00
2.50		T/MJ/SJ		PID - 12.9ppm	Orange brown moist fine to coarse SAND becoming gravely below 2.3m. Gravel is angular to subrounded fine to medium of sandstone and flint.	16.97		(0.60) 2.60

End of Trial Pit 2.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableVery strong hydrocarbon odour below 0.8m and weak below 2m.
Extensive staining at the south end of TP at 1.4m.
Sheen on water surface.
Sides caving in below 1m.
Ground water - medium inflow at 1.35m and medium-strong below 2m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 105

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 284178 N: 218356	Ground Level (m): 19.50 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Rebar reinforced concrete slab.	19.30		(0.20) 0.20
0.50		T/MJ/SJ		PID - 4.5ppm	MADE GRAVEL: Dark brown, extensively stained black, ashy gravely SAND and silty CLAY. Gravel is subangular fine to medium clinker, ash and granite.	18.90		(0.40) 0.60
1.10		T/MJ/SJ		PID - 58.2ppm	Dark brown moist fine to coarse SAND becoming very gravely below 1.3m. Gravel is angular to subrounded fine to Coarse of sandstone and flint.			(1.00)
1.60		T/MJ/SJ		PID - 53.4ppm		17.90		1.60

End of Trial Pit 1.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableHydrocarbon odour below 0.6m.
Heavy sheen on water surface.
Sides caving in below 0.9m.
Ground water - slow inflow at 1.1m
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 106

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 4.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384039 N: 218440	Ground Level (m): 18.55 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Black slightly moist very loose very ashy very gravely fine to coarse SAND. Gravel is fine to medium of ash, clinker and gravel (railway ballast).			(0.40)
0.40		T/MJ/SJ		PID - 0.0ppm		18.15		0.40
					MADE GROUND: Fill: black very loose very ashy SAND with clinker and black slag recovered in medium gravel to large cobbles and bolder fragments. Rare pockets of slag.			(0.45)
0.70		T/MJ/SJ		PID - 0.0ppm		17.70		0.85
					Soft moist dark yellow, stained black-grey, silty very sandy gravely CLAY. Gravel is fine to medium angular to subrounded sandstone.			(0.35)
1.20		T/MJ/SJ		PID - 0.0ppm		17.35		1.20
					Dark yellow moist, wet below 1.5m, slightly clayey silty fine to coarse gravely SAND. Gravel is fine to medium angular to subrounded sandstone.			(0.40)
						16.95		1.60

End of Trial Pit 1.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableVery strong odour of tar between 0.5-0.85m.
Ground water - slow inflow at 1.5m.
Excavation terminated due to old lead cable (70mm in diameter) at 0.8m and lack of space for arisings after TP was extended to South.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 107

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384073 N: 218388	Ground Level (m): 18.84 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.10		T/MJ/SJ		PID - 0.2ppm	MADE GROUND: Black slightly moist very loose very ashy very gravely fine to coarse SAND. Gravel is fine to medium of ash, clinker and gravel (railway ballast).	18.74		(0.10) 0.10
					MADE GROUND: Very loose dark brown black very ashy clayey very sandy angular to rounded fine to coarse GRAVEL of crushed concrete, brick, sandstone and green and white slag with cobbles and boulders of crushed concrete.			(0.60)
0.60		T/MJ/SJ		PID - 0.1ppm		18.14		0.70
					Dark yellow moist silty clayey slightly gravely SAND becoming increasingly gravely below 1.3. Gravel is angular to rounded fine to medium sandstone.			
1.30		T/MJ/SJ		PID - 0.0ppm				(1.60)
						16.54		2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableSheen on water surface.
Sides caving in below 1.8m.
Ground water - slow inflow at 1.4 and fast at 2.1m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 108

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384105 N: 218339	Ground Level (m): 19.28 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		T/MJ/SJ		PID - 0.5ppm	MADE GROUND: Fill: Very loose black very ashy slightly clayey sandy angular to subrounded fine to bobble size GRAVEL of green slag, red brick, clinker, granite and sandstone. Sand is fine to coarse.	18.88		(0.40) 0.40
0.70		T/MJ/SJ		PID - 0.5ppm	MADE GROUND: Fill: Black dry ashy clayey medium to coarse SAND and angular to subrounded fine to cobble size GRAVEL of green slag, clinker, red brick and crushed concrete.	18.43		(0.45) 0.85
1.30		T/MJ/SJ		PID - 0.7ppm	Soft moist, becoming wet below 1.5m dark yellow brown very sandy gravely CLAY. Gravel is subangular to subrounded fine to medium sandstone.	17.68		(0.75) 1.60
					Dark yellow moist silty slightly gravely fine to medium SAND. Gravel is subrounded to subangular fine to medium sandstone.	17.08		(0.60) 2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableRed brick stepped foundation of an outer wall runs North to South 0.5m deep.
Sheen on water surface.
Sides caving in below 1.3m.
Ground water - slow-medium inflow at 1.m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 109

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384117 N: 218379	Ground Level (m): 18.94 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Railway ballast: Very loose black very ashy very sandy angular to subangular fine to coarse GRAVEL and black very sandy clayey top soil with some roots and rootlets. Sand is fine to coarse.			(0.30)
0.30		T/MJ/SJ		PID - 0.0ppm		18.64		0.30
					Orange brown, extensively stained grey below 0.9m, moist very clayey very gravely fine to medium SAND. Gravel is angular to subrounded fine to medium sandstone.			(0.90)
0.80		T/MJ/SJ		PID - 0.0ppm				
1.10		T/MJ/SJ		PID - 15.2ppm				
						17.74		1.20
					Orange brown moist fine to coarse SAND becoming gravely below 1.5m . Gravel is angular to subrounded fine to medium of sandstone and flint.			(1.00)
						16.74		2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableModerate hydrocarbon odour below 0.9m.
Extensive staining below 0.9m.
Sheen on water surface.
Sides caving in below 0.8m.
Ground water - slow inflow at 1m and medium below 1.2m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 110

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384129 N: 218330	Ground Level (m): 19.40 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Railway ballast: Very loose black and grey ashy very sandy angular to subangular fine to coarse GRAVEL. Sand is fine to coarse.	19.30		(0.10) 0.10
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Very loose dark brown black very ashy slightly clayey very sandy angular to subrounded GRAVEL of clinker, ash and sandstone. Sand is fine to coarse.	19.10		(0.20) 0.30
					Orange brown moist gravely slightly clayey fine to coarse SAND. Gravel is angular to subrounded fine to medium of sandstone and flint.	18.80		(0.30) 0.60
1.90		T/MJ/SJ		PID - 7.3ppm				

Remarks:
Stability: UnstableExcavation terminated due to metal pipe at 0.7m running East to West.

Logged By:	Checked By:
S.P.	
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 111

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: N:	Ground Level (m):	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Top soil with ash and clinker	-0.15		(0.15) 0.15
					MADE GROUND: Fill: Black slightly moist very loose very ashy clayey very gravely SAND. Gravel is ungular to subrounded fine to coarse clinker, granite and sandstone.	-0.70		(0.55) 0.70
0.60		T/MJ/SJ		PID - 0.0ppm				
					Orange brown, stained grey below 1m, moist slightly clayey gravely fine to coarse SAND becoming less gravely below 2.2m Gravel is angular to subrounded fine to medium of sandstone and flint.	-2.50		(1.80) 2.50
2.40		T/MJ/SJ		PID - 1.1ppm				

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstableExtensive grey staining below 1m at the norther end of TP.
Moderate odour of fresh diesel below 1.2m becoming stronger below 1.6m.
Heavy sheen on water surface.
Sides caving in below 1.6m.
Ground water - medium inflow at 1.8 and fast at 2.3m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 112

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384171 N: 218311	Ground Level (m): 19.82 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.			(0.40)
0.40		T/MJ/SJ		PID - 0.0ppm		19.42		0.40
					MADE GROUND: Black slightly moist ashy clayey silty SAND and subrounded fine to coarse GRAVEL of sandstone and clinker.			(0.50)
0.90		T/MJ/SJ		PID - 0.0ppm		18.92		0.90
					Orange brown, stained grey below 1.3m, moist slightly clayey gravely fine to coarse SAND becoming less gravely below 2.3m Gravel is angular to subrounded fine to medium of sandstone.			
1.30		T/MJ/SJ		PID - 1.6ppm				
								(2.10)
2.30		T/MJ/SJ		PID - 10.5ppm				
3.00		T/MJ/SJ		PID - 45.8ppm		16.82		3.00

End of Trial Pit 3.00 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstableGrey staining below 0.9m.
Strong odour of fresh diesel below 1.3m.
Heavy sheen on water surface.
Sides caving in below 1.6m.
Ground water - slow inflow at 1.6 and medium at 2.3m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 113

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384172 N: 218294	Ground Level (m): 19.66 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.10		T/MJ/SJ		PID - 0.1ppm	MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.	19.56		(0.10) 0.10
					MADE GROUND: Black slightly moist ashy silty very clayey SAND and subrounded fine to coarse GRAVEL of sandstone and clinker.			(0.60)
0.60		T/MJ/SJ		PID - 0.1ppm		18.96		0.70
					Orange brown moist slightly clayey very silty gravely fine to coarse SAND. Gravel is angular to subrounded fine to medium of sandstone.	18.66		(0.30) 1.00
					Orange brown wet to very wet clayey very silty slightly gravely SAND. Gravel is subangular to subrounded fine to medium of sandstone.			
1.50		T/MJ/SJ		PID - 0.2ppm				(1.30)
						17.36		2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableSides caving in below 1.1m.
Ground water - medium inflow at 1.5m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 114

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 4.50m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384213 N: 218273	Ground Level (m): 20.04 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Fill: Very loose dark brown silty very sandy slightly clayey very angular to subrounded GRAVEL. Sand is fine to coarse.	19.89		(0.15) 0.15
					MADE GROUND: Loose red very sandy very angular to subangular fine to coarse GRAVEL of crushed brick. Sand is fine to coarse.	19.69		(0.20) 0.35
0.80		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Medium dense wet multicolored (black, brown, orange, grey, red) very ashy clayey silty very sandy very angular to rounded fine to coarse GRAVEL of red brick, sandstone, clinker, green slag and ash. Cobbler of red brick and slag, whole red bricks. Sand is fine to coarse.	18.54		(1.15) 1.50
1.60		T/MJ/SJ		PID - 0.0ppm	Dark orange brown very wet clayey sandy SILT with pockets of yellow medium to corse sand. Sand is fine to coarse.	18.34		(0.20) 1.70

End of Trial Pit 1.70 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstableTP extended to trench due to concrete abstraction 1m wade at 0.5m across PT.
Metal pipe running West to East at 1.35m at east end of TP.
Brick wall at east end of TP.
Ground water - medium-slow inflow at 1.1m.

Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 115

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384204 N: 218290	Ground Level (m): 20.07 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.10		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.	19.87		(0.20) 0.20
0.50		T/MJ/SJ		PID - 0.2ppm	MADE GROUND: Black slightly moist ashy clayey silty SAND and subrounded fine to coarse GRAVEL of sandstone and clinker.	19.42		(0.45) 0.65
					Very soft wet dark orange brown very sandy gravely CLAY. Gravel is angular to subrounded fine to coarse sandstone. Sand is fine to coarse.	19.17		(0.25) 0.90
1.40		T/MJ/SJ		PID - 0.1ppm	Dark orange brown very wet slightly clayey very silty very gravely fine to coarse SAND with pockets of dark yellow silty sand. Gravel is angular to subrounded fine to medium sandstone.	17.57		(1.60) 2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableTP extended West by 1m due to the metal pipe (50mm diameter) at 0.6m Running North to South.
Sheen on the water surface.
Sides caving in below 1m.
Ground water - medium-slow inflow at 1.5m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 116

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384235 N: 218274	Ground Level (m): 20.16 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Very loose dark brown grey very sandy very angular to sub rounded fine to coarse GRAVEL of granite. Sand is fine to coarse.	20.06		(0.10) 0.10
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.	19.76		(0.30) 0.40
					MADE GROUND: Loose moist dark brown black very sandy angular to subrounded fine to coarse GRAVEL of crushed concrete, red brick, sandstone, clinker and green slag. Cobbles and small boulders of red brick and crush concrete.Sand is fine to coarse.	19.46		(0.30) 0.70
1.40		T/MJ/SJ		PID - 0.0ppm	Orange brown wet to very wet clayey very silty slightly gravely SAND. Gravel is subangular to subrounded fine to medium of sandstone.			(1.90)
2.00		T/MJ/SJ		PID - 0.0ppm		17.56		2.60

End of Trial Pit 2.60 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableExtensive staining below 0.8m.
Sheen on water surface.
Sides caving in below 0.8m.
Ground water - slow inflow at 1.4m and medium at 2.3m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 117

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384245 N: 218256	Ground Level (m): 20.12 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Top soil and very loose dark brown grey very sandy very angular to sub rounded fine to coarse GRAVEL of granite.	20.02		(0.10) 0.10
					MADE GROUND: Very loose dark red very sandy very angular to subangular fine to coarse GRAVEL of crushed red brick. Frequent cobbles and whole bricks. Sand is fine to coarse.	19.82		(0.20) 0.30
					MADE GROUND: Fill: Black very ashy slightly clayey fine to coarse SAND and very angular to subrounded fine to coarse GRAVEL of clinker, granite, green slag, sandstone, ash and red brick. Frequent cobbles and whole bricks.			(0.50)
0.80		T/MJ/SJ		PID - 0.0ppm		19.32		0.80
					MADE GROUND: Concrete slab.	19.22		(0.10) 0.90
					MADE GROUND: Black wet gravely medium to coarse SAND of ash and clinker. Gravel is subangular fine to medium ash and clinker.	19.12		(0.10) 1.00
					MADE GROUND: Fill: Black very wet very ashy slightly clayey fine to coarse SAND and very angular to subrounded fine to coarse GRAVEL of clinker, granite, green slag, sandstone, ash and red brick. Frequent cobbles and whole bricks.			(0.80)
1.80		T/MJ/SJ		PID - 0.0ppm		18.32		1.80
					Dark yellow brown very wet gravely silty fine to medium SAND. Gravel is subrounded fine to medium sandstone.	18.22		(0.10) 1.90

End of Trial Pit 1.90 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstableConcrete slab 100mm at 0.8m.
Red brick foundation wall from 0.8m on both sides of TP. On south sides extends to 1.8m.
Sides caving in below 1m.
Ground water - fast inflow at 1.05m.
Excavation terminated due to ground water and instability.

Logged By:	Checked By:
S.P.	
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 118

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384183 N: 218370	Ground Level (m): 19.62 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Clayey top soil. Roots and rootlets.	19.57		(0.05)
					MADE GROUND: Fill: Very loose dull red very sandy very angular to subrounded fine to coarse GRAVEL of sandstone and granite. Sand is fine to coarse.			(0.20)
0.25		T/MJ/SJ		PID - 0.0ppm		19.37		0.25
0.35		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Black very ashy very clayey fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of clinker, sandstone, ash and red brick.			(0.25)
						19.12		0.50
					Sort very moist dark yellow silty very sandy very gravely CLAY. Gravel is fine to medium sandstone. Sand is fine to coarse.			(0.30)
						18.82		0.80
					Orange brown wet to very wet silty gravely medium to coarse SAND. Gravel is fine to medium sandstone.			
1.10		T/MJ/SJ		PID - 0.0ppm				(1.30)
						17.52		2.10

End of Trial Pit 2.10 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableStaining at the south end of TP at 1.1m.
Slight sheen on water surface.
Sides caving in below 1m.
Ground water - medium inflow at 1.4m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 119

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384220 N: 218352	Ground Level (m): 20.19 AOD	Date Started:07/10/2020 Date Completed:07/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Asphalt.	20.14		(0.05)
					MADE GRAVEL: Very loose black grey ashy very sandy very angular to subrounded GRAVEL of clinker, ash, sandstone and granite. Sand is fine to coarse.			(0.30)
0.30		T/MJ/SJ		PID - 0.0ppm		19.84		0.35
					MADE GROUND: Ash ballast: Black grey moist ashy medium to corse SAND and loose subangular fine to coarse GRAVEL of sandstone, ash and clinker. Occasional cobbles of strongly cemented clayey sandstone.			(0.65)
0.60		T/MJ/SJ		PID - 0.0ppm				
						19.19		1.00
					Dark yellow orange wet medium to coarse SAND with pockets of very clayey SAND and rounded fine to medium GRAVEL of sandstone.			(1.00)
1.60		T/MJ/SJ		PID - 0.0ppm				
						18.19		2.00

End of Trial Pit 2.00 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableSlight odour of tarmac below 0.5m.
Drainage clay pipe 8inch id diameter at 1.2m.
Sides caving in below 1m.
Ground water - medium inflow at 1.2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 120

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384237 N: 218336	Ground Level (m): 20.56 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Lightly reinforced concrete.	20.46		(0.10) 0.10
0.20		T/MJ/SJ		PID - 0.9ppm	MADE GROUND: Fill: Loose moist dark yellow clayey very sandy angular to subrounded fine to coarse GRAVEL of sandstone with frequent bobbles of red brick and whole bricks.	20.21		(0.25) 0.35
0.40		T/MJ/SJ		PID - 2.0ppm	MADE GROUND: Black very loose very sandy ash and clinker FILL with fine to coarse gravel of clinker. Sand is fine to coarse.	19.56		(0.65) 1.00
1.60		T/MJ/SJ		PID - 4.0ppm	Soft wet dark yellow orange very sandy gravely CLAY. Gravel is subangular fine to medium sandstone. Sand is fine to coarse.	18.96		(0.60) 1.60
2.00		T/MJ/SJ		PID - 16.8ppm	Dark orange wet slightly clayey silty slightly gravely fine to coarse SAND. Gravel is subangular fine to medium sandstone.	18.26		(0.70) 2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstablePlastic membrane at 0.1m.
Re-bar reinforced pillar at 0.25m 100mm in diameter.
Armored cable running West to East at 1.1m.
Moderate odour of medium weathered diesel below 2m.
Staining at 2.0m.
Sheen on water surface.
Sides caving in below 1.2m.
Ground water - medium-strong inflow at 2.1m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

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Trial Pit No. 121

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384257 N: 218315	Ground Level (m): 20.66 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	20.51		(0.15) 0.15
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Very loose moist dull red, becoming pale yellow below 0.25m, clayey silty very sandy subangular to subrounded fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	20.21		(0.30) 0.45
0.60		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Firm very moist brown, stained black, silty sandy gravely CLAY becoming very gravely below 0,7m. Gravel is angular to subrounded fine to medium sandstone. Sand is fine to coarse.	19.81		(0.40) 0.85
1.50		T/MJ/SJ		PID - 0.0ppm	Orange brown moist clayey silty very gravely medium to coarse SAND becoming less gravely below 1m. Gravel is angular to subrounded fine to coarse sandstone.	18.26		(1.55) 2.40

End of Trial Pit 2.40 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableSides caving in below 1.3m.
Ground water - slow inflow at 2.2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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London Road, Grays, Essex RM40 4DB

Trial Pit No. 122

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 383988 N: 218538	Ground Level (m): 18.03 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt.	17.97		(0.06) 0.06
0.20		T/MJ/SJ		PID - 0.3ppm	MADE GROUND: Fill: Very loose moist dull red very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	17.83		(0.14) 0.20
0.65		SD		PID - 0.6ppm	MADE GROUND: Fill: Black moist very ashy fine to coarse SAND and very loose moist dark brown black very ashy angular to subrounded fine to cobble size GRAVEL of ash, green slag, clinker, red brick and sandstone. Occasional boulders of slag.	17.23		(0.60) 0.80
					Soft moist yellow brown silty very sandy CLAY. Sand is fine to medium.	16.93		(0.30) 1.10
1.60		SD		PID - 0.6ppm	Dark yellow very moist very clayey silty gravely fine to coarse SAND. Gravel is subrounded fine to coarse sandstone.	15.53		(1.40) 2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableGrey staining below 0.9m.
Odour of H2S between 0.2-0.8m.
Heavy sheen on water surface.
Sides caving in below 1.2m.
Ground water - very slow inflow at 1.5 and medium at 1.9m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 123

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 383971 N: 218560	Ground Level (m): 18.11 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	18.05		(0.06) 0.06
0.25		T/MJ/SJ		PID - 27.5ppm	MADE GROUND: Fill: Dark brown moist very ashy fine to coarse SAND and very loose, dark brown black very ashy angular to rounded fine to cobble size GRAVEL of clinker, red brick, sand stone and green slag. Small boulders of slag.			(0.94)
0.80		SD		PID - 17.3ppm				
					Dark yellow, stained black grey, wet silty very sandy gravely CLAY with pockets of dark yellow fine to coarse sand. Gravel is subangular to rounded fine to medium sandstone. Sand is fine to coarse.	17.11		1.00
1.90		SD		PID - 19.6ppm				(1.10)
						16.01		2.10

End of Trial Pit 2.10 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableHeavy staining at 1.4m.
Moderate to strong hydrocarbon odour below 0.2m and very strong odour of naphthaline at 0.04m.
Layer of bitumen 30mm thick at 0.4m.
Sides caving in below 1.5m.
Ground water - slow-moderate inflow at 2m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

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Trial Pit No. 124

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 383994 N: 218560	Ground Level (m): 17.89 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	17.83		(0.06) 0.06
0.20		TUB		PID - 0.1ppm	MADE GROUND: Fill: Dark brown moist ashy silty fine to coarse SAND and very loose brown dull red angular to subangular fine to coarse GRAVEL of ash, clinker, crushed concrete, red brick, green slag, granite and sandstone.	17.69		(0.14) 0.20
					MADE GROUND: Yellow moist very gravely fine to medium SAND. Gravel is fine to medium sandstone.	17.59		(0.10) 0.30
0.50		SD		PID - 0.0ppm	Soft orange brown moist silty very sandy gravely CLAY. Gravel is fine to medium subangular sandstone. Sand is fine to coarse.			(1.20)
1.60		SD		PID - 0.0ppm	Dark orange very moist very clayey silty gravely fine to coarse SAND. Gravel is subrounded fine to medium sandstone.	16.39		1.50 (0.80)
						15.59		2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableExtensive black staining at the south end of TP at below 0.5m.
Plastic pipe (100mm in diameter) running North to South at 1.35m.
Sides caving in below 1.6m.
Ground water - slow- medium inflow at 1.8m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 125

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384159 N: 218389	Ground Level (m): 19.62 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt.	19.61		(0.01) 0.01
					MADE GROUND: Brown very sandy coarse red brick FILL. Sand is fine to coarse. Metal fragments, cables and wires.			(0.49)
0.40		TUB		PID - 0.2ppm				
					Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	19.12		0.50
0.70		SD		PID - 0.1ppm				(0.30)
					Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	18.82		0.80
								(1.40)
2.00		MJ/SJ		PID - 0.1ppm				
						17.42		2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableBlack staining between 0.4 -0.75m.
Sheen on the water surface.
Sides caving in below 1.5m.
Ground water - medium inflow at 1.7m and medium-fast at 2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 126

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384122 N: 218396	Ground Level (m): 19.35 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Very loose slightly moist dull red silty very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.			(0.30)
0.25		TUB		PID - 0.1		19.05		0.30
0.40		SD		PID - 0.2ppm	MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.	18.90		(0.15) 0.45
					Bath stone slab	18.75		(0.15) 0.60
0.80		SD		PID - 0.2ppm	Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.			(0.50)
						18.25		1.10
					Dark orange wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.			(1.10)
2.00		MJ/SJ		PID - 2.0ppm				
						17.15		2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableBath stone slab 150mm deep at 0.45m.
Grey staining below 0.6m.
Sides caving in below 1m.
Ground water - medium-fast inflow at 2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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London Road, Grays, Essex RM40 4DB

Trial Pit No. 127

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384102 N: 218416	Ground Level (m): 19.28 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.25		TUB			MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.	18.78		(0.50)
					Bath stone slab	18.63		0.50 (0.15) 0.65
1.10		SD			Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	17.98		(0.65) 1.30
2.10		MJ/SJ			Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	16.98		(1.00) 2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableBath stone slab 150mm deep at 0.5m.
Grey staining below 0.25m.
Sides caving in below 1.5m.
Ground water - slow inflow at 2m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 128

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 284082 N: 218425	Ground Level (m): 19.21 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					Concrete slab.	19.01		(0.20) 0.20
0.25		TUB		PID - 1.5ppm	MADE GROUND: Dark brown, stained black, moist very clayey silty fine to coarse SAND and very loose very ashy very angular to subangular fine to cobble size GRAVEL of red brick, sandstone, crushed concrete,clinker, old concrete and slag.	18.21		(0.80) 1.00
					Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	17.91		(0.30) 1.30
1.50		MJ/SJ		PID - 3.8ppm	Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	17.01		(0.90) 2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableGrey staining between 1.0-1.2m.
Moderate hydrocarbon odour below 1.2m.
Excavation terminated due to lack of time.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 129

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384066 N: 218463	Ground Level (m): 18.97 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Very loose slightly moist dull red silty very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	18.67		(0.30) 0.30
0.50		TUB		PID - 0.2ppm	MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.			
0.70		SD		PID - 0.4ppm		18.07		(0.60) 0.90
					Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	17.67		(0.40) 1.30
					Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	16.97		(0.70) 2.00

End of Trial Pit 2.00 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstableGrey staining between 0.6m - 1.3m.
Strong odour of fresh diesel below 1.3m.
Sides caving in below 1.5m.
Ground water - slow inflow at 1.7m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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Trial Pit No. 130

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384107 N: 218448	Ground Level (m): 19.38 AOD	Date Started:12/10/2020 Date Completed:12/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Pavement/asphalt	19.28		(0.10) 0.10
0.30		TUB		PID - 0.0ppm	MADE GROUND: Very loose slightly moist dull red silty very sandy angular to subangular fine to coarse GRAVEL of sandstone. Sand is fine to coarse.	18.98		(0.30) 0.40
					MADE GROUND: Fill: Black moist very ashy silty fine to coarse SAND and loose black very ashy silty angular to subrounded fine to coarse GRAVEL of clinker, sandstone, slag, red brick, brick.	18.78		(0.20) 0.60
0.70		SD		PID - 0.0ppm	Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	18.28		(0.50) 1.10
1.10		SD		PID - 0.1ppm	Dark orange very wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	17.38		(0.90) 2.00

End of Trial Pit 2.00 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstableCobbles and small boulders of paving blocks of dull red sand stone at 0.4m-0.9m.
Grey staining between 0.6m-1.2m.
Sides caving in below 1.3m.
Ground water - slow inflow at 1.6m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

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London Road, Grays, Essex RM40 4DB

Trial Pit No. 131

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384024 N: 218482	Ground Level (m): 18.19 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Black very loose TOP SOIL mixed with 50mm railway BALLAST.	17.89		(0.30)
0.60		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Black moist very ashy fine to medium SAND and silty subangular fine to cobble size GRAVEL of clinker, ash, grey slag and sandstone.	17.44		0.30 (0.45) 0.75
1.20		T/MJ/SJ		PID - 0.0ppm	Soft moist dark orange, stained black on top, silty very sandy slightly gravely CLAY. Sand is fine to medium. Gravel is fine to medium subangular sandstone.	17.19		(0.25) 1.00
					Dark yellow moist very silty very gravely fine to medium SAND. Gravel is subangular fine to medium sandstone.	16.89		(0.30) 1.30

End of Trial Pit 1.30 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableSlag has faint odour of H2S
Sides caving in below 1.1m.
Ground water - very slow inflow at 0.7m and medium below 1m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 132

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384134 N: 218372	Ground Level (m): 19.13 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.30		T/MJ/SJ		PID - 3.4ppm	MADE GROUND: Black very loose very sandy TOP SOIL mixed with 50mm railway BALLAST. Sand is fine to coarse. Roots and rootlets.			
0.70		T/MJ/SJ		PID - 3.7ppm	Dark orange wet clayey very silty gravely SAND. Gravel is ungular fine to medium sandstone.	18.13		(0.70) 1.00
1.30		T/MJ/SJ		PID - 65.4ppm	Dark orange grey, extensively stained, very wet silty gravely SAND. Gravel is subangular fine to medium sandstone.	16.83		(3.00) (1.30) 2.30
					Dark orange brown very wet slightly silty slightly gravely SAND. Gravel is ungular fine sandstone.	16.63		(0.20) 2.50
					End of Trial Pit 2.50 m (Thickness of basal layer not proven)	16.13		3.00

Remarks:

Stability: UnstableStrong odour of weathered diesel below 1.9m.
Extensive staining at 0.75m.
Sheen on water surface.
Sides caving in below 1.2m.
Ground water - slow inflow at 1m and medium below 2.3m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 133

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384154 N: 218363	Ground Level (m): 19.33 AOD	Date Started:06/10/2020 Date Completed:06/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
0.20		T/MJ/SJ		PID - 1.2ppm	MADE GROUND: Fill: Black very ashy coarse SAND and very loose very angular to subrounded fine to coarse GRAVEL of clinker, ash, crushed concrete, brick, sandstone and granite. Rare roots and rootlets.	19.13		(0.20) 0.20
0.45		T/MJ/SJ		PID - 0.1ppm	Medium firm dark orange brown very sandy gravely CLAY. Gravel is subangular fine to coarse sandstone. Sand is fine to coarse.	18.73		(0.40) 0.60
0.90		T/MJ/SJ		PID - 0.0ppm	Dark orange brown very moist clayey very gravely SAND. Gravel is subangular to rounded fine to coarse sandstone.	18.28		(0.45) 1.05
1.30		T/MJ/SJ		PID - 60.0ppm	Stained grey very wet very silty gravely SAND. Gravel is subangular to rounded fine to coarse sandstone.	17.13		(0.70) 2.20
					Dark orange brown very wet very silty gravely SAND. Gravel is subangular to rounded fine to coarse sandstone.	17.03		(0.10) 2.30

End of Trial Pit 2.30 m
(Thickness of basal layer not proven)

Remarks:

Stability: UnstableWeak odour below 2.2m.
Extensive staining between 1.05 and 1.3m.
Sheen on water surface.
Sides caving in below 1.2m.
Ground water - moderate-slow inflow at 1.3m.
Running sand below 1.5m.
Excavation terminated due to ground water and instability.

Notes: For explanation of symbols and abbreviations, see Key Sheet.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 134

Sheet: 1 of 1

Equipment & Methods. Tracked 360 Excavator .Pit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384087 N: 218369	Ground Level (m): 19.24 AOD	Date Started:09/10/2020 Date Completed:09/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Black very loose ashy very sandy TOP SOIL mixed with 50mm RAILWAY BALLAST. Sand is fine to coarse. Roots and rootlets.	19.04		(0.20) 0.20
0.40		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Fill: Black moist very ashy very clayey fine to medium silty SAND and very loose subangular fine to cobble size GRAVEL of clinker, ash, grey slag, granite, brick, crushed concrete and sandstone.	18.59		(0.45) 0.65
0.70		T/MJ/SJ		PID - 0.0ppm	Soft very moist dark yellow, stained black at the top, silty very sandy slightly gravely CLAY. Gravel is subrounded fine to medium sandstone. Sand is fine to coarse.	18.24		(0.35) 1.00
1.70		T/MJ/SJ		PID - 0.0ppm	Dark yellow moist very clayey fine to medium SAND with pockets of pale yellow fine to medium sand.	17.04		(1.20) 2.20

End of Trial Pit 2.20 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstableRed brick masonry structure (walk way) 100mm deep at 0.5m.
Wooden beam at 1.35m at the west end of TP.
Sides caving in below 1.6m.
Ground water - slow-medium inflow at 1.7m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

John F Hunt Regeneration Limited

London Road, Grays, Essex RM40 4DB

Trial Pit No. 120a

Sheet: 1 of 1

Equipment & Methods. Tracked 360 ExcavatorPit Dimensions 3.00m by 0.60m. Backfill: Arisings	Project Name: Gloucester Project Location: Great Western Road Yard GL1 3PZ Client: Eutopia Homes Ltd	Job No: 20904
Co-ordinates: E: 384252 N: 218336	Ground Level (m): 20.67 AOD	Date Started:08/10/2020 Date Completed:08/10/2020

Samples and In situ Testing				Field Records	DESCRIPTION	Reduced Level (m)	Legend	Depth (Thick) (m)
Depth (m)	No.	Type	Result					
					MADE GROUND: Concrete slab	20.57		(0.10) 0.10
					MADE GROUND: Fill: Black moist very ashy coarse SAND and very loose very angular to subangular fine to cobble size GRAVEL of ash, clinker, sandstone, red and yellow brick.			(0.50)
0.60		T/MJ/SJ		PID - 0.0ppm		20.07		0.60
0.80		T/MJ/SJ		PID - 0.0ppm	MADE GROUND: Black moist coarse SAND and subangular fine to cobble size GRAVEL of coal. Rare briquette of preform coal, red brick and masonry structure.			(0.50)
						19.57		1.10
					Dark orange brown wet very silty fine to coarse SAND and subrounded fine to coarse GRAVEL of sandstone.			(1.40)
2.00		T/MJ/SJ		PID - 0.0ppm				
						18.17		2.50

End of Trial Pit 2.50 m
(Thickness of basal layer not proven)

Remarks:
Stability: UnstablePlastic membrane at 0.1m.
Old clay pipe with fragments of bonded bitumen running North to South at 0.5m 100mm in diameter.
Sides caving in below 1.4m.
Ground water - medium-slow inflow at 2.0m.
Excavation terminated due to ground water and instability.

Logged By: S.P.	Checked By:
Scale: 1:17.5	Approved By:
FIG No.	

Notes: For explanation of symbols and abbreviations, see Key Sheet.

APPENDIX 4

SOIL GAS AND GROUNDWATER MONITORING RESULTS (JF HUNT REMEDIATION)

JOB DETAILS

Location	Gloucester			Engineer	S.P.
Date	27.10.2020	Job No		Time	10:00

METEOROLOGICAL AND SITE INFORMATION

Start of ground			Dry	X	Moist		Wet					
Wind			Calm	X	Light		Moderate		Strong			
Cloud cover			None		Slight	X	Cloudy		Overcast	Temperature	15°C	
Precipitation			None	X	Slight		Moderate		Heavy			
Barometric pressure, mb		994										

INSTRUMENTATION USED:	Type		Serial No	

BH/WS	Depth to GW m	Time s	PID ppm	Flow l/h	CH_4 %	CO_2 %	O_2 %	CO ppm	H_2S ppm	Bal %	Comments
BH 101S	1.94	30	0.7	0.1	0	5.67	13.8	0	0	78	
BH 101S		120			0	5.9	14.1	0	0	80	
BH 101D	1.86	30	0.5	0.1	0	1.3	19.5	0	0	78.7	
BH 101D		120			0	1.5	19.6	1	0	78.9	
BH 102	1.23	30	0.1	0	0	1.5	15.6	0	0	80.5	
BH 102		120			0	1.7	15.6	0	0	80.9	
BH 103	1.41	30	0.4	0.2	0	2.3	27.9	2	0	80	
BH 103		120			0	2.3	28.2	4	0	81.8	
WS 101	0.94	30	9.4	1.3	0	0	19.9	0	0	78.3	
WS 101		120			0.5	0.1	20.3	2	0	79.1	
WS 102	1.09	30	-	-	-	-	-	-	-	-	Valve is blocked
WS 103	0.98	120	17.8	0.1	0	0	19.6	0	0	79.1	Strong odour
WS 103		30			0	0.4	20.2	0	0	79.4	
WS 104	1.12	120	0.2	0	0	1.2	18.7	0	0	78.9	
WS 104		30			0	1.5	19.2	0	0	79.3	
WS 105	1.03	120	0.2	0	0	2.3	19	0	0	77.3	
WS 105		30			0	3	19.6	1	0	77.4	
WS 106	1.56	120	0	0.2	0	1	18.8	0	0	78.6	
WS 106		30			0	1.6	19.1	0	0	79.4	
WS 107	1.58	120	22.6	0.2		6.3	9	0	0	80.7	
WS 107		30			0	8	9.8	0	0	82.2	
WS 109	1.16	120	8.6	0.1	0	7.2	9	0	0	91	
WS 109		30			0	8	9.2	0	0	92.8	
WS 110	1.43	120	0	0.1	0	6.8	9.9	0	0	81.7	
WS 110		30			0	7.5	10.2	0	0	82.3	
WS 111	1.45	120	0	0.1	0	1.2	16.8	0	0	79.9	
WS 111		30			0	1.9	17.3	0	0	80.8	
WS 112	0.77	120	0.1	2.4	0	1.9	20	3.8	0	77.2	
WS 112		30			0	2.3	20.1	5	0	77.6	
WS 113	0.94	120	0.3	-	-	-	-	-	-	-	Valve is blocked
WS 114	1.26	120	0.1	0.2	0	0.7	20.3	0	0	79.9	
WS 114		30			0	0.9	21	0	0	80.4	
WS 115	1.73	120	30.4	0.1	0	1.9	16.1	0	0	78.9	45 mm product
WS 115		30			0	3	16.6	2	0	80.4	
WS 116	1.1	120	0	0.1	0	0.3	19.7	0	0	79	
WS 116		30				0.3	20.2	0	0	79.5	

JOB DETAILS			
Location	Gloucester	Engineer	S.P.
Date	03.11.2020	Job No		Time	All day

METEOROLOGICAL AND SITE INFORMATION											
Start of ground			Dry	x	Moist		Wet				
Wind		x	Calm		Light		Moderate		Strong		
Cloud cover			None	x	Slight		Cloudy		Overcast	Temperature	12°C
Precipitation			None	x	Slight		Moderate		Heavy		
Barometric pressure, mb		1003									

INSTRUMENTATION USED:	Type		Serial No	

BH/WS	Depth to GW m	Time s	PID ppm	Flow l/h	CH_4 %	CO_2 %	O_2 %	CO ppm	H_2S ppm	Bal %	Comments
BH 101S	1.78	30	0.2	0	0	3	16.2	0	0	75.9	
BH 101S		120		0	0.1	4.7	16.9	1	0	78.2	
BH 101D	1.75	30	0.8	0	0	2	18.3	1.8	0	78	
BH 101D		120		0	0.1	2.7	18.8	3	0	78.4	
BH 102	1.16	30	0.8	0.2	0	0	18,2	0	0	78.9	
BH 102		120		0.2	0.1	1	19.4	0	0	79.5	
BH 103	1.33	30	0.8	0.1	0	1.6	16.8	0	0	77.3	
BH 103		120		0.1	0.2	2.1	19.9	0	0	78	
WS 101	0.79	30	1.8	0.4	0.2	1.1	20	0	0	77	Moderate odour
WS 101		120		0.4	0.8	1.4	20.3	3	0	77.7	
WS 102	0.91	30	1.3	0	0	0	19.4	0	0	78.2	Very strong odour
WS 102		120		0	0.1	0.3	21.4	0	0	78.2	
WS 103	1.06	120	0.5	0	0	0	18.6	0	0	78	Strong odour
WS 103		30		0.1	0.1	0.7	20.4	0	0	78.8	
WS 104	1.02	120	0.8	0	0	0	20	0	0	77.9	
WS 104		30		0.1	0.1	0.1	21.6	0	0	78.2	
WS 105	0.97	120	0	1.6	0	2.4	16.9	1	0	75.8	
WS 105		30		3.3	0.1	3.9	19.9	3	0	76.1	
WS 106	1.45	120	1.1	0	0.1	1.3	17.4	1	0	79	Running silt
WS 106		30		0.1	0.1	2.5	18.2	1	0	79.2	
WS 107	1.5	120	2.8	0	0	5.9	10.5	0	0	79.9	
WS 107		30		0	0.1	8.2	11.2	1	0	80.5	
WS 109	1.13	120	0.9	0	0	6.3	6.3	0	0	82.1	
WS 109		30		0	0.2	8.6	9	1	0	82.2	
WS 110	1.32	120	0.7	0	0	3.7	13.5	1	0	80	
WS 110		30		0	0	5.7	14.2	0	0	80	
WS 111	1.39	120	0.7	0	0.1	0.2	20.5	0	0	77.9	
WS 111		30		0.1	0.1	0.5	21.5	1	0	78.2	
WS 112	0.73	120	0.9	0.1	0	0.6	19.5	0	0	77.9	
WS 112		30		0.1	0.1	1.2	20.5	0	0	78.2	
	0.75	30	1.1	1	0.1	2.7	15.9	2	0	77	
WS 113		120		1.7	0.1	4.1	18.8	4	0	77	
WS 114	1.19	120	0.9	0	0	1	14.8	0	0	77.3	
WS 114		30		0	0.1	1.5	20.8	1	0	77.5	
WS 115	1.73	120	5.9	0	0.5	1.6	13.6	27	0	79.9	500 mm product
WS 115		30		0.1	0.8	3	15.4	30	0	80	
WS 116	0.97	120	0.1	0	0	0.1	10	0	0	78	
WS 116		30		0	0.1	0.3	20.8	1	0	78.8	

APPENDIX 5

LABORATORY TEST RESULTS

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG

www.genvs.com
[redacted]

Client: Eutopia Homes Ltd **Project No:** 12446

Site: Great Western Yard, Gloucester **Date** 21/10/2020

Date Received: 12/10/2020

Date Tested: 20/10/2020

Test Results

Location ID	Depth (m)	MC (%)	LL (%)	PL (%)	PI (%)	% passing 425 µm sieve	Classification	Sample type
WS104	3.2-3.3	24	56	25	31	98	CH	D
WS107	2.8-3.0	31	69	30	39	98	CH	D
WS109	1.0	23	25	16	9	98	CL	D
WS109	2.8-2.9	28	58	26	32	98	CH	D
WS110	2.7-2.9	28	58	25	33	98	CH	D
WS111	3.7-3.9	27	61	27	34	98	CH	D
WS113	2.7-2.9	29	61	25	36	98	CH	D
WS115	3.2-3.4	30	59	28	31	98	CH	D
WS115	3.8-4.0	16	34	17	17	98	CL	D
WS116	4.7-4.9	25	60	26	34	98	CH	D

Tested by: STP Checked by: CSS Approved by: CSS

Ground and Environmental Services Limited
Unit 2 Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG

www.genvs.com
[redacted]

Client: Eutopia Homes Ltd **Project No:** 12446

Site: Great Western Yard, Gloucester **Date** 21/10/2020

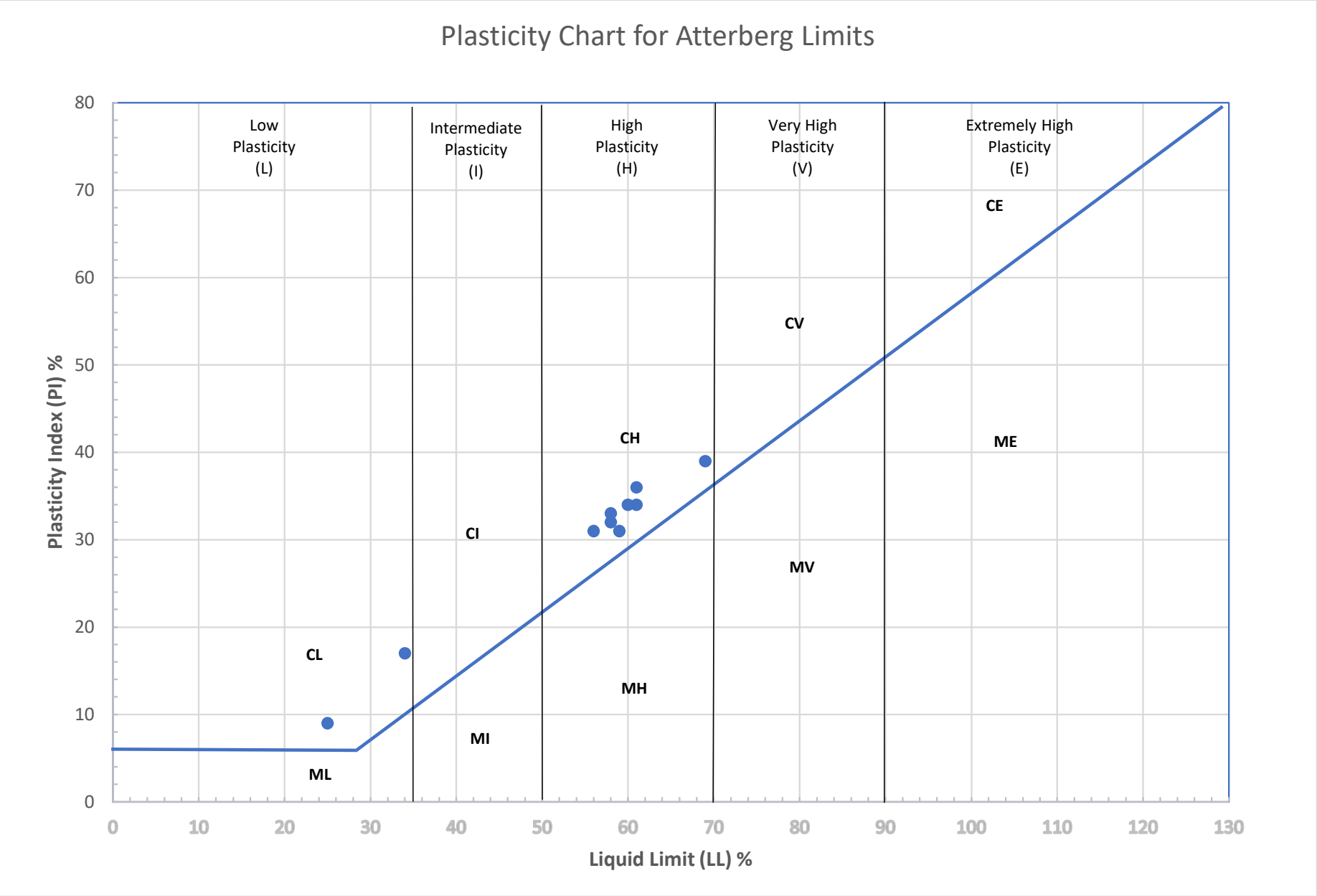
Date Received: 12/10/2020

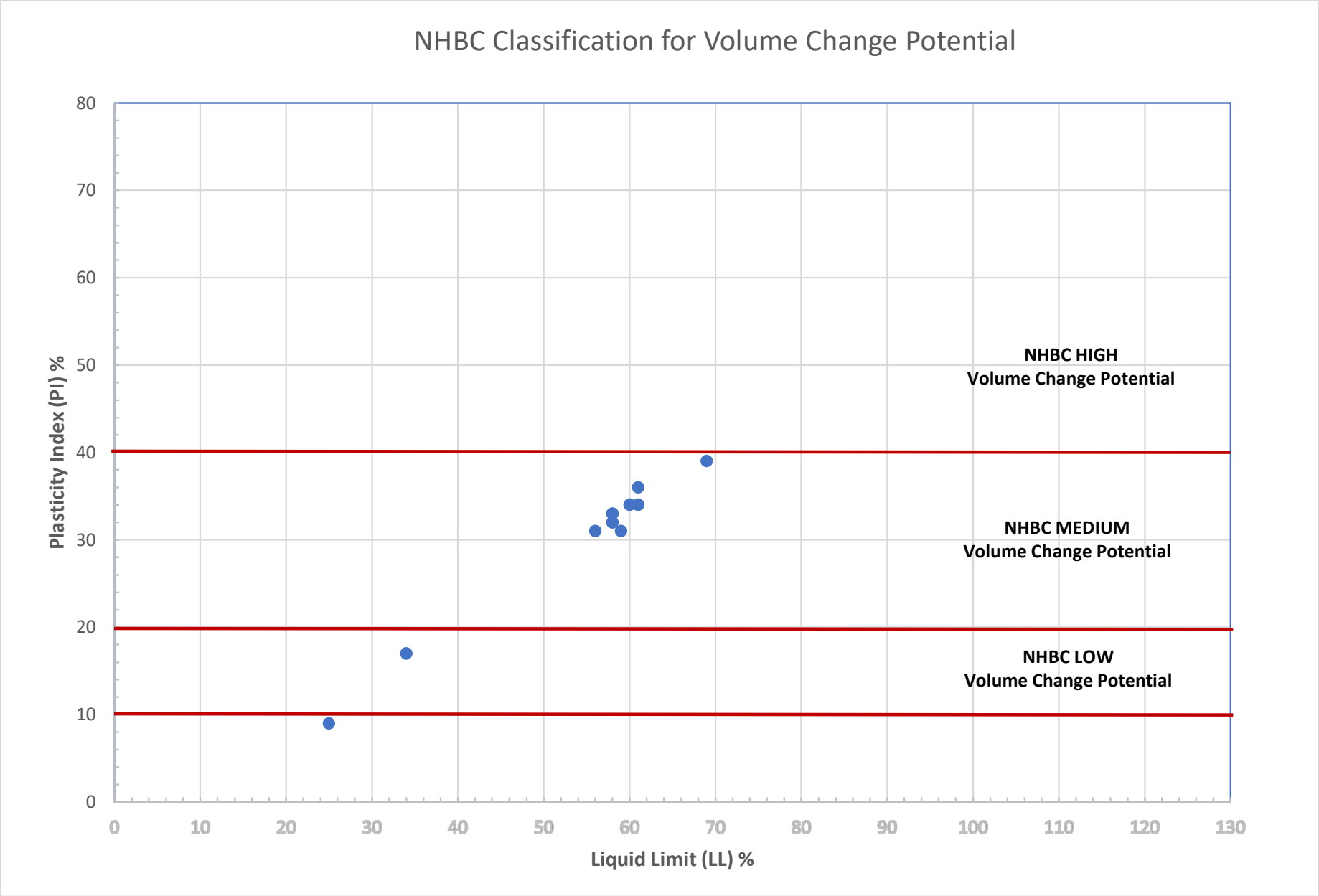
Date Tested: 20/10/2020

Visual Descriptions

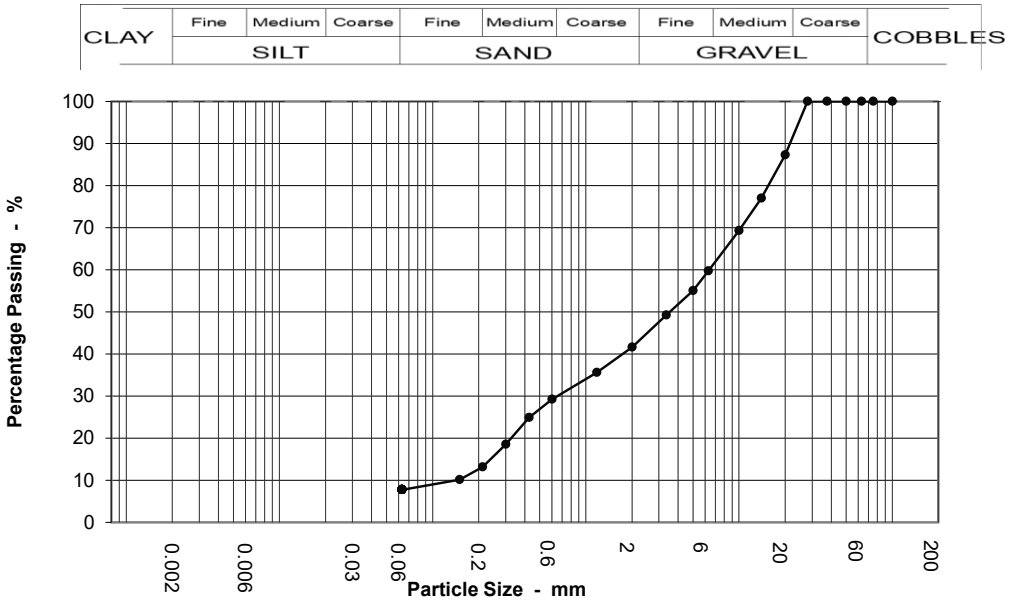
Location ID	Depth	Description
WS104	3.2-3.3	Dark grey silty CLAY
WS107	2.8-3.0	Dark grey silty CLAY
WS109	1.0	Brown very sandy CLAY
WS109	2.8-2.9	Dark grey silty CLAY
WS110	2.7-2.9	Dark grey silty CLAY
WS111	3.7-3.9	Dark grey silty CLAY
WS113	2.7-2.9	Dark grey silty CLAY
WS115	3.2-3.4	Dark grey silty CLAY
WS115	3.8-4.0	Dark grey very silty CLAY
WS116	4.7-4.9	Dark grey silty CLAY

Tested by: STP Checked by: CSS Approved by: CSS


Plasticity Chart for Atterberg Limits
Low Plasticity (L)
Intermediate Plasticity (I)
High Plasticity (H)
Very High Plasticity (V)
Extremely High Plasticity (E)
CE
CV
CH
ME
CI
MV
CL
MH
MI
ML
Plasticity Index (PI) %
Liquid Limit (LL) %
0
10
20
30
40
50
60
70
80
90
100
110
120
130


NHBC Classification for Volume Change Potential
Plasticity Index (PI) %
Liquid Limit (LL) %
0
10
20
30
40
50
60
70
80
90
100
110
120
130
NHBC HIGH
Volume Change Potential
NHBC MEDIUM
Volume Change Potential
NHBC LOW
Volume Change Potential

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS104
Project	**Great Western Yard**	Sample No	
		Depth	2.4-2.6 m
Soil Description	Light brown very sandy fine to coarse GRAVEL. Sand is fine to coarse	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	87		
14	77		
10	69		
6.3	60		
5	55		
3.35	49		
2	42		
1.18	36		
0.6	29		
0.425	25		
0.3	18		
0.212	13		
0.15	10		
0.063	8		

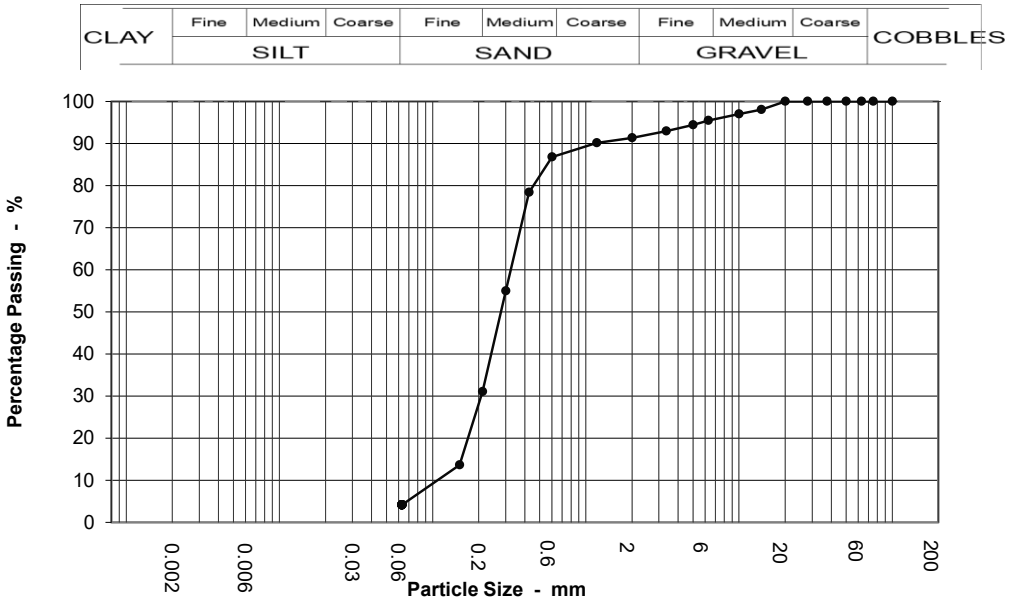
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	58.4
Sand	33.9
Silt & Clay	7.7

Grading Analysis	
D100	28.0
D60	6.407
D10	0.145
Uniformity Coefficient	44

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS105
Project	**Great Western Yard**	Sample No	
		Depth	1.5-1.7 m
Soil Description	Brown slightly gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	95		
5	94		
3.35	93		
2	91		
1.18	90		
0.6	87		
0.425	78		
0.3	55		
0.212	31		
0.15	14		
0.063	4		

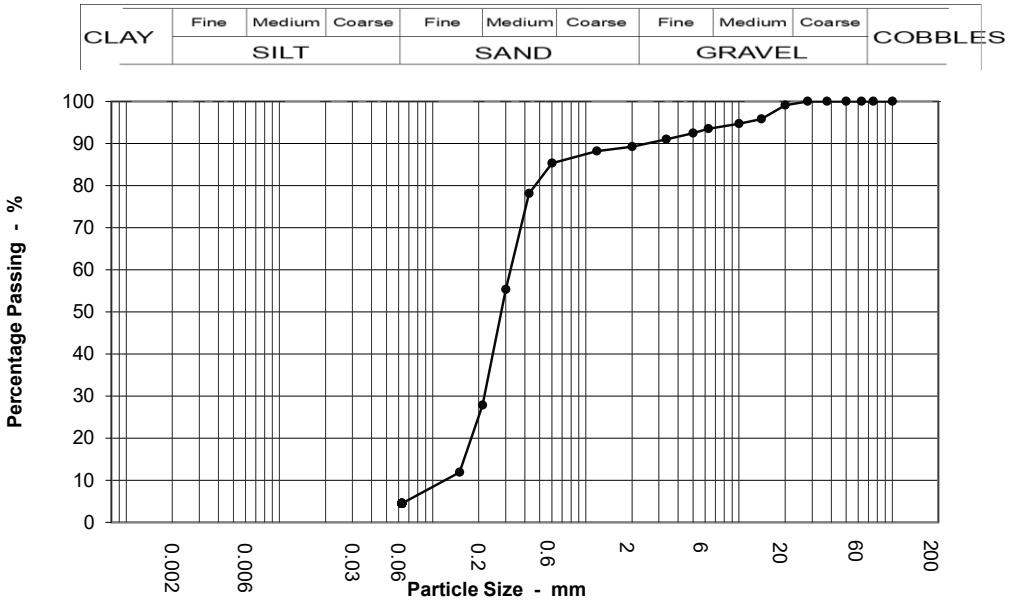
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	8.7
Sand	87.2
Silt & Clay	4.2

Grading Analysis	
D100	20.0
D60	0.327
D10	0.117
Uniformity Coefficient	3

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS105
Project	**Great Western Yard**	Sample No	
		Depth	2.6-2.8 m
Soil Description	Brown slightly gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	96		
10	95		
6.3	93		
5	92		
3.35	91		
2	89		
1.18	88		
0.6	85		
0.425	78		
0.3	55		
0.212	28		
0.15	12		
0.063	4		

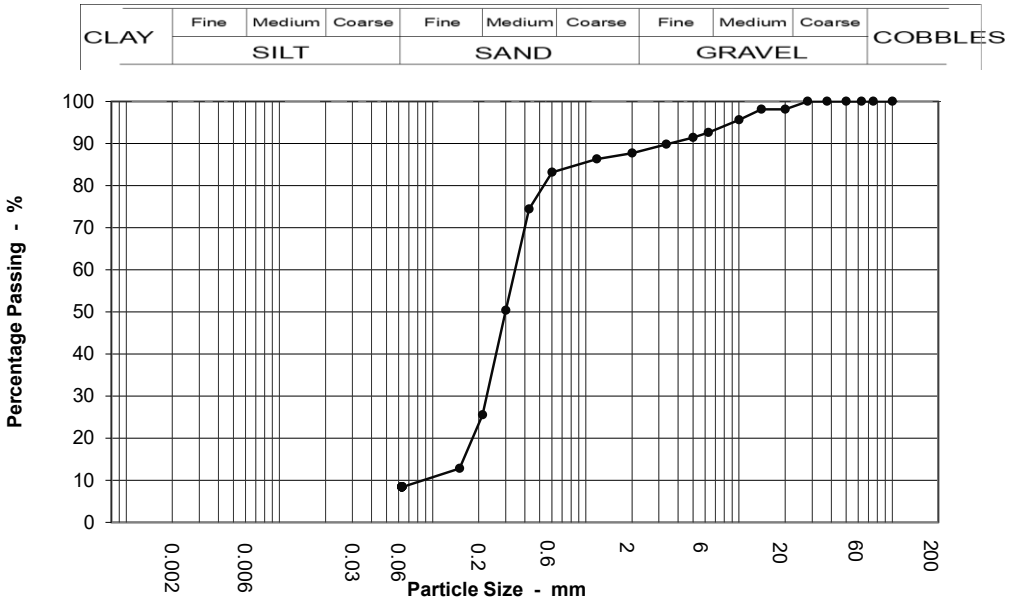
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	10.8
Sand	84.8
Silt & Clay	4.5

Grading Analysis	
D100	28.0
D60	0.326
D10	0.128
Uniformity Coefficient	3

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS106A
Project	**Great Western Yard**	Sample No	
		Depth	1.3-1.4 m
Soil Description	Orangeish brown slightly gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	98		
10	96		
6.3	93		
5	91		
3.35	90		
2	88		
1.18	86		
0.6	83		
0.425	74		
0.3	50		
0.212	26		
0.15	13		
0.063	8		

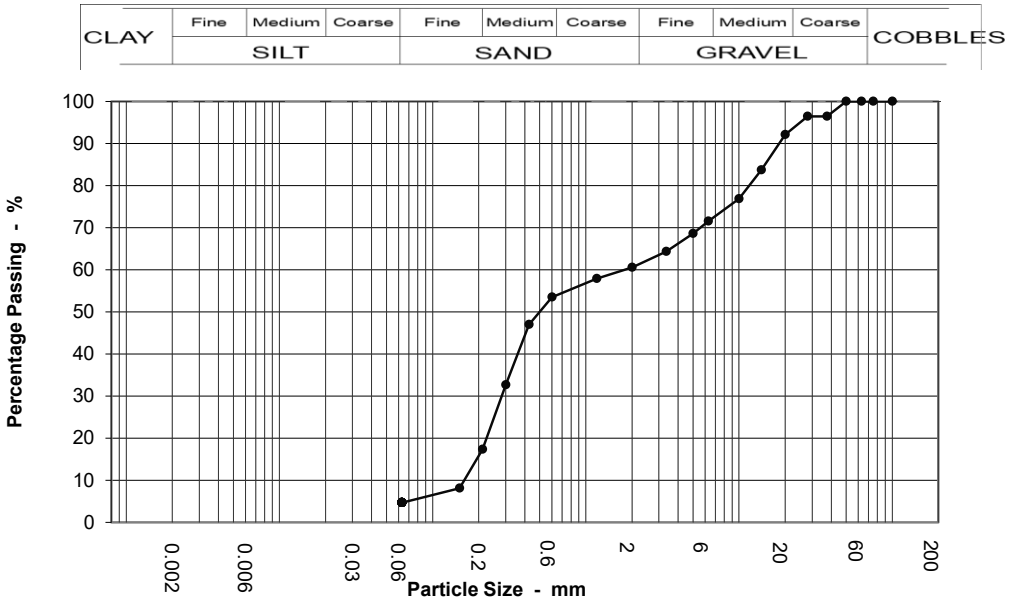
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	12.3
Sand	79.3
Silt & Clay	8.4

Grading Analysis	
D100	28.0
D60	0.350
D10	0.095
Uniformity Coefficient	4

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS110
Project	**Great Western Yard**	Sample No	
		Depth	1.1-1.2 m
Soil Description	Brown very gravelly fine to coarse SAND. Gravel is fine to coarse	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	96		
28	96		
20	92		
14	84		
10	77		
6.3	72		
5	69		
3.35	64		
2	61		
1.18	58		
0.6	53		
0.425	47		
0.3	33		
0.212	17		
0.15	8		
0.063	5		

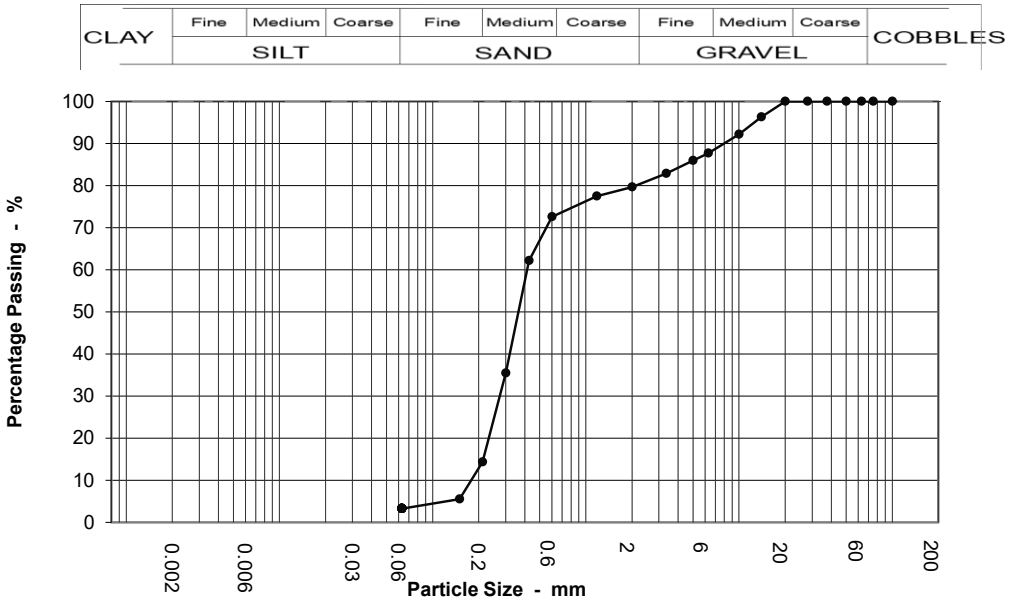
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	39.4
Sand	55.9
Silt & Clay	4.7

Grading Analysis	
D100	50.0
D60	1.818
D10	0.163
Uniformity Coefficient	11

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS110
Project	**Great Western Yard**	Sample No	
		Depth	1.6-1.8 m
Soil Description	Brown gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	92		
6.3	88		
5	86		
3.35	83		
2	80		
1.18	77		
0.6	73		
0.425	62		
0.3	35		
0.212	14		
0.15	6		
0.063	3		

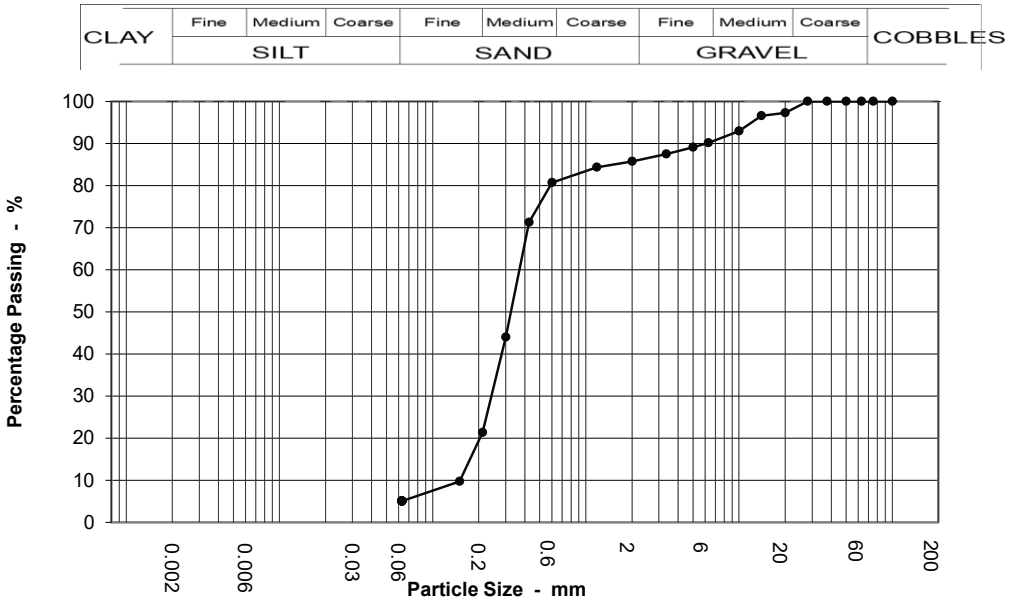
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	20.4
Sand	76.4
Silt & Clay	3.3

Grading Analysis	
D100	20.0
D60	0.415
D10	0.181
Uniformity Coefficient	2

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS111
Project	**Great Western Yard**	Sample No	
		Depth	1.3-1.4 m
Soil Description	Brown slightly gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	97		
10	93		
6.3	90		
5	89		
3.35	88		
2	86		
1.18	84		
0.6	81		
0.425	71		
0.3	44		
0.212	21		
0.15	10		
0.063	5		

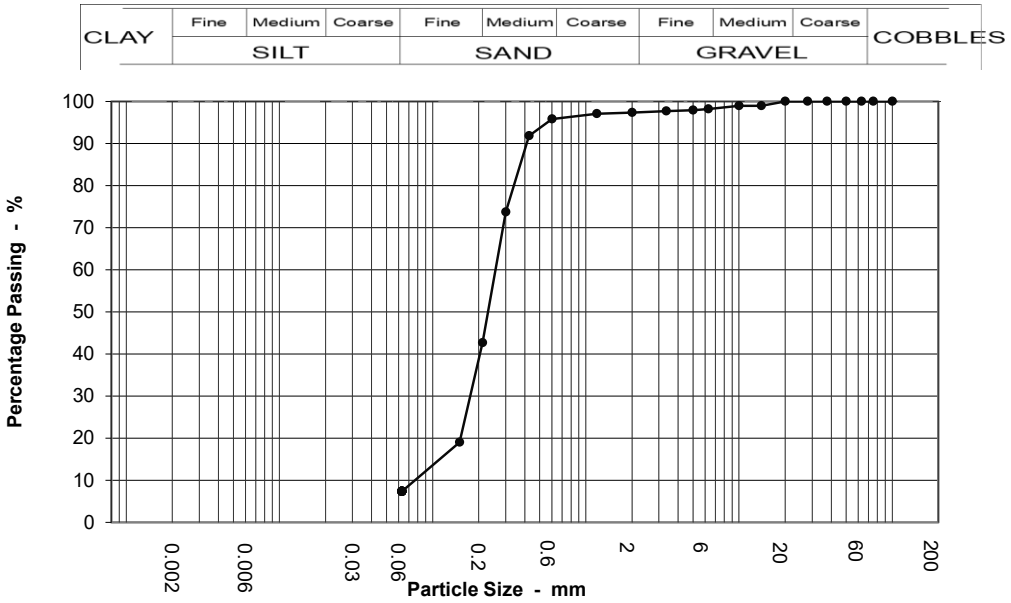
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	14.3
Sand	80.7
Silt & Clay	5.1

Grading Analysis	
D100	28.0
D60	0.373
D10	0.152
Uniformity Coefficient	2

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS111
Project	**Great Western Yard**	Sample No	
		Depth	2.7-2.9 m
Soil Description	Brown slightly clayey fine to medium SAND with rare fine to medium gravel	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	98		
5	98		
3.35	98		
2	97		
1.18	97		
0.6	96		
0.425	92		
0.3	74		
0.212	43		
0.15	19		
0.063	7		

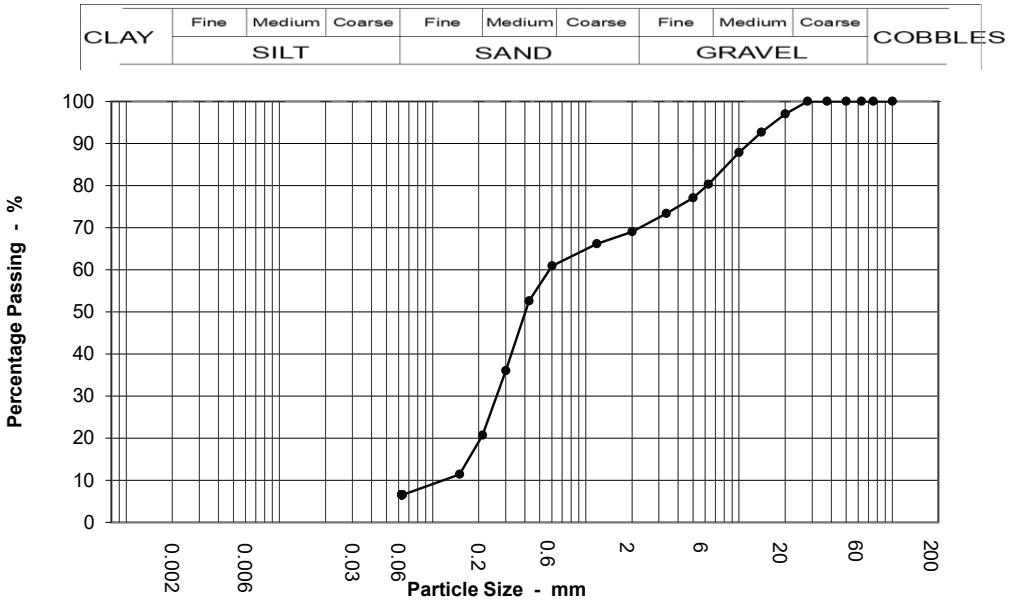
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	2.7
Sand	90.0
Silt & Clay	7.4

Grading Analysis	
D100	20.0
D60	0.261
D10	0.083
Uniformity Coefficient	3

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS112
Project	**Great Western Yard**	Sample No	
		Depth	1.3-1.4 m
Soil Description	Brown very gravelly fine to coarse SAND. Gravel is fine to coarse	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	93		
10	88		
6.3	80		
5	77		
3.35	73		
2	69		
1.18	66		
0.6	61		
0.425	53		
0.3	36		
0.212	21		
0.15	11		
0.063	6		

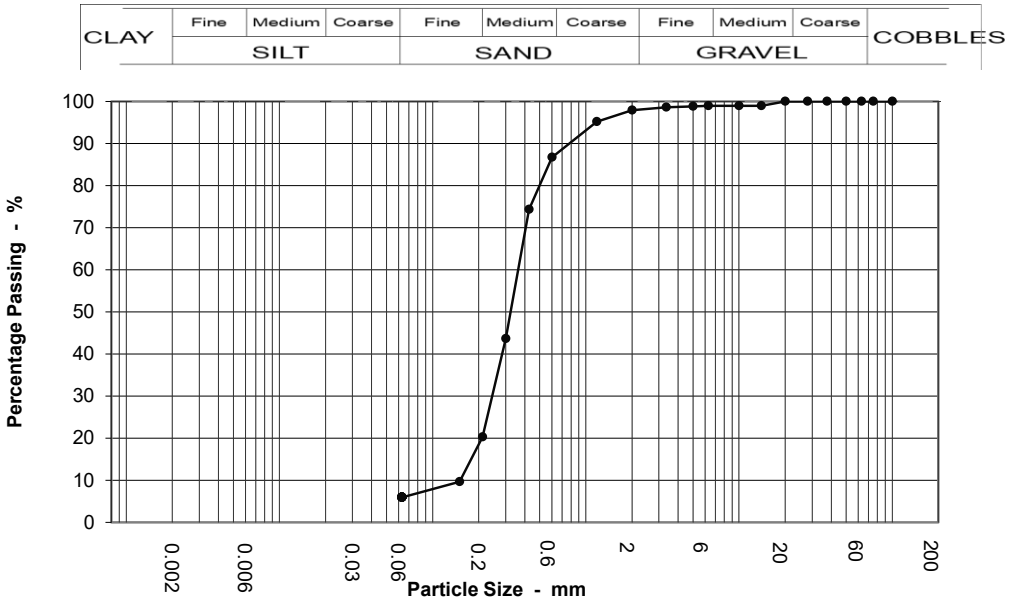
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	31.0
Sand	62.5
Silt & Clay	6.5

Grading Analysis	
D100	28.0
D60	0.581
D10	0.125
Uniformity Coefficient	5

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS112
Project	**Great Western Yard**	Sample No	
		Depth	2.2-2.3 m
Soil Description	Brown slightly silty fine to coarse SAND with rare fine to medium gravel	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	99		
5	99		
3.35	99		
2	98		
1.18	95		
0.6	87		
0.425	74		
0.3	44		
0.212	20		
0.15	10		
0.063	6		

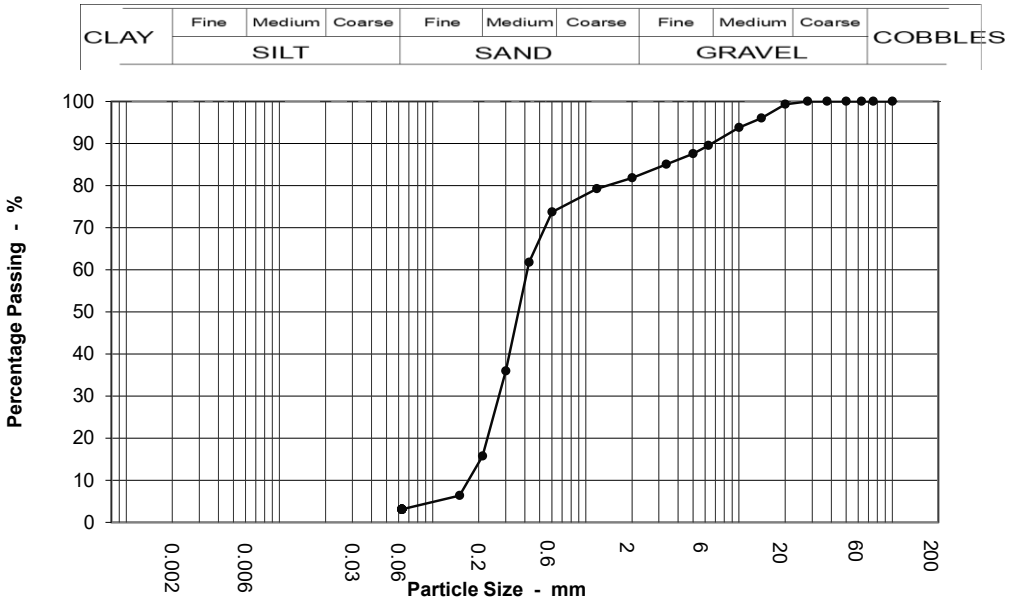
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	2.1
Sand	92.0
Silt & Clay	5.9

Grading Analysis	
D100	20.0
D60	0.366
D10	0.152
Uniformity Coefficient	2

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS113
Project	**Great Western Yard**	Sample No	
		Depth	1.7-1.8 m
Soil Description	Brown gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	96		
10	94		
6.3	90		
5	88		
3.35	85		
2	82		
1.18	79		
0.6	74		
0.425	62		
0.3	36		
0.212	16		
0.15	6		
0.063	3		

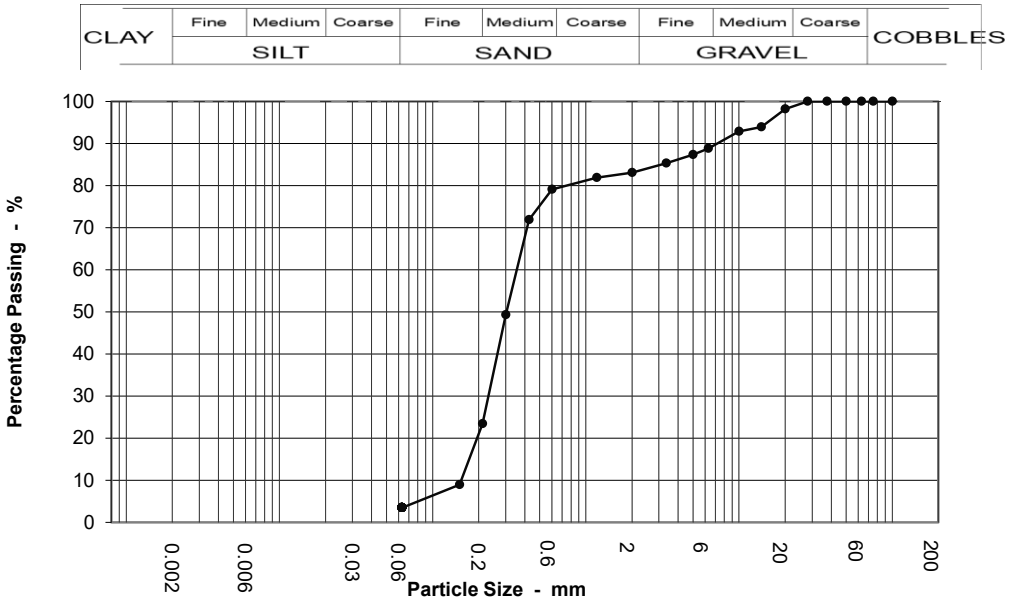
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	18.2
Sand	78.7
Silt & Clay	3.1

Grading Analysis	
D100	28.0
D60	0.416
D10	0.174
Uniformity Coefficient	2

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS114
Project	**Great Western Yard**	Sample No	
		Depth	1.5-1.6 m
Soil Description	Brown gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	98		
14	94		
10	93		
6.3	89		
5	87		
3.35	85		
2	83		
1.18	82		
0.6	79		
0.425	72		
0.3	49		
0.212	23		
0.15	9		
0.063	3		

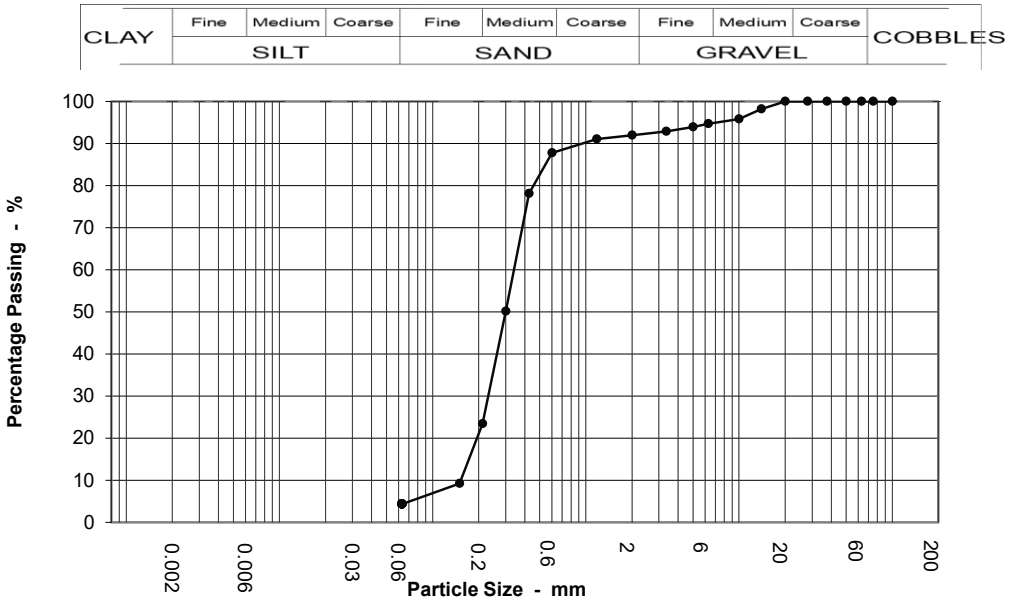
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	16.9
Sand	79.6
Silt & Clay	3.5

Grading Analysis	
D100	28.0
D60	0.359
D10	0.155
Uniformity Coefficient	2

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS114
Project	**Great Western Yard**	Sample No	
		Depth	2.6-2.7 m
Soil Description	Grey brown fine to coarse SAND with rare fine to medium gravel	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	96		
6.3	95		
5	94		
3.35	93		
2	92		
1.18	91		
0.6	88		
0.425	78		
0.3	50		
0.212	23		
0.15	9		
0.063	4		

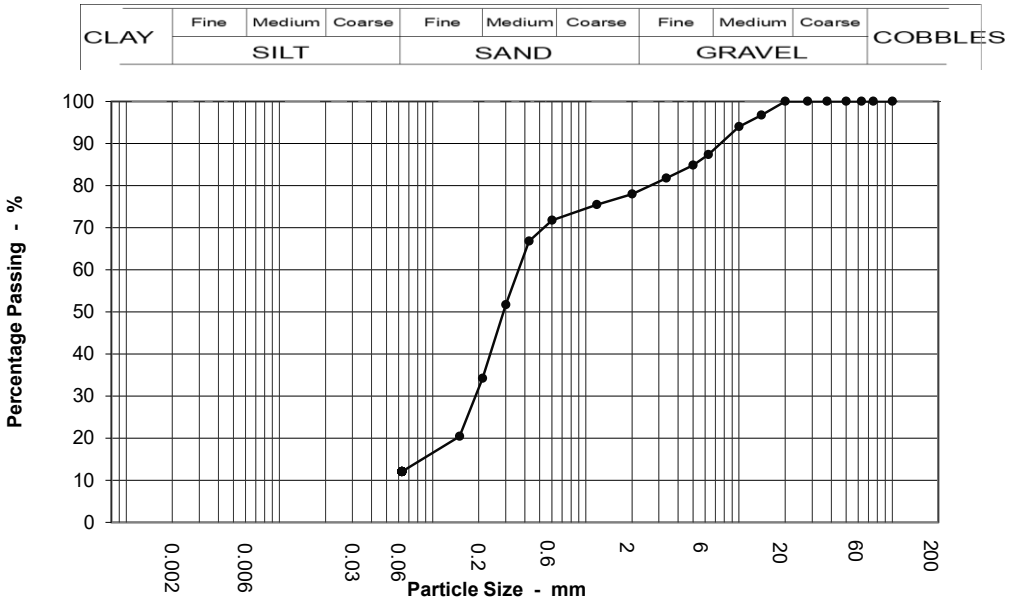
Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	8.1
Sand	87.6
Silt & Clay	4.3

Grading Analysis	
D100	20.0
D60	0.344
D10	0.153
Uniformity Coefficient	2

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

	PARTICLE SIZE DISTRIBUTION **BS 1377 : Part 2 : 1990 : Clause 9**	**Job Ref**	**12446**
		Borehole / Pit No	WS116
Project	**Great Western Yard**	Sample No	
		Depth	2.7-2.9 m
Soil Description	Brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to medium	Sample type	D



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	87		
5	85		
3.35	82		
2	78		
1.18	75		
0.6	72		
0.425	67		
0.3	52		
0.212	34		
0.15	20		
0.063	12		

Test Method	
BS 1377 : Part 2 : 1990	
Sieving	Clause 9.2
Sedimentation	N/A

Sample Proportions	
Cobbles	0.0
Gravel	22.0
Sand	65.9
Silt & Clay	12.1

Grading Analysis	
D100	20.0
D60	0.369
D10	
Uniformity Coefficient	N/A

Operator	Checked	Approved	Remarks
STP	CSS	CSS	

TEST CERTIFICATE

Liquid and Plastic Limits

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

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

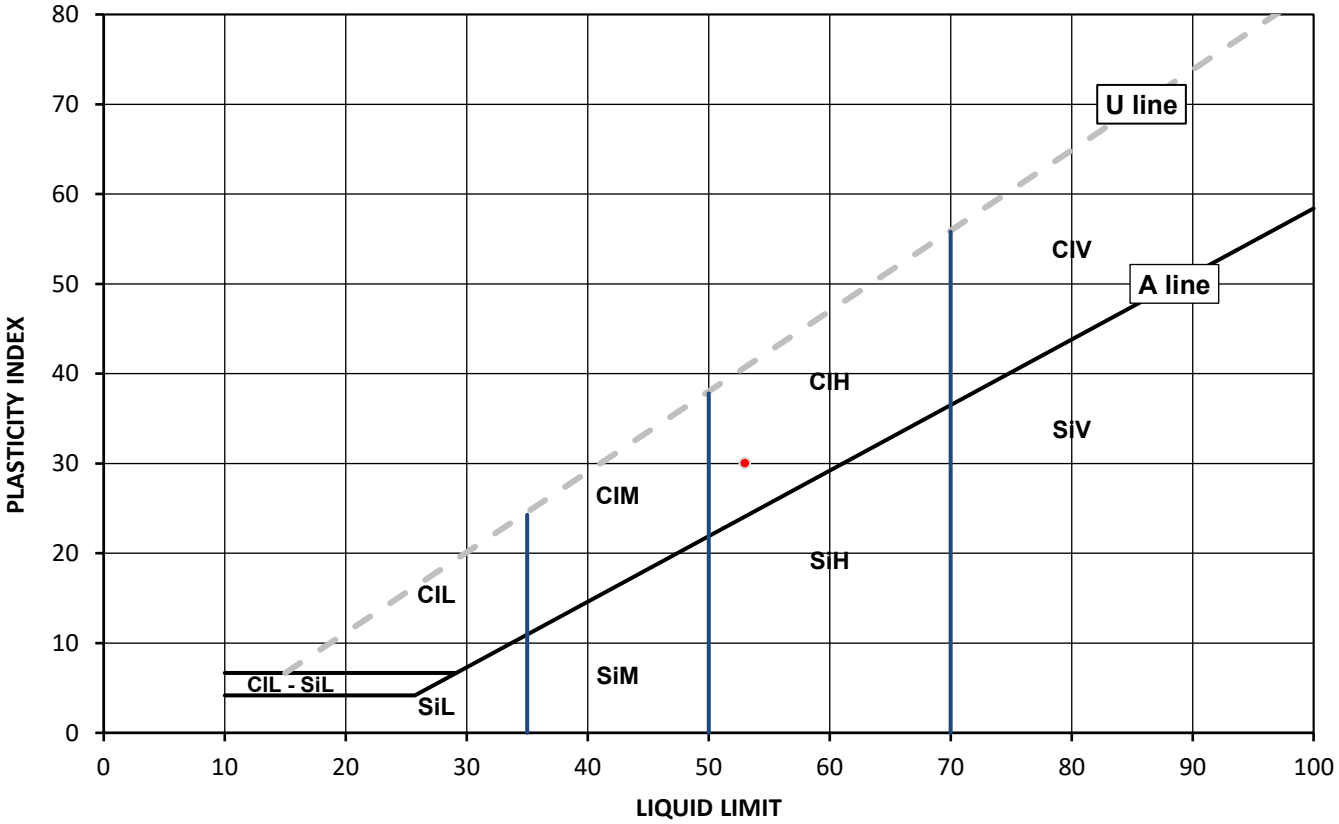
Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	06/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	21/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650688	Depth Top [m]:	3.80
Hole No.:	BH101	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Grey slighly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
27	53	23	30	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: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation. Thi 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: 28/10/2020

GF 232.10

TEST CERTIFICATE

Liquid and Plastic Limits

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

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	06/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	21/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

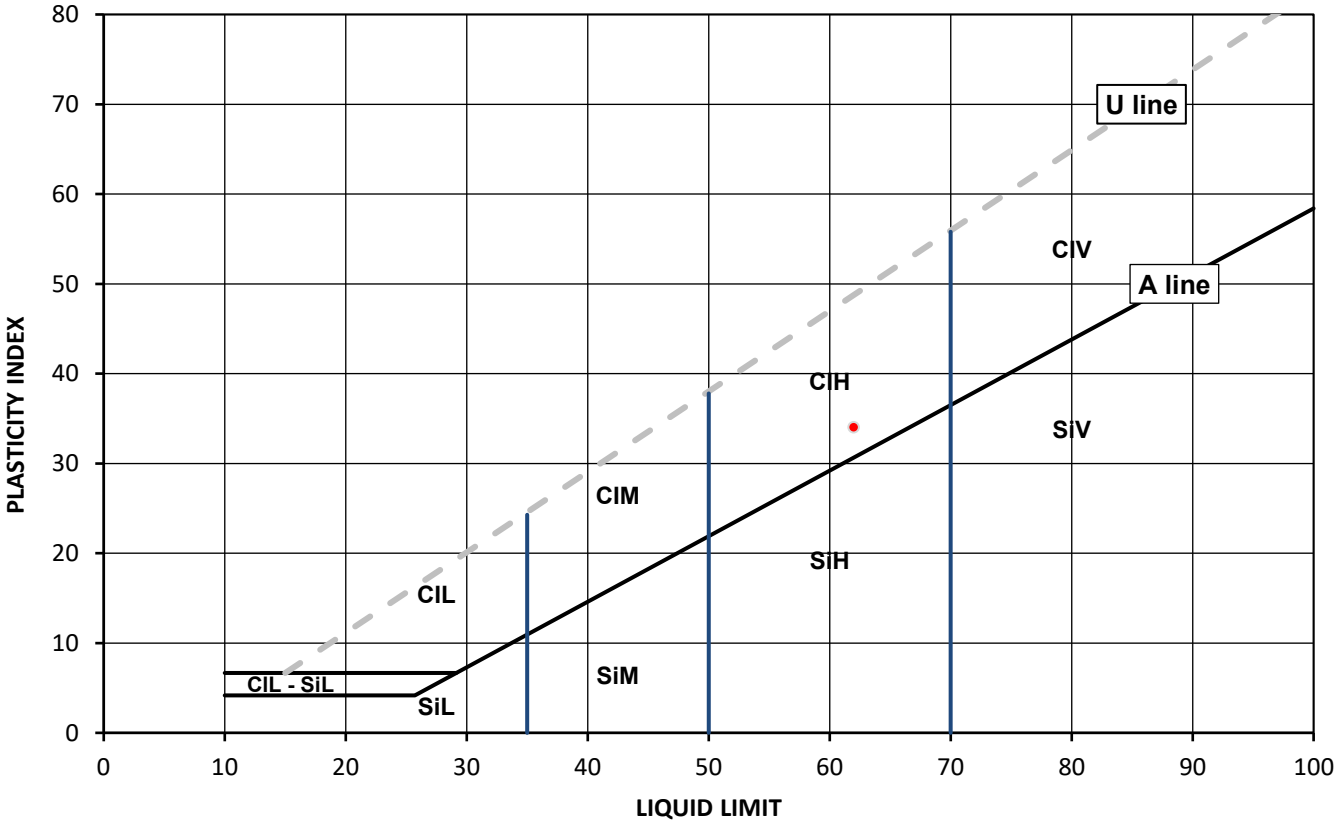
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1650690	Depth Top [m]:	6.00
Hole No.:	BH101	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Dark grey CLAY		

Sample Preparation: Tested in natural condition

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
20	62	28	34	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: Moisture 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: [redacted]

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 28/10/2020

GF 232.10

TEST CERTIFICATE

Liquid and Plastic Limits

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

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

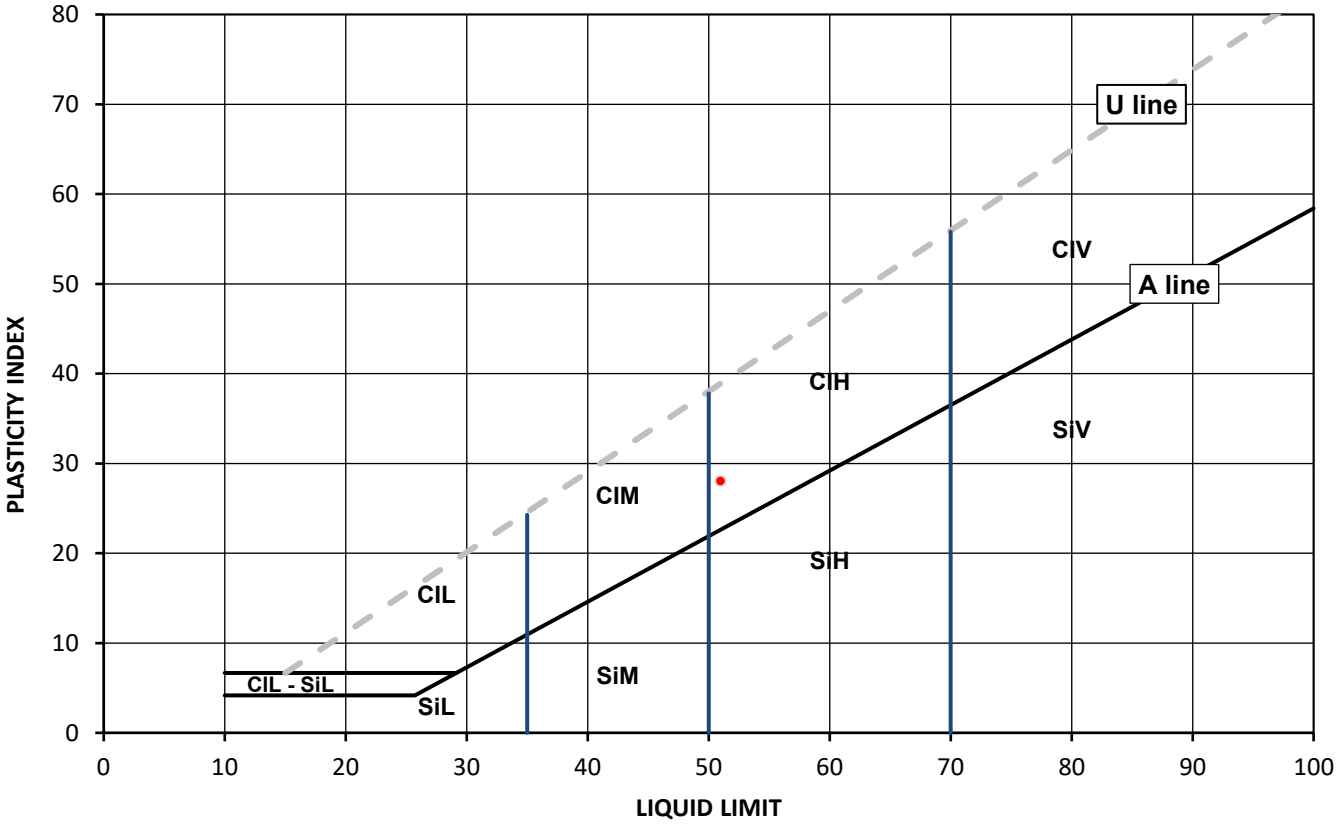
Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	07/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	21/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650692	Depth Top [m]:	2.70
Hole No.:	BH102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Grey to brown slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
31	51	23	28	92



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: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 28/10/2020

GF 232.10

TEST CERTIFICATE

Liquid and Plastic Limits

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

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

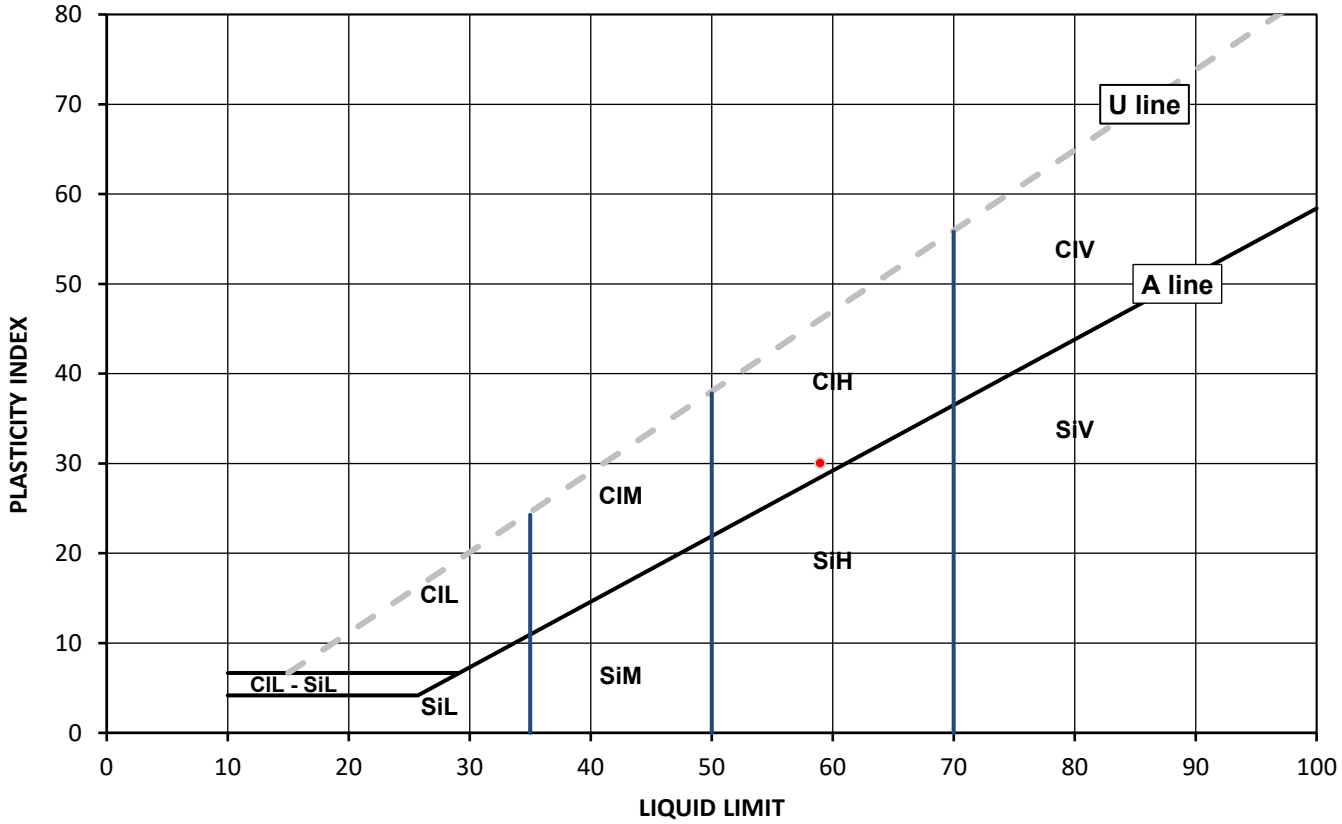
Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	07/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	21/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650694	Depth Top [m]:	7.50
Hole No.:	BH102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Dark grey CLAY with fragments of shells		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
21	59	29	30	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: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed: [redacted]

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PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 28/10/2020

GF 232.10

TEST CERTIFICATE

Liquid and Plastic Limits

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

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	07/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	21/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

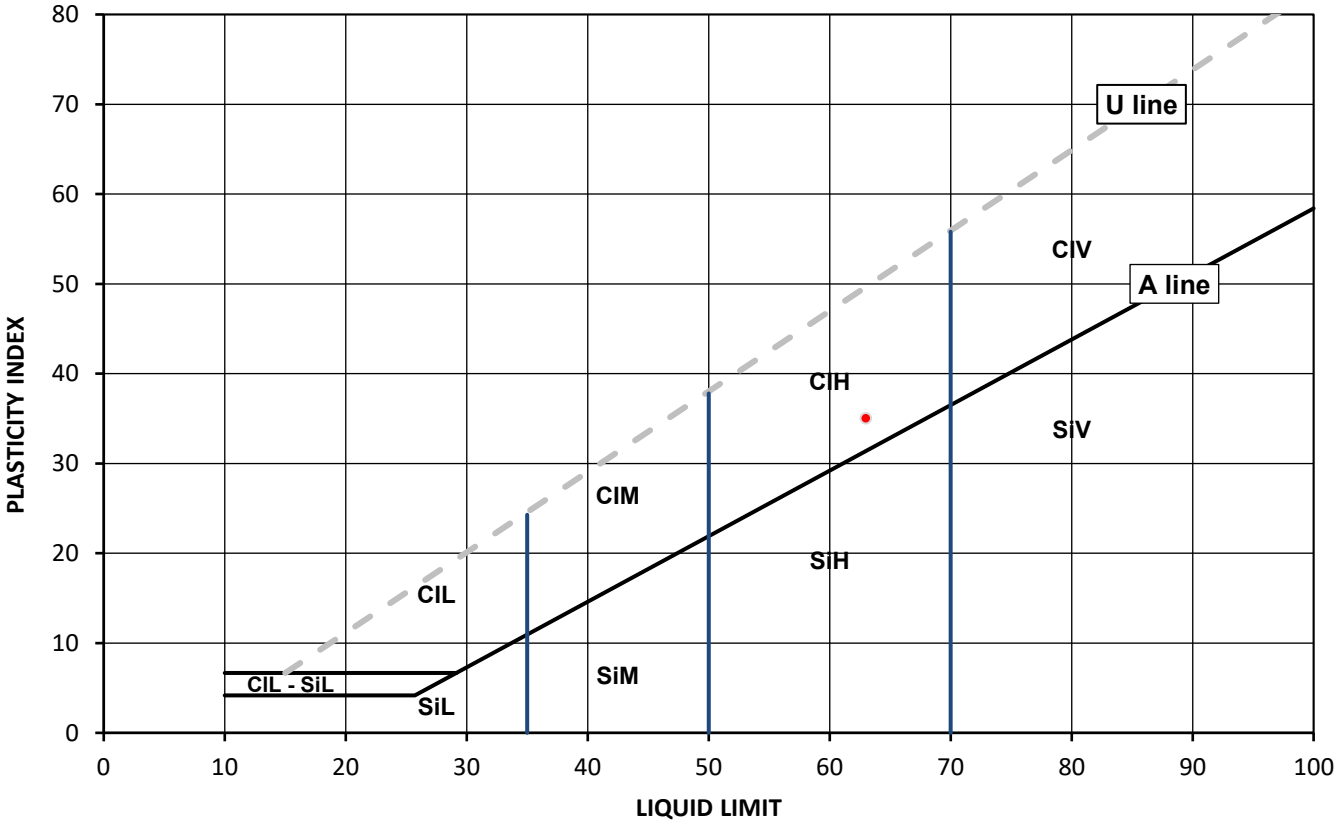
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	1650695	Depth Top [m]:	11.50
Hole No.:	BH102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Grey slightly gravelly CLAY		

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
11	63	28	35	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: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

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TEST CERTIFICATE

Liquid and Plastic Limits

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

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

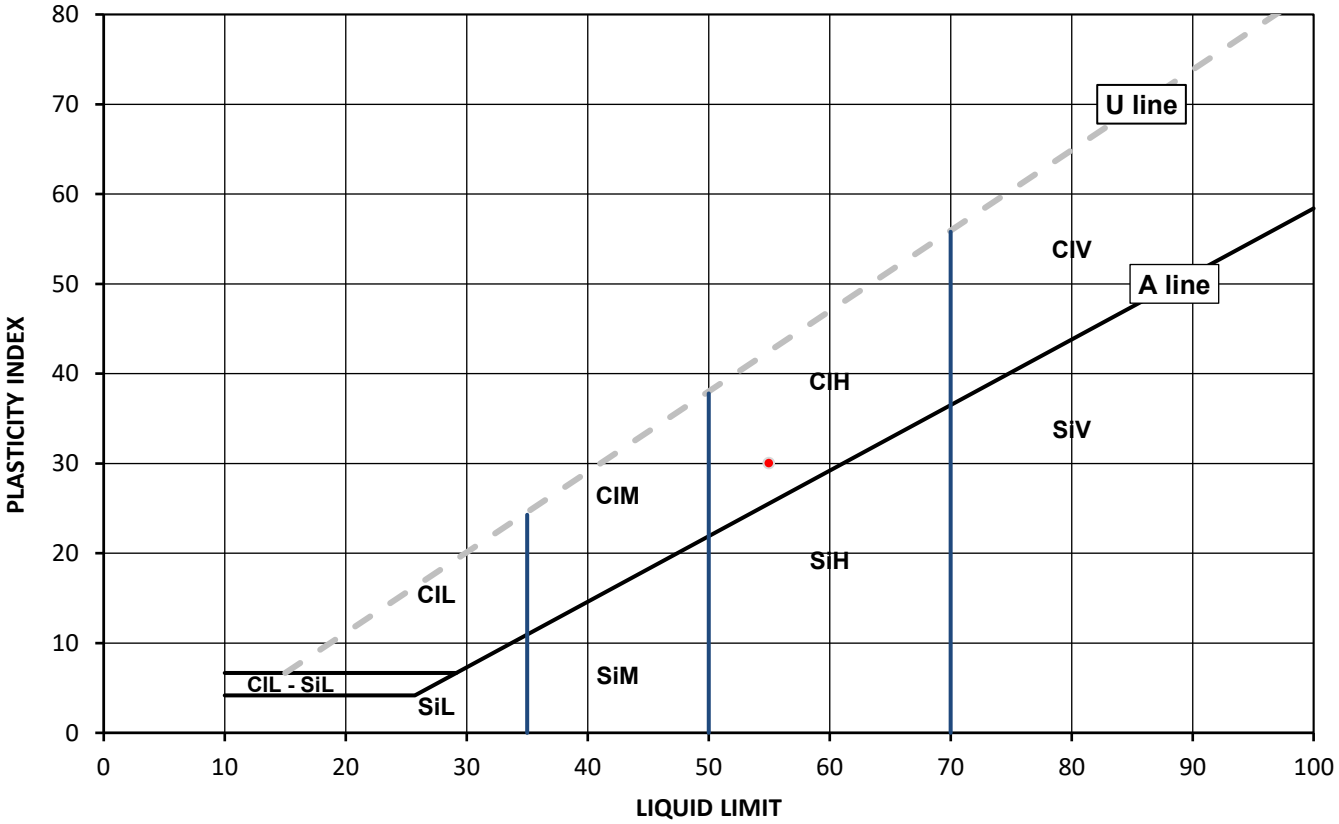
Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	05/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	21/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650697	Depth Top [m]:	2.30
Hole No.:	BH103	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Dark grey to brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
26	55	25	30	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: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed:

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TEST CERTIFICATE

Liquid and Plastic Limits

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

UKAS TESTING 4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

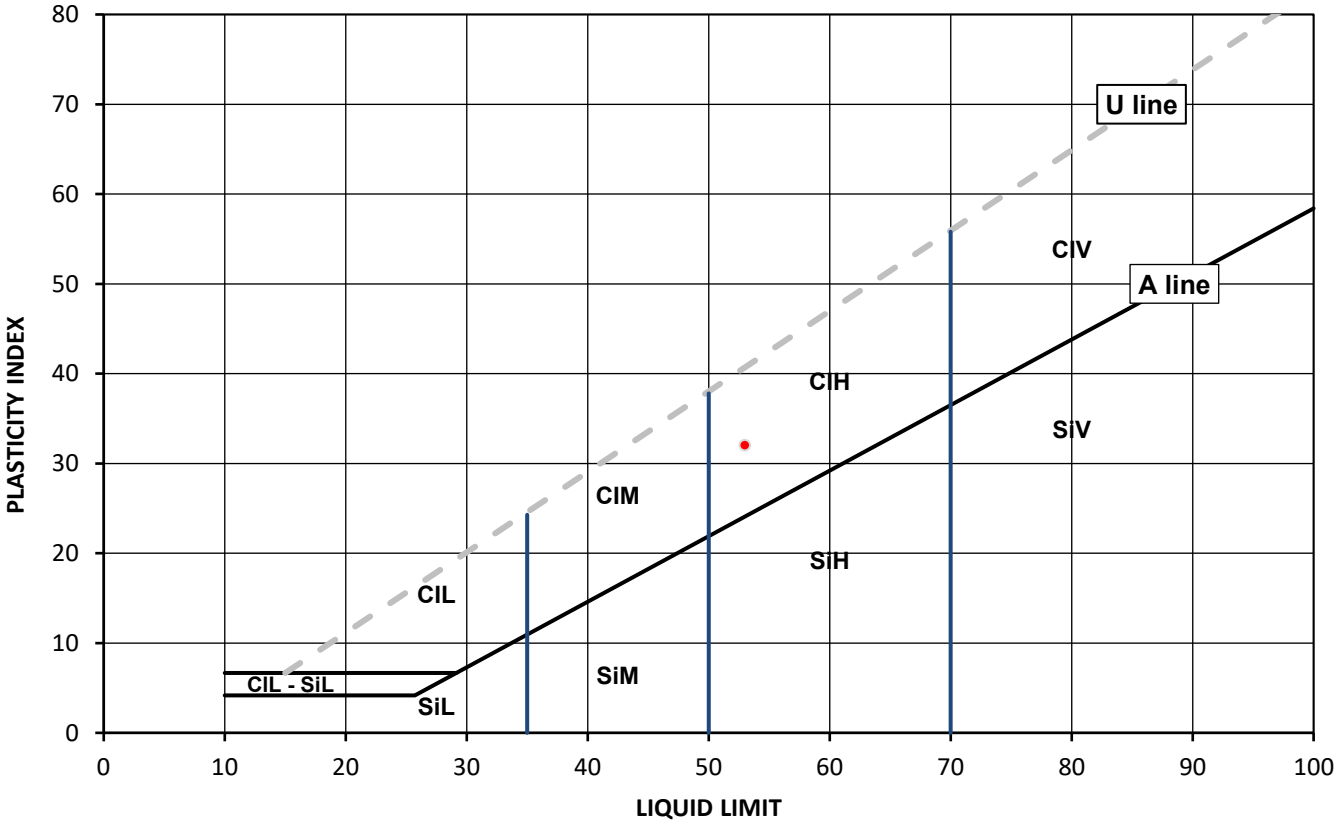
Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	05/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	21/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650699	Depth Top [m]:	4.80
Hole No.:	BH103	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Dark grey slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
29	53	21	32	97



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: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

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Signed: [redacted]

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 28/10/2020

GF 232.10

SUMMARY REPORT

Summary of Classification Test Results

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

Tested in Accordance with:

Moisture Content by BS 1377-2: 1990: Clause 3.2; Water Content by BS EN 17892-1: 2014; 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

Client: Ground and Environmental Services Ltd

Client Address: Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG

Contact: Craig Spanton

Site Address: Great Western Yard, Gloucester

Client Reference: 12446
Job Number: 20-35614
Date Sampled: 05/10 - 07/10/2020
Date Received: 14/10/2020
Date Tested: 21/10/2020
Sampled By: Client

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

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Moisture Content [W]	Water Content [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	%		
1650688	BH101	Not Given	3.80	Not Given	D	Grey slighly sandy CLAY	Atterberg 1 Point	27		100	53	23	30						
1650690	BH101	Not Given	6.00	Not Given	D	Dark grey CLAY	Atterberg 1 Point	20		100	62	28	34						
1650692	BH102	Not Given	2.70	Not Given	D	Grey to brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	31		92	51	23	28						
1650694	BH102	Not Given	7.50	Not Given	D	Dark grey CLAY with fragments of shells	Atterberg 1 Point	21		100	59	29	30						
1650695	BH102	Not Given	11.50	Not Given	D	Grey slightly gravelly CLAY	Atterberg 1 Point	11		96	63	28	35						
1650697	BH103	Not Given	2.30	Not Given	D	Dark grey to brown slightly sandy CLAY	Atterberg 1 Point	26		100	55	25	30						
1650699	BH103	Not Given	4.80	Not Given	D	Dark grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	29		97	53	21	32						

Note: # Non accredited; NP - Non plastic

Comments:

Signed: [redacted]

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 28/10/2020

GF 234.12

TEST CERTIFICATE

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

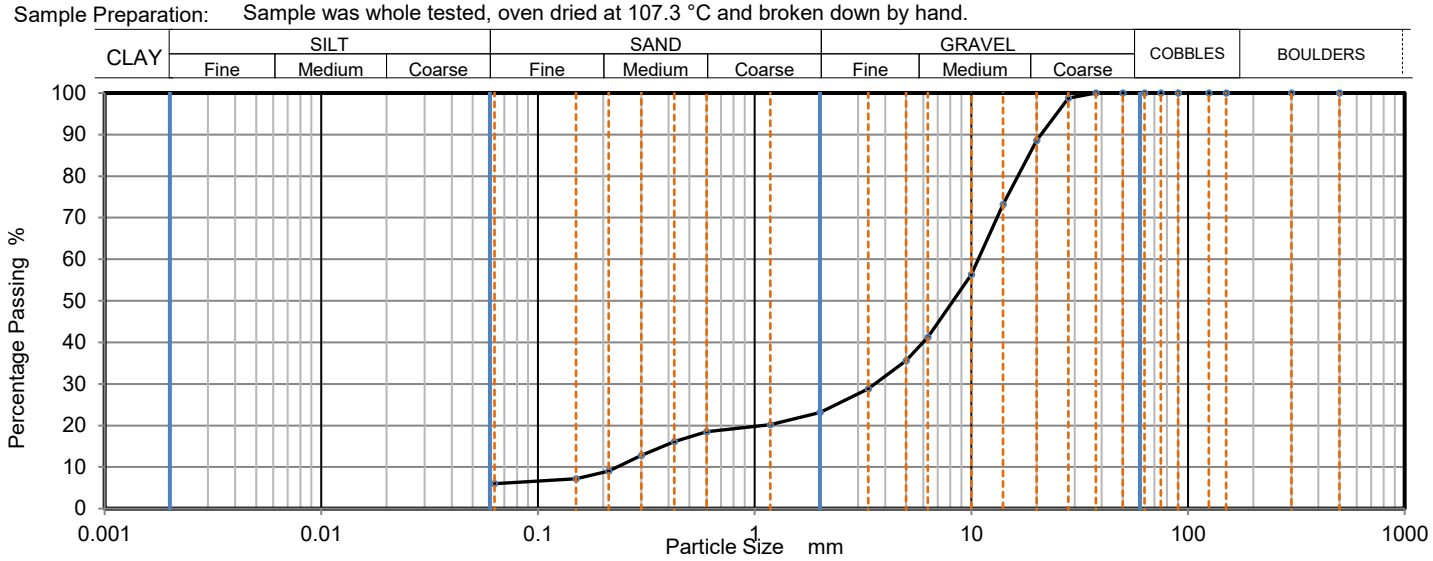
Environmental Science

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	06/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	20/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650687	Depth Top [m]:	2.30
Hole No.:	BH101	Depth Base [m]:	2.60
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark grey slightly clayey sandy GRAVEL		
Sample Preparation:	Sample was whole tested, 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	99		
20	89		
14	73		
10	56		
6.3	41		
5	36		
3.35	29		
2	23		
1.18	20		
0.6	19		
0.425	16		
0.3	13		
0.212	9		
0.15	7		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	76.90
Sand	16.50
Fines <0.063mm	6.60

Grading Analysis		
D100	mm	37.5
D60	mm	10.8
D30	mm	3.59
D10	mm	0.233
Uniformity Coefficient		46
Curvature Coefficient		5.1

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

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

Remarks:

Signed:

[redacted]

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 28/10/2020

GF 100.19

TEST CERTIFICATE

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

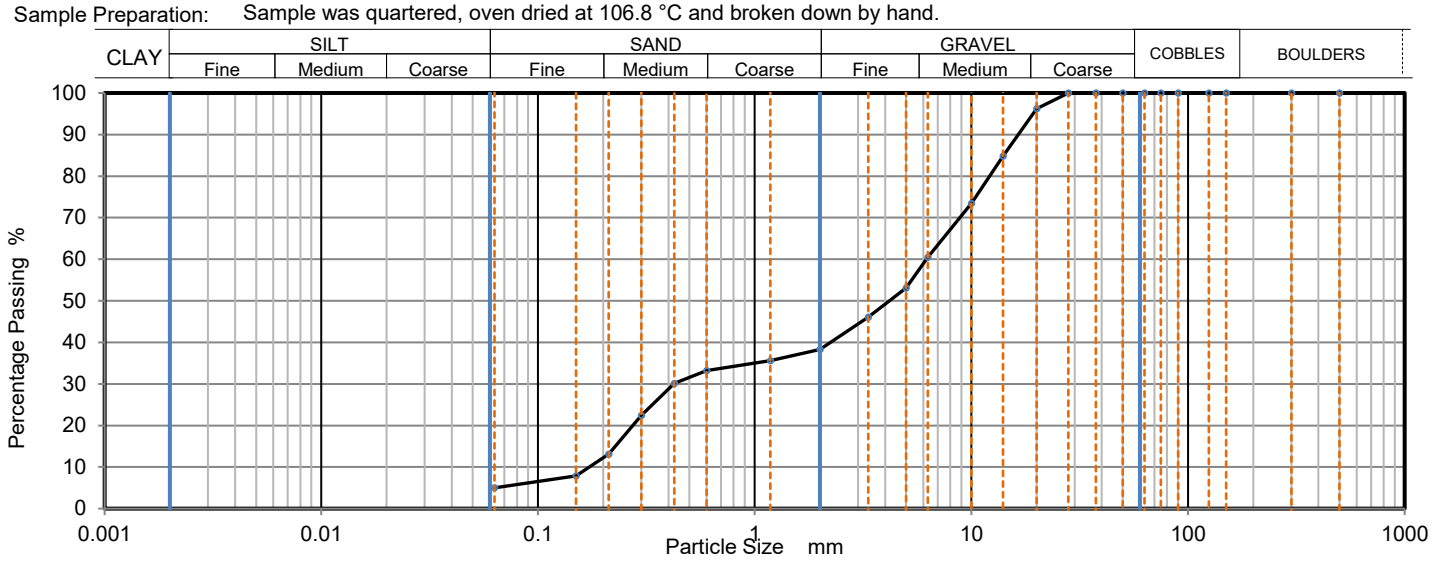
Environmental Science

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	07/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	20/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650691	Depth Top [m]:	1.20
Hole No.:	BH102	Depth Base [m]:	1.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 106.8 °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	100		
20	96		
14	85		
10	73		
6.3	61		
5	53		
3.35	46		
2	38		
1.18	36		
0.6	33		
0.425	30		
0.3	22		
0.212	13		
0.15	8		
0.063	6		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	61.70
Sand	32.40
Fines <0.063mm	5.90

Grading Analysis		
D100	mm	28
D60	mm	6.21
D30	mm	0.423
D10	mm	0.173
Uniformity Coefficient		36
Curvature Coefficient		0.17

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

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

Remarks:

Signed: [redacted]

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 28/10/2020

GF 100.19

TEST CERTIFICATE

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

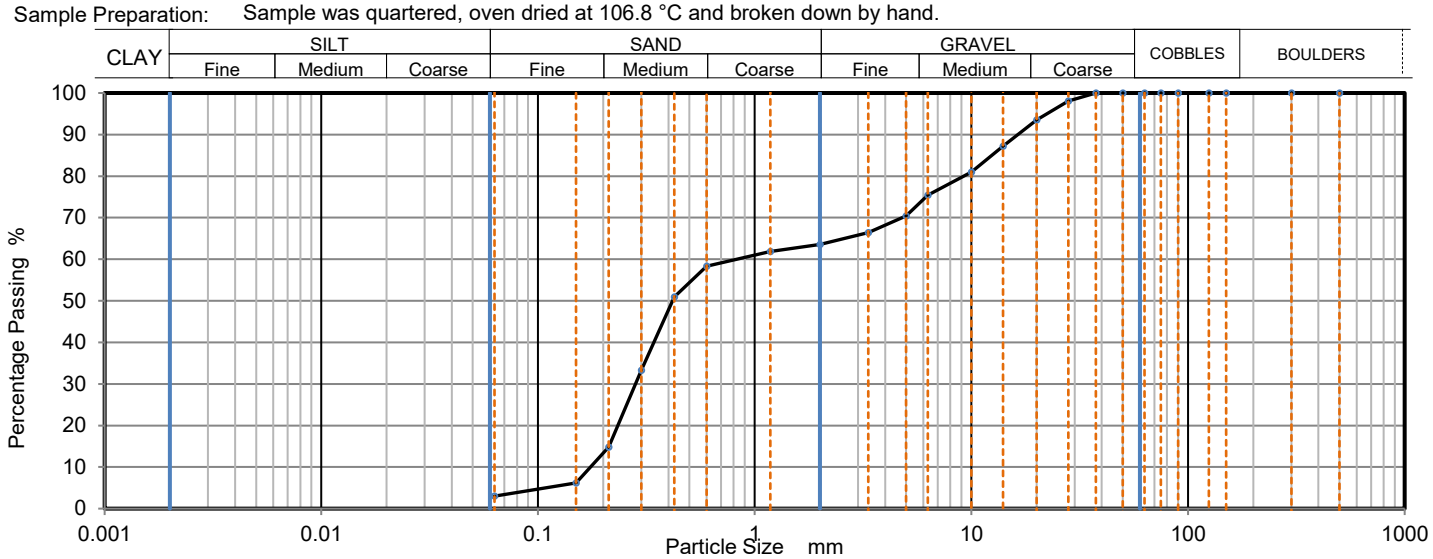
Environmental Science

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	05/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	20/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

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

Test Results:

Laboratory Reference:	1650696	Depth Top [m]:	1.20
Hole No.:	BH103	Depth Base [m]:	1.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey very gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.8 °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	98		
20	94		
14	87		
10	81		
6.3	75		
5	70		
3.35	66		
2	64		
1.18	62		
0.6	58		
0.425	51		
0.3	33		
0.212	15		
0.15	6		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	36.40
Sand	60.20
Fines <0.063mm	3.40

Grading Analysis		
D100	mm	37.5
D60	mm	0.83
D30	mm	0.282
D10	mm	0.175
Uniformity Coefficient		4.8
Curvature Coefficient		0.55

Uniformity Coefficient and Coefficient of Curvature calculated in accordance with BS EN ISO 14688-2: 2004 + A1: 2013

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

Remarks:

Signed:

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PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 28/10/2020

GF 100.19

TEST CERTIFICATE

Unconsolidated Undrained

Triaxial Compression

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

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

UKAS TESTING 4041

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	06/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	20/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

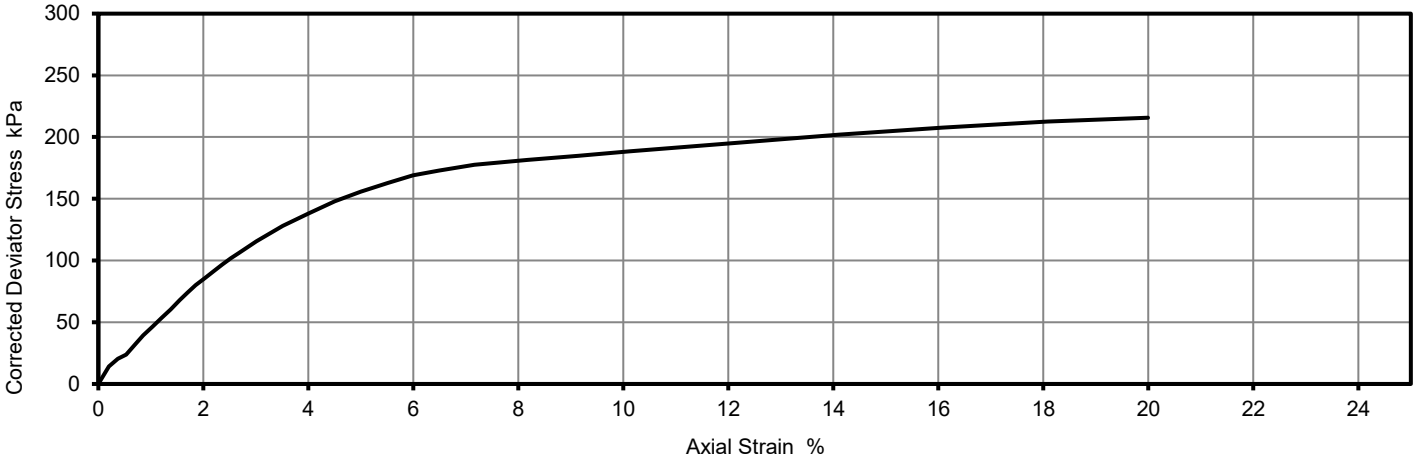
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

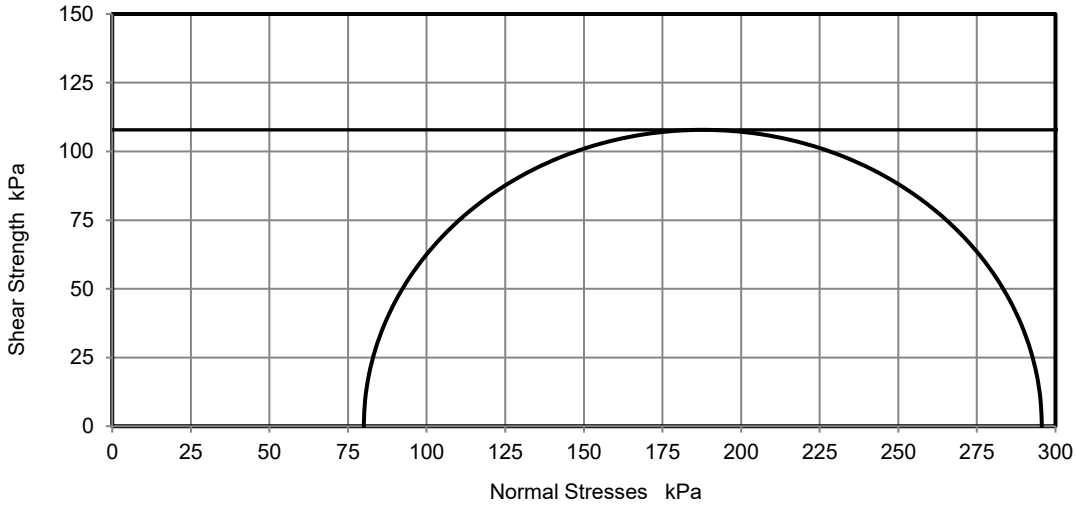
Laboratory Reference:	1650689	Depth Top [m]:	4.00
Hole No.:	BH101	Depth Base [m]:	4.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Dark grey CLAY		

Test Number	1		Rate of Strain	2.00	%/min	
Length	198.31	mm	Cell Pressure	80	kPa	
Diameter	103.69	mm	Axial Strain at failure	20.0	%	
Bulk Density	2.08	Mg/m3	Deviator Stress, (σ1 - σ3)f	216	kPa	
Moisture Content	24	%	Undrained Shear Strength, cu	108	kPa	½(σ1 - σ3)f
Dry Density	1.68	Mg/m3	Mode of Failure	Compound		
Membrane Correction	1.00	kPa	Membrane thickness	0.27	mm	

Deviator Stress v Axial Strain



Mohr Circles



Position within sample

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

Remarks:

Signed:

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 28/10/2020

GF 184.11

TEST CERTIFICATE

Unconsolidated Undrained

Triaxial Compression

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

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

UKAS TESTING 4041

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	07/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	20/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

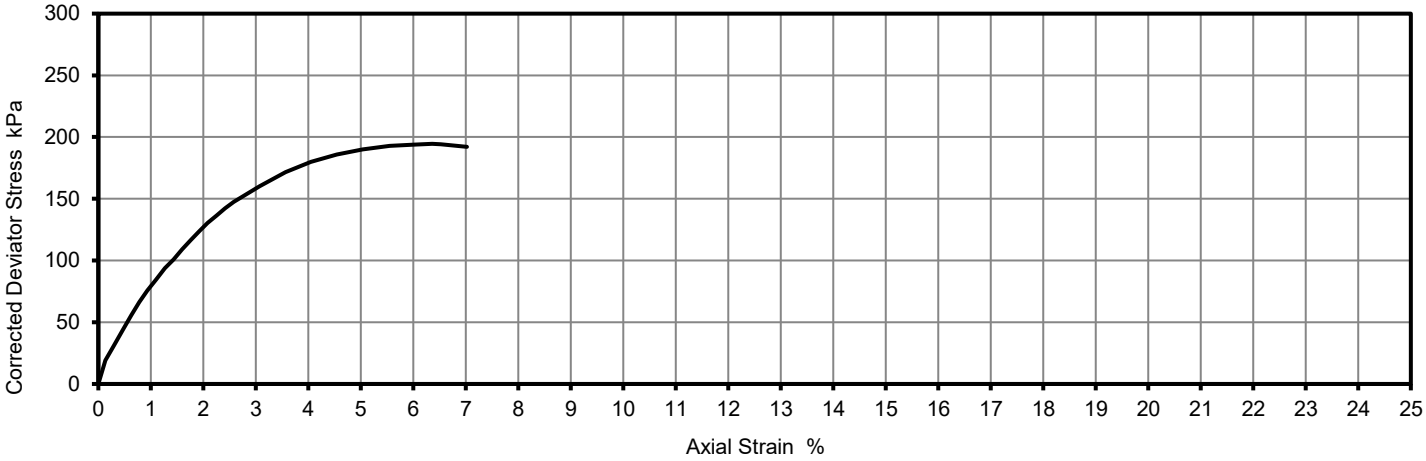
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

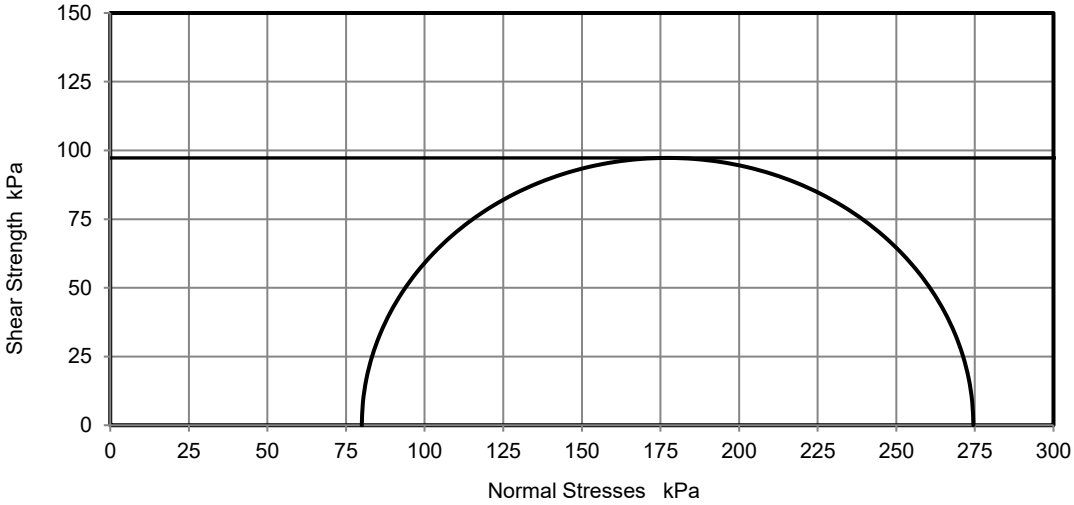
Laboratory Reference:	1650693	Depth Top [m]:	4.00
Hole No.:	BH102	Depth Base [m]:	4.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Dark grey CLAY		

Test Number	1		Rate of Strain	1.99	%/min
Length	200.69	mm	Cell Pressure	80	kPa
Diameter	103.29	mm	Axial Strain at failure	6.4	%
Bulk Density	2.09	Mg/m3	Deviator Stress, (σ1 - σ3)f	195	kPa
Moisture Content	21	%	Undrained Shear Strength, cu	97	kPa ½(σ1 - σ3)f
Dry Density	1.72	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.38	kPa	Membrane thickness	0.24	mm

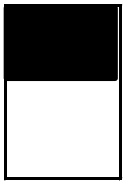
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



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

Remarks:

Signed:

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

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Date Reported: 28/10/2020

GF 184.11

TEST CERTIFICATE

Unconsolidated Undrained

Triaxial Compression

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

UKAS TESTING 4041

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

Environmental Science

Client:	Ground and Environmental Services Ltd	Client Reference:	12446
Client Address:	Unit 2 Montpelier, Business Park, Dencora Way, Ashford, Kent, TN23 4FG	Job Number:	20-35614
		Date Sampled:	05/10/2020
		Date Received:	14/10/2020
Contact:	Craig Spanton	Date Tested:	20/10/2020
Site Address:	Great Western Yard, Gloucester	Sampled By:	Client

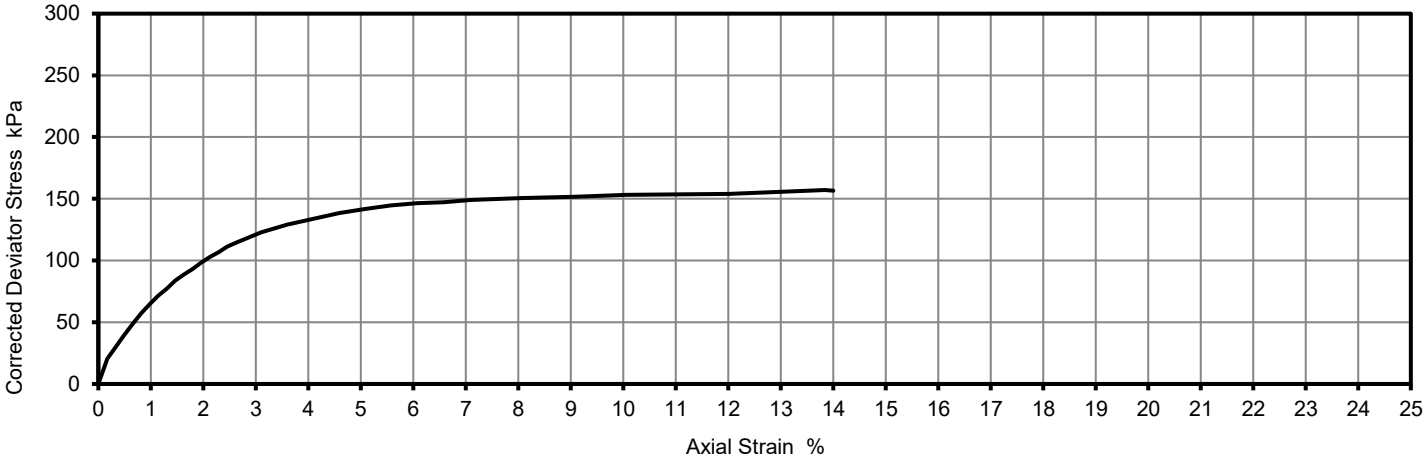
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

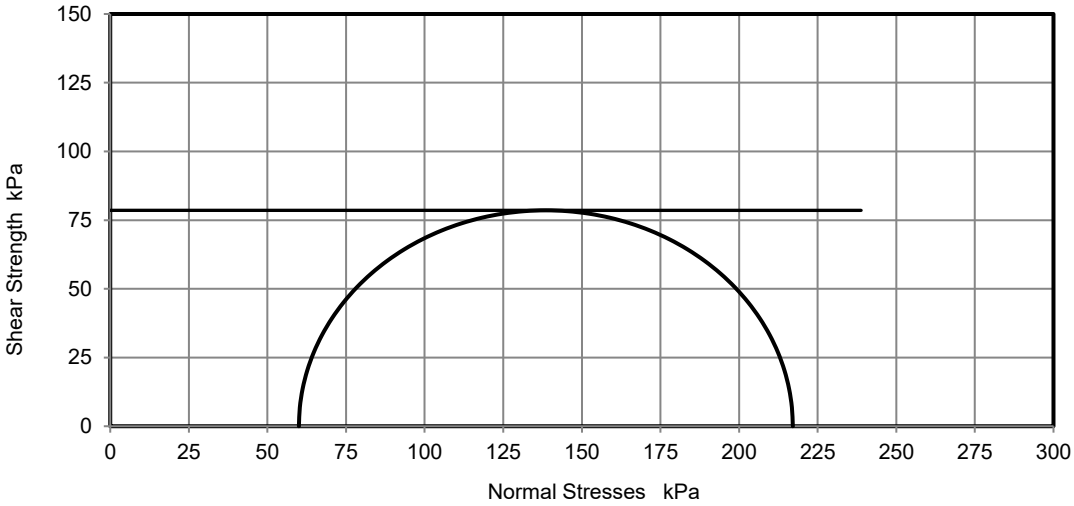
Laboratory Reference:	1650698	Depth Top [m]:	3.00
Hole No.:	BH103	Depth Base [m]:	3.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Dark grey CLAY with fragments of shells		

Test Number	1		Rate of Strain	1.99	%/min	
Length	200.65	mm	Cell Pressure	60	kPa	
Diameter	102.25	mm	Axial Strain at failure	13.8	%	
Bulk Density	2.07	Mg/m3	Deviator Stress, (σ1 - σ3)f	157	kPa	
Moisture Content	26	%	Undrained Shear Strength, cu	79	kPa	½(σ1 - σ3)f
Dry Density	1.64	Mg/m3	Mode of Failure	Compound		
Membrane Correction	0.61	kPa	Membrane thickness	0.22	mm	

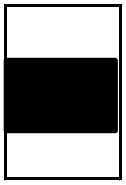
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



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

Remarks:

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Signed:

Szczepan Bielatowicz
PL Deputy of Head of Geotechnical Section
for and on behalf of i2 Analytical Ltd

Date Reported: 28/10/2020

GF 184.11

Craig Spanton
Ground & Environmental Services Ltd
Unit 2
Montpelier Business Park
Dencora Way
Ashford
Kent
TN23 4FG

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: [redacted]

DETS Report No: 20-12003

Site Reference:	Great Western Yard, Gloucester
Project / Job Ref:	12446
Order No:	GES/4107.12446
Sample Receipt Date:	14/10/2020
Sample Scheduled Date:	14/10/2020
Report Issue Number:	1
Reporting Date:	20/10/2020

Authorised by:

[redacted]

General Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
[redacted]

Soil Analysis Certificate						
DETS Report No: 20-12003	Date Sampled	13/10/20	13/10/20	13/10/20	13/10/20	13/10/20
Ground & Environmental Services Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Great Western Yard, Gloucester	TP / BH No	WS105	WS106A	WS107	WS109	WS110
Project / Job Ref: 12446	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: GES/4107.12446	Depth (m)	1.50 - 1.70	1.30 - 1.40	2.80 - 3.00	1.60 - 1.70	1.60 - 1.80
Reporting Date: 20/10/2020	DETS Sample No	504987	504988	504989	504990	504991

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.5	8.4	8.4	8.3	8.4
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	< 10	34	31	25	14
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	< 0.01	0.03	0.03	0.02	0.01

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
[redacted]

Soil Analysis Certificate						
DETS Report No: 20-12003	Date Sampled	13/10/20	13/10/20	13/10/20	13/10/20	13/10/20
Ground & Environmental Services Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Great Western Yard, Gloucester	TP / BH No	WS111	WS112	WS113	WS115	WS116
Project / Job Ref: 12446	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: GES/4107.12446	Depth (m)	1.30 - 1.40	1.30 - 1.40	2.70 - 2.90	3.80 - 4.00	1.50 - 1.70
Reporting Date: 20/10/2020	DETS Sample No	504992	504993	504994	504995	504996

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	MCERTS	8.4	8.3	8.3	8.5	8.3
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	< 10	13	56	446	15
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	< 0.01	0.01	0.06	0.45	0.02

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion

Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
[redacted]

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 20-12003	
Ground & Environmental Services Ltd	
Site Reference: Great Western Yard, Gloucester	
Project / Job Ref: 12446	
Order No: GES/4107.12446	
Reporting Date: 20/10/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
504987	WS105	None Supplied	1.50 - 1.70	12	Light brown sand
504988	WS106A	None Supplied	1.30 - 1.40	14.2	Light brown sandy clay with stones
504989	WS107	None Supplied	2.80 - 3.00	17.8	Red clay
504990	WS109	None Supplied	1.60 - 1.70	16.3	Light brown sandy clay with stones
504991	WS110	None Supplied	1.60 - 1.80	14.4	Light brown sandy clay with stones
504992	WS111	None Supplied	1.30 - 1.40	13.6	Light brown sand with stones
504993	WS112	None Supplied	1.30 - 1.40	13.3	Light brown sand with stones
504994	WS113	None Supplied	2.70 - 2.90	16.2	Black clay
504995	WS115	None Supplied	3.80 - 4.00	14.1	Black clay
504996	WS116	None Supplied	1.50 - 1.70	13.4	Light brown sand

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample I/S

Unsuitable Sample U/S

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
[redacted]

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 20-12003
Ground & Environmental Services Ltd
Site Reference: Great Western Yard, Gloucester
Project / Job Ref: 12446
Order No: GES/4107.12446
Reporting Date: 20/10/2020

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Appendix D Exploratory Hole Logs and Photographs

Hydrock	Project: Great Western Road Yard	Borehole No BH201 Page No. 1 of 2	
Method: Dynamic Sampled & Rotary Cored	Date(s): 21/02/2022 - 22/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384260.06, 218273.36	Checked By: MK	Flush: Water
Hydrock Project No: 20775	Ground Level: 20.14m OD		Scale: 1:50

Sample/Core Run (m) Smpl. Ø (mm) Smpl. rec. %	Samples / Tests Depth (m)	Type	Results	Mechanical Log TCR	SCR	RQD	If: Min Mean Max	Water-Strikes
	0.40 - 0.60	B						
	0.50	ES						
	0.50	PID	0.0ppm					
	0.80 - 1.00	B						
1.20 - 2.20	1.00 - 1.20	B						
	1.20	SPT	N=20 (3,4,8,4,5,3)	0				
2.20 - 3.20	2.20	SPT	N=32 (4,4,7,9,7,9)					
	2.20 - 3.20	B						
	2.30	ES		72				
	2.30	PID	0.0ppm					
3.20 - 4.20	3.20	SPT	N=11 (5,9,4,3,2,2)					
	3.70 - 4.20	C		100				
	4.10	ES						
4.20 - 5.70	4.10	PID	0.0ppm					
	4.20 - 4.55	U						
				100	100	100		
	5.20 - 5.30	D						
	5.30 - 5.70	C						
5.70 - 7.20	5.70	SPT	N=43 (5,6,7,10,12,14)					
	6.04 - 6.34	C						
				100	100	100		
	6.97 - 7.17	C						
7.20 - 8.70	7.20	SPT	N=42 (5,6,7,8,13,14)					
				100	100	100		
	8.30 - 8.70	C						
8.70 - 10.20	8.70	SPT	50/150mm (8,12,20,30)					
				100	100	100		
	9.50 - 9.90	C						

Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrumentation / Backfill
Grey coarse aggregate CONCRETE. (MADE GROUND)	0.30	(0.30)	19.84		
Dark grey sandy silty angular fine to coarse GRAVEL of limestone with a low cobble content. Sand is fine to coarse. Cobbles are angular of limestone. (MADE GROUND) *... 0.90m-2.20m: AZCL.*	1.40	(1.10)	18.74		
Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL)	3.30	(1.90)	16.84		
Very stiff dark grey CLAY. (CHARMOUTH MUDSTONE FORMATION) *... 4.20m-4.66m: AZCL due to U100.* *... 5.10m-5.20m: comminuted pyratised shell bed.*	5.20	(1.90)	14.94		
Extremely weak locally thinly laminated dark grey micaceous MUDSTONE with frequent locally abundant shells. (CHARMOUTH MUDSTONE FORMATION)	7.20	(2.00)	12.94		
Extremely weak to weak locally thinly laminated dark grey micaceous MUDSTONE with frequent locally abundant shells and ammonites. (CHARMOUTH MUDSTONE FORMATION) *... 8.20m-8.30m: comminuted pyratised shell bed.*					

Continued on Next Sheet

Progress and Observations

Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)
Fraste	21/02	0800	0.00		110		Water	
Fraste	21/02	1700	11.70		110		Water	
Fraste	22/02	0800	11.70		110		Water	
Fraste	22/02	1100	15.02		110		Water	

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 0.90m bgl unable to hand dig further due to cobbles. 3. Groundwater strike unknown due to water flush being used. 4. 50mm monitoring well installed, response zone between 6.00m - 14.70m bgl. 5. No visual or olfactory evidence of contamination.

Groundwater: Unknown due to water flush.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No BH201 Page No. 2 of 2	
Method: Dynamic Sampled & Rotary Cored	Date(s): 21/02/2022 - 22/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384260.06, 218273.36	Checked By: MK	Flush: Water
Hydrock Project No: 20775	Ground Level: 20.14m OD		Scale: 1:50

Sample/Core Run (m) Smpl. Ø (mm) Smpl. rec. %	Samples / Tests: Depth (m)	Type	Results	Mechanical Log: TCR	SCR	RQD	If: Min Mean Max	Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
10.20 - 11.70	10.20	SPT	50/150mm (10,15,18,32)						Extremely weak to weak locally thinly laminated dark grey micaceous MUDSTONE with frequent locally abundant shells and ammonites. (CHARMOUTH MUDSTONE FORMATION)					
	11.10 - 11.50	C		100	100	100			*... 10.87m-10.92m: moderately weak claystone nodule.*	11	(7.82)			
11.70 - 13.20	11.70	SPT	50/125mm (8,15,28,22)						*... 11.70m-15.00m: thinly laminated.*					
									... 12.04m-12.08m: moderately weak claystone nodule.	12				
	12.60 - 12.83	C		100	100	100								
	13.00 - 13.20	C								13				
13.20 - 14.70	13.20	SPT	50/120mm (11,13,30,20)											
	13.82 - 14.15	C		100	100	100				14				
	14.37 - 14.48	C							*... 14.40m-14.70m: abundant shells.*					
	14.70	SPT	50/165mm (17,8,24,24,2)											
									End of Borehole at 15.02m	15 15.02		5.12		
										16				
										17				
										18				
										19				
										20				

Progress and Observations

Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 0.90m bgl unable to hand dig further due to cobbles. 3. Groundwater strike unknown due to water flush being used. 4. 50mm monitoring well installed, response zone between 6.00m - 14.70m bgl. 5. No visual or olfactory evidence of contamination.

Groundwater: Unknown due to water flush.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No BH202 Page No. 1 of 1	
Method: Dynamic Sampled	Date(s): 02/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384073.17, 218404.85	Checked By: MK	Flush: Water
Hydrock Project No: 20775	Ground Level: 18.70m OD		Scale: 1:100

Sample/Core Run (m)	Samples / Tests Depth (m)	Type	Results	Mechanical Log TCR	SCR	RQD	If: Min Mean Max	Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
	0.00 - 0.40	B							Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, brick, slag. (MADE GROUND)	0.60	(0.60)	18.10		
	0.20	ES							Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	2.30	(1.70)	16.40		
	0.20	PID	0.0ppm						Firm to stiff dark grey CLAY. (CHARMOUTH MUDSTONE FORMATION)	3.30	(1.00)	15.40		
1.20 - 2.50	0.60 - 1.00	B							End of Borehole at 3.30m					
	0.70	ES												
	0.70	PID	0.0ppm	100										
	1.20	ES												
2.50 - 3.30	1.20	PID	0.4ppm											
	1.50 - 2.00	B		100										
	1.80	ES												
	1.80	PID	0.4ppm											
	2.10 - 2.50	C												
	2.20	ES												
	2.20	PID	0.3ppm											
	2.50	HSV	78kPa											
	3.00	HSV	117kPa											

Progress and Observations

Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)
Fraste	02/03	1000	0.00		110		Water	
Fraste	02/03	1100	3.30		110		Water	

Chiselling

From (m)	To (m)	Duration (HH:MM)

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike unknown. 4. 50mm monitoring well installed, response zone between 1.30m - 2.30m bgl with a 1m sump of plain pipe beneath. 5. No visual or olfactory evidence of contamination.

Groundwater: Unknown due to water flush installing casing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No BH203 Page No. 1 of 1	
Method: Dynamic Sampled	Date(s): 02/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384110.61, 218368.43	Checked By: MK	Flush: Water
Hydrock Project No: 20775	Ground Level: 19.29m OD		Scale: 1:100

Sample/Core Run (m)	Samples / Tests Depth (m)	Type	Results	Mechanical Log TCR	SCR	RQD	If: Min Mean Max	Water-Strikes
	0.00 - 0.40	B						
	0.20	ES						
	0.20	PID	0.0ppm					
1.20 - 2.50	0.90	ES						
	0.90	PID	0.0ppm					
	1.00 - 1.20	B		100				
	1.30	ES						
2.50 - 4.00	1.30	PID	1.0ppm					
	1.60	ES						
	1.60	PID	0.7ppm					
	2.00	ES		93				
	2.00 - 2.50	B						
	2.00	PID	1.8ppm					
	2.60	ES						
	2.60	PID	0.5ppm					
	3.00	ES						
	3.00	PID	0.3ppm					
	3.10 - 3.30	B						
	3.25	HSV	127kPa					
	3.50	ES						
	3.50	PID	0.9ppm					
	3.60 - 3.95	C						

Stratum Description	Depth mbgl	Thickness (m)	Level m OD
Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, brick, slag. (MADE GROUND) *... 0.60m-0.80m: high cobble content. Cobbles are brick.*	0.80	(0.80)	18.49
Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.50	(0.70)	17.79
Greyish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Moderate hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.80m-2.20m: stained grey.*	2.80	(1.30)	16.49
Firm to stiff dark grey CLAY with frequent locally abundant shells and ammonites. (CHARMOUTH MUDSTONE FORMATION) *... 3.00m-3.30m: potential selenite crystals up to 2mm.*	4.00	(1.20)	15.29

End of Borehole at 4.00m

Legend / Instrumentation / Backfill

Progress and Observations

Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)
Fraste	02/03	1130	0.00		110		Water	
Fraste	02/03	1330	3.30		110		Water	

Chiselling

From (m)	To (m)	Duration (HH:MM)

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike unknown. 4. 50mm monitoring well installed, response zone between 0.80m - 2.80m bgl with a 1m sump of plain pipe beneath.

Groundwater: Unknown due to water flush installing casing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No BH204 Page No. 1 of 1	
Method: Dynamic Sampled & Rotary Cored	Date(s): 02/02/2022 - 03/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384126.78, 218373.03	Checked By: MK	Flush: Water
Hydrock Project No: 20775	Ground Level: 19.23m OD		Scale: 1:50

Sample/Core Run (m) Smpl. Ø (mm) Smpl. rec. %	Samples / Tests Depth (m)	Type	Results	Mechanical Log TCR	SCR	RQD	If: Min Mean Max	Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
	0.00 - 0.20	B							Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, brick, slag. (MADE GROUND)	0.30	(0.30)	18.93		
	0.20	ES							Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)					
	0.20	PID	0.0ppm											
	0.50	ES												
	0.50 - 1.00	B									(0.90)			
	0.50	PID	0.0ppm							1				
1.20 - 2.50	1.20	SPT	N=25 (4,4,4,6,7,8)							1.20		18.03		
	1.40	ES							Greyish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Light hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.30m-2.15m: stained grey.*					
	1.40	PID	1.7ppm											
				100							(1.30)			
	2.00	ES								2				
	2.00 - 2.50	B												
	2.00	PID	0.0ppm							2.50		16.73		
2.50 - 4.00	2.50	SPT	N=7 (1,1,1,1,2,3)						Firm to stiff dark grey CLAY with frequent locally abundant shells and ammonites. (CHARMOUTH MUDSTONE FORMATION)					
	2.50	ES												
	2.50	PID	0.0ppm											
	2.75	HSV	130kPa							3				
	3.00	ES												
	3.00	PID	0.0ppm	100										
	3.10 - 3.50	C												
	3.25	HSV	>130kPa											
	3.50	ES												
	3.50	PID	0.0ppm											
4.00 - 5.50	3.75 - 4.00	B							*... 4.00m bgl: very stiff.*	4	(3.00)			
	4.00	SPT	N=25 (3,4,4,4,8,5,8)											
	4.50 - 4.90	C												
				100										
										5				
	5.10 - 5.50	C												
	5.50	SPT	N=25 (2,3,4,5,8,8)							5.50		13.73		
									End of Borehole at 5.50m					
										6				
										7				
										8				
										9				
										10				

Progress and Observations

Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)
Fraste	02/03	1400	0.00		110		Water	
Fraste	02/03	1700	5.50		110		Water	

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike unknown. 4. 2 x seperate boreholes completed at this location to minimise cross contamination (approximately 1.5m apart referenced BH204S (Shallow) and BH204D (Deep)). 5. 2 x 50mm monitoring wells installed. A shallow response zone between 0.50m - 2.50m bgl with a 1m sump of plain pipe beneath (BH204S), and a deep response zone between 4.00m - 5.50m bgl (BH205D).

Groundwater: Unknown due to water flush installing casing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No BH205 Page No. 1 of 1	
Method: Dynamic Sampled	Date(s): 03/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384097.40, 218387.68	Checked By: MK	Flush: Water
Hydrock Project No: 20775	Ground Level: 19.08m OD		Scale: 1:100

Sample/Core Run (m)	Samples / Tests Depth (m)	Type	Results	Mechanical Log TCR	SCR	RQD	If: Min Mean Max	Water-Strikes
	0.00 - 0.20	B						
	0.20	ES						
	0.20	PID	0.0ppm					
1.20 - 2.50	0.70	ES						
	0.70	PID	0.0ppm					
	0.80 - 1.00	B		100				
	1.30	ES						
2.50 - 4.00	1.30	PID	0.0ppm					
	1.50	ES						
	1.50	PID	0.4ppm					
	2.00	ES		100				
	2.00	PID	0.3ppm					
	3.30	ES						
	3.30	PID	0.0ppm					
	3.44 - 3.77	B						
	3.80	ES						
	3.80	PID	0.0ppm					
	3.90	HSV	>130kPa					

Stratum Description	Depth mbgl	Thickness (m)	Level m OD
Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, brick, slag. (MADE GROUND)	0.55	(0.55)	18.53
Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.40	(0.85)	17.68
Greyish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Moderate hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.40m-1.75m: stained grey.*	2.50	(1.10)	16.58
Firm to stiff dark grey CLAY with frequent locally abundant shells and ammonites. (CHARMOUTH MUDSTONE FORMATION) *... 2.50m-3.05m: potentially up to 0.50m of core loss and subsequent detials/samples may be stated at the wrong depths.*	4.00	(1.50)	15.08

End of Borehole at 4.00m

Legend / Instrumentation / Backfill

Progress and Observations

Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)
Fraste	03/03	1100	0.00		110		Water	
Fraste	03/03	1300	4.00		110		Water	

Chiselling

From (m)	To (m)	Duration (HH:MM)

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike unknown. 4. 50mm monitoring well installed, response zone between 0.50m - 2.50m bgl with a 1m sump of plain pipe beneath.

Groundwater: Unknown due to water flush installing casing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No BH206 Page No. 1 of 1	
Method: Dynamic Sampled	Date(s): 03/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384105.46, 218345.06	Checked By: MK	Flush: Water
Hydrock Project No: 20775	Ground Level: 19.35m OD		Scale: 1:100

Sample/Core Run (m)	Samples / Tests Depth (m)	Type	Results	Mechanical Log TCR	SCR	RQD	If: Min Mean Max	Water-Strikes
	0.00 - 0.20	B						
	0.20	ES						
	0.20	PID	0.0ppm					
1.20 - 2.50	0.80	ES						
	0.80 - 1.00	B						
	0.80	PID	0.0ppm	100				
	1.30	ES						
2.50 - 4.00	1.30	PID	0.0ppm					
	1.80	ES						
	1.80	PID	0.3ppm					
	2.30	ES		100				
	2.30	PID	0.6ppm					
	2.90	ES						
	2.90	PID	0.6ppm					
	3.20	HSV	70kPa					
	3.30	ES						
	3.30	PID	0.3ppm					
	3.80	ES						
	3.80	PID	0.1ppm					
	3.82 - 4.00	B						

Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrumentation / Backfill
Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, brick, slag. (MADE GROUND)	0.60	(0.60)	18.75		
Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.70	(1.10)	17.65		
Grey gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 2.40m-3.05m: relatively more gravelly.*	3.05	(1.35)	16.30		
Firm to stiff dark grey CLAY with frequent locally abundant shells and ammonites. (CHARMOUTH MUDSTONE FORMATION) *... 3.30m-3.40m: sandy. Sand is fine to coarse.*	4.00	(0.95)	15.35		
End of Borehole at 4.00m					

Progress and Observations

Rig	Date	Time	Borehole Depth (m)	Casing Depth (m)	Casing Diam.(mm)	Water Depth (m)	Flush Type	Returns (colour)
Fraste	03/03	1500	0.00		110		Water	
Fraste	03/03	1630	4.00		110		Water	

Chiselling

From (m)	To (m)	Duration (HH:MM)

General Remarks:
1. CAT & Genny scanned. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike unknown. 4. 50mm monitoring well installed, response zone between 1.00m - 3.00m bgl with a 1m sump of plain pipe beneath.

Groundwater: Unknown due to water flush installing casing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT201 Page No. 1 of 1

Method: Trial Pit	Date(s): 15/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384081.58, 218389.84	Stability: Stable	Dimensions: 0.30m / 1.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 18.93m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.00	B			Asphalt.		(0.09)		
0.10	ES			(MADE GROUND)	0.09		18.84	
0.10	PID			Light brown silty sandy fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.15	(0.06)	18.78	
0.30	ES			Black ashy gravelly fine to coarse SAND with a low cobble content. Gravel is angular to sub angular fine to coarse of brick and coal. Cobbles are angular to rounded of brick and coal. (MADE GROUND)				
0.30	PID	0.7ppm						
0.50	D					(1.05)		
1.00	D				1			
1.00	ES							
1.00	PID	1.3ppm						
				Base of Excavation at 1.20m	1.20		17.73	
					2			
					3			
					4			
					5			

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination. 5. Pit terminated at target depth for completion of CPT testing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT202 Page No. 1 of 1

Method: Trial Pit	Date(s): 15/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384253.94, 218320.35	Stability: Stable	Dimensions: 0.30m / 1.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 20.70m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.00	B			Asphalt. (MADE GROUND)	0.17	(0.17)	20.53	
0.30 0.30	ES PID			Grey sandy angular GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.50	(0.33)	20.20	
0.60 0.60 0.60	D ES PID	0.0ppm		Firm dark brown sandy slightly gravelly CLAY with occasional shells. Sand is fine to coarse. Gravel is angular fine to medium of brick. (MADE GROUND)	0.80	(0.30)	19.90	
0.90 0.90	ES PID	0.0ppm		Orangish brown clayey fine to coarse SAND. (CHELTENHAM SAND AND GRAVEL)	1.10	(0.30)	19.60	
1.15	D			Orangish brown fine to coarse SAND. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.10)	19.50	
				Base of Excavation at 1.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination. 5. Pit terminated at target depth for completion of CPT testing however not undertaken due to time constraints.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT203 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384236.45, 218352.65	Stability: Stable	Dimensions: 0.30m / 1.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 20.26m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.00	B			Asphalt. (MADE GROUND)	0.10	(0.10)	20.16	
0.20	ES			Light pinkish brown silty sandy angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.27	(0.17)	19.99	
0.20	PID							
0.40	ES			Black clayey gravelly fine to coarse SAND. Gravel is angular of coal and brick. (MADE GROUND)	0.55	(0.28)	19.71	
0.40	PID	0.0ppm						
0.60	ES			Light brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.65)	19.06	
0.60 - 1.00	B							
0.60	PID	0.0ppm						
				Base of Excavation at 1.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination. 5. Pit terminated at target depth for completion of CPT testing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT204 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384182.97, 218377.15	Stability: Stable	Dimensions: 0.30m / 1.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.69m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Very strong reinforced grey concrete with 5mm rebar at 0.40m spacing. (MADE GROUND)	0.45	(0.45)	19.24	
0.50 0.50 0.60	ES PID D	0.0ppm		Brown clayey gravelly fine to coarse SAND with rare shell fragments. Gravel is sub angular to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.75)	18.49	
				Base of Excavation at 1.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination. 5. Pit terminated at target depth for completion of CPT testing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT205 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384201.90, 218354.06	Stability: Stable	Dimensions: 0.30m / 1.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.69m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.05	ES			Light pinkish brown silty sandy angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.15	(0.15)	19.54	
0.05	PID	0.0ppm						
0.30	ES			Brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)		(1.05)		
0.30	PID	0.0ppm						
0.50 - 1.00	B							
				Base of Excavation at 1.20m	1.20		18.49	

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination. 5. Pit terminated at target depth for completion of CPT testing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT206 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384232.65, 218288.90	Stability: Stable	Dimensions: 0.30m / 1.50m — Scale: 1:25
Hydrock Project No: 20775	Ground Level: 20.03m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Dark grey gravelly fine to coarse SAND. Gravel is angular medium of limestone. (MADE GROUND)	0.25	(0.25)	19.78	
0.30 0.30	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of brick and wood. (MADE GROUND)	0.45	(0.20)	19.58	
0.50 0.50 - 1.00 0.50	ES B PID	0.1ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.10	(0.65)	18.93	
1.20 1.20	ES PID	17.8ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.10)	18.83	
				Base of Excavation at 1.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. Pit terminated at target depth for completion of CPT testing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT207 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384175.04, 218313.49	Stability: Stable	Dimensions: 0.30m / 1.50m — Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.93m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Dark grey silty sandy angular fine to medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.20	(0.20)	19.73	
				Pinkish brown sandy angular medium to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.40	(0.20)	19.53	
0.50 0.50	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND with a low cobble content. gravel is angular fine to coarse of brick, wood, metal, general rubbish, cables and pipes. Cobbles are angular of wood and metal. (MADE GROUND)	0.60	(0.20)	19.33	
0.70 0.70	ES PID	2.1ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL)	1.15	(0.55)	18.78	
1.20 1.20	ES PID	51.5ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.05)	18.73	
				Base of Excavation at 1.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. Pit terminated at target depth for completion of CPT testing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT208 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022 - 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384147.07, 218337.53	Stability: Unstable	Dimensions: 0.30m / 1.50m — Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.64m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.00 - 0.15	B			Dark grey silty sandy angular fine to medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.15	(0.15)	19.49	
0.30 0.30	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick, wood, metal, general rubbish, cables and pipes. Cobbles are angular of wood and metal. (MADE GROUND)	0.70	(0.55)	18.94	
0.80 0.80	ES PID	87.3ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)				
1.20 1.20	ES PID	66.9ppm				(1.20)		
1.50 1.50	ES PID	51.5ppm						
1.90 1.90	ES PID	82.0ppm		Base of Excavation at 1.90m	1.90		17.74	

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater encountered at 1.70m bgl with slight sheen on surface. 3. Pit collapsed at 1.90m bgl 4. Pit backfilled and compacted with arisings in reverse order upon completion. 5. Pit terminated at target depth for completion of CPT testing, testing was attempted twice but rods refused. Subsequently trial pitting was resumed to depth.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT209 Page No. 1 of 1	
Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384095.68, 218381.51	Stability: Stable	Dimensions: 0.30m × 1.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 18.95m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of brick, limestone and slag. (MADE GROUND)	0.40	(0.40)	18.55	
0.50 0.50 - 1.00 0.50	ES B PID	0.4ppm		Orangish brown very clayey gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.80)	17.75	
				Base of Excavation at 1.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination. 5. Pit terminated at target depth for completion of CPT testing.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No CPT210 Page No. 1 of 1	
Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384055.74, 218426.33	Stability: Stable	Dimensions: 0.30m × 1.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 18.51m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of brick, limestone, metal. (MADE GROUND)	0.50	(0.50)	18.01	
0.60 0.60 - 1.00 0.60	ES B PID	0.0ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL)	1.20	(0.70)	17.31	
				Base of Excavation at 1.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.20m bgl. 3. Pit remained stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination. 5. Pit terminated at target depth for completion of CPT testing however not undertaken due to time constraints.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP201 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384221.48, 218361.62	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 20.02m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.15 - 0.30	B			Asphalt (MADE GROUND)	0.14	(0.14)	19.88	
0.20	ES			Pinkish brown sandy angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.30	(0.16)	19.72	
0.20	PID	0.0ppm						
0.40	ES			Black clayey gravelly fine to coarse SAND with a low cobble and boulder content. Gravel is angular fine to coarse of brick, metal, slag, general rubbish and clothing. Cobbles and boulders are angular of brick and mortared brick. (MADE GROUND)	0.60	(0.30)	19.42	
0.40	PID	0.0ppm						
0.70	ES			Orangish brown gravelly fine to coarse SAND. Gravel is rounded fine to medium of flint. (CHELTENHAM SAND AND GRAVEL)	1.70	(1.10)	18.32	
0.70	PID	0.0ppm						
0.80 - 1.00	B							

Base of Excavation at 1.70m

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.30m bgl fast ingress. 3. Trial pit terminated at 1.70m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion. 5. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP202 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384180.35, 218361.71	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.64m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.10	ES			Pinkish brown silty sandy angular fine to coarse GRAVEL of limestone. (MADE GROUND)	0.15	(0.15)	19.49	
0.10	PID	0.0ppm						
0.20	ES			Soft very dark brown clayey gravelly fine to coarse SAND. Gravel is angular fine to coarse of brick, plastic and shell fragments. (MADE GROUND)	0.25	(0.10)	19.39	
0.20	PID	0.0ppm						
0.40 - 0.70	B			Brown slightly gravelly fine to coarse SAND. Gravel is rounded fine to medium of flint. (CHELTENHAM SAND AND GRAVEL)		(0.45)		
0.50	ES							
0.50	PID	0.0ppm		*... 0.55m-0.70m: partially indurated.*	0.70		18.94	
				Grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Very strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)		(1.30)		
0.90	D							
0.90	ES							
0.90	PID	67.1ppm						
1.50	ES							
1.50 - 2.00	B							
1.50	PID	68.7ppm						
2.00	ES			Base of Excavation at 2.00m	2.00		17.64	
2.00	PID	69.2ppm						

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 2.00m bgl rose to 1.90m bgl after 10 minutes with slight sheen on surface. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP203 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384199.11, 218319.18	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.97m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20	ES			Dark grey sandy silty angular fine to medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)		(0.45)		
0.20	PID	0.0ppm			0.45		19.52	
0.50	ES			Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of metal, clinker, slag, brick, slate and rare bluish green discolouration on slag. Cobbles are angular of brick. (MADE GROUND)	0.55	(0.10)	19.42	
0.50	PID	0.0ppm						
0.60	ES							
0.60 - 1.00	B							
0.60	PID	0.2ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL) *... 0.85m-1.05m: partially indurated.*		(0.50)		
					1.05		18.92	
1.10 - 1.40	B			Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)				
1.20	ES							
1.20	PID	86.5ppm				(0.95)		
					2.00		17.97	
2.00	ES			Base of Excavation at 2.00m				
2.00	PID	143.3ppm						

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.9m bgl with sheen of surface. 3. Pit collapsed at 2.00m bgl. 4. Pit backfilled and compacted with arisings in reverse order upon completion. 5. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP204 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384182.97, 218377.15	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.69m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.10 0.10	ES PID	 0.0ppm		Dark grey sandy silty angular fine to medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.30	(0.30)	19.39	
0.40 0.40	ES PID	 0.0ppm		Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of metal, clinker, brick and slate. Cobbles are angular of brick. (MADE GROUND)	0.55	(0.25)	19.14	
0.60 0.60	ES PID	 0.4ppm		Partially indurated Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	0.65	(0.10)	19.04	
0.80 0.80 - 1.00 0.80	ES B PID	 107.6ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)		(1.55)		
1.50 1.50 - 2.00 1.50	ES B PID	 160.6ppm						
2.00 2.00	ES PID	 169.5ppm						
				Base of Excavation at 2.20m	2.20		17.49	

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 2.2m bgl with sheen of surface. 3. Trial pit terminated at 2.20m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP205 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384189.92, 218324.45	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.95m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.10	ES			Dark grey sandy silty angular fine to medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.25	(0.25)	19.70	
0.10	PID	0.0ppm						
0.40	ES			Black silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of metal, brick, slate, slag and rare bluish green discolouration on slag. Cobbles are angular of brick. (MADE GROUND)	0.45	(0.20)	19.50	
0.40	PID	0.0ppm						
0.50	D			Partially indurated Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	0.90	(0.45)	19.05	
0.60	ES							
0.60	PID	0.9ppm						
1.00	D			Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	2.00	(1.10)	17.95	
1.00	ES							
1.00	PID	92.2ppm						
1.50	ES							
1.50 - 2.00	B							
1.50	PID	127.4ppm						
2.00	ES			Base of Excavation at 2.00m				
2.00	PID	105.1ppm						

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 2.0m bgl with sheen of surface and in soils. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP206 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384191.22, 218319.34	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.97m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.10 0.10	ES PID	 0.0ppm		Dark grey sandy silty angular fine to medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.20	(0.20)	19.77	
0.30 0.30	ES PID	 0.0ppm		Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick, slag and rare bluish green discolouration on slag. Cobbles are angular of brick. (MADE GROUND)	0.40	(0.20)	19.57	
0.50 0.50 - 1.00 0.50	ES B PID	 5.3ppm		Partially indurated Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.10	(0.70)	18.87	
1.20 1.20 1.50 1.50 1.50	ES PID D ES PID	 108.6ppm		Light grey mottled black silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	1.80	(0.70)	18.17	
				Base of Excavation at 1.80m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.80m bgl with sheen of surface. 3. Trial pit terminated at 1.80m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP207 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384167.54, 218329.60	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.70m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Dark grey sandy silty angular fine to medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.50	(0.50)	19.20	
0.50 - 1.00 0.60 0.60	B ES PID	0.3ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.10	(0.60)	18.60	
1.20 1.20	ES PID	45.2ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	1.30	(0.20)	18.40	
				Base of Excavation at 1.30m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2.Pit remained dry and stable no groundwater encountered. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. Unable to proceed past 1.30m bgl due to excavator sliding on adjacent disused railway track.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP208 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384173.85, 218346.44	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.60m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.00 - 0.15	B			Dark grey sandy silty angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)		(0.60)		
0.50 0.50	ES PID	0.0ppm		*... 0.50m bgl: 40mm metal pipe encountered.*	0.60		19.00	
				Base of Excavation at 0.60m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2.Pit remained dry and stable. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. Trial pit terminated upon encountering 200mm and 40mm pipes at 0.50m and 0.60m bgl respectively.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP209 Page No. 1 of 1

Method: Trial Pit	Date(s): 16/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384180.20, 218340.28	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.69m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.10 0.10	ES PID	 0.0ppm		Dark grey sandy silty angular medium GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.20	(0.20)	19.49	
0.30 0.30	ES PID	 0.0ppm		Black ashy grey sandy silty angular medium GRAVEL of limestone and plastic with a low cobble content. Sand is fine to coarse. Cobbles are angular of brick. (MADE GROUND) *... 0.20m bgl: Concrete slab encountered, pit orientation changed.*	0.60	(0.40)	19.09	
0.60 - 1.00 0.80 0.80	B ES PID	 0.0ppm		Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL) *... 1.20m bgl:Concrete slab encountered. Excavator bucket caught the edge of the slab and removed it whereupon two pipes were encountered beneath. A 4" terracotta pipe was broken when bucket removed slab whereas a 5" metal pipe remained intact.*	1.80	(1.20)	17.89	
1.50 1.50 - 1.80 1.50	ES B PID	 0.0ppm		Base of Excavation at 1.80m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.8m bgl. 3. Pit collapsed at 1.80m bgl. 4. Pit backfilled and compacted with arisings in reverse order upon completion. 5. No visual or olfactory evidence of contamination. 6. Concrete slab encountered at 0.20m bgl, pit adjusted and the encountered second slab at 1.10m bgl (reduced level). 7. Concrete slab encountered. Excavator bucket caught the edge of the slab and removed it whereupon two pipes were encountered beneath. A 4" terracotta pipe was broken when bucket removed slab whereas a 5" metal pipe remained intact.

Hydrock	Project: Great Western Road Yard	Trialpit No TP210 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384263.33, 218296.89	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 20.79m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Dark grey sandy silty angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.10	(0.10)	20.69	
0.30 0.30	ES PID	0.0ppm		Black ashy rarely brown silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick, metal, tile and metal pipework. Cobbles are angular of brick and metal. (MADE GROUND)	0.80	(0.70)	19.99	
0.90 0.90	ES PID	21.3ppm		Light grey mottled black silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.00m-1.20m: water seepage with black LNAPL causing the pit sidewalls to become stained black.*	1			
1.50 1.50	ES PID	99.3ppm	▼	*... 1.40m bgl: soil matrix is stained black with LNAPL changing the colour to black.*		(1.20)		
2.00 2.00	ES PID	60.3ppm		Base of Excavation at 2.00m	2.00		18.79	
					3			
					4			
					5			

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater seepage at 1.00m bgl including LNAPL, with a deeper groundwater strike at 1.80m bgl with LNAPL on surface. 3. Trial pit terminated at 1.80m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP211 Page No. 1 of 1	
Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384159.88, 218343.02	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.48m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.50 0.50	ES PID	0.0ppm		Black sandy gravelly angular COBBLES and BOULDERS of mortared brickwork. Sand is fine to coarse. Gravel is angular fine to coarse of brick, metal, slag and clinker. (MADE GROUND)		(1.30)		
1.00 1.00	ES PID	0.0ppm		*... 1.20m-1.30m: mortared brickwork with groundwater on the surface.*	1.30		18.18	
1.50 1.50	ES PID	55.1ppm		Light grey mottled black silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.30m-1.40m: black staining and LNAPL.*		(0.70)		
2.00 2.00	ES PID	56.7ppm		Base of Excavation at 2.00m	2.00		17.48	

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.30m bgl with sheen and LNAPL of surface. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP212 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384150.42, 218310.49	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.70m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.40 0.40	ES PID			Black sandy gravelly angular COBBLES and BOULDERS of mortared brickwork. Sand is fine to coarse. Gravel is angular fine to coarse of brick and metal. (MADE GROUND)		(0.90)		
					0.90		18.80	
				Base of Excavation at 0.90m				
					1			
					2			
					3			
					4			
					5			

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable no groundwater encountered. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. Trial pit terminated at 0.90m bgl due to encountering a brickwork structure.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP213 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384152.89, 218319.15	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.61m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	 0.0ppm		Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of metal, limestone and brick. Cobbles are angular of brick. (MADE GROUND)	0.55	(0.55)	19.06	
0.60 0.60 0.60	D ES PID	 4.4ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	0.70	(0.15)	18.91	
0.90 0.90	ES PID	 77.1ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 0.70m-1.50m: black staining.*		(1.50)		
1.50 1.50 1.50	D ES PID	 100.0ppm						
2.00 2.00	ES PID	 62.5ppm			2.20		17.41	
				Base of Excavation at 2.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 2.0m bgl with slight sheen on surface. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP214 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384126.29, 218330.75	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.41m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.00 - 0.40	B			Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of limestone. Cobbles are angular of limestone. (MADE GROUND)	0.40	(0.40)	19.01	
0.20	ES							
0.20	PID	0.0ppm						
0.50	ES			Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.80)	18.21	
0.50 - 1.00	B							
0.50	PID	1.5ppm						
1.30	ES			Light grey mottled black silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.20m-1.40m: black staining.*	2.00	(0.80)	17.41	
1.30	PID	37.6ppm	▼					
2.00	ES			Base of Excavation at 2.00m				
2.00	PID	73.6ppm						

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.70m bgl with definite sheen on surface. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP215 Page No. 1 of 1

Method: Trial Pit	Date(s): 17/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384116.20, 218336.88	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.29m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of limestone and brick. Cobbles are angular of limestone, brick and mortared brick. (MADE GROUND)	0.50	(0.50)	18.79	
0.50 - 1.00 0.60 0.60	B ES PID	0.4ppm		Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.10	(0.60)	18.19	
1.20 1.20	ES PID	30.4ppm	▼	Light grey mottled black silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.10m-1.30m: dark grey staining.*	2.20	(1.10)	17.09	
1.80 1.80	ES PID	16.5ppm		Base of Excavation at 2.20m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.70m bgl with slight sheen on surface. 3. Trial pit terminated at 2.20m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP216 Page No. 1 of 1

Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384119.66, 218345.04	Stability: Stable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.31m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Black ashy gravelly silty fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick. (MADE GROUND)	0.30	(0.30)	19.01	
0.50 0.50	ES PID	0.0ppm		Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (MADE GROUND) *... 0.90m bgl: 3" metal pipe encountered in south end of excavation.*	1.10	(0.80)	18.21	
				Base of Excavation at 1.10m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable no groundwater encountered. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. Trial pit terminated at 1.10m bgl due to encountering a brickwork structure. 5. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP217 Page No. 1 of 1

Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384109.72, 218347.79	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.30m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Pinkish brown sandy angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.40	(0.40)	18.90	
				Mortared brickwork and concrete slab broken through. (MADE GROUND)	0.60	(0.20)	18.70	
0.70 0.70	ES PID	0.0ppm		Soft brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular fine to coarse of brick. (MADE GROUND)	1.00	(0.40)	18.30	
1.00 - 1.50 1.10 1.10	B ES PID	0.0ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL) *... 1.50m-1.90m: light hydrocarbon odour.*	1.90	(0.90)	17.40	
1.60 1.60	ES PID	0.0ppm	▼	Base of Excavation at 1.90m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.70m bgl with rapid ingress from the north western corner of excavation. 3. Due to other foundations encountered in the vicinity it is plausible that the groundwater was perched around some existing foundations. 4. Trial pit terminated at 1.90m bgl due to collapse from groundwater ingress. 5. Pit backfilled and compacted with arisings in reverse order upon completion. 6. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP218 Page No. 1 of 1

Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384097.10, 218346.00	Stability: Stable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.40m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Black ashy gravelly silty fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick and terracotta pipe work. (MADE GROUND)	0.60	(0.60)	18.80	
				Base of Excavation at 0.60m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Pit remained dry and stable no groundwater encountered. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. Trial pit terminated at 0.60m bgl due to encountering a brickwork structure. 5. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP219 Page No. 1 of 1

Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384099.40, 218360.94	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.34m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.00	ES			Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of limestone and brick. (MADE GROUND)				
0.20	ES							
0.20	PID	0.0ppm				(0.60)		
0.50 - 1.00	B			*... 0.0m bgl: black oily staining at the ground surface of adjacent above ground storage tank.*	0.60		18.74	
0.70	ES			Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Encountered a odour of unknown description. (CHELTENHAM SAND AND GRAVEL)				
0.70	PID	0.0ppm						
1.20	ES					(1.10)		
1.20	PID	0.0ppm						
1.70	ES			Base of Excavation at 1.70m	1.70		17.64	
1.70	PID	0.0ppm						

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.50m bgl. 3. Trial pit terminated at 1.70m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion. 5. This location was to investigate an above ground storage tank and the pit could not be located directly adjacent down gradient due to former BT cable service chamber being present. However black oily staining was noted at ground level directly beneath the tank outlet and was subsequently sampled.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP220 Page No. 1 of 1	
Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384076.92, 218386.88	Stability: Stable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 18.95m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	 0.0ppm		Black ashy gravelly fine to coarse SAND. Gravel is angular of concrete and limestone. (MADE GROUND)	0.40	(0.40)	18.55	
0.50 0.50	ES PID	 0.0ppm		Orangish brown gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of concrete. Cobbles are angular of slag. (MADE GROUND)	0.65	(0.25)	18.30	
0.80 0.80 1.00 - 1.50 1.00	ES PID B HSV	 0.0ppm 12kPa		Very soft organic brownish grey slightly gravelly very sandy SILT with rare pseudo fibrous peat fragments. Gravel is sub rounded fine to medium of flint. Moderate organic odour. (SUPERFICIAL DEPOSITS COHESIVE)	3.00	(2.35)	15.95	
2.00 2.00 - 2.50 2.00 2.00	ES B HSV PID	 15kPa 0.0ppm						
3.00 - 3.50 3.10 3.10 3.30	B ES PID HSV	 0.0ppm 107kPa		Stiff dark grey CLAY. (CHARMOUTH MUDSTONE FORMATION)	3.50	(0.50)	15.45	
				Base of Excavation at 3.50m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater seepage at 2.80m bgl 3. Pit remained stable. 4. Pit backfilled and compacted with arisings in reverse order upon completion. 5. Trial pit terminated at 3.50m bgl due to maximum reach of the plant. 6. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP221 Page No. 1 of 1

Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384061.00, 218388.95	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 18.81m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND with a medium cobble content. Gravel is angular fine to coarse of limestone, slag and brick. Cobbles are angular of brick and slag. (MADE GROUND)	0.50	(0.50)	18.31	
0.70 0.70	ES PID	0.0ppm		Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)				
1.00 - 1.50	B				1	(1.20)		
1.20 1.20	ES PID	0.0ppm			1.70		17.11	
				Base of Excavation at 1.70m				
					2			
					3			
					4			
					5			

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.50m bgl. 3. Trial pit terminated at 1.70m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion. 5. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP222 Page No. 1 of 1

Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384053.95, 218407.60	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 18.63m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Dark grey sandy silty angular fine to medium GRAVEL of limestone. (MADE GROUND)	0.20	(0.20)	18.43	
0.30 0.30	ES PID	0.0ppm		Black ashy rarely brown silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick and metal. Cobbles are angular of brick and metal. (MADE GROUND)	0.60	(0.40)	18.03	
0.70 0.70	ES PID	0.3ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.10	(0.50)	17.53	
1.20 1.20	ES PID	5.2ppm	▼	Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (Strong Hydrocarbon odour). (CHELTENHAM SAND AND GRAVEL) *... 1.10m-1.30m: terracotta pipe damaged with LNAPL encountered within pipe.* *... 1.40m bgl: groundwater seepage with LNAPL possibly from broken pipe.*	2.00	(0.90)	16.63	
1.80 1.80	ES PID	16.2ppm	▼					
				Base of Excavation at 2.00m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater seepage at 1.40m bgl with LNAPL (possibly from broken pipe?), and a groundwater strike at 1.90m bgl with sheen on surface. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP223 Page No. 1 of 1

Method: Trial Pit	Date(s): 21/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384127.27, 218361.45	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.40m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Dark grey sandy silty angular fine to medium GRAVEL of limestone and slag. (MADE GROUND)	0.20	(0.20)	19.20	
0.30 0.30	ES PID	0.0ppm		Black ashy rarely brown silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick, metal and slag. (MADE GROUND)	0.70	(0.50)	18.70	
0.80 0.80	ES PID	0.0ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.50)	18.20	
1.30 1.30	ES PID	15.3ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (Strong Hydrocarbon odour). (CHELTENHAM SAND AND GRAVEL) *... 1.20m-1.40m: terracotta pipe encountered and one join damaged upon excavation.*	1.50	(0.30)	17.90	
1.60 1.60	ES PID	4.5ppm	▼	Brown mottled grey gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (Strong Hydrocarbon odour). (CHELTENHAM SAND AND GRAVEL)	2.00	(0.50)	17.40	
				Base of Excavation at 2.00m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.90m bgl. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP224 Page No. 1 of 1	
Method: Trial Pit	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384107.93, 218378.75	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.11m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. gravel is angular fine to coarse of brick, limestone, slag and plastic. (MADE GROUND)	0.60	(0.60)	18.51	
0.70 0.70	ES PID	0.0ppm		Orangish brown clayey gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL)	1.80	(1.20)	17.31	
1.00 - 1.50	B							
1.50 1.50	ES PID	0.0ppm						
1.80 - 2.00	B			Brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	2.00	(0.20)	17.11	
2.00 2.00	ES PID	0.0ppm		Base of Excavation at 2.00m				

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Groundwater strike at 1.90m bgl. 3. Trial pit terminated at 2.00m bgl due to collapse from groundwater ingress. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP225 Page No. 1 of 1

Method: Trial Pit	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384060.04, 218414.32	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 18.75m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. gravel is angular fine to coarse of brick, limestone, metal. (MADE GROUND)	0.60	(0.60)	18.15	
0.70 0.70	ES PID	0.0ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL)				
1.00 - 1.50	B				1	(1.10)		
1.50 1.50	ES PID	0.0ppm	▼		1.70		17.05	
				Base of Excavation at 1.70m				
					2			
					3			
					4			
					5			

General Remarks:
1. Location CAT & Genny scanned. 2. Groundwater strike at 1.50m bgl. 3. Trial pit terminated at 1.70m bgl due to collapse from groundwater ingress. 3. Pit backfilled and compacted with arisings in reverse order upon completion. 4. No visual or olfactory evidence of contamination.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP226 Page No. 1 of 1

Method: Trial Pit	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384138.69, 218325.30	Stability: Unstable	Dimensions: 0.60m × 2.50m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.60m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.20 0.20	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND with a low cobble content. gravel is angular fine to coarse of metal, limestone, brick and slate. Cobbles are angular of brick. (MADE GROUND)	0.60	(0.60)	19.00	
0.60 - 0.90 0.70 0.70	B ES PID	0.0ppm		Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	0.90	(0.30)	18.70	
1.00 1.00	ES PID	23.8ppm		Light grey mottled black clayey gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	1.50	(0.60)	18.10	
1.60 1.60	ES PID	25.0ppm	▼	Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.60m bgl: on ecountering groundwater LNAPL flooded excavation.*	1.80	(0.30)	17.80	
				Base of Excavation at 1.80m				

General Remarks:
1. Location CAT & Genny scanned. 2. Groundwater strike at 1.60m bgl with LNAPL flooding excavation. 3. Trial pit terminated at 1.80m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP227 Page No. 1 of 1

Method: Trial Pit	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384189.57, 218299.54	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.93m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.10 0.10	ES PID	0.0ppm		Pinkish brown silty sandy angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.30	(0.30)	19.63	
0.40 0.40	ES PID	0.0ppm		Black and brown ashy gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick, limestone, metal and slag. Cobbles are angular of brick. (MADE GROUND)	1.00	(0.70)	18.93	
1.10 1.10 1.20 - 1.60	ES PID B	0.0ppm		Orangish brown clayey gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	1.90	(0.90)	18.03	
1.90 1.90 2.00 - 2.30	ES PID B	0.0ppm	▼	Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)	2.30	(0.40)	17.63	
				Base of Excavation at 2.30m				

General Remarks:
1. Location CAT & Genny scanned. 2. Groundwater strike at 2.00m bgl. 3. Trial pit terminated at 2.30m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP228 Page No. 1 of 1

Method: Trial Pit	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384170.01, 218336.80	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.69m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Dark grey sandy silty angular fine to medium GRAVEL of limestone. (MADE GROUND)	0.30	(0.30)	19.39	
0.30 0.30	ES PID	0.0ppm		Partially indurated orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)				
0.50 0.50	ES PID	0.9ppm						
			▼	*... 0.80m-1.30m: groundwater seepage with LNAPL.*	1.30	(1.00)	18.39	
				Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Very strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)				
1.50 1.50	ES PID	79.8ppm						
2.00 2.00	ES PID	44.5ppm	▼	*... 2.00m-2.30m: darker grey/black staining.*	2.30	(1.00)	17.39	
				Base of Excavation at 2.30m				

General Remarks:
1. Location CAT & Genny scanned. 2. Groundwater seepage between 0.80m-1.30m bgl including LNAPL, and groundwater stike at 2.00m bgl with sheen. 3. Trial pit terminated at 2.30m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP229 Page No. 1 of 1	
Method: Trial Pit	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384109.66, 218343.42	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.27m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
				Grey silty sandy angular fine to coarse GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)	0.20	(0.20)	19.07	
0.30 0.30	ES PID	0.0ppm		Black and orangish brown ashy gravelly fine to coarse SAND with a low cobble content. Gravel is angular fine to coarse of brick, limestone, metal and green discoloured slag. (MADE GROUND)	0.60	(0.40)	18.67	
0.70 0.70	ES PID	0.0ppm		Orangish brown silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL) *... 0.60m: 2" metal pipe encountered and damaged.*	1.30	(0.70)	17.97	
1.40 1.40	ES PID	0.5ppm	▼	Light grey mottled black silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Slight hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	1.90	(0.60)	17.37	
1.90 1.90	ES PID	0.0ppm		Base of Excavation at 1.90m				

General Remarks:
1. Location CAT & Genny scanned. 2. Groundwater strike at 1.70m bgl. 3. Trial pit terminated at 1.90m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No TP230 Page No. 1 of 1

Method: Trial Pit	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 384168.74, 218366.40	Stability: Unstable	Dimensions: 0.60m × 2.50m; Scale: 1:25
Hydrock Project No: 20775	Ground Level: 19.63m OD	Plant: 3CX	

Samples / Tests			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results						
0.10 0.10	ES PID	 0.0ppm		Pinkish brown silty sandy angular fine to coarse GRAVEL of limestone. (MADE GROUND)	0.30	(0.30)	19.33	
0.40 0.40	ES PID	 0.5ppm		Brown silty slightly gravelly fine to coarse SAND. Gravel is rounded fine to medium of flint. (CHELTENHAM SAND AND GRAVEL) *... 0.70m-1.00m: partially indurated.*	1.00	(0.70)	18.63	
0.80 0.80	ES PID	 0.8ppm						
1.10 1.10	ES PID	 54.0ppm	▼	Grey mottled black silty gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Very strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.50m-1.70m: darker grey staining.*	1.90	(0.90)	17.73	
1.90 1.90	ES PID	 64.7ppm		Base of Excavation at 1.90m				

General Remarks:
1. Location CAT & Genny scanned. 2. Groundwater strike at 1.70m bgl with slight sheen on surface. 3. Trial pit terminated at 1.90m bgl due to collapse from groundwater ingress. 4. Pit backfilled and compacted with arisings in reverse order upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No WS201 Page No. 1 of 1	
Method: Window Sampler	Date(s): 15/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384017.62, 218527.07	Checked By: MK	Rig: Dando Terrier
Hydrock Project No: 20775	Ground Level: 18.08m OD		Scale: 1:30

Sample Run Info			Testing			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
Sample Run	Run Ø	Recovery	Depth (m)	Type	Results							
							Very strong grey CONCRETE. (MADE GROUND)	0.20	(0.20)	17.88		
							End of Borehole at 0.20m					

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Hardstanding broken out for future excavation of hand pit. No further intrusive works undertaken at this location due to time constraints.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No WS202 Page No. 1 of 1	
Method: Window Sampler	Date(s): 22/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384226.72, 218341.02	Checked By: MK	Rig: Dando Terrier
Hydrock Project No: 20775	Ground Level: 20.57m OD		Scale: 1:30

Sample Run Info			Testing			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
Sample Run	Run Ø	Recovery	Depth (m)	Type	Results							
							ASPHALT.	0.10	(0.10)	20.47		
							(MADE GROUND)					
							End of Borehole at 0.10m					
							1					
							2					
							3					
							4					
							5					
							6					

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Hardstanding broken out for future excavation of hand pit. No further intrusive works undertaken at this location due to time constraints.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No WS203 Page No. 1 of 1	
Method: Window Sampler	Date(s): 23/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384183.00, 218332.58	Checked By: MK	Rig: Dando Terrier
Hydrock Project No: 20775	Ground Level: 19.95m OD		Scale: 1:30

Sample Run Info			Testing			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
Sample Run	Run Ø	Recovery	Depth (m)	Type	Results							
							Dark grey sandy silty angular medium GRAVEL of limestone. (MADE GROUND)	0.15	(0.15)	19.80		
			0.30 0.30	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, slag and brick. (MADE GROUND)	0.60	(0.45)	19.35		
			0.60 - 1.00 0.70 0.70	B ES PID	0.0ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint (CHELTENHAM SAND AND GRAVEL)	1.20	(0.60)	18.75		
1.20 - 2.00		100%	1.30 1.30 1.50	ES PID D	53.2ppm		Light grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.20m-1.50m: dark grey mottled black.*	2.00	(0.80)	17.95		
2.00 - 3.00		100%	1.80 1.80	ES PID	95.4ppm	▼	Grey mottled black slightly gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 2.00m-2.50m: dark grey.*	3.60	(1.60)	16.35		
			2.30 2.30 2.50	ES PID D	10.5ppm							
3.00 - 4.00		64%	2.80 2.80	ES PID	95.8ppm							
			3.50 3.50 3.60 - 4.00 3.80 3.80	ES PID B ES PID	26.4ppm 3.3ppm		Firm to stiff dark grey CLAY with frequent to abundant shell fragments and rare pyratised lignitic debris. (CHARMOUTH MUDSTONE FORMATION)	5.00	(1.40)	14.95		
4.00 - 5.00		100%	4.00 - 5.00 4.20 4.20	B ES PID	1.8ppm		End of Borehole at 5.00m					

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike at 2.20m bgl. 4. Borehole terminated at target depth of 5.00m bgl. 5. 50mm monitoring well installed, response zone between 1.00m - 3.60m bgl.

Groundwater: strike at 2.20m bgl.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No WS204 Page No. 1 of 1	
Method: Window Sampler	Date(s): 23/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384166.36, 218352.66	Checked By: MK	Rig: Dando Terrier
Hydrock Project No: 20775	Ground Level: 19.63m OD		Scale: 1:30

Sample Run Info			Testing			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
Sample Run	Run Ø	Recovery	Depth (m)	Type	Results							
			0.30 0.30	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, slag and brick. (MADE GROUND)	0.70	(0.70)	18.93		
			0.80 0.80	ES PID	5.2ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.50)	18.43		
1.20 - 2.00		100%	1.30 1.30	ES PID	77.3ppm	▼	Grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.20m-1.60m: mottled/stained black.*	2.00	(0.80)	17.63		
			1.80 1.80	ES PID	25.3ppm		End of Borehole at 2.00m					

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike at 1.50m bgl. 4. Borehole terminated at 2.00m bgl due to blowing sands. 5. 50mm monitoring well installed, response zone between 0.90m - 1.90m bgl.

Groundwater: strike at 1.50m bgl.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No WS205 Page No. 1 of 1	
Method: Window Sampler	Date(s): 23/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384142.70, 218366.34	Checked By: MK	Rig: Dando Terrier
Hydrock Project No: 20775	Ground Level: 19.35m OD		Scale: 1:30

Sample Run Info			Testing			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
Sample Run	Run Ø	Recovery	Depth (m)	Type	Results							
			0.30	ES			Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, slag and brick. (MADE GROUND)	0.25	(0.25)	19.10		
			0.30	PID	0.0ppm		Orangish brown gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. (CHELTENHAM SAND AND GRAVEL)					
			0.50	ES								
			0.50 - 1.00	B					(0.85)			
			0.50	PID	0.0ppm			1.10		18.25		
1.20 - 2.00		100%	1.20	ES			Grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL) *... 1.20m-1.50m: mottled/stained black.*					
			1.20	PID	19.5ppm	▼			(0.90)			
			1.80	ES								
			1.80	PID	12.5ppm			2.00		17.35		
							End of Borehole at 2.00m					

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike at 1.50m bgl. 4. Borehole terminated at 2.00m bgl due to blowing sands. 5. 50mm monitoring well installed, response zone between 0.90m - 1.90m bgl.

Groundwater: strike at 1.50m bgl.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Borehole No WS206 Page No. 1 of 1	
Method: Window Sampler	Date(s): 23/02/2022	Logged By: SW	Drilled By: CC GI
Client: Eutopia Homes Ltd.	Co-ords: 384121.08, 218330.95	Checked By: MK	Rig: Dando Terrier
Hydrock Project No: 20775	Ground Level: 19.43m OD		Scale: 1:30

Sample Run Info			Testing			Water-Strikes	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend	Instrum-entation / Backfill
Sample Run	Run Ø	Recovery	Depth (m)	Type	Results							
			0.30 0.30	ES PID	0.0ppm		Black ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of slag and brick. (MADE GROUND)	0.70	(0.70)	18.73		
			0.80 0.80	ES PID	0.0ppm		Black and orangish brown ashy silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of metal, slag and brick. (MADE GROUND)	1.20	(0.50)	18.23		
1.20 - 2.00		100%	1.20 - 2.00 1.20	ES PID	46.6ppm	▼	Grey mottled black gravelly fine to coarse SAND. Gravel is sub rounded to rounded fine to coarse of flint. Strong hydrocarbon odour. (CHELTENHAM SAND AND GRAVEL)	2.00	(0.80)	17.43		
							End of Borehole at 2.00m					

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Inspection pit hand dug to 1.20m bgl. 3. Groundwater strike at 1.50m bgl. 4. Borehole terminated at 2.00m bgl due to blowing sands. 5. 50mm monitoring well installed, response zone between 0.90m - 1.90m bgl.

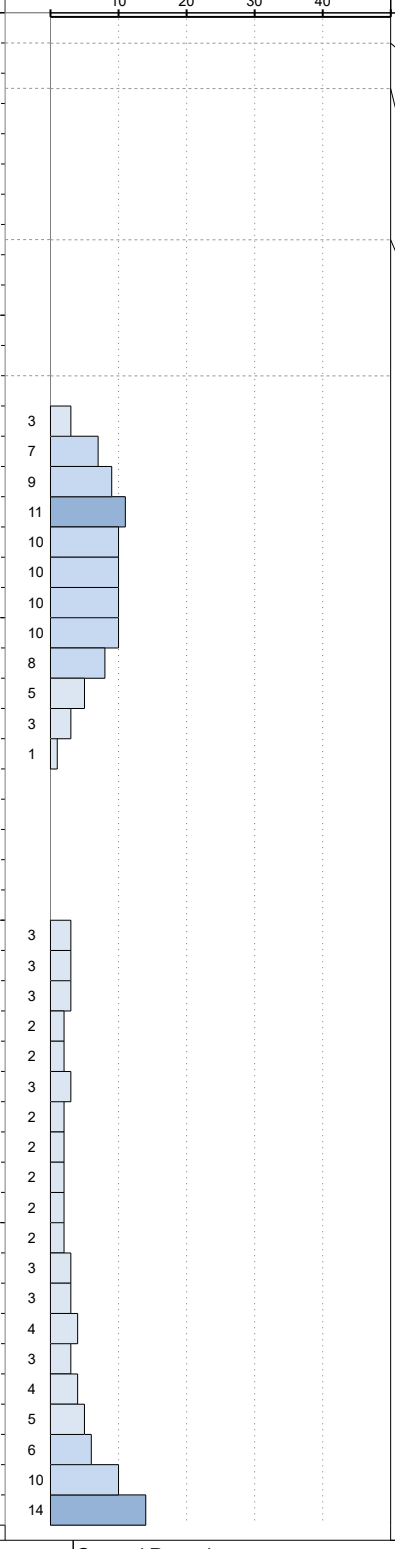
Groundwater: strike at 1.50m bgl.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No DP201 Page No. 1 of 2	
Method: Dynamic probe sampling	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 383991.80, 218552.51	Stability:	Dimensions: m × m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 17.92m OD	Plant: Dando Terrier	

Samples / Tests: Depth (m)	Type	Results	Water-Strikes	Equivalent N Value	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
0.00 - 0.10	B				ASPHALT. (MADE GROUND)	0.10	(0.10)	17.82	
0.20	ES				Brownish grey silty gravelly fine to coarse SAND. Gravel is angular fine to coarse of limestone. (MADE GROUND)	0.25	(0.15)	17.67	
0.45	ES				Black ashy silty gravelly fine to coarse SAND with a low cobble content. Gravel is angular to sub rounded fine to coarse of brick and slag. (MADE GROUND) *... 0.40m bgl: Moderate sulphuric odour.*	0.75	(0.50)	17.17	
0.90	ES				Yellowish brown silty gravelly fine to coarse SAND. Gravel is sub angular to sub rounded fine to medium of flint. (CHELTENHAM SAND AND GRAVEL)	1.20	(0.45)	16.72	

Blows / 100mm (<5, 5 - 10, 10 - 20, >20; 10, 20, 30, 40)



Probe Type: Superheavy (63.5kg hammer mass/750mm drop)

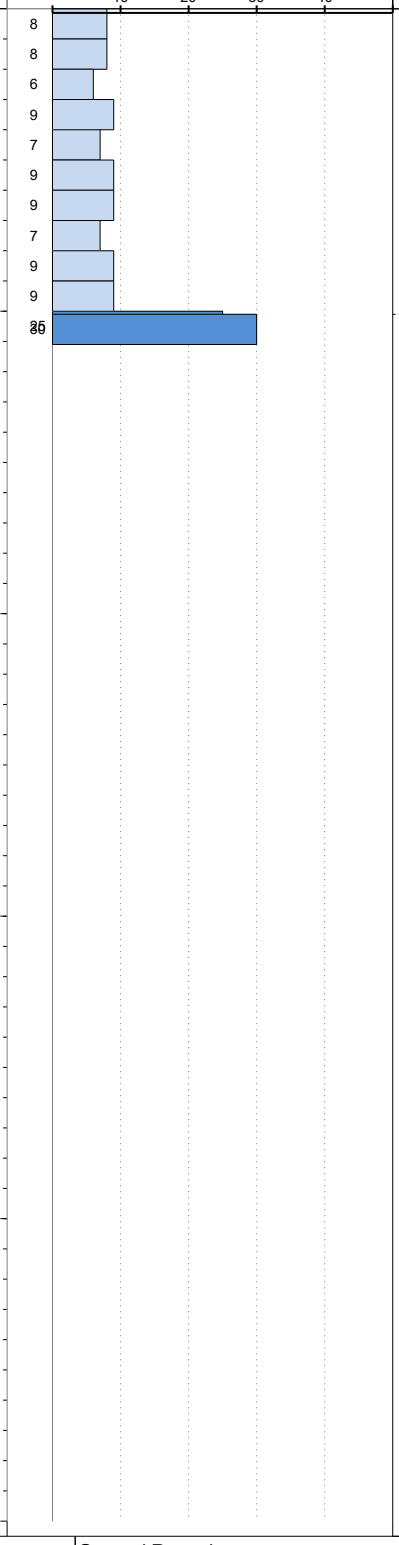
Notes:
1. MacRobert, C., Kslumba, D., Beales, P., (2011), "Correlating Standard Penetration Test and Dynamic Probe Super Heavy penetration resistance values in sandy soils," Paper 754, Journal of the South African Institution of Civil Engineering, Vol. 53, No. 1, April 2011, pp 46-54
2. NDPSH = Numbers of blows over 300mm
3. Equivalent SPT N = NDPSH/(0.02*NDPSH+0.8)
4. Dynamic Probe Equivalent N value correlation only valid in granular soils

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Hand dug inspection pit to 1.20m bgl for dynamic probe testing. 3. Hole backfilled with arisings upon completion.

Logged in general accordance with BS5930:2015

Hydrock	Project: Great Western Road Yard	Trialpit No DP201 Page No. 2 of 2	
Method: Dynamic probe sampling	Date(s): 22/02/2022	Logged By: SW	Checked By: MK
Client: Eutopia Homes Ltd.	Co-ords: 383991.80, 218552.51	Stability:	Dimensions: m × m / Scale: 1:25
Hydrock Project No: 20775	Ground Level: 17.92m OD	Plant: Dando Terrier	

Samples / Tests			Water-Strikes	Equivalent N Value	Blows / 100mm (<5, 5 - 10, 10 - 20, >20)	Stratum Description	Depth mbgl	Thickness (m)	Level m OD	Legend
Depth (m)	Type	Results								



Probe Type: Superheavy (63.5kg hammer mass/750mm drop)

Notes:
1. MacRobert, C., Kslumba, D., Beales, P., (2011), "Correlating Standard Penetration Test and Dynamic Probe Super Heavy penetration resistance values in sandy soils," Paper 754, Journal of the South African Institution of Civil Engineering, Vol. 53, No. 1, April 2011, pp 46-54
2. NDPSH = Numbers of blows over 300mm
3. Equivalent SPT N = NDPSH/(0.02*NDPSH+0.8)
4. Dynamic Probe Equivalent N value correlation only valid in granular soils

General Remarks:
1. Service clearance undertaken by EOD Contracts Ltd. 2. Hand dug inspection pit to 1.20m bgl for dynamic probe testing. 3. Hole backfilled with arisings upon completion.

Logged in general accordance with BS5930:2015

Site Investigation Photograph 1	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT201	

Site Investigation Photograph 2	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT201 pit.	

Site Investigation Photograph 3	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT201 spoil.	

Site Investigation Photograph 4	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT202	

Site Investigation Photograph 5	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT202 pit.	

Site Investigation Photograph 6	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT202 spoil.	

Site Investigation Photograph 7	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT203	

Site Investigation Photograph 8	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT203 pit.	

Site Investigation Photograph 9	
Date: 15.02.22	
Direction Photograph Taken: n/a.	
Description: CPT203 spoil.	

Site Investigation Photograph 10	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: CPT204	

Site Investigation Photograph 11	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: CPT204 pit.	

Site Investigation Photograph 12	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: CPT204 spoil.	

Site Investigation Photograph 13	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: CPT205	

Site Investigation Photograph 14	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: CPT205 pit.	

Site Investigation Photograph 15	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: CPT205 spoil.	

Site Investigation Photograph 16	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: CPT206	

Site Investigation Photograph 17	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: CPT206 pit.	

Site Investigation Photograph 18	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: CPT206 spoil.	

Site Investigation Photograph 19	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: CPT207	

Site Investigation Photograph 20	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: CPT207 pit.	

Site Investigation Photograph 21	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: CPT207 spoil.	

Site Investigation Photograph 22	
Date: 24.02.22	
Direction Photograph Taken: n/a.	
Description: CPT208	

Site Investigation Photograph 23	
Date: 24.02.22	
Direction Photograph Taken: n/a.	
Description: CPT208 pit.	

Site Investigation Photograph 24	
Date: 24.02.22	
Direction Photograph Taken: n/a.	
Description: CPT208 spoil.	

Site Investigation Photograph 25	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: CPT209	

Site Investigation Photograph 26	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: CPT209 pit.	

Site Investigation Photograph 27	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: CPT209 spoil.	

Site Investigation Photograph 28	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: CPT210	

Site Investigation Photograph 29	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: CPT210 pit.	

Site Investigation Photograph 30	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: CPT210 spoil.	

Site Investigation Photograph 31	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP201	

Site Investigation Photograph 32	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP201 pit.	

Site Investigation Photograph 33	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP201 spoil.	

Site Investigation Photograph 34	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP202	

Site Investigation Photograph 35	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP202 pit.	

Site Investigation Photograph 36	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP202 spoil.	

Site Investigation Photograph 37	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP203	

Site Investigation Photograph 38	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP203 pit.	

Site Investigation Photograph 39	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP203 spoil.	

Site Investigation Photograph 40	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP204	

Site Investigation Photograph 41	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP204 pit.	

Site Investigation Photograph 42	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP204 spoil.	

Site Investigation Photograph 43	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP205	

Site Investigation Photograph 44	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP205 pit.	

Site Investigation Photograph 45	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP205 spoil.	

Site Investigation Photograph 46	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP206	

Site Investigation Photograph 47	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP206 pit.	

Site Investigation Photograph 48	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP206 spoil.	

Site Investigation Photograph 49	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP207	

Site Investigation Photograph 50	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP207 pit.	

Site Investigation Photograph 51	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP207 spoil.	

Site Investigation Photograph 52	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP208	

Site Investigation Photograph 53	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP208 pit showing pipe.	

Site Investigation Photograph 54	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP208 close up of pipe.	

Site Investigation Photograph 55	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP209	

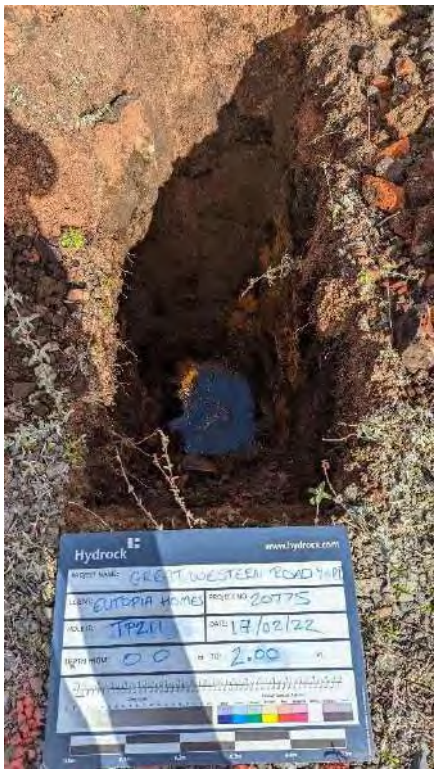
Site Investigation Photograph 56	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP209 pit pipes at far end.	

Site Investigation Photograph 57	
Date: 16.02.22	
Direction Photograph Taken: n/a.	
Description: TP209 spoil.	

Site Investigation Photograph 58	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP210	

Site Investigation Photograph 59	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP210 after encountering groundwater LNAPL flooded the excavation and sidewalls coated black.	

Site Investigation Photograph 60	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP210 spoil, in places black due to LNAPL.	

Site Investigation Photograph 61	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP211	

Site Investigation Photograph 62	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP211 pit, groundwater dark with LNAPL and brickwork just in the front edge.	

Site Investigation Photograph 63	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP211 spoil.	

Site Investigation Photograph 64	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP212	

Site Investigation Photograph 65	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP212 pit, note the structure along the sidewall and foundation at the base.	

Site Investigation Photograph 66	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP212 spoil.	

Site Investigation Photograph 67	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP213	

Site Investigation Photograph 68	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP213 pit.	

Site Investigation Photograph 69	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP213 spoil.	

Site Investigation Photograph 70	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP214	

Site Investigation Photograph 71	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP214 pit, sheen on seepage on lefthand side of the pit.	

Site Investigation Photograph 72	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP214 spoil.	

Site Investigation Photograph 73	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP215	

Site Investigation Photograph 74	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP215 pit.	

Site Investigation Photograph 75	
Date: 17.02.22	
Direction Photograph Taken: n/a.	
Description: TP215 spoil.	

Site Investigation Photograph 76	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP216	

Site Investigation Photograph 77	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP216 pit.	

Site Investigation Photograph 78	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP216 spoil.	

Site Investigation Photograph 79	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP217	

Site Investigation Photograph 80	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP217 pit.	

Site Investigation Photograph 81	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP217 spoil.	

Site Investigation Photograph 82	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP218	

Site Investigation Photograph 83	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP218 pit.	

Site Investigation Photograph 84	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP218 spoil.	

Site Investigation Photograph 85	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP219	

Site Investigation Photograph 86	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP219 pit.	

Site Investigation Photograph 87	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP219 spoil.	

Site Investigation Photograph 88	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP220	

Site Investigation Photograph 89	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP220 pit.	

Site Investigation Photograph 90	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP220 spoil.	

Site Investigation Photograph 91	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP221	

Site Investigation Photograph 92	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP221 pit.	

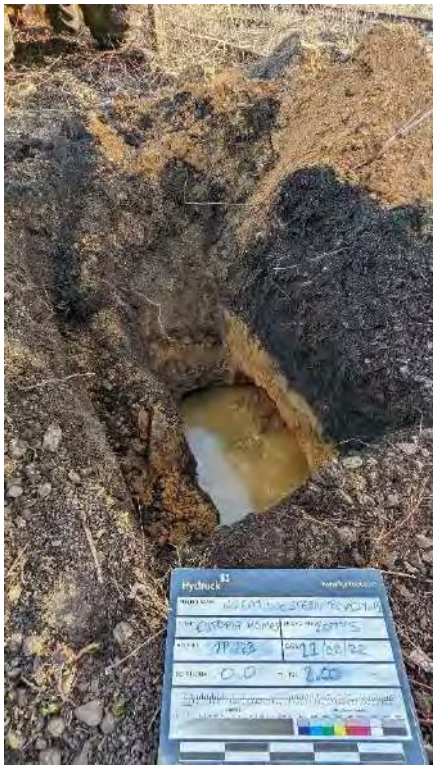
Site Investigation Photograph 93	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP221 spoil.	

Site Investigation Photograph 94	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP222	

Site Investigation Photograph 95	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP222 pit with damaged pipe on the lefthand side.	

Site Investigation Photograph 96	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP222 damaged pipe with darker water in the vicinity (possible LNAPL from broken pipe)	

Site Investigation Photograph 97	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP222 spoil.	

Site Investigation Photograph 98	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP223	

Site Investigation Photograph 99	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP223 bench on the lefthand side is were a pipe was encountered and a join damaged.	

Site Investigation Photograph 100	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: TP223 spoil.	

Site Investigation Photograph 101	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP224	

Site Investigation Photograph 102	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP224 pit.	

Site Investigation Photograph 103	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP224 spoil.	

Site Investigation Photograph 104	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP225	

Site Investigation Photograph 105	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP225 pit.	

Site Investigation Photograph 106	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP225 spoil.	

Site Investigation Photograph 107	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP226	

Site Investigation Photograph 108	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP226 after encountering groundwater LNAPL flooded the excavation.	

Site Investigation Photograph 109	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP226 spoil.	

Site Investigation Photograph 110	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP227	

Site Investigation Photograph 111	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP227 pit.	

Site Investigation Photograph 112	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP227 spoil.	

Site Investigation Photograph 113	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP228	

Site Investigation Photograph 114	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP228 pit.	

Site Investigation Photograph 115	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP228 spoil.	

Site Investigation Photograph 116	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP229	

Site Investigation Photograph 117	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP229 pit.	

Site Investigation Photograph 118	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP229 spoil.	

Site Investigation Photograph 119	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP230	

Site Investigation Photograph 120	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP230 pit.	

Site Investigation Photograph 121	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: TP230 spoil.	

Site Investigation Photograph 122	
Date: 23.02.22	
Direction Photograph Taken: n/a.	
Description: WS203 1.20m - 2.00m	

Site Investigation Photograph 123	
Date: 23.02.22	
Direction Photograph Taken: n/a.	
Description: WS203 2.00m - 3.00m	

Site Investigation Photograph 124	
Date: 23.02.22	
Direction Photograph Taken: n/a.	
Description: WS203 3.00m - 4.00m	

Site Investigation Photograph 125	
Date: 23.02.22	
Direction Photograph Taken: n/a.	
Description: WS203 4.00m - 5.00m	

Site Investigation Photograph 126	
Date: 23.02.22	
Direction Photograph Taken: n/a.	
Description: WS204 1.20m - 2.00m	

Site Investigation Photograph 127	
Date: 23.02.22	
Direction Photograph Taken: n/a.	
Description: WS205 1.20m - 2.00m	

Site Investigation Photograph 128	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: BH201 concrete core.	

Site Investigation Photograph 129	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: BH201 1.20m - 5.70m.	

Site Investigation Photograph 130	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: BH201 5.70m - 8.70m.	

Site Investigation Photograph 131	
Date: 21.02.22	
Direction Photograph Taken: n/a.	
Description: BH201 8.70m -11.70m.	

Site Investigation Photograph 132	
Date: 22.02.22	
Direction Photograph Taken: n/a.	
Description: BH201 11.70m -14.70m.	

Site Investigation Photograph 133	
Date: 02.03.22	
Direction Photograph Taken: n/a.	
Description: BH202 1.20m - 3.30m.	

Site Investigation Photograph 134	
Date: 02.03.22	
Direction Photograph Taken: n/a.	
Description: BH203 1.20m - 4.00m.	

Site Investigation Photograph 135	
Date: 03.03.22	
Direction Photograph Taken: n/a.	
Description: BH204S 1.20m - 3.50m.	

Site Investigation Photograph 136	
Date: 02.03.22	
Direction Photograph Taken: n/a.	
Description: BH204D 1.20m - 3.50m.	

Site Investigation Photograph 137	
Date: 02.03.22	
Direction Photograph Taken: n/a.	
Description: BH204D 4.00m - 5.50m.	

Site Investigation Photograph 138	
Date: 03.03.22	
Direction Photograph Taken: n/a.	
Description: BH205 1.20m - 4.00m.	

Site Investigation Photograph 139	
Date: 03.03.22	
Direction Photograph Taken: n/a.	
Description: BH206 1.20m - 4.00m.	

Site Investigation Photograph 140	
Date: 21.01.22	
Direction Photograph Taken: n/a.	
Description: WS115 LNAPL in well, measured as 210mm thick on interface probe. Sampled and analysed by lab – identified as 'biodegraded diesel'.	

Site Investigation Photograph 141	
Date: 30.03.22	
Direction Photograph Taken: n/a.	
Description: WS102 LNAPL in well, measured as 50mm thick on interface probe.	

Site Investigation Photograph 142	
Date: 30.03.22	
Direction Photograph Taken: n/a.	
Description: WS107 clear water in well no LNAPL detected.	

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GREAT WESTERN ROAD, GLOUCESTER

SOIL INVESTIGATION

CPT REPORT

Cone penetration testing
Parameter interpretation

Project Reference.: P-107934-1

Report Issue No.: 01 P-107934_01

PROJECT:	Great Western Road, Gloucester

CLIENT:	Hydrock

FIELDWORK

CPT rig(s)	18.0-tonne track-truck mounted CPT unit (UK22)
Date fieldwork started	21st February 2022
Date fieldwork completed	21st February 2022
Lankelma's representative	Emma Stickland
Client's representative	Scott Williams

DOCUMENT CHECKING

Action	Date	Name
Completed	25/02/2022	Christopher Player
Checked	07/03/2022	Joseph Hobbs
Approved	07/03/2022	Joseph Hobbs

Issue	Date	Status
01	07/03/2022	Final

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APPENDIX C	**CONE PENETRATION TEST RESULTS**
APPENDIX D	**SBT MATERIAL DESCRIPTION RESULTS**
APPENDIX E	**UNDRAINED PARAMETER RESULTS**
APPENDIX F	**DRAINED PARAMETER RESULTS**
APPENDIX G	**PENETROMETER TEMPERATURE RESULTS**

1 INTRODUCTION

At the request of Hydrock, a soils investigation was carried out on project *Great Western Road, Gloucester*.

Site location:

(In the general region of)

Horton Road
Gloucester
GL1 3QA

2 DISCLAIMER

The investigation information, raw data and interpretations provided in this report are for the sole benefit of the Client identified at the front of the report.

Lankelma has exercised reasonable skill and care in the fieldwork and preparation of this report. This report has been completed based on information available to Lankelma at the time of preparation. The measurement and interpreted data in this report do not constitute recommendations for design purposes. An appropriately qualified person must review and interpret the data given in this report, together with any assumptions we have made that affect the data, before using the data for design or recommendation. Lankelma accepts no responsibility for the accuracy or suitability of any assumptions, derived soil parameters, soil classification descriptions or soil layer boundaries contained in this report.

3 COMPLETED WORKS

- 10 nr. cone penetration tests with pore pressure measurement (CPTu)
- Factual report including point data interpretation of selected parameters

Appendix A contains tabulated details of the works completed together with analysis results where applicable.

4 FIELDWORK GENERAL

Fieldwork was performed with an 18.0-tonne track-truck mounted CPT unit (UK22) equipped with a 17.5-tonne capacity hydraulic ram set.

The Client was responsible for the positioning and re-survey of all investigative locations.

The target depth for the investigation was 10 m below ground level or until cone refusal was reached. Table 1 details the final test depths and reasons for test termination (*refusal factor).* Where penetration refusal was encountered the termination depth was advised to, and agreed with, the Client's on-site representative.

5 CONE PENETRATION TESTS

Cone penetration testing was carried out in general accordance with BS ISO 22476-1:2012.

Penetrometer measurements included cone tip resistance, friction sleeve resistance and dynamic pore water pressure sampled at a 10 mm resolution.

Penetrometers were calibrated in accordance with ISO 376:2011. The management of calibration records is in accordance with ISO 10012. Copies of all calibration certificates for the cones used are provided in Appendix B.

The penetrometer used was a digital model (down-hole digitisation) with internal measurement of load cell temperature. The temperature data was used for QA during the test and QC during processing. The test operative aimed to keep the rate of temperature change to less than 0.5°/min in low strength soils to maintain acceptable measurement error. The temperature data can be used to assess ground temperature at depths where the cone has paused for more than 10 minutes with an accuracy of ~+- 0.5°.

The piezometer filter element was in the u_2 position and was vacuum saturated in a > 99.9% vacuum under 1000 cSt silicone oil for > 7 days prior to mobilisation. The pore pressure system was vacuum saturated in the disassembled state under 500 cSt glycerine oil (dipropylene glycol or propylene glycol) and assembled under oil prior to each test.

5.1 GLOSSARY OF CPT TERMS AND SYMBOLS

SYMBOLS & ABBREVIATIONS

B_q	**Pore pressure ratio.** The net pore pressure normalized with respect to the net cone resistance: $B_q = (u_2 - u_0)/(q_t - \sigma_v)$
F_r	**Normalised friction sleeve resistance:** $F_r = f_s / (q_c - \sigma_v)$
f_s	**Friction sleeve resistance:** The total frictional force acting on the friction sleeve, F_s, divided by its surface area A_s: $f_s = F_s/A_s$.
G	**Shear modulus**
g	**Gravitational constant:** $g = 9.81\ m/s^2$
G_0	**Small strain shear modulus**
Gs	**Specific gravity of solids**
HOC	**Heavily overconsolidated**
I_c	**Soil Behaviour Type Index:** Continuous numerical representation of Robertson (1990) soil behaviour type classification chart.
LOC	**Lightly overconsolidated**
NC	**Normally consolidated**
OC	**Overconsolidated**
q_c	**Cone resistance:** The total force acting on the cone Q_c, divided by the projected area of the cone, A_c: $q_c = Q_c/A_c$.
Q_t	**Normalised cone resistance** (Method 1): $Q_t = (q_c - \sigma_v)/\sigma'v$

q_t	**Corrected tip resistance:** The cone tip resistance q_c corrected for pore water pressure effects on the cone shoulder.
$q_{t\text{-}net}$	**Net cone resistance:** $q_{t\text{-}net} = q_t - \sigma_v$. Where q_t is unavailable q_c is applied.
q_{t1}	**Normalised cone resistance** (Method 2): $q_{t1} = (q_t)/(\sigma'_v)^{0.5}(\frac{q_t}{\sigma_{atm}})/(\frac{\sigma_{v0}'}{\sigma_{atm}})^{0.5}$
R_f	**Friction ratio:** The ratio, expressed as a percentage, of the sleeve friction, f_s, to the cone resistance, q_c, at a given depth: $R_f = (f_s/q_c) \cdot 100$
SBT or SBTn	**Soil behaviour type classification**
u_0	**Equilibrium pore pressure**
u_2	**Pore pressure:** Dynamic pore pressure measured at the shoulder position (u_2) during penetration and during dissipation tests. $u_2 = \Delta u_2 + u_0$
Δu_2	**Excess pore pressure:** $\Delta u_2 = \Delta u_2 - u_0$
V_s, V_p	**Shear wave velocity, V_s, and pressure wave velocity, V_p.** Measured with use of a seismic receiver.
z	**Depth below ground level:** Depth as penetration length without correction for inclination, or true depth after correction for inclination.
<u>Greek</u>	
γ	**Unit weight of soil**
γ_w	**Unit weight of water**
ρ	**Volumetric mass density (or specific mass) of soil:** $\rho = \gamma/g$
σ_v	**Total overburden stress**
σ'_v	**Effective overburden stress**
σ_{atm}, or, P_a	**Reference atmospheric stress:** σ_{atm} = 101.3 kPa

<u>TERMS</u>

Cone or 'tip': The conical tip of the cone penetrometer.

Friction sleeve: The section of the cone penetrometer upon which the sleeve friction is measured, located behind the cone tip.

Piezocone: A cone penetrometer with a pore pressure sensor (u_2 or u_1)

Seismic cone: A cone penetrometer with a seismic receiver incorporated inside or behind.

Dynamic pore pressure: The pore pressure measured during penetration (u_2 or u_1) .

Soil behaviour type, or 'SBT': Soil classification scheme or classified soil type according to Robertson (1990, 2016) often abbreviated to SBT or according to normalised cone parameters SBTn.

Rod string: The series of hollow tube push rods that transmit force to the penetrometer.

5.2 CPT DATA REDUCTION AND PRESENTATION

The CPT results are presented in Appendix C. The corrected cone resistance (q_t), local side friction (f_s), dynamic pore water pressure (u_2), friction ratio (R_f) and inclination are all presented

against depth and elevation in accordance BS ISO 22476-1:2012. CPT data and the associated derived geotechnical parameters are included in the 4.0 data file provided.

The cone tip and sleeve force measurements were converted to pressure using the nominal dimensions of the penetrometer.

Zero load output values were recorded before and after each test. The set of zero values applied to the measurements (subtracted from the raw output measurement) were those deemed to be obtained at a temperature closest to ground temperature, or the average of the two sets where appropriate.

For tests performed with digital cones, the tip sleeve and pore pressure measurements were corrected for static and transient temperature effects using parameters obtained from the *TEMERATURE EFFECTS* section of the calibration certificate. For each CPT, the dataset was first grouped into penetration strokes (max 1.2 m) and then locally sub-grouped by tip resistance above and below 2 MPa. For each sub-group of qc < 2 MPa, the slope of the temperature (T) profile with time (t) was determined by regression to obtain the rate of temperature change $\Delta T/\Delta t$. For each recorded value, the static and transient temperature error component (apparent sensor output due to change in temperature) was subtracted from the reading.

For subtraction type cones incorporating traditional temperature compensation wiring in the strain gauge circuit, the residual apparent cone tip resistance ($q_{c:a}$) and sleeve resistance ($f_{s:a}$) due to static and transient temperature effects can be approximated by

$q_{c:a} = a(\Delta T/\Delta t) + b(\Delta T)$,

$f_{s:a} = a(\Delta T/\Delta t) + b(\Delta T) - q_{c:a}$

and

$u_a = b(\Delta T)$

Where $q_{c:a}$ is the apparent tip resistance, $f_{s:a}$ is the apparent sleeve resistance, a is the apparent resistance due to unit transient temperature change $\Delta T/\Delta t$, and b is the change in apparent resistance per unit static temperature change relative to the temperature of the penetrometer at the time of zero load output measurement. Note that for the piezometer sensor only the static temperature component is considered and is only applied to piezometer sensors without temperature compensation circuitry.

Parameter a is established by subjecting the cone to a positive and negative nominal temperature change (ΔT ~ +- 9°) in water and measuring the apparent output corresponding to the maximum rate of temperature change at the load cells. Parameter b is established by measuring the apparent output after the cone has temperature stabilised.

The temperature corrected tip ($q_{c:c}$), sleeve resistance ($f_{s:c}$) and pore pressure ($u_{:c}$) are then found from

$q_{c:c} = q_{c:m} - q_{c:a}$,

$f_{s:c} = f_{s:m} - f_{s:a}$

$u_{:c} = u_{:m} - u_{:a}$

Where subscript '$_{:m}$', denotes the field measured resistance/pressure as recorded in the raw data files.

Notes:

1. Depending on the temperature performance of the individual cone, temperature correction of the sleeve is often not warranted as it does not substantially improve accuracy. This is because for subtraction type cones the errors in the sleeve force largely cancel with errors in the tip force when they have the same sign.

2. There is currently no recognised nomenclature for CPT parameters with temperature correction applied during post processing. To avoid confusion the nomenclature is kept unchanged in the logs and AGS data (q_c/q_t, f_s, and u_2) and unless stated otherwise, temperature correction has been applied using the parameters reported in the calibration certificate.

For piezocone tests the total cone resistance (or 'corrected cone resistance') was calculated according to the formula

$$q_t = q_c + u_2 \times (1 - a)$$

Where a is the 'area ratio' and (1- a) is the proportion of cross-sectional area between the cone tip and penetrometer body where pore pressures (positive or negative) can act to add or subtract from the total external axial force on the tip. The difference between measured and corrected values is largest in low strength collapsible soils with large excess pore pressures. The percentage adjustment is described by the curves on the chart below for a = 0.8:

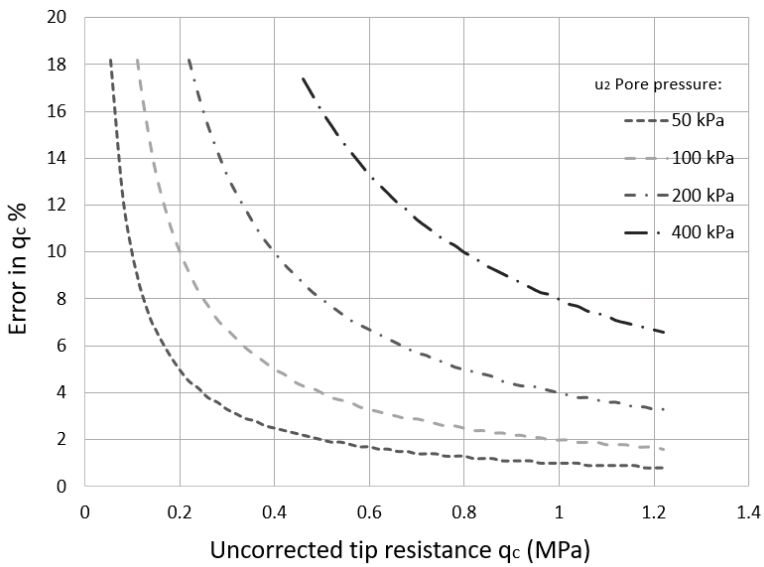


Figure 5-1 Uncorrected tip with measured tip resistance

Penetration length readings were corrected for inclination and sleeve readings were depth corrected for the dimensional offset between cone tip and sleeve during post processing. Rod spikes (artefacts of the pause for push rod addition) were filtered from the cone tip and sleeve data. The data was re-sampled from 10 mm resolution to 20 mm to reduce the size of the data set to a more manageable size for end users. A 20 mm resolution is well within the intrinsic influence zone of the cone tip measurement and the loss of meaningful resolution is negligible.

The raw data are presented in Appendix C. For piezocone tests q_t is reported on all logs, and q_c only appears in the digital AGS data.

Geotechnical parameters appropriate for drained and undrained cone penetration conditions were derived for corresponding drained and undrained derived soil behaviour types (SBTs) respectively, however, to account for uncertainty in the SBT correlation with drainage behaviour, all parameters were derived over a range of transitional soils within the range 2.4 < *Ic* < 2.7 (see section 6.3).

In general, the engineering parameters derived for fine grain soils (undrained) are suitable for soils of both silicate and carbonate composition, whereas parameters derived for coarse soils are intended for non-cemented predominantly silicate composition.

5.3 IN-SITU STRESS CONDITIONS

An estimate of the equilibrium pore pressure and total and effective vertical stress states is required for derivation of many parameters obtained from the CPT and dissipation test.

The total vertical stress with depth was calculated as the sum of the calculated soil unit weight above a given depth. See section 5.4 for information on the empirical estimate of soil unit weight.

An arbitrary phreatic surface of 3.00 mBGL was applied in the calculation of effective stress.

Note: The term phreatic surface is used here, however when it is based on piezometer measurements (piezocone) it is assumed that the piezometric level (under hydrostatic conditions) and phreatic surface coincide. The phreatic or piezometric level reported is intended to provide information about the assumed pore pressure distribution and may not represent the true position of the groundwater table or perched water bodies. Complex groundwater pressure distributions will be applied if they are observed from the measurements and are sufficiently well defined.

5.4 SOIL UNIT WEIGHT

The soil unit weight was estimated using the following method proposed by Robertson (2010b).

$$\frac{y}{y_w} = 0.27\ Log\left(R_f\right) + 0.36\ \left(Log\left(q_t/R_f\right)\right) + 1.236$$

Throughout pre-drilled zones (inspection pits or drill-out) the soil was assigned a nominal unit weight of 17 kN/m^3.

For depths where the friction sleeve resistance measurement was less than zero due to measurement limitations, the friction sleeve resistance input parameter was substituted with a nominal 1.0 kPa resistance for the purpose of obtaining an approximate soil unit weight necessary for estimation of total vertical stress over the entire profile.

5.5 SOIL BEHAVIOUR TYPE

The data have been interpreted using 4 soil behaviour type schemes: Robertson (1990, 2010, 2016) and Schneider et al, 2008. The Robertson (1990) scheme is widely used and forms the bases of the layer analysis whereby the profile is split into zones of common classification. The Robertson (2010 & 2016) and Schneider at al methods are less widely used but can provide better or more relevant classification in many instances. Differences in classification between the Robetson 1990, 2016 and Schneider et al schemes can also help to identify significant structure/cementation (Robertson 2016).

A dedicated soil behaviour type comparison log is provided in Appendix D.

Robertson (1990, 2010)

The soil behaviour type (SBT) was interpreted using the Robertson (1990) classification system based on the normalised cone resistance (Qt) and normalised friction sleeve resistance (Fr) for silicate and organic soils.

While the classification based on normalised parameters is more accurate, particularly for NC soils exceeding 15 m depth, the classification is often significantly in error (artificially granular/drained) at shallow depth (< 1-3 m). The error at shallow depth is associated with the potentially large difference between the estimated vertical effective stress (applied in normalisation) and the unknown horizontal stress influencing penetration resistance.

Robertson (2010) proposed a non-normalised version of the 1990 chart which uses dimensionless cone resistance (q_c/Pa) and friction ratio (Rf). The classification according to this chart can be more reliable at shallow depth and has been plotted as an approximate SBT index (discussed below) for comparison to the normalised classification.

It should be noted that:

- The SBT classification provides a general soil type and tends to show biased towards the soil fraction that dominates the mechanical behaviour.
- If fine cohesive soils are dry and overconsolidated, the classification tends to shift towards a coarser soil type (or lower I_c index)

While the repeatability and behavioural bias of the SBT is usually beneficial, the classification is not always an appropriate substitute for classification based on particle size and plasticity index tests.

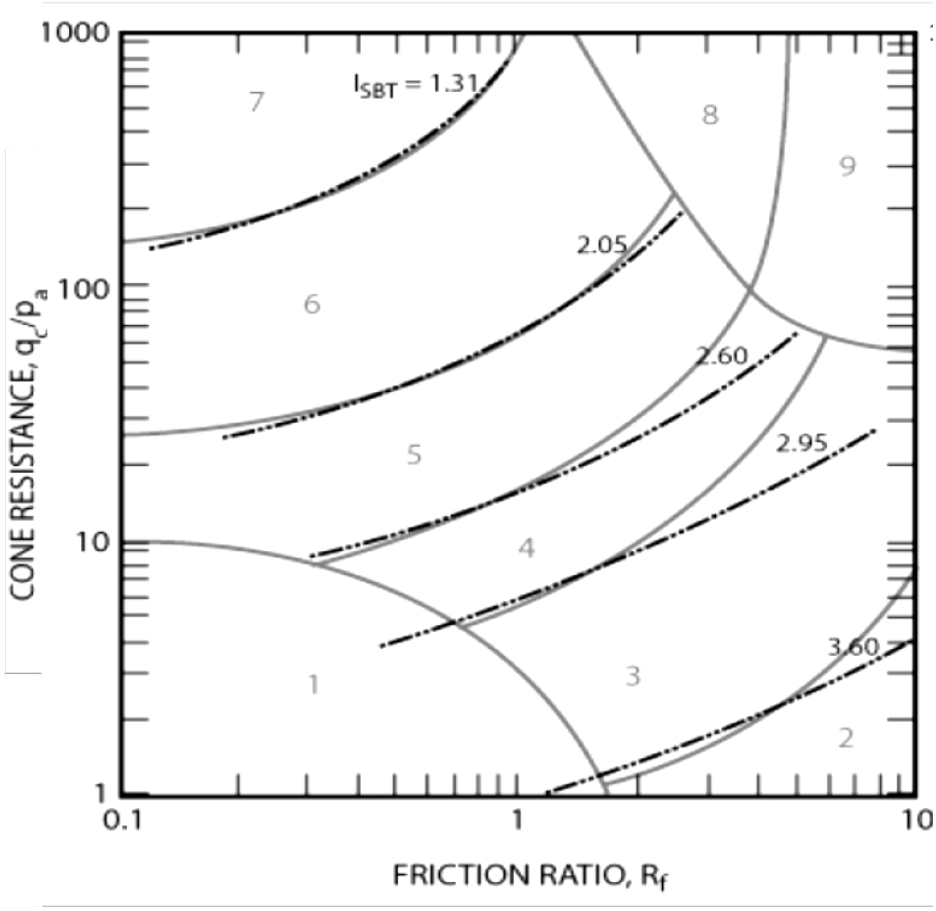


Figure 5-2 Non-normalised SBT chart by Robertson et al. (2010) based on dimensionless cone resistance (qc/Pa) and friction ration, Rf, showing contours of SBT index ISBT (denoted Ic on the test plots). The chart is also applicable to normalised tip (Q_t) and sleeve (F_r) values.

Table 1 Robertson (1990, 2010) soil behaviour type zone descriptions

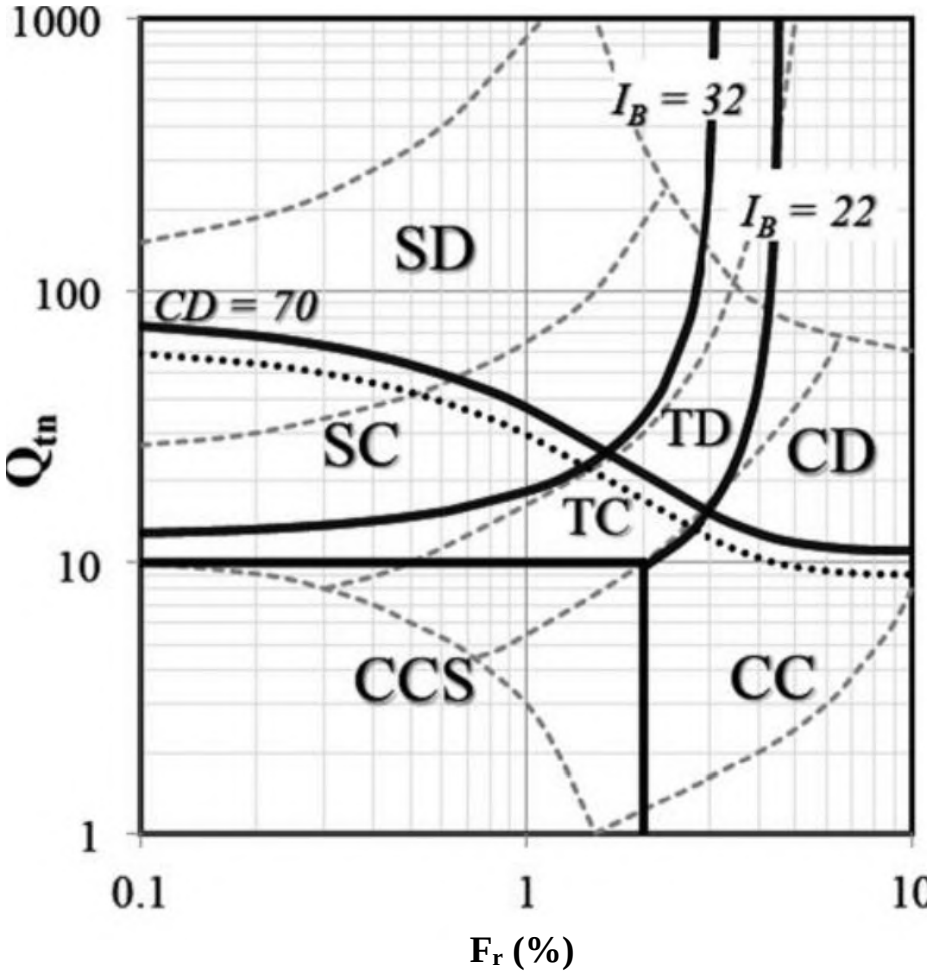
Zone	Soil Behaviour Type (SBT)		
1	Sensitive fine-grained	6	Sands - clean sand to silty sand
2	Organic soils	7	Gravelly sand to sand
3	Clays – clay to silty clay	8	Very stiff/dense sand to clayey sand[1]
4	Silt mixtures - clayey silt to silty clay	9	Very stiff fine grained[1]
5	Sand mixtures – silty sand to sandy silt	*Heavily overconsolidated or cemented	

[1]Note zones 8 and 9 appear as *'Very stiff/dense sand to clayey sand – HOC or cemented'* and *'Very stiff fine grained – HOC or cemented'* within the soil unit descriptions of plots in Appendix D.

The results are presented in Appendix D.

Robertson 2016

Using the same Q_t - F_r space as above, Robertson (2016) proposed an alternative purely behavioural classification system that places less emphasis on classification according to composition/textural properties and more emphasis on mechanical behaviour – namely the tendency of the soil to dilate or collapse during large strain shear, and sensitivity.



Zone	Soil Behaviour Type (SBT)
CCS	Clay-like – contractive - sensitive
CC	Clay-like – Contractive
CD	Clay-like – Dilative
TC	Transitional - Contractive
TD	Transitional - Dilative
SC	Sand-like - Contractive
SD	Sand-like - Dilative

Figure 5-3 Robertson 2016 soil behaviour type classification chart and zone descriptions

Schneider *et al.* (2008)

Schneider *et al.* (2008) proposed a classification system based on the normalised pore pressure B_q and tip resistance Q_t. This system is particularly useful for soils of very low strength or that exhibit drainage behaviour or u_2 response inconsistent with the SBT derived from tip and sleeve measurements. However, for onshore CPTs care must be taken that the u_2 piezometer is not affected by desaturation and that the response is dynamic. A set of logs showing both the Robertson and Schneider et al. classification results are provided for comparison in Appendix D.

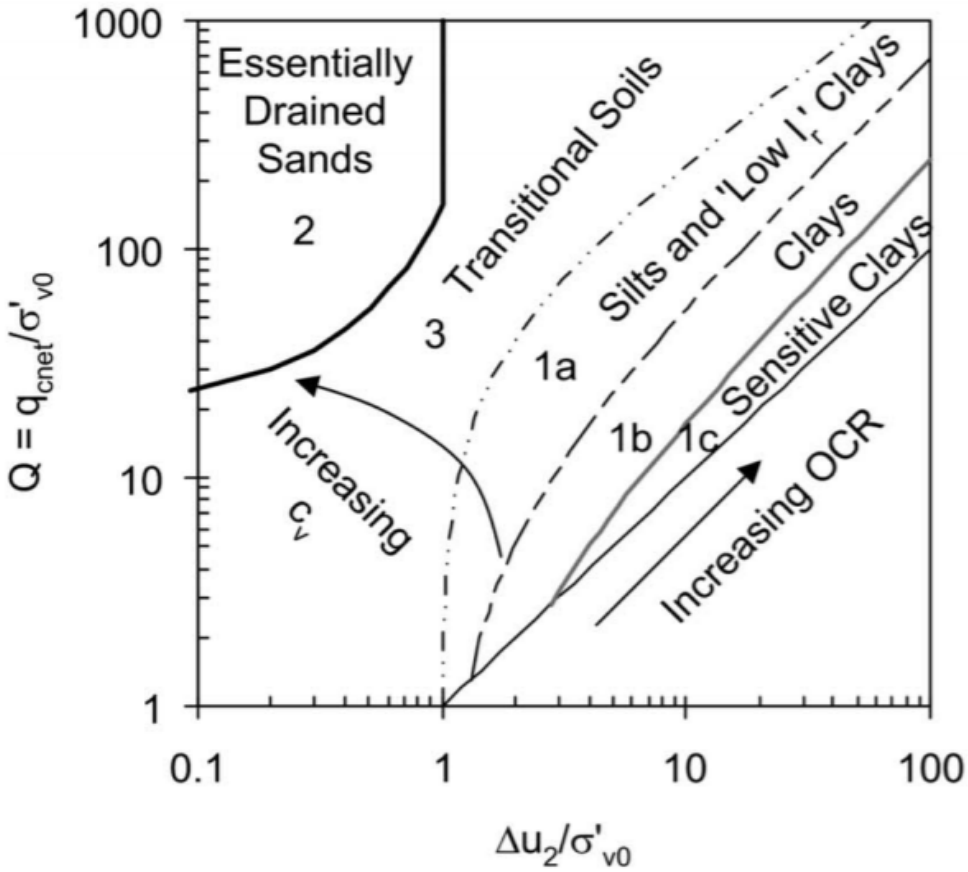


Figure 5-4 Schneider 2008 soil behaviour type classification chart and zone descriptions

Layer Analysis

The layer boundaries are manually interpreted based on broad changes in Robertson 1990 SBT classification or variance with depth. Once layer boundaries are defined, the SBT zones classified within each layer are listed together with the corresponding percentage of data points within the layer (excluding null/filtered data). The modal classification is reported in full, with abbreviated short descriptions for all secondary zones, for example - '*Clays – clay to silty clay [74%]; *Silt mixtures [20%]*', where the asterisk represents an abbreviation of the full description '*Silt mixtures – clayey silt to silty clay*'. It is important to consider that the classification zone boundaries do not exist in nature and small shifts in the cone response can lead to multiple classifications within layers of relatively uniform behaviour; especially were the layer data plot close to a zone junction and/or has spurious spikes or very thin layers. Therefore, some system to limit the number of classified zones is usually necessary for clarity in the plot. The logic used by Lankelma for each layer is:

For LT >= 1, C = 85
For 0.5 <= LT < 1, C = 75
For 0 < LT < 0.5, C = 65

Where
C = Minimum % SBT zone classification coverage within the layer
LT = Layer thickness (m)

For layers having a thickness of less than 1 m then 10% of data at the top and bottom of the layer are excluded to limit the effect of transition zone data (mobilised resistance influenced by overlying or underlying strata) being included in the classification.

The continuous SBT index I_c should be used to assess the classification distribution and variation not accounted for by the layer description.

5.6 SOIL BEHAVIOUR TYPE INDEX - I_c

The principal trend in soil behaviour type (SBT) variation can be expressed by a continuous index, I_c, proposed by Robertson and Wride (1998) based on a similar index proposed by Jefferies and Davies (1993). The index provides a continuous profile of SBT variation with depth for end-user analysis of soil units and variation within units. The equivalent non-normalised version proposed by Robertson (2010) is provided for comparison.

The basis of I_c and its approximation of the original chart classification zones may be seen from Appendix B figure 'CPT Soil Behaviour Type Chart'. The method does not identify zones 1 (*sensitive fine grained)* or zones 8 & 9 (*overconsolidated or cemented*).

Normalised SBT index I_c (Robertson and Wride, 1998)***:***

$$I_c = [(3.47 - \log Q_t)^2 + (logF_r + 1.22)^2]^{0.5}$$

Non-normalised SBT index I_c (Robertson, 2010)***:***

$$I_c = \left[\left(3.47 - \log\left(\frac{q_c}{\sigma_{atm}}\right)\right)^2 + (logR_f + 1.22)^2\right]^{0.5}$$

The normalised version if I_c is generally more accurate, while the non-normalised version is intended for compatibility with the non-normalised Robertson's (2010) SBT chart and may be more accurate at shallow depths in overconsolidated soils.

The results are presented in Appendix D.

5.7 RELATIVE DENSITY

The relative density of sands was calculated based on an empirical relationship proposed by Jamiolkowski *et al.* (2001) based on a large database of undisturbed frozen samples and calibration chamber tests. The expected accuracy may be evaluated from the figures presented below.

$$D_r = 100\left[0.268 \cdot \ln\left(\frac{q_t/\sigma_{atm}}{\sqrt{\sigma_{vo}'/\sigma_{atm}}}\right) - k\right]$$

k = Compressibility dependant constant can be taken as -0.675 for medium compressibility (applied value in our interpretation), <= 1 for high compressibility and >= 2 for compressible sands.

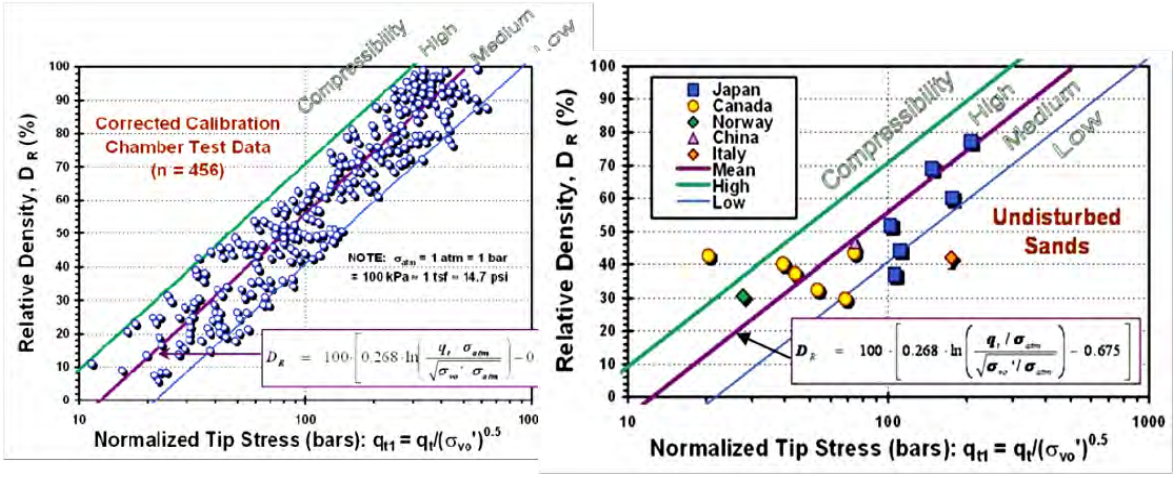


Figure 5-5 Relative density with normalised tip stress and sand compressibility from calibration chamber tests (left) and undisturbed frozen samples (right). Jamiolkowski *et al.* (2001). Reproduced from Mayne (2007).

The results are presented in Appendix F.

5.8 UNDRAINED SHEAR STRENGTH

The undrained shear strength s_u is usually estimated by the bearing capacity method, whereby the net tip resistance is divided by a factor N_k (Lunne *et al*, 1981):

$$s_u = \frac{q_c - \sigma_{v0}}{N_k}$$

Where N_k is an empirical factor which varies with soil type, stress history, structure/fabric, plasticity, and the mode of shear.

Mayne and Peuchen (2018) performed and evaluation of 407 high-quality undrained anisotropically consolidated triaxial compression tests (CAUC) with net tip resistance to proposed N_{kt} factors with regression analysis details for five categories of clays shown in Table 1.

Table 2 Summary of CAUC s_u versus q_{net} for clays. Reproduced from Mayne and Peuchen (2018).

Clay Group	Number of sites	Nr Data	Correlation Coefficient r^2	Factor N_{kt}	Mean Pore Pressure Parameter B_q
Offshore NC-LOC	17	115	0.98	12.32	0.51
Onshore NC-LOC	30	191	0.867	12	0.53
Sensitive NC-LOC	5	43	0.507	10.33	0.84
OC Intact	5	36	0.862	13.57	0.49
OC Fissured	5	22	0.393	22.47	-0.01
All clays	62	407	0.923	13.33	0.55

Alternatively, a variable N_{kt} factor can be estimated for the profile as a function of the pore pressure parameter B_q, applicable for B_q values of > -0.01. The following equation proposed by Mayne and Peuchen is based on the same database evaluation:

$$N_{kt} = 10.5 - 4.6 \cdot \ln(B_q + 0.1)$$

Where the pore pressure parameter B_q is the ratio of excess pore pressure to net tip resistance:

$$B_q = \frac{u_2 - u_0}{q_t - \sigma_{v0}}$$

The N_{kt} estimate has a standard error of 2.4 N_k and correlation coefficient of 0.645.

The estimate based on B_q is presented as 's_u5' on the parameter plots and is only suitable for tests that have a high-quality pore pressure data, often indicated by a positive, repeatable, and dynamic response.

Note: N_{kt} (with subscript 't') indicates a N_k factor that has been established using the corrected tip resistance q_t. N_{kt} can be applied to the uncorrected tip resistance q_c (non-piezocone tests) but results in a slightly lower estimate of s_u depending on the correction magnitude (q_c - q_t) in lower strength soils.

Undrained shear strengths corresponding to selected values of N_k are presented on the plots of Appendix D. '*s_u3*' on the logs (N_k = 15) has been included as a reference for comparison to traditionally reported N_k values of 15 and 20.

The results are presented in Appendix E.

5.9 OVERCONSOLIDATION RATIO

The preconsolidation stress σ_p' was calculated based on the method proposed by Mayne et al (2009):

$$\sigma_p' = k \cdot (q_t - \sigma_{vo})^{m\prime}$$

$$OCR = \sigma_p{}'/\sigma'_{v0}{}'$$

Mayne *et al* found that the trend with mean grain size followed a power law through the addition of exponent m' and that its value can be estimated by relation to soil behaviour type index I_c:

$$m' = 1 - \frac{0.28}{1 + \frac{I_c}{2.65}^{25}}$$

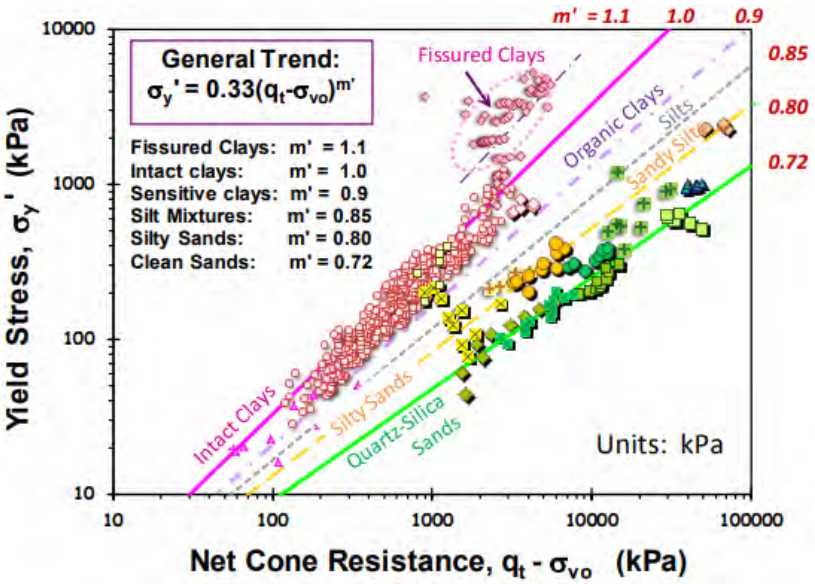


Figure 5-6 Preconsolidation stress with net cone resistance power law, reproduced from Mayne (2014).

An additional set of σ_p' and OCR values were calculated for m' = 1.1 to reflect the upper trend for over consolidated fissured clays not captured by the correlation with I_c.

The results are presented in Appendix E.

5.10 SPT N60 VALUES

Equivalent SPT N60 values, defined as the non-normalised SPT blow count over a 30 cm interval, were derived for two correlations.

Method 1 - Jefferies and Davies (1993) cited in Lunne *et al.* (1997):

$$N_{60} = \frac{q_t}{8.5 \cdot \sigma_{atm} \cdot \left(1 - \frac{I_c}{4.6}\right)}$$

Method 2 - Robertson (2012):

$$\frac{\left(\frac{q_t}{p_a}\right)}{N_{60}} = 10^{(1.268 - 0.2817 I_c)}$$

The correlations are intended for clays, silts and sands and not for carbonates or cemented geo-materials.

The results are presented in Appendix F.

5.11 FRICTION ANGLE

Sands

The peak friction angle of granular materials was calculated using the Kulhawy and Mayne (1990) method. The relationship is based on a calibration chamber database from 24 sands of varying mineralogy and is found from:

$$\phi' = 17.6 + 11.0 \cdot \log(q_{t1})$$

Where:

ϕ' = Peak friction angle (degrees)

q_{t1} = stress normalised cone resistance:

$$q_{t1} = \left(\frac{q_t}{\sigma_{atm}}\right) / \left(\frac{\sigma_{v0'}}{\sigma_{atm}}\right)^{0.5}$$

The presence of compressible minerals tends to reduce tip resistance resulting in lower estimate of friction angle, while very coarse (sand) or larger grain size tends to increase tip resistance resulting in higher estimate. Increased penetration resistance due to high k_0 conditions also results in an overestimate of friction angle.

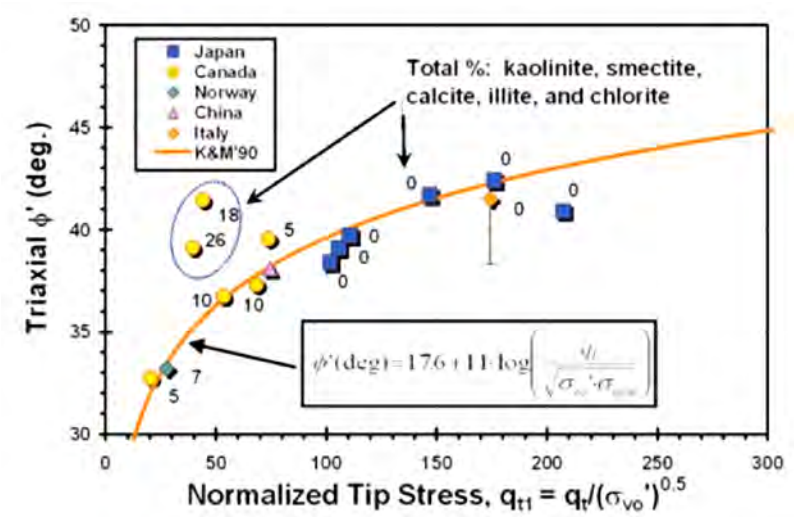


Figure 5-7 Peak triaxial friction angle from undisturbed sands with normalised cone resistance.

Fine grained soils

The effective friction angle for fine grained soils was calculated based on the Senneset *et al.* (1988, 1989) method by applying the approximate closed form solution by Mayne & Campanella (2005) as a direct function of the pore pressure parameter Bq and normalised tip resistance Q. The method is applicable where $0.1 < B_q < 1.0$ and $20° < \phi' < 45°$ and generally appropriate for non-cemented normally consolidated to lightly overconsolidated soils.

$$\phi' = 29.5° \, B_q^{0.121} [0.256 + 0.336 \, B_q + \log Q]$$

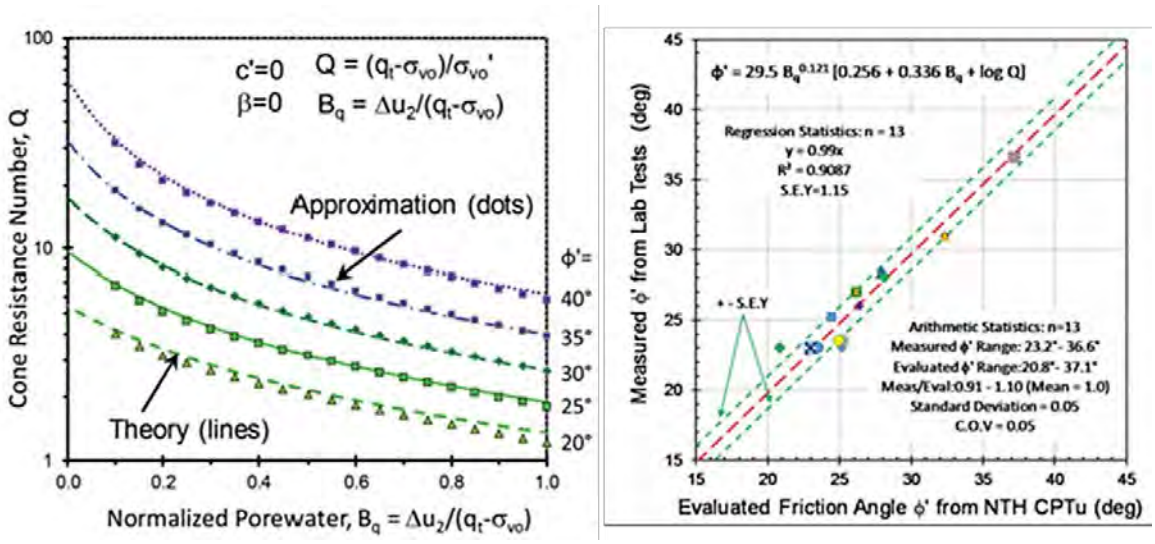


Figure 5-8 [Left] Theoretical curves with function approximation (dots) overlay [Right] calibration data from geotechnical centrifuge tests for a variety of soils. Redrawn from Ouyang & Mayne (2018).

The results are presented in Appendix F.

5.12 COEFFICIENT OF VOLUME CHANGE

Coefficient of volume change m_v defined as the inverse of the constrained modulus M, is evaluated for all soil types using the constrained modulus method proposed by Mayne (2006) cited in Mayne (2007). The value may be used to predict settlement at the end of primary consolidation and is applicable to the present state of vertical effective stress up to the pre-consolidation stress for overconsolidated soils.

$$m_v = \frac{1}{M}$$

Where:

$$M = \alpha \cdot (q_t - \sigma_v)$$

$$\alpha = 5$$

An alpha factor of 8.25 reported by Kulhawy & Mayne (1990) for fine grained soils appears to provide a better fit through the data for intact non-organic clays, reducing to around 1 to 2 for organic plastic clays.

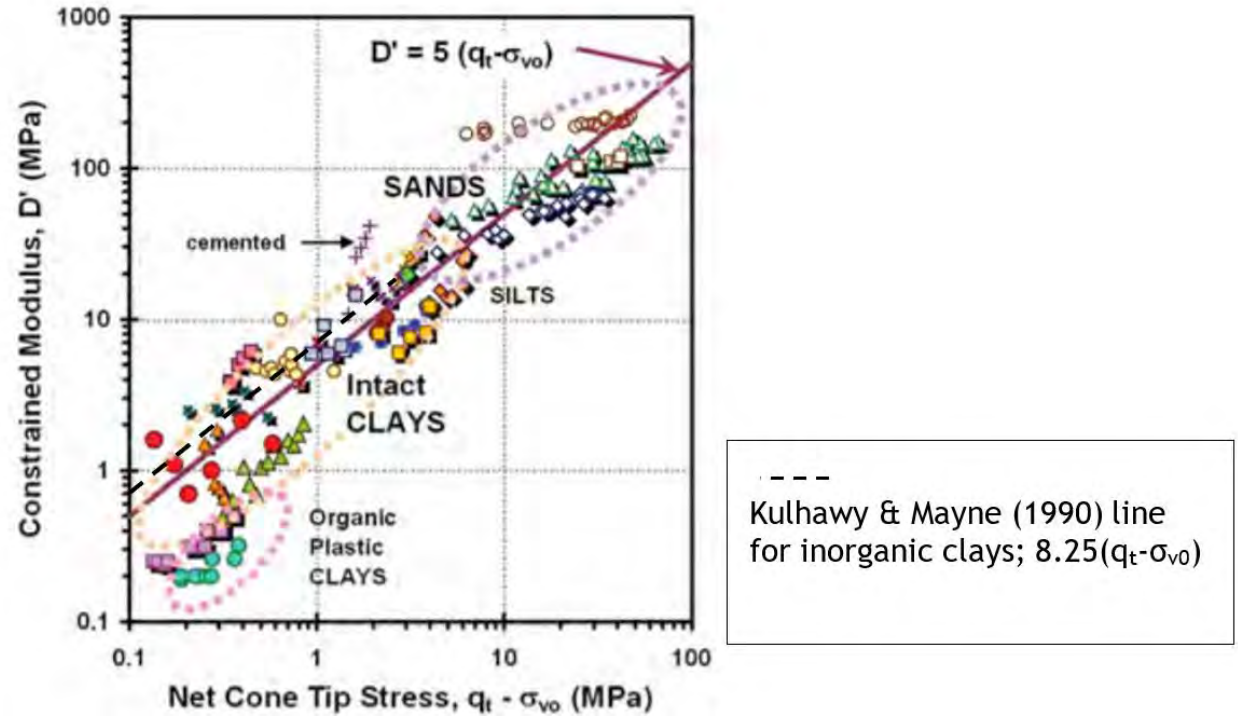


Figure 5-9 Constrained modulus of Mayne (2006). Annotated/redrawn from NCHRP Synthesis 368 (2007).

The results are presented in Appendix E.

5.13 YOUNG'S MODULUS

The secant Young's modulus E' at 25% mobilised shear strength (FOS = 4) was calculated according to the method proposed by Robertson (2009):

$E' = \alpha(q_t - \sigma_v)$
Where:

$\alpha = 0.015(10^{0.55\boldsymbol{Ic}+1.68})$

The method described by Robertson may be adapted to estimate E' for loading at different percentages of mobilised shear strength.

The results are presented in Appendix F.

6 CPT INTERPRETATION NOTES

Provided below is a non-exhaustive set of notes on interpretation of the acquired CPT data with reference to examples within the dataset where appropriate.

DRAINED AND UNDRAINED SOIL BEHAVIOUR

Geotechnical parameters appropriate for drained and undrained cone penetration conditions are derived for drained and undrained soil behaviour types (SBTs) respectively, however, to help mitigate the uncertainty in the SBT correlation with drainage behaviour, all parameters are derived over the Soil Behaviour Type range $2.4 < I_c < 2.7$. For partially drained conditions, error will be introduced within derived parameters.

Piezocone dynamic pore pressure and dissipation tests may be used to identify drainage conditions. Dissipation t_{50} values exceeding 50 seconds indicate undrained penetration behaviour based on the findings of Kim *et al.* (2008).

In partially drained materials the friction sleeve resistance may rise significantly immediately following a pause in penetration due to consolidation and increased effective stress on the friction sleeve.

DYNAMIC PORE PRESSURE u_2 (CPTu)

While the piezo system is saturated before use, testing through unsaturated soils may result in some degree of desaturation leading to a less accurate and more 'sluggish' pore pressure response. Desaturation can also occur during penetration due to suction pressure during dilative shear at the cone shoulder. Dissipation tests that are undertaken following desaturation are likely to have a more pronounced initial rise and some degree of error will be present in the analysis.

If the piezometer system becomes desaturated it may re-saturate at higher excess pressures later in the test as gas dissolves under pressure. The pore pressure response in saturated contractive soils should normally have a dynamic 'peaky' appearance.

The tip resistance in lower strength contractive soils <u>without</u> pore pressure measurement in the u_2 position is likely to be significantly lower (up to 20%, typically ~10%) than the equivalent corrected tip resistance depending on the magnitude of excess pore pressure generated during penetration.

CONE TIP AND SLEEVE OFFSET

The accuracy of the SBT over thin layers and at layer boundaries is sensitive to offset error in the friction ratio often resulting in sharp peaks or troughs at boundaries. The friction ratio is often inaccurate in heavily disturbed soils with a 'blocky' macro fabric. The last ~8 cm of data is also not included in the SBT material description as no friction sleeve measurements are recorded.

FRICTION SLEEVE DATA

There are two common causes of friction sleeve measurement issues; 1) unequal pore pressure acting on the sleeve end areas as the sleeve passes though materials of different permeability and hence excess pore pressure Δu_2, often resulting in a negative/positive spike, and 2) Accuracy limitations and temperature effects in very low strength or sensitive soils. The latter can often be mitigated by temperature stabilisation during the test and at the time of zero output measurement.

CONE TYPE

The reference cone type has a 10 cm^2 projected cone tip area and 150 cm^2 friction sleeve area, however it is common to use a larger 15 cm^2 cone with a 225 cm^2 friction sleeve area for improved sensitivity, temperature stability, damage prevention and penetration depth potential due to the higher bending strength. Use of a 15 cm^2 cone does however require higher penetration force (reaction force) for a given penetration pressure and produces more pronounced transitions zones and thin layer effects due to the larger influence zone.

TRANSITION ZONES AND THIN LAYER EFFECTS

During penetration at the boundary between soils of contrasting stiffness, a transition zone is often evident prior to mobilisation of the true soil stiffness. These should be cautiously ignored in assessment of soil behaviour type and parameter evaluation. Where the stiff layer is thin (<~1 m) mobilised resistance may be significantly less than that of an equivalent thick layer. The effect for thin low stiffness layers is less significant. Procedures for thin-layer effect correction are provided by Robertson and Wride (1998) and Boulanger & DeJong (2018).

GRAVELS

The presence of gravel or larger clasts in a soil is often characterised by short peaks in the CPT tip and sleeve readings, possibly with associate inclinometer 'shake' and/or short sharp reductions in pore water readings due to dilation effects. Frequent gravels in soft or loose soils may generate localised erroneous friction ratio values.

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APPENDICES

APPENDIX A	SUMMARY TABLES
APPENDIX B	GENERAL INFORMATION
APPENDIX C	CONE PENETRATION TEST RESULTS
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APPENDIX G	PENETROMETER TEMPERATURE RESULTS

APPENDIX A SUMMARY TABLES

Table 3 CPT summary

Location ID	Stroke number	Final depth (m)	Cone ID	Piezocone test	Pre-drilled (m)	Pre-drilling details	Rig	Primary refusal factor	Applied zero values: qc, fs, u2	Tip zero drift (kPa)	Sleeve zero drift (subtraction) (kPa)	Piezo zero drift (kPa)	Nr dissipation tests	Raw File Name	Easting (m)	Northing (m)	Elevation (m)	Date	Remarks
CPT201	1	15.84	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	-35.80	-0.80	-19.10		107934-V1-210222-UK22-LP81.L01				21/02/2022	
CPT203	1	10.18	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Target depth	pre, pre, pre	-24.00	-0.20	0.90		107934-V1-210222-UK22-LP81.L02				21/02/2022	
CPT204	1	15.82	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	-63.40	-0.60	0.40		107934-V1-210222-UK22-LP81.L04				21/02/2022	
CPT205	1	10.10	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Target depth	pre, pre, pre	15.60	0.20	-3.80		107934-V1-210222-UK22-LP81.L03				21/02/2022	
CPT206	1	10.06	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Target depth	pre, pre, pre	-20.00	-2.30	0.00		107934-V1-210222-UK22-LP81.L10				21/02/2022	
CPT207	1	1.52	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	14.00	-2.00	1.20		107934-V1-210222-UK22-LP81.L05				21/02/2022	
CPT207A	1	12.30	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	-29.40	-0.20	0.10		107934-V1-210222-UK22-LP81.L06				21/02/2022	
CPT208	1	1.44	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	2.00	0.60	0.60		107934-V1-210222-UK22-LP81.L07				21/02/2022	
CPT208A	1	1.18	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Inclination	pre, pre, pre	-11.80	0.90	-1.60		107934-V1-210222-UK22-LP81.L08				21/02/2022	
CPT209	1	14.74	S15-CFIPT.1899	YES	1.20	IP-BF	UK22	Lateral support	pre, pre, pre	14.60	-1.40	-2.30		107934-V1-210222-UK22-LP81.L09				21/02/2022	

CPT test plots are presented in Appendix C.

APPENDIX B GENERAL INFORMATION

LIST OF FIGURES

Cone calibration certificate: S15-CFIIP.1899

Data sheet: 18.0-tonne track-truck mounted CPT unit (UK22)

CERTIFICATE OF CALIBRATION

Certificate Number: 1390

Cone Serial Number: DS15-CFIIPT.1899

Instrument:	**Digital-Geopoint-S15-150kN-2MPa**	**Location:**	**Lankelma Calibration Laboratory**
Serial number:	**DS15-CFIIPT.1899**	**Temperature (°C):**	**20.7**
Manufacturer:	**Geopoint**	**Temperature change (°C):**	**0.15**
Calibration standard:	**Conforms to ISO 376:2011 & ISO 22476-1:2012**	**Calibration engineer:**	**P Metcalf**
ISO 22476-1:2012 application class:	**Class 1**	**Calibration re-verification date:**	**14/02/2022 to 14/04/2022**
Date of calibration:	**14/12/2021**	**Calibration verification completed:**	**-**
Calibration expiry:	**14/04/2022**		

This calibration certificate is valid for 6 months, with a verification of the calibration being performed between 2 and 4 months from the date of calibration.

Calibration signed and dated by:	**Calibration checked and dated by:**	**Calibration verification signed and dated by:**
P Metcalf	A Harman	

REFERENCE INSTRUMENTS	SERIAL NUMBER	UNCERTAINTY OF RECORDED VALUE	CALIBRATION DATE
AM DSCCHA-100kN Load Cell	66914	0.02%	29/04/2021
AM DSCCHA-5kN Load Cell	0	0.05%	00/01/1900
Omega MMG750V	502273	0.01%	01/09/2021
Keithley 3706A Multimeter	4067652	10ppm	27/08/2021
LD Solar2-45	105775	0.04°	02/09/2020
ETI Ref Thermometer	D20345255	0.01°C	27/08/2021

The calibration tests were made in the Lankelma force standards machine. The applied forces of which are within an uncertainty of:
± 0.050 % of nominal value from 0.5kN up to 10kN, then 0.02% of nominal from 10kN up to 100kN.

MEASUREMENTS
1. The forces applied, and the resulting deflections are given in Tables 1. No corrections for temperature have been applied to these results.
2. The cone was loaded to full range 3 times for no less than 1 minute before calibration and after each rotation.
3. The cone was calibrated in low and high range using two reference load cells. The low range calibration consisted of a maximum load of 5kN with 4 sets of increasing forces and 2 sets of decreasing forces. The high range calibration consisted of a maximum load of 100kN with 3 sets of increasing forces and 2 sets of decreasing forces.
4. The difference in deflection for each applied force with rotation is the relative reproducibility error b, shown as a percentage of the recorded value and in units of pressure MPa. The uncertainty relating to the difference in deflection for increasing forces against degreasing forces is the reversibility uncertainty U_rev, shown as a percentage of the recorded value and in units of pressure MPa.
5. For each application of force, the coefficients of a linear and third order equation relating the estimate of the mean deflection as a function of the applied calibration force were calculated. Table 2.
6. The combined expanded uncertainty of deflection U for each force is shown as a percentage of the recorded value and in units of pressure MPa.
7. The coefficients of a third order equation relating a given applied force to the estimate of the mean deflection were also calculated. The coefficients are given in Table 3.
8. In use the forces acting on the sleeve load cell element are a combination of tip resistance and sleeve friction, with the tip resistance from the tip load cell element being subtracted to give the sleeve friction value. The resultant error values for differing tip and sleeve values are shown in Table 4.
* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

The calibration uncertainty is the uncertainty in the force value calculated from the interpolation equation at any deflection.

At each calibration point a combined standard uncertainty *uc* is calculated from the readings obtained during the calibration.

$$uc = \sqrt{\sum_{i=1}^{8} ui^2}$$

and

$$U = k \times uc$$

where

u1 is the standard uncertainty associated with the applied calibration force.
u2 is the standard uncertainty associated with the reproducibility of the calibration results.
u3 is the standard uncertainty associated with the repeatability of the calibration results.
u4 is the standard uncertainty associated with the resolution and noise of the system.
u5 is the standard uncertainty associated with the creep of the instrument.
u6 is the standard uncertainty associated with the drift in zero output.
u7 is the standard uncertainty associated with temperature of the instrument.
u8 is the standard uncertainty associated with interpolation best fit of the linear or 3rd order polynomial equation.

Symbols and their designations

Symbol	Designation
Ref LC	Reference load cell with calibration force in kN
cts	Counts. Base digital cone units.
0.1N	Interpolated digital cone units from counts
b	Relative reproducibility error
U_rev	Reversibility uncertainty
Uc	Combined standard uncertainty
Uc_sub	Combined standard uncertainty including sleeve subtraction
U	Combined expanded uncertainty
k=2	95% uncertainty coverage factor

Cone tempreture effect profile:

This section deals with the apparent pressure readings obtained from sensors due to static and transient temperature change. The parameters for post-processing temperature correction are established and the apparent pressures after correction are presented. Depending on the design or temperature performance, correction of the friction sleeve and/or piezometer readings may not be warranted

LANKELMA	CERTIFICATE OF CALIBRATION Certificate Number: 1390	Cone Serial Number: DS15-CFIIPT.1899

CONE END RESISTANCE CALIBRATION

Table 1-a.

Low range calibration									High range calibration							
	Tip change In output (cts)				Reproducibility error *b*		Reversibility error *U_rev*			Tip change in output (cts)			Reproducibility error *b*		Reversibility error *U_rev*	
Ref LC	1	2	3	4					Ref LC	1	2	3				
(kN)	0°	120°	240°	240°	MPa	%	MPa	%	(kN)	0°	120°	240°	MPa	%	MPa	%
0.100	1.171E+05	1.187E+05	1.177E+05	1.177E+05	0.000	0.38			5.000	5.853E+06	5.853E+06	5.852E+06	0.000	0.00		
0.500	5.888E+05	5.900E+05	5.910E+05	5.895E+05	0.000	0.11			10.000	1.170E+07	1.170E+07	1.170E+07	0.000	0.00		
1.000	1.179E+06	1.179E+06	1.180E+06	1.179E+06	0.000	0.04			15.000	1.754E+07	1.754E+07	1.754E+07	0.000	0.00		
1.500	1.767E+06	1.768E+06	1.768E+06	1.768E+06	0.000	0.01			20.000	2.338E+07	2.338E+07	2.338E+07	0.001	0.01		
2.000	2.356E+06	2.354E+06	2.357E+06	2.357E+06	0.001	0.04			30.000	3.506E+07	3.505E+07	3.506E+07	0.002	0.01		
2.500	2.942E+06	2.945E+06	2.944E+06	2.947E+06	0.000	0.03			40.000	4.672E+07	4.672E+07	4.673E+07	0.002	0.01		
3.000	3.532E+06	3.535E+06	3.535E+06	3.534E+06	0.001	0.03			50.000	5.838E+07	5.838E+07	5.839E+07	0.002	0.01		
3.500	4.122E+06	4.125E+06	4.125E+06	4.124E+06	0.000	0.02			60.000	7.002E+07	7.003E+07	7.004E+07	0.003	0.01		
4.000	4.712E+06	4.714E+06	4.713E+06	4.713E+06	0.000	0.01			80.000	9.328E+07	9.328E+07	9.330E+07	0.005	0.01		
5.000	5.892E+06	5.894E+06	5.892E+06	5.892E+06	0.000	0.01			100.000	1.165E+08	1.165E+08	1.165E+08	0.007	0.01		
4.000	4.720E+06	4.717E+06			0.001	0.02	-0.002	-0.07	80.000	9.329E+07	9.330E+07		0.003	0.00	-0.005	-0.01
3.500	4.132E+06	4.130E+06			0.000	0.02	-0.003	-0.11	60.000	7.005E+07	7.006E+07		0.002	0.00	-0.010	-0.03
3.000	3.543E+06	3.542E+06			0.000	0.01	-0.003	-0.15	50.000	5.841E+07	5.842E+07		0.002	0.01	-0.013	-0.04
2.500	2.953E+06	2.954E+06			0.000	0.02	-0.003	-0.19	40.000	4.676E+07	4.677E+07		0.002	0.01	-0.014	-0.05
2.000	2.364E+06	2.363E+06			0.000	0.01	-0.003	-0.21	30.000	3.509E+07	3.510E+07		0.001	0.01	-0.013	-0.06
1.500	1.773E+06	1.774E+06			0.000	0.01	-0.002	-0.19	20.000	2.341E+07	2.341E+07		0.001	0.01	-0.010	-0.08
1.000	1.184E+06	1.183E+06			0.000	0.02	-0.002	-0.23	15.000	1.756E+07	1.757E+07		0.001	0.01	-0.008	-0.08
0.500	5.934E+05	5.933E+05			0.000	0.00	-0.001	-0.39	10.000	1.171E+07	1.172E+07		0.001	0.01	-0.005	-0.08
0.100	1.211E+05	1.195E+05			0.000	0.48	-0.001	-1.17	5.000	5.862E+06	5.860E+06		0.000	0.01	-0.003	-0.08

Table 2-a.

Low range calibration							
Reference output		Linear equation			3rd order equation		
Ref Load Cell Nom. (MPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** MPa	%	Equation output (0.1N)	Expanded uncertainty *U** MPa	%
0.067	1000	1011	0.002	2.41	990	0.002	2.39
0.333	5000	5060	0.008	2.43	5018	0.003	0.84
0.667	10000	10114	0.015	2.31	10046	0.006	0.95
1.000	15000	15161	0.022	2.17	15067	0.009	0.91
1.333	20000	20202	0.028	2.07	20083	0.011	0.86
1.667	25000	25247	0.033	2.00	25103	0.014	0.85
2.000	30000	30309	0.041	2.07	30140	0.019	0.95
2.333	35000	35368	0.049	2.12	35176	0.024	1.02
2.667	40000	40423	0.057	2.13	40207	0.028	1.05
3.333	50000	50538	0.072	2.15	50276	0.037	1.12
2.667	40000	40469	0.063	2.36	40253	0.034	1.27
2.333	35000	35430	0.058	2.47	35238	0.032	1.37
2.000	30000	30382	0.051	2.56	30213	0.029	1.43
1.667	25000	25329	0.044	2.65	25184	0.025	1.49
1.333	20000	20269	0.036	2.71	20149	0.020	1.51
1.000	15000	15211	0.028	2.84	15116	0.016	1.56
0.667	10000	10149	0.020	3.04	10081	0.011	1.63
0.333	5000	5089	0.012	3.70	5047	0.006	1.89
0.067	1000	1032	0.005	6.96	1010	0.002	2.46

High range calibration							
Reference output		Linear equation			3rd order equation		
Ref Load Cell Nom. (MPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** MPa	%	Equation output (0.1N)	Expanded uncertainty *U** MPa	%
3.333	50000	50196	0.027	0.81	49935	0.010	0.31
6.667	100000	100337	0.046	0.69	99872	0.020	0.29
10.000	150000	150439	0.060	0.60	149807	0.030	0.30
13.333	200000	200527	0.073	0.55	199766	0.037	0.28
20.000	300000	300672	0.094	0.47	299754	0.044	0.22
26.667	400000	400756	0.107	0.40	399807	0.045	0.17
33.333	500000	500731	0.108	0.32	499864	0.049	0.15
40.000	600000	600634	0.101	0.25	599950	0.056	0.14
53.333	800000	800090	0.075	0.14	800020	0.074	0.14
66.667	1000000	999139	0.147	0.22	999925	0.093	0.14
53.333	800000	800164	0.075	0.14	800094	0.073	0.14
40.000	600000	600860	0.127	0.32	600177	0.059	0.15
33.333	500000	501026	0.144	0.43	500160	0.050	0.15
26.667	400000	401075	0.148	0.55	400126	0.040	0.15
20.000	300000	300980	0.134	0.67	300061	0.028	0.14
13.333	200000	200783	0.106	0.80	200021	0.018	0.14
10.000	150000	150658	0.089	0.89	150026	0.014	0.14
6.667	100000	100475	0.065	0.97	100009	0.009	0.14
3.333	50000	50268	0.036	1.09	50007	0.005	0.16

Table 3-a. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

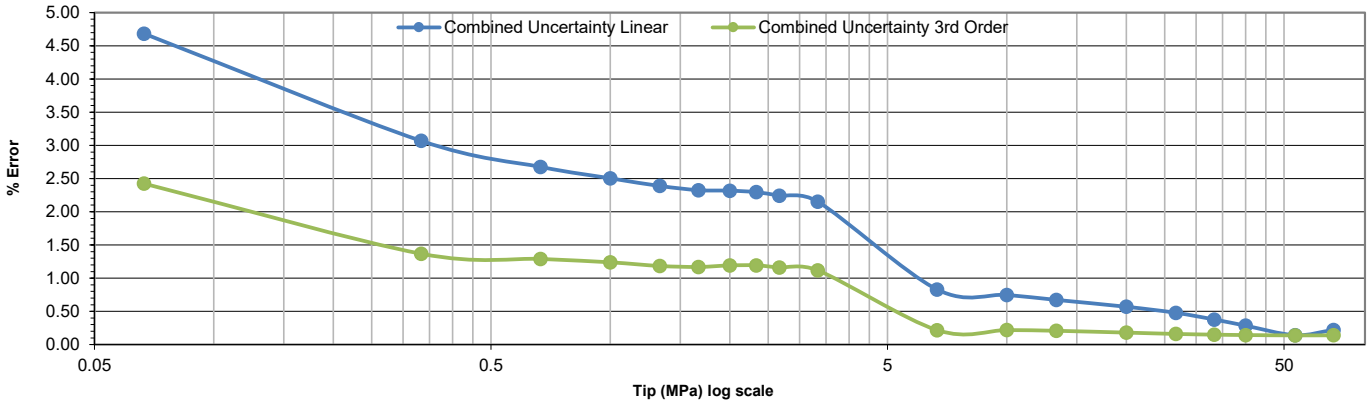
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	-15.70297
a1	=	0.99471
a2	=	8.23627E-09
a3	=	-2.14460E-15

Maximum tip zero drift during the calibration (MPa) =	0.002
Maximum load cell zero drift during the calibration (MPa) =	0.000
Factor used to convert from counts to 0.1N units =	0.0085767
Maximum tip full scale reading (MPa) =	100.00
Tip resolution (Pa) =	66.7
Tip area (cm²) =	15
Tip area ratio factor =	0.780

COMBINED EXPANDED UNCERTAINTY TIP



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

LANKELMA	CERTIFICATE OF CALIBRATION Certificate Number: 1390	Cone Serial Number: DS15-CFIIPT.1899

SLEEVE FRICTION CALIBRATION

Table1-b.

Low range calibration									High range calibration							
	Sleeve change In output (cts)				Reproducibility error *b*		Reversibility error *U_rev*			Sleeve change in output (cts)			Reproducibility error *b*		Reversibility error *U_rev*	
Ref LC (kN)	1 0°	2 120°	3 240°	4 240°	kPa	%	kPa	%	Ref LC (kN)	1 0°	2 120°	3 240°	kPa	%	kPa	%
0.100	1.203E+05	1.220E+05	1.225E+05	1.225E+05	0.023	0.53			5.000	6.042E+06	6.040E+06	6.041E+06	0.016	0.01		
0.500	6.079E+05	6.096E+05	6.090E+05	6.100E+05	0.017	0.08			10.000	1.208E+07	1.207E+07	1.207E+07	0.020	0.00		
1.000	1.216E+06	1.216E+06	1.216E+06	1.218E+06	0.007	0.02			15.000	1.810E+07	1.810E+07	1.811E+07	0.037	0.01		
1.500	1.822E+06	1.823E+06	1.823E+06	1.825E+06	0.020	0.03			20.000	2.413E+07	2.413E+07	2.413E+07	0.050	0.01		
2.000	2.428E+06	2.428E+06	2.430E+06	2.431E+06	0.023	0.03			30.000	3.618E+07	3.618E+07	3.619E+07	0.126	0.01		
2.500	3.034E+06	3.037E+06	3.036E+06	3.038E+06	0.037	0.03			40.000	4.823E+07	4.823E+07	4.824E+07	0.193	0.01		
3.000	3.641E+06	3.644E+06	3.644E+06	3.645E+06	0.039	0.03			50.000	6.026E+07	6.027E+07	6.028E+07	0.168	0.01		
3.500	4.248E+06	4.252E+06	4.252E+06	4.252E+06	0.053	0.03			60.000	7.229E+07	7.230E+07	7.231E+07	0.234	0.01		
4.000	4.856E+06	4.860E+06	4.858E+06	4.860E+06	0.037	0.02			80.000	9.631E+07	9.632E+07	9.634E+07	0.343	0.01		
5.000	6.072E+06	6.076E+06	6.073E+06	6.073E+06	0.037	0.02			100.000	1.203E+08	1.203E+08	1.203E+08	0.445	0.01		
4.000	4.860E+06	4.863E+06			0.035	0.02	-0.073	-0.04	80.000	9.633E+07	9.634E+07		0.186	0.01	-0.476	-0.01
3.500	4.256E+06	4.257E+06			0.014	0.01	-0.132	-0.09	60.000	7.233E+07	7.234E+07		0.145	0.01	-0.843	-0.03
3.000	3.646E+06	3.651E+06			0.064	0.05	-0.122	-0.09	50.000	6.031E+07	6.032E+07		0.165	0.01	-0.968	-0.04
2.500	3.039E+06	3.045E+06			0.073	0.07	-0.129	-0.12	40.000	4.827E+07	4.829E+07		0.196	0.01	-1.062	-0.06
2.000	2.431E+06	2.437E+06			0.074	0.08	-0.133	-0.15	30.000	3.622E+07	3.623E+07		0.115	0.01	-0.951	-0.07
1.500	1.823E+06	1.829E+06			0.075	0.11	-0.080	-0.12	20.000	2.416E+07	2.417E+07		0.117	0.01	-0.757	-0.09
1.000	1.215E+06	1.221E+06			0.078	0.18	-0.047	-0.11	15.000	1.813E+07	1.814E+07		0.093	0.01	-0.619	-0.09
0.500	6.073E+05	6.119E+05			0.059	0.27	-0.017	-0.08	10.000	1.209E+07	1.210E+07		0.073	0.02	-0.400	-0.09
0.100	1.188E+05	1.244E+05			0.071	1.62	-0.008	-0.19	5.000	6.052E+06	6.051E+06		0.005	0.00	-0.219	-0.10

Table 2-b.

Low range calibration							
Reference output		Linear factor output			3rd order equation		
Ref Load Cell Nom. (kPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** kPa	%	Equation output (0.1N)	Expanded uncertainty *U** kPa	%
4	1000	1010	0.103	2.35	1000	0.052	1.19
22	5000	5057	0.506	2.30	5028	0.258	1.17
44	10000	10100	0.890	2.02	10049	0.442	1.00
66	15000	15139	1.236	1.87	15066	0.594	0.90
88	20000	20172	1.528	1.73	20077	0.696	0.79
110	25000	25215	1.902	1.73	25097	0.881	0.80
132	30000	30262	2.318	1.75	30123	1.107	0.84
154	35000	35305	2.701	1.75	35145	1.307	0.85
176	40000	40351	3.101	1.76	40170	1.525	0.87
220	50000	50448	3.965	1.80	50227	2.040	0.93
176	40000	40378	3.343	1.90	40198	1.762	1.00
154	35000	35353	3.116	2.02	35193	1.714	1.11
132	30000	30306	2.707	2.05	30167	1.491	1.13
110	25000	25264	2.341	2.13	25147	1.313	1.19
88	20000	20220	1.951	2.21	20124	1.114	1.26
66	15000	15169	1.503	2.27	15095	0.860	1.30
44	10000	10118	1.050	2.38	10066	0.607	1.38
22	5000	5063	0.570	2.59	5034	0.328	1.49
4	1000	1010	0.170	3.85	1000	0.144	3.28

High range calibration							
Reference output		Linear factor output			3rd order equation		
Ref Load Cell Nom. (kPa)	Ref Load Cell (0.1N)	Cone output (0.1N)	Expanded uncertainty *U** kPa	%	Equation output (0.1N)	Expanded uncertainty *U** kPa	%
220	50000	50177	1.597	0.73	49957	0.520	0.24
441	100000	100290	2.631	0.60	99891	1.146	0.13
661	150000	150376	3.447	0.52	149831	1.761	0.13
881	200000	200442	4.099	0.47	199783	2.298	0.13
1322	300000	300561	5.287	0.40	299762	2.808	0.11
1762	400000	400632	6.074	0.34	399805	2.973	0.08
2203	500000	500609	6.148	0.28	499855	3.255	0.07
2643	600000	600517	5.803	0.22	599925	3.657	0.07
3524	800000	800045	4.822	0.14	800003	4.806	0.07
4405	1000000	999205	9.213	0.21	999946	6.005	0.07
3524	800000	800159	4.896	0.14	800119	4.805	0.07
2643	600000	600801	7.888	0.30	600210	3.975	0.08
2203	500000	500957	8.934	0.41	500204	3.453	0.08
1762	400000	401007	9.188	0.52	400181	2.859	0.08
1322	300000	300907	8.186	0.62	300108	2.014	0.08
881	200000	200729	6.536	0.74	200069	1.345	0.08
661	150000	150612	5.468	0.83	150066	1.078	0.08
441	100000	100448	3.992	0.91	100048	0.751	0.09
220	50000	50263	2.342	1.06	50043	0.503	0.11

Table 3-b. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

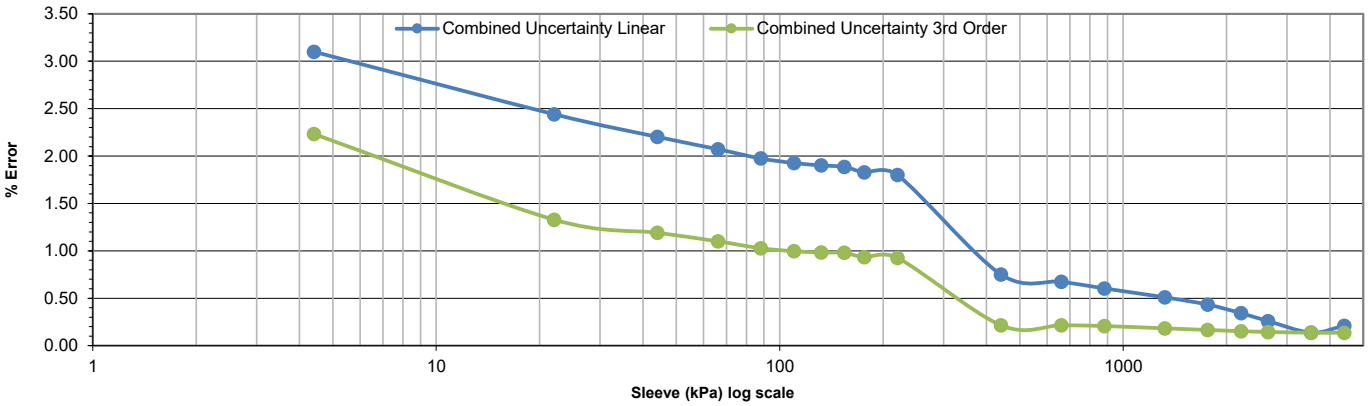
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	-5.46371
a1	=	0.99538
a2	=	7.11854E-09
a3	=	-1.74841E-15

Maximum sleeve zero drift during the calibration (kPa) =	0.034
Maximum load cell zero drift during the calibration (kPa) =	0.005
Factor used to convert from counts to 0.1N units =	0.0083061
Physical strength limited maximum sleeve reading (MPa) =	1.333
Sleeve resolution (Pa) =	4.4
Sleeve area (cm²) =	227
Sleeve area ratio factor =	-0.001

COMBINED EXPANDED UNCERTAINTY SLEEVE



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

Table 4-b Sleeve friction - tip subtraction combined standard uncertainty Uc_sub

Tip MPa	Sleeve linear equation subtraction error (%)							
	Sleeve kPa →							
	4	*22*	*44*	*66*	*110*	*154*	*220*	*661*
0.07	5.4	2.0	1.5	1.3	1.1	1.1	1.0	0.4
0.33	15.3	4.0	2.5	2.0	1.5	1.3	1.3	0.4
0.67	25.9	6.1	3.5	2.7	1.9	1.6	1.4	0.5
1.00	35.9	8.1	4.5	3.3	2.3	1.9	1.6	0.5
1.67	54.7	11.9	6.4	4.6	3.1	2.5	2.0	0.6
2.33	74.7	15.9	8.4	5.9	3.9	3.0	2.4	0.7
3.33	100.4	21.0	11.0	7.6	4.9	3.8	2.9	0.8
10.00	108.2	22.6	11.8	8.1	5.2	4.0	3.0	0.8
13.33	129.1	26.7	13.9	11.8	6.1	4.6	4.1	1.1

Tip MPa	Sleeve 3rd order equation subtraction error (%)							
	Sleeve kPa →							
	4	*22*	*44*	*66*	*110*	*154*	*220*	*661*
0.07	3.4	1.1	0.8	0.7	0.6	0.6	0.5	0.1
0.33	7.9	2.0	1.3	1.0	0.8	0.7	0.6	0.2
0.67	13.5	3.1	1.8	1.4	1.0	0.8	0.7	0.2
1.00	18.7	4.2	2.3	1.7	1.2	1.0	0.8	0.2
1.67	28.2	6.1	3.3	2.4	1.6	1.3	1.0	0.3
2.33	39.1	8.3	4.4	3.1	2.0	1.6	1.2	0.4
3.33	52.2	10.9	5.7	4.0	2.5	1.9	1.5	0.4
10.00	33.6	7.2	3.8	2.7	1.8	1.4	1.1	0.3
13.33	42.5	8.9	4.7	4.2	2.2	1.7	1.3	0.4

PORE PRESSURE CALIBRATION

Table1-c.

Ref PR (kPa)	PWP change in output (cts) 1 0°	2 120°	3 240°	Reproducibility error *b* kPa	%	Reversibility error *U_rev* kPa	%
50	1.967E+07	1.974E+07	1.968E+07	0.1	0.11		
100	3.947E+07	3.956E+07	3.938E+07	0.1	0.13		
200	7.908E+07	7.910E+07	7.897E+07	0.1	0.05		
300	1.186E+08	1.187E+08	1.184E+08	0.2	0.06		
400	1.580E+08	1.582E+08	1.580E+08	0.2	0.05		
500	1.976E+08	1.976E+08	1.975E+08	0.1	0.02		
600	2.371E+08	2.370E+08	2.370E+08	0.1	0.01		
800	3.160E+08	3.160E+08	3.160E+08	0.0	0.01		
1000	3.948E+08	3.949E+08	3.947E+08	0.1	0.01		
1200	4.735E+08	4.735E+08	4.734E+08	0.1	0.01		
1000	3.948E+08	3.948E+08		0.0	0.00	0.0	0.00
800	3.160E+08	3.160E+08		0.0	0.00	0.0	0.00
600	2.371E+08	2.370E+08		0.1	0.01	0.0	0.00
500	1.977E+08	1.976E+08		0.0	0.01	0.0	-0.01
400	1.582E+08	1.581E+08		0.1	0.02	0.0	0.00
300	1.186E+08	1.185E+08		0.1	0.04	0.1	0.02
200	7.908E+07	7.906E+07		0.0	0.01	0.0	0.01
100	3.953E+07	3.952E+07		0.0	0.01	0.0	-0.02
50	1.972E+07	1.969E+07		0.0	0.07	0.0	-0.01

Table 2-c.

Reference output		Linear factor output			3rd order equation		
Ref Pressure (kPa)	Ref Pressure (0.1Pa)	Cone output (0.1Pa)	Expanded uncertainty *U** kPa	%	Equation output (0.1N)	Expanded uncertainty *U** kPa	%
50	500000	498946	0.481	0.96	499856	0.431	0.86
100	1000000	999957	0.540	0.54	1000294	0.544	0.54
200	2000000	2002752	0.817	0.41	2001815	0.703	0.35
300	3000000	3003218	1.016	0.34	3000961	0.808	0.27
400	4000000	4004559	1.289	0.32	4001068	0.938	0.23
500	5000000	5005708	1.540	0.31	5001209	1.058	0.21
600	6000000	6006165	1.764	0.29	6001024	1.276	0.21
800	8000000	8006361	2.097	0.26	8001580	1.695	0.21
1000	10000000	10002329	2.417	0.24	10001007	2.380	0.24
1200	12000000	11994880	4.451	0.37	12001196	4.337	0.36
1000	10000000	10002273	2.409	0.24	10000951	2.373	0.24
800	8000000	8006335	2.095	0.26	8001553	1.691	0.21
600	6000000	6006147	1.770	0.30	6001006	1.273	0.21
500	5000000	5007330	1.802	0.36	5002830	1.162	0.23
400	4000000	4005996	1.492	0.37	4002503	0.989	0.25
300	3000000	3003779	1.060	0.35	3001521	0.794	0.26
200	2000000	2003262	0.882	0.44	2002325	0.734	0.37
100	1000000	1001390	0.552	0.55	1001725	0.586	0.59
50	500000	499234	0.451	0.90	500144	0.424	0.85

Table 3-c. Third order equation

For a given cone indicated output of D (0.1N units), the corrected applied force

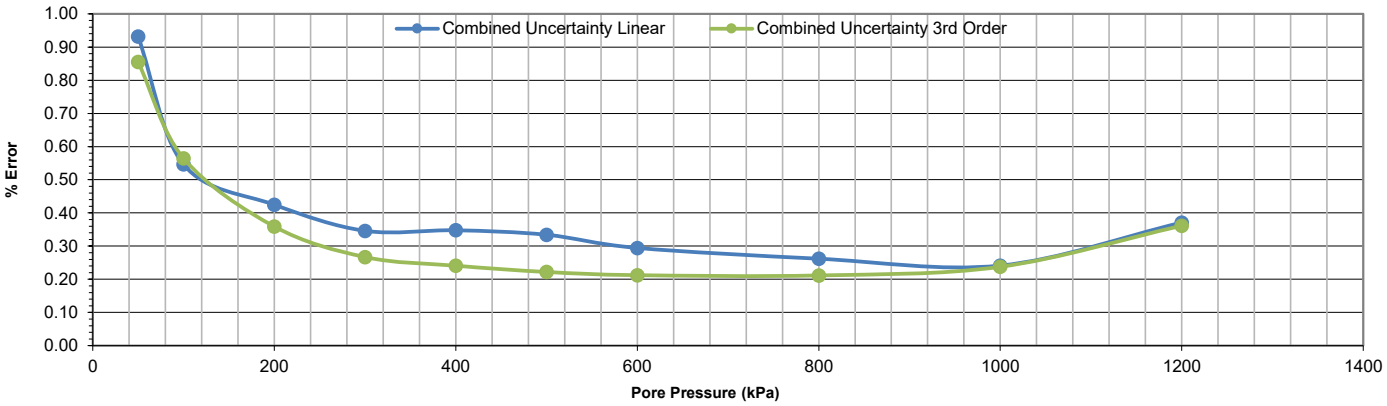
F (in 0.1N units) is calculated from :

$F = (a3 \times D^3) + (a2 \times D^2) + (a1 \times D) + a0$

a0	=	1417.55439
a1	=	0.99906
a2	=	-1.63281E-10
a3	=	2.29879E-17

Maximum PWP zero drift during the calibration (kPa) =	0.06
Maximum reference zero drift during the calibration (kPa) =	0.059
Factor used to convert from counts to 0.1Pa units =	0.0253351
Maximum PWP full scale reading (kPa) =	2000
PWP resolution (Pa) =	0.1

COMBINED EXPANDED UNCERTAINTY PORE PRESSURE



* The combined expanded uncertainties shown are to k=2 with a 95% coverage factor.

LANKELMA	CERTIFICATE OF CALIBRATION Certificate Number: 1390	Cone Serial Number: DS15-CFIIPT.1899

INCLINATION CALIBRATION

Ref Inclination (°C)	Cone inclination output X Inc (cts)	Y Inc (cts)
-25	-26995	-24337
0	-798	1311
25	24965	27316

Ref Inclination (°)	Cone inclination output X Inc (°)	Y Inc (°)
-25	-25.2	-24.8
0	0.0	0.0
25	24.8	25.2

	X inc	Y inc
Factor used to convert from counts to 0.1m° units =	9.62256298	9.67982573
Inclination error (°) =	0.2	0.2

TEMPERATURE CALIBRATION

Recorded temp (°C)	Cone output 1 FS (cts)	Cone output 2 QC (cts)
8.45	-197591018	0
10.58	-171154123	0
15.64	-106973181	0
20.42	-46522998	0
25.28	17370726	0

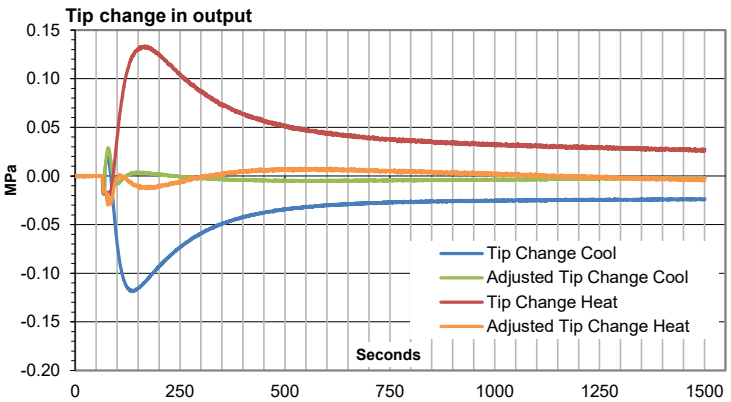
Recorded temp (°C)	Cone output 1 FS (°C)	Cone output 2 QC (°C)
8.45	8.50	0.00
10.58	10.57	0.00
15.64	15.60	0.00
20.42	20.34	0.00
25.28	25.35	0.00

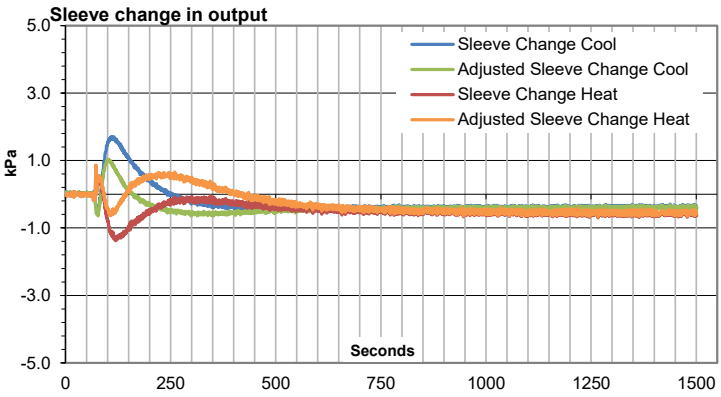
Factor used to convert from counts to 0.00001°C units =	0.000783665	0
Temperature error (°C) =	0.08	0.00

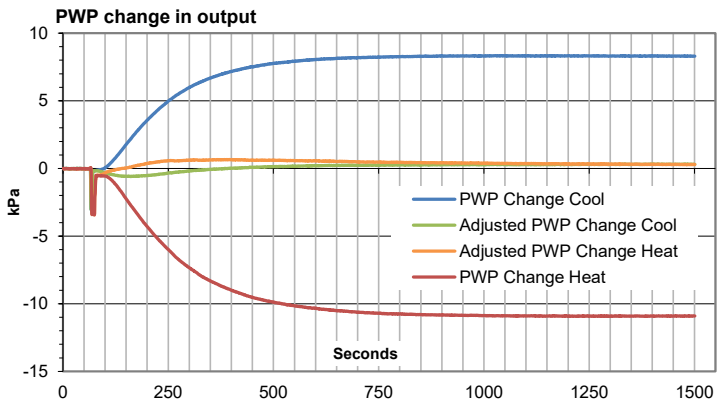
CONE TEMPERATURE EFFECT

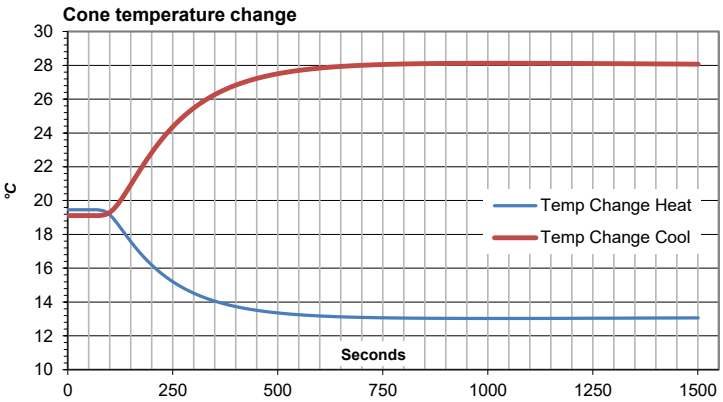
	Cooling	Heating
Start temperature =	19.46	19.11
End temperature =	13.03	28.12
Temperature change =	-6.43	9.01

	Cooling	Heating
Tip maximum rate of change (MPa/°C/min) =	0.058	0.056
Tip end change (MPa/°C) =	-0.004	0.003
Adjusted tip end change (MPa/°C) =	0.000	0.000
Sleeve maximum rate of change (kPa/°C/min) =	3.26	3.36
Sleeve end change (kPa/°C) =	-0.07	-0.07
Adjusted sleeve end change (kPa/°C) =	-0.07	-0.06
PWP end change (kPa/°C) =	1.29	-1.21
Adjusted PWP end change (kPa/°C) =	-0.05	0.03









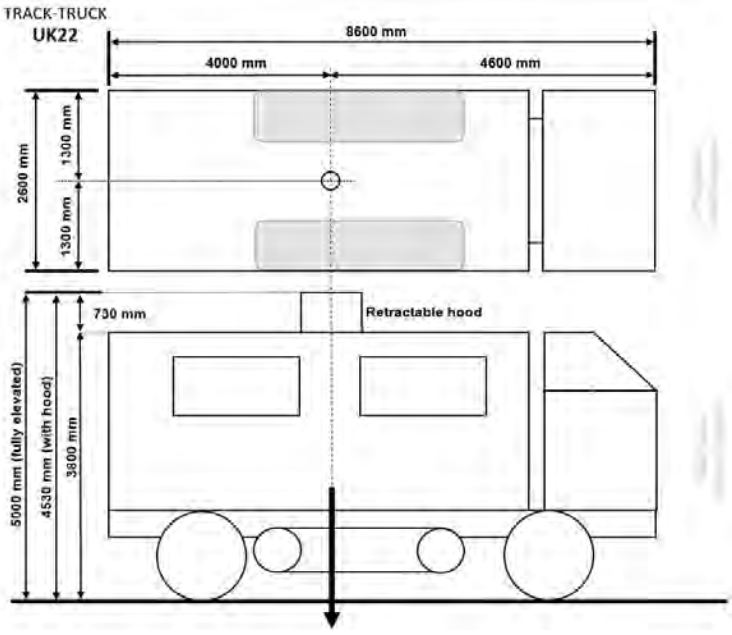
UK22
Track-truck

Rig weight	18 T
Max. operating ram capacity	200 kN
Max. travelling speed	4 km/h (tracking)
Track material	Composite
Track length	2800 mm
Track width	650 mm
Jack plate dimensions	Tracks act as jacks
Jack arrangements	1nr. on each side
Max. ground bearing pressure	76 kPa
Max. testing gradient	10 degrees
Max. traversing gradient	20 degrees (operator assessed)
Clamp arrangement	Automatic hydraulic
Ram stroke	1250 mm
Max. casing size	55 mm
Typical production	100 m+ of standard CPTu testing per day (depending on conditions and access)

The versatile track-truck is suitable for most geotechnical sites. The rig is driven to site as a self-contained HGV with composite tracks that can be deployed to cope with soft or uneven terrain.

Remote-controlled tracking to assist with manoeuvring onto location.

Complies with Euro 6 emission standards for use in London's low emissions zones (LEZ).



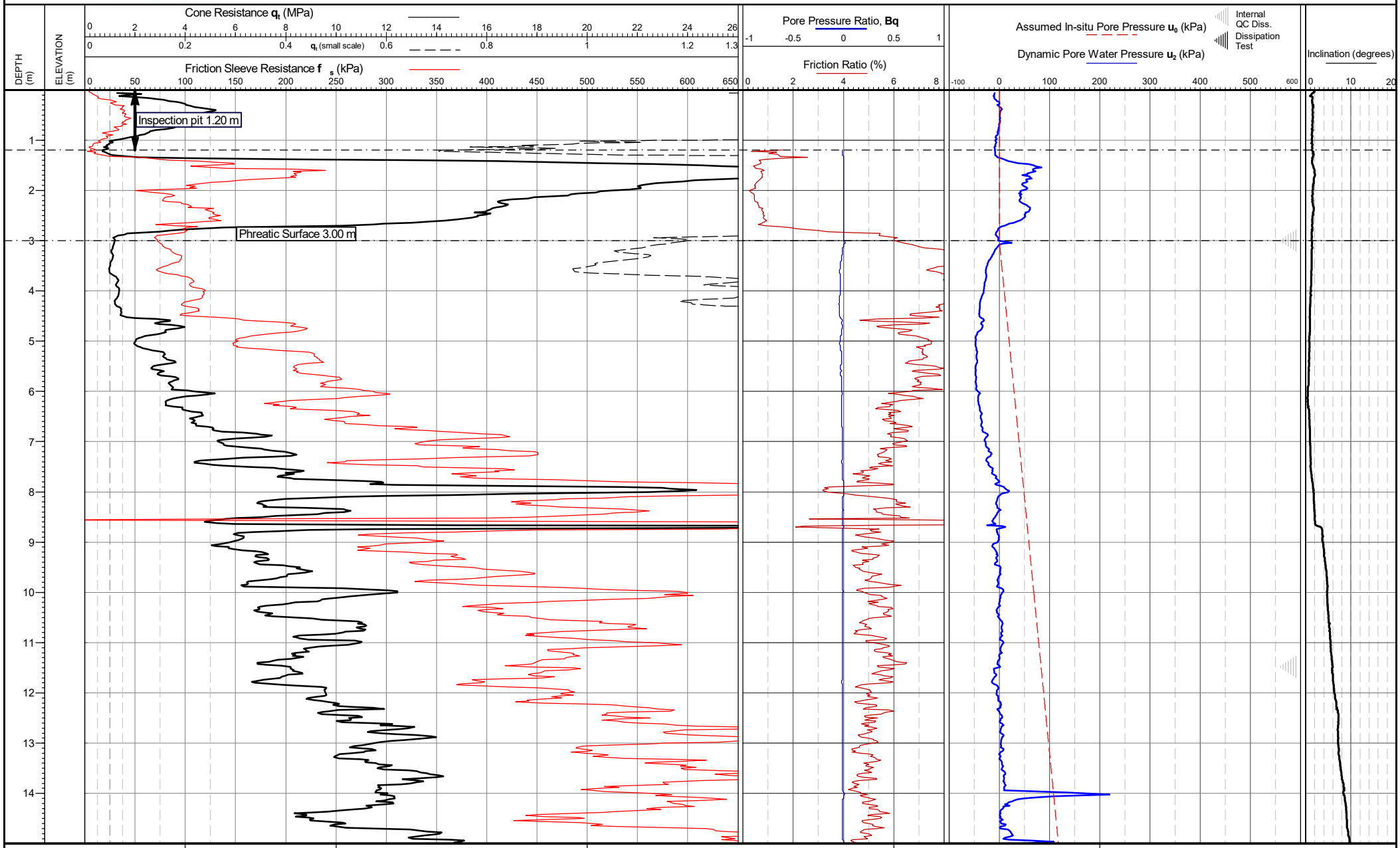
APPENDIX C CONE PENETRATION TEST RESULTS

RAW DATA PLOTS

Plots are provided for all locations

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

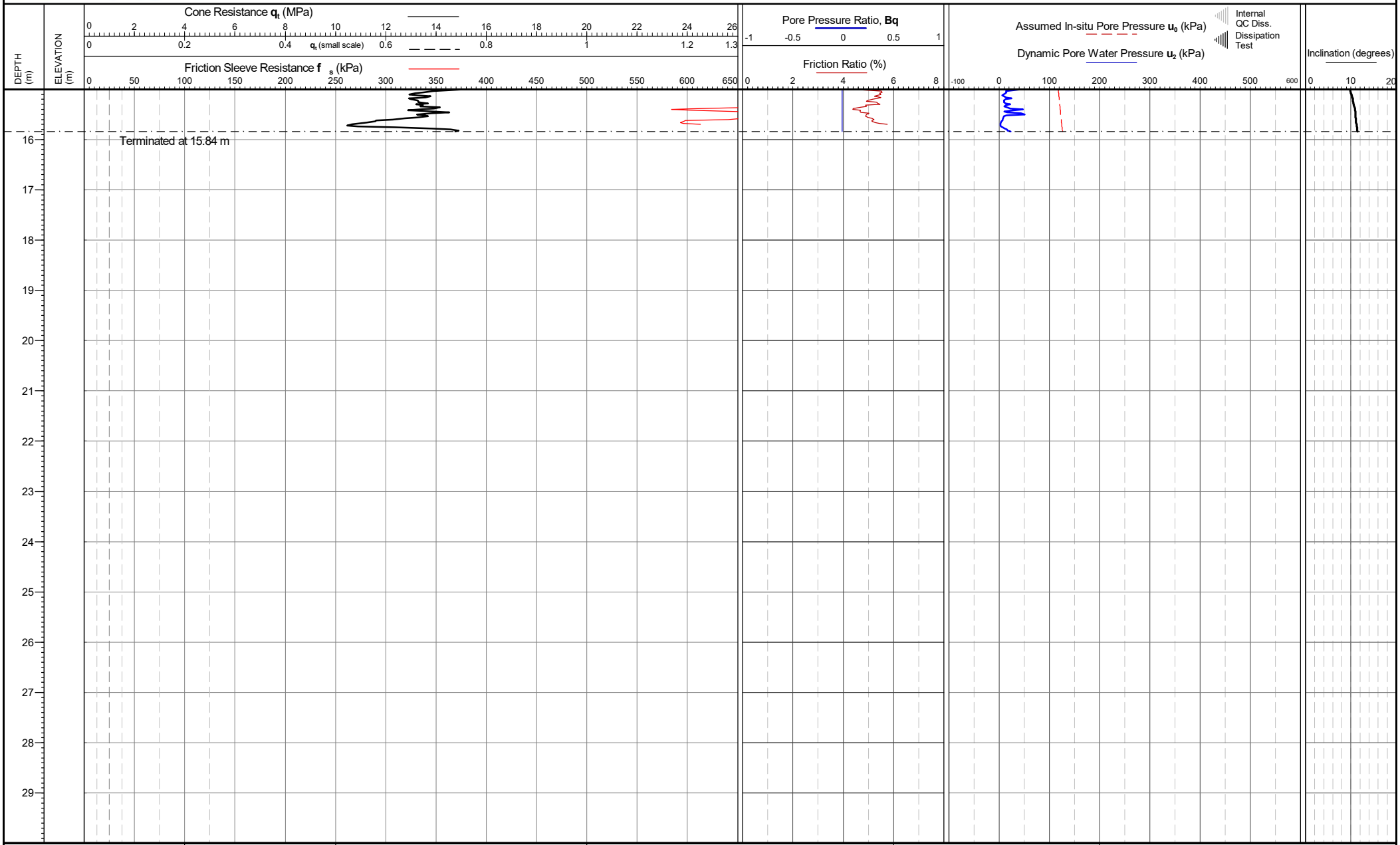


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 09:11:39	Zero drift (Pre/post test) q_c (kPa): -35.8 f_s (kPa): -0.8 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -19.1	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

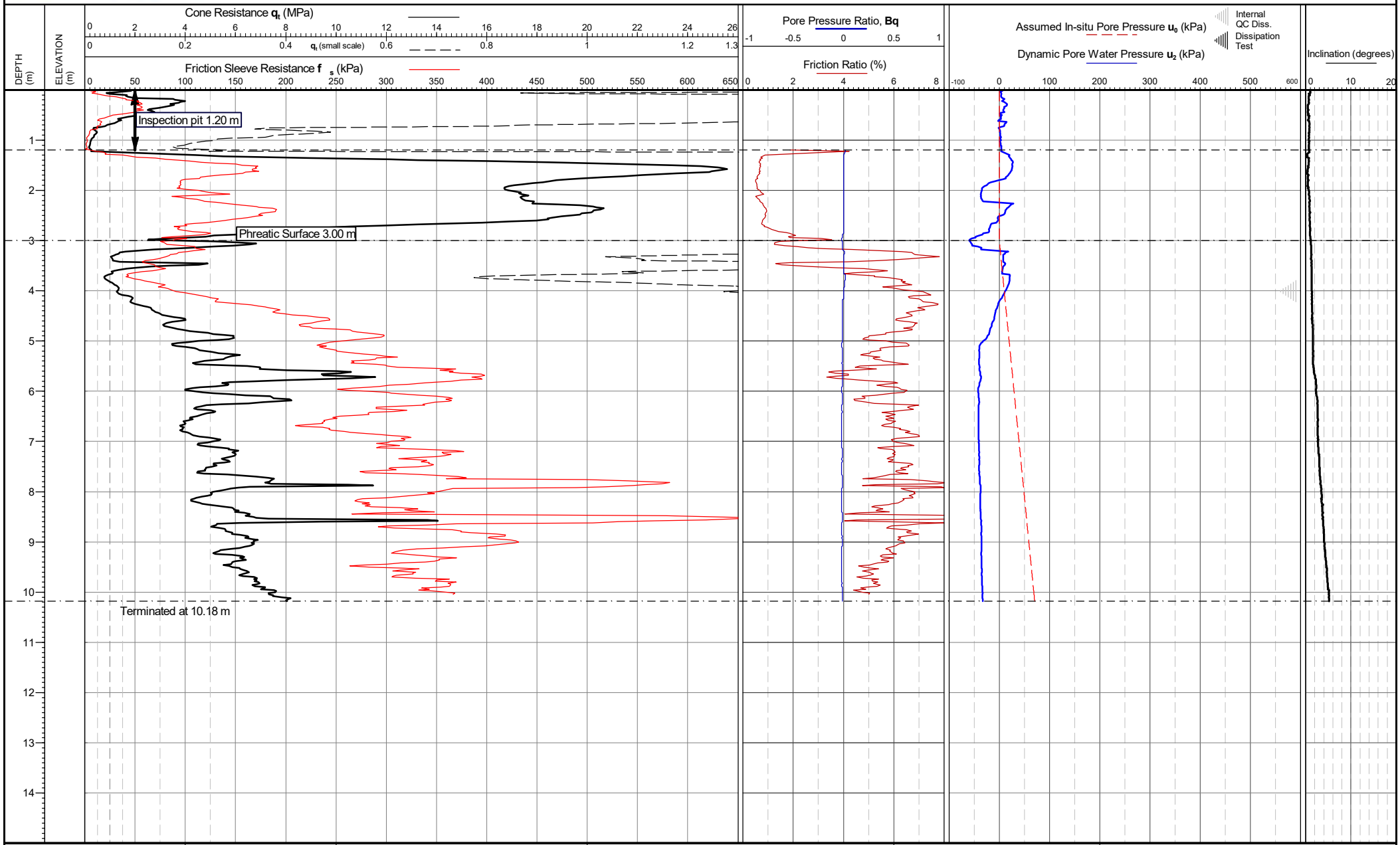


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 09:11:39	Zero drift (Pre/post test) q_c (kPa): -35.8 f_s (kPa): -0.8 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -19.1	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

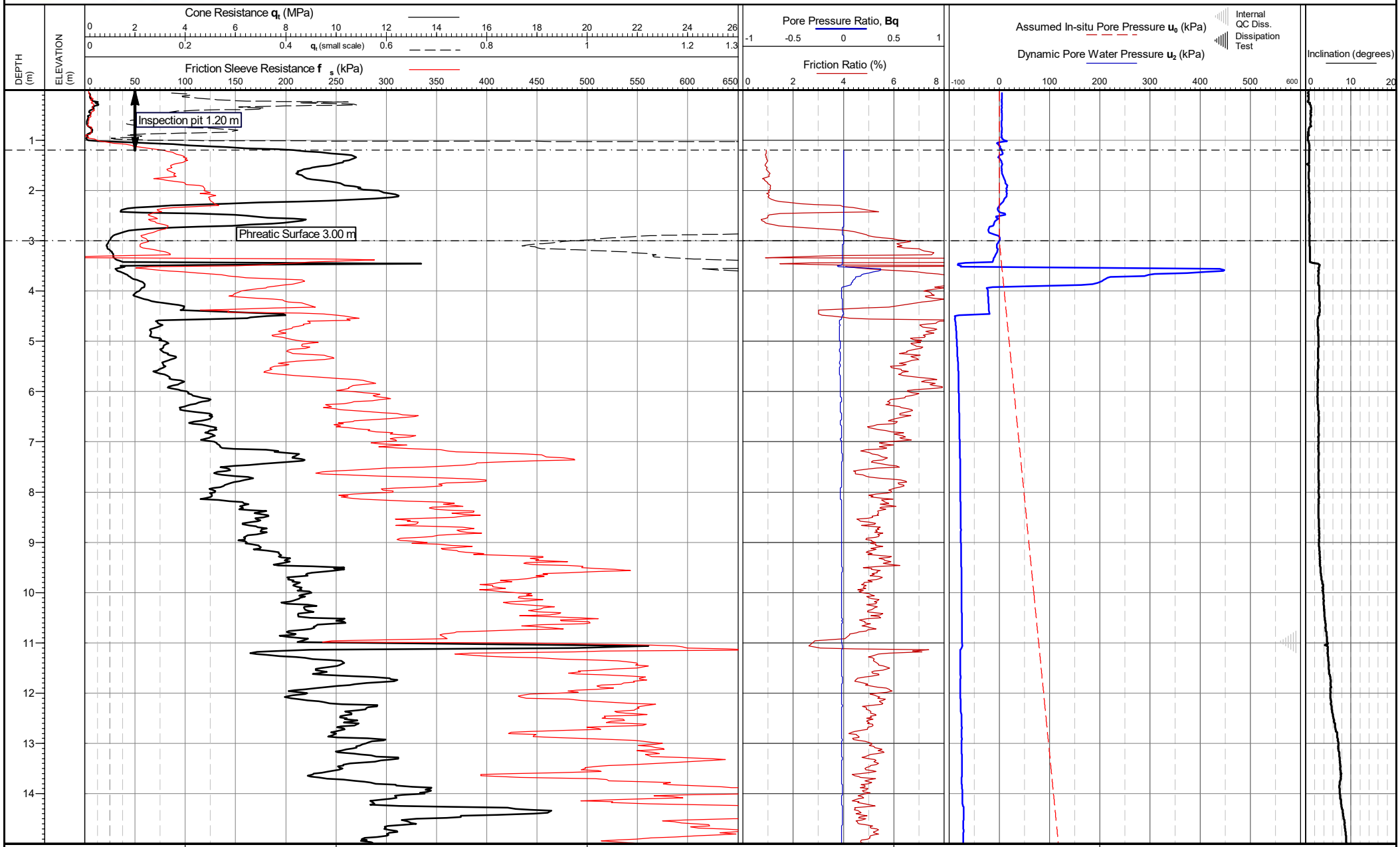


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 10:29:31	Zero drift (Pre/post test) q_c (kPa): -24.0 f_s (kPa): -0.2 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.9	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Target depth	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT203

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

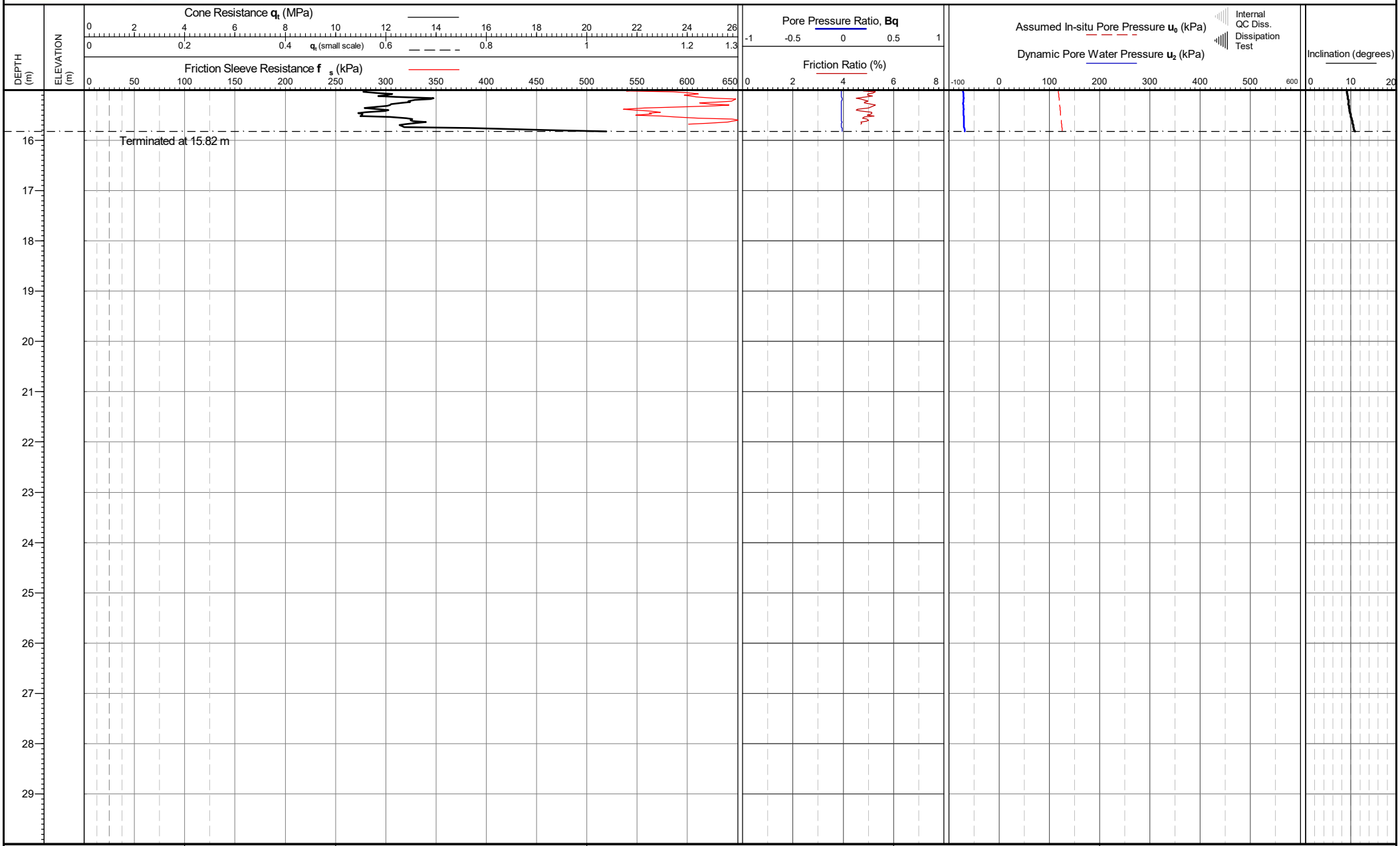


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 11:41:38	Zero drift (Pre/post test) q_c (kPa): -63.4 f_s (kPa): -0.6 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.4	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

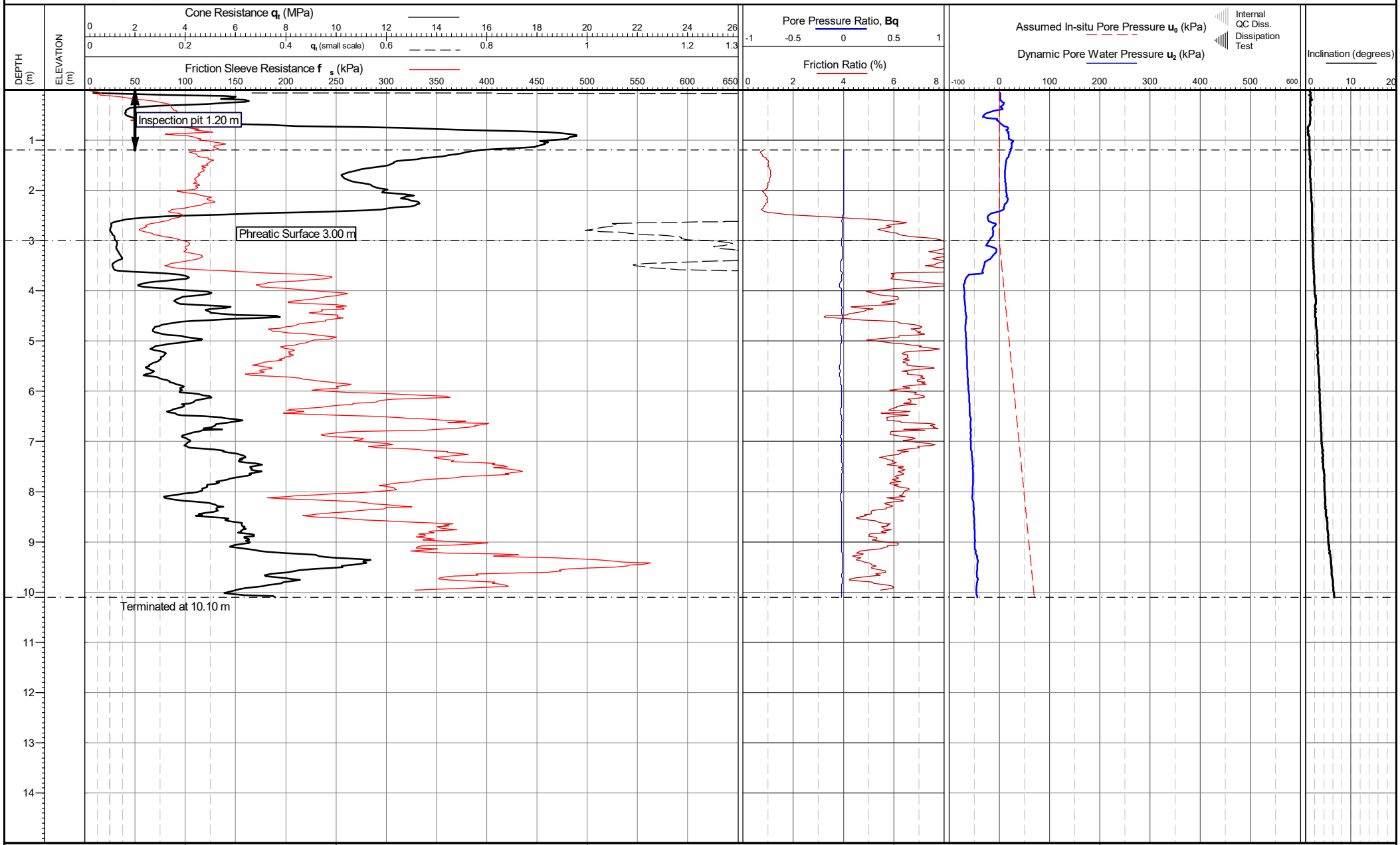


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 11:41:38	Zero drift (Pre/post test) q_c (kPa): -63.4 f_s (kPa): -0.6 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.4	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

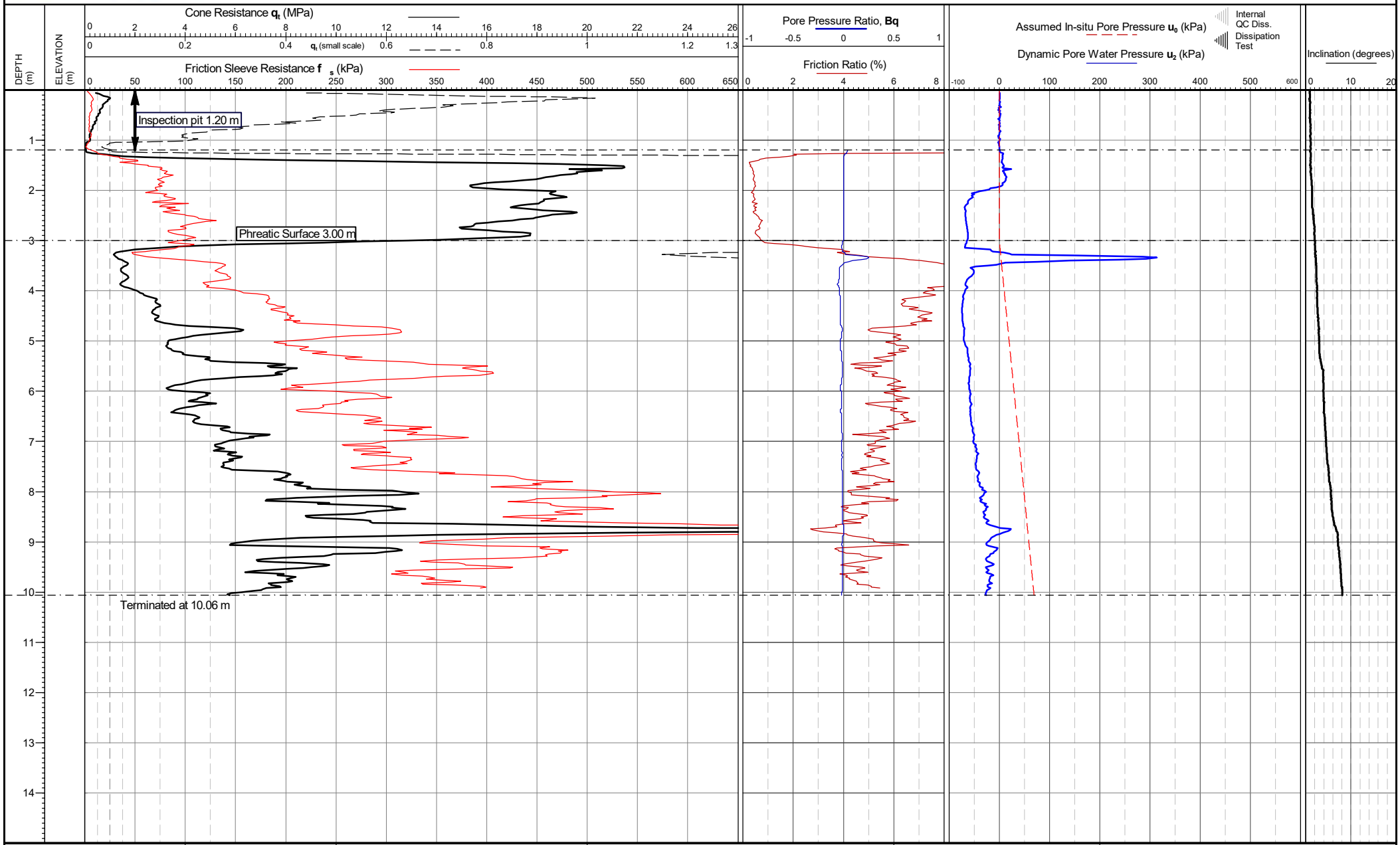


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 11:11:04	Zero drift (Pre/post test) q_c (kPa): 15.6 f_s (kPa): 0.2 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -3.9	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Target depth	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT205

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

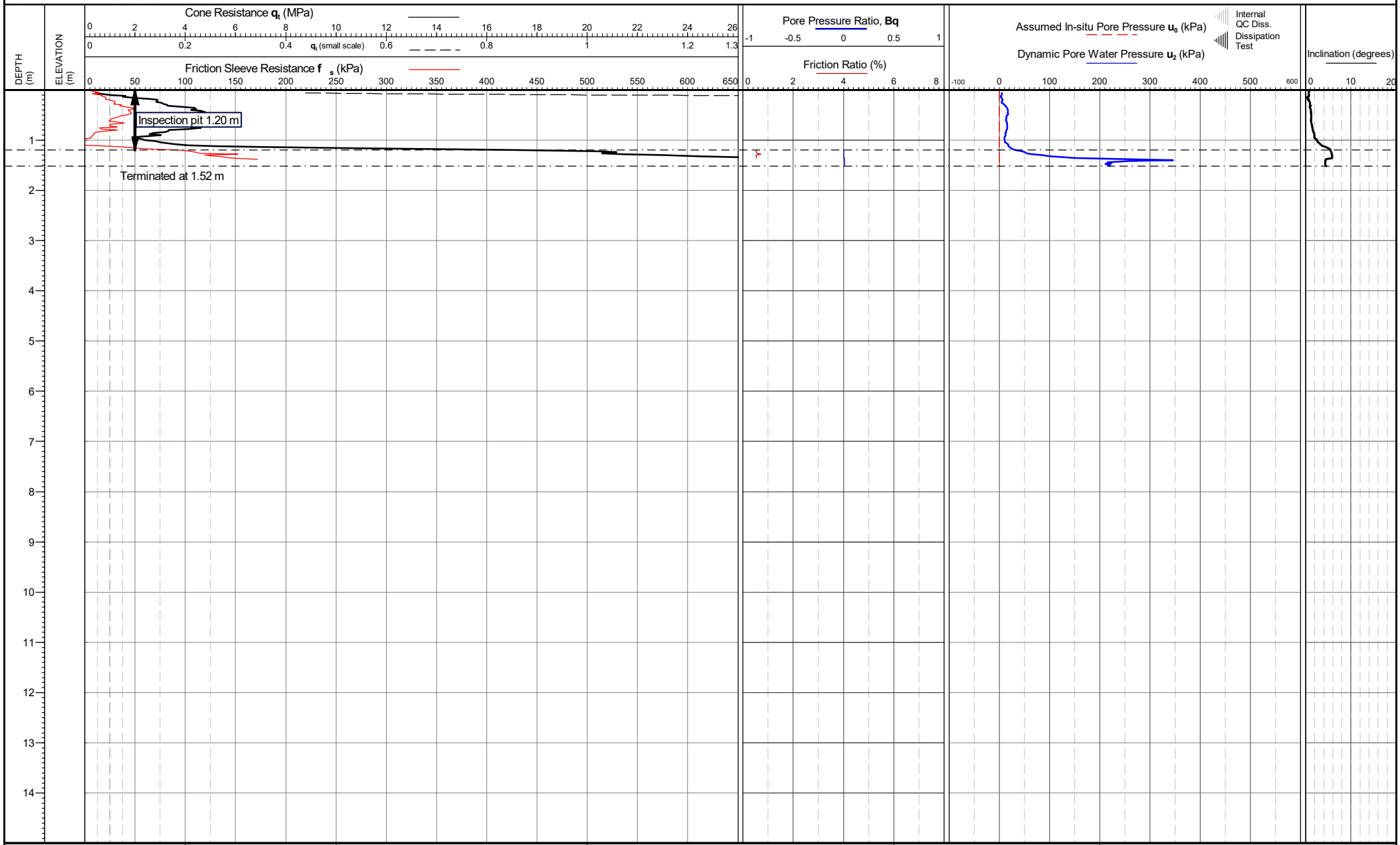


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 15:15:46	Zero drift (Pre/post test) q_c (kPa): -20.0 f_s (kPa): -2.3 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.0	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Target depth	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT206

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

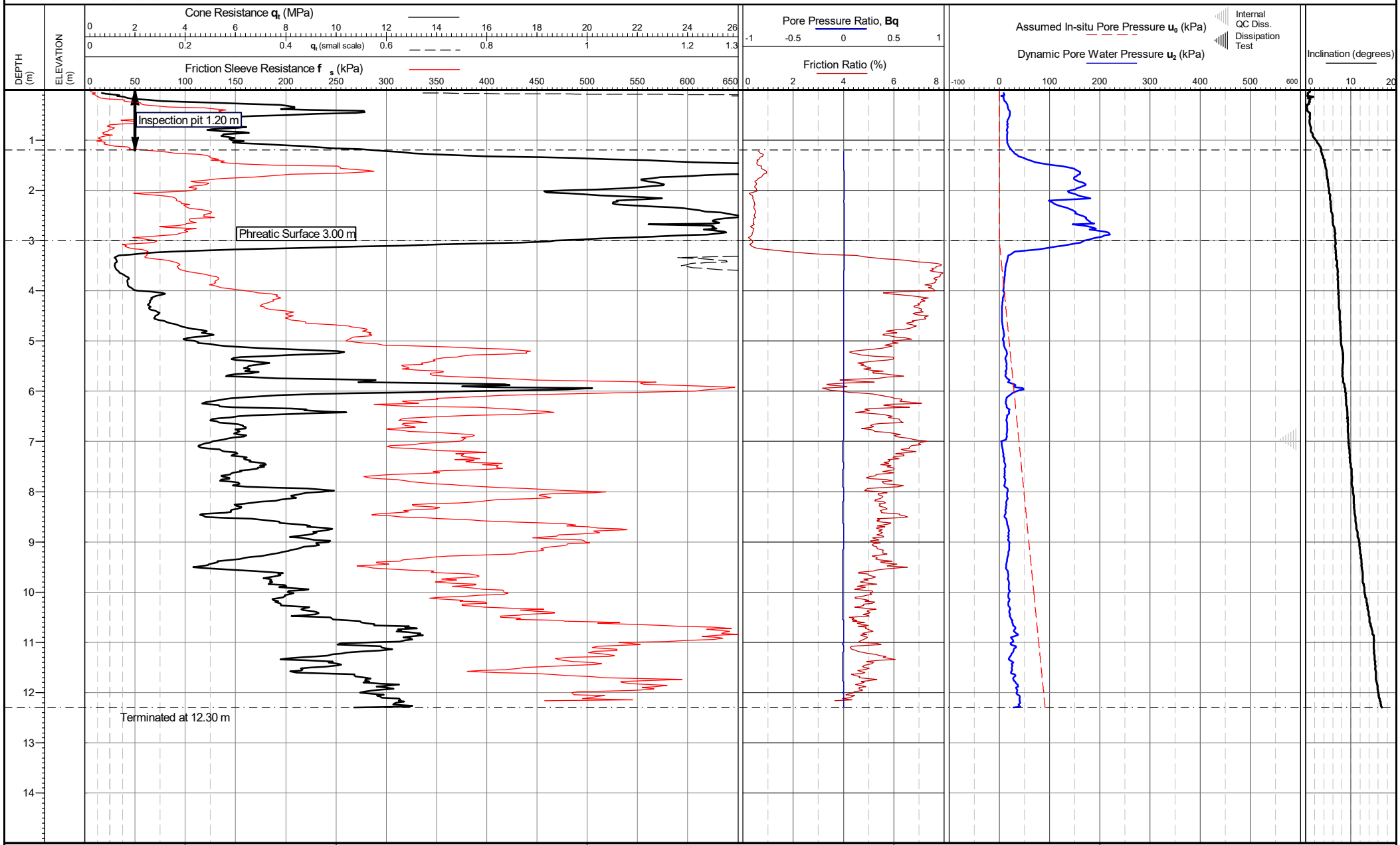


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 12:55:13	Zero drift (Pre/post test) q_c (kPa): 14.0 f_s (kPa): -2.0 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 1.2	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT207

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

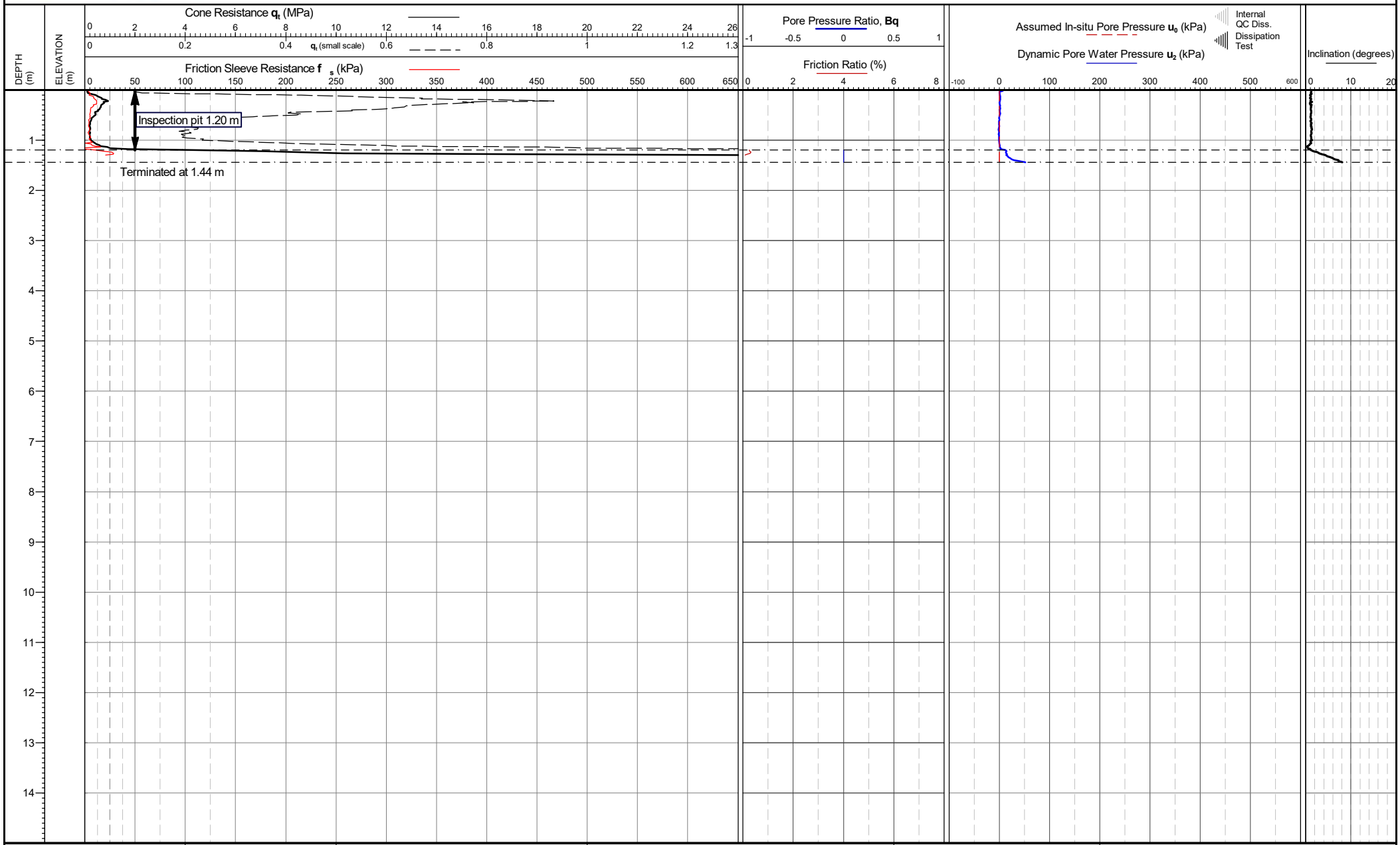


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 13:12:49	Zero drift (Pre/post test) q_c (kPa): -29.4 f_s (kPa): -0.2 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.1	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT207A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

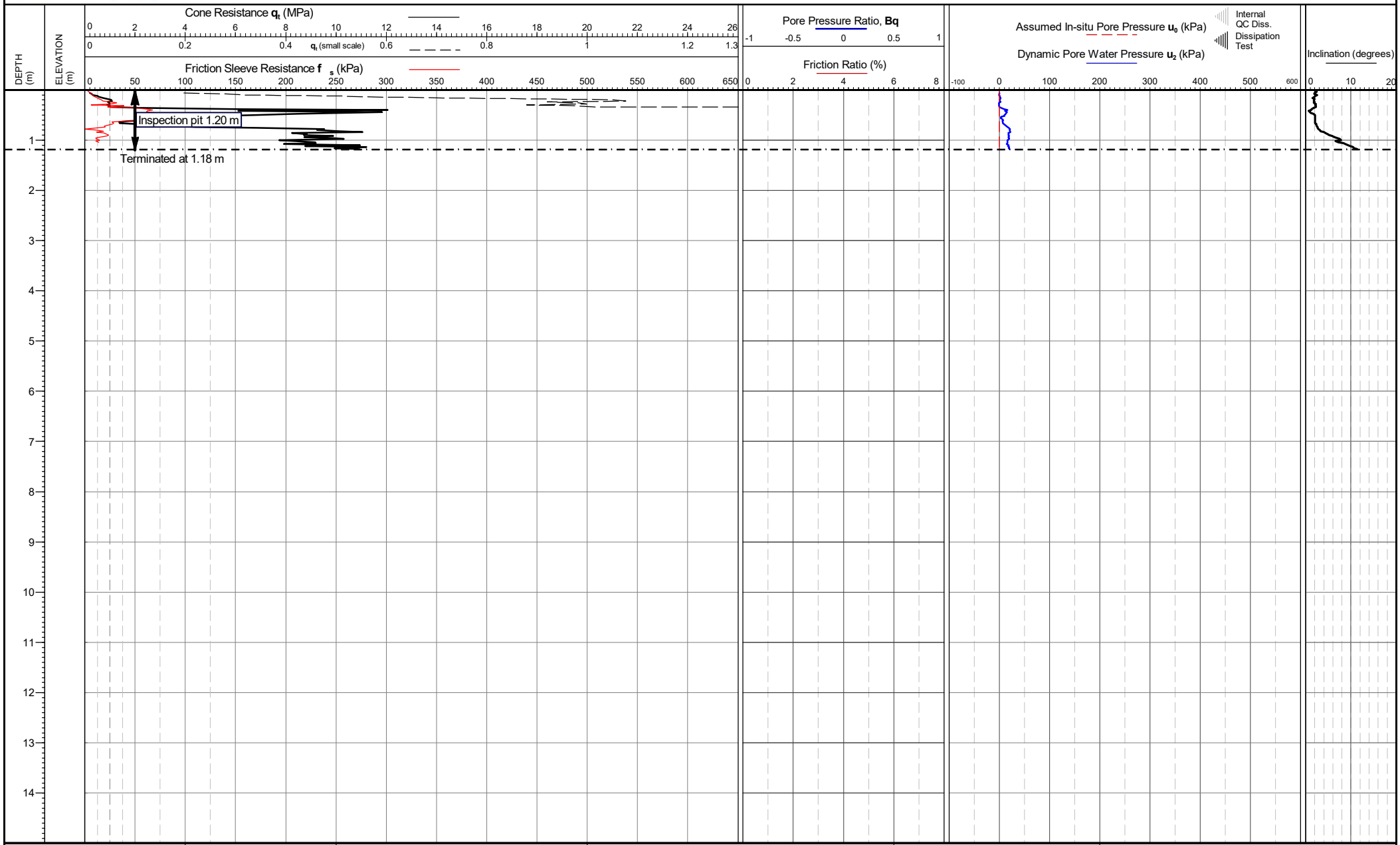


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 13:49:55	Zero drift (Pre/post test) q_c (kPa): 2.0 f_s (kPa): 0.6 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.6	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT208

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

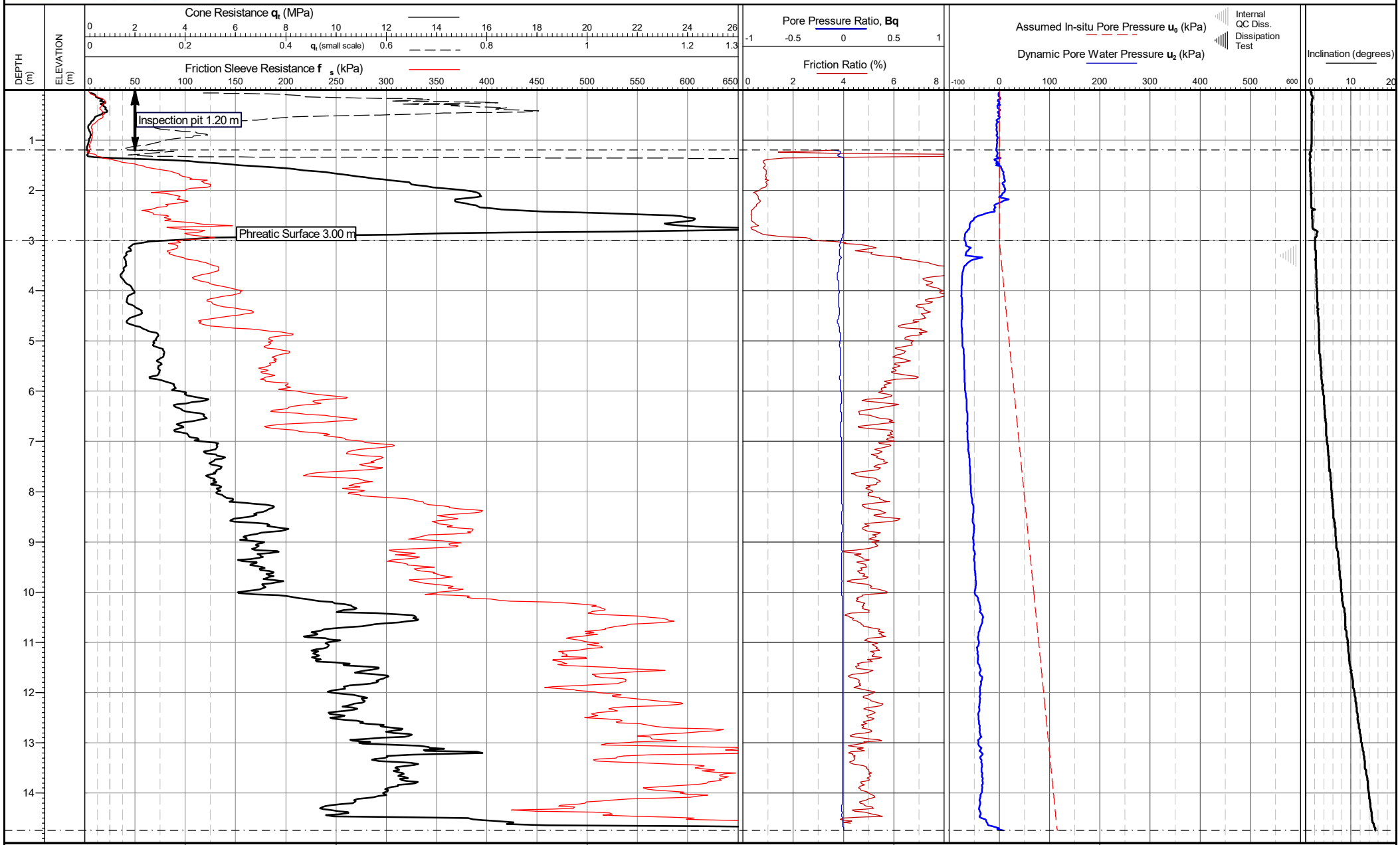


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 14:06:58	Zero drift (Pre/post test) q_c (kPa): -11.8 f_s (kPa): 0.9 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -1.6	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Inclination	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT208A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

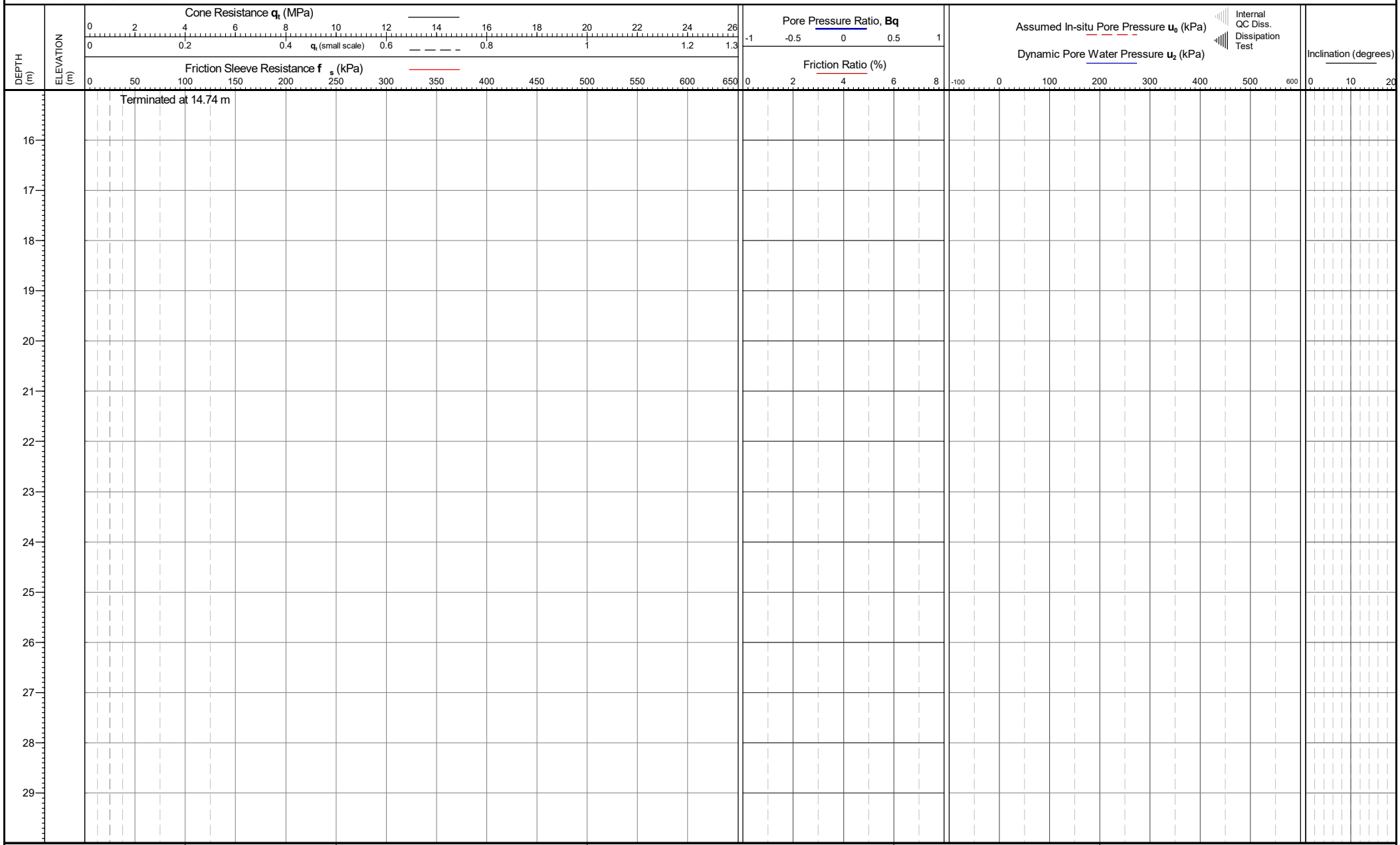


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 14:14:08	Zero drift (Pre/post test) q_c (kPa): 14.6 f_s (kPa): -1.4 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -2.3	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT209

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 14:14:08	Zero drift (Pre/post test) q_c (kPa): 14.6 f_s (kPa): -1.4 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -2.3	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT209

APPENDIX D SBT MATERIAL DESCRIPTION RESULTS

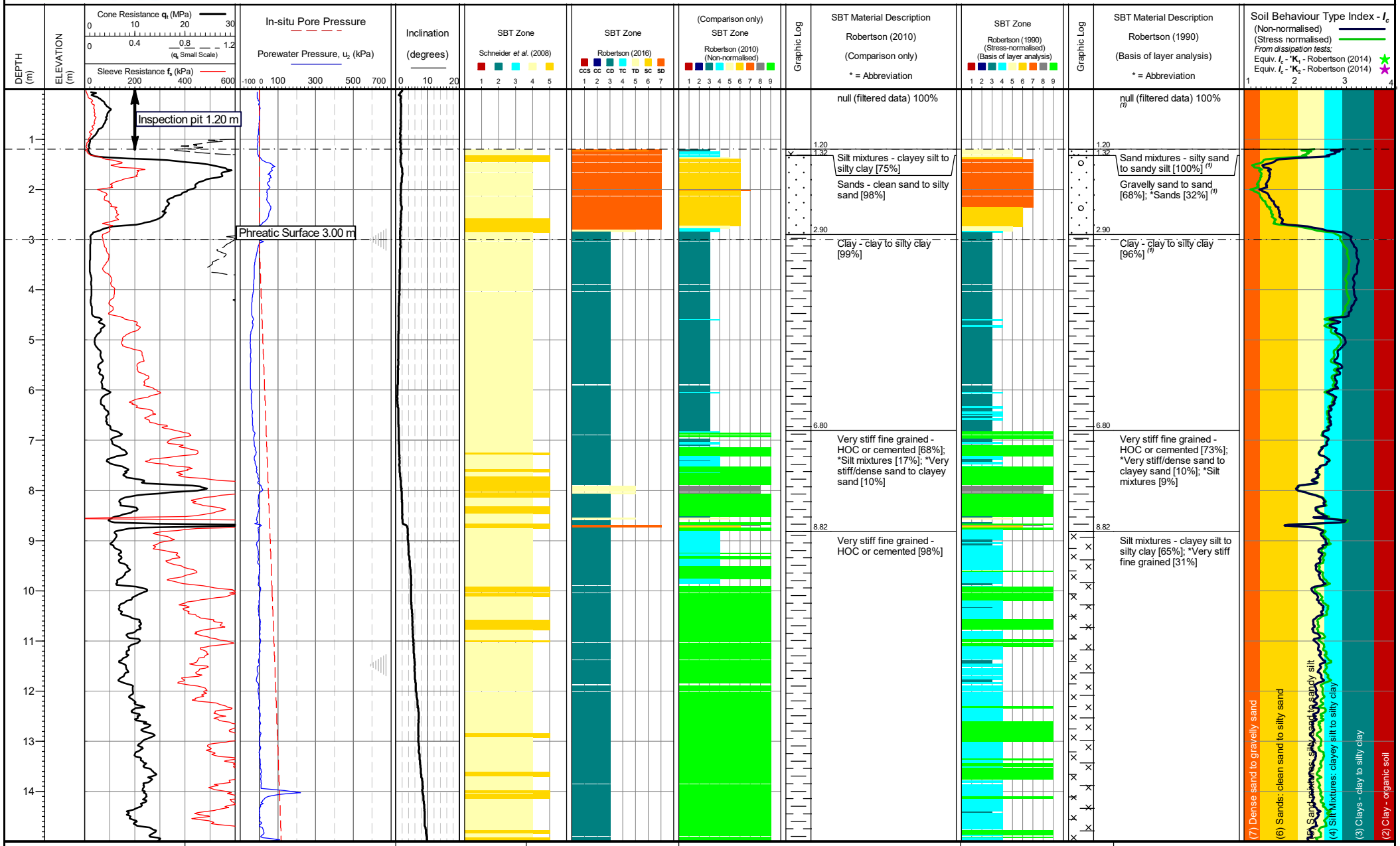
SOIL BEHAVIOUR TYPE (SBT) DESCRIPTIONS
SCHNEIDER (2008)
ROBERTSON (2016)
ROBERTSON (2010) – NON-NORMALISED
ROBERTSON (1990)

Plots are provided for all locations

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 09:11:39

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

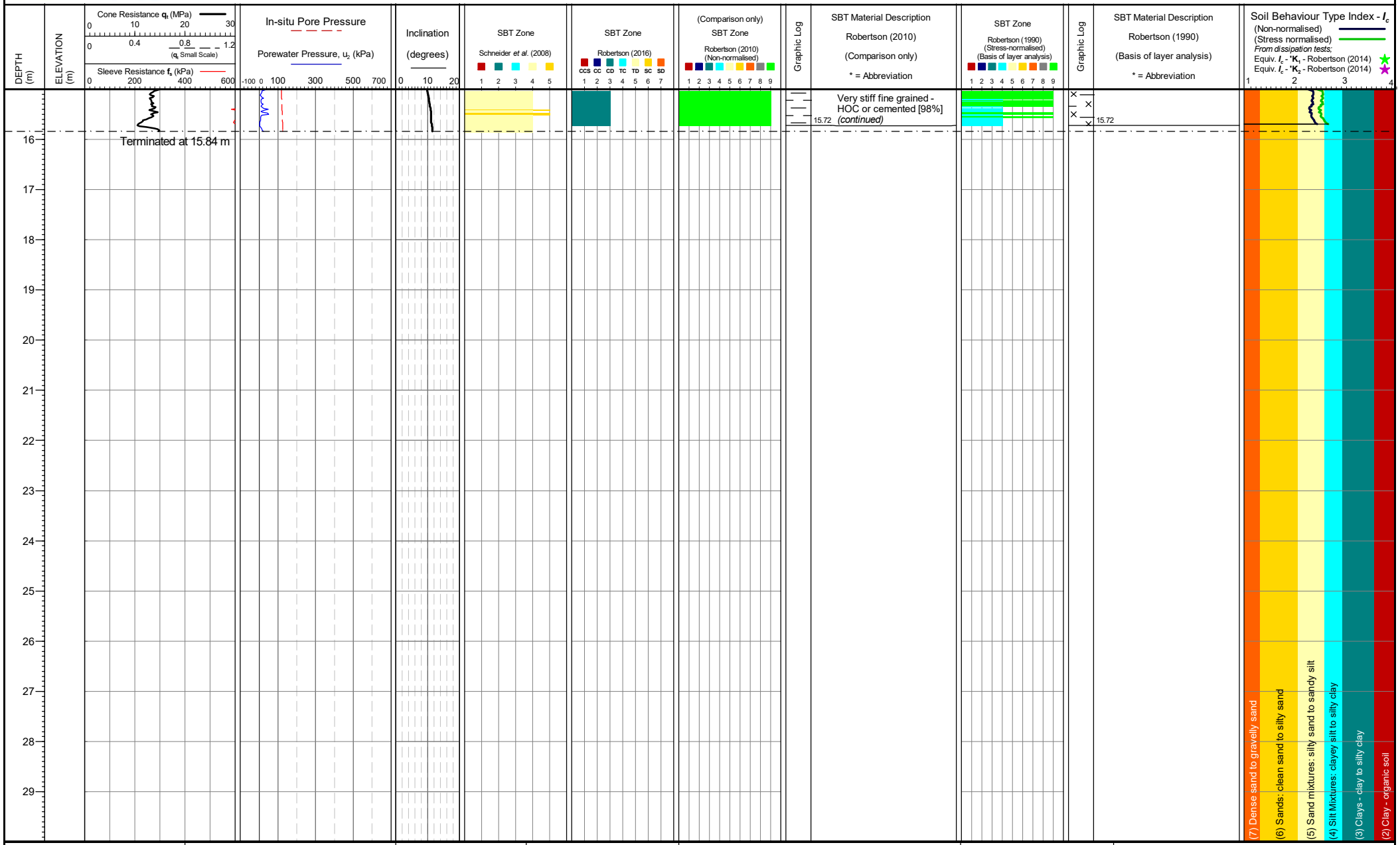
Internal QA Diss.
Dissipation Test

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 09:11:39

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(9) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

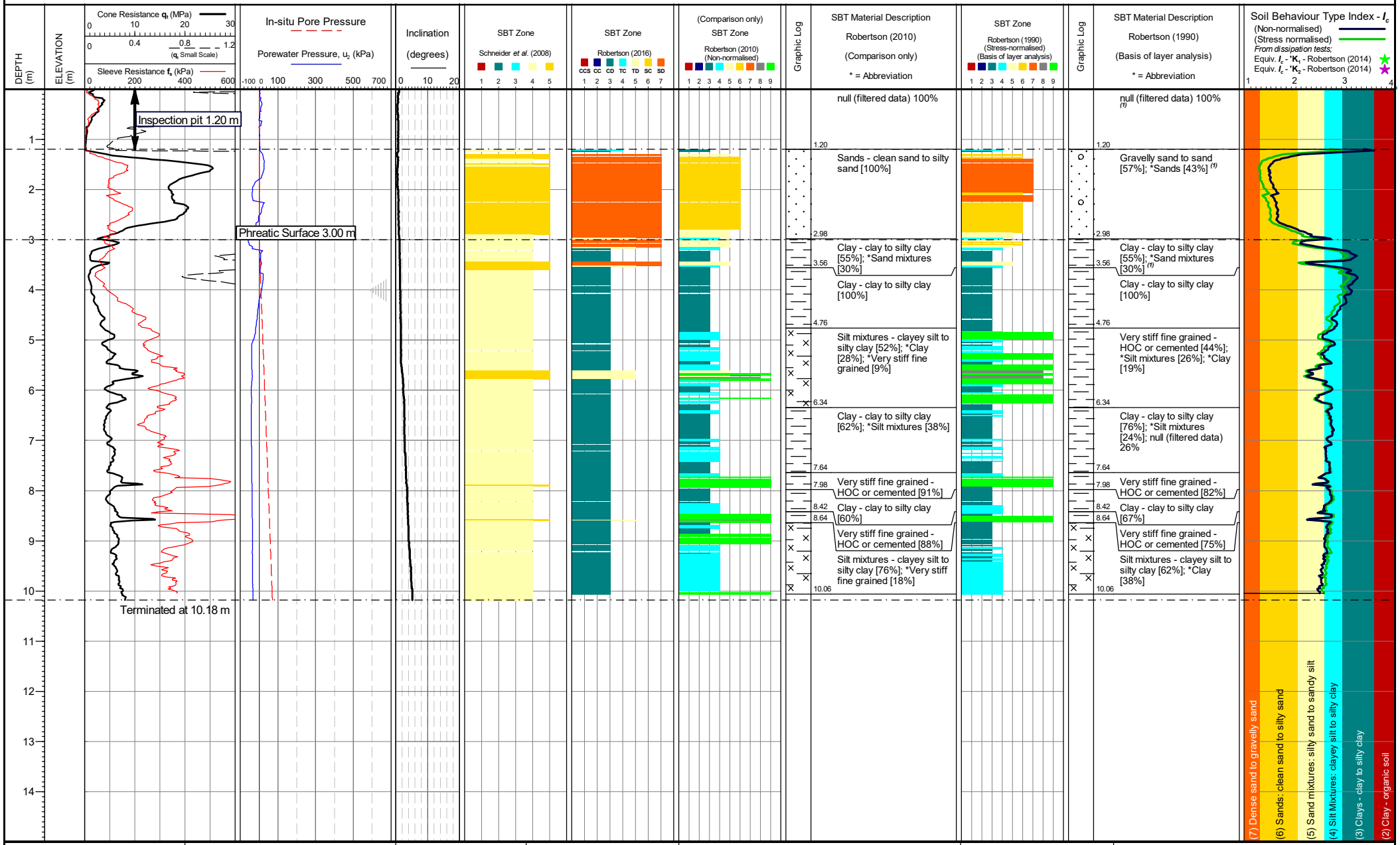
Internal QA Diss.
Dissipation Test

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 10:29:31

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

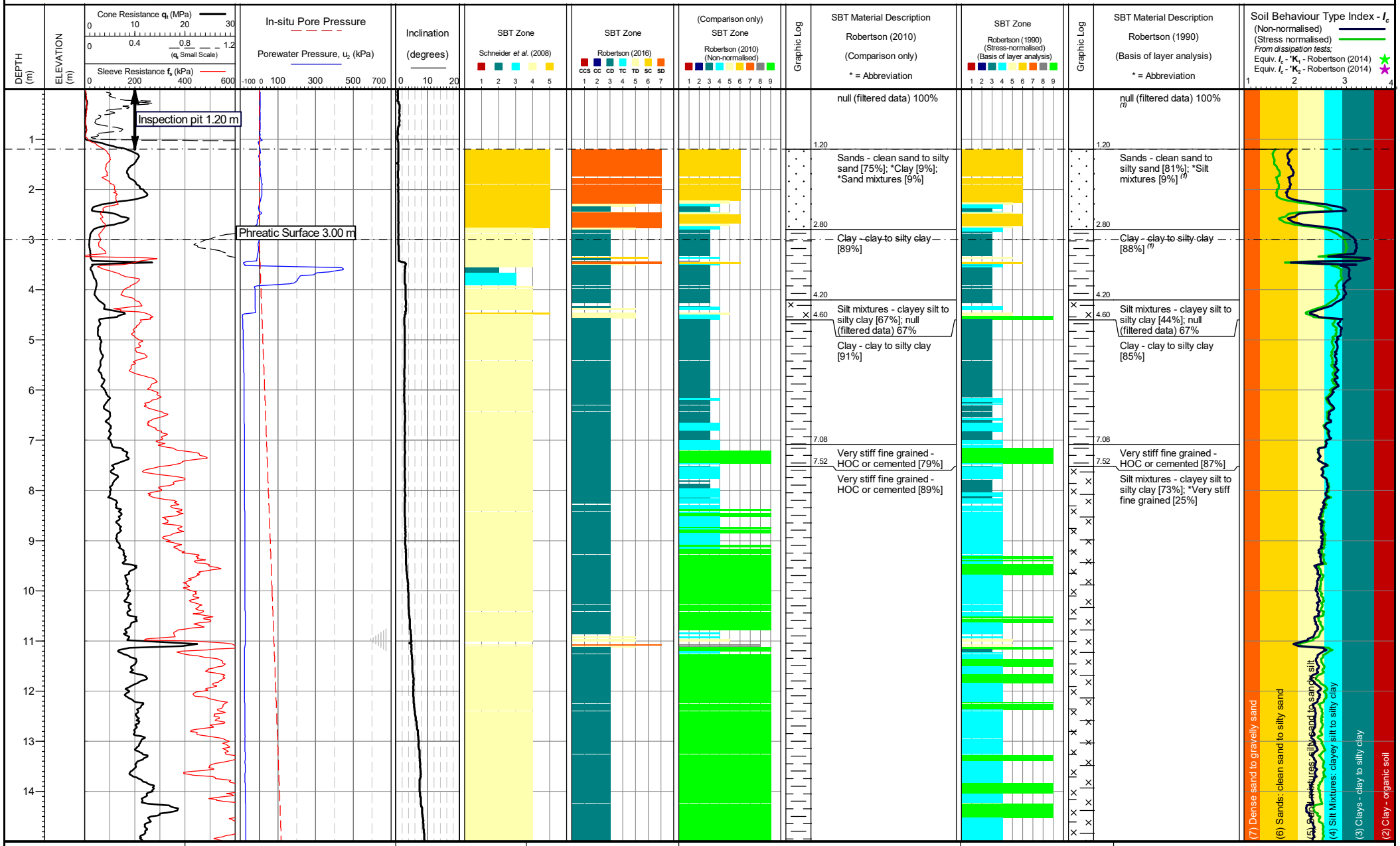
Internal QA Diss.
Dissipation Test

TEST ID: CPT203

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 11:41:38

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

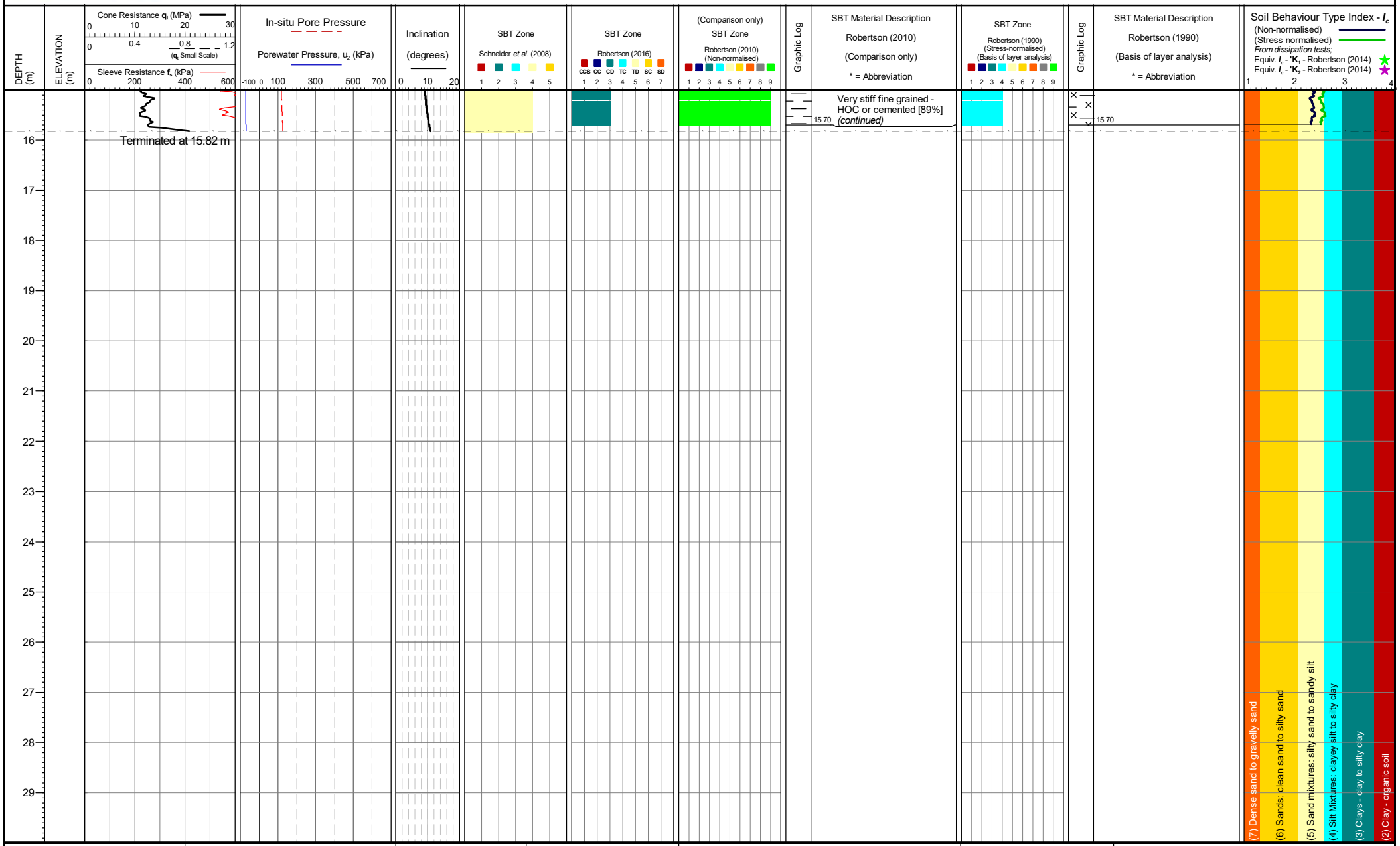
Internal QA Diss.
Dissipation Test

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 11:41:38

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

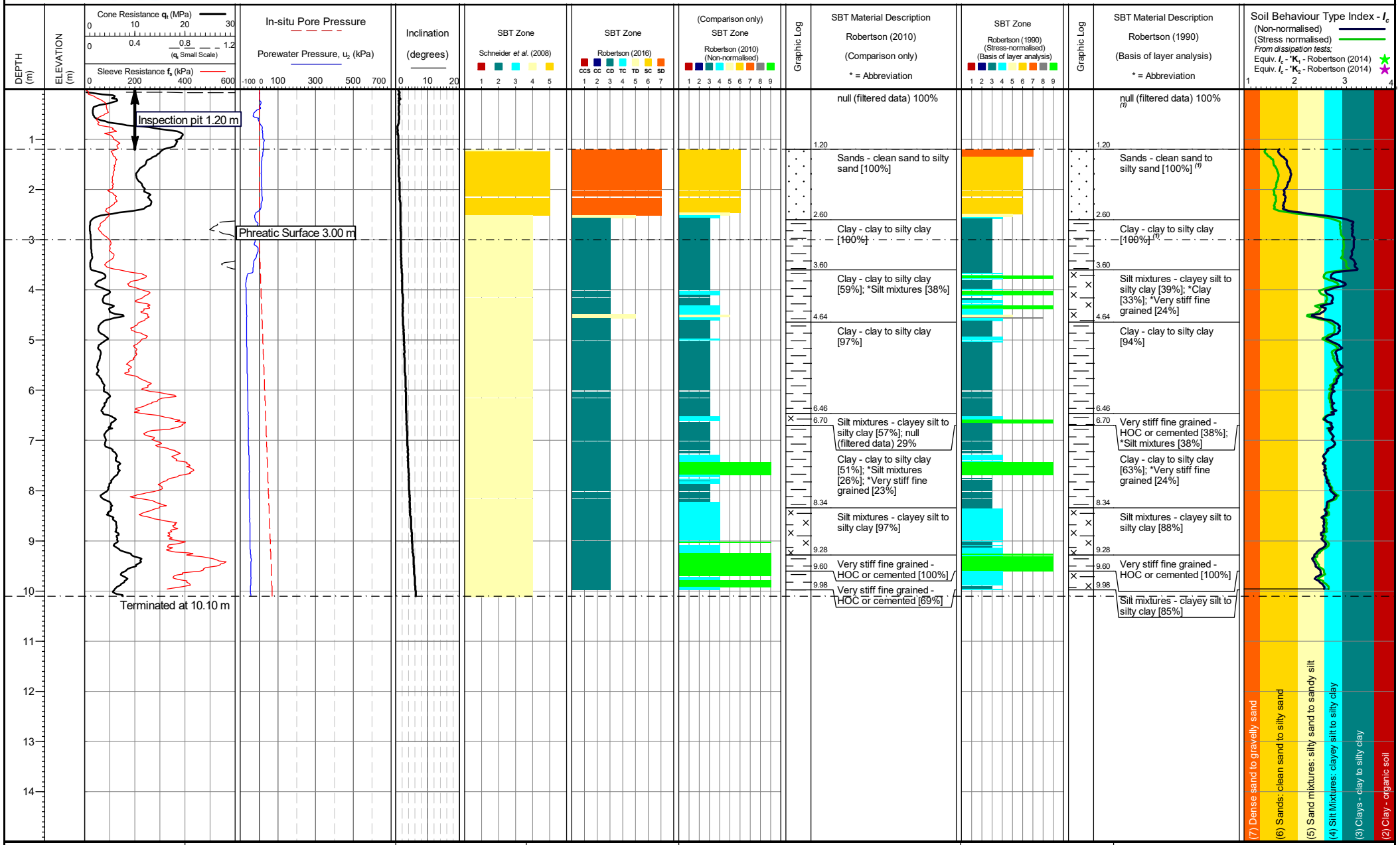
Internal QA Diss.
Dissipation Test

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 11:11:04

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

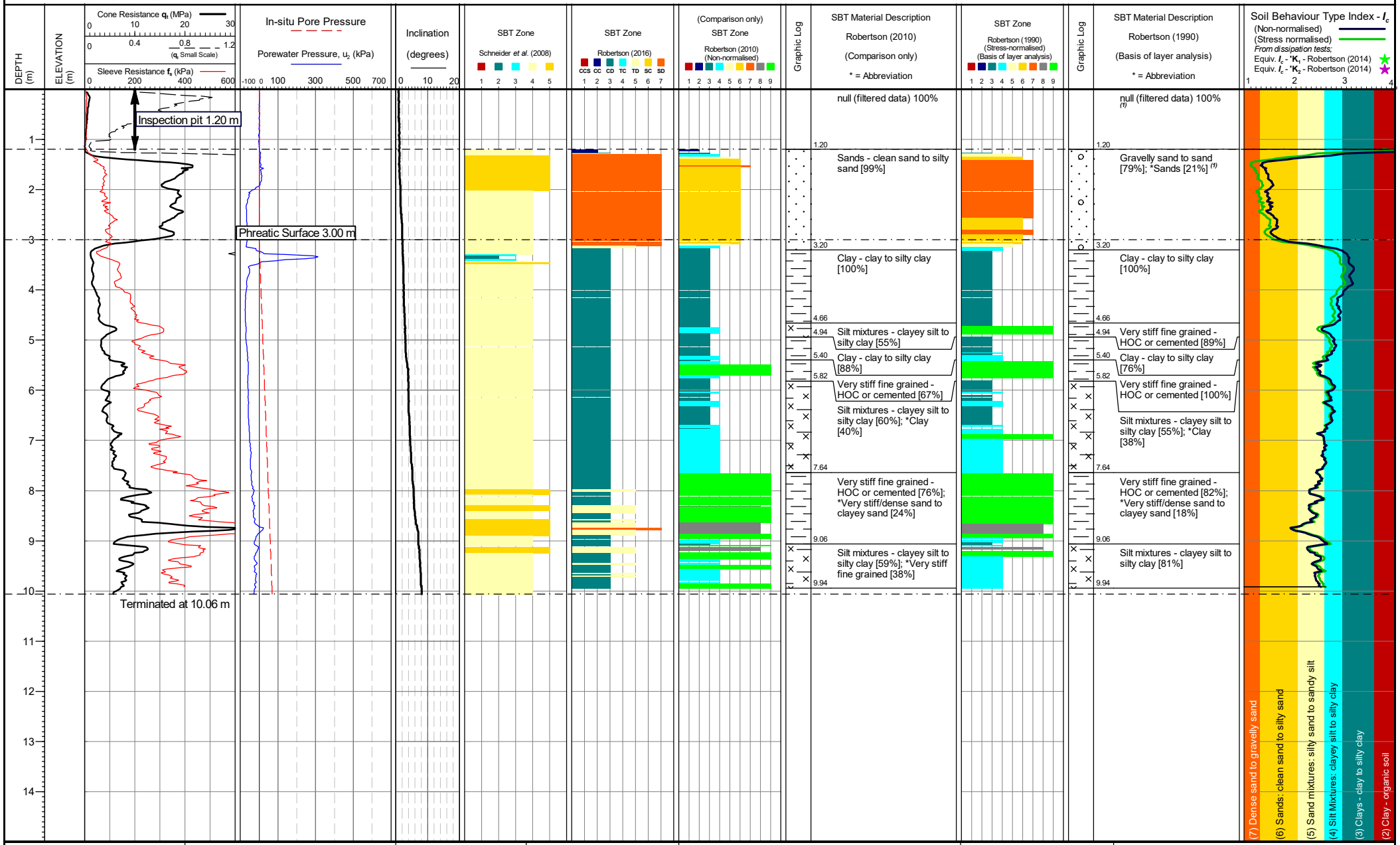
Internal QA Diss.
Dissipation Test

TEST ID: CPT205

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 15:15:46

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

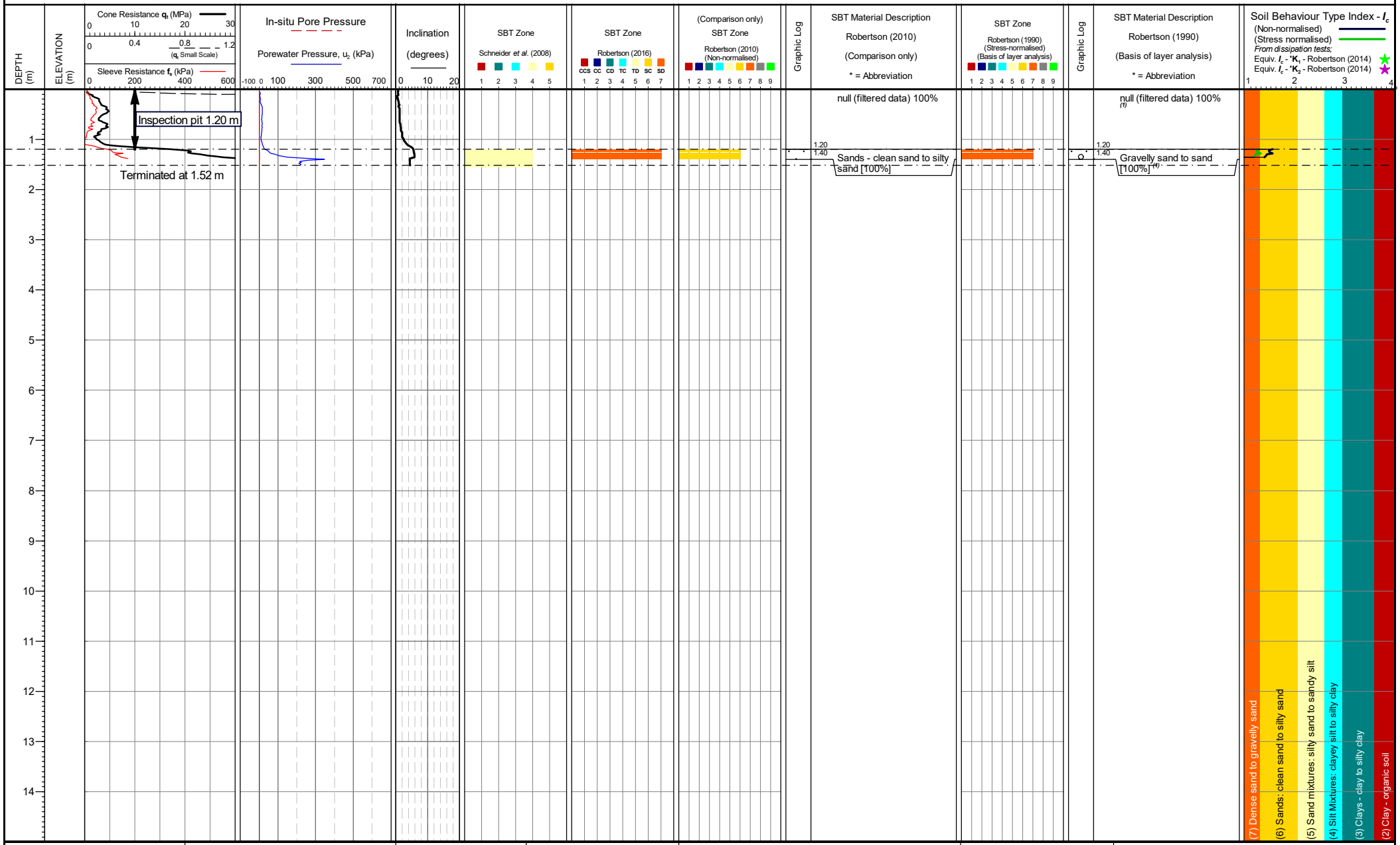
Internal QA Diss.
Dissipation Test

TEST ID: CPT206

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 12:55:13

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

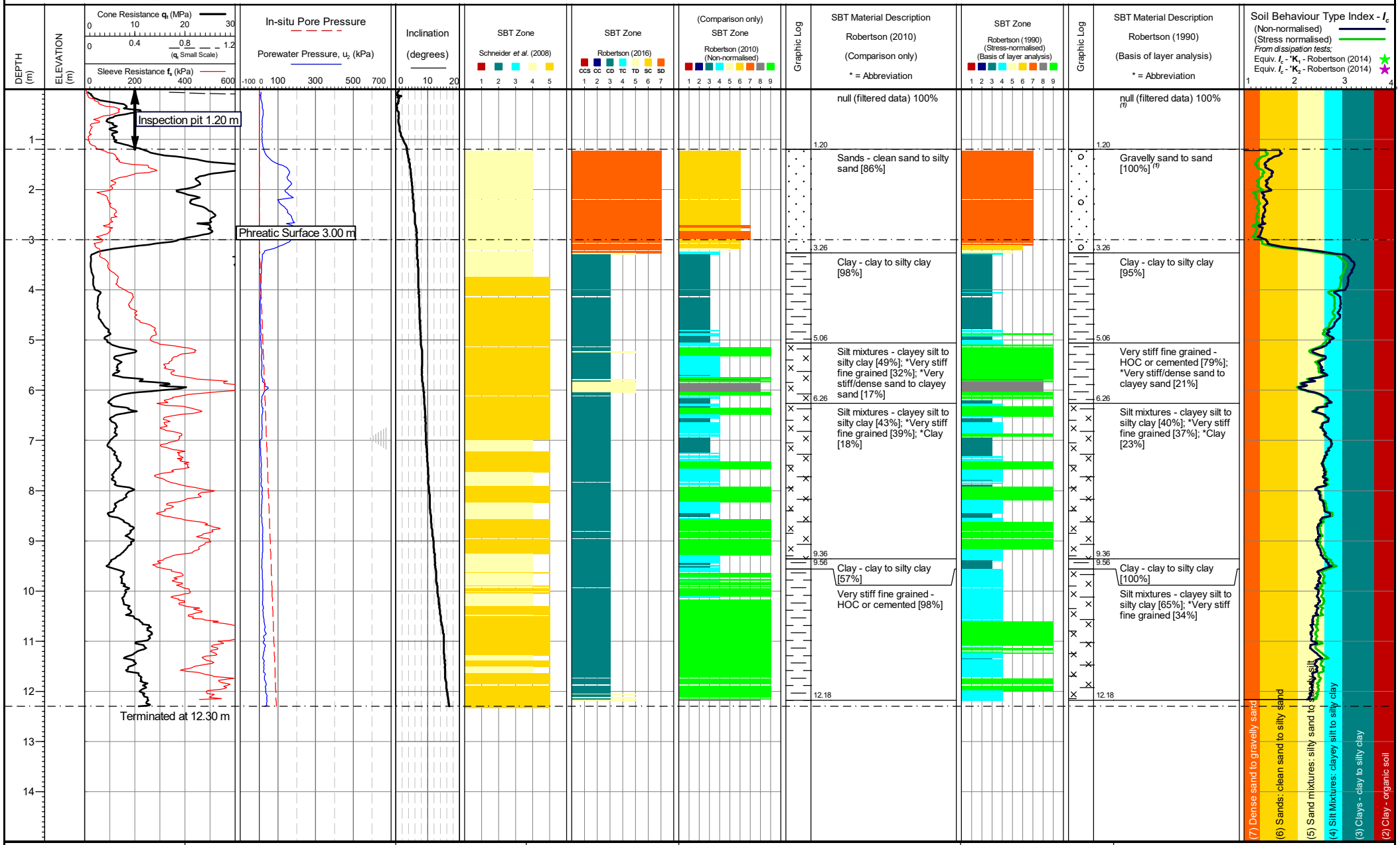
Internal QA Diss.
Dissipation Test

TEST ID: CPT207

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 13:12:49

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
3 - Clays - clay to silty clay
4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

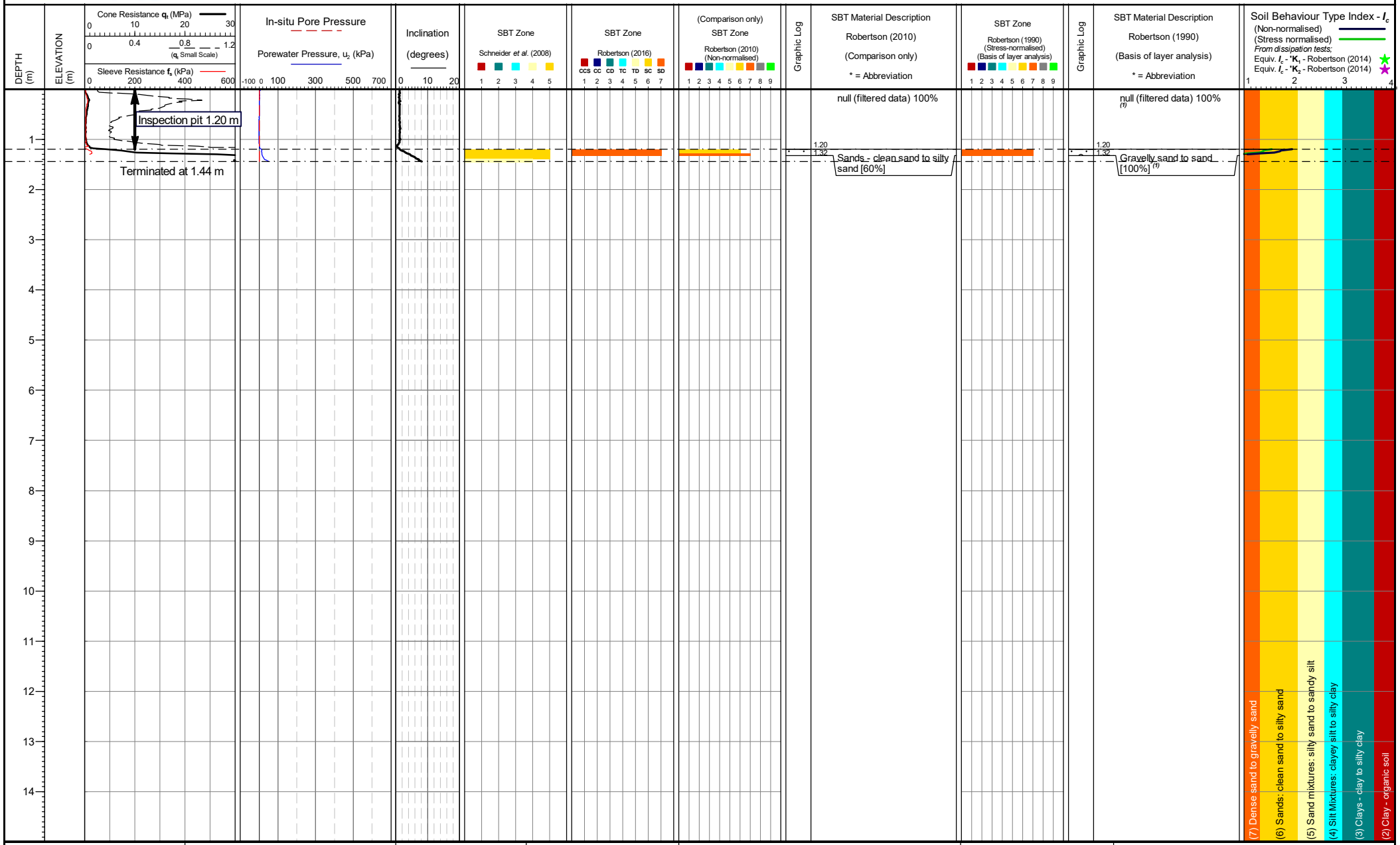
Internal QA Diss.
Dissipation Test

TEST ID: CPT207A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 13:49:55

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
2 - Organic soils
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4 - Silt mixtures - clayey silt to silty clay
5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

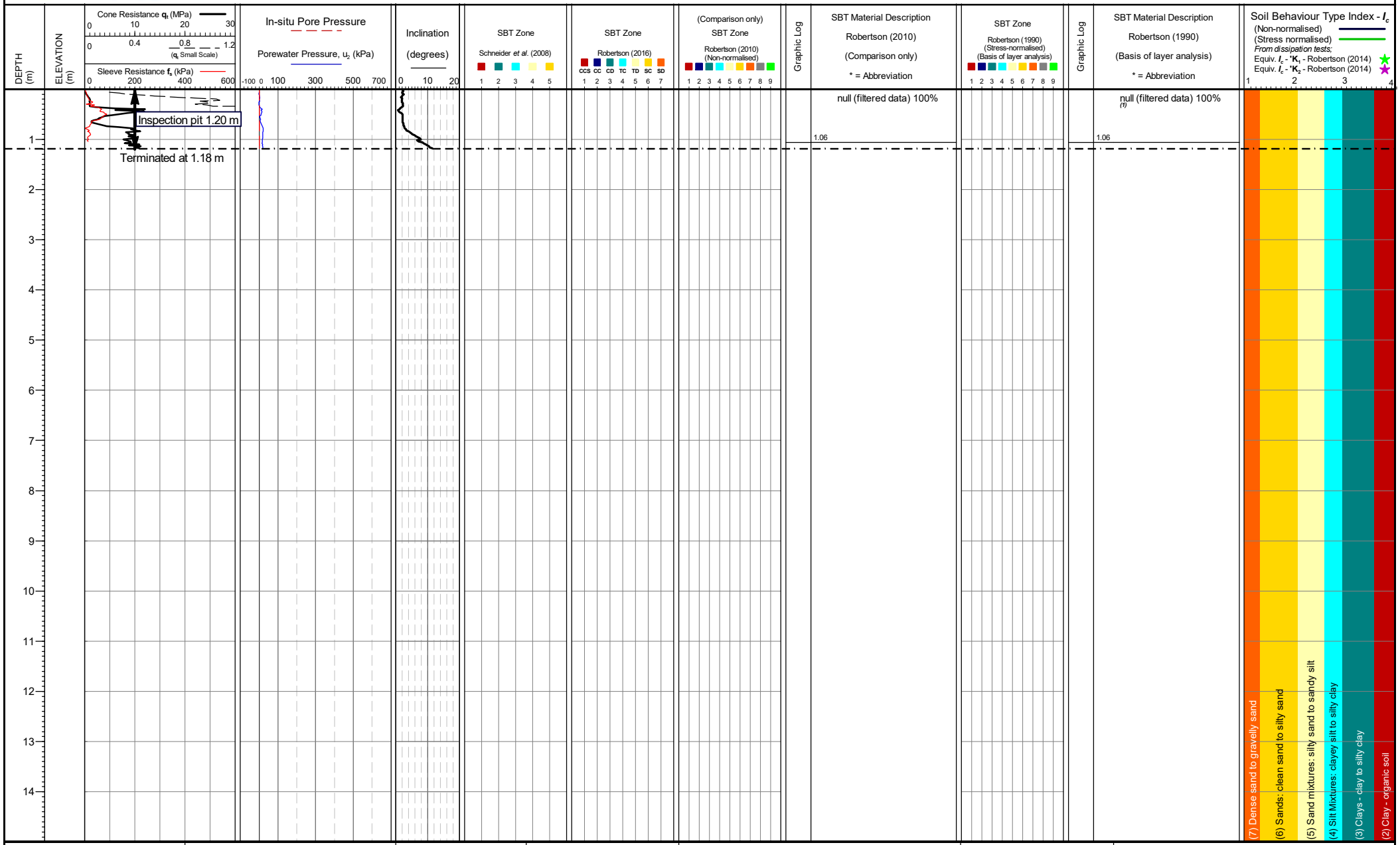
Internal QA Diss.
Dissipation Test

TEST ID: CPT208

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 14:06:58

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
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2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
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5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
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6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

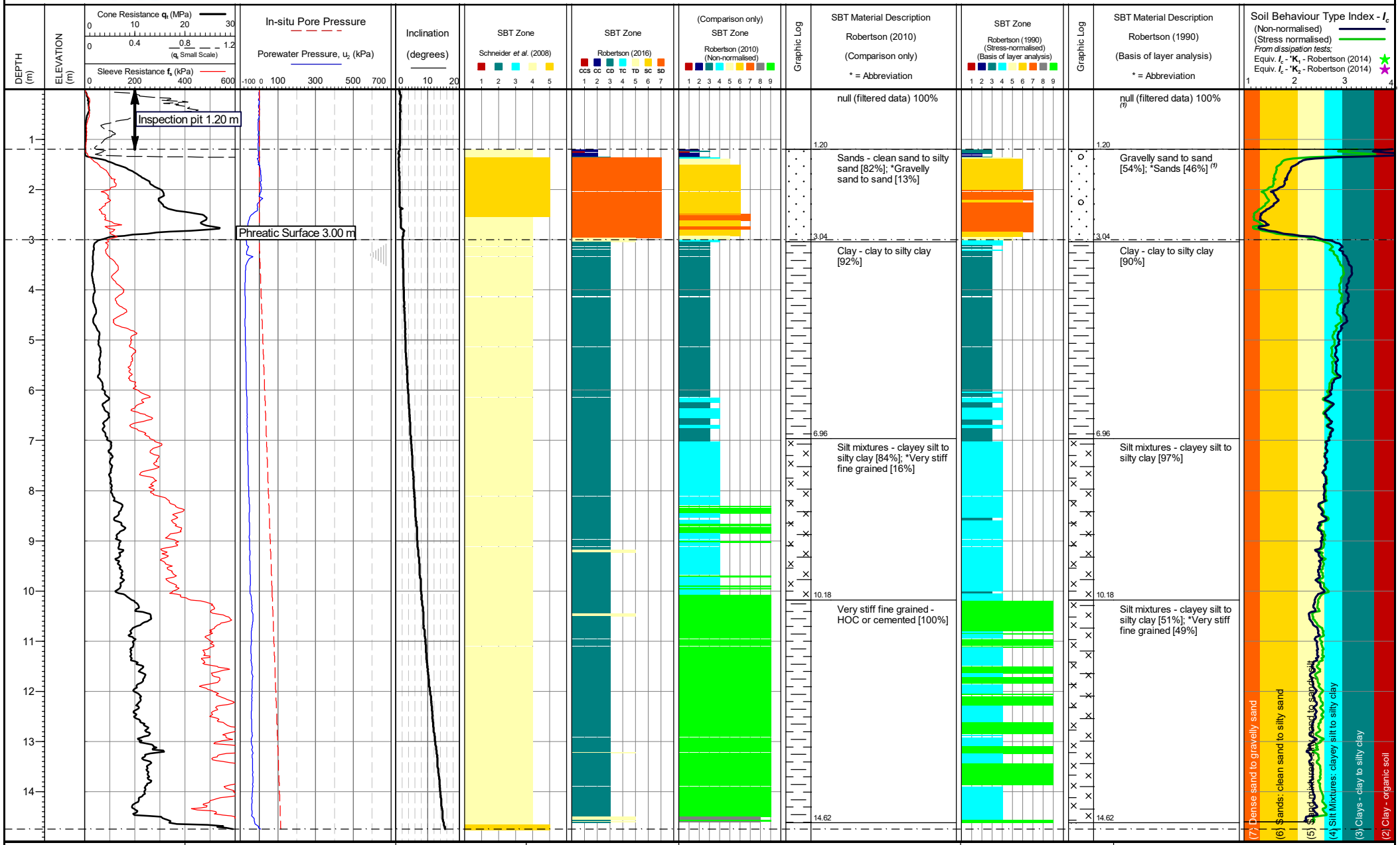
Internal QA Diss.
Dissipation Test

TEST ID: CPT208A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 14:14:08

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
1 - (1c) Sensitive clays
2 - (1b) Clays
3 - (1a) Silts & low I_c clays
4 - (3) Transitional soils
5 - (2) Essentially drained sands

Robertson (2016) Material Type
1 - **CCS** - Clay-like - Contractive - Sensitive
2 - **CC** - Clay-like - Contractive
3 - **CD** - Clay-like - Dilative
4 - **TC** - Transitional - Contractive
5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
1 - Sensitive fine-grained
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5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(1) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

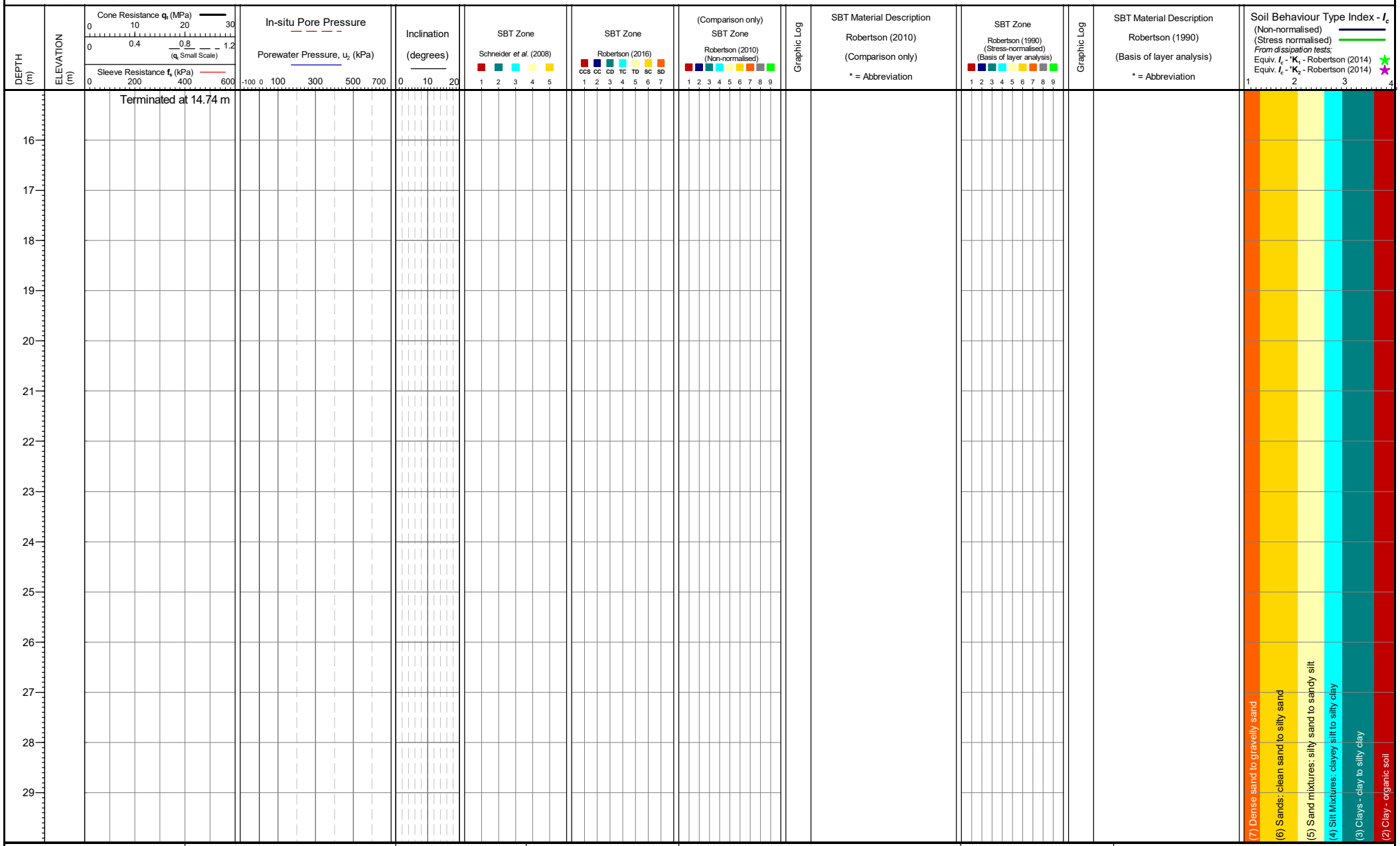
Internal QA Diss.
Dissipation Test

TEST ID: CPT209

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

Lankelma Project Ref: P-107934-1



Cone area (mm2):
ConeID: S15-CFIPT.1899
Location: Gloucestershire, UK
Rig Used: UK22
Date of test: 21/02/2022 14:14:08

Remarks: *Phreatic surface origin: Arbitrary value

Coordinates: ,
Elevation:

Schneider *et al.* (2008) Material Type
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Robertson (2016) Material Type
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5 - **TD** - Transitional - Dilative
6 - **SC** - Sand-like - Contractive
7 - **SD** - Sand-like - Dilative

Robertson (1990 & 2010) Material Type
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5 - Sand mixtures - silty sand to sandy silt
6 - Sands - clean sand to silty sand
7 - Gravelly sand to sand
8 - Very stiff/dense sand to clayey sand
9 - Very stiff fine grained

(9) 0-3 m: Normalised SBT often artificially coarse/stiff at very low in-situ stresses

Internal QA Diss.
Dissipation Test

TEST ID: CPT209

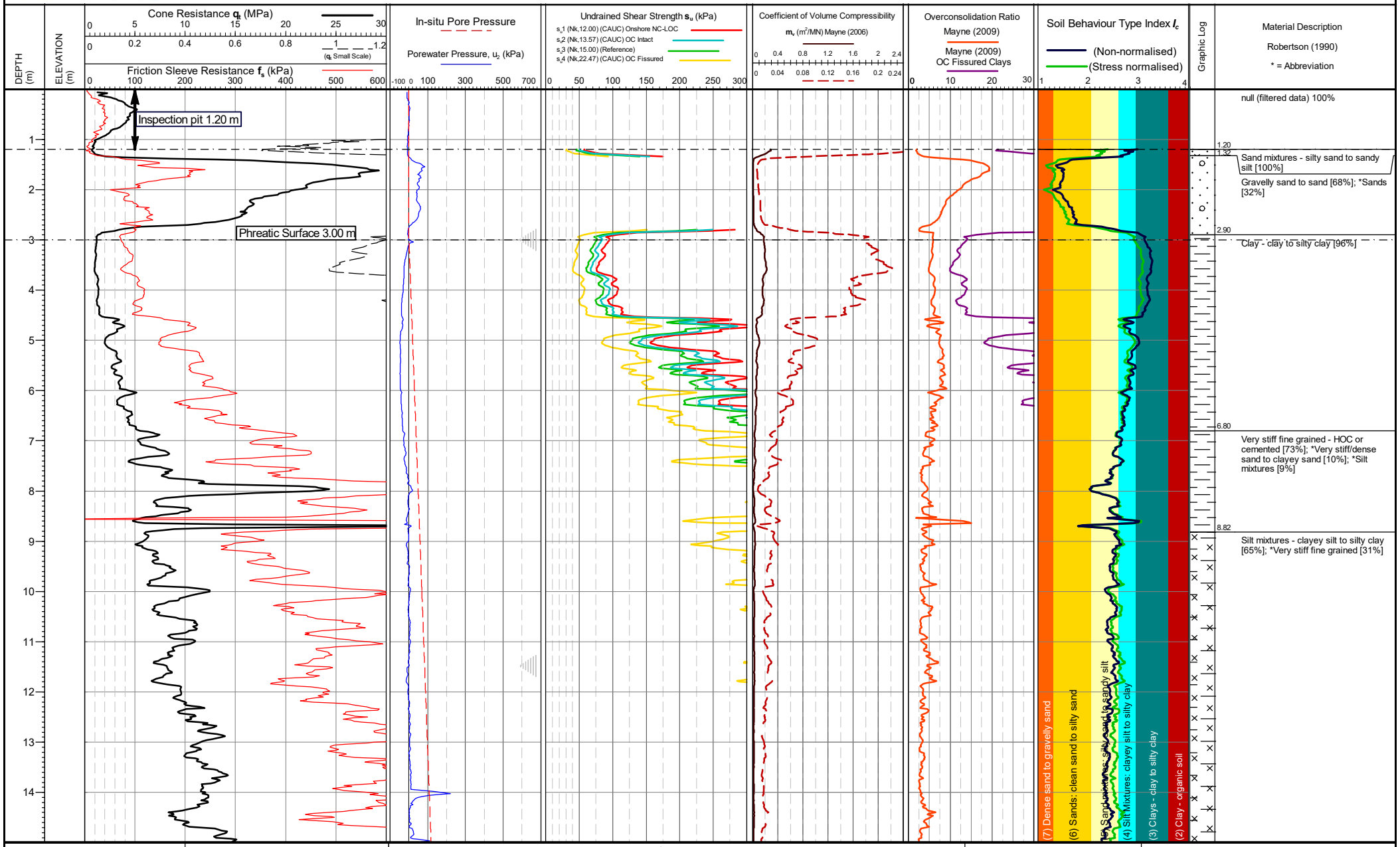
APPENDIX E UNDRAINED PARAMETER RESULTS

UNDRAINED SHEAR STRENGTH
COEFFICIENT OF VOLUME CHANGE
OVERCONSOLIDATION RATIO
SOIL BEHAVIOUR TYPE (SBT) DESCRIPTIONS

Plots are provided for all locations

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 09:11:39

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

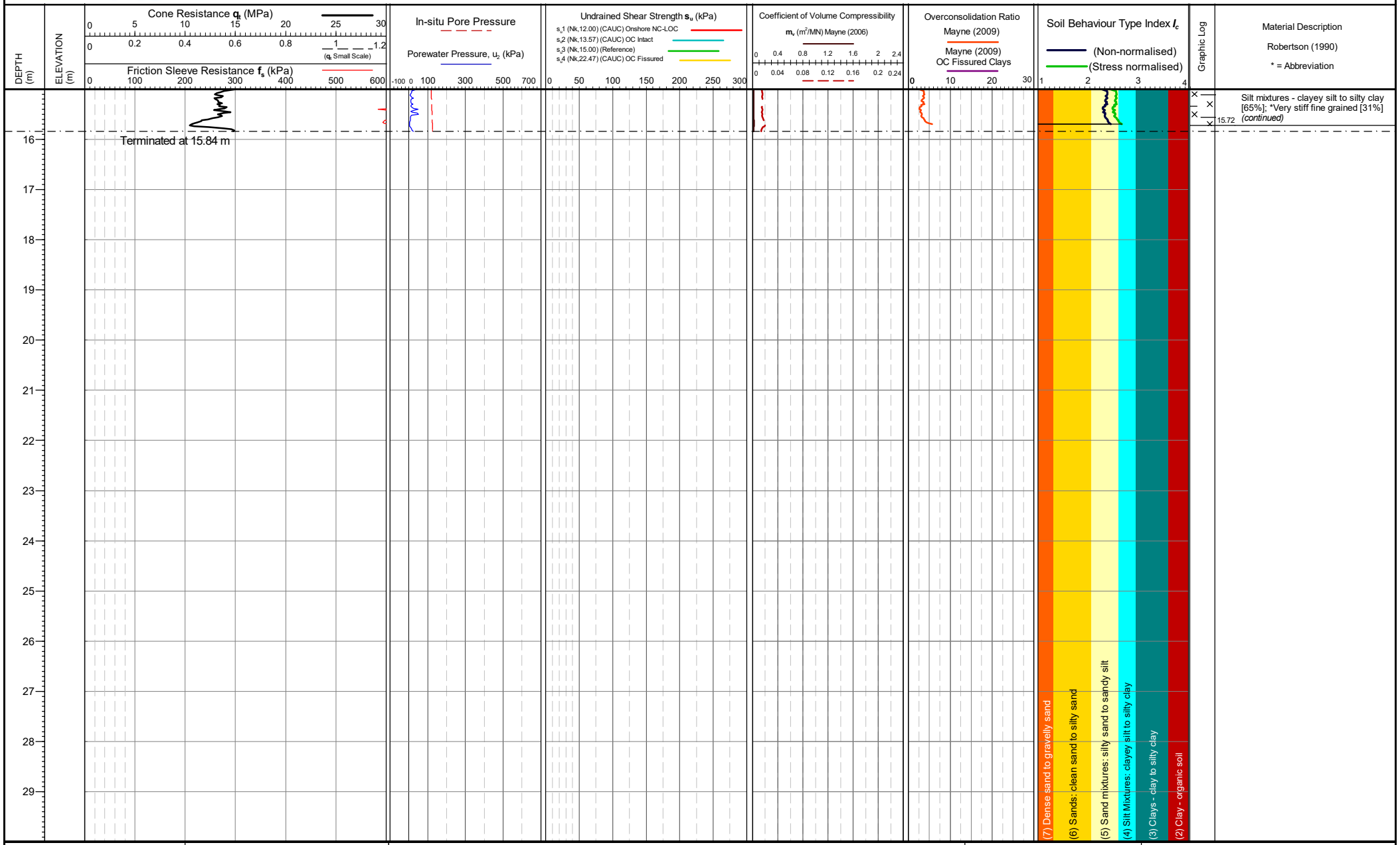
Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1
Checked by: Chris Player

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 09:11:39

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

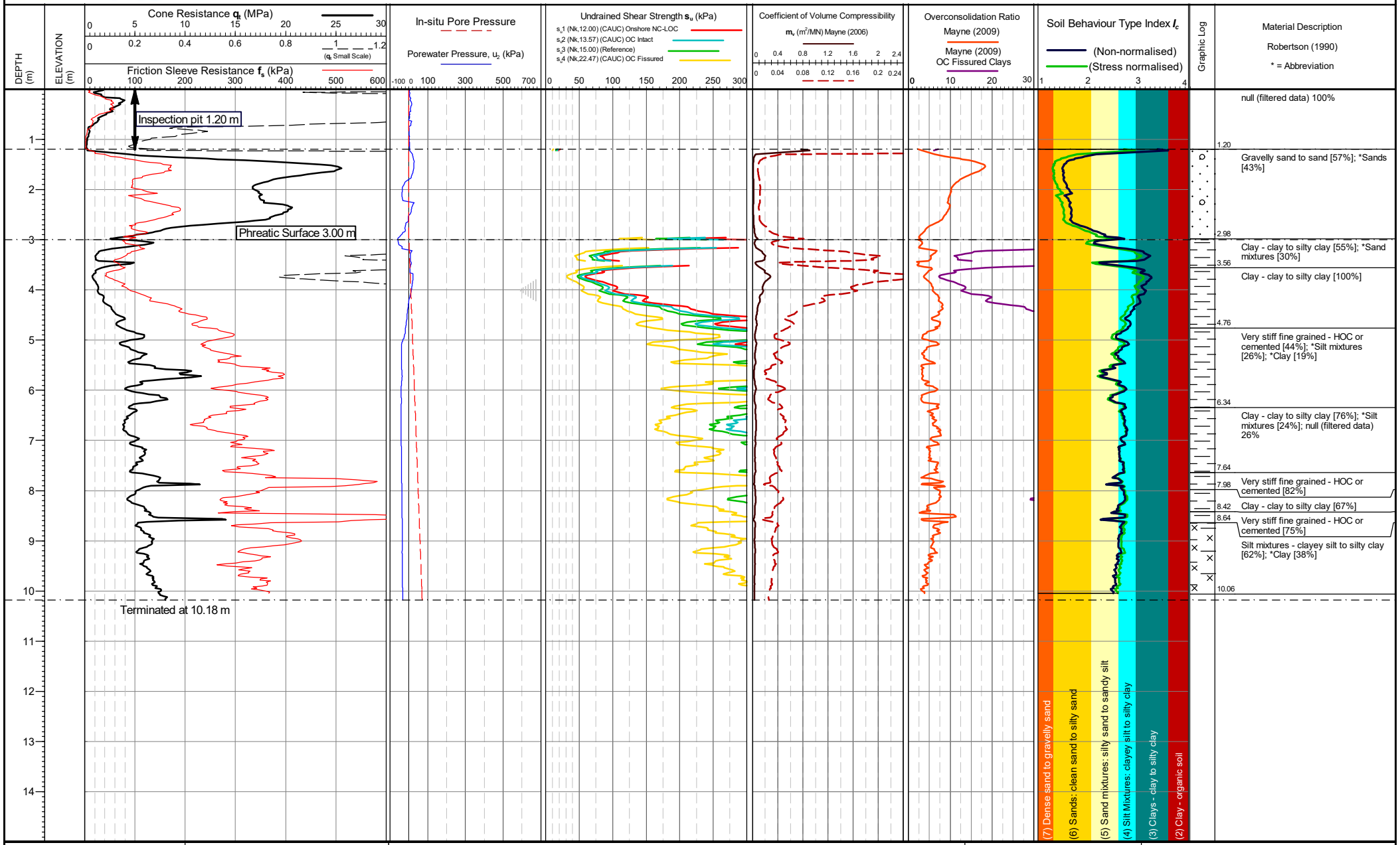
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 10:29:31

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Target depth

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

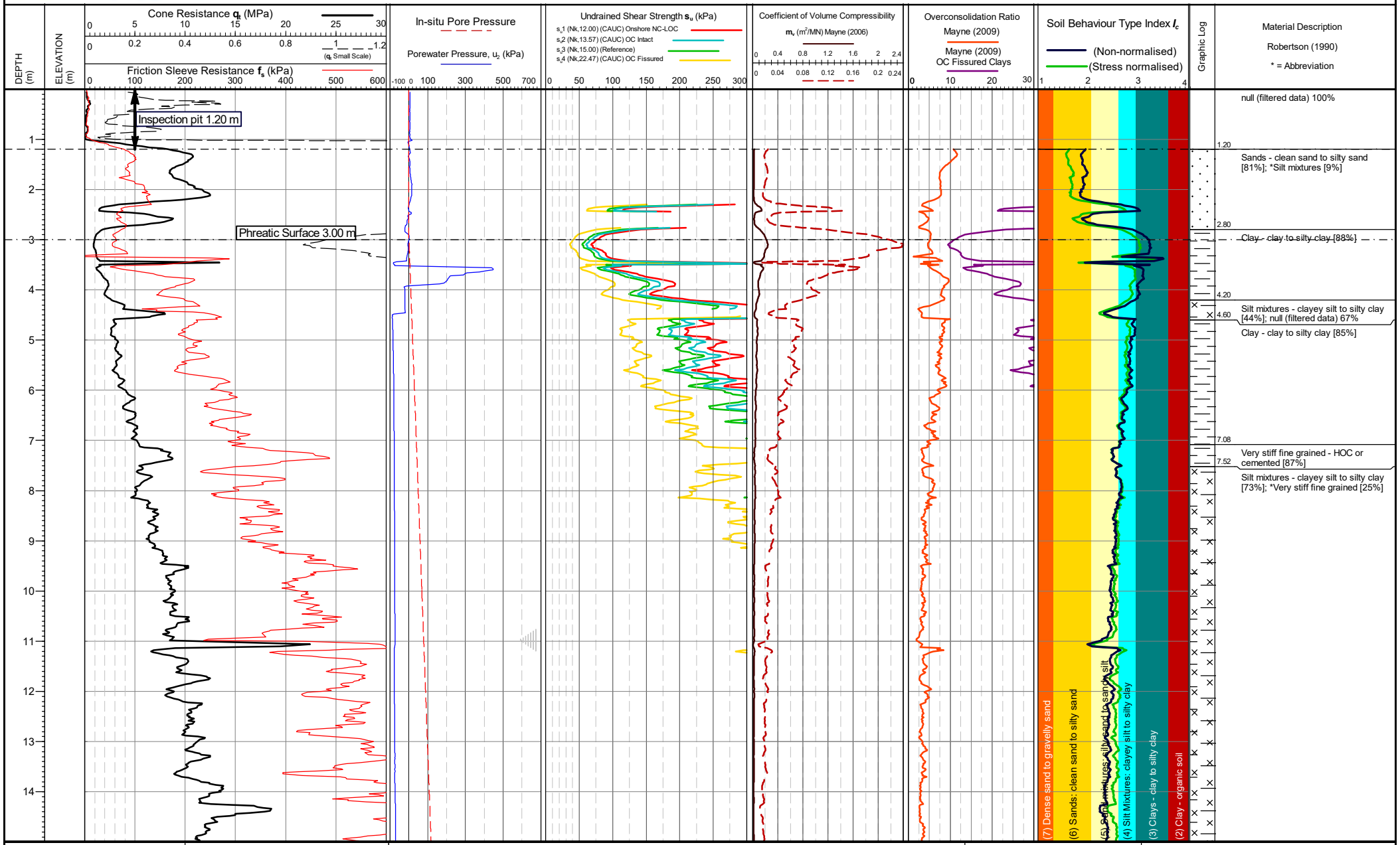
Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1
Checked by: Chris Player

TEST ID: CPT203

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 11:41:38

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

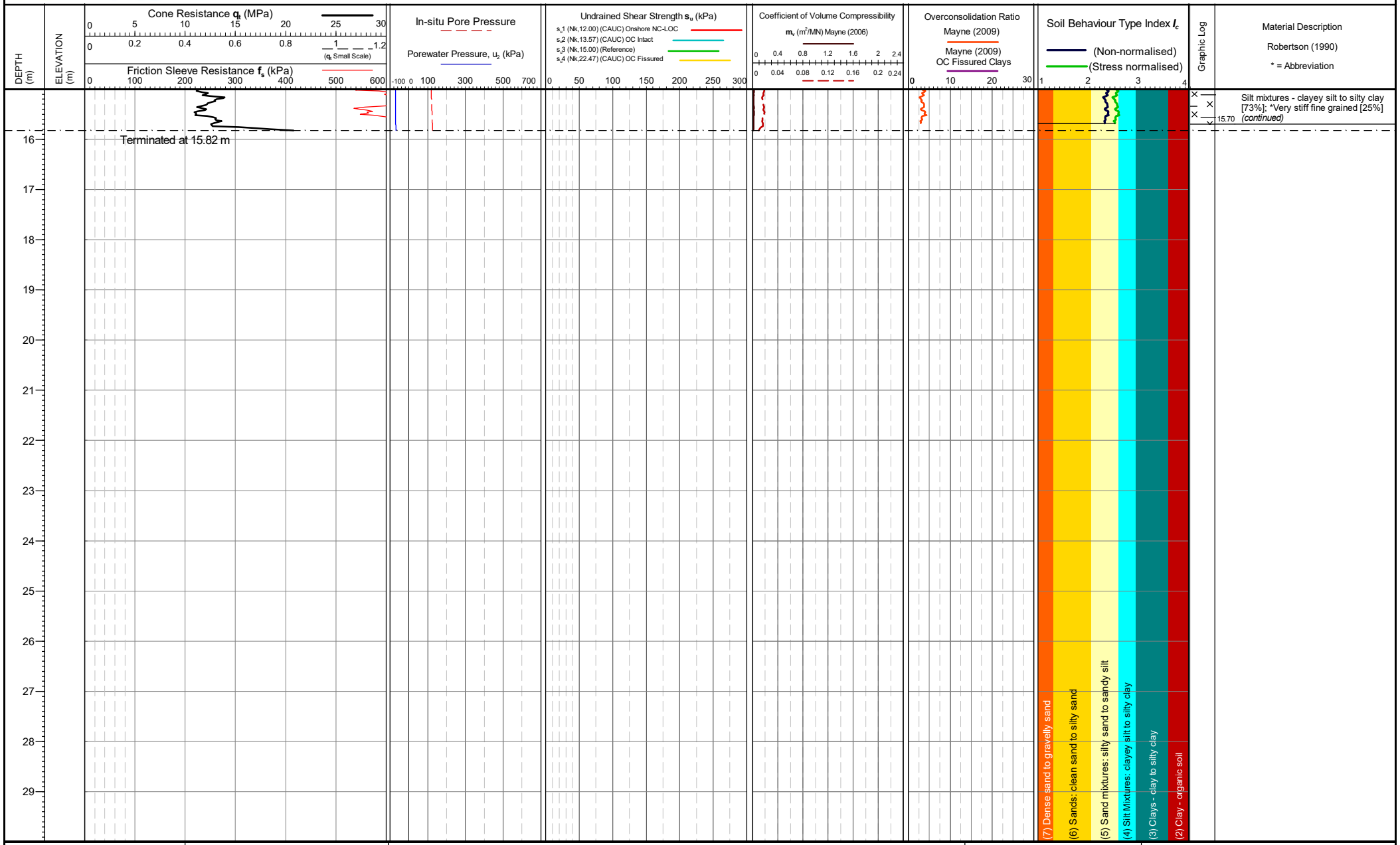
Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1
Checked by: Chris Player

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 11:41:38

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

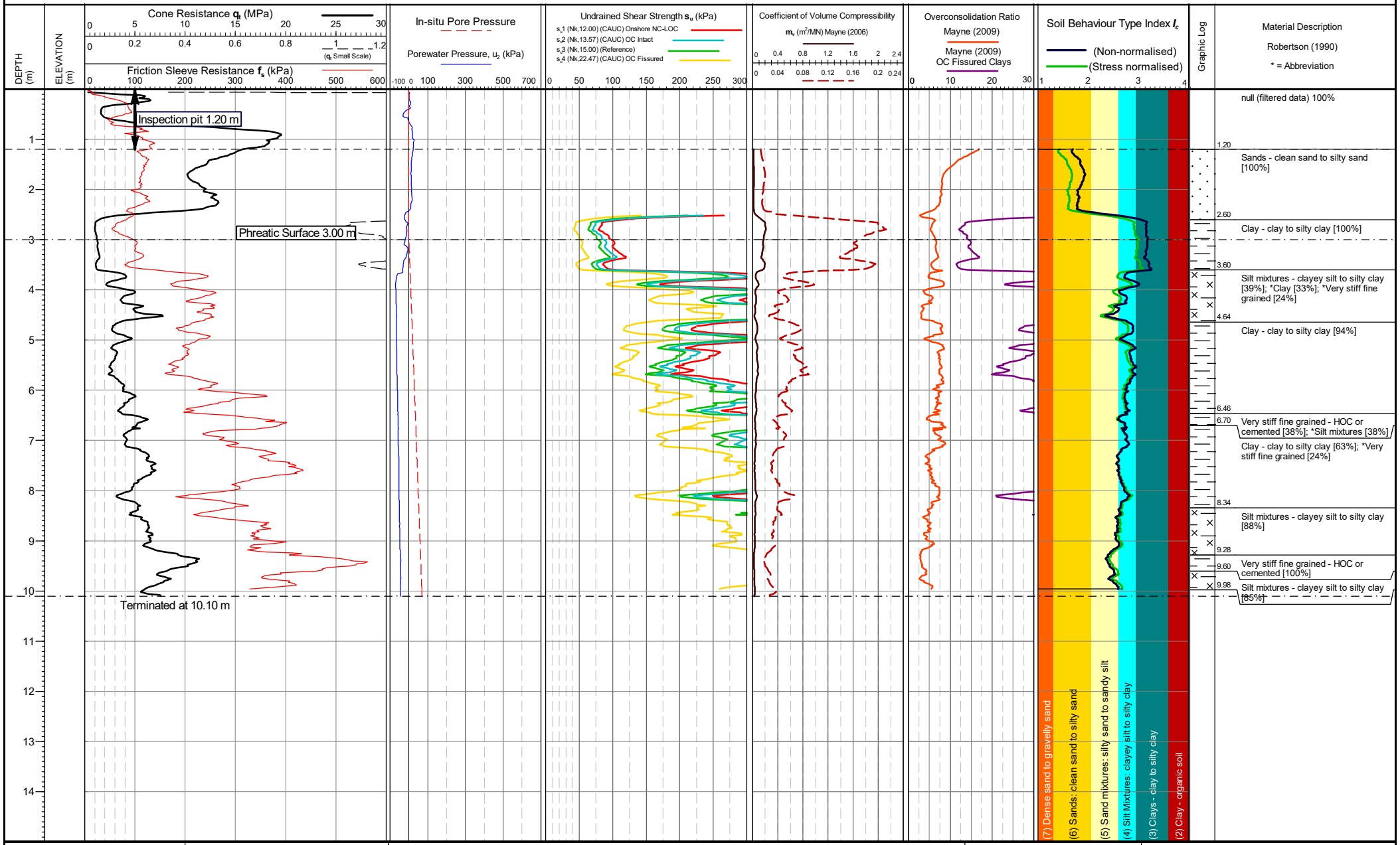
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 11:11:04

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Target depth

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

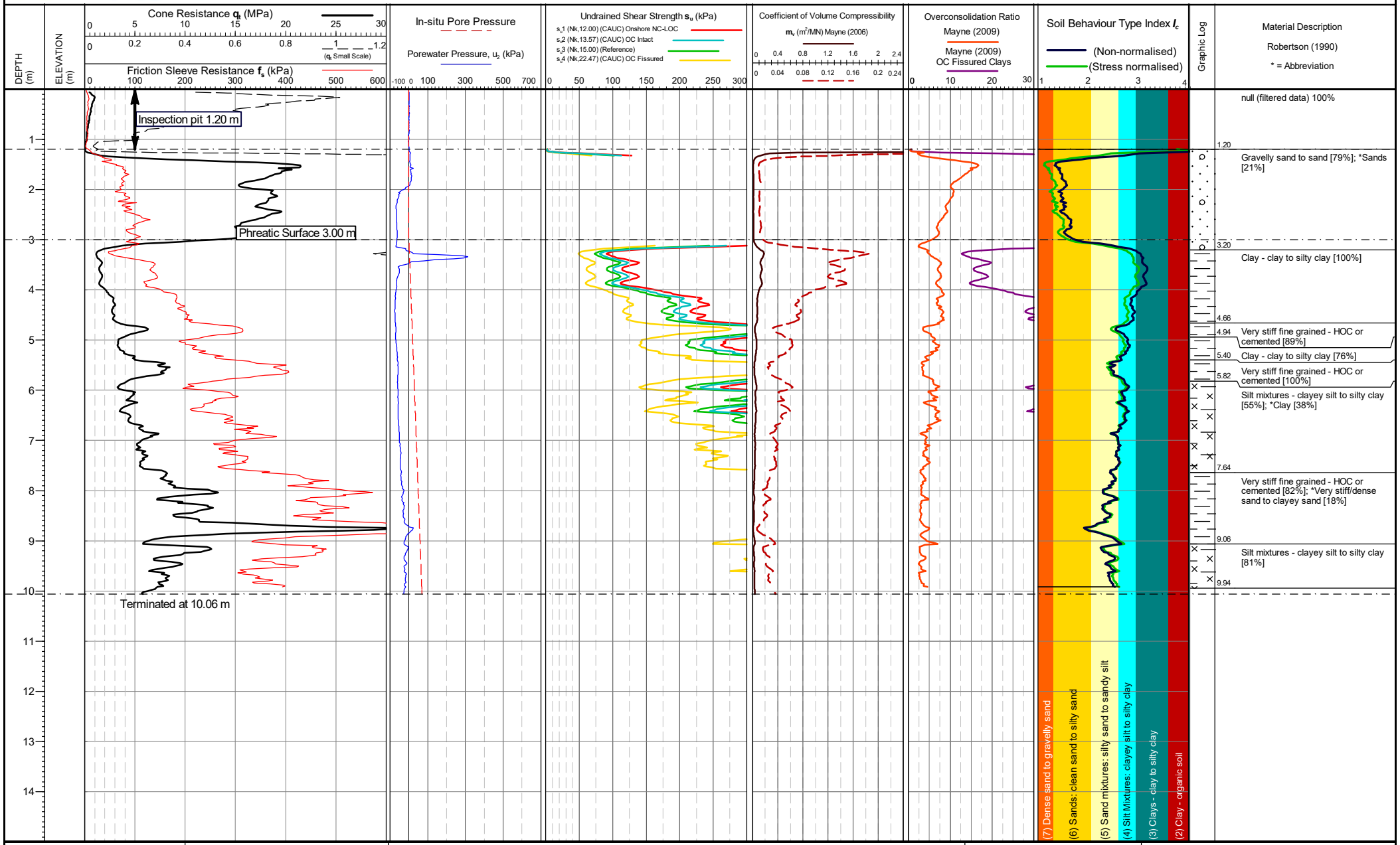
Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1
Checked by: Chris Player

TEST ID: CPT205

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 15:15:46

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Target depth

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

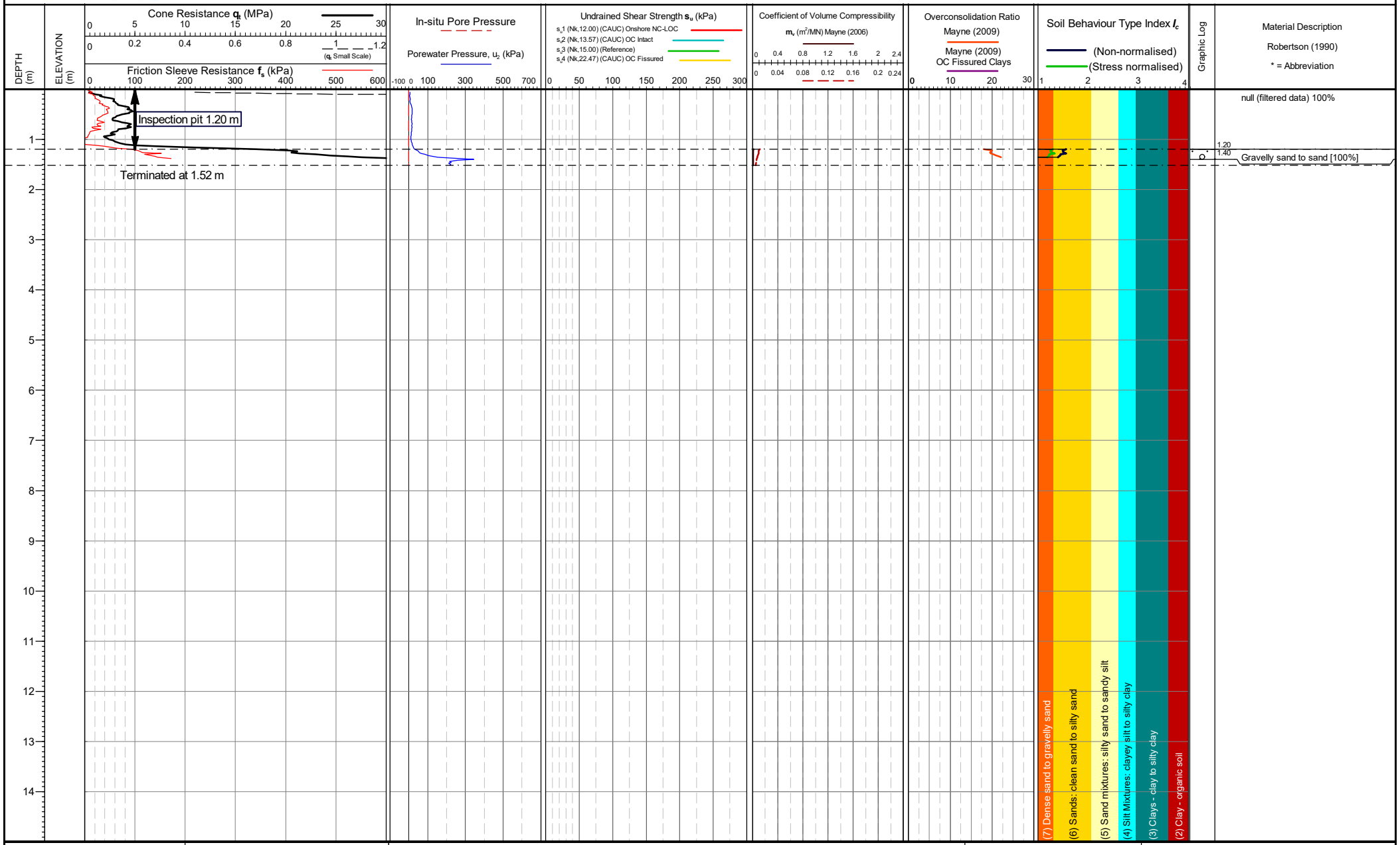
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT206

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 12:55:13

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

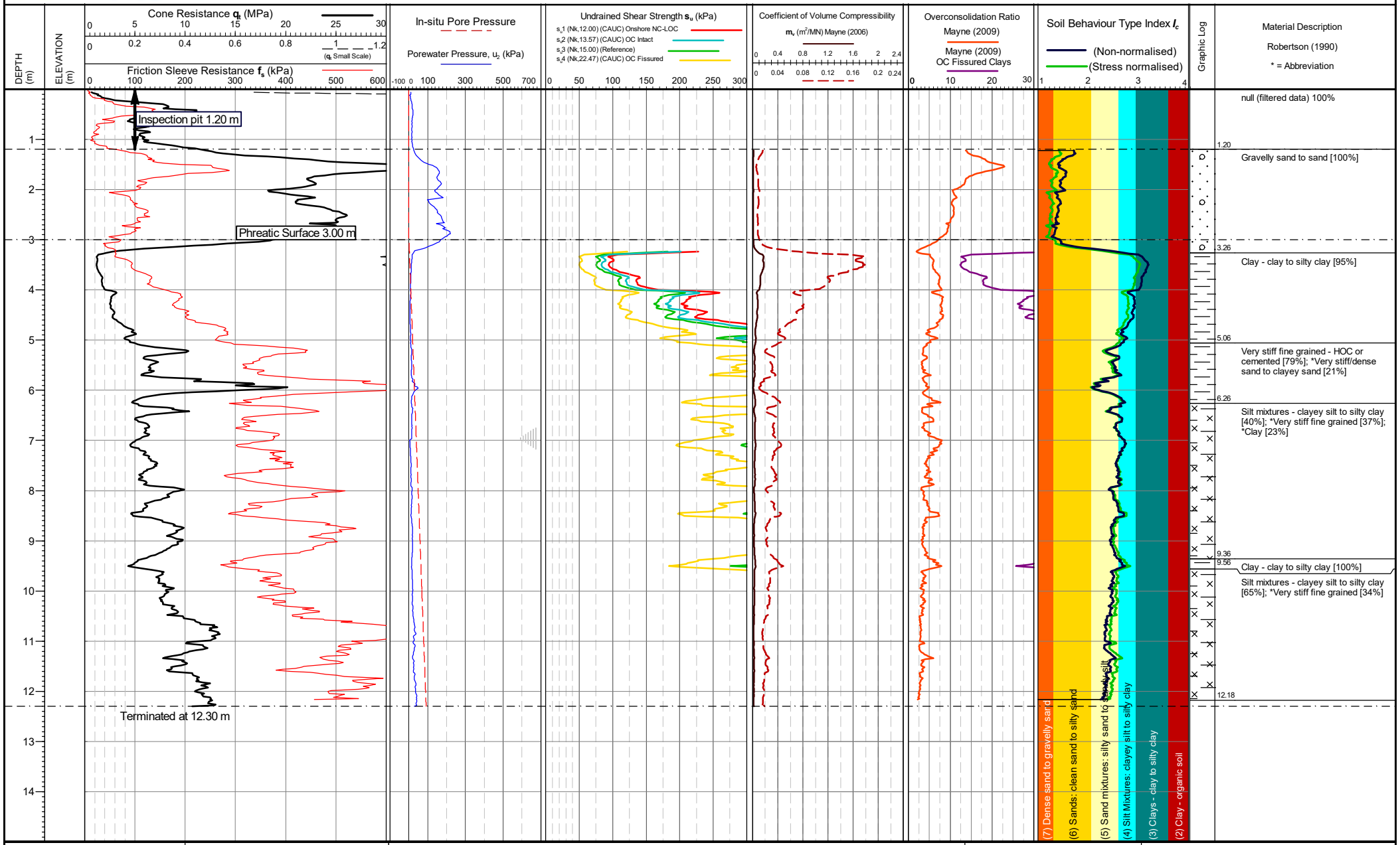
Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1
Checked by: Chris Player

TEST ID: CPT207

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 13:12:49

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

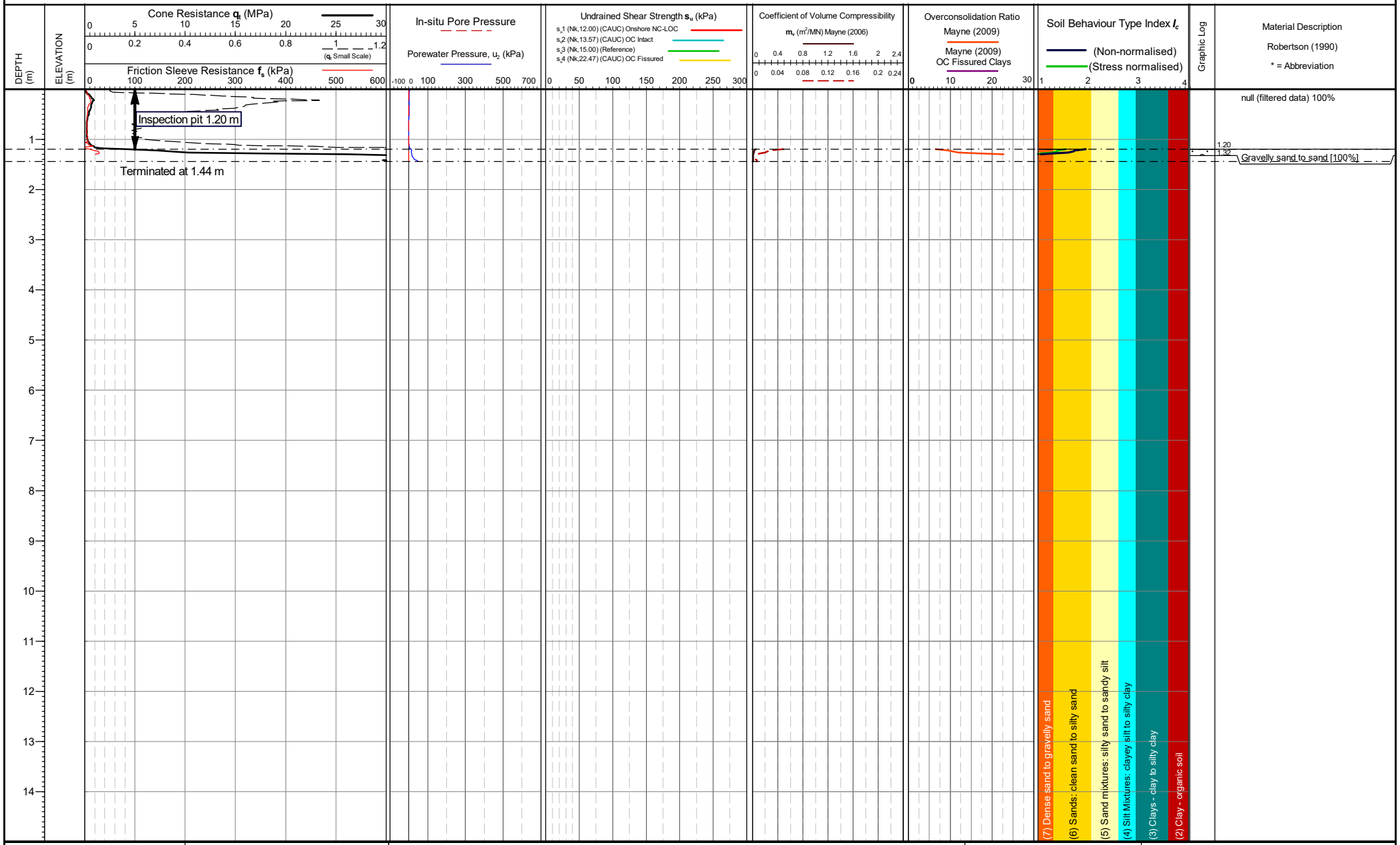
Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1
Checked by: Chris Player

TEST ID: CPT207A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 13:49:55

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

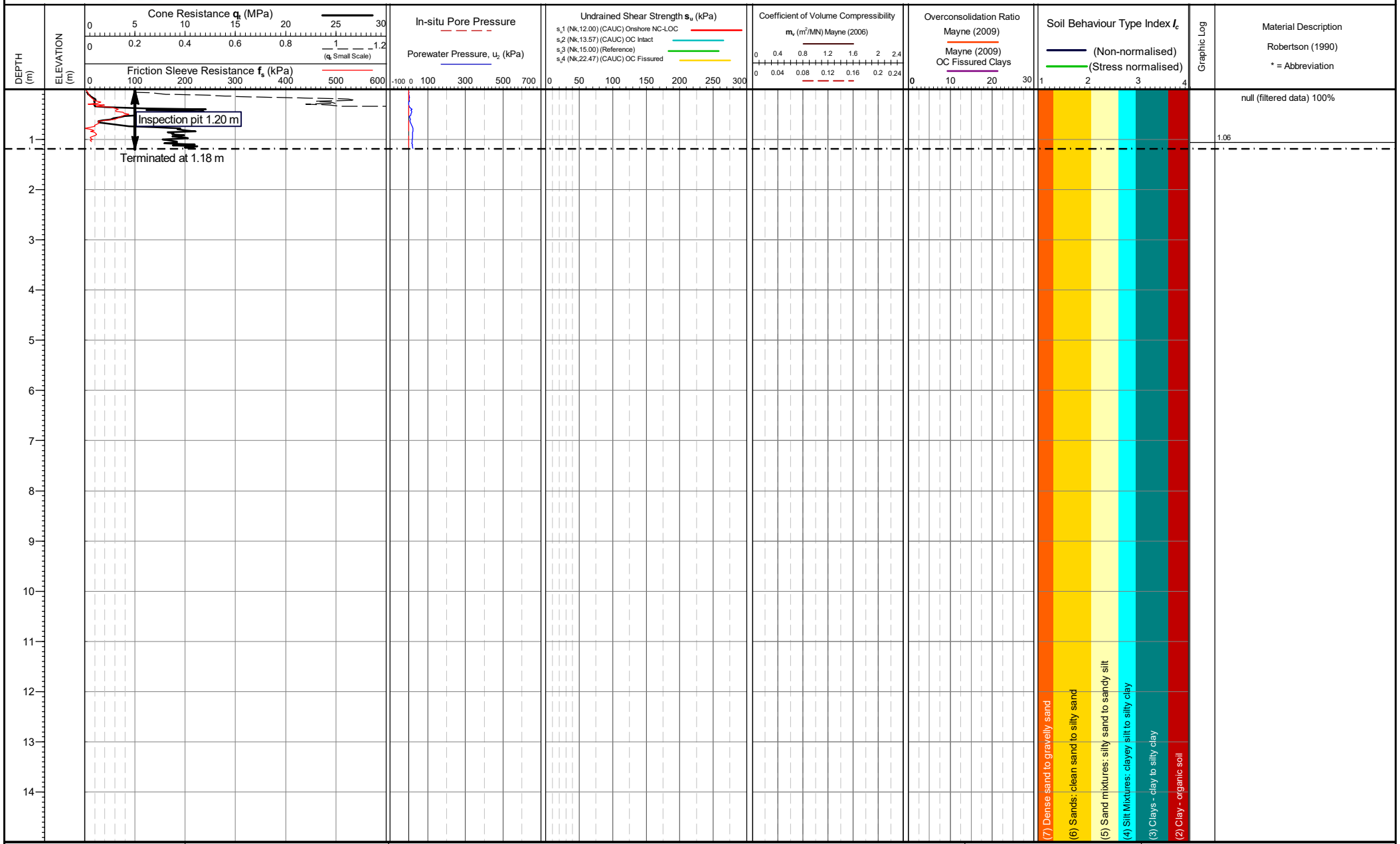
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT208

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 14:06:58

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Inclination

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

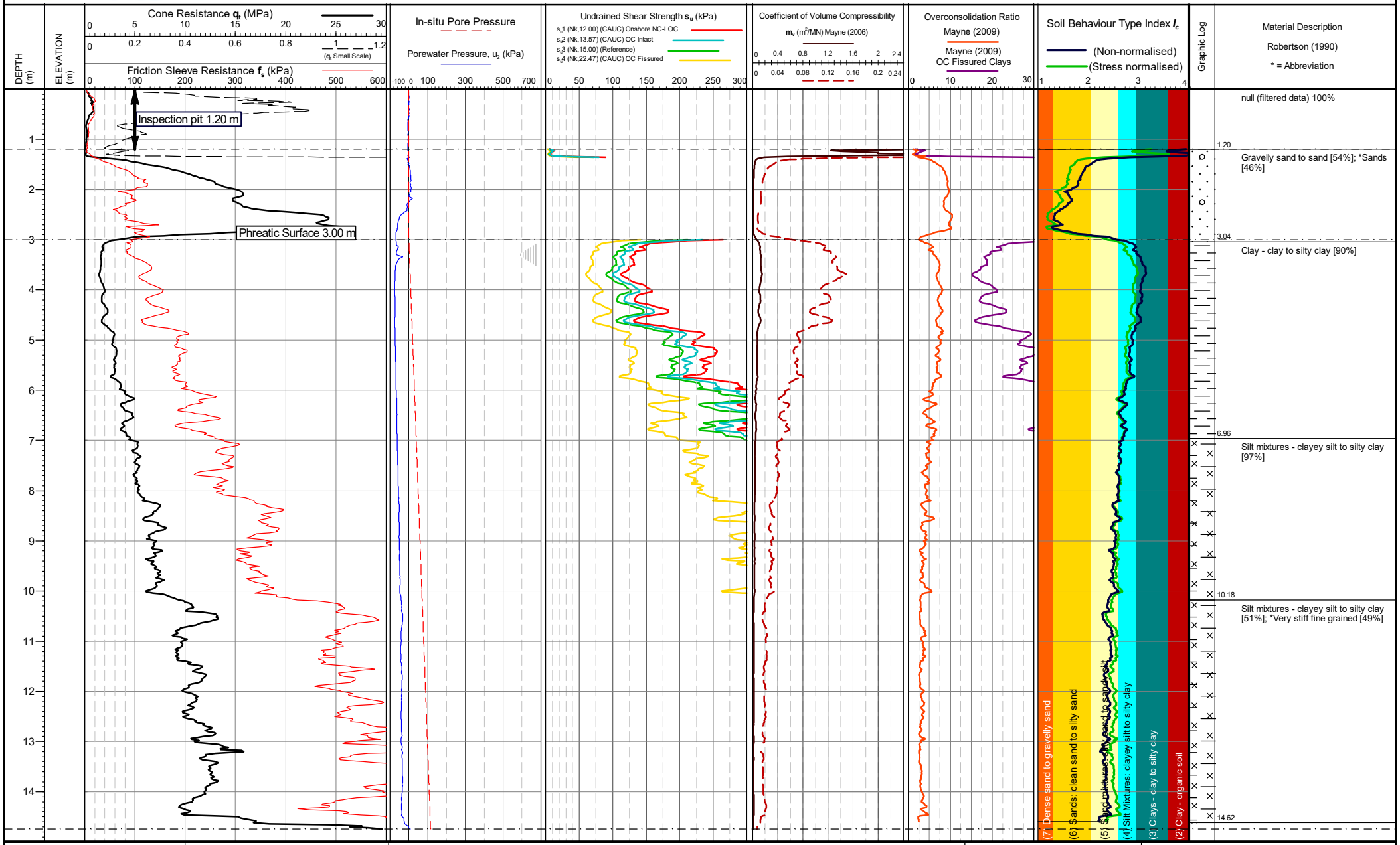
Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1
Checked by: Chris Player

TEST ID: CPT208A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 14:14:08

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

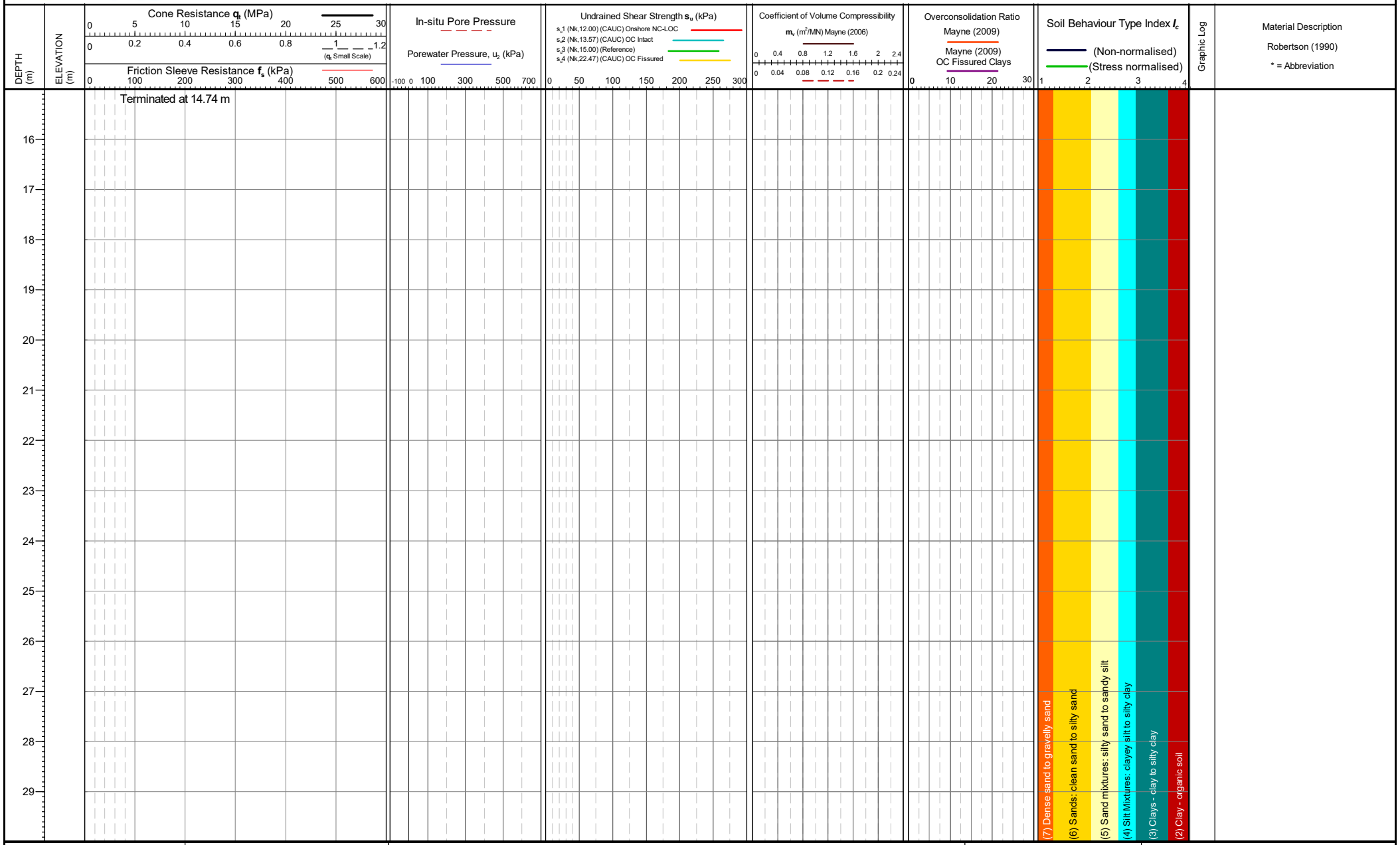
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT209

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
ConeID: S15-CFIPT.1899
Operator: Rob Bennett
Rig Used: UK22
Date of test: 21/02/2022 14:14:08

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Remarks: *Phreatic surface origin: Arbitrary value

Termination Remark:
Lateral support

Internal QA Diss.
Dissipation Test
Penetration Pause (<1cm/s)

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Lankelma Project Ref: P-107934-1

Checked by: Chris Player

TEST ID: CPT209

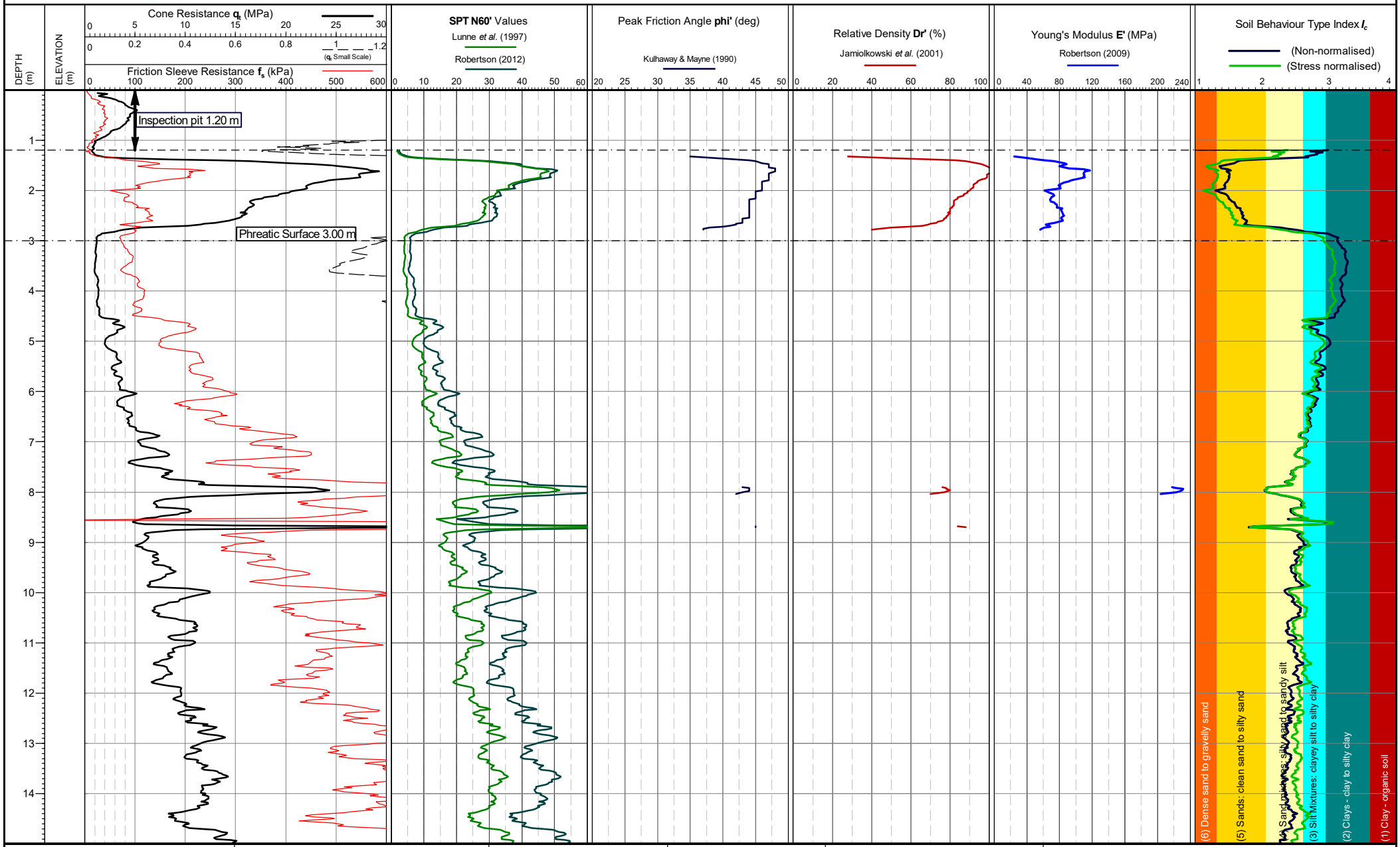
APPENDIX F DRAINED PARAMETER RESULTS

EQUIVALENT SPT N60 (ALL DRAINAGE CONDITIONS)
PEAK FRICTION ANGLE
RELATIVE DENSITY
YOUNG'S MODULUS

Plots are provided for all locations

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
Cone ID: S15-CFIPT.1899
Operator: Rob Bennett
Date of test: 21/02/2022 09:11:39

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

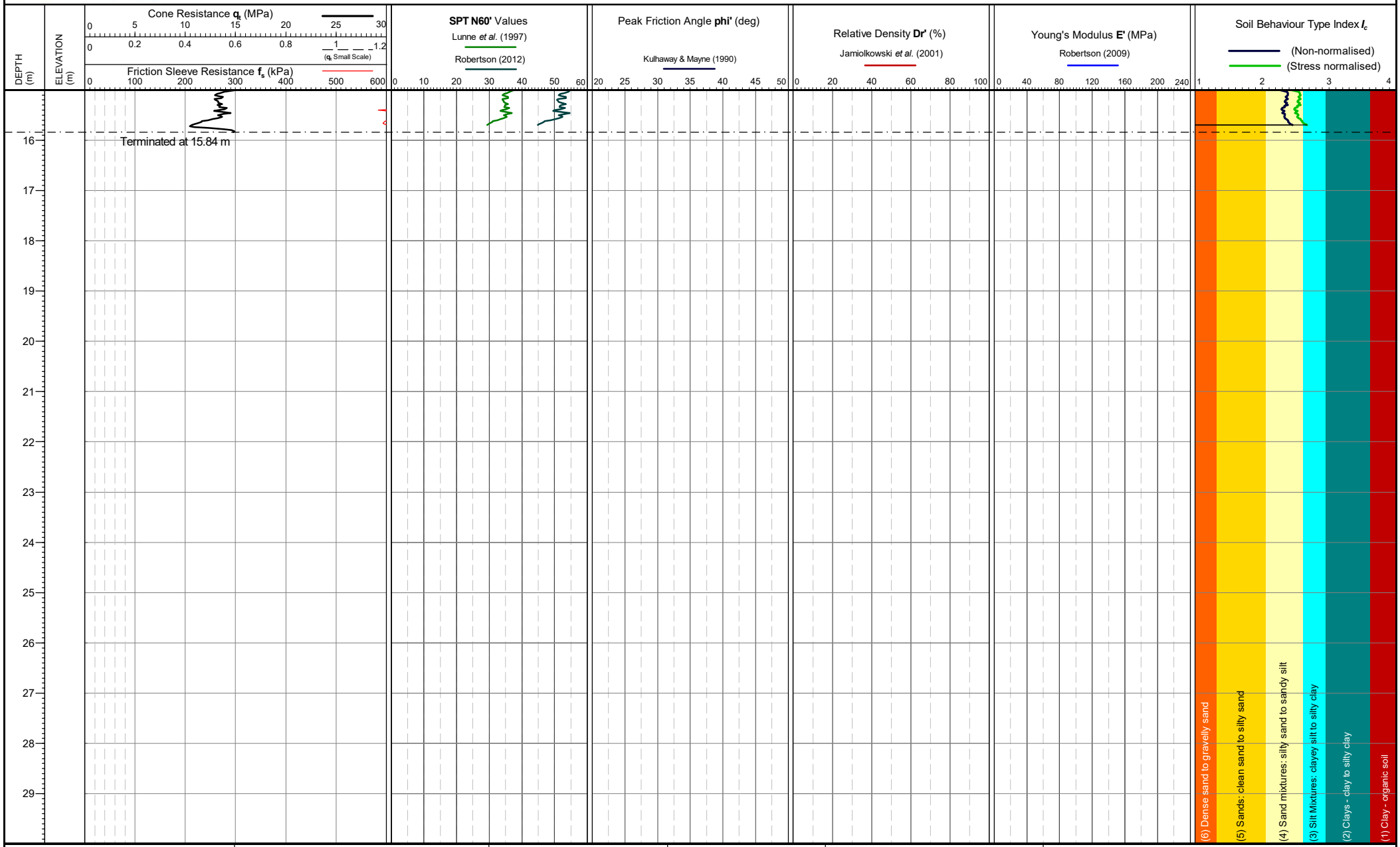
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
Cone ID: S15-CFIPT.1899
Operator: Rob Bennett
Date of test: 21/02/2022 09:11:39

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

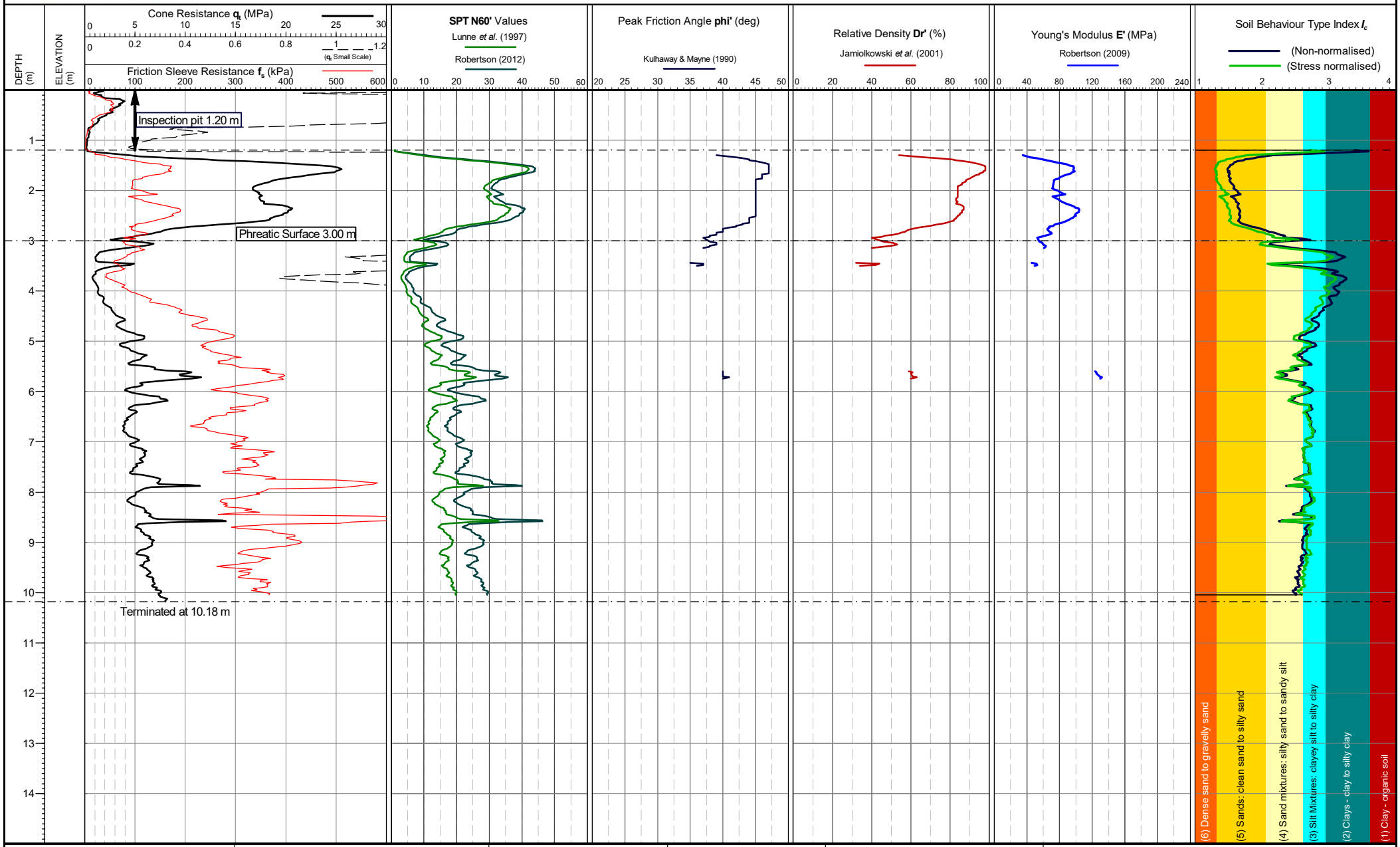
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

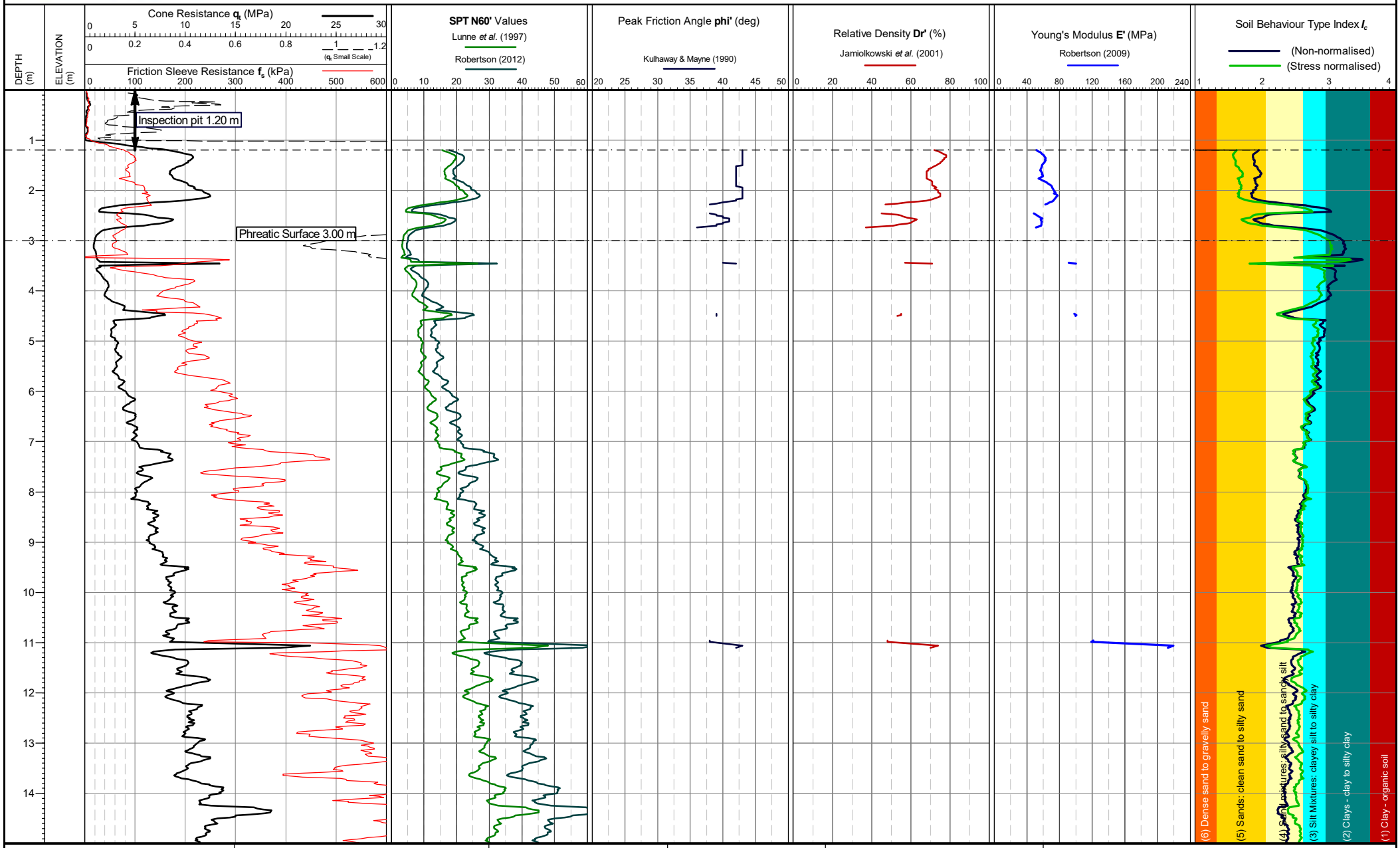
Client: HYDROCK



Cone area (mm2):	Location: Gloucestershire, UK	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.	Date of plot: 21-02-22	Lankelma Project Ref: P-107934-1	**TEST ID: CPT203**
Cone ID: S15-CFIPT.1899	Coordinates: ,		Checked by: Chris Player		Page 1 of 1
Operator: Rob Bennett	Elevation:				
Date of test: 21/02/2022 10:29:31	Coordinate system:				

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

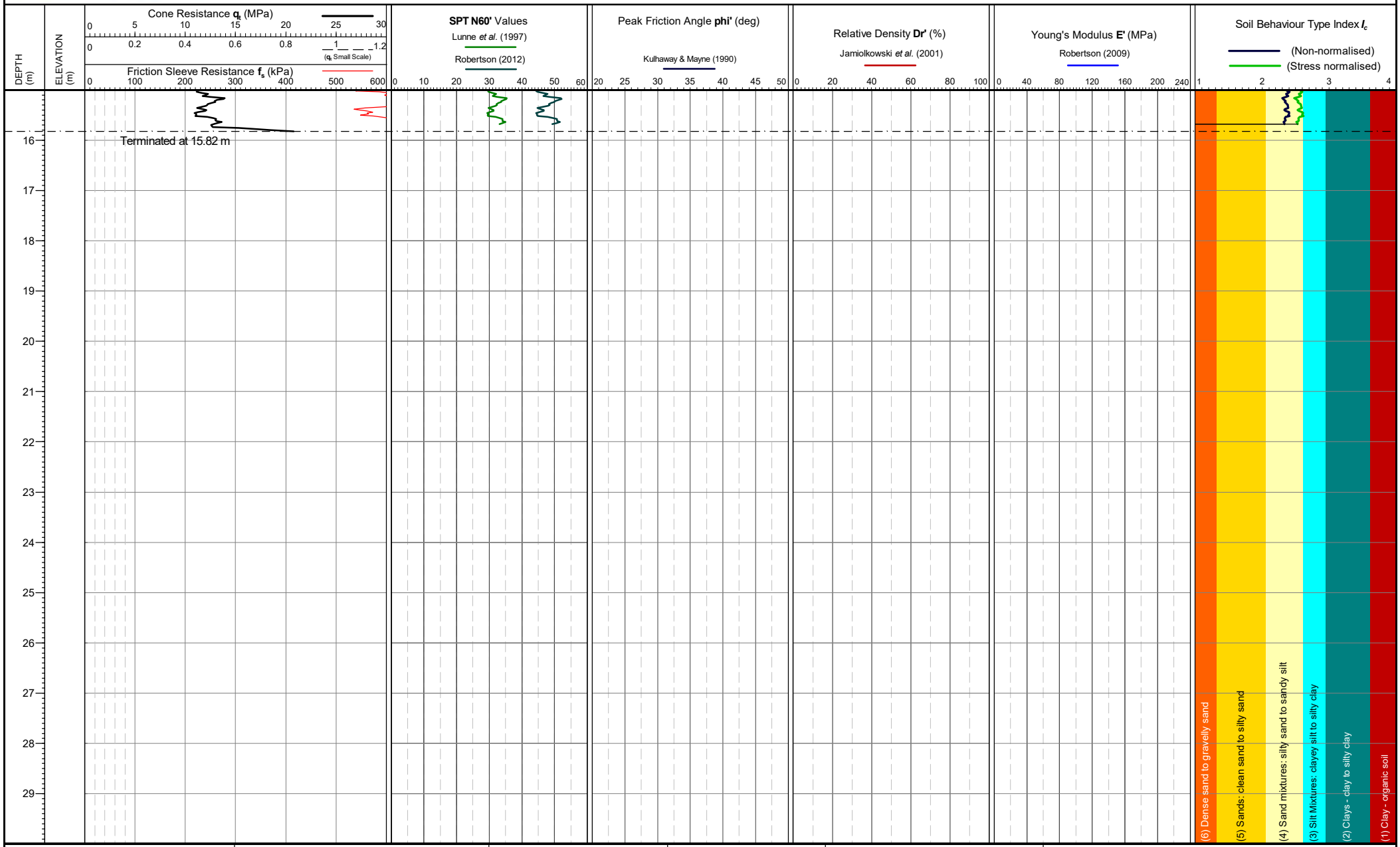


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Date of test: 21/02/2022 11:41:38	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.		Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
Cone ID: S15-CFIPT.1899
Operator: Rob Bennett
Date of test: 21/02/2022 11:41:38

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

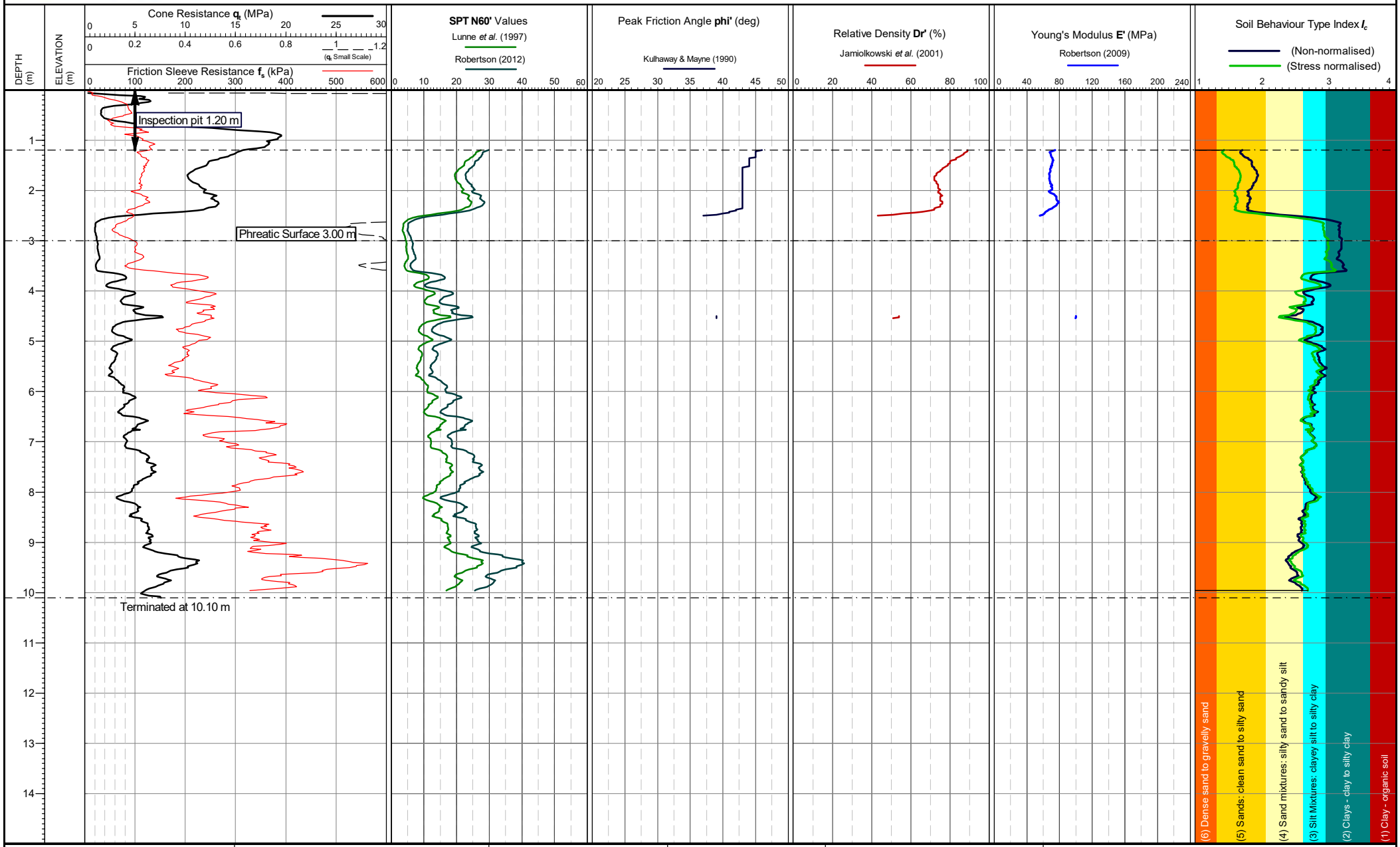
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

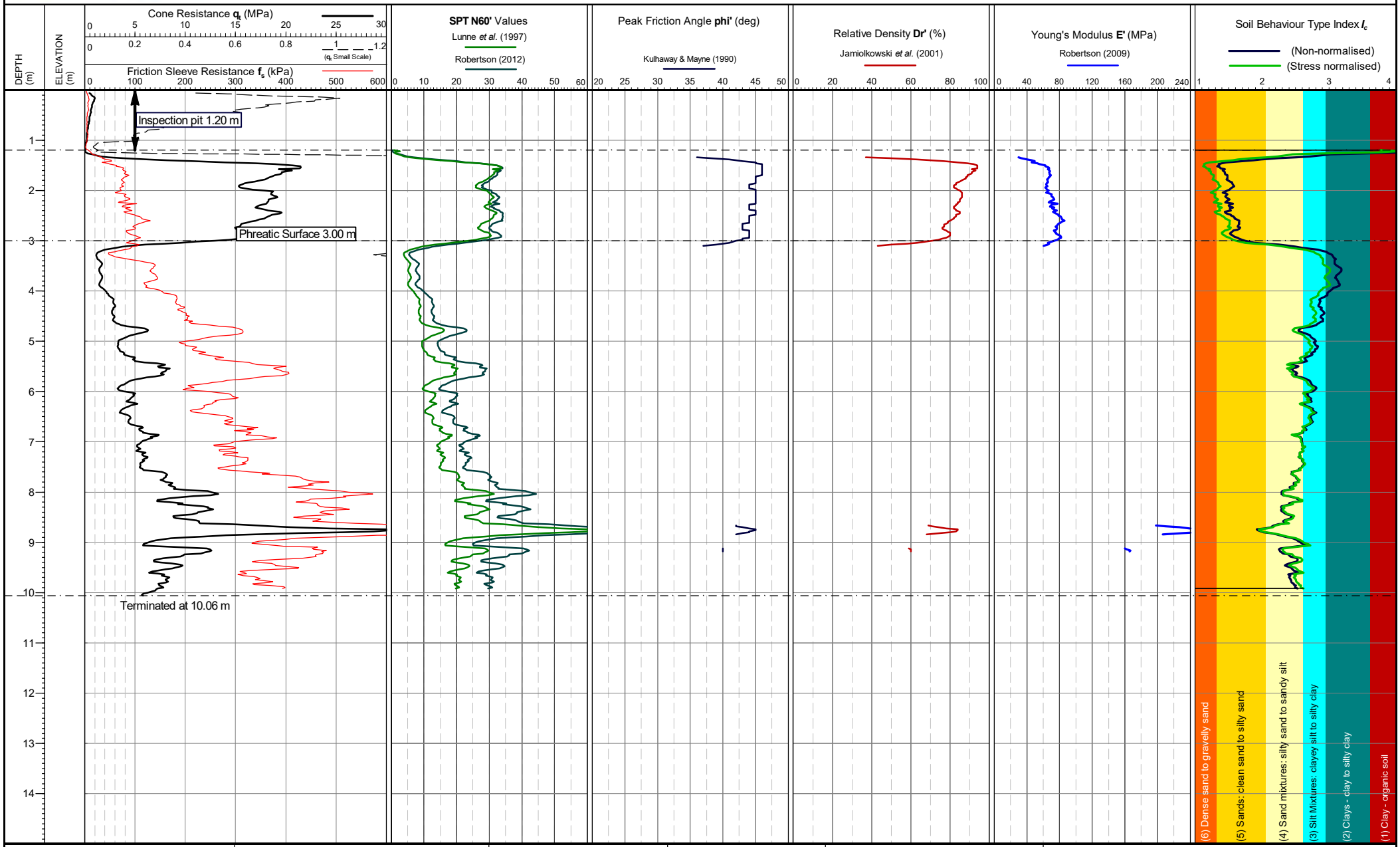
Client: HYDROCK



Cone area (mm2):	Location: Gloucestershire, UK	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.	Date of plot: 21-02-22	Lankelma Project Ref: P-107934-1	**TEST ID: CPT205**
Cone ID: S15-CFIPT.1899	Coordinates: ,		Checked by: Chris Player		Page 1 of 1
Operator: Rob Bennett	Elevation:				
Date of test: 21/02/2022 11:11:04	Coordinate system:				

Project: GREAT WESTERN ROAD, GLOUCESTER

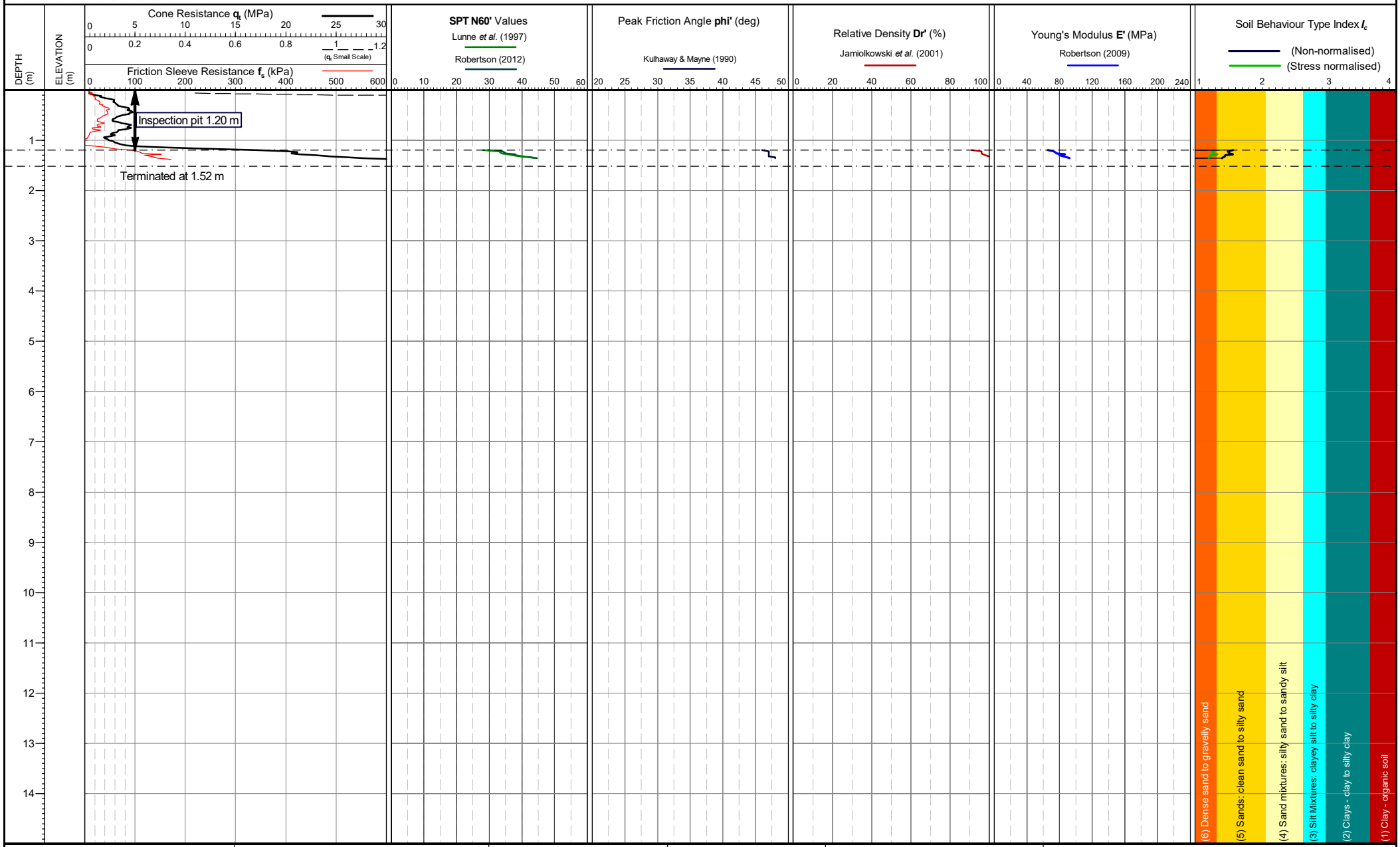
Client: HYDROCK



Cone area (mm2):	Location: Gloucestershire, UK	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.	Date of plot: 21-02-22	Lankelma Project Ref: P-107934-1	**TEST ID: CPT206**
Cone ID: S15-CFIPT.1899	Coordinates: ,		Checked by: Chris Player		Page 1 of 1
Operator: Rob Bennett	Elevation:				
Date of test: 21/02/2022 15:15:46	Coordinate system:				

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
Cone ID: S15-CFIPT.1899
Operator: Rob Bennett
Date of test: 21/02/2022 12:55:13

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

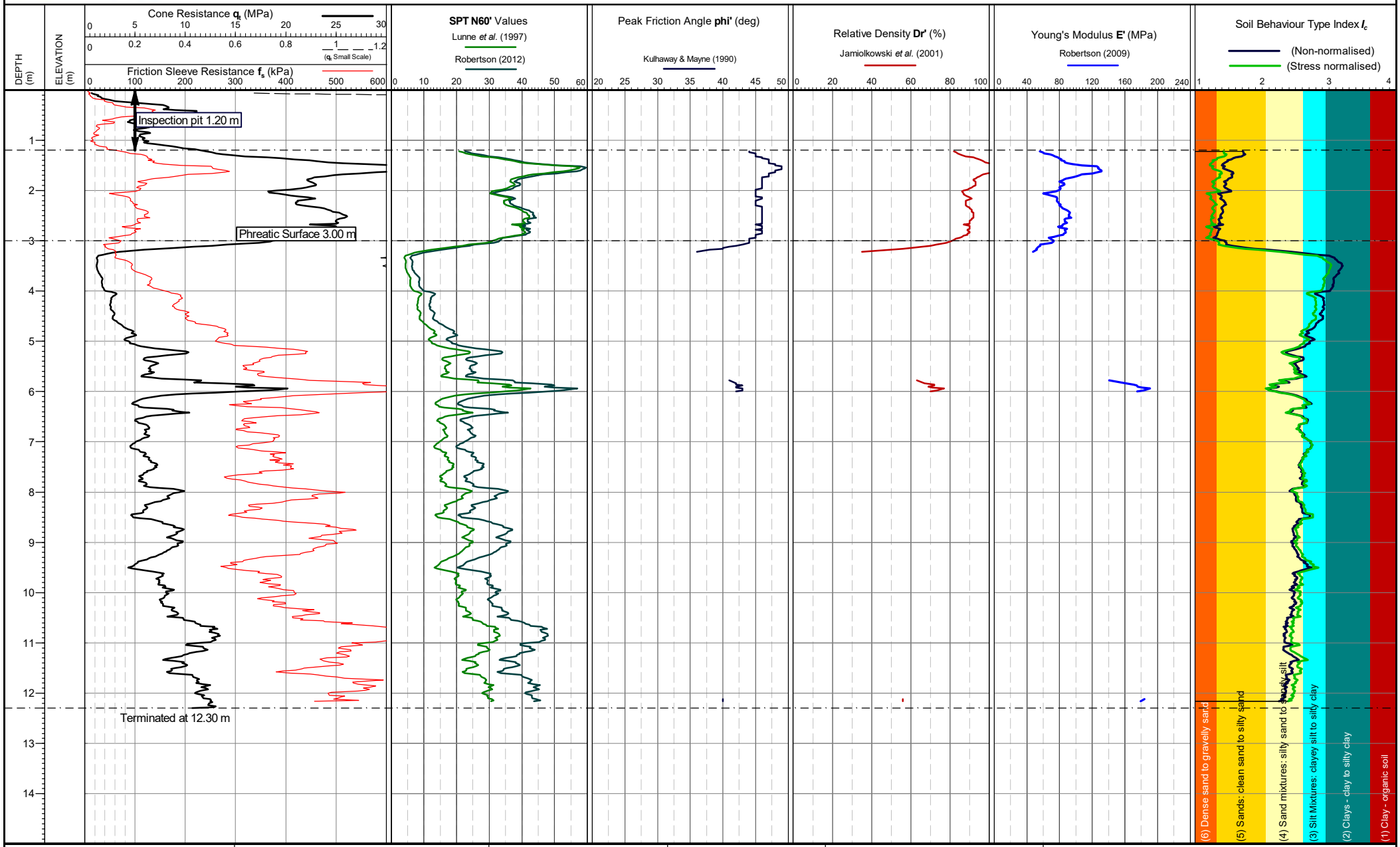
Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT207

Project: GREAT WESTERN ROAD, GLOUCESTER

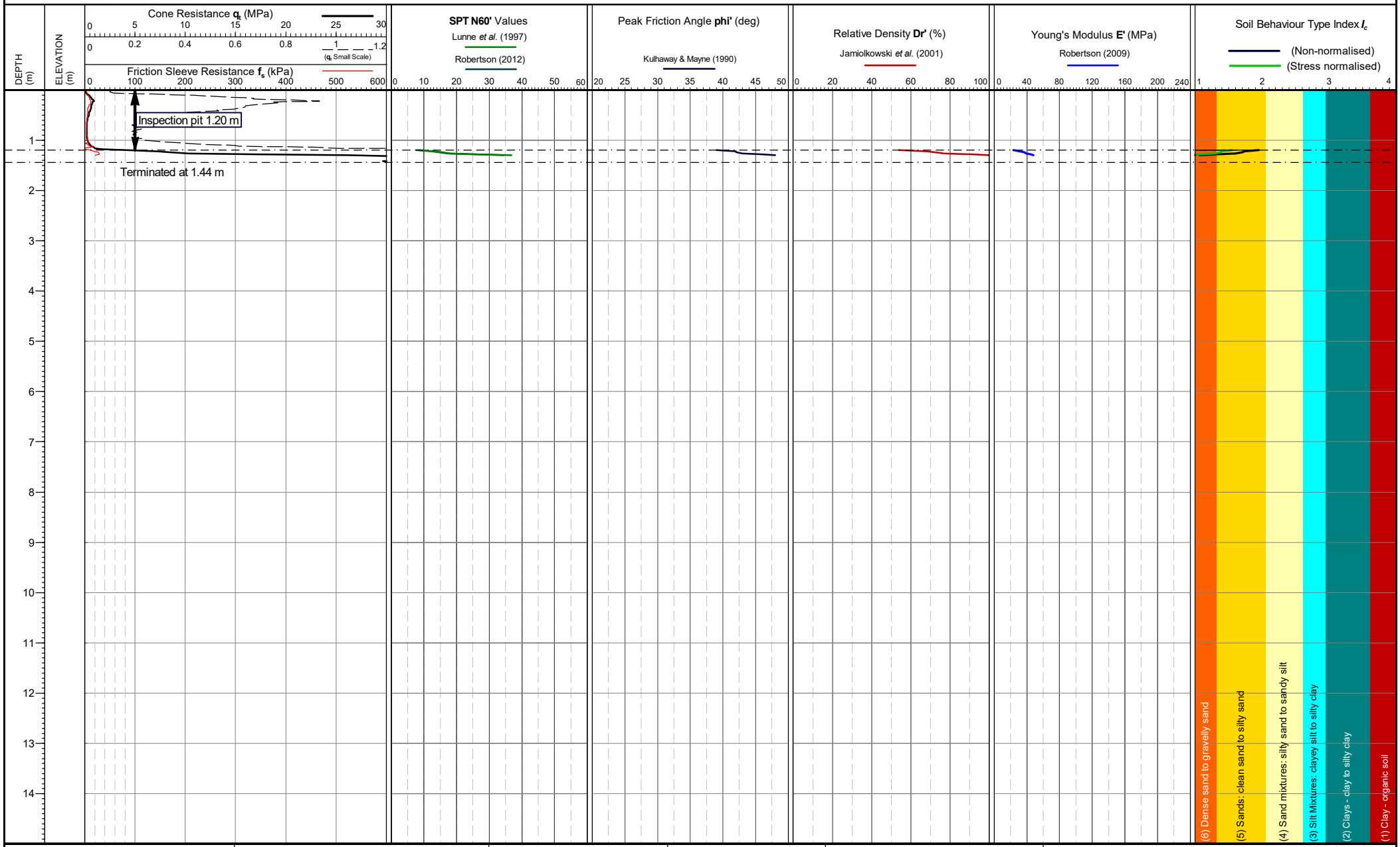
Client: HYDROCK



Cone area (mm2):	Location: Gloucestershire, UK	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.		Date of plot: 21-02-22	Lankelma Project Ref: P-107934-1
Cone ID: S15-CFIPT.1899	Coordinates: ,			Checked by: Chris Player	**TEST ID: CPT207A**
Operator: Rob Bennett	Elevation:				Page 1 of 1
Date of test: 21/02/2022 13:12:49	Coordinate system:				

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

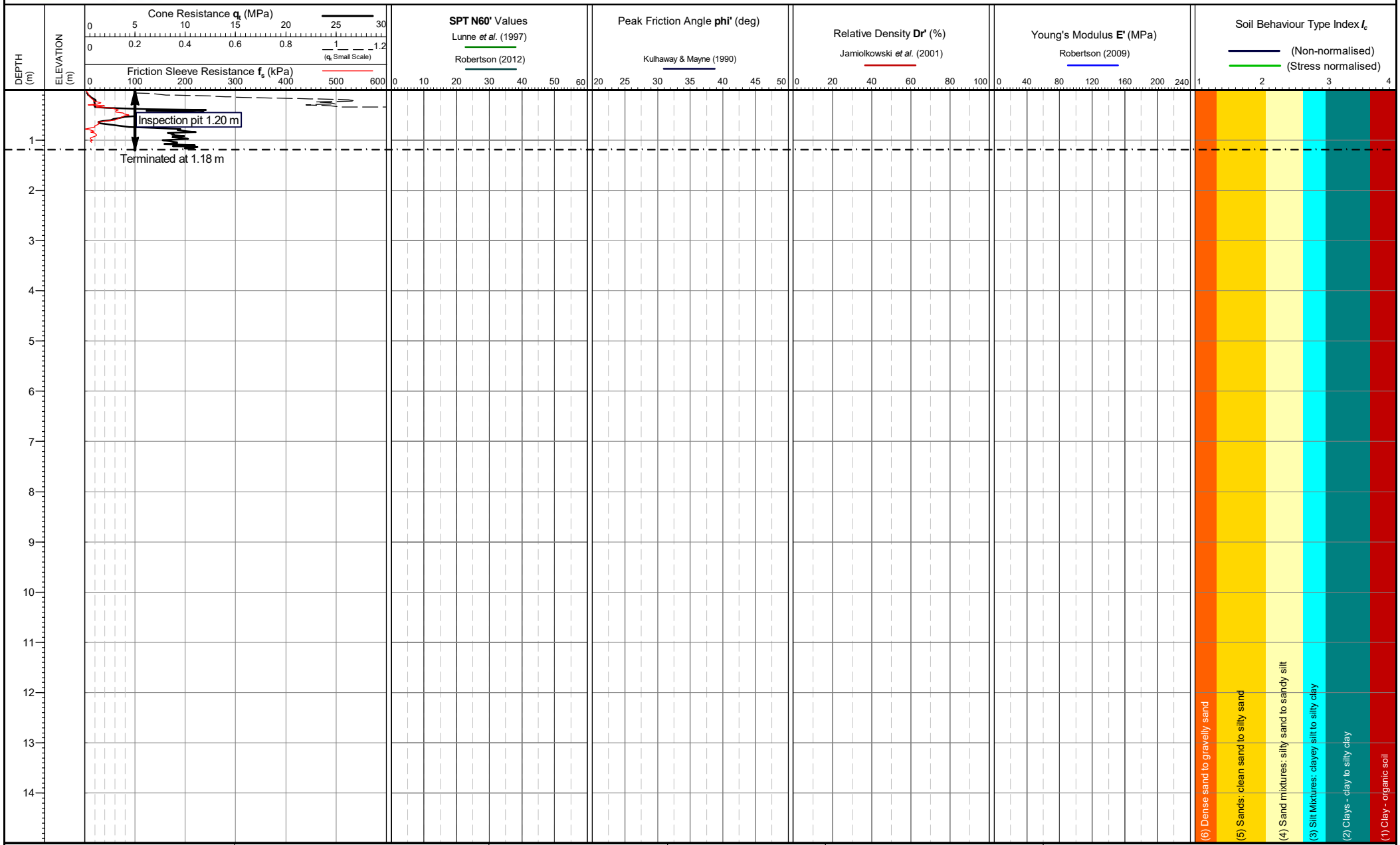


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Date of test: 21/02/2022 13:49:55	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.		Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT208

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

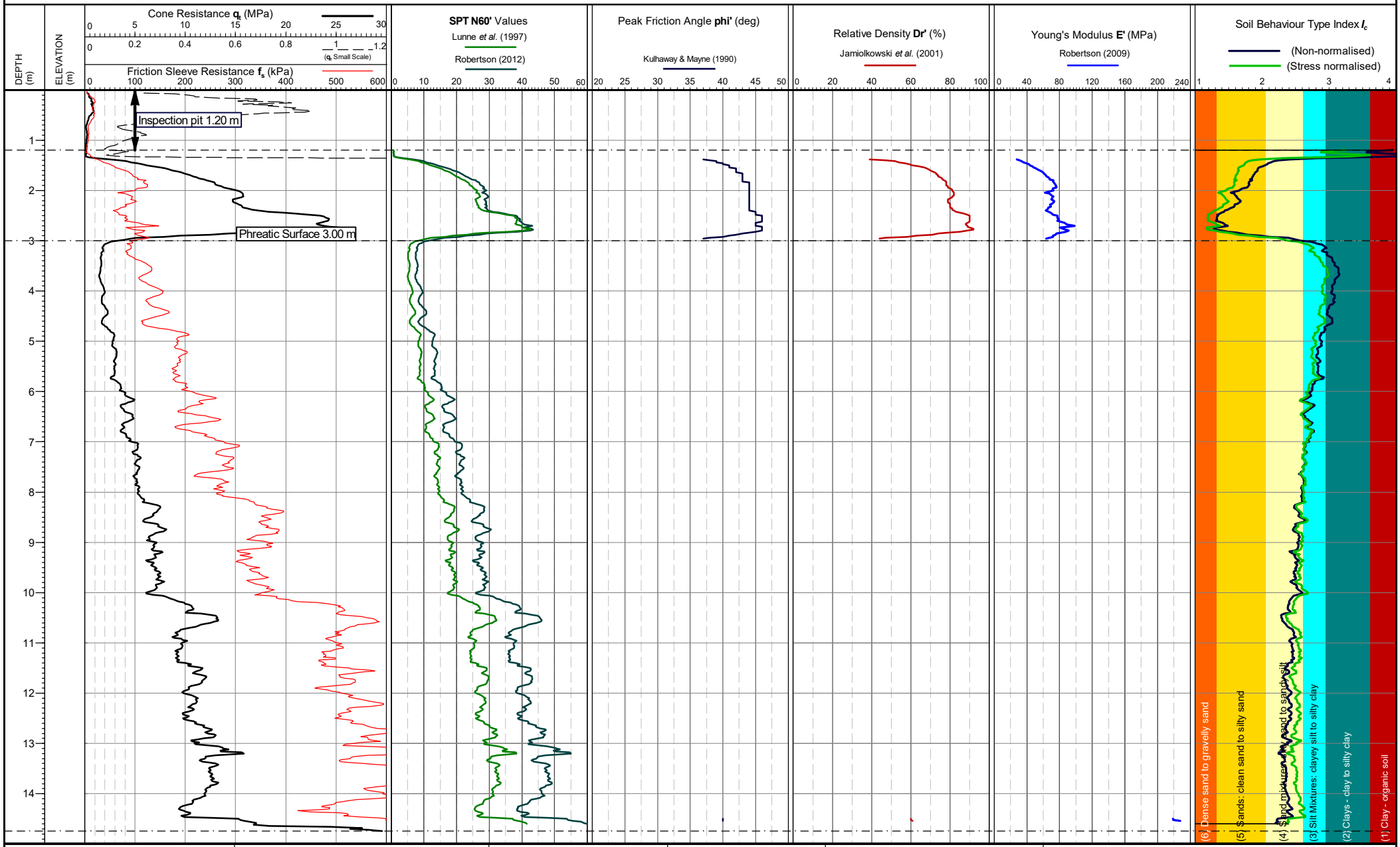


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Date of test: 21/02/2022 14:06:58	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.		Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT208A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

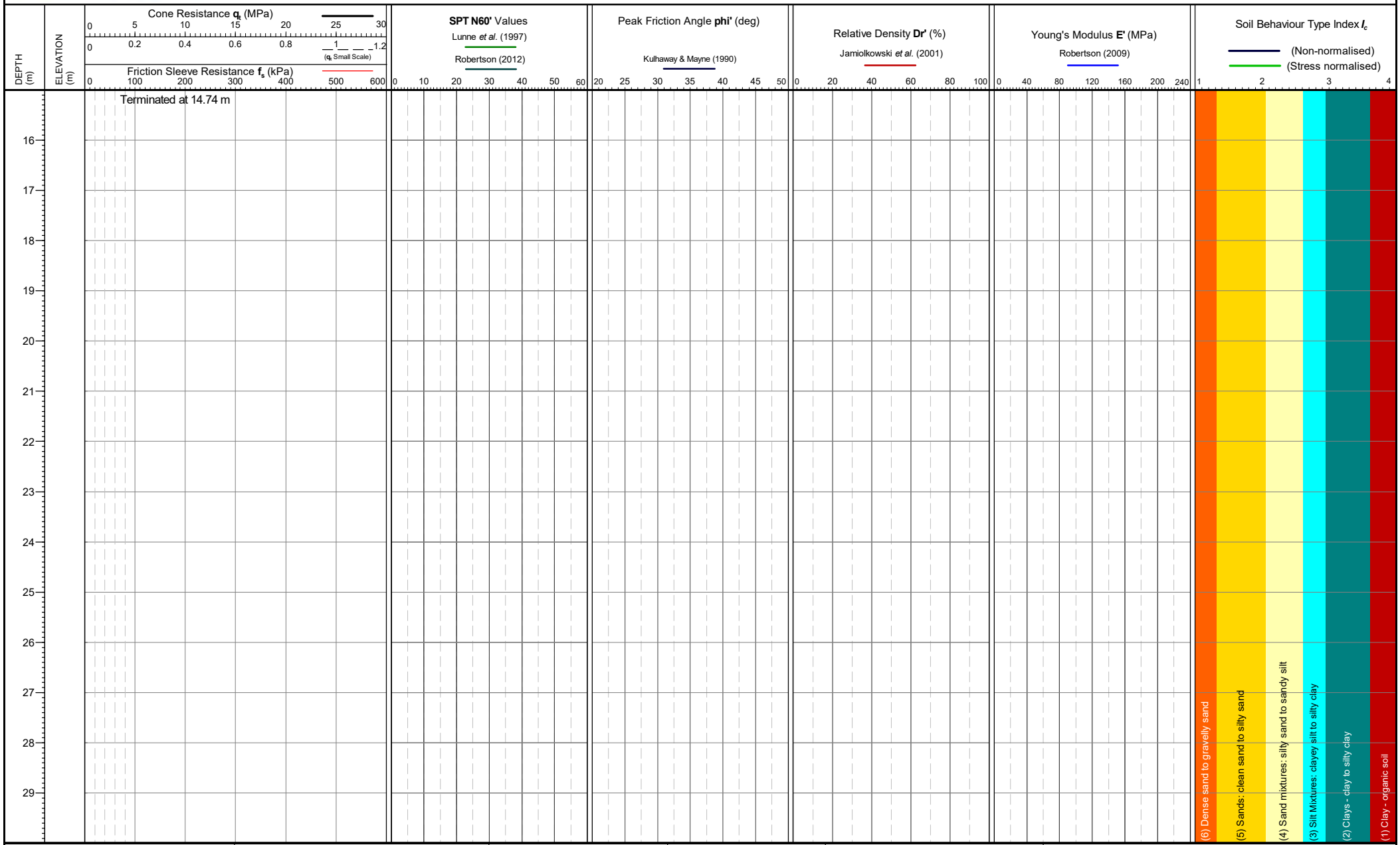


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Date of test: 21/02/2022 14:14:08	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.		Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT209

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2):
Cone ID: S15-CFIPT.1899
Operator: Rob Bennett
Date of test: 21/02/2022 14:14:08

Location: Gloucestershire, UK
Coordinates: ,
Elevation:
Coordinate system:

Both drained and undrained parameters are calculated for mixed SBTs = Ic 2.40-2.70. See report text for methods and discussion of parameter evaluation.

Date of plot: 21-02-22
Checked by: Chris Player

Lankelma Project Ref: P-107934-1

TEST ID: CPT209

APPENDIX G PENETROMETER TEMPERATURE RESULTS

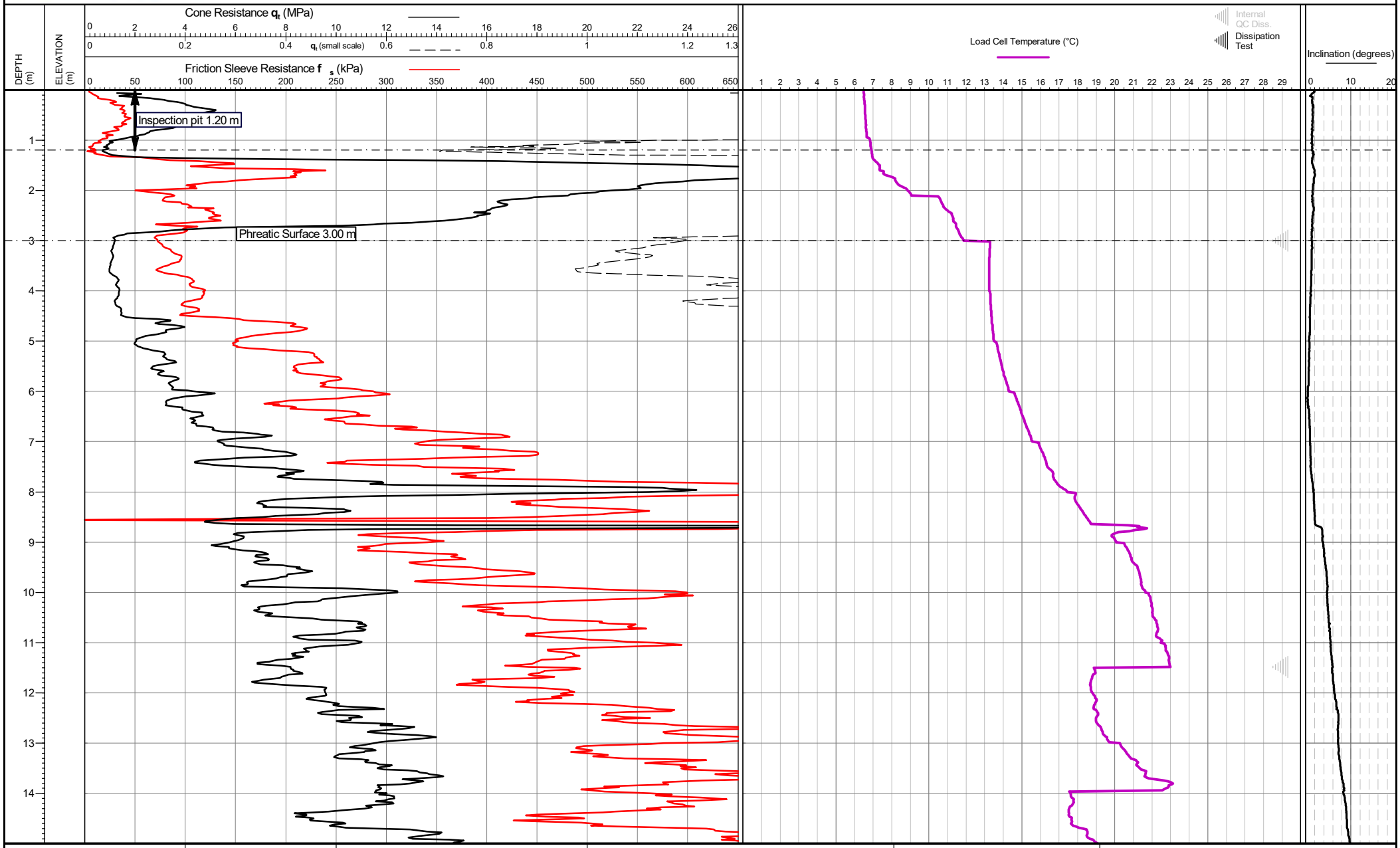
The temperature values in these logs represent the internal load cell temperature of the penetrometer and are used for QC purposes by comparison to the measured temperature response indicated on the calibration certificate. The CPT results have been corrected for transient and static temperature effects during post processing.

Ground temperature is only represented following a penetration pause of > 11 minutes.

Plots are provided for locations performed with a digital penetrometer measuring internal load cell temperature.

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

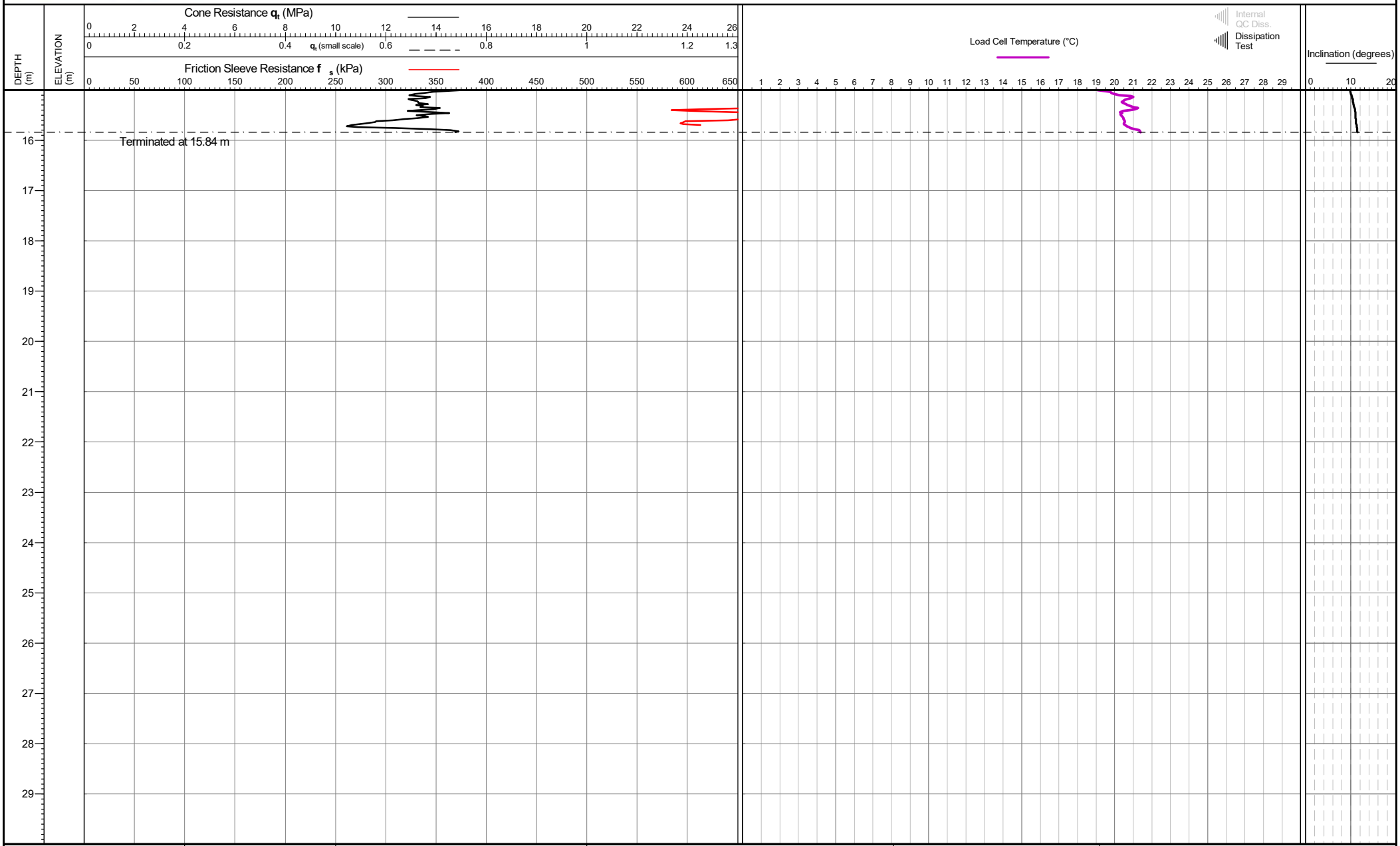


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 09:11:39	Zero drift (Pre/post test) q_c (kPa): -35.8 f_s (kPa): -0.8 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -19.1	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

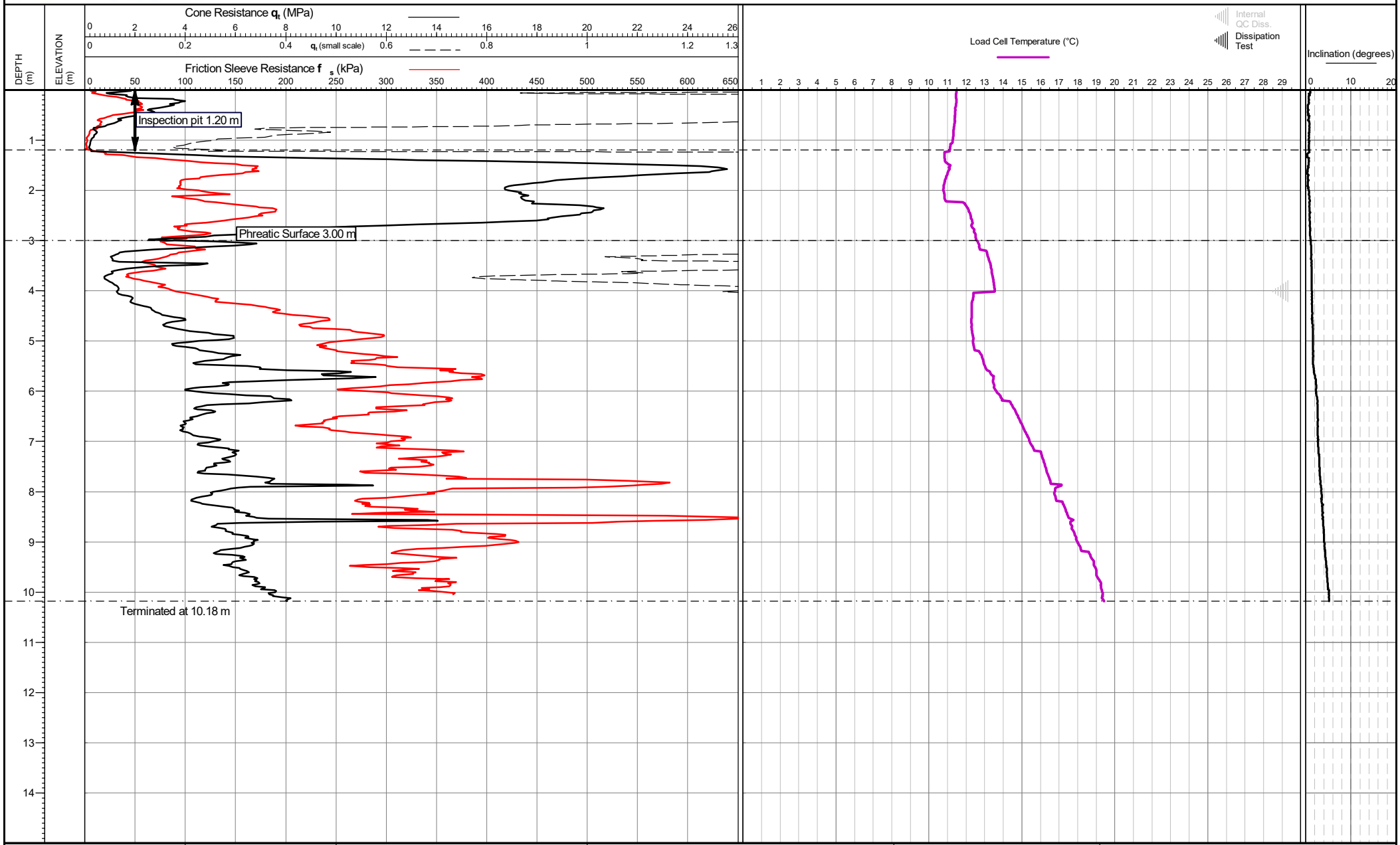


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 09:11:39	Zero drift (Pre/post test) q_c (kPa): -35.8 f_s (kPa): -0.8 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -19.1	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT201

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

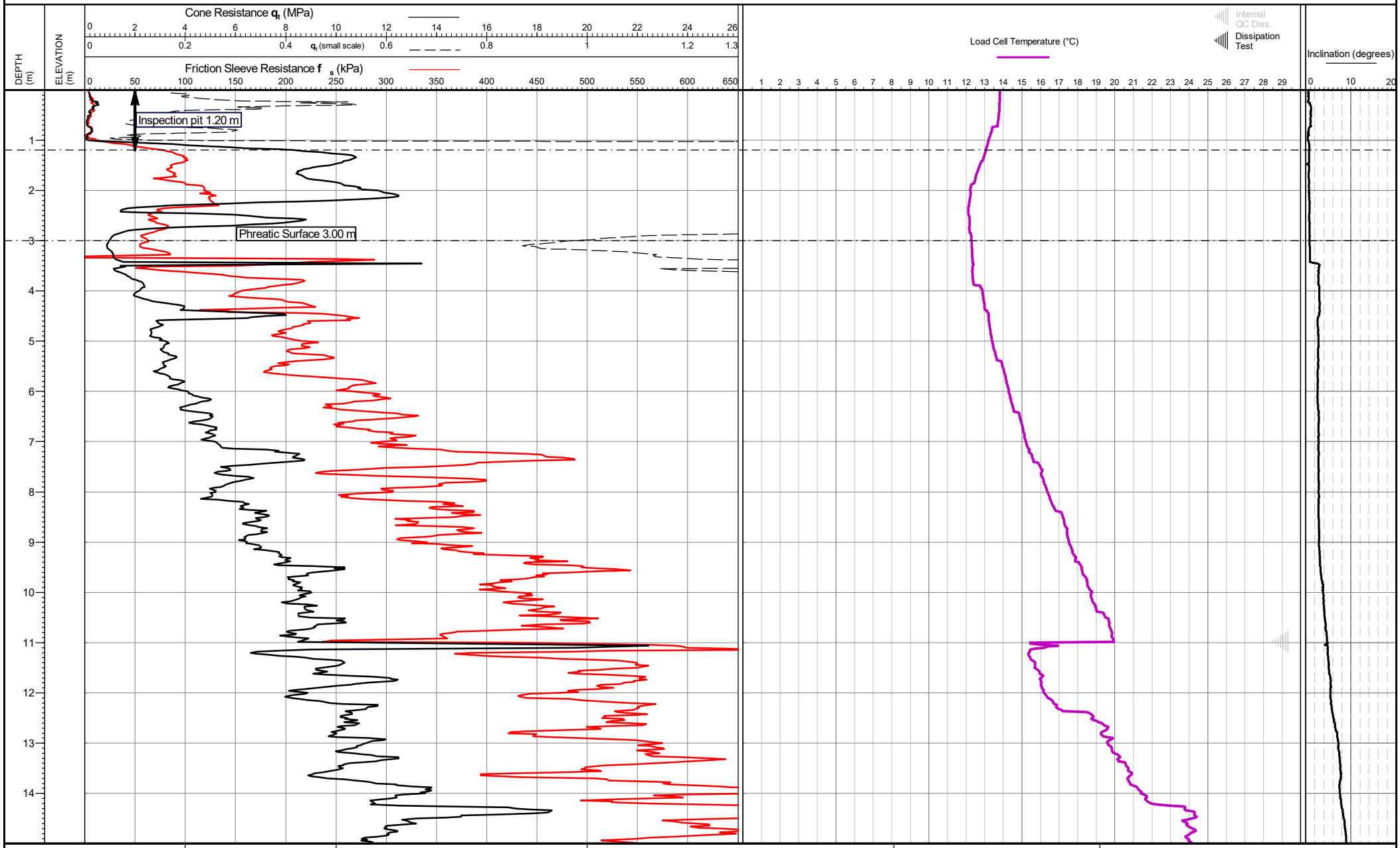


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 10:29:31	Zero drift (Pre/post test) q_c (kPa): -24.0 f_s (kPa): -0.2 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.9	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Target depth	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT203

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

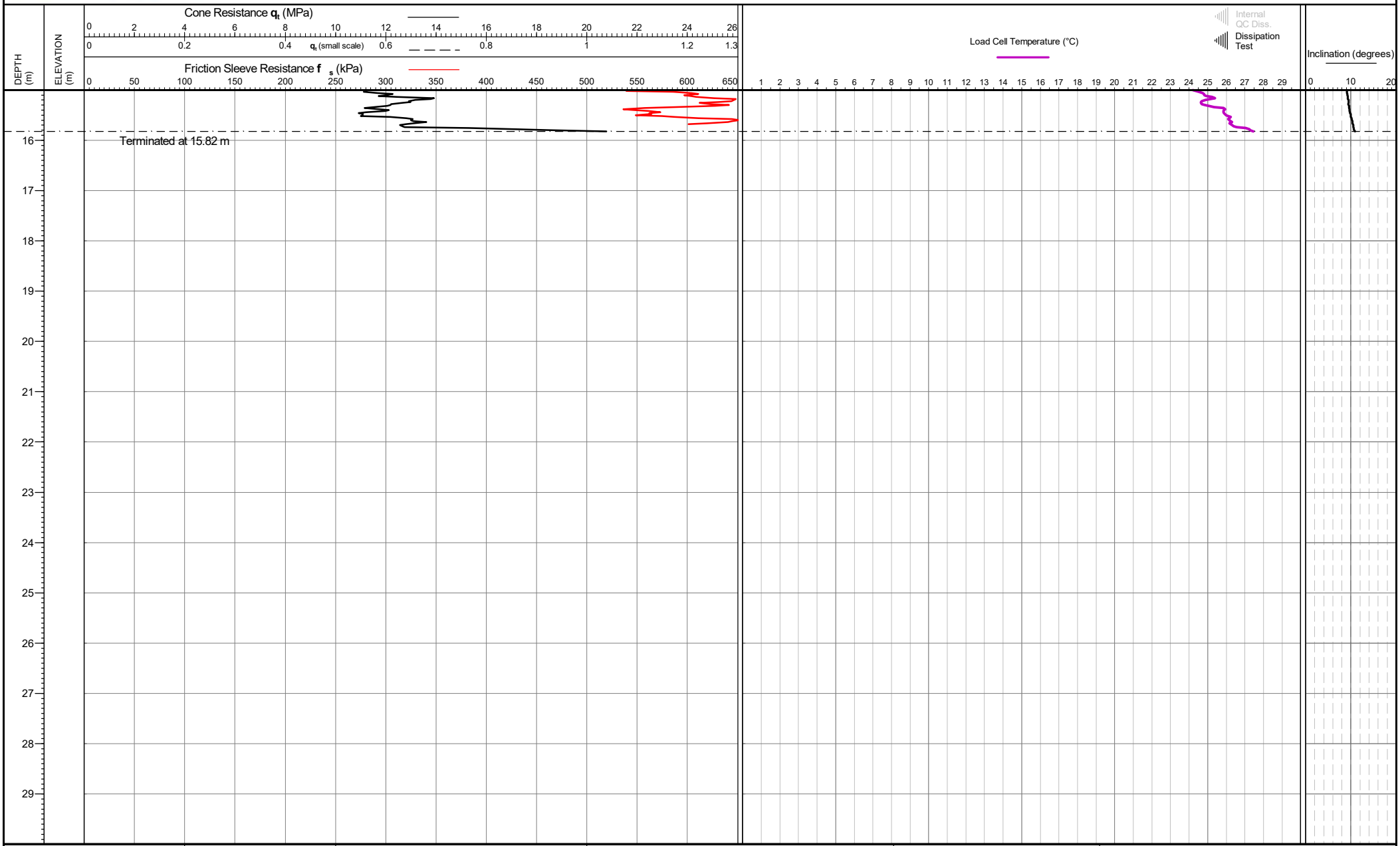


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 11:41:38	Zero drift (Pre/post test) q_c (kPa): -63.4 f_s (kPa): -0.6 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.4	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

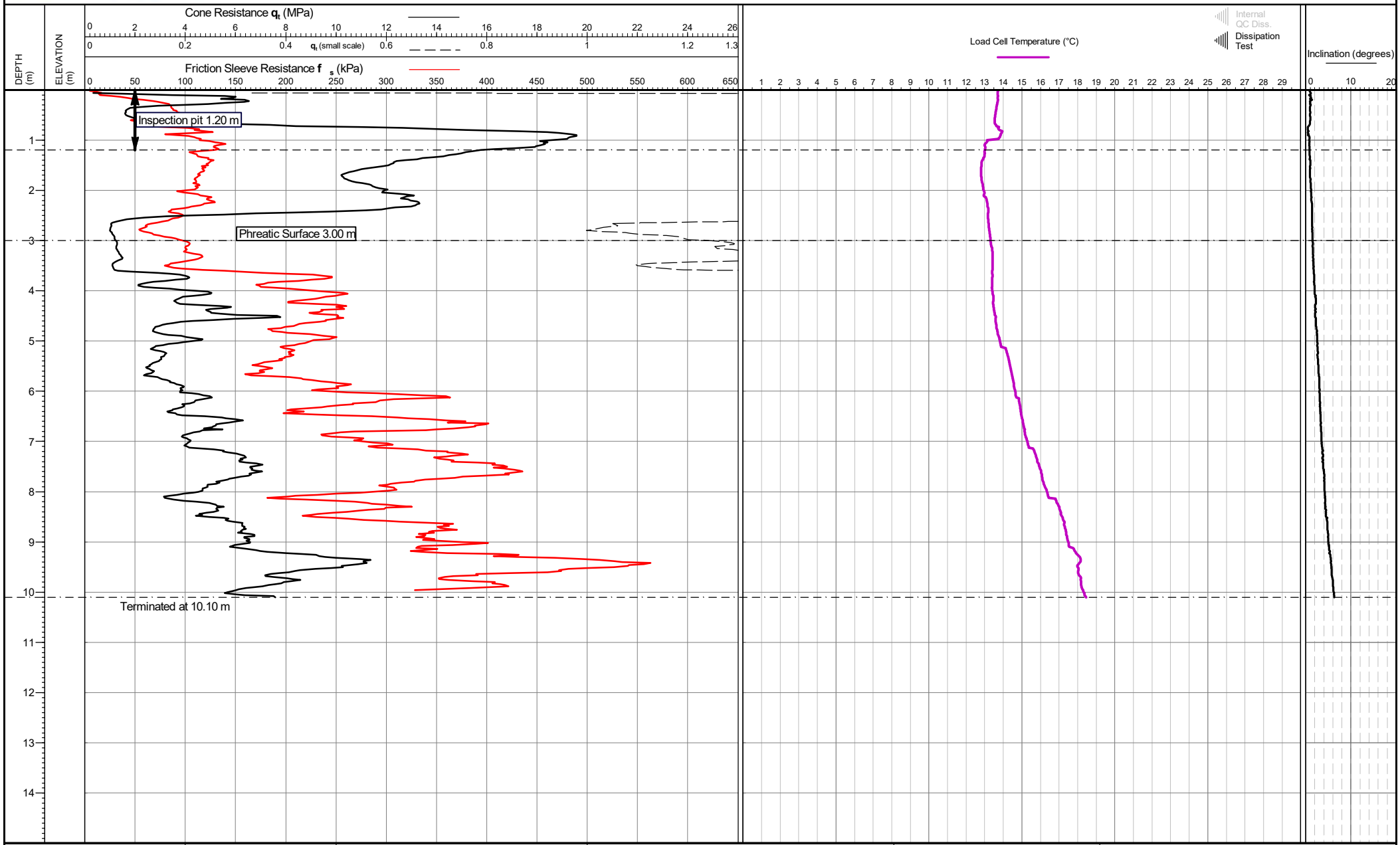


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 11:41:38	Zero drift (Pre/post test) q_c (kPa): -63.4 f_s (kPa): -0.6 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.4	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT204

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

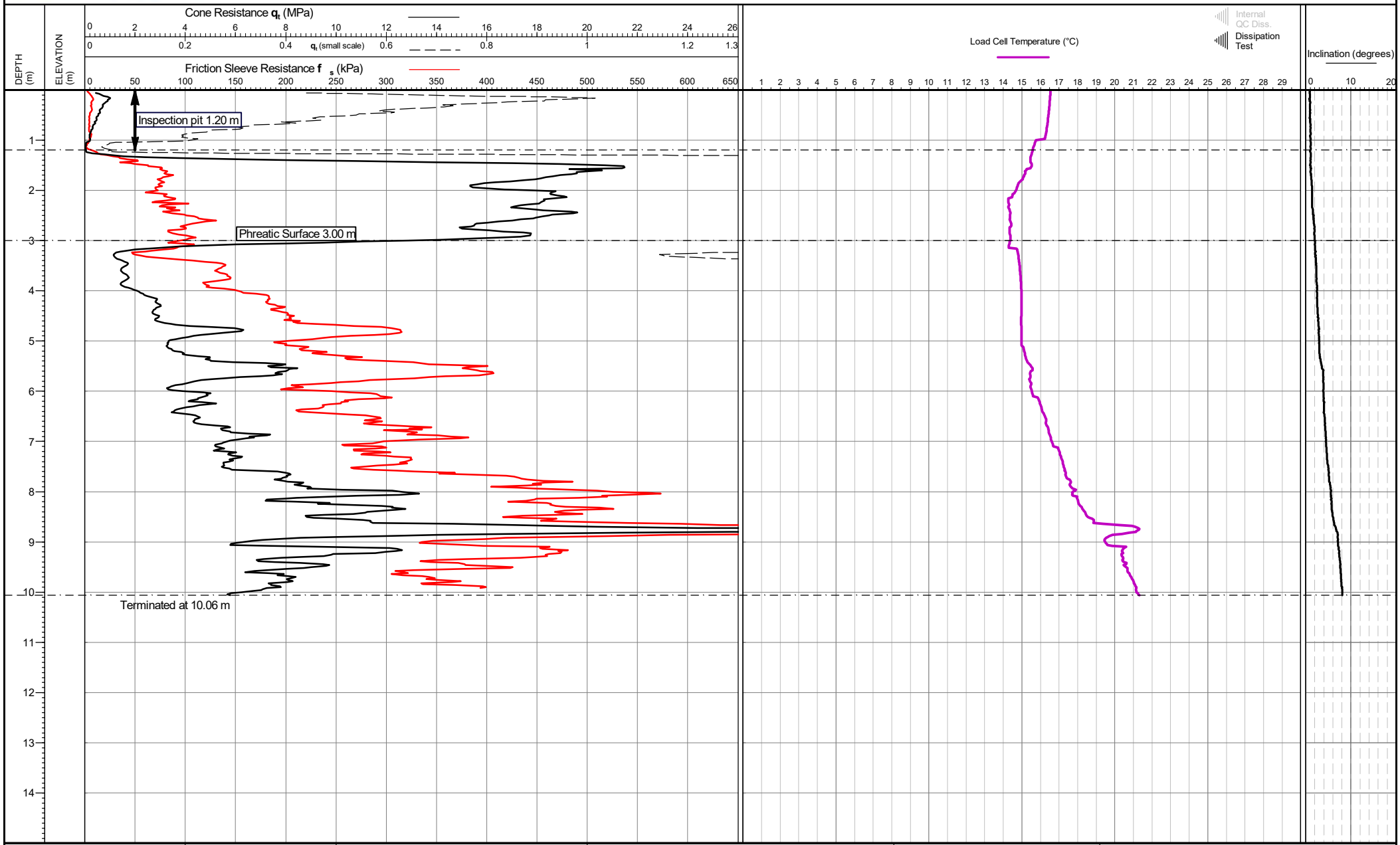


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 11:11:04	Zero drift (Pre/post test) q_c (kPa): 15.6 f_s (kPa): 0.2 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -3.9	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Target depth	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT205

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

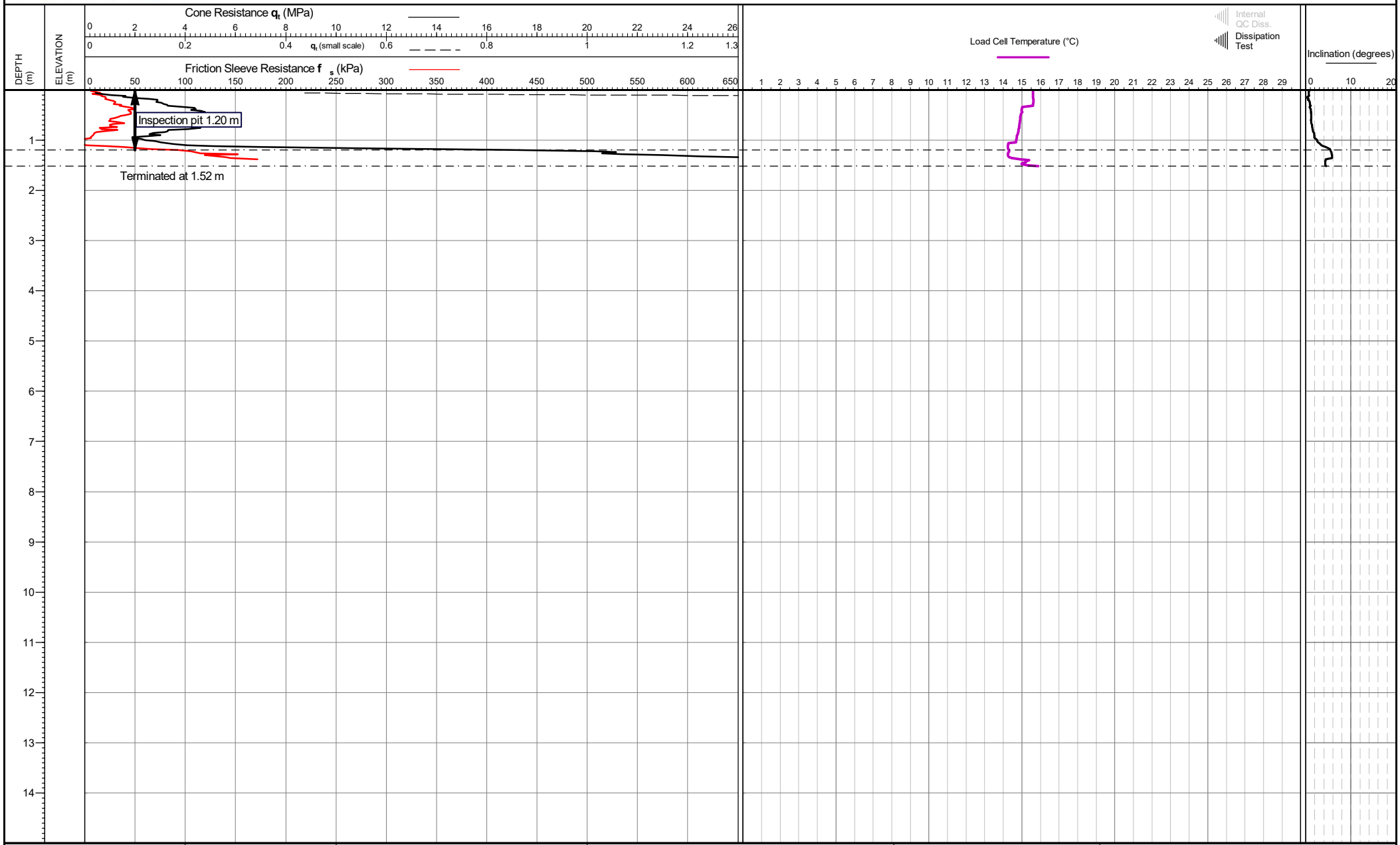


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 15:15:46	Zero drift (Pre/post test) q_c (kPa): -20.0 f_s (kPa): -2.3 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.0	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Target depth	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT206

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

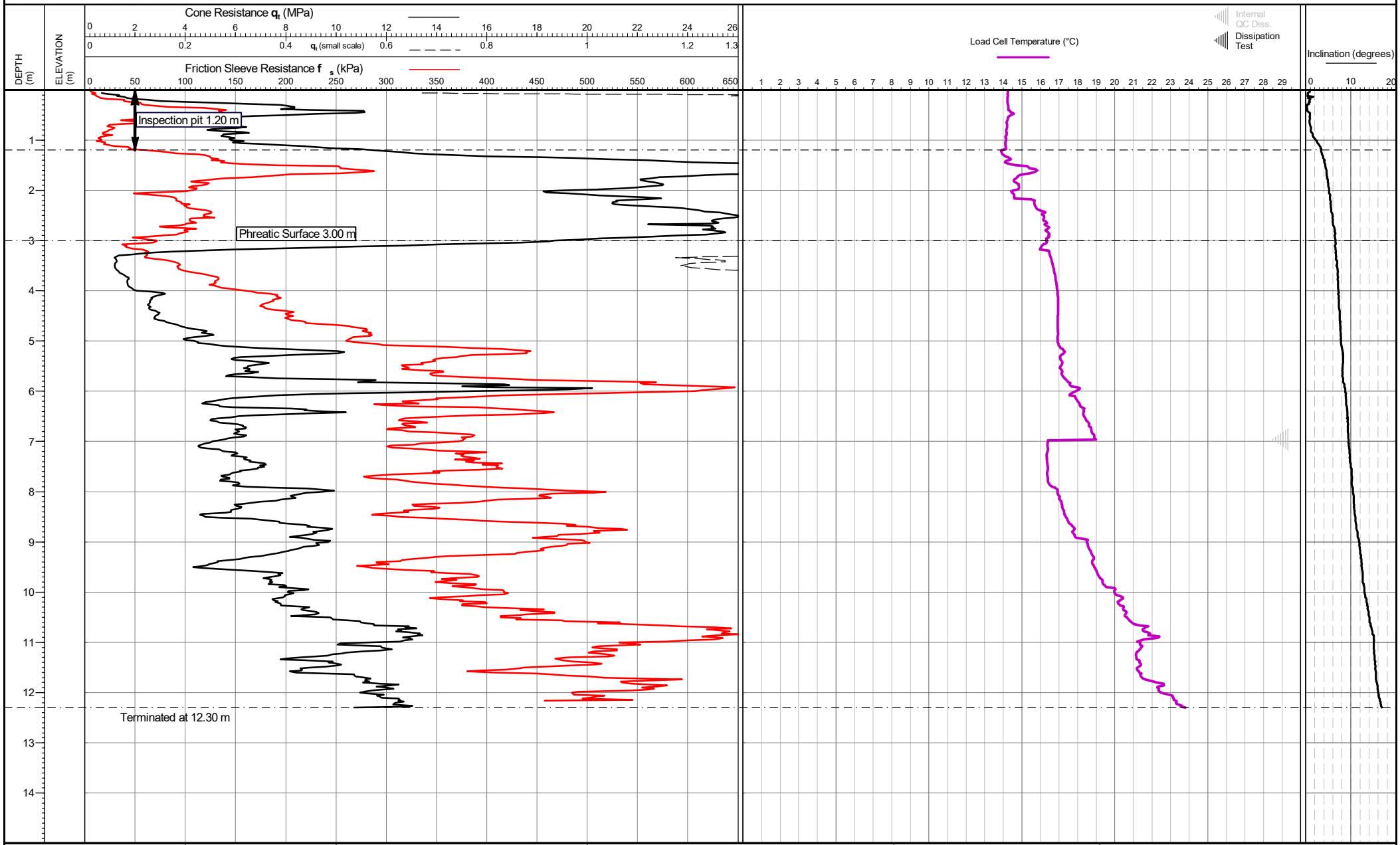


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 12:55:13	Zero drift (Pre/post test) q_c (kPa): 14.0 f_s (kPa): -2.0 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 1.2	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT207

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

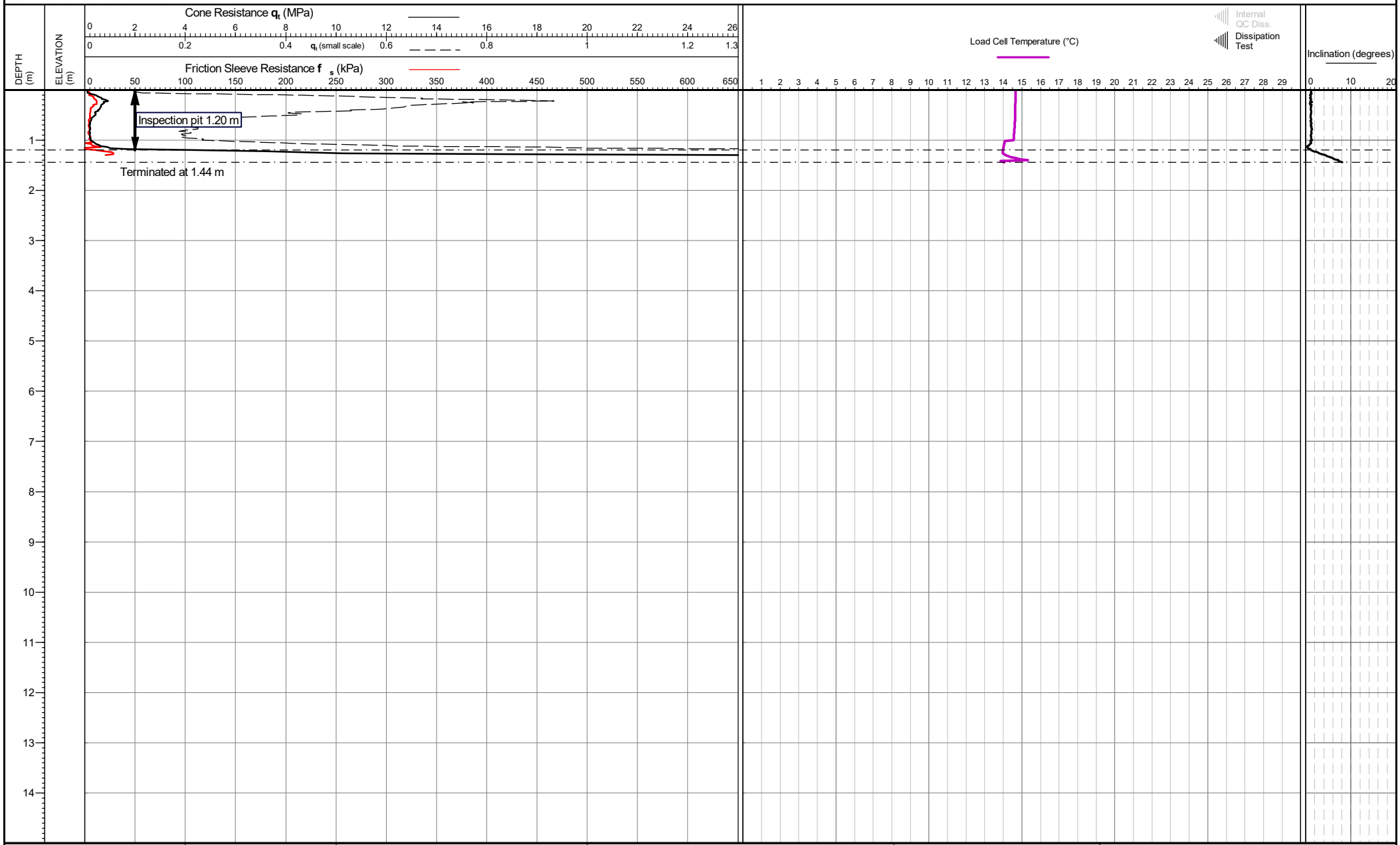


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 13:12:49	Zero drift (Pre/post test) q_c (kPa): -29.4 f_s (kPa): -0.2 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.1	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT207A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

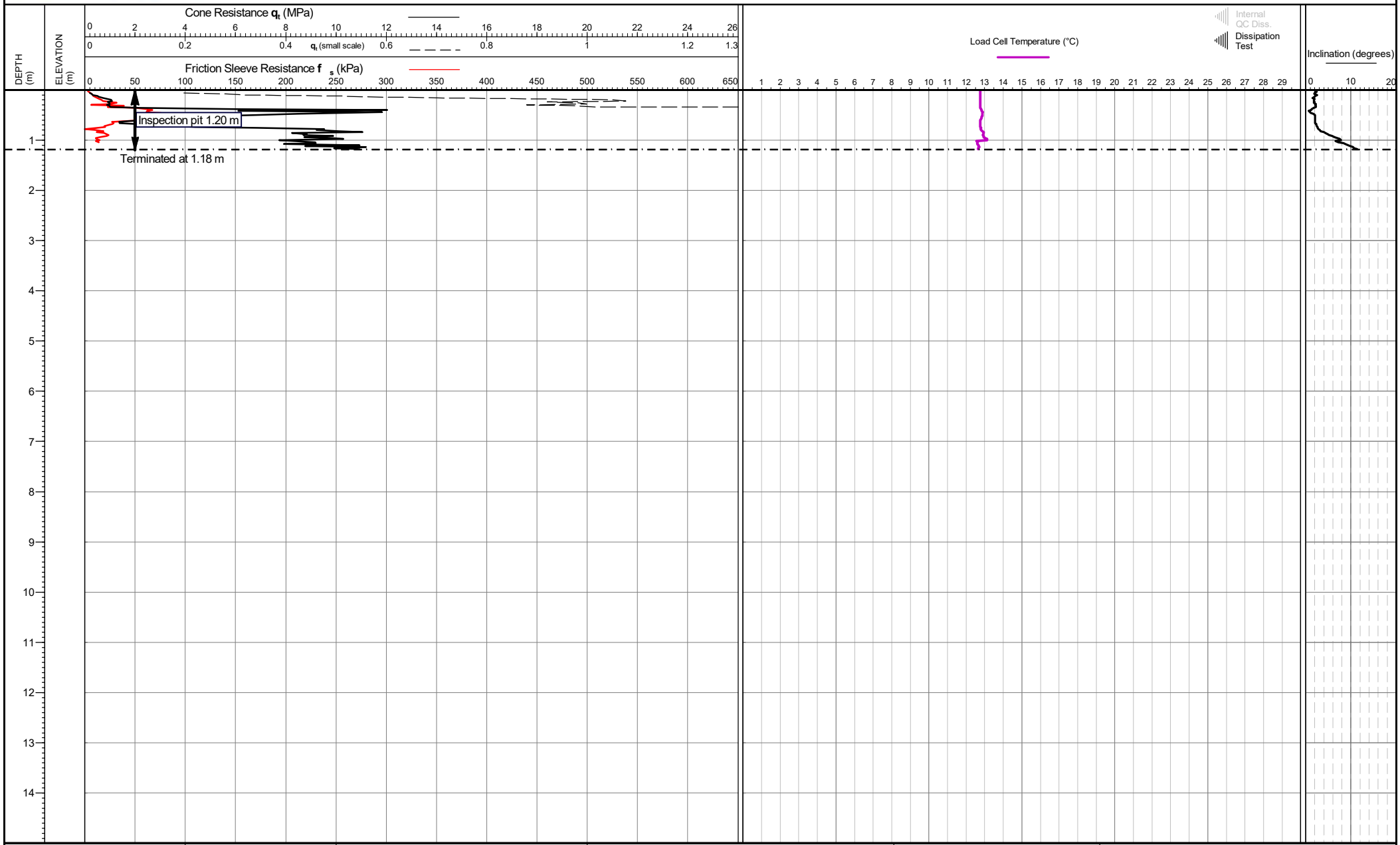


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 13:49:55	Zero drift (Pre/post test) q_c (kPa): 2.0 f_s (kPa): 0.6 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): 0.6	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT208

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

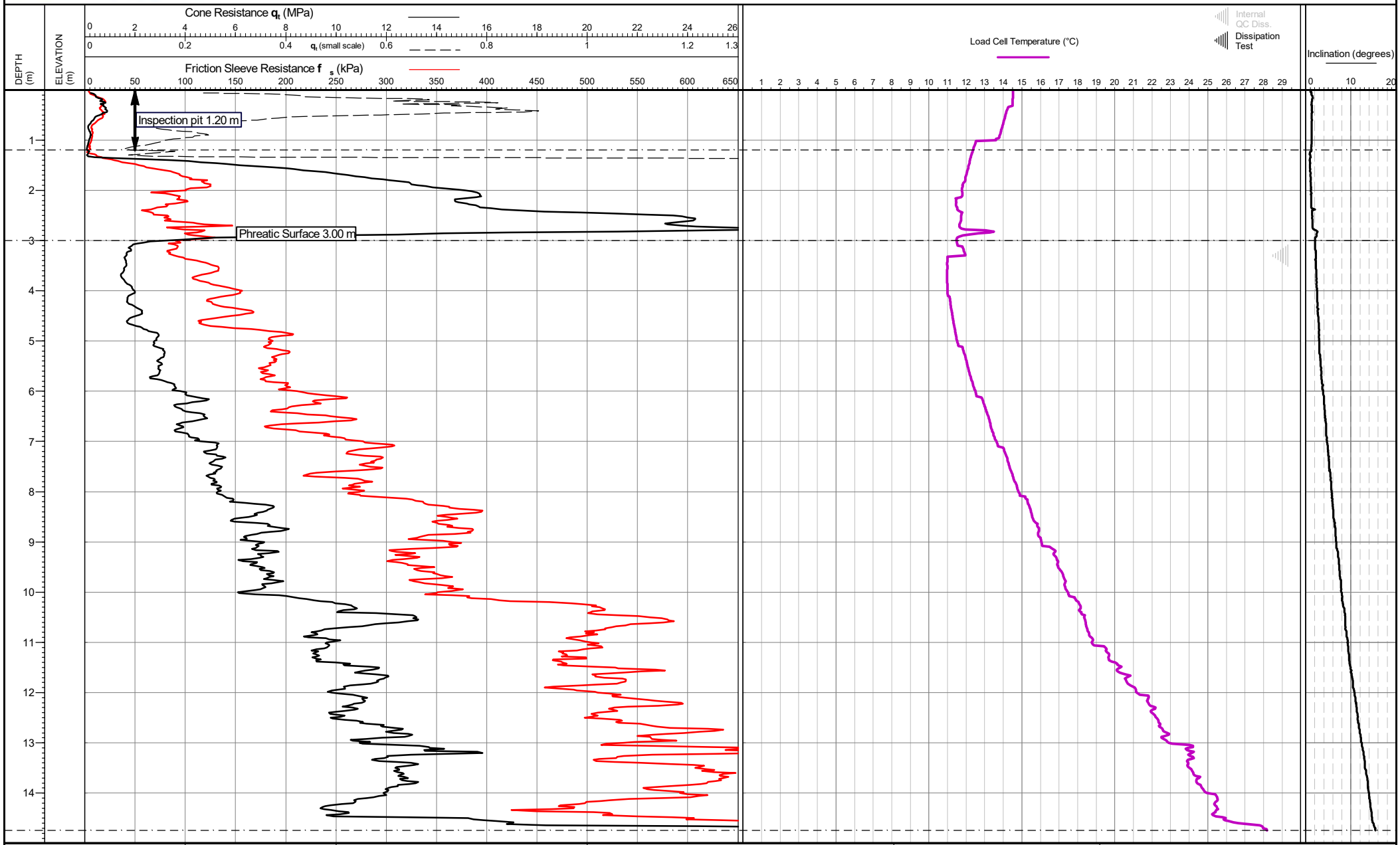


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 14:06:58	Zero drift (Pre/post test) q_c (kPa): -11.8 f_s (kPa): 0.9 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -1.6	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Inclination	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT208A

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK

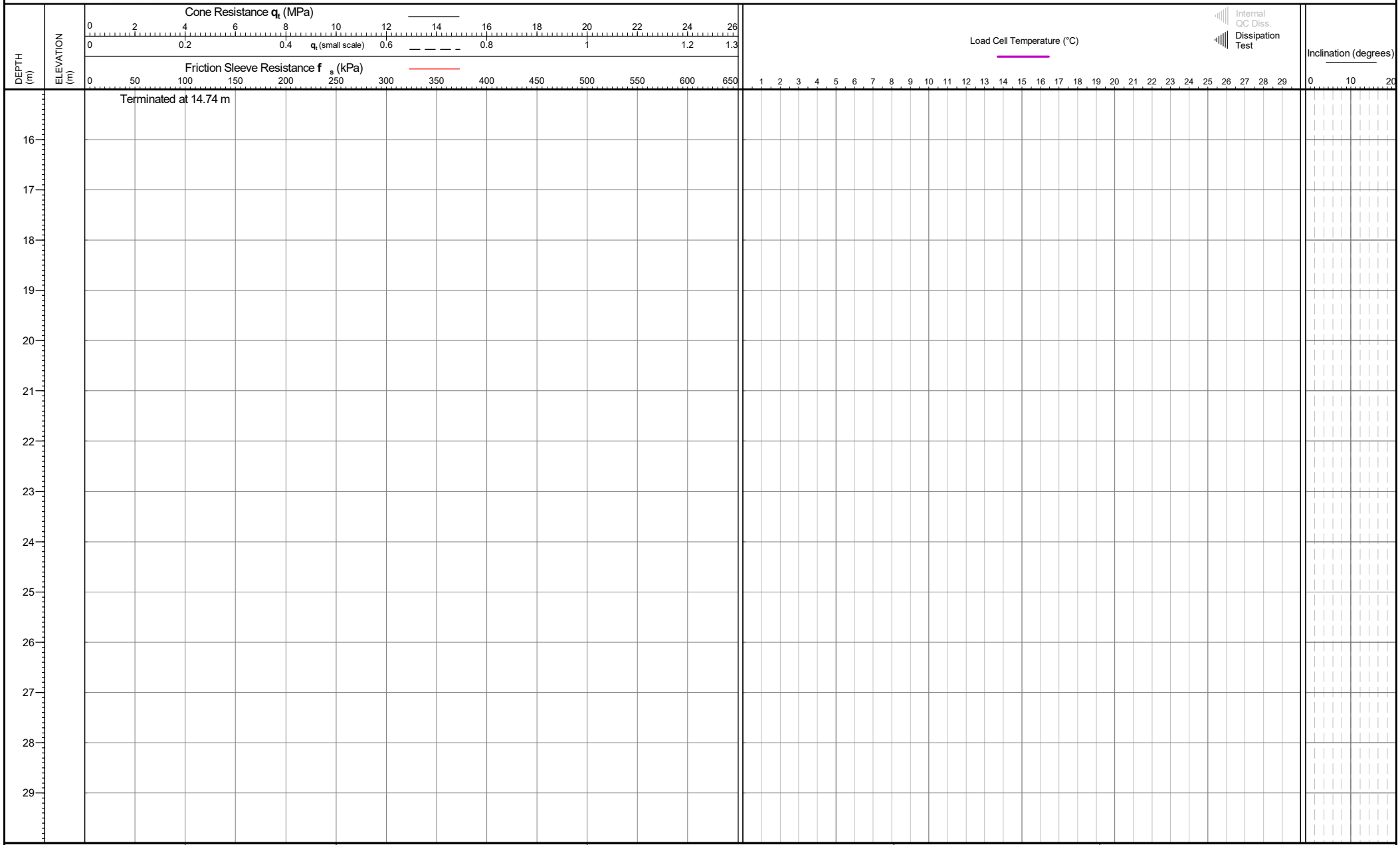


Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 14:14:08	Zero drift (Pre/post test) q_c (kPa): 14.6 f_s (kPa): -1.4 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -2.3	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT209

Project: GREAT WESTERN ROAD, GLOUCESTER

Client: HYDROCK



Cone area (mm2): Cone ID: S15-CFIPT.1899 Operator: Rob Bennett Rig Used: UK22 Date of test: 21/02/2022 14:14:08	Zero drift (Pre/post test) q_c (kPa): 14.6 f_s (kPa): -1.4 ($f_{s\ drift}$ - $q_{c\ drift}$) u_2 (kPa): -2.3	Location: Gloucestershire, UK Coordinates: , Elevation: Coordinate system:	Remarks: *Phreatic surface origin: Arbitrary value Termination Remark: Lateral support	Date of plot: 21-02-22 Checked by: Chris Player	Lankelma Project Ref: P-107934-1

TEST ID: CPT209

Appendix E Geotechnical Test Results and Geotechnical Plots

Matthew Keehn
Hydrock Consultants Ltd
Over Court Barns
Over Lane
Bristol
BS32 4DF

t: 01454 619533
f: 01454 614125
e: Group Bristol cc engineer

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 : 22-46176

Project / Site name:	Great Western Road Yard	**Samples received on:**	15/03/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	16/03/2022
Your order number:	PO14779	**Analysis completed by:**	25/03/2022
Report Issue Number:	1	**Report issued on:**	29/03/2022
Samples Analysed:	5 soil samples		

Izabela Wójcik

Signed:

Izabela Wójcik
Technical Reviewer (Reporting Team)
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: 22-46176
Project / Site name: Great Western Road Yard
Your Order No: PO14779

Lab Sample Number				2208379	2208380	2208381	2208382	2208383
Sample Reference				TP202	TP220	BH201	BH201	BH204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40-0.70	1.00-1.50	3.70-4.20	5.20-5.30	5.10-5.50
Date Sampled				16/02/2022	21/02/2022	21/02/2022	21/02/2022	02/03/2022
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	19	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.4	17	17	14	17
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.4	0.5	2

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	8.3	8.2	9.3	9.4
Total Sulphate as SO4	mg/kg	50	MCERTS	530	520	2300	530	790
Total Sulphate as SO4	%	0.005	MCERTS	0.053	0.052	0.231	0.053	0.079
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.068	0.17	0.72	0.3	0.46
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	67.7	175	716	301	461
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	3.7	13	25	38	85
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.9	6.3	13	19	42
Total Sulphur	mg/kg	50	MCERTS	290	1100	12000	13000	22000
Total Sulphur	%	0.005	MCERTS	0.029	0.113	1.2	1.34	2.19
Ammoniacal Nitrogen as NH4	mg/kg	0.5	MCERTS	< 0.5	7.7	2.6	5.2	6.7
Ammonium as NH4 (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	0.77	0.26	0.52	0.67
Water Soluble Nitrate (2:1) as NO3	mg/kg	2	NONE	8.6	2.1	< 2.0	10	11
Water Soluble Nitrate (2:1) as NO3 (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	5	5.4

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	12	21	62	13	17
Magnesium (leachate equivalent)	mg/l	2.5	NONE	6.2	10	31	6.4	8.6

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 : 22-46176
Project / Site name: Great Western Road Yard

* 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 *
2208379	TP202	None Supplied	0.40-0.70	Brown loam and sand with gravel and stones.
2208380	TP220	None Supplied	1.00-1.50	Brown clay and sand with gravel.
2208381	BH201	None Supplied	3.70-4.20	Grey clay and loam with gravel.
2208382	BH201	None Supplied	5.20-5.30	Grey clay.
2208383	BH204	None Supplied	5.10-5.50	Grey clay.

Analytical Report Number : 22-46176
Project / Site name: Great Western Road Yard

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
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	D	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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-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 : 22-46176
Project / Site name: Great Western Road Yard

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
TP202	None Supplied	S	2208379	c	Ammoniacal Nitrogen as N in soil	L082-PL	c
TP202	None Supplied	S	2208379	c	Ammonium as NH4 in soil	L082-PL	c
TP202	None Supplied	S	2208379	c	Chloride, water soluble, in soil	L082-PL	c
TP202	None Supplied	S	2208379	c	Nitrate, water soluble, in soil	L078-PL	c
TP202	None Supplied	S	2208379	c	Water Soluble Nitrate (2:1) as N in soil	L078-PL	c
TP202	None Supplied	S	2208379	c	Water Soluble Nitrate (leachate equivalent)	L078-PL	c
TP202	None Supplied	S	2208379	c	pH in soil (automated)	L099-PL	c

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

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

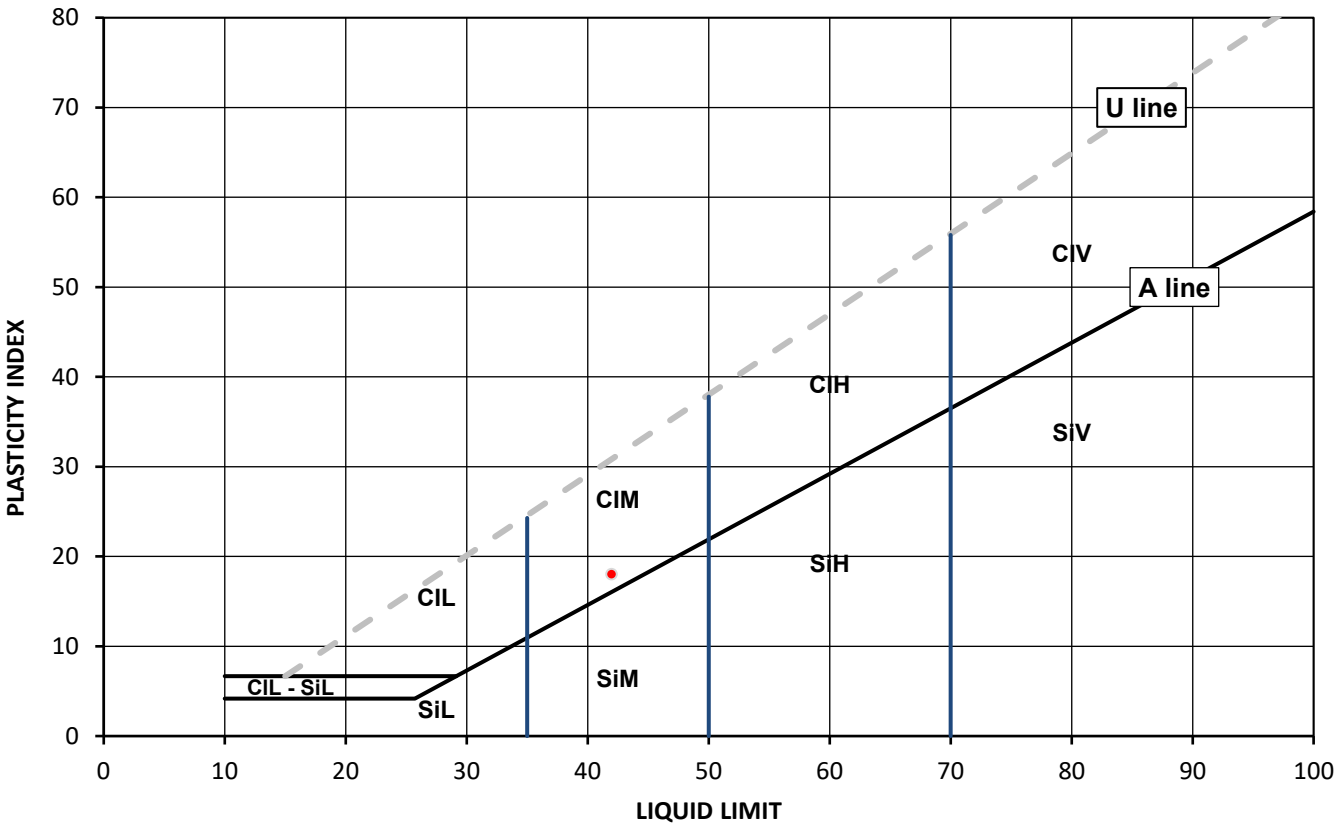
Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	21/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208396	Depth Top [m]:	1.00
Hole No.:	TP220	Depth Base [m]:	1.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey gravelly very clayey SAND		
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	42	24	18	76



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:

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

Date Reported: 31/03/2022

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

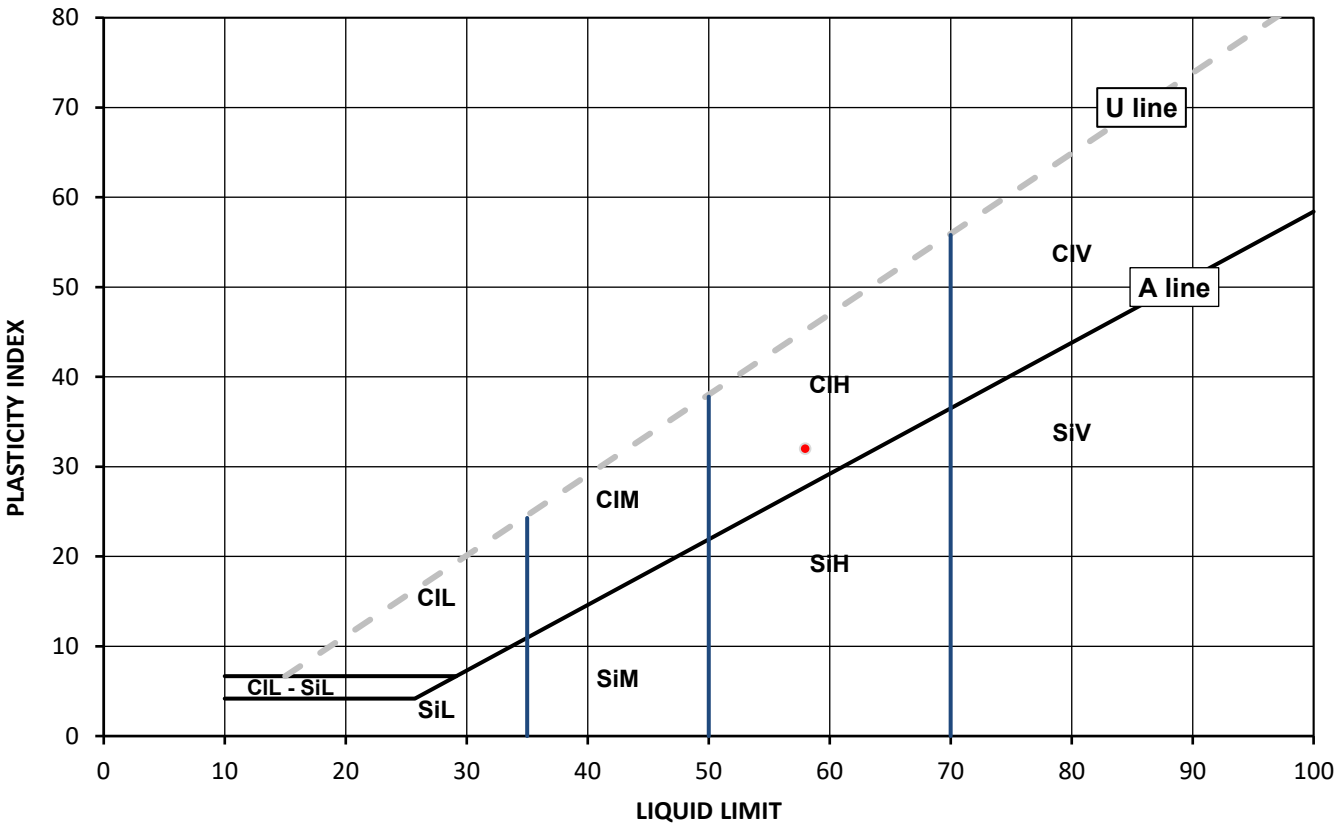
Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	21/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	24/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208401	Depth Top [m]:	3.70
Hole No.:	BH201	Depth Base [m]:	4.20
Sample Reference:	Not Given	Sample Type:	C
Sample Description:	Grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	58	26	32	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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PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 31/03/2022

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

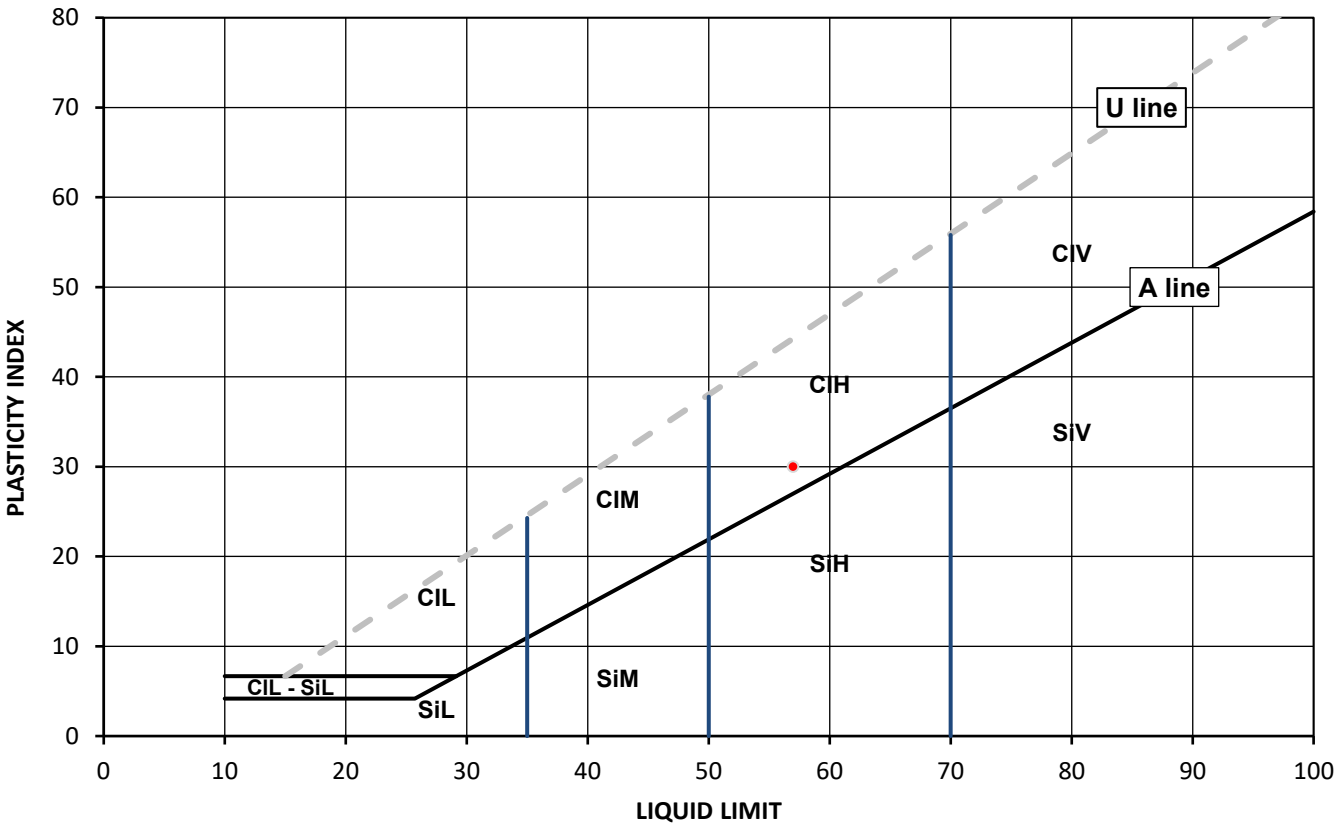
Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	03/03/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208411	Depth Top [m]:	3.82
Hole No.:	BH206	Depth Base [m]:	4.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
24	57	27	30	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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Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 31/03/2022

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

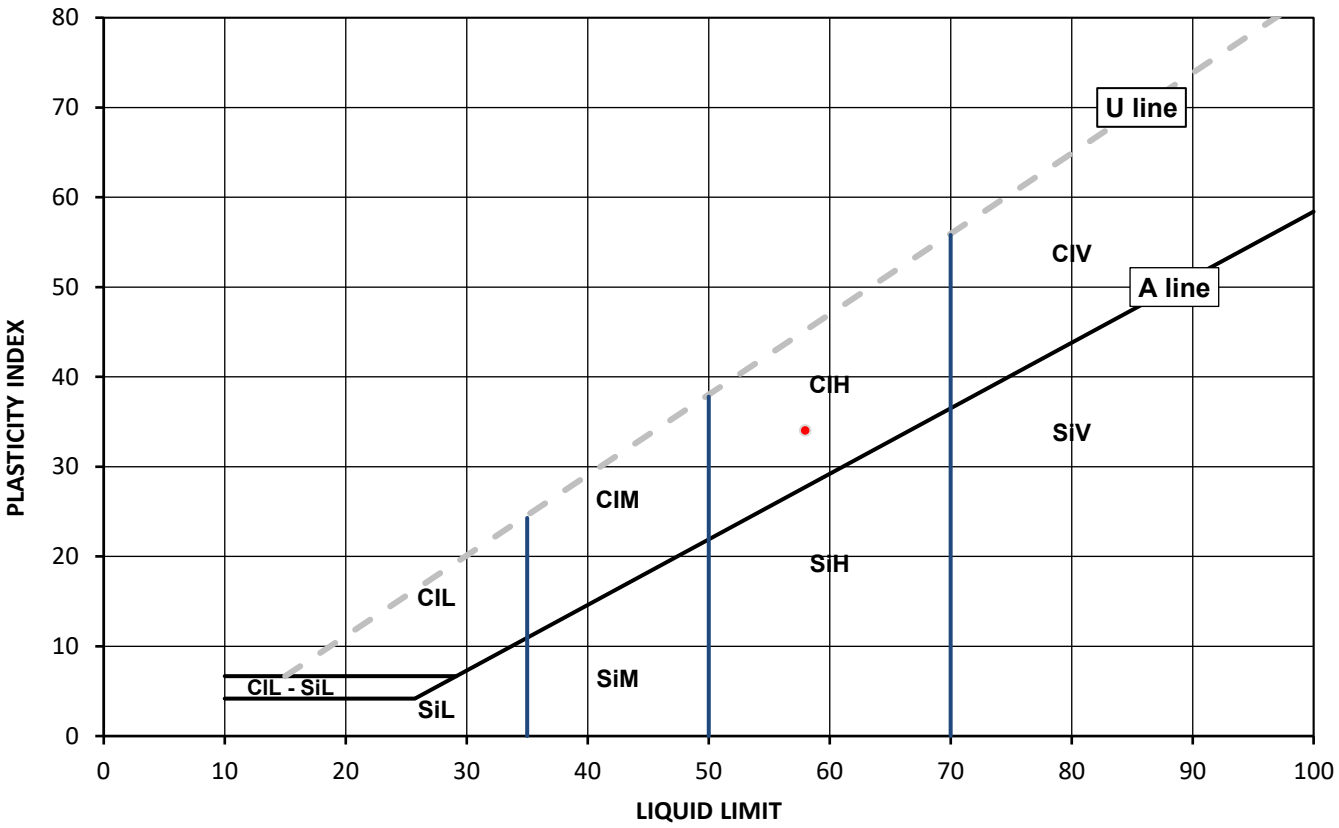
Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	Not Given
		Date Received:	10/03/2022
Contact:	Matthew Keehn	Date Tested:	29/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2214546	Depth Top [m]:	3.10
Hole No.:	BH204	Depth Base [m]:	3.50
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	58	24	34	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:

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

Date Reported: 31/03/2022

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

UKAS TESTING 4041

Client: Hydrock Consultants Ltd

Client Address: Over Court Barns, Over Lane, Bristol, BS32 4DF

Contact: Matthew Keehn

Site Address: Great Western Road Yard

Client Reference: 20775
Job Number: 22-46179
Date Sampled: 21/02 - 03/03/2022
Date Received: 15/03/2022
Date Tested: 23/03 - 29/03/2022
Sampled By: Client - SW

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	%		
2208401	BH201	Not Given	3.70	4.20	C	Grey slightly sandy CLAY	Atterberg 4 Point	23		100	58	26	32						
2208403	BH201	Not Given	5.30	5.70	C	Black SILT		18											
2214546	BH204	Not Given	3.10	3.50	D	Grey slightly sandy CLAY	Atterberg 4 Point	23		100	58	24	34						
2208411	BH206	Not Given	3.82	4.00	B	Grey slightly sandy CLAY	Atterberg 4 Point	24		100	57	27	30						
2208396	TP220	Not Given	1.00	1.50	B	Brownish grey gravelly very clayey SAND	Atterberg 4 Point	24		76	42	24	18						

Note: # Non accredited; NP - Non plastic

Comments:

Signed:

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

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Date Reported: 31/03/2022

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: Hydrock Consultants Ltd

Client Address: Over Court Barns, Over Lane, Bristol, BS32 4DF

Contact: Matthew Keehn

Site Address: Great Western Road Yard

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

Client Reference: 20775
Job Number: 22-46179
Date Sampled: 21/02 - 03/03/2022
Date Received: 15/03/2022
Date Tested: 23/03 - 29/03/2022
Sampled By: Client - SW

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			%				
2208401	BH201	Not Given	3.70	4.20	C	Grey slightly sandy CLAY		23	Sample was quartered, oven dried at 106.1 °C			
2208403	BH201	Not Given	5.30	5.70	C	Black SILT		18	Sample was quartered, oven dried at 106.0 °C			
2214546	BH204	Not Given	3.10	3.50	D	Grey slightly sandy CLAY		23	Sample was quartered, oven dried at 106.0 °C			
2208411	BH206	Not Given	3.82	4.00	B	Grey slightly sandy CLAY		24	Sample was quartered, oven dried at 108.5 °C			
2208396	TP220	Not Given	1.00	1.50	B	Brownish grey gravelly very clayey SAND		24	Sample was quartered, oven dried at 108.5 °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: 31/03/2022

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

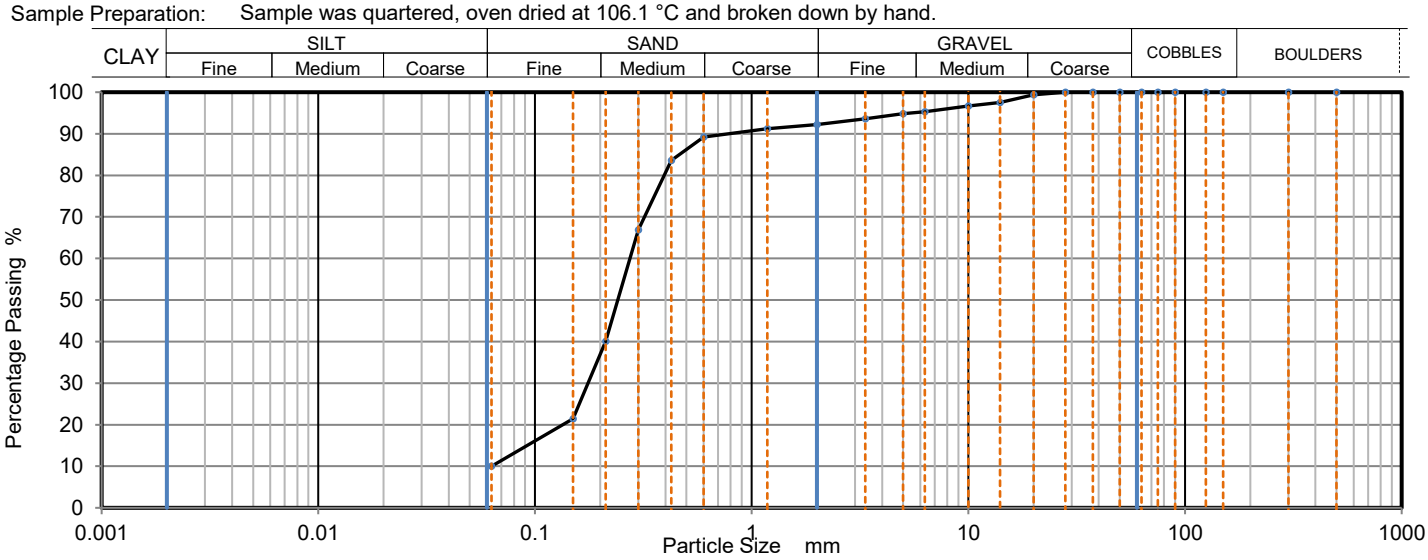
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208387	Depth Top [m]:	0.80
Hole No.:	TP201	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.1 °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	100		
20	99		
14	98		
10	97		
6.3	95		
5	95		
3.35	94		
2	92		
1.18	91		
0.6	89		
0.425	84		
0.3	67		
0.212	40		
0.15	21		
0.063	11		

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	81
Fines <0.063mm	11

Grading Analysis		
D100	mm	28
D60	mm	0.274
D30	mm	0.176
D10	mm	
Uniformity Coefficient		> 4.4
Curvature Coefficient		

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

Date Reported: 31/03/2022

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

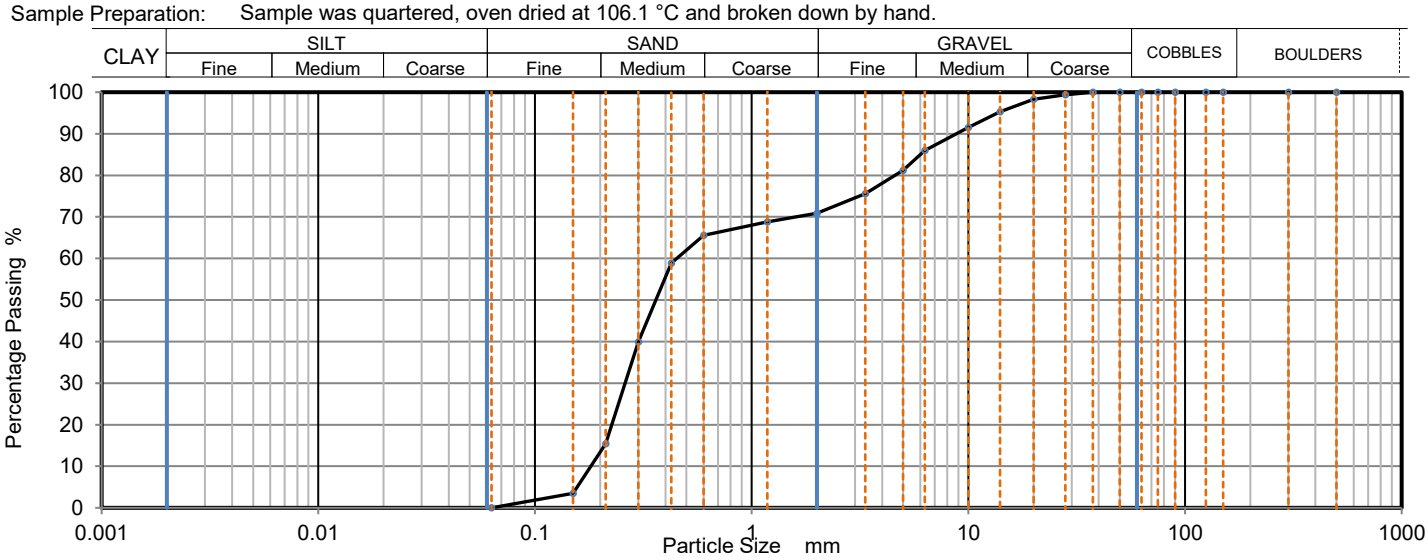
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208391	Depth Top [m]:	1.50
Hole No.:	TP204	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.1 °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	99		
20	98		
14	95		
10	92		
6.3	86		
5	81		
3.35	76		
2	71		
1.18	69		
0.6	66		
0.425	59		
0.3	40		
0.212	15		
0.15	4		
0.063	0		

Sample Proportions	% dry mass
Very coarse	0
Gravel	29
Sand	71
Fines <0.063mm	0

Grading Analysis		
D100	mm	37.5
D60	mm	0.45
D30	mm	0.261
D10	mm	0.181
Uniformity Coefficient		2.5
Curvature Coefficient		0.83

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

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

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Date Reported: 31/03/2022

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

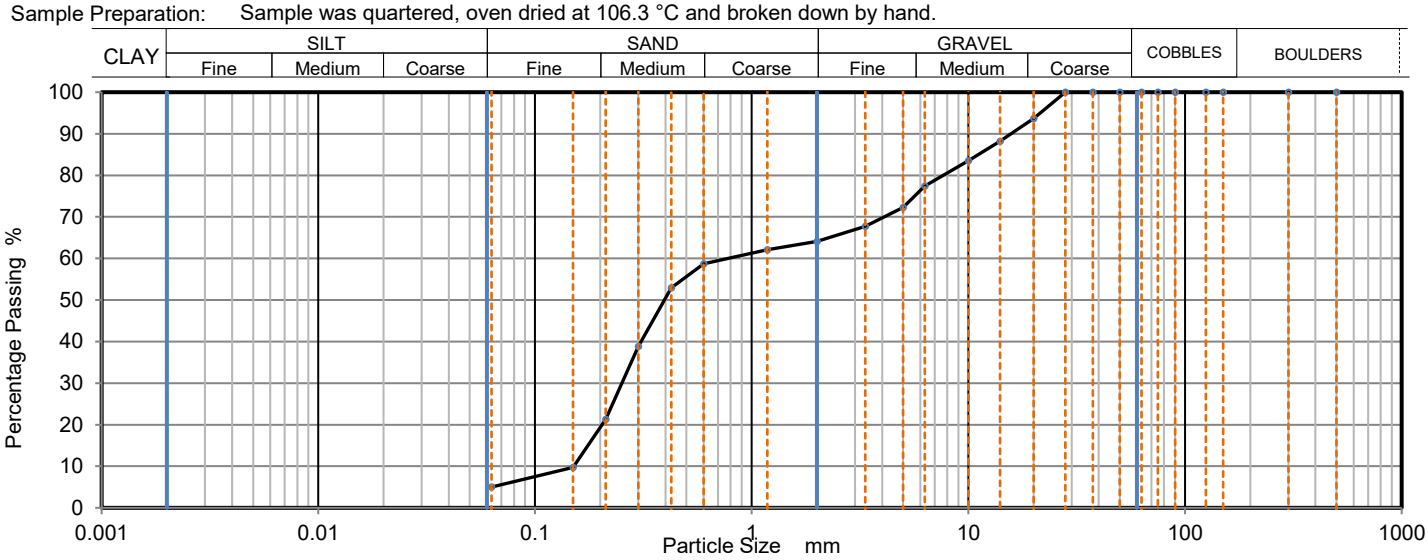
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	17/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208393	Depth Top [m]:	0.60
Hole No.:	TP209	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey very gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.3 °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	100		
20	94		
14	88		
10	84		
6.3	77		
5	72		
3.35	68		
2	64		
1.18	62		
0.6	59		
0.425	53		
0.3	39		
0.212	21		
0.15	10		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	59
Fines <0.063mm	5

Grading Analysis		
D100	mm	28
D60	mm	0.782
D30	mm	0.252
D10	mm	0.151
Uniformity Coefficient		5.2
Curvature Coefficient		0.54

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

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

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Date Reported: 31/03/2022

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

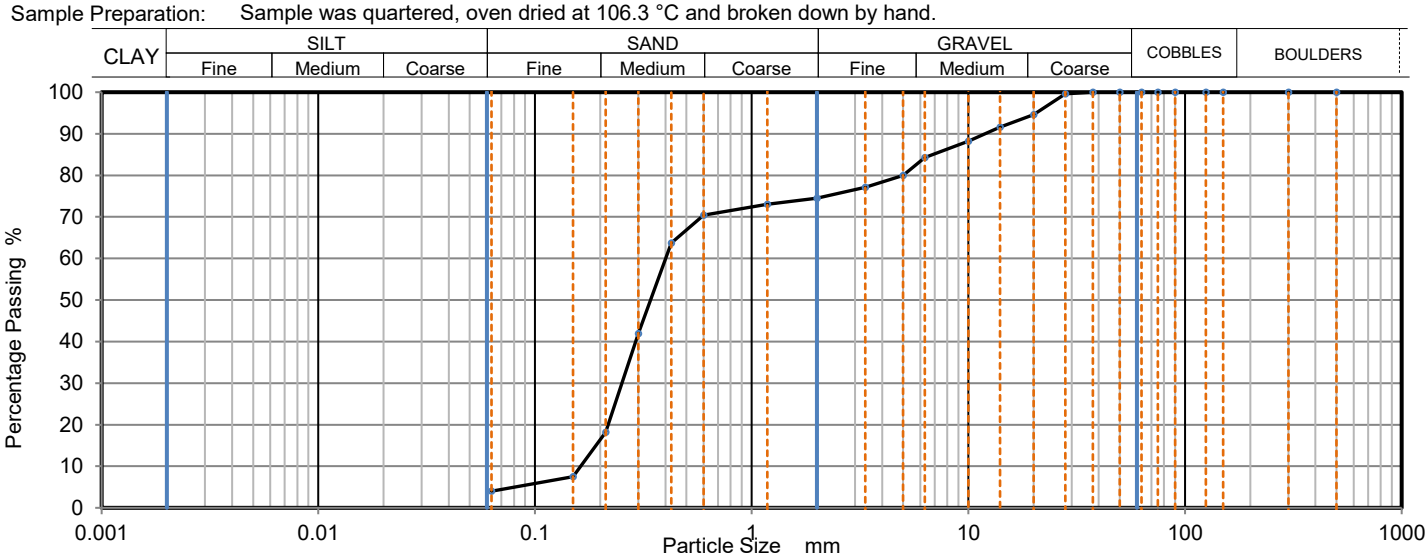
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	21/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208395	Depth Top [m]:	1.00
Hole No.:	TP217	Depth Base [m]:	1.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.3 °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	100		
20	95		
14	92		
10	88		
6.3	84		
5	80		
3.35	77		
2	75		
1.18	73		
0.6	70		
0.425	64		
0.3	42		
0.212	18		
0.15	8		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	26
Sand	70
Fines <0.063mm	5

Grading Analysis		
D100	mm	37.5
D60	mm	0.401
D30	mm	0.252
D10	mm	0.162
Uniformity Coefficient		2.5
Curvature Coefficient		0.98

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

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

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for and on behalf of i2 Analytical Ltd

Date Reported: 31/03/2022

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

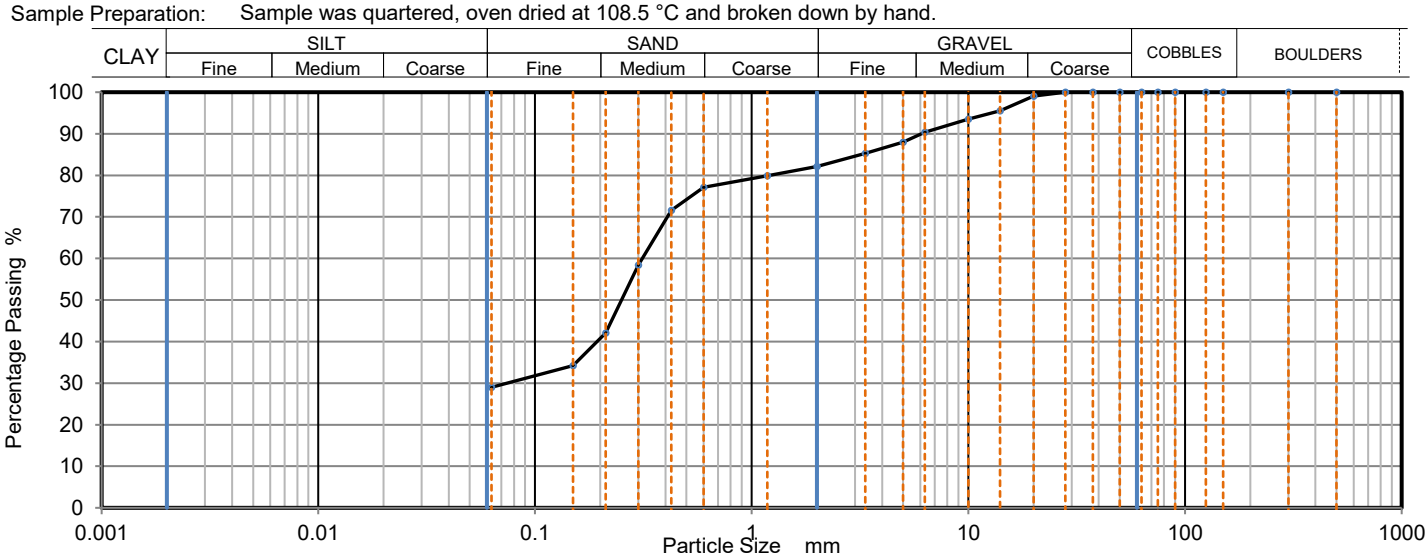
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	21/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208396	Depth Top [m]:	1.00
Hole No.:	TP220	Depth Base [m]:	1.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey gravelly very clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 108.5 °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	100		
20	99		
14	96		
10	94		
6.3	90		
5	88		
3.35	85		
2	82		
1.18	80		
0.6	77		
0.425	72		
0.3	58		
0.212	42		
0.15	34		
0.063	30		

Sample Proportions	% dry mass
Very coarse	0
Gravel	18
Sand	52
Fines <0.063mm	30

Grading Analysis		
D100	mm	28
D60	mm	0.313
D30	mm	0.0642
D10	mm	
Uniformity Coefficient		> 5
Curvature Coefficient		

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

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

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PL Deputy Head of Reporting Team
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Date Reported: 31/03/2022

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

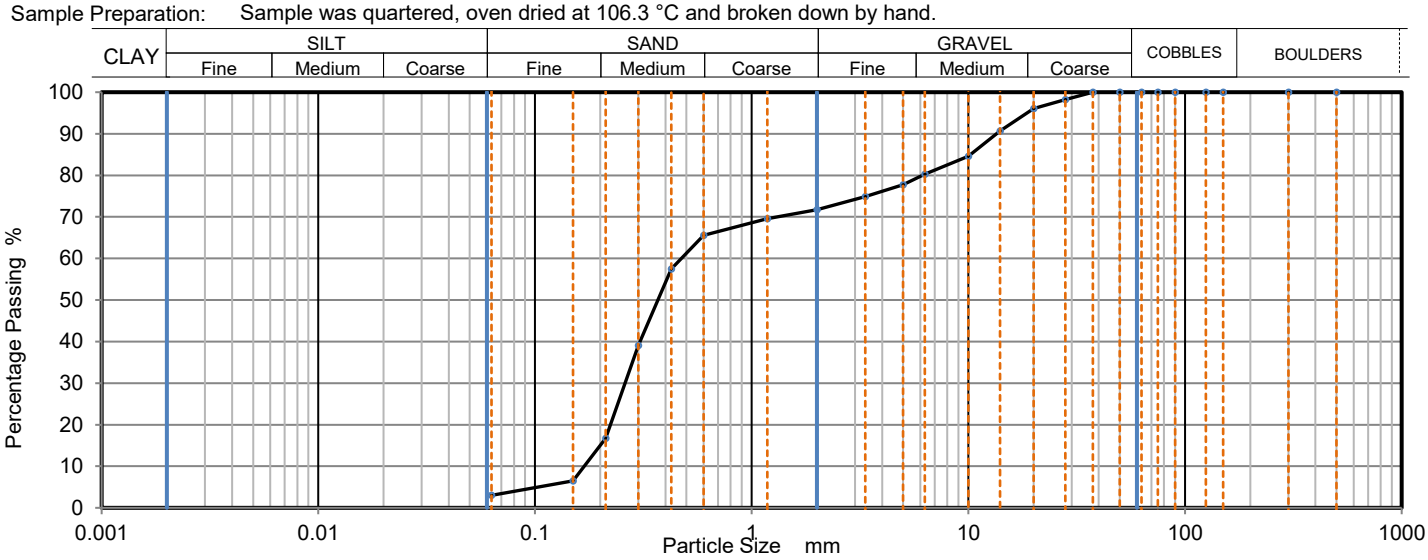
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	21/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208397	Depth Top [m]:	1.00
Hole No.:	TP221	Depth Base [m]:	1.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.3 °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	98		
20	96		
14	91		
10	85		
6.3	80		
5	78		
3.35	75		
2	72		
1.18	70		
0.6	66		
0.425	58		
0.3	39		
0.212	17		
0.15	7		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	68
Fines <0.063mm	3

Grading Analysis		
D100	mm	37.5
D60	mm	0.474
D30	mm	0.26
D10	mm	0.169
Uniformity Coefficient		2.8
Curvature Coefficient		0.85

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

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

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

Date Reported: 31/03/2022

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

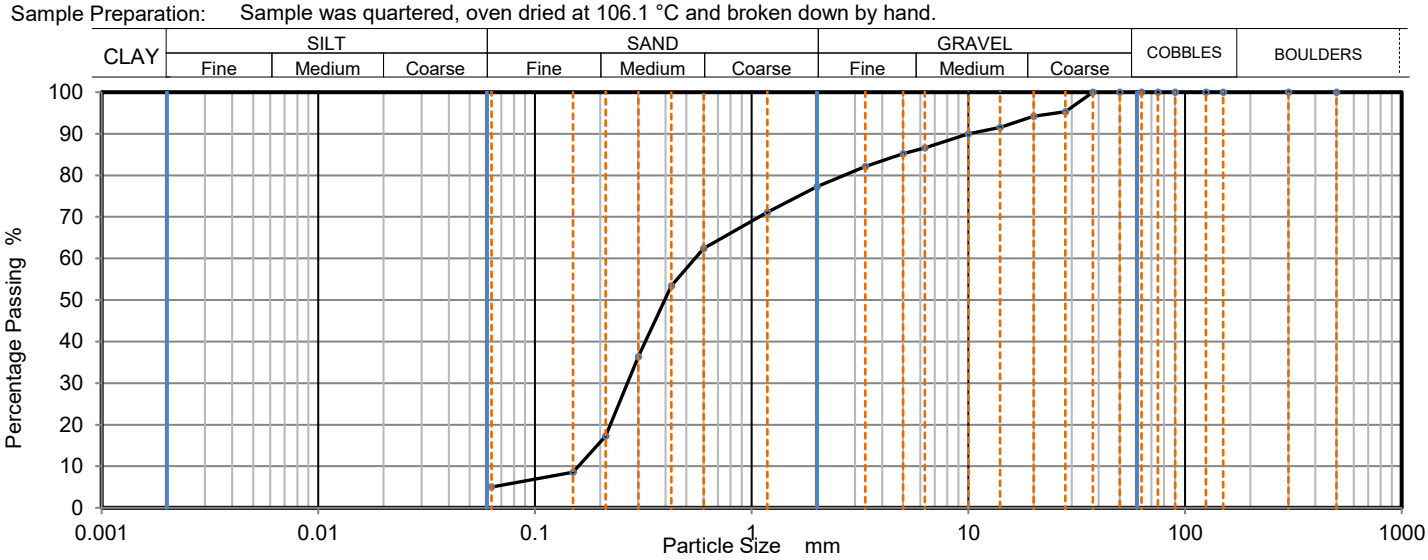
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	22/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208400	Depth Top [m]:	2.00
Hole No.:	TP227	Depth Base [m]:	2.30
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.1 °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	95		
20	94		
14	92		
10	90		
6.3	87		
5	85		
3.35	82		
2	77		
1.18	71		
0.6	62		
0.425	53		
0.3	36		
0.212	17		
0.15	9		
0.063	6		

Sample Proportions	% dry mass
Very coarse	0
Gravel	23
Sand	72
Fines <0.063mm	6

Grading Analysis		
D100	mm	37.5
D60	mm	0.547
D30	mm	0.267
D10	mm	0.159
Uniformity Coefficient		3.4
Curvature Coefficient		0.82

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

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

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PL Deputy Head of Reporting Team
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Date Reported: 31/03/2022

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

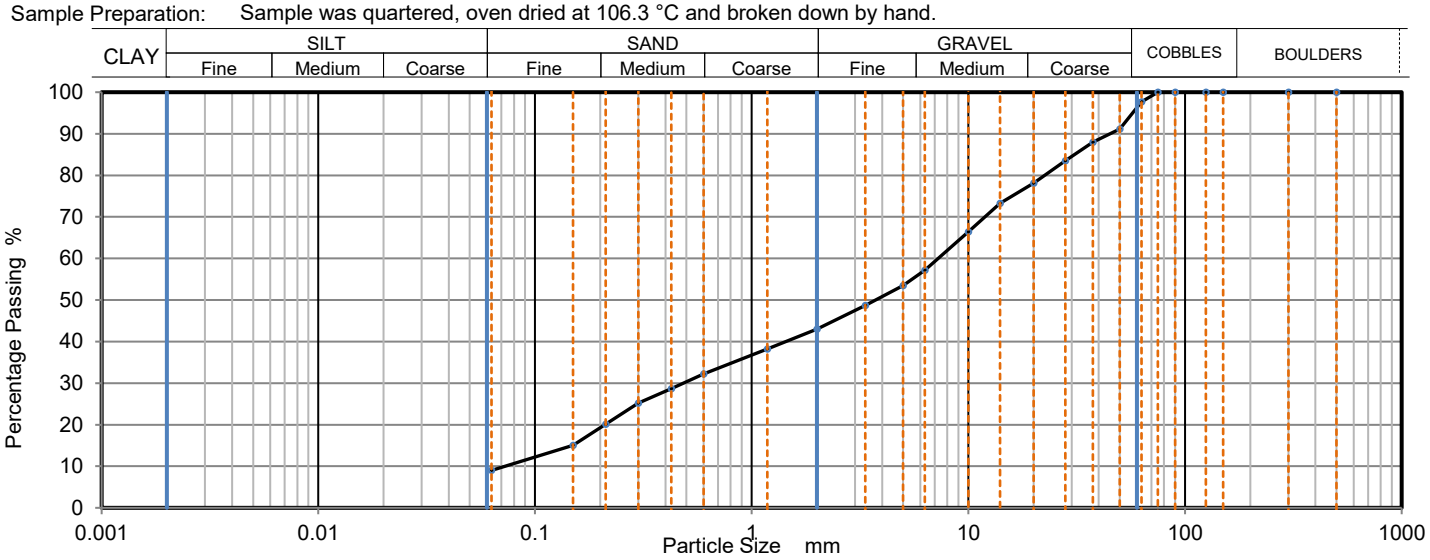
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	02/03/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208406	Depth Top [m]:	0.00
Hole No.:	BH202	Depth Base [m]:	0.40
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Black clayey very sandy GRAVEL with fragments of slag		
Sample Preparation:	Sample was quartered, oven dried at 106.3 °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	98		
50	91		
37.5	88		
28	84		
20	78		
14	73		
10	66		
6.3	57		
5	54		
3.35	49		
2	43		
1.18	38		
0.6	32		
0.425	29		
0.3	25		
0.212	20		
0.15	15		
0.063	9		

Sample Proportions	% dry mass
Very coarse	2
Gravel	55
Sand	34
Fines <0.063mm	9

Grading Analysis		
D100	mm	75
D60	mm	7.26
D30	mm	0.482
D10	mm	0.0721
Uniformity Coefficient		100
Curvature Coefficient		0.44

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

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

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

Date Reported: 31/03/2022

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

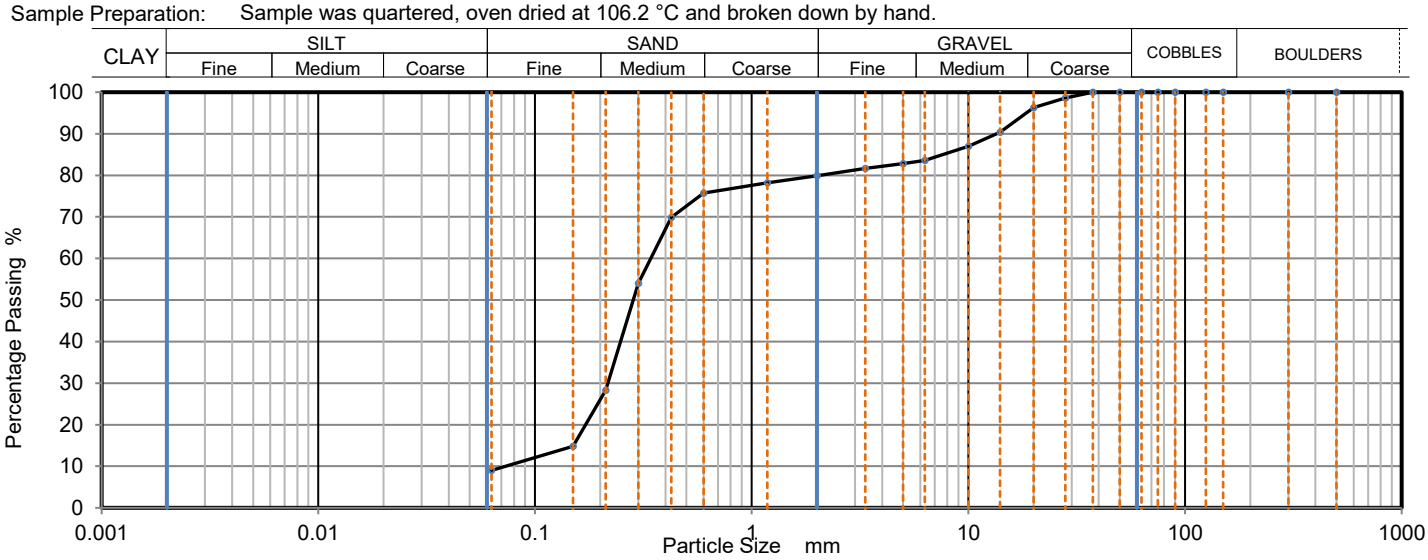
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	02/03/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208407	Depth Top [m]:	0.60
Hole No.:	BH202	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Multicolour gravelly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °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	99		
20	96		
14	90		
10	87		
6.3	84		
5	83		
3.35	82		
2	80		
1.18	78		
0.6	76		
0.425	70		
0.3	54		
0.212	28		
0.15	15		
0.063	9		

Sample Proportions	% dry mass
Very coarse	0
Gravel	20
Sand	71
Fines <0.063mm	9

Grading Analysis		
D100	mm	37.5
D60	mm	0.342
D30	mm	0.217
D10	mm	0.07
Uniformity Coefficient		4.9
Curvature Coefficient		2

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:

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

Date Reported: 31/03/2022

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:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	02/03/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208408	Depth Top [m]:	0.00
Hole No.:	BH204	Depth Base [m]:	0.30
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Dark grey very gravelly very clayey SAND with fragments of slag		
Sample Preparation:	Sample was quartered, oven dried at 106.3 °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	97		
37.5	97		
28	96		
20	93		
14	90		
10	87		
6.3	82		
5	80		
3.35	78		
2	75		
1.18	73		
0.6	69		
0.425	65		
0.3	55		
0.212	42		
0.15	36		
0.063	31		

Sample Proportions	% dry mass
Very coarse	0
Gravel	25
Sand	44
Fines <0.063mm	31

Grading Analysis		
D100	mm	63
D60	mm	0.354
D30	mm	
D10	mm	
Uniformity Coefficient		> 5.6
Curvature Coefficient		

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

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

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Date Reported: 31/03/2022

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TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

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

UKAS TESTING 4041

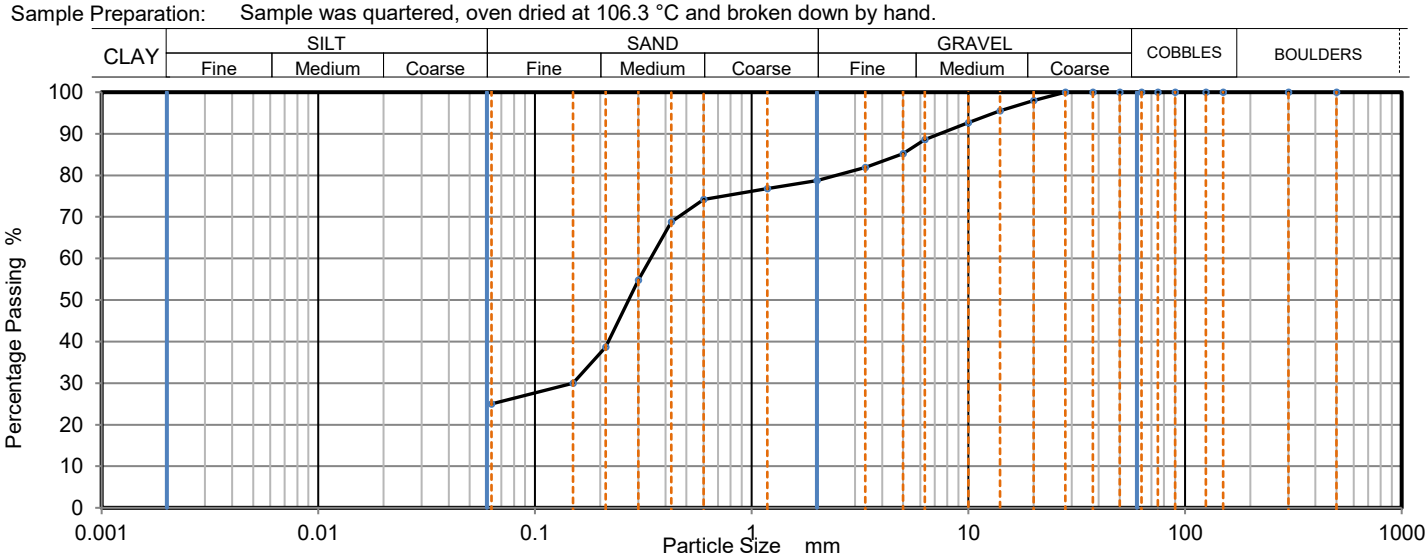
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	02/03/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208409	Depth Top [m]:	0.50
Hole No.:	BH204	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Greyish brown gravelly very clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.3 °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	100		
20	98		
14	96		
10	93		
6.3	89		
5	85		
3.35	82		
2	79		
1.18	77		
0.6	74		
0.425	69		
0.3	55		
0.212	39		
0.15	30		
0.063	26		

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	53
Fines <0.063mm	26

Grading Analysis		
D100	mm	28
D60	mm	0.342
D30	mm	0.15
D10	mm	
Uniformity Coefficient		> 5.4
Curvature Coefficient		

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

Date Reported: 31/03/2022

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

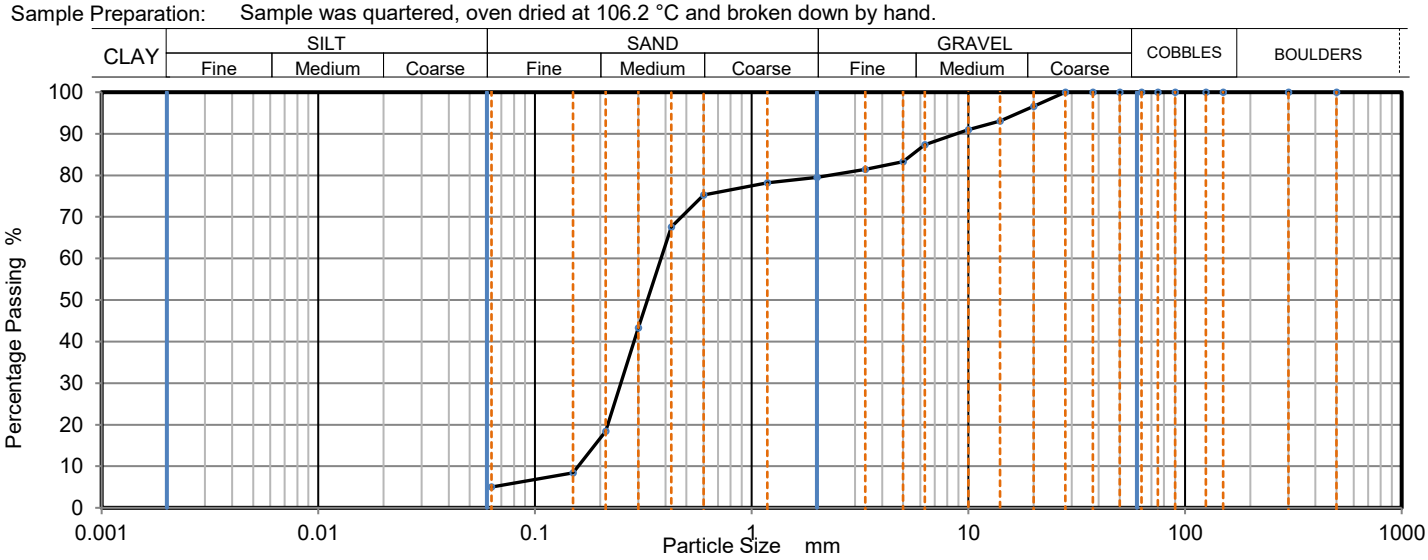
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	02/03/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	23/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208410	Depth Top [m]:	2.00
Hole No.:	BH204	Depth Base [m]:	2.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °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	100		
20	97		
14	93		
10	91		
6.3	87		
5	83		
3.35	81		
2	80		
1.18	78		
0.6	75		
0.425	68		
0.3	43		
0.212	18		
0.15	8		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	21
Sand	74
Fines <0.063mm	5

Grading Analysis		
D100	mm	28
D60	mm	0.381
D30	mm	0.249
D10	mm	0.158
Uniformity Coefficient		2.4
Curvature Coefficient		1

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:

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

Date Reported: 31/03/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING VIBRATING HAMMER

Tested in Accordance with: BS 1377-4: 1990: Clause 3.7

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

UKAS TESTING 4041

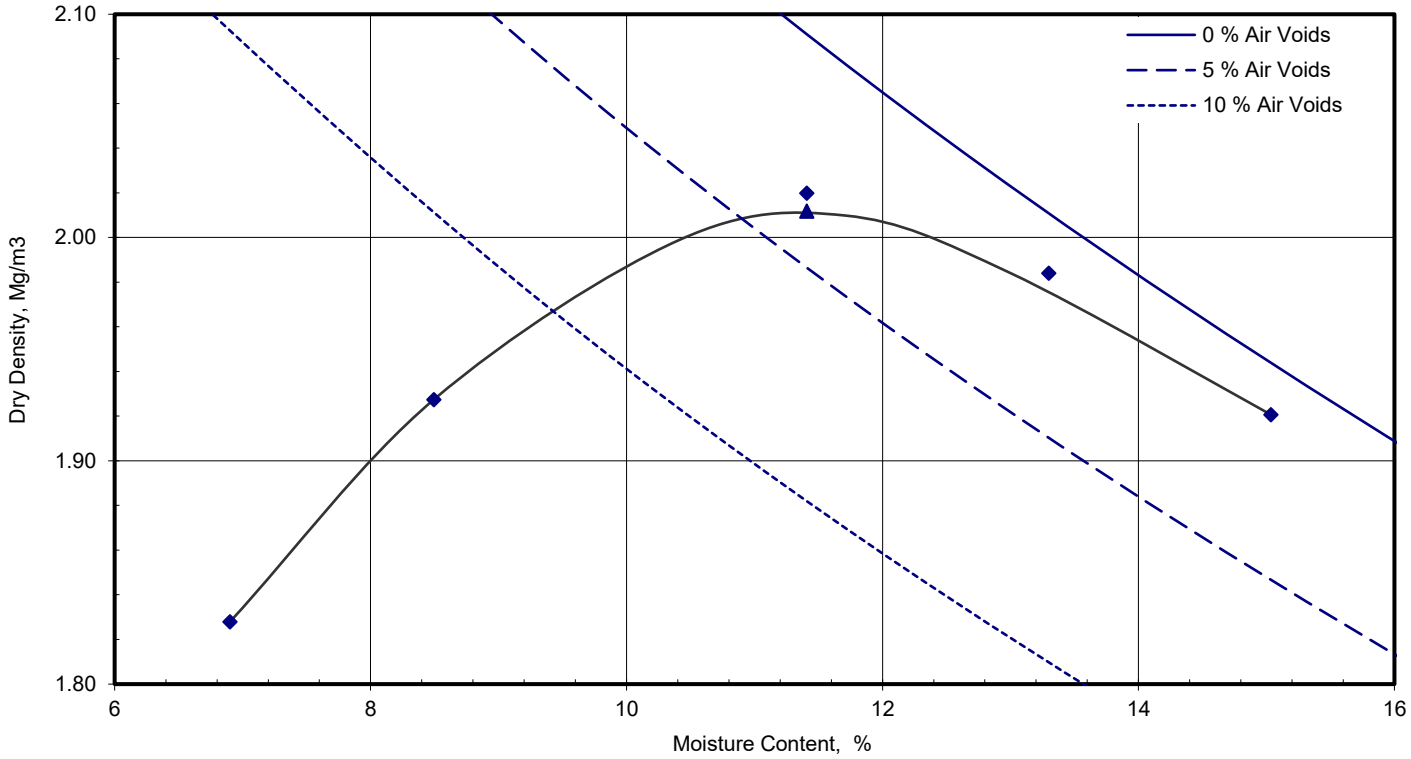
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	25/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208388	Depth Top [m]:	0.40
Hole No.:	TP202	Depth Base [m]:	0.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly SAND		
Sample Preparation:	Sample was quartered and broken down by hand. Material used was natural.		



Compaction Point No.		1	2	3	4	5
Moisture Content	%	6.9	8.5	11	13	15
Dry Density	Mg/m³	1.83	1.93	2.02	1.98	1.92

Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	6
Particle Density - Assumed	Mg/m³	2.75
As received Moisture Content	%	8.5
Maximum Dry Density	Mg/m³	**2.01**

Optimum Moisture Content	%	**11**

Remarks:

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Signed:

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

Date Reported: 31/03/2022

GF 111.22

TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING VIBRATING HAMMER

Tested in Accordance with: BS 1377-4: 1990: Clause 3.7

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

UKAS TESTING 4041

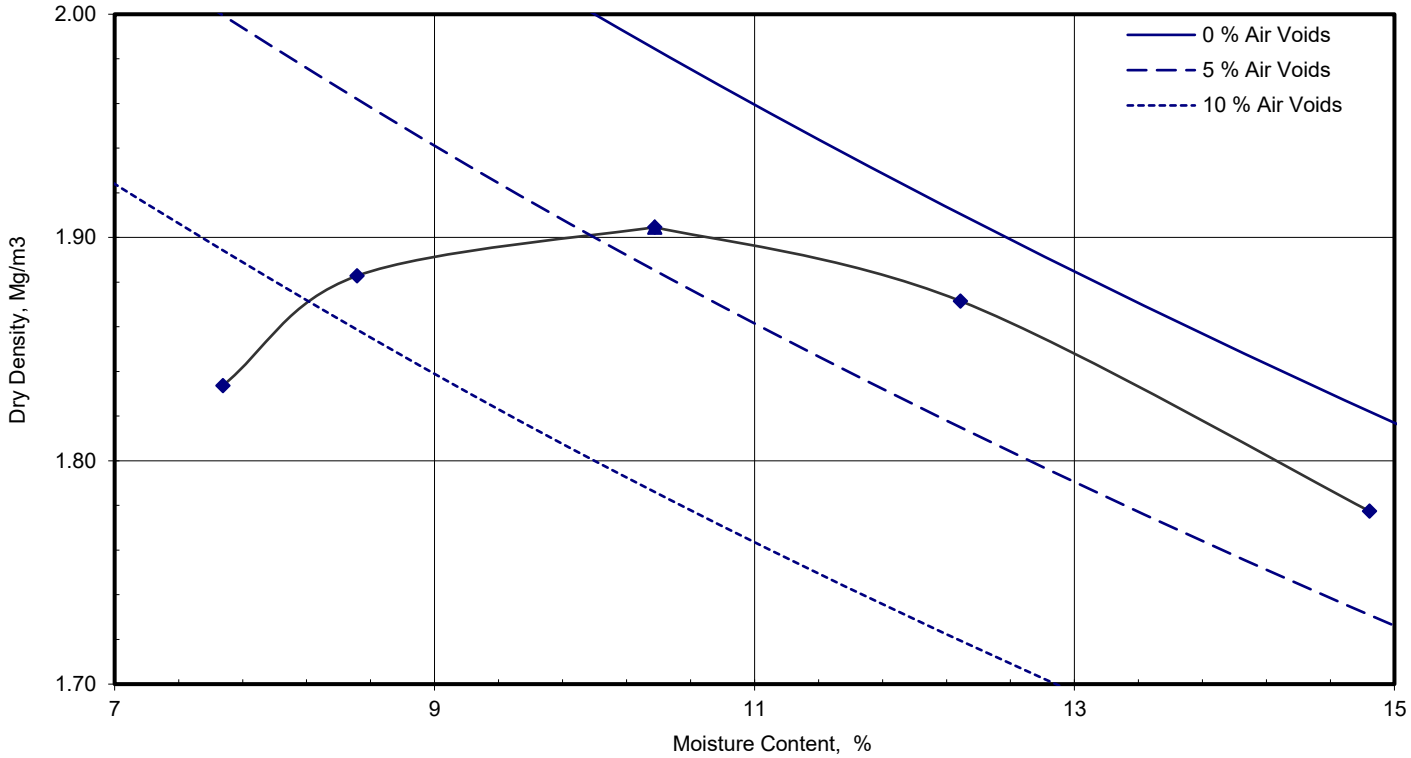
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	25/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208389	Depth Top [m]:	1.50
Hole No.:	TP202	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly gravelly SAND		
Sample Preparation:	Sample was quartered and broken down by hand. Material used was natural.		



Compaction Point No.		1	2	3	4	5
Moisture Content	%	7.7	8.5	10	12	15
Dry Density	Mg/m³	1.83	1.88	1.90	1.87	1.78

Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	1
Particle Density - Assumed	Mg/m³	2.50
As received Moisture Content	%	12
Maximum Dry Density	Mg/m³	**1.90**

Optimum Moisture Content	%	**10**

Remarks:

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING VIBRATING HAMMER

Tested in Accordance with: BS 1377-4: 1990: Clause 3.7

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

UKAS TESTING 4041

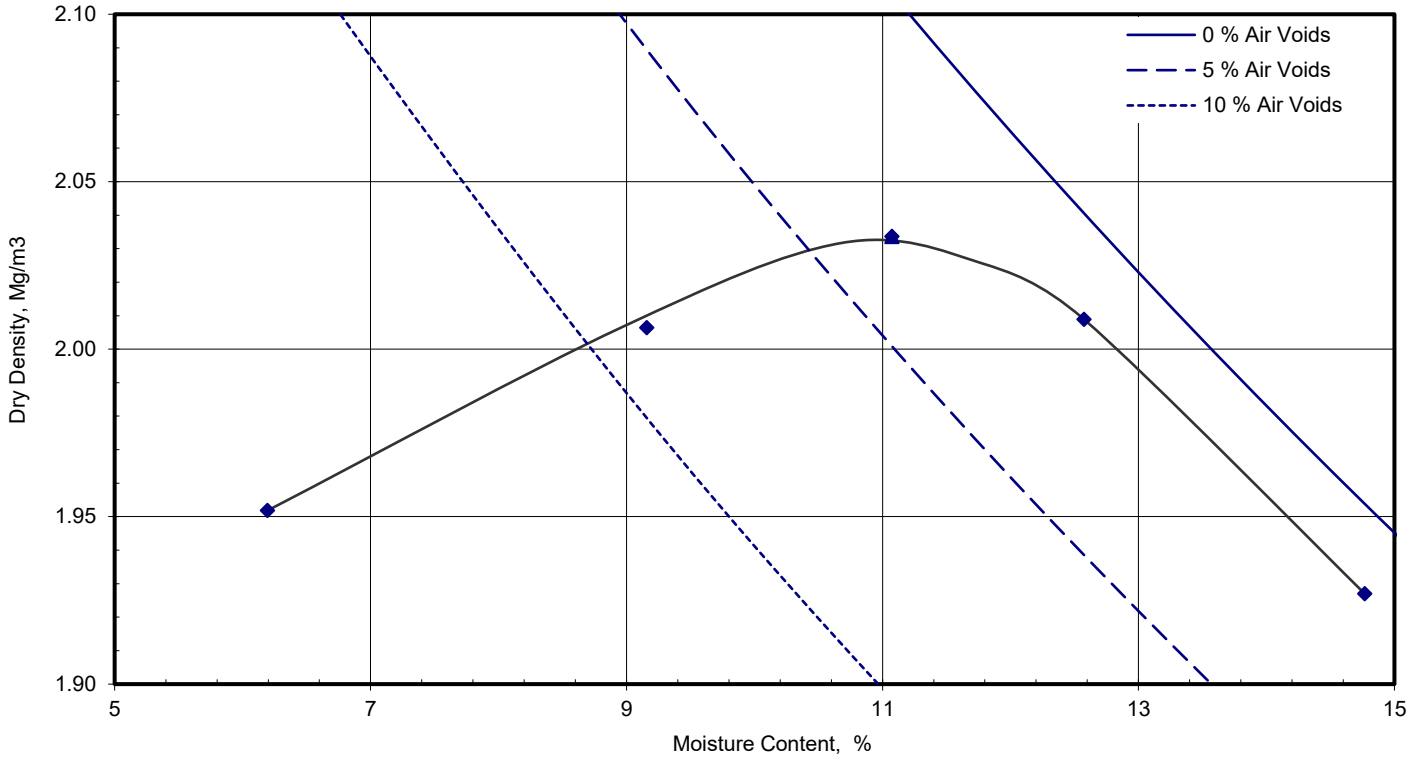
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	17/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	25/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208394	Depth Top [m]:	0.50
Hole No.:	TP215	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown gravelly SAND		
Sample Preparation:	Sample was quartered and broken down by hand. Material used was natural.		



Compaction Point No.		1	2	3	4	5
Moisture Content	%	6.2	9.2	11	13	15
Dry Density	Mg/m³	1.95	2.01	2.03	2.01	1.93

Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	7
Particle Density - Assumed	Mg/m³	2.75
As received Moisture Content	%	9.2
Maximum Dry Density	Mg/m³	**2.03**

Optimum Moisture Content	%	**11**

Remarks:

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TEST CERTIFICATE

DETERMINATION OF DRY DENSITY/MOISTURE CONTENT RELATIONSHIP METHOD USING VIBRATING HAMMER

Tested in Accordance with: BS 1377-4: 1990: Clause 3.7

i2 Analytical Ltd
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Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

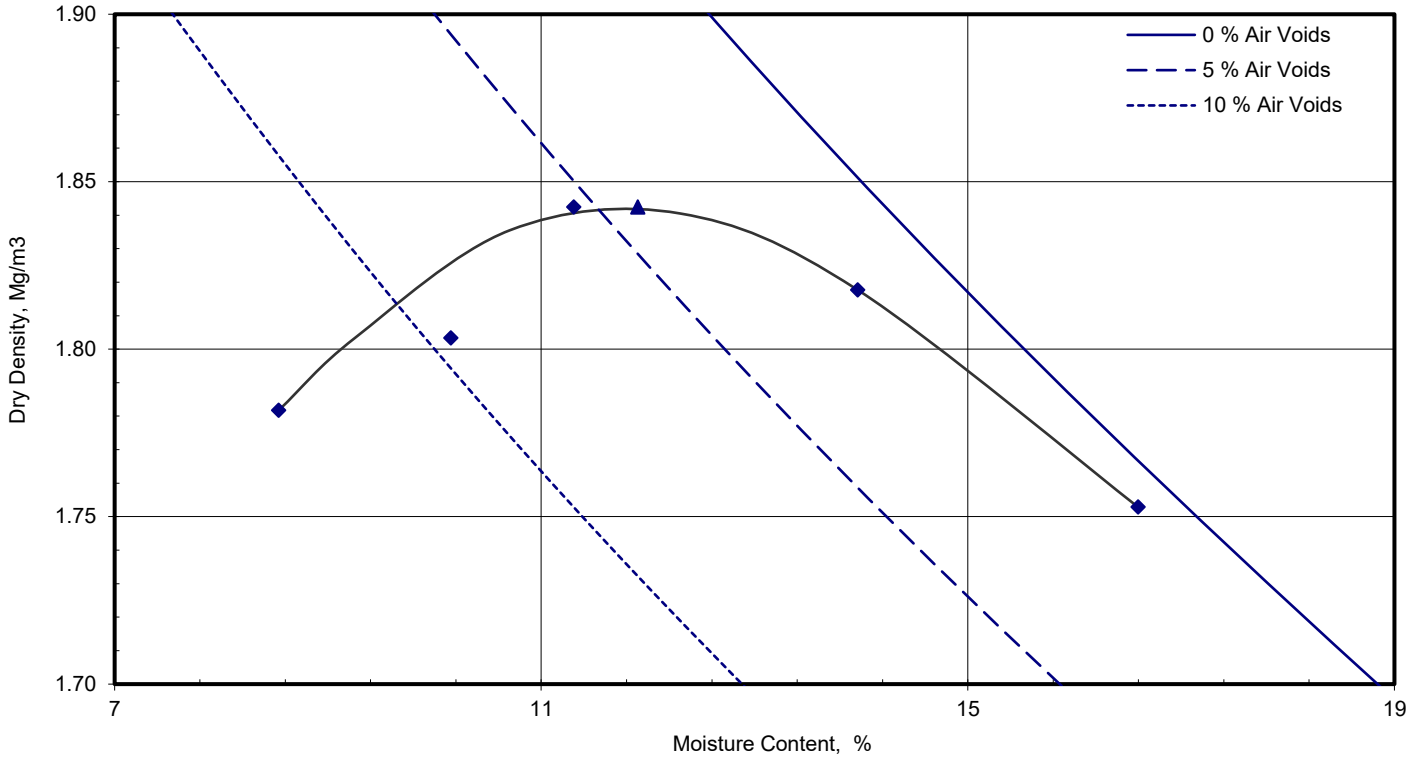
Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	21/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	25/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208398	Depth Top [m]:	1.80
Hole No.:	TP224	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly gravelly SAND		
Sample Preparation:	Sample was quartered and broken down by hand. Material used was natural.		



Compaction Point No.		1	2	3	4	5
Moisture Content	%	8.5	10	11	14	17
Dry Density	Mg/m³	1.78	1.80	1.84	1.82	1.75

Mould Type		CBR
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	2
Particle Density - Assumed	Mg/m³	2.50
As received Moisture Content	%	14
Maximum Dry Density	Mg/m³	**1.84**

Optimum Moisture Content	%	**12**

Remarks:

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PL Deputy Head of Reporting Team
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Date Reported: 31/03/2022

GF 111.22

SUMMARY REPORT

DETERMINATION OF POINT LOAD STRENGTH

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

UKAS TESTING 4041

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

Environmental Science

Client: Hydrock Consultants Ltd

Client Address: Over Court Barns, Over Lane, Bristol, BS32 4DF

Contact: Matthew Keehn

Site Address: Great Western Road Yard

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

Client Reference: 20775
Job Number: 22-46179
Date Sampled: 21/02 - 22/02/2022
Date Received: 15/03/2022
Date Tested: 30/03/2022
Sampled By: Client - SW

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
2208403	BH201	Not Given	5.30	5.70	C	Black SILT	WC = 18.0%	1	A	P	YES	-	88.9	64.0	39.0	0.3	66.4	0.07	0.08
2208405	BH201	Not Given	12.60	12.83	C	Black SILT	WC = 17.2%	1	A	P	YES	-	88.6	61.0	28.0	1.0	56.2	0.32	0.33

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: 31/03/2022

GF 134.13

TEST CERTIFICATE

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

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

UKAS TESTING 4041

Environmental Science

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

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	21/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	24/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

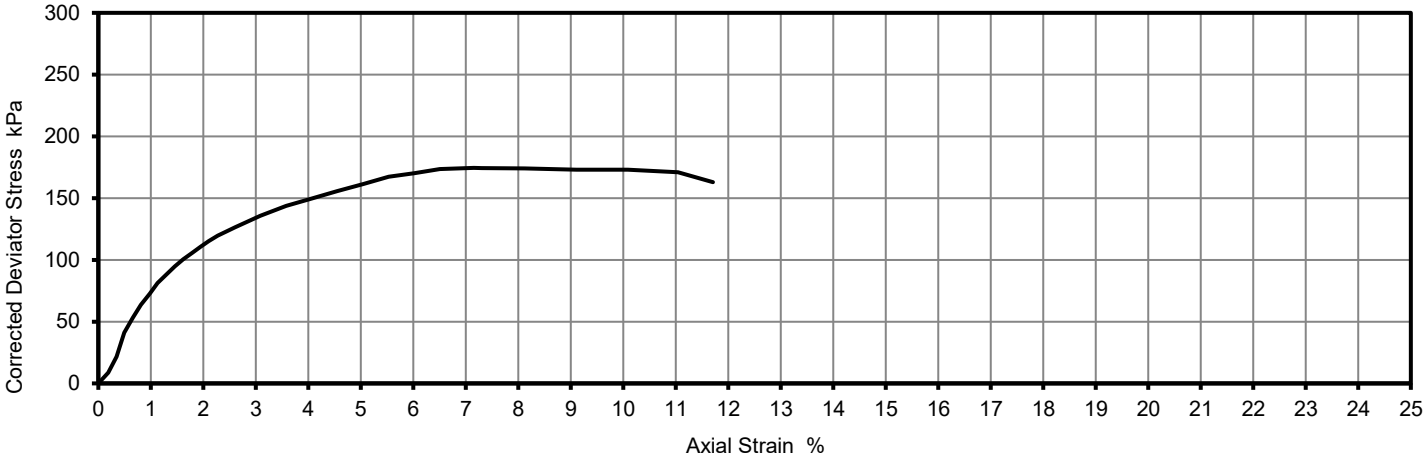
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

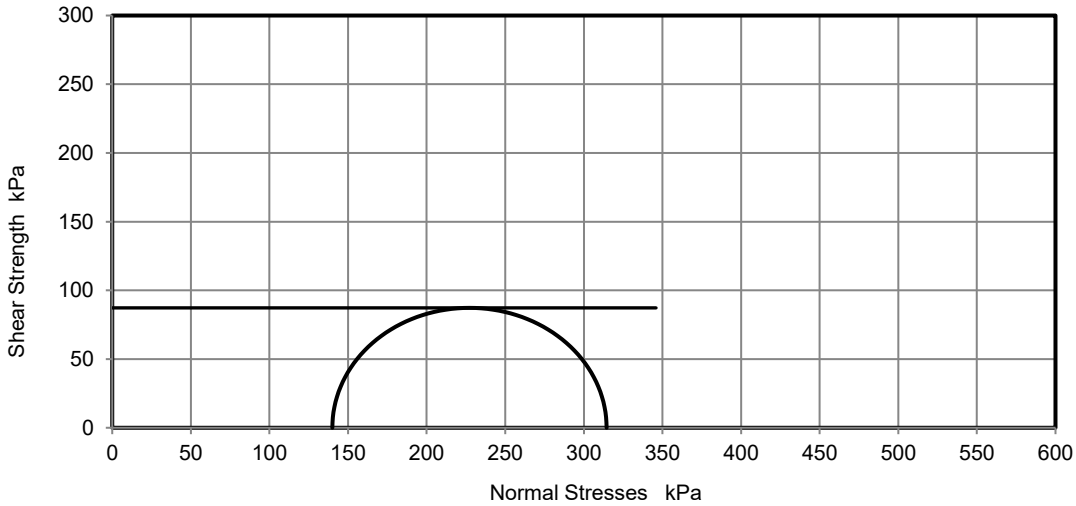
Laboratory Reference:	2208402	Depth Top [m]:	4.20
Hole No.:	BH201	Depth Base [m]:	4.55
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	1.96	%/min
Length	204.23	mm	Cell Pressure	140	kPa
Diameter	102.88	mm	Axial Strain at failure	7.1	%
Bulk Density	2.06	Mg/m3	Deviator Stress, (σ1 - σ3)f	174	kPa
Moisture Content	25	%	Undrained Shear Strength, cu	87	kPa ½(σ1 - σ3)f
Dry Density	1.65	Mg/m3	Mode of Failure	Brittle	
Membrane Correction	0.46	kPa	Membrane thickness	0.27	mm

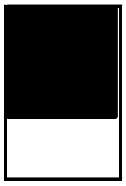
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



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

Remarks:

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Signed:

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

Date Reported: 31/03/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH
BY DIRECT SHEAR
(SMALL SHEARBOX APPARATUS)
Tested in Accordance with: BS 1377-7:1990: Clause 4.5.4

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

UKAS TESTING 4041

Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	28/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208390	Depth Top [m]:	0.80
Hole No.:	TP204	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown gravelly SAND		

Preparation Details: Sample sieve and test carried out on material passing 2mm

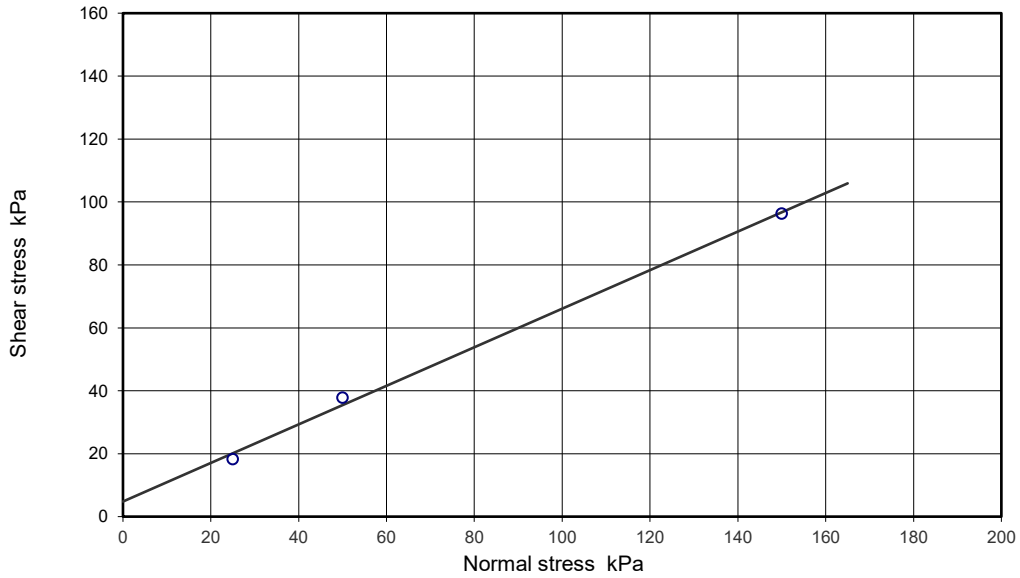
Specimen Details

	Test No.	1	2	3				
Initial	Height	20.1	20.1	20.1				mm
	Length	60.1	60.1	60.1				mm
	Breadth	60.1	60.1	60.1				mm
	Particle Density - (assumed)	2.65	2.65	2.65				Mg/m³
	Bulk Density	1.63	1.63	1.63				Mg/m³
	Moisture Content	8.0	8.0	8.0				%
	Dry density	1.51	1.51	1.51				Mg/m³
	Voids ratio	0.755	0.755	0.755				
	Degree of Saturation	28	28	28				%
Consolidation	Consolidation / Normal Stress applied	25	50	150				kPa
	Change in height during consolidation	0.840	0.690	1.130				mm
	Voids ratio after consolidation	0.682	0.695	0.656				
After test	Final Moisture content	24.1	23.2	23.2				%

Shearing stage(s)

Rate of displacement	Peak	1.00000	1.00000	1.00000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	3.98	2.77	4.94				mm
	Shear stress	18.2	37.8	96.3				kPa
	Vertical Movement at peak shear stress	0.20	0.25	0.44				mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1				
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress							mm

Total test time 1 days



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	4.8	-
Ø '	degrees	31.5	-

Residual strength, (x)

c 'R	kPa	not assessed	-
Ø 'R	degrees	not assessed	-

Remarks:

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 Date Reported: 31/03/2022 **GF 174.11**

TEST CERTIFICATE

DETERMINATION OF SHEAR STRENGTH
BY DIRECT SHEAR
(SMALL SHEARBOX APPARATUS)

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Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

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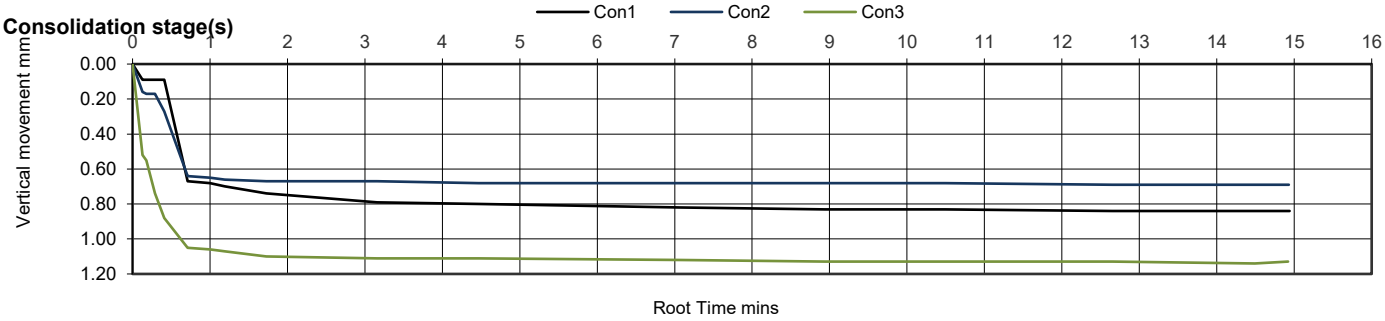
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	28/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

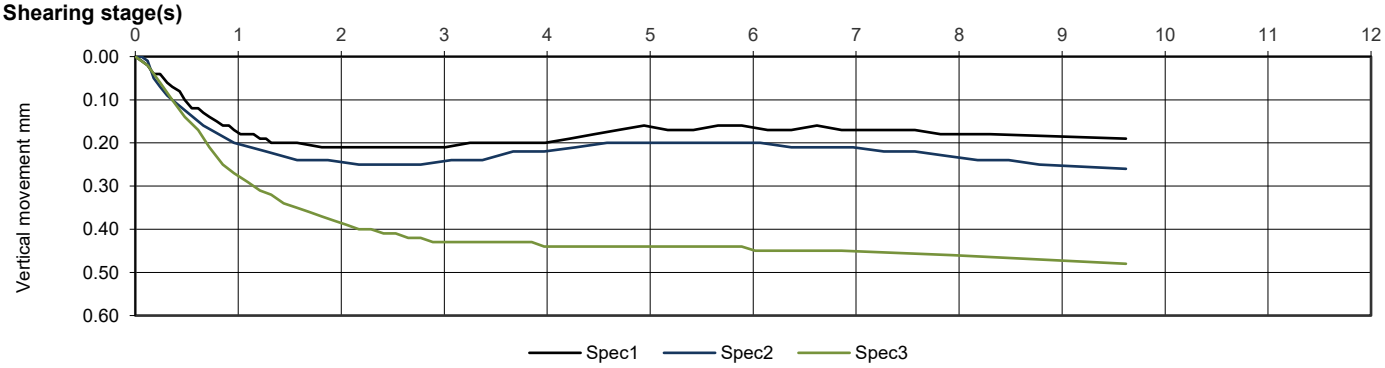
Test Results:

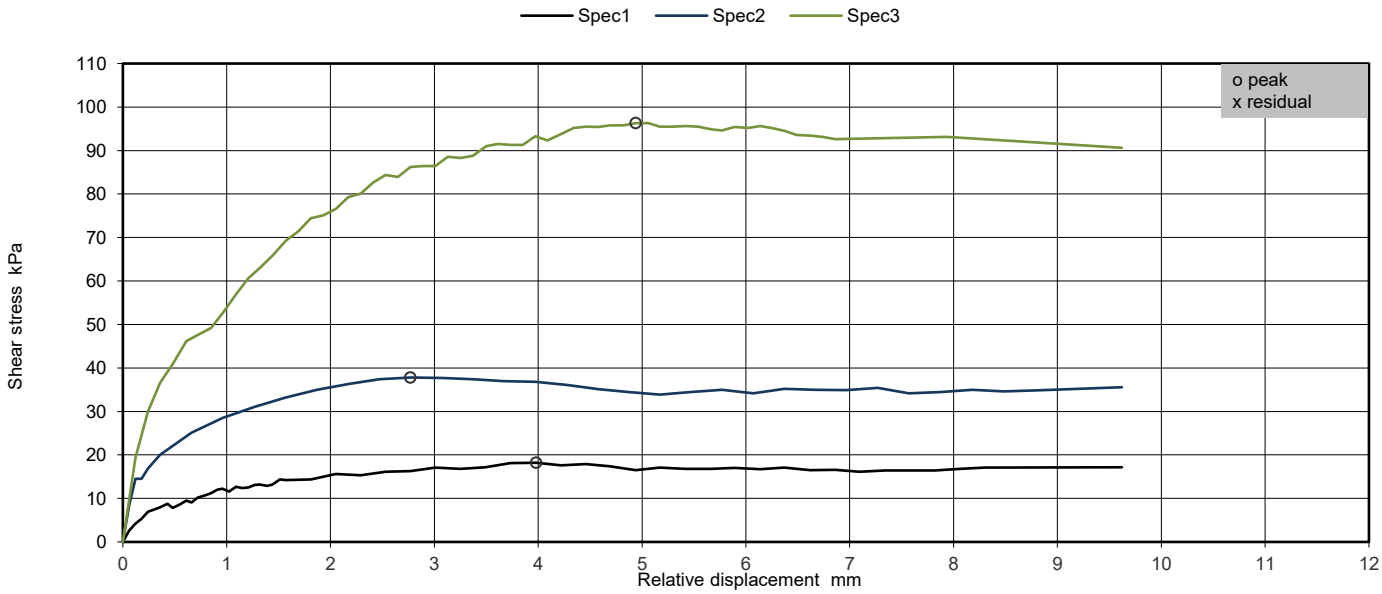
Laboratory Reference:	2208390	Depth Top [m]:	0.80
Hole No.:	TP204	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown gravelly SAND		

Consolidation stage(s)



Shearing stage(s)





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Environmental Science

Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	28/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208392	Depth Top [m]:	0.50
Hole No.:	TP207	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly slightly clayey SAND		

Preparation Details: Sample sieve and test carried out on material passing 2mm

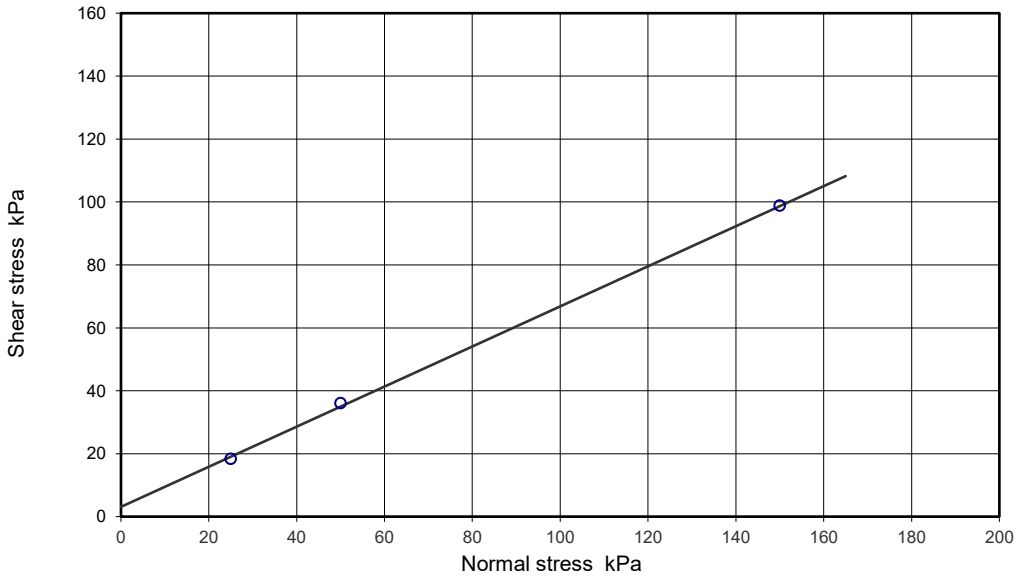
Specimen Details

	Test No.	1	2	3				
Initial	Height	20.0	20.0	20.0				mm
	Length	60.1	60.1	60.1				mm
	Breadth	60.1	60.1	60.1				mm
	Particle Density - (assumed)	2.65	2.65	2.65				Mg/m³
	Bulk Density	1.75	1.75	1.75				Mg/m³
	Moisture Content	10.8	10.8	10.8				%
	Dry density	1.58	1.58	1.58				Mg/m³
	Voids ratio	0.677	0.677	0.677				
	Degree of Saturation	42	42	42				%
Consolidation	Consolidation / Normal Stress applied	25	50	150				kPa
	Change in height during consolidation	0.900	0.809	1.640				mm
	Voids ratio after consolidation	0.602	0.609	0.539				
After test	Final Moisture content	22.3	22.2	21.0				%

Shearing stage(s)

Rate of displacement	Peak	1.00000	1.00000	1.00000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	8.55	9.62	5.47				mm
	Shear stress	18.3	36.0	98.8				kPa
	Vertical Movement at peak shear stress	0.44	0.38	0.36				mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1				
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress							mm

Total test time 1 days



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	3.1	-
Ø '	degrees	32.5	-

Residual strength, (x)

c 'R	kPa	not assessed	-
Ø 'R	degrees	not assessed	-

Remarks:

Signed:

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UKAS TESTING 4041

Environmental Science

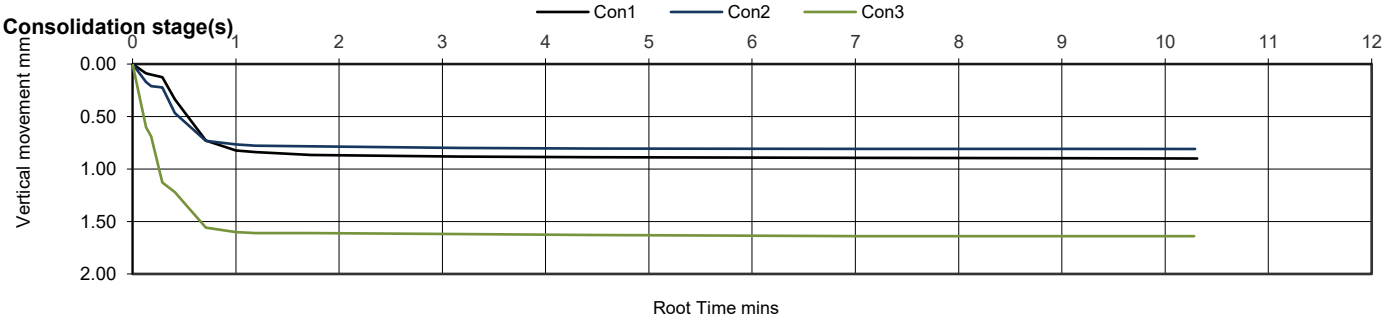
Client:	Hydrock Consultants Ltd	Client Reference:	20775
Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	16/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	28/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

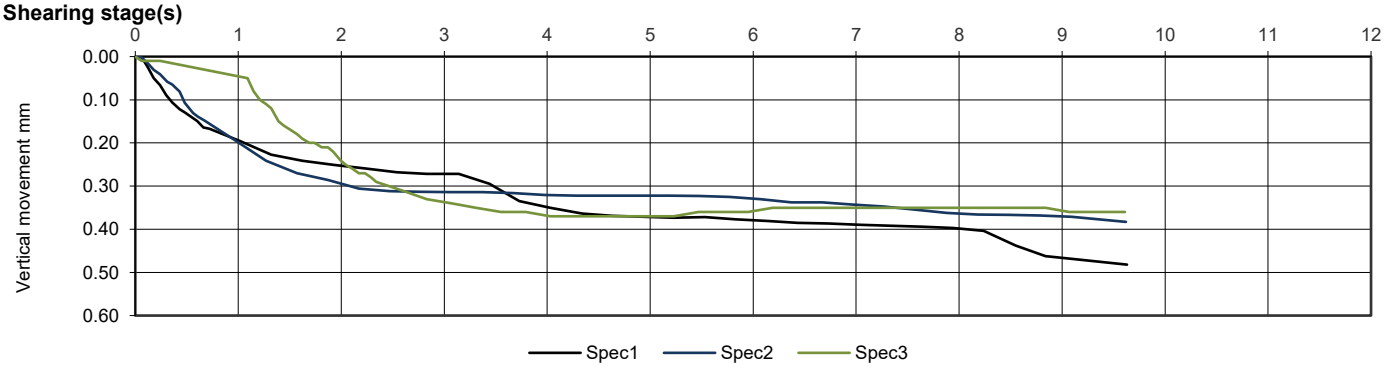
Test Results:

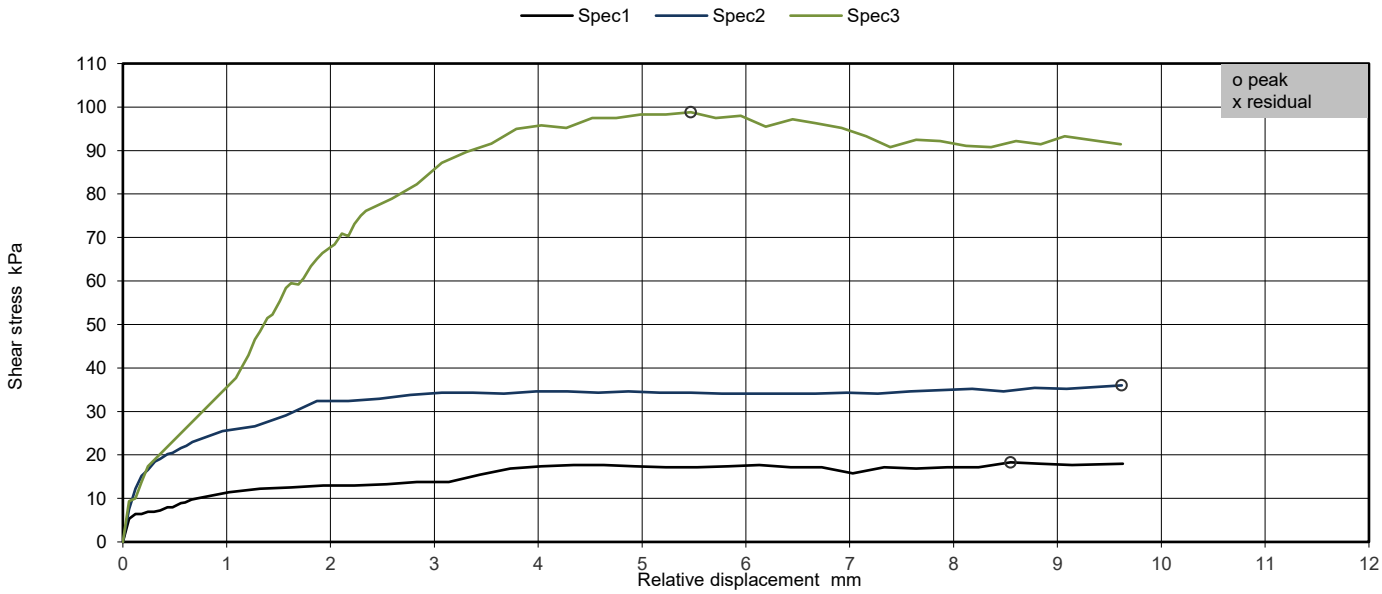
Laboratory Reference:	2208392	Depth Top [m]:	0.50
Hole No.:	TP207	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly slightly clayey SAND		

Consolidation stage(s)



Shearing stage(s)





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Environmental Science

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Client Address:	Over Court Barns, Over Lane, Bristol, BS32 4DF	Job Number:	22-46179
		Date Sampled:	22/02/2022
		Date Received:	15/03/2022
Contact:	Matthew Keehn	Date Tested:	28/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

Test Results:

Laboratory Reference:	2208399	Depth Top [m]:	0.60
Hole No.:	TP226	Depth Base [m]:	0.90
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Mottled brown very gravelly slightly sandy CLAY		
Preparation Details	Sample carried out on lump		

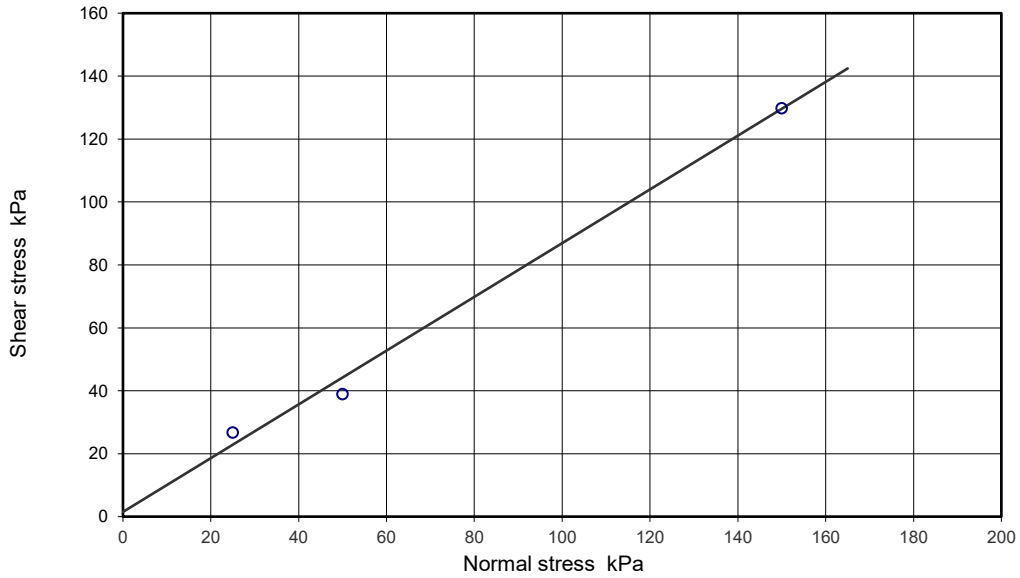
Specimen Details

	Test No.	1	2	3				
Initial	Height	20.0	20.0	20.0				mm
	Length	60.2	60.2	60.2				mm
	Breadth	60.2	60.2	60.2				mm
	Particle Density - (assumed)	2.65	2.65	2.65				Mg/m³
	Bulk Density	2.10	2.10	2.10				Mg/m³
	Moisture Content	21.6	21.6	21.6				%
	Dry density	1.73	1.73	1.73				Mg/m³
	Voids ratio	0.532	0.532	0.532				
	Degree of Saturation	108	108	108				%
Consolidation	Consolidation / Normal Stress applied	25	50	150				kPa
	Change in height during consolidation	0.834	1.537	2.472				mm
	Voids ratio after consolidation	0.468	0.414	0.343				
After test	Final Moisture content	20.2	19.4	17.6				%

Shearing stage(s)

Rate of displacement	Peak	1.00000	1.00000	1.00000				mm/min
	Residual							mm/min
Peak values, (o)	Relative horizontal displacement	5.29	8.01	8.00				mm
	Shear stress	26.7	38.9	129.7				kPa
	Vertical Movement at peak shear stress	0.02	0.07	0.07				mm
Residual values, (x)	No. of traverses (including peak run)	1	1	1				
	Relative horizontal displacement							mm
	Shear stress							kPa
	Vertical movement at residual shear stress							mm

Total test time 1 days



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	1.5	-
Ø '	degrees	40.5	-

Residual strength, (x)

c 'R	kPa	not assessed	-
Ø 'R	degrees	not assessed	-

Remarks:

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		Date Sampled:	22/02/2022
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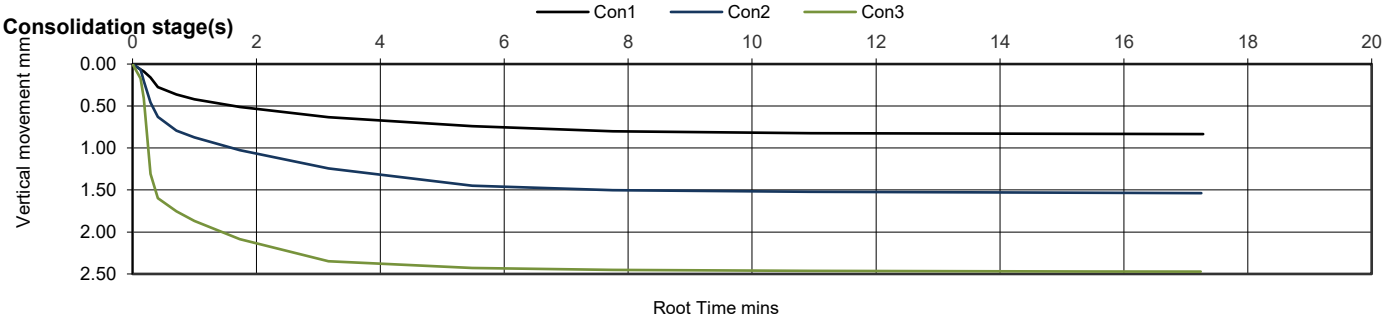
Contact:	Matthew Keehn	Date Tested:	28/03/2022
Site Address:	Great Western Road Yard	Sampled By:	Client - SW

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

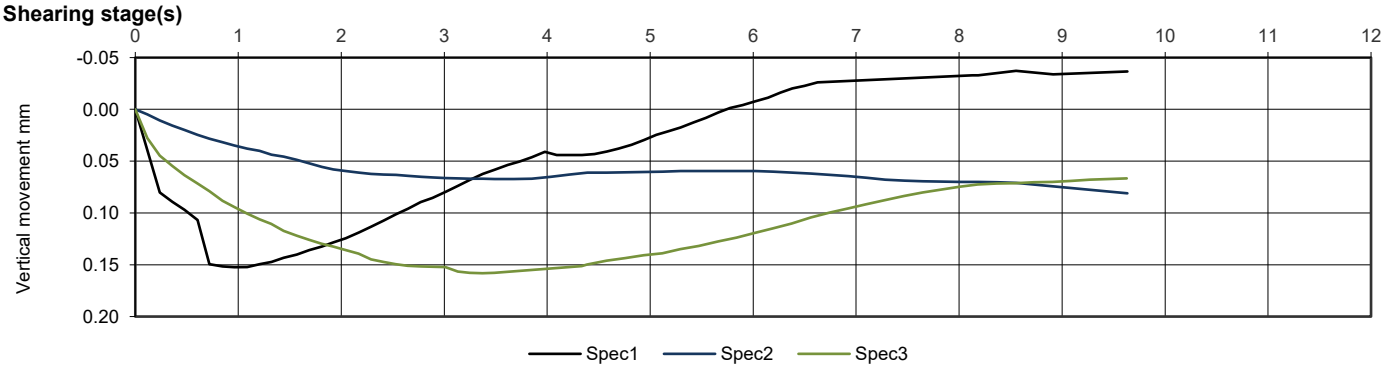
Test Results:

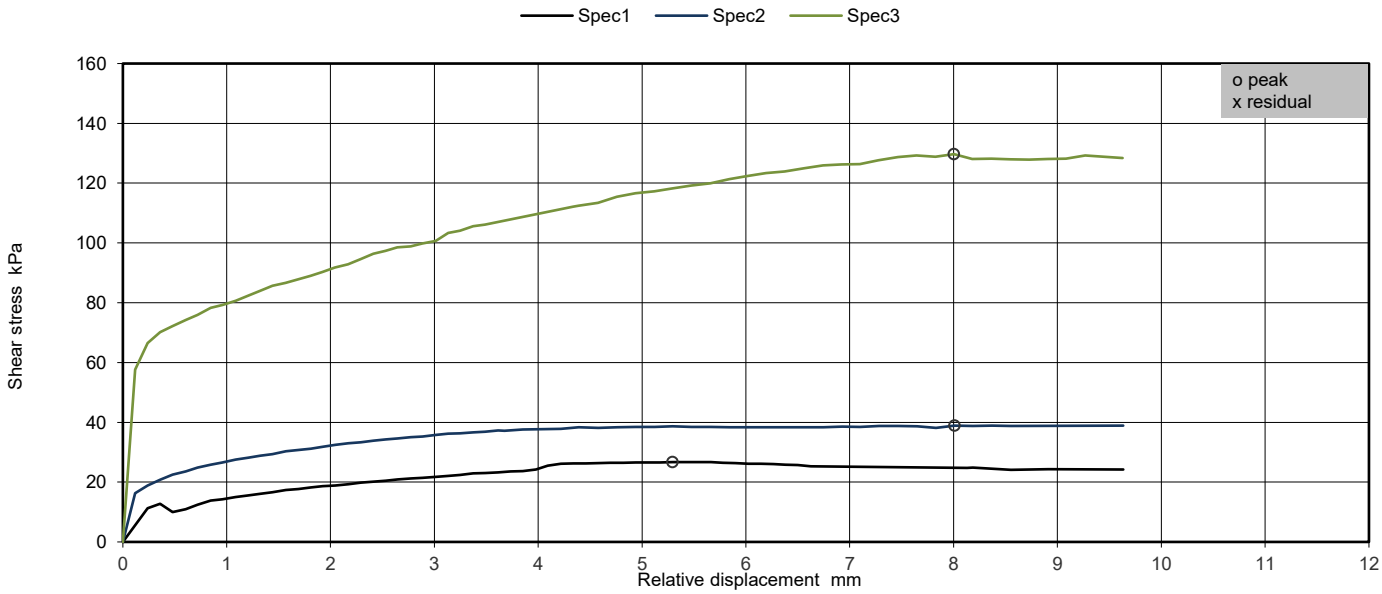
Laboratory Reference:	2208399	Depth Top [m]:	0.60
Hole No.:	TP226	Depth Base [m]:	0.90
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Mottled brown very gravelly slightly sandy CLAY		

Consolidation stage(s)



Shearing stage(s)





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Date Reported: 31/03/2022

GF 174.11

Hydrock

Client	**Eutopia Homes ltd.**	**Location or material to which this assessment applies**
Project	**Great Western Road Yard**	Charmouth Mudstone Formation
Job number	**20775**	

Concrete in aggressive ground

After BRE Special Digest 1, 2005

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	7	3	0
No. tests in 20% data set	1	1	
No. tests with suspected pyrite		3	
Maximum value	716	6.6	
Mean of highest two values	589	5	
Mean of highest 20%			
Characteristic Value	**589**	**6.6**	

	[no pyrite]	**[pyrite suspected]**
DS Class	**DS-2**	**DS-5**

If pyrite suspected, DS Class limited to **DS-4**

Is pyrite assumed to be present? **Yes** **Adopted DS Class =** **DS-4**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value **(Maximum Level)**	0	0
DS Class		

pH data

	Soil	Water
Number of tests	7	0
No. tests in 20% data set	1	
Lowest pH	8.2	
Mean of lowest 20%	8.2	
Characteristic value	**8.2**	
Design value	**8.2**	
Number of soil pH results less than 5.5	0	

DS Class design value

Based on higher of soil and water data **DS-4**

ACEC Class design value

Natural ground

Mobile groundwater **AC-4**

Hydrock

Client	Eutopia Homes ltd.	**Location or material to which this assessment applies**
Project	Great Western Road Yard	Cheltenham Sands and Gravel
Job number	20775	

Concrete in aggressive ground

After BRE Special Digest 1, 2005

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	7	0	0
No. tests in 20% data set	1		
No. tests with suspected pyrite		1	
Maximum value	175		
Mean of highest two values	105		
Mean of highest 20%			
Characteristic Value	**105**		

	[no pyrite]	**[pyrite suspected]**
DS Class	**DS-1**	

If pyrite suspected, DS Class limited to

Is pyrite assumed to be present? **No** **Adopted DS Class =** **DS-1**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value **(Maximum Level)**	0	0
DS Class		

pH data

	Soil	Water
Number of tests	7	0
No. tests in 20% data set	1	
Lowest pH	8.3	
Mean of lowest 20%	8.3	
Characteristic value	**8.3**	
Design value	**8.3**	
Number of soil pH results less than 5.5	0	

DS Class design value

Based on higher of soil and water data **DS-1**

ACEC Class design value

Natural ground

Mobile groundwater **AC-1 ***

* increase to AC-2z in flowing water (pure or with >15mg/l carbon dioxide)

Hydrock

Client	**Eutopia Homes ltd.**	**Location or material to which this assessment applies**
Project	**Great Western Road Yard**	Superficial Deposits Cohesive
Job number	**20775**	

Concrete in aggressive ground

After BRE Special Digest 1, 2005

Soil data

	(Adjusted) water soluble sulfate (mg/l)	Total potential sulfate (%)	Water soluble magnesium (mg/l)
Number of tests	1	1	0
No. tests in 20% data set	0	0	
No. tests with suspected pyrite		1	
Maximum value	175	0.3	
Mean of highest two values	175	0	
Mean of highest 20%			
Characteristic Value	**175**	**0.3**	

	[no pyrite]	**[pyrite suspected]**
DS Class	**DS-1**	**DS-2**

If pyrite suspected, DS Class limited to **DS-2**

Is pyrite assumed to be present? **No** **Adopted DS Class =** **DS-1**

Water data

	(Adjusted) soluble sulfate (mg/l)	Soluble magnesium (mg/l)
Characteristic Value **(Maximum Level)**	0	0
DS Class		

pH data

	Soil	Water
Number of tests	1	0
No. tests in 20% data set	0	
Lowest pH	8.3	
Mean of lowest 20%		
Characteristic value	**8.3**	
Design value	**8.3**	

Number of soil pH results less than 5.5 0

DS Class design value

Based on higher of soil and water data **DS-1**

ACEC Class design value

Natural ground

Mobile groundwater **AC-1 ***

* increase to AC-2z in flowing water (pure or with >15mg/l carbon dioxide)

Appendix F Site Monitoring Data and Ground Gas Risk Assessment

20775 GREAT WESTERN ROAD YARD, GLOUCESTER
LOW-FLOW GROUNDWATER SAMPLING - STABILISED PARAMETERS

ID	Well Installation Details		Monitoring 16 March 2022		Stabilised Low-Flow Parameters					Visual / Olfactory Evidence	
	Well Screen Summary (m bgl)	Screen Strata	DTW (m bgl)	DTB (m bgl)	pH	ORP (mV)	Conductivity (uS/cm)	Temperature (Deg C)	Disolved Oxygen (mg/L)	Appearance	Odour
WS101	1.0 - 5	CHSG-CHAM*	1.130	4.030	7.58	-29.8	706	9.57	0.37	Clear	No odour
BH201	6.0 - 14.7	CHAM	1.130	12.670	8.59	149.0	3,536	10.53	0.64	Clear	No odour
BH202	1.3 - 2.3	CHSG	1.130	3.000	7.13	167.9	635	10.38	2.96	Slightly cloudy	No odour
BH203	0.8 - 2.8	CHSG	1.310	3.600	7.48	-6.3	717	10.29	0.29	Very slightly cloudy	Slight hydrocarbon odour
BH204S	0.5 - 2.5	CHSG	1.180	2.720	6.95	-22.4	1,228	9.62	0.65	Cloudy	Slight hydrocarbon odour
BH204D	4.0 - 5.5	CHAM	1.180	5.670	7.27	144.4	1,598	10.24	2.34	Clear	No odour
BH205	0.5 - 2.5	CHSG	1.240	3.450	7.13	235.9	1,012	9.76	2.70	Clear	No odour
BH206	1.0 - 3.0	CHSG	1.510	2.770	7.61	-93.5	716	9.66	0.29	Clear	Hydrocarbon odour
WS203	1.0 - 3.6	CHSG	1.370	2.240	7.41	4.5	1,225	9.77	0.41	Clear	Slight hydrocarbon odour
WS204	1.0 - 1.9	CHSG	1.200	1.880	7.59	-43.9	784	9.99	0.42	Clear	Slight hydrocarbon odour
WS205	1.0 - 1.9	CHSG	1.150	1.830	7.59	-55.1	945	9.87	0.47	Clear	Slight hydrocarbon odour
WS206	1.0 - 1.9	CHSG	1.430	2.010	7.04	-75.0	1,212	9.40	0.70	Very slightly cloudy	Slight hydrocarbon odour

Notes

m bgl	metres below ground level
CHSG	Cheltenham Sand and Gravels
CHAM	Charmouth Mudstone Formation
*	WS101 was installed during he JFH ground investigaito in 2020 with the screened section of the well across both the Cheltenham Sand and Gravel and the Charmouth Mudstone Formation.

Hydrock

Site: Great Western Road Yard
Job number: 20775
Client: Eutopia Homes

Gas analyser: GA5000
Equipment check OK: Y
Service in date: Y
Calibration check OK: Y
Name of person monitoring: JFHR (Rounds 1-2)
SW / DG (Hydrock) (Rounds 3-6)

Notes on site conditions: 27/10/20 - undertaken by JFH. 03/11/20 - undertaken by JFH. 08.03.22 - Dry, sunny. 08/03/22 - dry, sunny. 16/03/22 - heavy rain. 21/03/22 - overcast, dry, cool. 30/03/22 - dry, sunny.

Notes: LEL = lower explosive limit = 5%v/v. * where the flow is less than the limit of detection of the instrument, the detection limit is reported. GSVs are rounded to 3 places.

Monitoring round		Borehole details						Pressure and flow					Gas concentrations								GSV		Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipe & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v) Initial	CH_4 (%v/v) Steady	CO_2 (%v/v) Initial	CO_2 (%v/v) Steady	O_2 (%v/v) Initial	O_2 (%v/v) Steady	Gas Screening Value (CH_4) (l/hr)	Gas Screening Value (CO_2) (l/hr)	Notes on condition of borehole and surrounding ground
								Max. individual values:				**11.8**			**1.8**		**8.8**		**28.2**	**0.0065**	**0.1287**	**Summary statistics for this monitoring period.**
								Min. individual values:				0.0			0.0		0.0		0.9	0	0	
								Worst-case GSVs based on max. individual flow and max. individual conc. over the duration of this table:												**0.2124**	**1.0384**	
27/10/20		BH101S	S	1.0	1.94		0.00724	994	S		0.1	0.1	0.7	0	0	5.67	5.9	13.8	14.1	0	0.0059	DTB - 3.00m according to logs. Historical data.
03/11/20		BH101S	S	1.0	1.78		0.00664	1003	R		0.0	0.0	0.2	0	0.1	3	4.7	16.2	16.9	0	0	DTB - 3.00m according to logs. Historical data. CO 1 ppm.
08/03/22	14:02	BH101S	S	1.0	2.03		0.00772	1010	S				0.5									DTB - 3.15m. Well monitored with PID for vapours only.
16/03/22	15:27	BH101S	S	1.0	2.07		0.00772	1016	F				0.9									Well monitored with PID for vapours only.
21/03/22	14:42	BH101S	S	1.0	1.97		0.00735	1027	S				0.9									Well monitored with PID for vapours only.
30/03/22	14:00	BH101S	S	1.0	2.12		0.00791	1007	F				1.9									DTB - 3.15m. Well monitored with PID for vapours only.
27/10/20		BH101D	S	6.0	1.86		0.00694	994	S		0.1	0.1	0.5	0	0	1.3	1.5	19.5	19.6	0	0.0015	DTB - 9.00m according to logs. Historical data. CO 1 ppm.
03/11/20		BH101D	S	6.0	1.75		0.00653	1003	R		0.0	0.0	0.8	0	0.1	2	2.7	18.3	18.8	0	0	DTB - 9.00m according to logs. Historical data. CO 3ppm.
16/03/22	15:25	BH101D	S	6.0	2.01		0.00750	1016	F				3.4									Well monitored with PID for vapours only.
21/03/22	14:40	BH101D	S	6.0	1.94		0.00724	1027	S				3.5									Well monitored with PID for vapours only.
30/03/22	13:47	BH101D	S	6.0	2.07		0.00772	1007	F				6.5									DTB - 7.15m. Well monitored with PID for vapours only.
27/10/20		BH102	S	1.0	1.23		0.00459	994	S		0.0	0.0	0.1	0	0	1.5	1.7	15.6	15.6	0	0	DTB - 3.00m according to logs. Historical data.
03/11/20		BH102	S	1.0	1.16		0.00433	1003	R		0.2	0.2	0.8	0	0.1	0	1	18.2	19.4	0.0002	0.002	DTB - 3.00m according to logs. Historical data.
16/03/22		BH102	S	1.0	1.36		0.00507	1016	F				0.2									Well monitored with PID for vapours only.
21/03/22	11:00	BH102	S	1.0	1.28		0.00478	1027	S				0.3									DTB - 3.98m. Well monitored with PID for vapours only.
30/03/22	13:35	BH102	S	1.0	1.34		0.00500	1007	F				7.1									DTB - 3.92m. Well monitored with PID for vapours only.
27/10/20		BH103	S	1.0	1.41		0.00526	994	S		0.2	0.2	0.4	0	0	2.3	2.3	27.9	28.2	0	0.0046	DTB - 4.00m according to logs. Historical data. CO 2 ppm.
03/11/20		BH103	S	1.0	1.33		0.00496	1003	R		0.0	0.0	0.8	0	0.2	1.6	2.1	16.8	19.9	0	0	DTB - 4.00m according to logs. Historical data. CO 4 ppm.
27/10/20		WS101	S	1.0	0.94		0.00351	994	S		1.3	1.3	9.4	0	0.5	0	0.1	19.9	20.2	0.0065	0.0013	DTB - 5.00m according to logs. Historical data. CO 2 ppm.
03/11/20		WS101	S	1.0	0.79		0.00295	1003	R		0.4	0.4	1.8	0.2	0.8	1.1	1.4	20	20.3	0.0032	0.0056	DTB - 5.00m according to logs. Historical data. CO 3 ppm.
08/03/22	13:24	WS101	S	1.00	1.04		0.00388	1010	S				10.2									DTB - 4.04m. Well monitored with PID for vapours only.
16/03/22	11:15	WS101	S	1.0	1.13		0.00422	1016	F				34.9									DTB - 4.03m. Well monitored with PID for vapours only.
21/03/22	13:20	WS101	S	1.0	1.05		0.00392	1027	S				47.7									DTB - 4.02m. Well monitored with PID for vapours only.

Monitoring round		Borehole details						Pressure and flow					Gas concentrations							GSV		Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipie & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Gas Screening Value (CH_4) (l/hr)	Gas Screening Value (CO_2) (l/hr)	Notes on condition of borehole and surrounding ground
														Initial	Steady	Initial	Steady	Initial	Steady			
30/03/22	09:58	WS101	S	1.0	1.07		0.00399	1007	F				20									DTB - 4.03mWell monitored with PID for vapours only.
27/10/20		WS102	S	1.0				994	S													Gas valve blocked. Historical data.
03/11/20		WS102	S	1.0	0.91		0.00339	1003	R		0.0	0.0	1.3	0	0.1	0	0.3	19.4	21.4	0	0	DTB - 5.00m according to logs. Very strong odour. Historical data.
08/03/22	09:45	WS102	S	1.0	1.14		0.00425	1010	S	0	0.1	0.1	7.5	0.4	0.1	6.3	1.1	14	20.3	0.0001	0.0011	DTB - 4.04m, LNAPL detected between 1.07m and1.14m bgl.
16/03/22	10:53	WS102	S	1.0	1.13		0.00422	1016	F				56.6									LNAPL detected between 1.05m and 1.13m
21/03/22	15:50	WS102	S	1.0	1.06		0.00395	1027	S				53.8									LNAPL detected between 0.99m and 1.06m.
30/03/22	10:07	WS102	S	1.0	1.22		0.00455	1007	F				22.9									DTB - 4.04m, LNAPL detected between 1.17m and 1.22m.
27/10/20		WS103	S	1.0	1.12		0.00418	994	S		0.1	0.1	17.8	0	0	0	0.4	19.6	20.2	0	0.0004	DTB - 2.00m according to logs. Historical data.
03/11/20		WS103	S	1.0	1.06		0.00395	1003	R		0.1	0.1	0.5	0	0.1	0	0.7	18.6	20.4	0.0001	0.0007	DTB - 2.00m according to logs. Historical data.
08/03/22	12:35	WS103	S	1.00	1.25		0.00466	1009	S				0.5									DTB - 1.93m. Well monitored with PID for vapours only.
16/03/22	12:50	WS103	S	1.0	1.26		0.00470	1016	F	0	0.2	0.2	0	0.1	0.1	2.9	2.9	19	19	0.0002	0.0058	
21/03/22	10:07	WS103	S	1.0	1.25		0.00466	1027	S	0	0.2	0.2	0	0.1	0.1	2.3	2.3	21.4	20.2	0.0002	0.0046	DTB - 1.93m Groundwater sample taken, water noted to be cloudy / silty (black).
30/03/22	12:28	WS103	S	1.0	1.34		0.00500	1007	F	0	0.0	0.0	4.3	0	0	2.7	2.7	19.5	19.5	0	0	DTB - 1.98m.
27/10/20		WS104	S	1.0	1.12		0.00418	994	S		0.0	0.0	0.2	0	0	1.2	1.5	18.7	19.2	0	0	DTB - 5.00m according to logs. Historical data.
03/11/20		WS104	S	1.0	1.02		0.00381	1003	R		0.1	0.1	0.8	0	0.1	0	0.1	20	21.6	0.0001	0.0001	DTB - 5.00m according to logs. Historical data.
08/03/22	13:50	WS104	S	1.0	1.2		0.00448	1009	S	0	0.0	0.0	0.5	0	0	2.1	2.1	18.2	18.3	0	0	DTB - 2.95m.
16/03/22	12:15	WS104	S	1.0	1.28		0.00478	1016	F	0	0.2	0.2	0.6	0.1	0.1	2.3	2.3	18.2	18.2	0.0002	0.0046	
21/03/22	09:25	WS104	S	1.0	1.17		0.00436	1027	S	0	0.2	0.2	0.2	0.1	0.1	2.4	2.4	21.5	17.6	0.0002	0.0048	DTB - 3.48m.
30/03/22	13:25	WS104	S	1.0	1.25		0.00466	1006	F	0	0.0	0.0	0	0	0	2.4	2.4	17.6	17.6	0	0	DTB - 3.46m.
27/10/20		WS105	S	1.0	1.56		0.00582	994	S		0.0	0.0	0.2	0	0	2.3	3	19	19.6	0	0	DTB - 5.00m according to logs. Historical data. CO 1 ppm.
03/11/20		WS105	S	1.0	0.97		0.00362	1003	R		3.3	3.3	0	0	0.1	2.4	3.9	16.9	19.9	0.0033	0.1287	DTB - 5.00m according to logs. Historical data. CO 3 ppm.
08/03/22	14:14	WS105	S	1.00	1.14		0.00425	1009	S	0	0.0	0.0	0.7	0.1	0.1	3.9	3.9	15.3	15.3	0	0	DTB - 3.74m, initial flow -20.5
16/03/22	15:59	WS105	S	1.0	1.18		0.00440	1016	F	0	-2.8	2.8	0.8	0.1	0.2	2.4	2.4	21.1	20	0.0056	0.0672	
21/03/22	14:01	WS105	S	1.0	1.08		0.00403	1026	S	0	-3.1	3.1	0.3	0.1	0.1	0.1	2.1	21.4	20.1	0.0031	0.0651	DTB - 3.66m Groundwater sample taken, slightly cloudy and slight sheen on water.
30/03/22	13:47	WS105	S	1.0	1.21		0.00451	1006	F	0	-11.8	11.8	0.7	0	0	1	1	20.8	21.4	0	0.118	DTB - 3.71m, initial flow -12.7
27/10/20		WS106a	S	1.0	1.56		0.00582	994	S		0.2	0.2	0	0	0	1	1.6	18.8	19.1	0	0.0032	DTB - 2.00m according to logs. Historical data.
03/11/20		WS106a	S	1.0	1.45		0.00541	1003	R		0.1	0.1	1.1	0.1	0.1	1.3	2.5	17.4	18.2	0.0001	0.0025	DTB - 2.00m according to logs. Historical data. CO 1 ppm.
08/03/22	11:37	WS106a	S	1.0	1.53		0.00571	1010	S				0									DTB - 1.60m. Well monitored with PID for vapours only.
16/03/22	14:48	WS106a	S	1.0				1016	F													Well cover/chamber flooded. Could not access.
21/03/22	10:55	WS106a	S	1.0	1.54		0.00575	1027	S				0									DTB - 1.58m.
30/03/22	12:45	WS106a	S	1.0		D		1006	F				0.6									DTB - 1.57m.
27/10/20		WS107	S	1.0	1.58		0.00589	994	S		0.2	0.2	22.6	0	0	6.3	8	9	9.8	0	0.016	DTB - 5.00m according to logs. Historical data.
03/11/20		WS107	S	1.0	1.5		0.00560	1003	R		0.0	0.0	2.8	0	0.1	5.9	8.2	10.5	11.2	0	0	DTB - 5.00m according to logs. Historical data. CO 1 ppm.
08/03/22	11:27	WS107	S	1.0	1.68		0.00627	1010	S	0	0.0	0.0	0.5	0	0	6.5	6.5	12.5	12.5	0	0	DTB - 3.87m.
16/03/22	14:35	WS107	S	1.0	1.74		0.00649	1016	F	0	0.2	0.2	0.4	0.1	0.1	1	7.1	13.7	13.3	0.0002	0.0142	

Monitoring round		Borehole details						Pressure and flow					Gas concentrations							GSV		Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipie & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Gas Screening Value (CH_4) (l/hr)	Gas Screening Value (CO_2) (l/hr)	Notes on condition of borehole and surrounding ground
														Initial	Steady	Initial	Steady	Initial	Steady			
21/03/22	11:15	WS107	S	1.0	1.68		0.00627	1027	S	0	0.2	0.2	0.3	0.1	0.1	2.4	2.4	21.3	18.3	0.0002	0.0048	DTB: 3.87m Groundwater sample taken, water noted to be cloudy with orange 'globules'.
30/03/22	12:50	WS107	S	1.0	1.87		0.00698	1007	F	0	0.0	0.0	1.6	0	0	3.8	3.8	16.6	16.6	0	0	DTB - 3.85m, bailer used to bring up water, no evidence of LNAPL, hydrocarbon odour.
27/10/20		WS109	S	1.0	1.16		0.00433	994	S		0.1	0.1	8.6	0	0	7.2	8	9	9.2	0	0.008	DTB - 4.00m according to logs. Historical data.
03/11/20		WS109	S	1.0	1.13		0.00422	1003	R		0.0	0.0	0.9	0	0.2	6.3	8.6	6.3	9	0	0	DTB - 4.00m according to logs. Historical data. CO 1 ppm.
08/03/22	15:05	WS109	S	1.0	1.26		0.00470	1009	S	0	0.0	0.0	1.9	0.1	0.1	8.8	8.8	9.7	9.7	0	0	DTB - 3.88m.
21/03/22	15:19	WS109	S	1.0	1.18		0.00440	1026	S	0	0.1	0.1	3.8	0.1	0.1	8.6	8.6	10.6	10.6	0.0001	0.0086	H2S reading: 3ppm.
30/03/22	14:30	WS109	S	1.0	1.31		0.00489	1006	F	0	0.0	0.0	1.2	0	0	6.2	6.2	8.6	12.9	0	0	DTB - 3.87m.
27/10/20		WS110	S	1.0	1.43		0.00533	994	S		0.1	0.1	0	0	0	6.8	7.5	9.9	10.2	0	0.0075	DTB - 5.00m according to logs. Historical data.
03/11/20		WS110	S	1.0	1.32		0.00492	1003	R		0.0	0.0	0.7	0	0	3.7	5.7	13.5	14.2	0	0	DTB - 5.00m according to logs. Historical data.
08/03/22		WS110	S	1.0				1010	S													Position covered by timber storage.
30/03/22		WS110	S	1.0				1006	F													Position covered by timber storage.
27/10/20		WS111	S	1.0	1.45		0.00541	994	S		0.1	0.1	0	0	0	1.2	1.9	16.8	17.3	0	0.0019	DTB - 4.00m according to logs. Historical data.
03/11/20		WS111	S	1.0	1.39		0.00519	1003	R		0.0	0.0	0.7	0.1	0.1	0.2	0.5	20.5	21.5	0	0	DTB - 4.00m according to logs. Historical data. CO 1 ppm.
08/03/22	14:45	WS111	S	1.00	1.47		0.00548	1009	S	0	0.1	0.1		0.1	0.1	5.2	5.2	6.8	6.8	0.0001	0.0026	DTB - 3.36m.
21/03/22	15:05	WS111	S	1.0	1.38		0.00515	1026	S	0	0.2	0.2	0.8	0.1	0.1	3	3	20.8	13.1	0.0002	0.006	H2S reading: 2ppm.
30/03/22	14:20	WS111	S	1.0	1.56		0.00582	1006	F	0	0.0	0.0	0.4	0	0	5.3	5.3	6.4	6.4	0	0	DTB - 3.87m.
27/10/20		WS112	S	1.0	0.77		0.00287	994	S		2.4	2.4	0.1	0	0	1.9	2.3	20	20.1	0	0.0552	DTB - 3.00m according to logs. Historical data. CO 5 ppm.
03/11/20		WS112	S	1.0	0.73		0.00272	1003	R		0.1	0.1	0.9	0.1	0.1	0.6	1.2	19.5	20.5	0.0001	0.0012	DTB - 3.00m according to logs. Historical data.
08/03/22		WS112	S	1.0				1010	S													Could not locate. Cover appears to be gone and position possibly infilled.
27/10/20		WS113	S	1.0	0.94		0.00351	994	S				0.3									DTB - 3.00m according to logs. Historical data.
03/11/20		WS113	S	1.0	0.75		0.00280	1003	R		1.7	1.7	1.1	0.1	0.1	2.7	4.1	15.9	18.8	0.0017	0.0697	DTB - 3.00m according to logs. Historical data. CO 4 ppm.
08/03/22		WS113	S	1.0				1010	S													Cover is damaged and top of well infilled, also in the centre of a busy access gate.
27/10/20		WS114	S	1.0	1.26		0.00470	994	S		0.2	0.2	0.1	0	0	0.7	0.9	20.3	21	0	0.0018	DTB - 4.00m according to logs. Historical data.
03/11/20		WS114	S	1.0	1.19		0.00444	1003	R		0.0	0.0	0.9	0	0.1	1	1.5	14.8	20.8	0	0	DTB - 4.00m according to logs. Historical data. CO 1 ppm.
27/10/20		WS115	S	1.0	1.73		0.00645	994	S		0.2	0.2	0.1	0	0	1.9	3	16.1	16.6	0	0.006	DTB - 5.00m according to logs. Historical data. 45mm of LNAPL detected. CO 2 ppm.
03/11/20		WS115	S	1.0	1.73		0.00645	1003	R		0.1	0.1	5.9	0.5	0.8	1.6	3	13.6	15.4	0.0008	0.003	DTB - 5.00m according to logs. Historical data. 500mm of LNAPL detected. CO 30 ppm.
21/01/22		WS115	S	1.0	1.7		0.00634	1036	F													DTB - 4.52m, no gas monitoring undertaken, LNAPL detected between 1.49m-1.70m bgl.
08/03/22	12:41	WS115	S	1.0	1.61		0.00634	1010	S				50.3									DTB - 4.55m, no gas monitoring undertaken, LNAPL detected between 1.35-1.61m bgl.
16/03/22	13:26	WS115	S	1.0	1.65		0.00601	1018	F				52.9									LNAPL detected between 1.40 and 1.65m.
21/03/22	15:45	WS115	S	1.0	1.61		0.00616	1027	S				53.2									LNAPL detected between 1.34 and 1.61m.
30/03/22	11:01	WS115	S	1.0	1.68		0.00601	1007	F				56.8									DTB - 4.54m, no gas monitoring undertaken, LNAPL detected between 1.42-1.68m bgl.

Monitoring round		Borehole details						Pressure and flow					Gas concentrations							GSV		Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipie & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Gas Screening Value (CH_4) (l/hr)	Gas Screening Value (CO_2) (l/hr)	Notes on condition of borehole and surrounding ground
														Initial	Steady	Initial	Steady	Initial	Steady			
27/10/20		WS116	S	1.0	1.1		0.00627	994	S		0.1	0.1	0	0		0.3	0.3	19.7	20.2	0	0.0003	DTB - 5.00m according to logs. Historical data.
03/11/20		WS116	S	1.0	0.97		0.00410	1003	R		0.0	0.0	0.1	0	0.1	0.1	0.3	10	20.8	0	0	DTB - 5.00m according to logs. Historical data. CO 1 ppm.
08/03/22	13:39	WS116	S	1.0	1.2		0.00362	1009	S	0	0.1	0.0	0.7	0	0	6.5	0.1	14.8	21.6	0	0.0001	DTB - 2.90m
16/03/22	11:57	WS116	S	1.0	1.3		0.00448	1017	F	0	0.2	0.2	0	0.1	0.1	0.2	2	20.1	19	0.0002	0.004	
21/03/22	09:44	WS116	S	1.0	1.2		0.00485	1027	S	0	0.3	0.3	0	0.1	0.1	0.2	3.1	21.3	18.2	0.0003	0.0093	DTB - 2.86m Groundwater samples taken - water noted to be cloudy.
30/03/22	13:10	WS116	S	1.0	1.29		0.00448	1006	F	0	0.0	0.0	0.1	0	0	4.4	4.4	17	17	0	0	DTB - 2.86m.
08/03/22	12:29	BH201	S	6.0	1.23		0.00481	1010	S				0.5									DTB - 14.70m. Well monitored with PID for vapours only.
16/03/22	12:23	BH201	S	6.0	1.13		0.00459	1018	F				0.8									DTB - 12.67m.
21/03/22	09:31	BH201	S	6.0	1.06		0.00422	1027	S				0.6									DTB - 12.62m.
30/03/22	13:20	BH201	S	6.0	1.11		0.00395	1007	F				0.4									DTB - 14.65m .
08/03/22	11:00	BH202	S	1.30	0.88		0.00414	1010	S	0	0.0	0.0	0.8	0	0	0.7	0.1	20.4	21.4	0	0	DTB - 3.15m, flow started at -8.9.
16/03/22	09:52	BH202	S	1.30	1.13		0.00328	1018	F	0	0.1	0.1	1.2	0.1	0.1	0.1	0.3	21.5	21.3	0.0001	0.0003	DTB - 3.00m H2 reading: 8ppm, CO reading: 2ppm.
21/03/22	12:13	BH202	S	1.30	1.09		0.00422	1027	S	1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	21.5	21.5	0	0	DTB - 2.99m H2 reading: 2ppm.
30/03/22	11:58	BH202	S	1.30	1.14		0.00407	1007	F	0	0.1	0.1	12.6	0	0	1.1	0.3	20.3	21.3	0	0.0003	DTB - 2.97m.
08/03/22	10:33	BH203	S	0.80	1.3		0.00425	1010	S				1.7									DTB - 3.70m. Well monitored with PID for vapours only.
16/03/22	10:15	BH203	S	0.80	1.31		0.00485	1018	F				0.9									DTB - 3.60m. Well monitored with PID for vapours only.
21/03/22	12:28	BH203	S	0.80	1.26		0.00489	1027	S				0.2									DTB - 3.57m. Well monitored with PID for vapours only.
30/03/22	10:58	BH203	S	0.80	1.36		0.00470	1007	F				14.5									DTB - 3.60m. Well monitored with PID for vapours only.
08/03/22	10:22	BH204S	S	0.50	1.11		0.00507	1010	S	0	0.0	0.0	1.2	0	0	2.6	0.5	19.3	20.1	0	0	DTB - 2.71m.
16/03/22	10:24	BH204S	S	0.50	1.18		0.00414	1018	F	0	0.2	0.2	0.2	0.1	0.1	0.1	0.8	21.2	20.4	0.0002	0.0016	DTB - 2.72m.
21/03/22	12:41	BH204S	S	0.50	1.13		0.00440	1027	S	0	0.2	0.2	0	0.1	0.1	0.1	0.8	21.5	20.1	0.0002	0.0016	DTB - 2.70m.
30/03/22	11:38	BH204S	S	0.50	1.18		0.00422	1007	F	0	0.1	0.1	14.7	0.1	0	4.3	0.8	17.8	20.8	0	0.0008	DTB - 2.73m.
16/03/22	10:32	BH204D	S	4.0	1.18		0.00440	1018	F				0.8									DTB - 5.67m. Well monitored with PID for vapours only.
21/03/22	12:45	BH204D	S	4.0	1.09		0.00440	1027	S				0.8									DTB - 5.61m. Well monitored with PID for vapours only.
30/03/22	10:52	BH204D	S	4.0	1.18		0.00407	1007	F				17.9									DTB - 5.63m. Well monitored with PID for vapours only.
08/03/22	10:42	BH205	S	0.50	1.16		0.00440	1010	S	0	0.1	0.1	1	0	0	0.7	0.7	20.1	20.5	0	0.0007	DTB - 3.66m.
16/03/22	10:05	BH205	S	0.50	1.24		0.00440	1018	F	0	0.2	0.2	0.9	0	0.1	0.1	0.8	21.5	20.8	0.0002	0.0016	DTB - 3.45m.
21/03/22	12:22	BH205	S	0.50	1.11		0.00407	1027	S	0	0.2	0.2	0.4	0.1	0.1	0.1	0.9	21.5	20.7	0.0002	0.0018	DTB - 3.44m.
30/03/22	11:48	BH205	S	0.50	1.21		0.00440	1007	F	0	0.0	0.0	15.1	0	0	1.1	1.1	20.4	20.4	0	0	DTB - 3.38m.
08/03/22	01:40	BH206	S	1.0	1.46		0.00433	1009	S	0	0.0	0.0	6.3	1.8	1.8	0	0	0	0.9	0	0	DTB - 3.5m.
16/03/22	13:40	BH206	S	1.0	1.51		0.00463	1016	F	0	0.2	0.2	0.5	0.1	0.1	1.8	1.8	20.9	13.7	0.0002	0.0036	DTB - 2.77m.
21/03/22	10:39	BH206	S	1.0	1.44		0.00414	1027	S	0	0.3	0.3	0	0.1	0.1	2.4	2.4	21.3	12.9	0.0003	0.0072	DTB - 2.74m.
30/03/22	12:08	BH206	S	1.0	1.51		0.00451	1007	F	0	0.0	0.0	4.2	0	0	3.1	3.1	11.6	11.6	0	0	DTB - 2.74m.
08/03/22	13:30	WS203	S	1.0	1.22		0.00545	1009	S	0	0.0	0.0	21.2	0.1	0.1	7.4	7.4	14.4	14.4	0	0	DTB - 2.25m.
16/03/22	11:27	WS203	S	1.0	1.37		0.00563	1017	F	0	0.2	0.2	18.9	0.1	0.1	5	5	20.6	15.8	0.0002	0.01	DTB - 2.24m.
21/03/22	13:24	WS203	S	1.0	1.24		0.00537	1027	S	0	0.2	0.2	12.4	0.1	0.1	7.6	7.6	21.4	12.9	0.0002	0.0152	DTB - 2.23m.
30/03/22	11:08	WS203	S	1.0	1.37		0.00563	1007	F	0	0.1	0.1	31.2	0.1	0.1	7.8	7.8	12.9	12.9	0.0001	0.0078	DTB - 2.23m.

Monitoring round		Borehole details						Pressure and flow					Gas concentrations							GSV		Local conditions
Date	Time	Borehole	Single or dual gas tap	Response zone depth (m)	Depth to water or depth of hole if dry (m)	D denotes dry hole	Volume of headspace in BH (well pipie & filter pack) (m^3)	Atmospheric pressure (hPa)	Atm pressure falling / rising / steady	Relative BH pressure (hPa)	Gas flow* (l/hr)	Gas flow* (absolute value) (l/hr)	VOC (as ppm using PID)	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Gas Screening Value (CH_4) (l/hr)	Gas Screening Value (CO_2) (l/hr)	Notes on condition of borehole and surrounding ground
														Initial	Steady	Initial	Steady	Initial	Steady			
08/03/22	09:27	WS204	S	0.90	1.12		0.00455	1010	S	0	0.1	0.1	4.3	0.3	0.2	2.9	2.9	18.7	18.7	0.0002	0.0029	DTB - 1.87m.
16/03/22	11:08	WS204	S	0.90	1.2		0.00511	1017	F	0	0.2	0.2	2.6	0.1	0.1	1.9	1.9	20.8	20.1	0.0002	0.0038	DTB - 1.88m.
21/03/22	13:10	WS204	S	0.90	1.08		0.00463	1027	S	0	0.2	0.2	2.9	0.1	0.1	2.1	2.1	19.3	19.3	0.0002	0.0042	DTB - 1.86m.
30/03/22	11:18	WS204	S	0.90	1.22		0.00511	1007	F	0	0.1	0.1	10.2	0.1	0.1	7.1	3.3	13.7	18.2	0.0001	0.0033	DTB - 1.88m.
08/03/22	10:05	WS205	S	0.90	1.06		0.00418	1010	S	0	0.0	0.0	5.9	0.1	0	3.1	3.1	18.7	18.7	0	0	DTB - 1.79m, flow started at -7.2.
16/03/22	10:42	WS205	S	0.90	1.15		0.00448	1018	F	0	0.2	0.2	19.6	0.1	0.1	0.4	4	20.8	17.8	0.0002	0.008	DTB - 1.83m CO reading: 1ppm.
21/03/22	12:54	WS205	S	0.90	1.06		0.00403	1026	S	0	-0.2	0.2	7.3	0.1	0.1	0.4	2.8	18.9	18.9	0.0002	0.0056	DTB - 1.81m, H2 reading: 1ppm, CO reading: 1ppm.
30/03/22	11:28	WS205	S	0.90	1.14		0.00455	1007	F	0	0.1	0.1	11.8	0.1	0.1	4.6	4.5	17.5	17.6	0.0001	0.0045	DTB - 1.78m.
08/03/22	12:52	WS206	S	0.90	1.36		0.00395	1009	S	0	0.1	0.1	6.3	0.1	0.1	1.1	1	20.3	20.9	0.0001	0.001	DTB - 1.98m.
16/03/22	13:17	WS206	S	0.90	1.43		0.00429	1016	F	0	0.2	0.2	5.5	0.1	0.1	0.9	0.9	21.2	20.9	0.0002	0.0018	DTB - 2.01m.
21/03/22	10:28	WS206	S	0.90	1.35		0.00395	1027	S	0	0.2	0.2	3.2	0.1	0.1	0.1	0.9	21.4	20.8	0.0002	0.0018	DTB - 1.97m.
30/03/22	12:18	WS206	S	0.90	1.45		0.00425	1007	F	0	0.0	0.0	7.7	0	0	2.9	1.1	12.7	20.6	0	0	DTB - 1.98m.

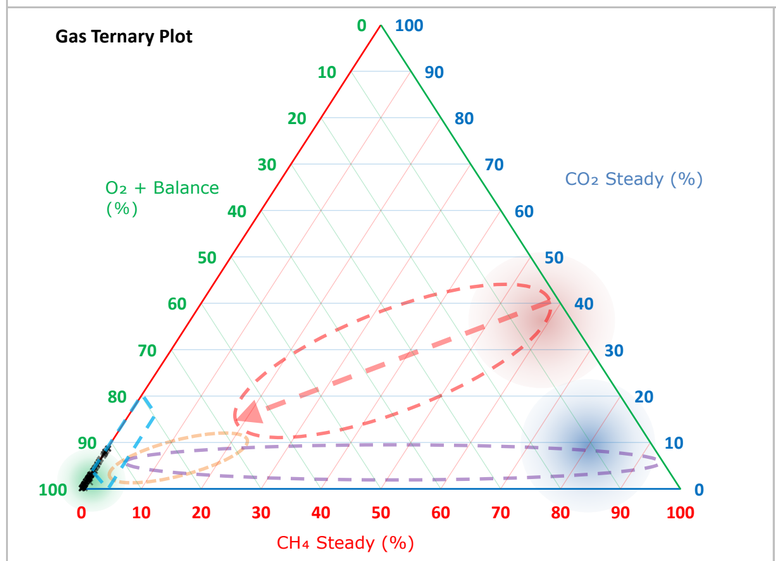
Hydrock Bulk Gases Ternary Plot Analysis

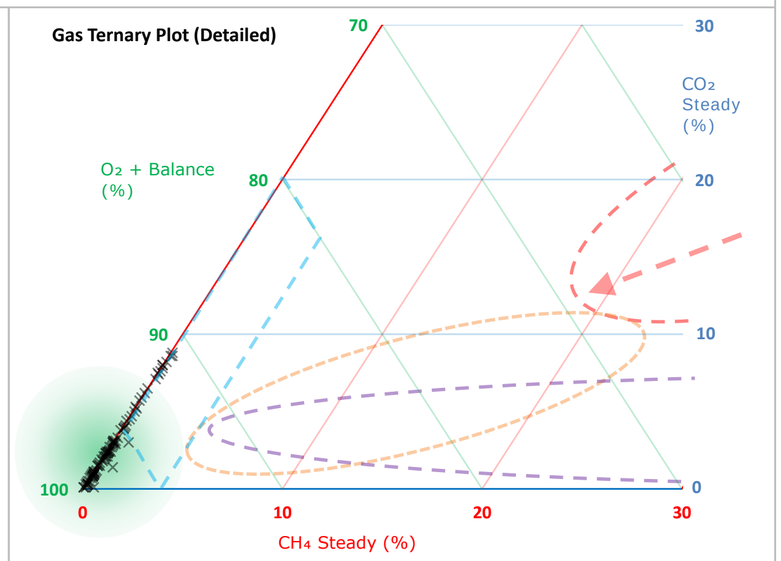
Client:	Eutopia Homes Ltd.
Site Name:	Great Western Road Yard
Contract Number:	20775
Assessment Date:	31/03/2022

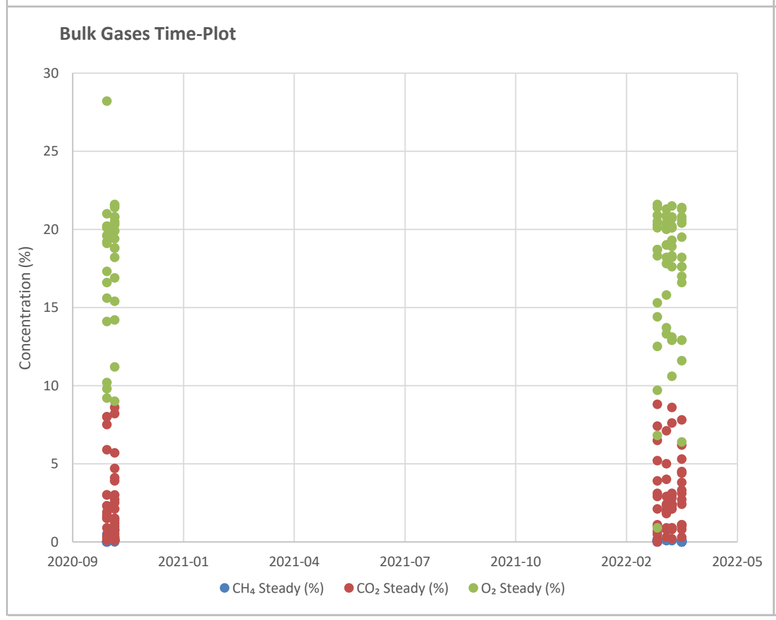
Screened Strata:	All
Site Zone:	Entire site

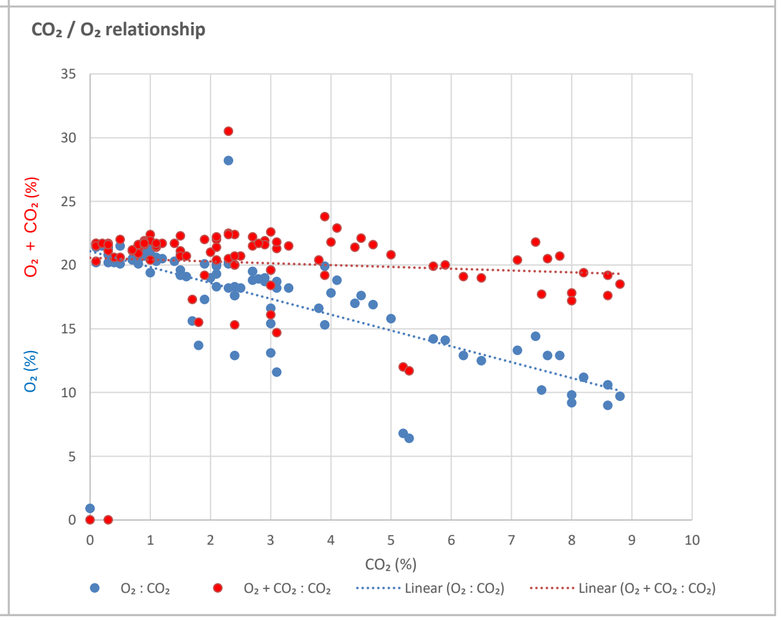
Locations

BH101D, BH101S, BH102, BH103, BH202, BH204S, BH205, BH206, WS101, WS102, WS103, WS104, WS105, WS106a, WS107, WS109, WS110, WS111, WS112, WS113, WS114, WS115, WS116, WS203, WS204, WS205, WS206, (blank)









Key:

	Indicative of landfill gas migration (assuming source composition 60% methane / 40% carbon dioxide) as it displaces air from the ground. Assumes no chemical changes. Below 20% methane and 13% carbon dioxide relationship for landfill gas migration unclear. Arrow shows direction of dilution with fresh air
	Microbial respiration of organic material in soil. Zero methane and low flow. (Direct consumption of oxygen to produce carbon dioxide)
	Potentially indicative of methane outgassing from groundwater to borehole headspace (Hydrock dataset).
	Potentially indicative of microbial degradation of LNAPL vapours in unsaturated zone. (Hydrock dataset)
	Indicative of a landfill gas source (e.g 60% CH_4 / 40% CO_2)
	Indicative of geogenic gas (e.g mine-workings)
	Fresh air

Additional Notes

A direct linear downwards relationship between CO_2 and O_2 indicates depletion of oxygen to produce carbon dioxide via microbial respiration using the following equation:
$CH_2O + O_2 \rightarrow CO_2 + H_2O$ In this scenerio $CO_2 + O_2$ should be around 21% (i.e. the O_2 concentration in the atmosphere)

There may also be trace amounts of methane up to about 3% caused by anaerobic decomposition in small anaerobic hotspots or the reduction of carbon dioxide by methanogens. Oxygen concentrations may be depleted but in this scenario oxygen deficient air is not likely to be emitted quickly from the ground and it does not pose a risk.

After: Wilson et al, 2018. Ground Gas Information Sheet No. 1
Hydrock datasets (methane outgassing / LNAPL vapour degradation)

Version: 1 09/07/2019

Appendix G Contamination Test Results and Statistical Analysis

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Analytical Report Number : 22-35341

Replaces Analytical Report Number: 22-35341, issue no. 1
Client references/information amended.

Project / Site name:	Great Western Road Yard	**Samples received on:**	24/01/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	26/01/2022
Your order number:	PO13410	**Analysis completed by:**	01/02/2022
Report Issue Number:	2	**Report issued on:**	25/03/2022
Samples Analysed:	1 water sample		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
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: 22-35341
Project / Site name: Great Western Road Yard

Your Order No: PO13410

Lab Sample Number				2149410
Sample Reference				WS115
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				21/01/2022
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	

Miscellaneous Organics

Product ID		N/A	NONE	See Appendix

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

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

Analytical Report Number : 22-35341
Project / Site name: Great Western Road Yard

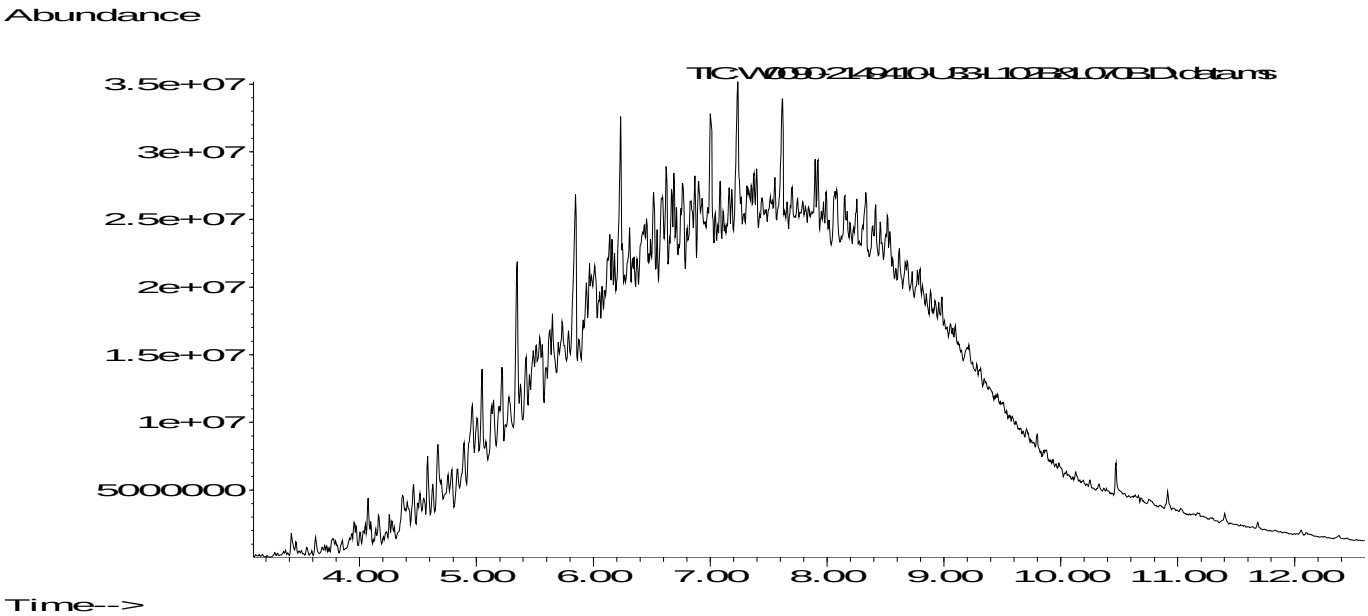
Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Product ID	Determination of product ID by interpretation against standard chromatograms - Water.	In-house method	L070-PL/UK	W	NONE

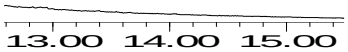
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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.

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.



The total ion count (TIC trace) shows a carbon range from C10 to C28.
The sample TIC trace is complex, showing aromatic and aliphatic product sources.
The chromatographic profile is consistent with biodegraded diesel fuel.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15.00

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Analytical Report Number : 22-41799

Replaces Analytical Report Number: 22-41799, issue no. 1
Additional analysis undertaken.

Project / Site name:	Great Western Road Yard, Gloucester	**Samples received on:**	24/02/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	24/02/2022
Your order number:	PO14219	**Analysis completed by:**	21/03/2022
Report Issue Number:	2	**Report issued on:**	21/03/2022
Samples Analysed:	40 soil samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
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: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184829	2184830	2184831	2184832	2184833
Sample Reference				TP201	TP202	TP203	TP203	TP203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.50	0.20	0.60	2.00
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
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	59	25	< 0.1
Moisture Content	%	0.01	NONE	14	10	5.6	7.8	10
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	-	-
Asbestos Analyst ID	N/A	N/A	N/A	DBU		DBU		

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	8.2	-	8.3	-	-
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.14	-	0.029	-	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.041	-	0.022	-	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.63	-	< 0.05	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.29	-	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	0.48	-	< 0.05	-	-
Fluorene	mg/kg	0.05	MCERTS	0.84	-	< 0.05	-	-
Phenanthrene	mg/kg	0.05	MCERTS	3.4	-	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	1	-	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	5.4	-	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	4.8	-	< 0.05	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	5.3	-	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	4.2	-	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	4.9	-	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	2.3	-	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.5	-	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.4	-	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.97	-	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.4	-	< 0.05	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	42.8	-	< 0.80	-	-

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184829	2184830	2184831	2184832	2184833
Sample Reference				TP201	TP202	TP203	TP203	TP203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.50	0.20	0.60	2.00
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	-	6.6	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1	-	0.19	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	-	0.4	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.6	-	0.9	-	-
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	-	< 1.2	-	-
Chromium (III)	mg/kg	1	NONE	25	-	16	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	-	16	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	180	-	23	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	210	-	100	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.4	-	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	-	7.4	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	-	7.3	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	480	-	110	-	-
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
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	3.1	< 0.001	< 0.001	14
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	9.9	190	< 1.0	4	210
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	220	2400	19	55	2800
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	490	3600	68	80	3400
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	1500	620	220	60	1700
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	2000	4200	290	140	5100
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	870	< 8.4	76	40	930
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	2300	6800	310	200	8100
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	3100	6800	390	240	9000
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	1.5	< 0.001	< 0.001	0.66
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	5.4	100	1.8	4.6	130
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	150	1800	23	55	2100
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	590	3400	39	83	3000
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	1400	650	63	47	1000
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	790	< 8.4	44	39	12
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	2200	6000	130	190	6200
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	3000	6000	170	230	6200
TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	6100	13000	560	470	15000

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184829	2184830	2184831	2184832	2184833
Sample Reference				TP201	TP202	TP203	TP203	TP203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.50	0.20	0.60	2.00
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
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
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	-	-	-	310
Bromobenzene	µg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	-	-	-	350
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	-	-	-	720
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	-	-	-	1000
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	-	-	-	850

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184829	2184830	2184831	2184832	2184833
Sample Reference				TP201	TP202	TP203	TP203	TP203
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	1.50	0.20	0.60	2.00
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
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
1,2,4-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

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-	-	-	-	-

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

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184834	2184835	2184836	2184837	2184838
Sample Reference				TP204	TP205	TP205	TP206	TP206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.40	1.50	0.10	0.50
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
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	34	< 0.1	< 0.1	15
Moisture Content	%	0.01	NONE	5.9	8	11	9.3	6.5
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	-
Asbestos Analyst ID	N/A	N/A	N/A		DBU		DBU	

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	-	8.3	-	8.2	-
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	-	-
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Thiocyanate as SCN	mg/kg	5	NONE	-	< 5.0	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.032	-	0.049	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	-	0.03	-	0.044	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	2.8	-	< 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	-	0.43	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	-	1.6	-	0.58	-
Anthracene	mg/kg	0.05	MCERTS	-	0.24	-	0.37	-
Fluoranthene	mg/kg	0.05	MCERTS	-	0.23	-	1.1	-
Pyrene	mg/kg	0.05	MCERTS	-	0.26	-	1	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.81	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.79	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.97	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.28	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.37	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.35	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.39	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	5.53	-	6.97	-

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184834	2184835	2184836	2184837	2184838
Sample Reference				TP204	TP205	TP205	TP206	TP206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.40	1.50	0.10	0.50
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	19	-	9.9	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.3	-	0.9	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.3	-	0.8	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.8	-	0.4	-
Chromium (hexavalent)	mg/kg	1.2	NONE	-	< 1.2	-	< 1.2	-
Chromium (III)	mg/kg	1	NONE	-	15	-	18	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	15	-	18	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	92	-	42	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	76	-	27	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	20	-	22	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	25	-	18	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	84	-	88	-

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 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

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	2.3	-	16	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	24	-	190	1	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	400	-	2900	15	13
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	650	-	4200	36	38
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	290	-	1600	72	45
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	940	-	5800	110	83
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	99	-	630	46	32
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	1400	-	8900	120	97
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	1500	-	9500	170	130

TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	0.052	-	2.6	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	22	-	160	< 1.0	2
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	480	-	2700	5.7	15
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	810	-	4000	23	28
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	290	-	1200	23	38
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	47	-	17	14	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	1600	-	8000	52	82
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	1600	-	8000	66	82

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	3100	-	18000	230	210

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184834	2184835	2184836	2184837	2184838
Sample Reference				TP204	TP205	TP205	TP206	TP206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.40	1.50	0.10	0.50
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
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	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184834	2184835	2184836	2184837	2184838
Sample Reference				TP204	TP205	TP205	TP206	TP206
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80	0.40	1.50	0.10	0.50
Date Sampled				16/02/2022	16/02/2022	16/02/2022	16/02/2022	16/02/2022
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	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	< 0.007	< 0.007	-	-

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-	-	-	-	-

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

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184839	2184840	2184841	2184842	2184843
Sample Reference				TP206	TP207	TP207	TP209	TP210
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.60	1.20	0.30	0.30
Date Sampled				16/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
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	9.6	12	3.1	33	37
Moisture Content	%	0.01	NONE	13	7.2	10	9.5	13
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
Asbestos Analyst ID	N/A	N/A	N/A		DBU		DBU	DBU

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	-	8	-	8.4	8.1
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.025	-	0.03	0.12
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	-	0.0059	-	0.03	0.053
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.62	1.6
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.55	0.38
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.27	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.44	0.33
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	2.1	1.6
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	1.2	0.38
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	3.1	1.2
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	2.9	1.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	1.6	1.1
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	1.7	1.1
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	1.8	0.98
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.55	0.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.99	0.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.65	0.65
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.21	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	0.68	0.62

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	19.3	12.2

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184839	2184840	2184841	2184842	2184843
Sample Reference				TP206	TP207	TP207	TP209	TP210
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.60	1.20	0.30	0.30
Date Sampled				16/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	16	-	24	33
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.36	-	0.86	3
Boron (water soluble)	mg/kg	0.2	MCERTS	-	< 0.2	-	0.5	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 (III)	mg/kg	1	NONE	-	13	-	23	17
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	13	-	23	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	15	-	380	460
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	9.1	-	280	460
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	17	-	28	63
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	23	-	31	40
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	48	-	250	170
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
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	18	< 0.001	6.4	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	170	2	120	< 1.0	2.3
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	2500	18	1800	9	24
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	3800	42	2800	21	53
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	1400	49	1200	300	70
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	5200	91	4100	320	120
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	250	34	420	190	35
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	7900	110	6000	330	150
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	8100	150	6400	520	180
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	4.8	< 0.001	0.45	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	190	< 1.0	71	2.2	2
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	2500	13	1400	18	32
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	3600	29	2400	28	59
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	840	43	570	130	60
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	14	< 8.4	90	18
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	7200	85	4400	180	150
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	7200	99	4400	270	170
TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	15000	240	11000	790	360

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184839	2184840	2184841	2184842	2184843
Sample Reference				TP206	TP207	TP207	TP209	TP210
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.60	1.20	0.30	0.30
Date Sampled				16/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
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	72	-	< 1.0
Bromobenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	-	< 1.0	160	-	< 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	53	-	< 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	170	-	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	-	< 1.0	220	-	< 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	200	-	< 1.0

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184839	2184840	2184841	2184842	2184843
Sample Reference				TP206	TP207	TP207	TP209	TP210
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.60	1.20	0.30	0.30
Date Sampled				16/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
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

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	< 0.001

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	< 0.007

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-	-	-	-	None Detected

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

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184844	2184845	2184846	2184847	2184848
Sample Reference				TP210	TP211	TP211	TP213	TP213
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.20	1.50
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
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	47	16	10	12
Moisture Content	%	0.01	NONE	12	6.7	15	14	9.2
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	-
Asbestos Analyst ID	N/A	N/A	N/A	DBU	DBU		DBU	

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	8.6	8.4	-	7.9	-
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.019	0.022	-	0.045	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.016	0.029	-	0.048	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.53	-	0.57	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.61	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.23	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	8	0.33	-	0.38	-
Phenanthrene	mg/kg	0.05	MCERTS	11	2.2	-	1.4	-
Anthracene	mg/kg	0.05	MCERTS	1.5	1	-	0.44	-
Fluoranthene	mg/kg	0.05	MCERTS	1.4	4.1	-	1.6	-
Pyrene	mg/kg	0.05	MCERTS	1.1	3.3	-	1.5	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	3.1	-	1.3	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	2.6	-	1.2	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	2.6	-	1.3	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.1	-	0.44	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.8	-	0.76	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.1	-	0.63	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.38	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.97	-	0.77	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	22.7	25.8	-	12.3	-

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184844	2184845	2184846	2184847	2184848
Sample Reference				TP210	TP211	TP211	TP213	TP213
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.20	1.50
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.1	14	-	24	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.22	0.61	-	1.8	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	< 0.2	-	0.3	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.7	-	< 0.2	-
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	-	< 1.2	-
Chromium (III)	mg/kg	1	NONE	5.5	20	-	20	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	6.2	20	-	20	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	16	71	-	150	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	7.4	61	-	95	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.8	24	-	40	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	13	23	-	36	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	32	110	-	100	-

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

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	7.2
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	250	4	140	6.4	110
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	3400	34	2200	52	1900
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	4100	46	3000	95	2700
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	1400	69	1500	280	1000
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	5500	110	4500	370	3700
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	570	56	580	230	330
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	9200	150	6800	430	5700
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	9700	210	7400	660	6000

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	160	< 1.0	30	4.5	62
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	2400	23	1200	58	1500
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	3700	55	3000	100	2300
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	680	44	1000	220	480
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	11	48	200	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	6900	120	5200	380	4300
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	6900	130	5300	570	4300

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	17000	340	13000	1200	10000

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184844	2184845	2184846	2184847	2184848
Sample Reference				TP210	TP211	TP211	TP213	TP213
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.20	1.50
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
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	-	-	-	-
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: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184844	2184845	2184846	2184847	2184848
Sample Reference				TP210	TP211	TP211	TP213	TP213
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	0.50	1.50	0.20	1.50
Date Sampled				17/02/2022	17/02/2022	17/02/2022	17/02/2022	17/02/2022
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	-	-	-	-
1,2,4-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	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	< 0.007	-	-	-	-

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	None Detected	-	-	-	-

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

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184849	2184850	2184851	2184852	2184853
Sample Reference				TP214	TP214	TP215	TP216	TP217
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	1.20	0.50	1.10
Date Sampled				17/02/2022	17/02/2022	17/02/2022	21/02/2022	21/02/2022
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	21	< 0.1	9.3	17	26
Moisture Content	%	0.01	NONE	10	11	9.7	8.7	9.9
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	-
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE		ASE	

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	8.4	8.1	-	8.4	-
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0063	0.049	-	0.061	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.008	0.012	-	0.011	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	2.2	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	0.36	2	-	0.35	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	0.43	0.43	-	0.44	-
Pyrene	mg/kg	0.05	MCERTS	0.37	0.6	-	0.51	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.61	< 0.05	-	0.37	-
Chrysene	mg/kg	0.05	MCERTS	0.46	< 0.05	-	0.3	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.57	< 0.05	-	0.3	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.25	< 0.05	-	0.11	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.34	< 0.05	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.27	< 0.05	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.22	< 0.05	-	< 0.05	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	3.88	5.27	-	2.38	-

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184849	2184850	2184851	2184852	2184853
Sample Reference				TP214	TP214	TP215	TP216	TP217
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	1.20	0.50	1.10
Date Sampled				17/02/2022	17/02/2022	17/02/2022	21/02/2022	21/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	9.2	-	19	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.36	0.26	-	0.64	-
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	0.7	-
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 (III)	mg/kg	1	NONE	8.9	8.8	-	18	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9	8.9	-	18	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	11	-	38	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27	6.4	-	38	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	12	-	21	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	18	16	-	28	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	52	34	-	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	8.1	< 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

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	2.3	5	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	2.7	58	48	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	33	1700	710	28	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	38	2400	960	46	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	18	760	300	19	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	55	3100	1300	65	< 10
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	8.6	250	67	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	91	4900	2000	92	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	100	5100	2100	92	< 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	0.008	< 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	23	21	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	27	830	670	25	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	42	1700	1100	93	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	330	300	36	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	27	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	77	2800	2100	150	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	77	2800	2100	150	< 10

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	180	8000	4200	250	< 10

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184849	2184850	2184851	2184852	2184853
Sample Reference				TP214	TP214	TP215	TP216	TP217
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	1.20	0.50	1.10
Date Sampled				17/02/2022	17/02/2022	17/02/2022	21/02/2022	21/02/2022
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	-	-	-
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	-	8.1	-	-	-
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	-	52	-	-	-
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: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184849	2184850	2184851	2184852	2184853
Sample Reference				TP214	TP214	TP215	TP216	TP217
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.60	1.30	1.20	0.50	1.10
Date Sampled				17/02/2022	17/02/2022	17/02/2022	21/02/2022	21/02/2022
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	-	-	-
1,2,4-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	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-	-	-	-	-

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

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184854	2184855	2184856	2184857	2184858
Sample Reference				TP217	TP219	TP219	TP221	TP223
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.00	1.20	0.20	1.60
Date Sampled				21/02/2022	21/02/2022	21/02/2022	21/02/2022	21/02/2022
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	19	< 0.1	11	35	< 0.1
Moisture Content	%	0.01	NONE	13	11	13	15	16
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	-
Asbestos Analyst ID	N/A	N/A	N/A		ASE	ASE	ASE	

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	7.6	-	-	-
pH - Automated	pH Units	N/A	MCERTS	-	-	8.6	7.8	-
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	-
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.13	0.017	0.023	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	-	-	0.0016	0.039	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	0.11	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	1.4	< 1.0	< 1.0	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.76	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.22	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.43	-
Phenanthrene	mg/kg	0.05	MCERTS	-	9.3	< 0.05	2.5	-
Anthracene	mg/kg	0.05	MCERTS	-	5.2	< 0.05	0.9	-
Fluoranthene	mg/kg	0.05	MCERTS	-	1.9	< 0.05	5.1	-
Pyrene	mg/kg	0.05	MCERTS	-	3.1	< 0.05	4.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	3.7	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	3.1	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	2.5	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	1.3	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	1.8	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.92	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.36	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	< 0.05	0.82	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	19.5	< 0.80	28.6	-

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

Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184854	2184855	2184856	2184857	2184858
Sample Reference				TP217	TP219	TP219	TP221	TP223
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.00	1.20	0.20	1.60
Date Sampled				21/02/2022	21/02/2022	21/02/2022	21/02/2022	21/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	17	12	16	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.3	0.3	1.5	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	8.2	< 0.2	0.3	-
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 (III)	mg/kg	1	NONE	-	17	9.2	21	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	17	9.2	21	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	45	12	99	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	32	6.9	55	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	22	15	39	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	28	18	50	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	1200	41	60	-
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	2.5	< 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	2.6	< 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
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	85	< 1.0	3.6	1.7
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	1900	< 2.0	11	12
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	10000	< 8.0	< 8.0	11
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	99000	< 8.0	13	9
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	< 10	110000	< 10	13	21
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	28000	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	110000	< 10	35	34
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	140000	< 10	35	34
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	0.003	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001	0.024	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	230	< 1.0	2.1	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	1100	< 2.0	14	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	2300	< 10	17	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	23000	< 10	18	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	5900	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	< 10	27000	< 10	52	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	33000	< 10	52	< 10
TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	< 10	170000	< 10	87	34

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184854	2184855	2184856	2184857	2184858
Sample Reference				TP217	TP219	TP219	TP221	TP223
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.00	1.20	0.20	1.60
Date Sampled				21/02/2022	21/02/2022	21/02/2022	21/02/2022	21/02/2022
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	-
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	-	2.5	-	< 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	-	2.6	-	< 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	-	21	-	< 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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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184854	2184855	2184856	2184857	2184858
Sample Reference				TP217	TP219	TP219	TP221	TP223
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	0.00	1.20	0.20	1.60
Date Sampled				21/02/2022	21/02/2022	21/02/2022	21/02/2022	21/02/2022
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	-
1,2,4-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	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-	-	-	-	-

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

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184859	2184860	2184861	2184862	2184863
Sample Reference				TP226	TP227	TP228	TP229	TP230
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.10	1.50	1.40	0.40
Date Sampled				22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
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	6.3	< 0.1
Moisture Content	%	0.01	NONE	17	15	14	15	12
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
Asbestos Analyst ID	N/A	N/A	N/A					ASE

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	-	-	-	-	8.1
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	-	-	-	-	< 1.0
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	0.016
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	-	-	-	-	0.0088
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	< 0.05
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
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

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	-	-	< 0.80

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184859	2184860	2184861	2184862	2184863
Sample Reference				TP226	TP227	TP228	TP229	TP230
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.10	1.50	1.40	0.40
Date Sampled				22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	18
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	-	0.77
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	-	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	-	-	-	-	< 1.2
Chromium (III)	mg/kg	1	NONE	-	-	-	-	31
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	65

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

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	14	2.7	31	< 1.0	5
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	270	24	490	< 2.0	44
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	380	31	800	< 8.0	68
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	160	10	320	< 8.0	49
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	540	42	1100	< 10	120
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	37	< 8.4	48	< 8.4	20
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	820	68	1600	< 10	170
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	860	68	1700	< 10	190

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	0.36	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	5.5	4.7	24	< 1.0	4.4
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	220	30	580	< 2.0	41
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	450	37	990	< 10	68
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	140	12	320	< 10	46
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	13	< 8.4	29	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	820	84	1900	< 10	160
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	830	84	1900	< 10	160

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	1700	150	3600	< 10	350

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184859	2184860	2184861	2184862	2184863
Sample Reference				TP226	TP227	TP228	TP229	TP230
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.10	1.50	1.40	0.40
Date Sampled				22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
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	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184859	2184860	2184861	2184862	2184863
Sample Reference				TP226	TP227	TP228	TP229	TP230
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.60	1.10	1.50	1.40	0.40
Date Sampled				22/02/2022	22/02/2022	22/02/2022	22/02/2022	22/02/2022
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	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-	-	-	-	-

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

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184864	2184865	2184866	2184867	2184868
Sample Reference				TP230	CPT 201	CPT 206	CPT 206	CPT 208
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.10	0.30	0.30	1.20	0.80
Date Sampled				22/02/2022	15/02/2022	17/02/2022	17/02/2022	17/02/2022
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	31	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	8.5	5.9	9.8	5.9
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	-	-
Asbestos Analyst ID	N/A	N/A	N/A	ASE	ASE	ASE		

General Inorganics

pH - Manual	pH Units	N/A	MCERTS	-	-	-	-	-
pH - Automated	pH Units	N/A	MCERTS	8.5	8.7	8.8	-	-
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
Thiocyanate as SCN	mg/kg	5	NONE	-	-	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.042	0.049	0.034	-	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.015	0.066	0.0055	-	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	-	-	-	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	3.8	< 0.05	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.34	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	2.8	< 0.05	-	-
Fluorene	mg/kg	0.05	MCERTS	5.6	3.6	0.22	-	-
Phenanthrene	mg/kg	0.05	MCERTS	7.3	35	0.4	-	-
Anthracene	mg/kg	0.05	MCERTS	1.4	8.8	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	0.82	46	0.3	-	-
Pyrene	mg/kg	0.05	MCERTS	0.72	41	0.26	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	55	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	42	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	44	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	17	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	32	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	16	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	6.5	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	16	< 0.05	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	15.9	371	1.18	-	-

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184864	2184865	2184866	2184867	2184868
Sample Reference				TP230	CPT 201	CPT 206	CPT 206	CPT 208
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.10	0.30	0.30	1.20	0.80
Date Sampled				22/02/2022	15/02/2022	17/02/2022	17/02/2022	17/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.3	18	27	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.22	1.1	0.14	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 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 (III)	mg/kg	1	NONE	7	15	6.8	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7	15	7.5	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	94	7.3	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6.1	53	23	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	25	7.6	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	13	29	5.2	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	34	66	160	-	-

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

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	2.5	-	-	< 0.001	9.6
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	130	-	-	190	120
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	1400	-	-	2200	1400
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	1900	-	-	3000	2100
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	460	-	-	2000	710
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	2300	-	-	5000	2800
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	43	-	-	960	140
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	3900	-	-	7400	4300
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	3900	-	-	8300	4400

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	0.81	-	-	< 0.001	0.68
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	79	-	-	120	87
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	1900	-	-	2400	1800
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	3000	-	-	4200	2800
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	760	-	-	2400	940
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	40	-	-	900	110
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	5800	-	-	9200	5600
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	5800	-	-	10000	5700

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	9800	-	-	18000	10000

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Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184864	2184865	2184866	2184867	2184868
Sample Reference				TP230	CPT 201	CPT 206	CPT 206	CPT 208
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.10	0.30	0.30	1.20	0.80
Date Sampled				22/02/2022	15/02/2022	17/02/2022	17/02/2022	17/02/2022
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	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-

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

Analytical Report Number: 22-41799
Project / Site name: Great Western Road Yard, Gloucester
Your Order No: PO14219

Lab Sample Number				2184864	2184865	2184866	2184867	2184868
Sample Reference				TP230	CPT 201	CPT 206	CPT 206	CPT 208
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.10	0.30	0.30	1.20	0.80
Date Sampled				22/02/2022	15/02/2022	17/02/2022	17/02/2022	17/02/2022
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	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-

Total PCBs by GC-MS

Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

Pesticide and Herbicide Screen

GCMS Pesticide Screen		N/A	NONE	-	-	-	-	-

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 : 22-41799
Project / Site name: Great Western Road Yard, Gloucester

* 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 *
2184829	TP201	None Supplied	0.4	Brown loam and sand with gravel.
2184830	TP202	None Supplied	1.5	Brown sand with gravel.
2184831	TP203	None Supplied	0.2	Brown loam and clay with stones and vegetation.
2184832	TP203	None Supplied	0.6	Brown sand with stones.
2184833	TP203	None Supplied	2	Brown sand with gravel.
2184834	TP204	None Supplied	0.8	Brown sand with gravel.
2184835	TP205	None Supplied	0.4	Brown loam and sand with gravel and stones.
2184836	TP205	None Supplied	1.5	Brown sand with gravel.
2184837	TP206	None Supplied	0.1	Brown loam and sand with gravel and vegetation.
2184838	TP206	None Supplied	0.5	Brown sand with gravel and stones.
2184839	TP206	None Supplied	1.5	Grey clay and sand with stones and gravel
2184840	TP207	None Supplied	0.6	Brown clay and sand with stones.
2184841	TP207	None Supplied	1.2	Brown clay and sand with stones and gravel
2184842	TP209	None Supplied	0.3	Brown clay and sand with stones and gravel
2184843	TP210	None Supplied	0.3	Black loam and sand with stones and gravel
2184844	TP210	None Supplied	1.5	Brown sandy loam.
2184845	TP211	None Supplied	0.5	Brown loam and sand with stones and gravel
2184846	TP211	None Supplied	1.5	Brown clay and sand with stones and gravel
2184847	TP213	None Supplied	0.2	Brown loam and sand with stones and vegetation.
2184848	TP213	None Supplied	1.5	Brown clay and sand with stones and gravel
2184849	TP214	None Supplied	0.6	Brown clay and sand with stones and gravel
2184850	TP214	None Supplied	1.3	Brown clay and sand with gravel.
2184851	TP215	None Supplied	1.2	Brown clay and sand with stones and gravel
2184852	TP216	None Supplied	0.5	Brown clay and sand with stones and gravel
2184853	TP217	None Supplied	1.1	Brown clay and sand with stones and gravel
2184854	TP217	None Supplied	1.6	Brown clay and sand with gravel and stones.
2184855	TP219	None Supplied	0	Black clay and loam with vegetation and gravel
2184856	TP219	None Supplied	1.2	Brown clay and sand with stones and gravel
2184857	TP221	None Supplied	0.2	Black clay and loam with stones and gravel
2184858	TP223	None Supplied	1.6	Brown clay and sand with gravel.
2184859	TP226	None Supplied	1.6	Brown clay and loam with gravel.
2184860	TP227	None Supplied	1.1	Brown clay and sand with gravel.
2184861	TP228	None Supplied	1.5	Brown clay and sand with gravel.
2184862	TP229	None Supplied	1.4	Brown clay and sand with stones and gravel
2184863	TP230	None Supplied	0.4	Brown clay and sand.
2184864	TP230	None Supplied	1.1	Brown sand with gravel.
2184865	CPT 201	None Supplied	0.3	Brown loam and sand with gravel and stones.
2184866	CPT 206	None Supplied	0.3	Brown sand with gravel and vegetation.
2184867	CPT 206	None Supplied	1.2	Brown sand with gravel.
2184868	CPT 208	None Supplied	0.8	Brown sand with gravel.

Analytical Report Number : 22-41799
Project / Site name: Great Western Road Yard, Gloucester

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	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
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
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
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
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 in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-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
Thiocyanate in soil	Determination of thiocyanate in soil by extraction in water followed by acidification followed by addition of ferric nitrate followed by discrete analyser (spectrophotometer).	In-house method	L082-PL	D	NONE
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 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

Analytical Report Number : 22-41799
Project / Site name: Great Western Road Yard, Gloucester

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
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
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
GC Pesticide Screen (TIC)	Analysis of unknown pesticides by GCMS	GC Pesticide Screen (TIC)	L064B	D	NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS

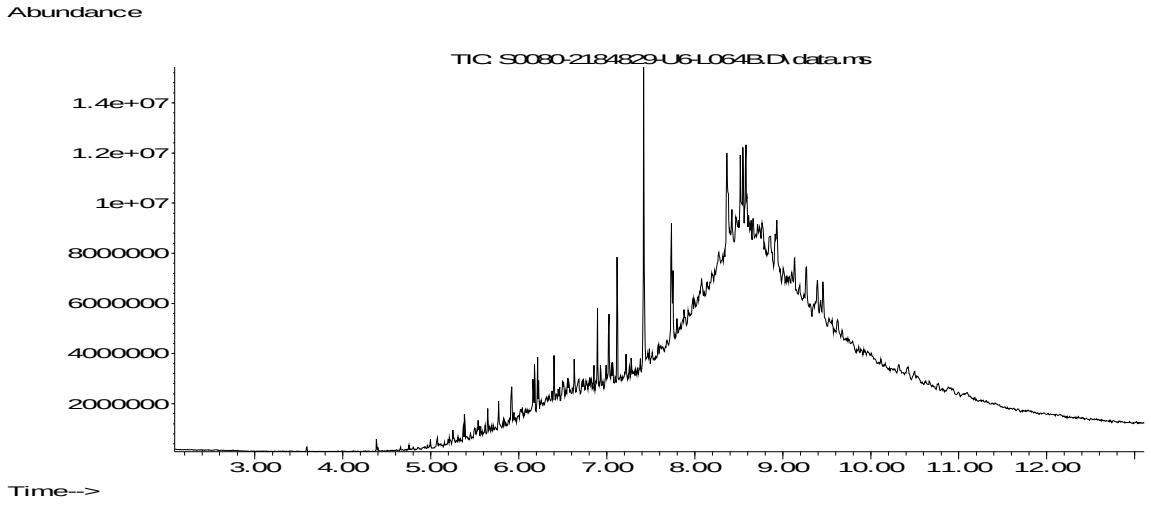
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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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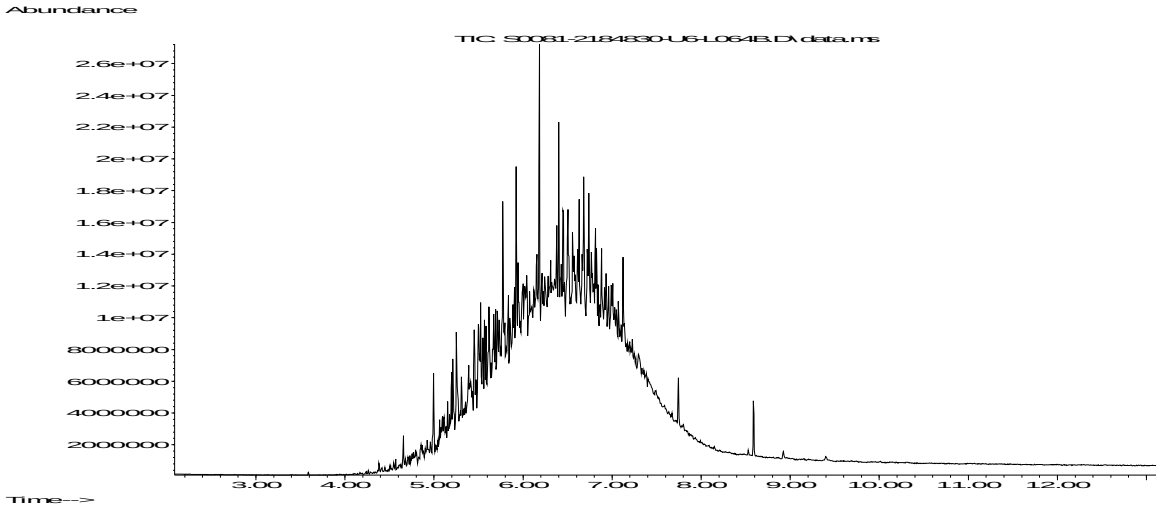
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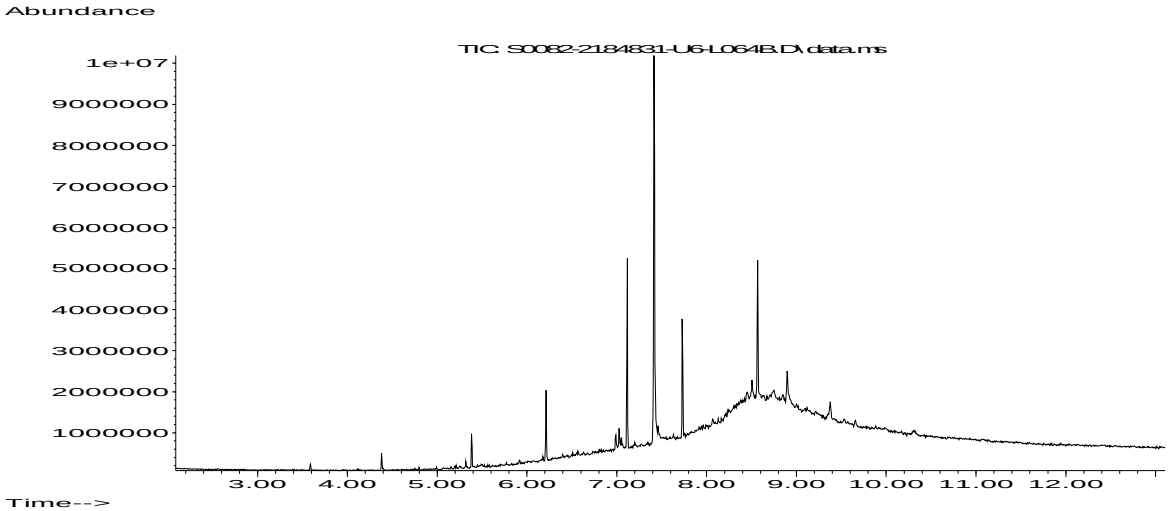
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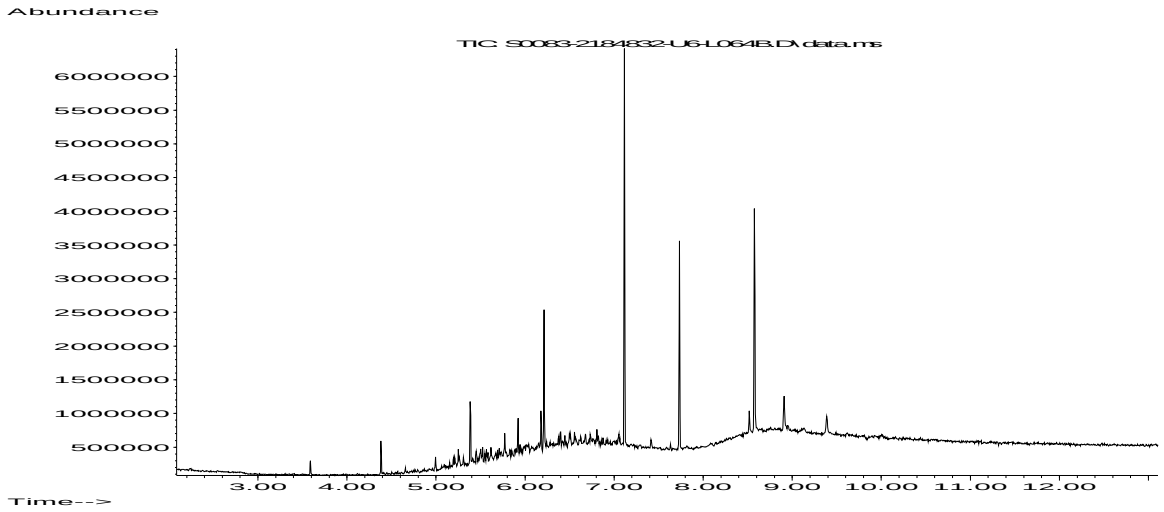
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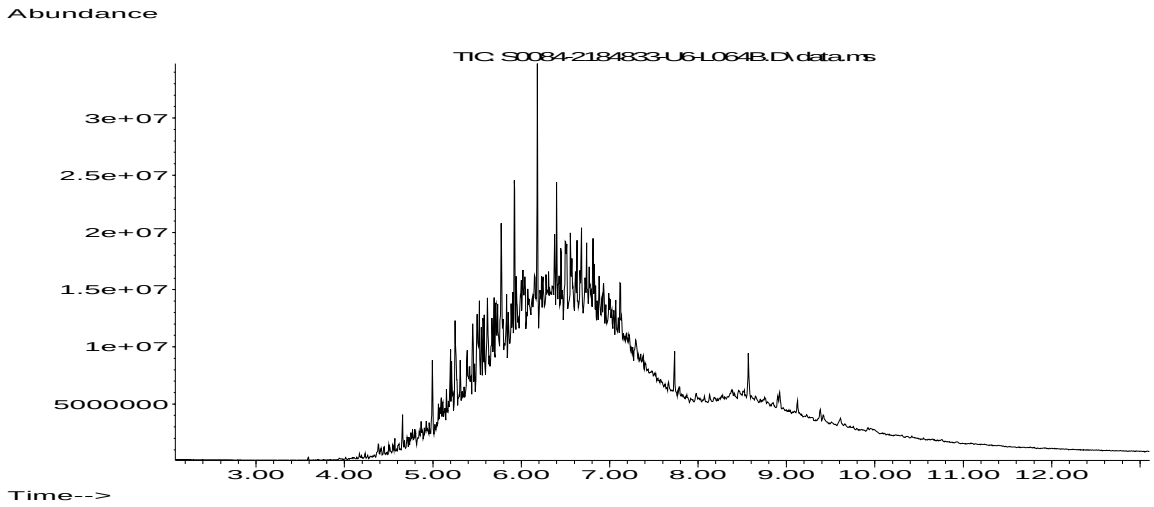
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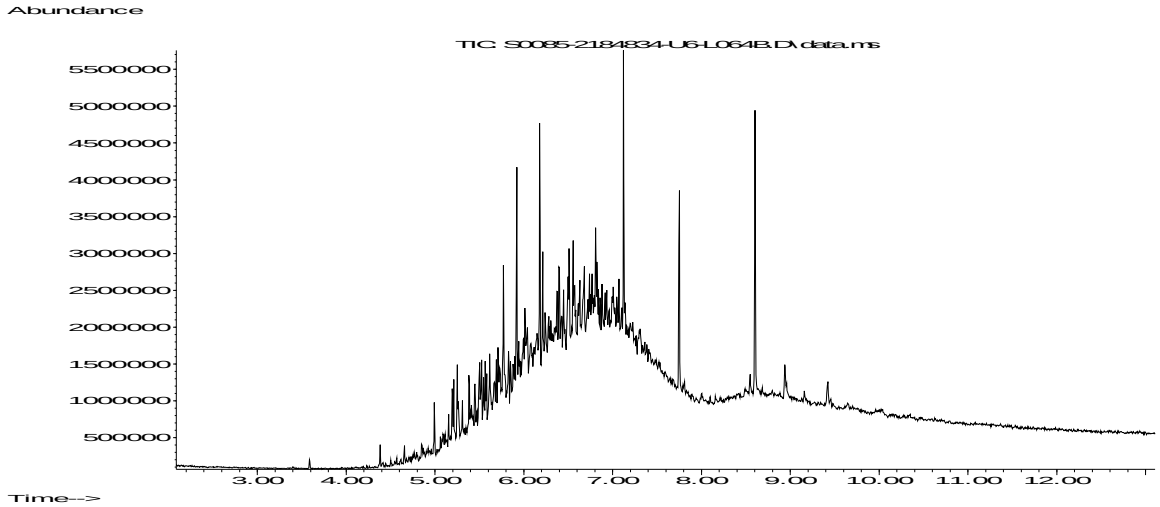
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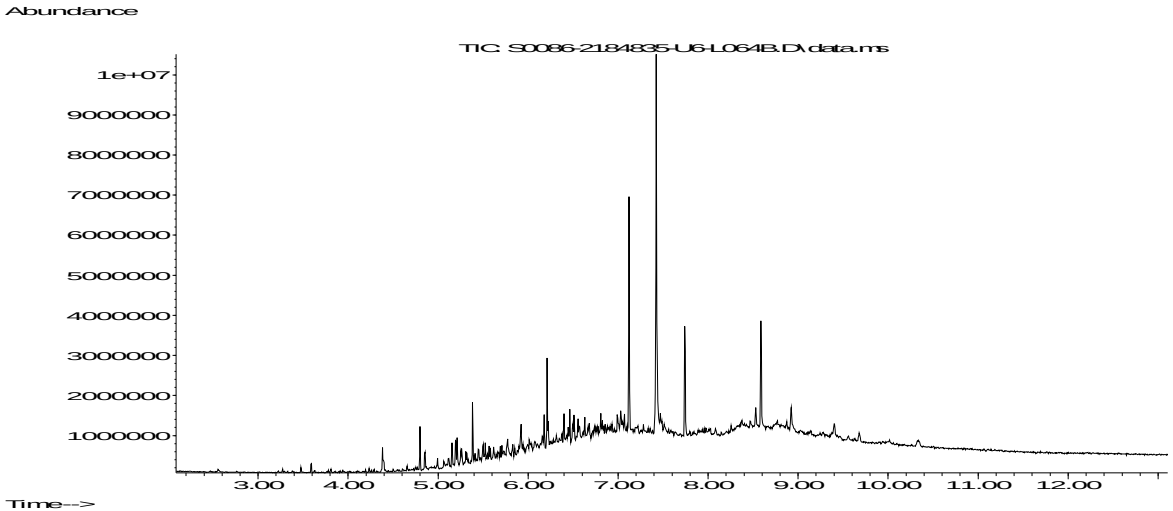
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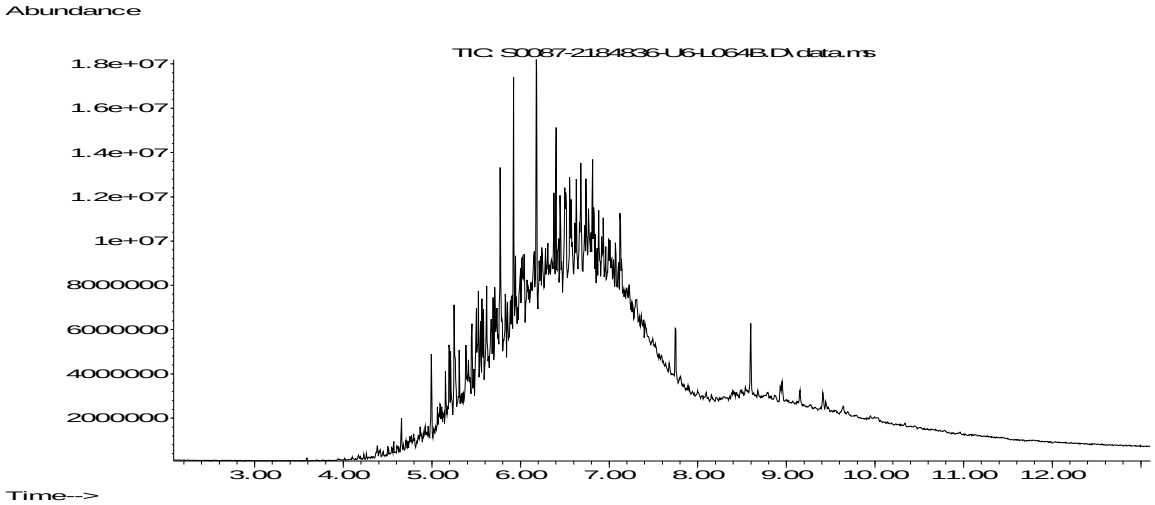
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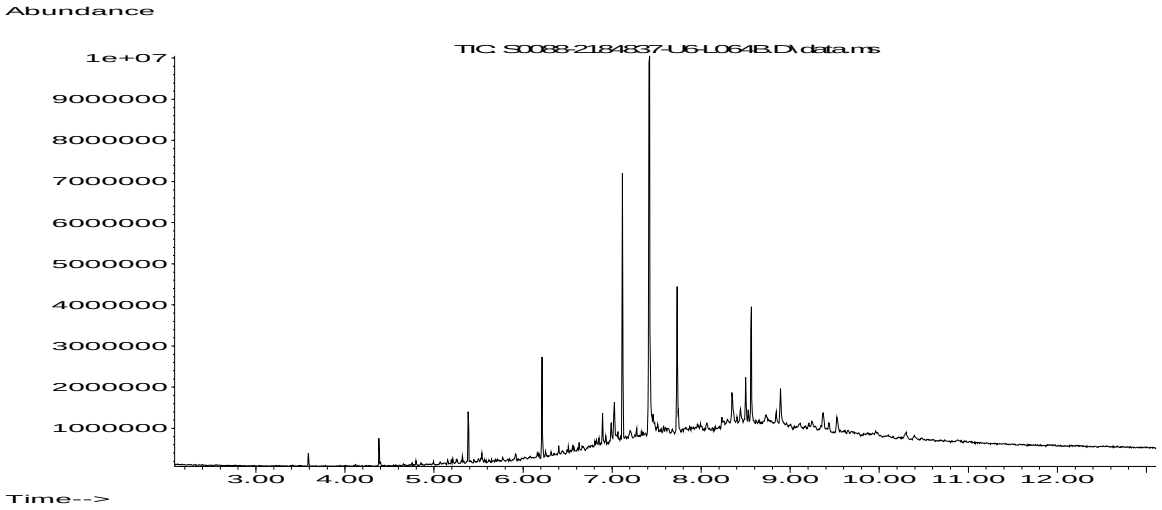
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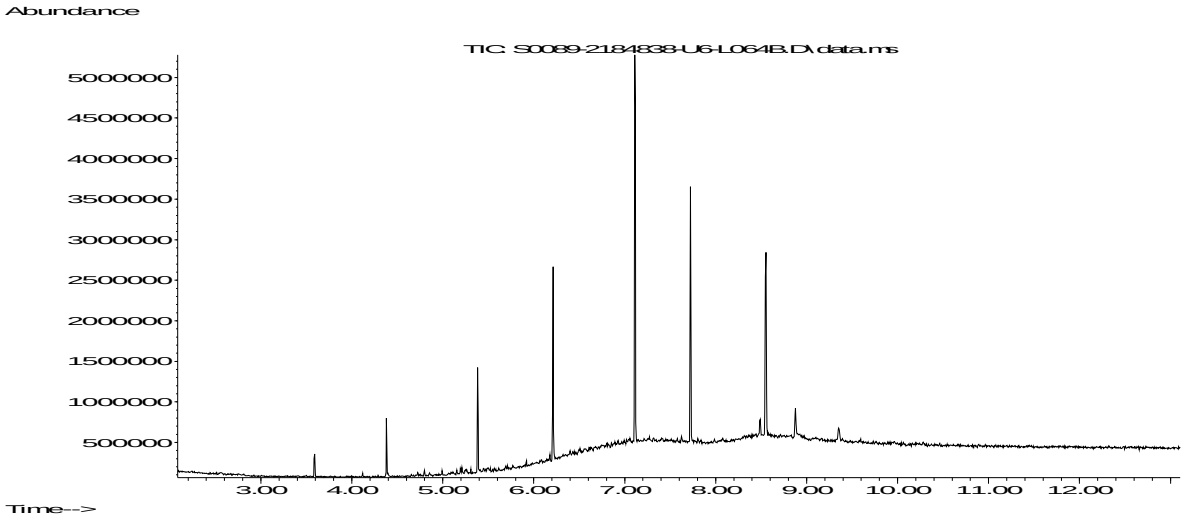
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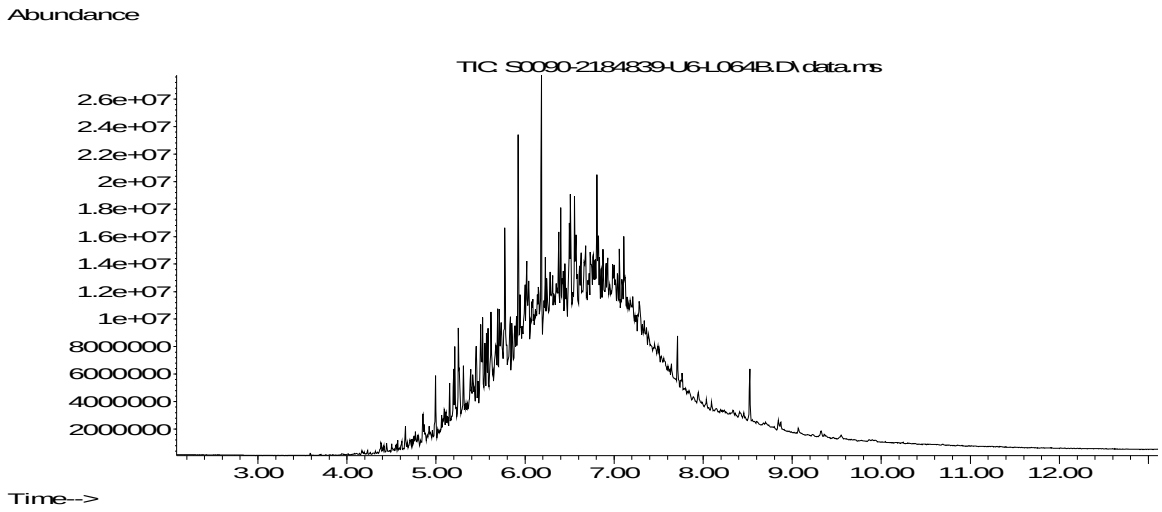
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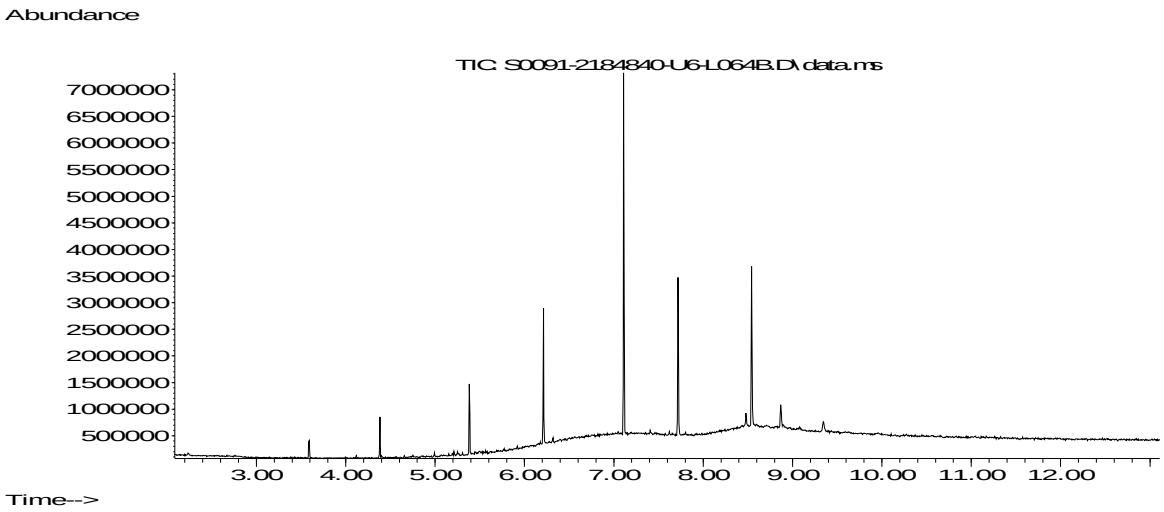
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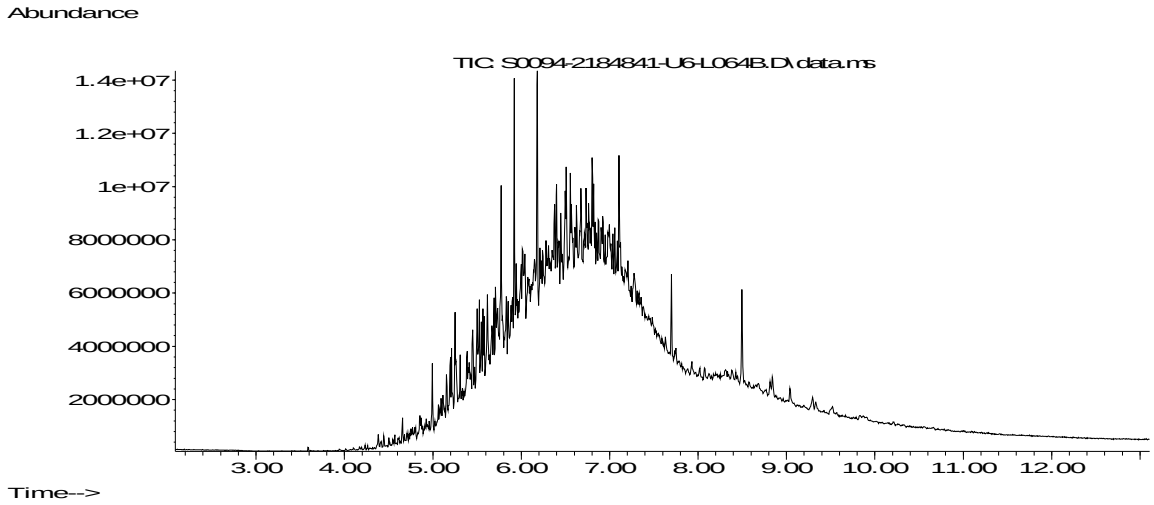
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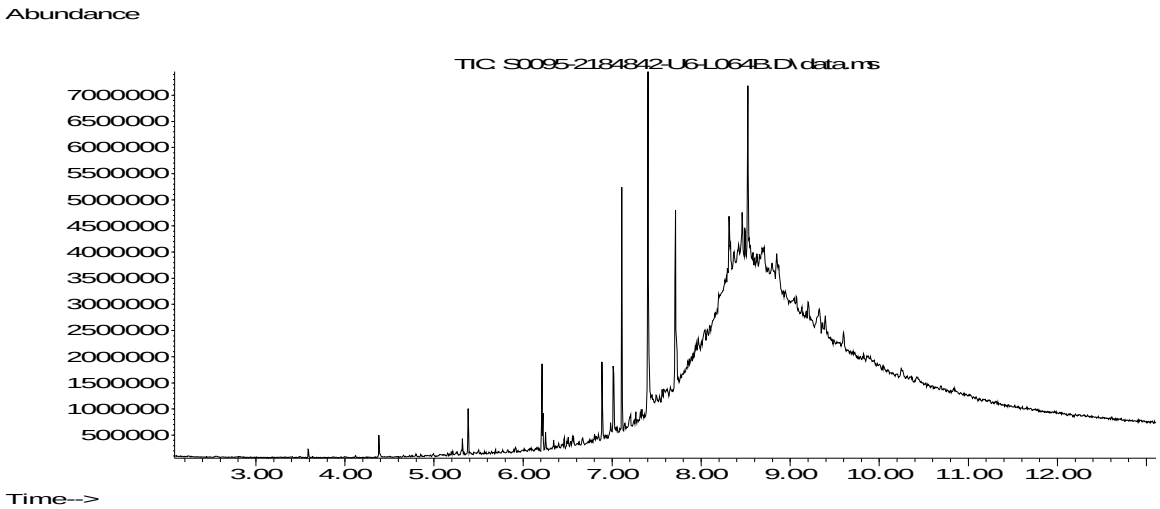
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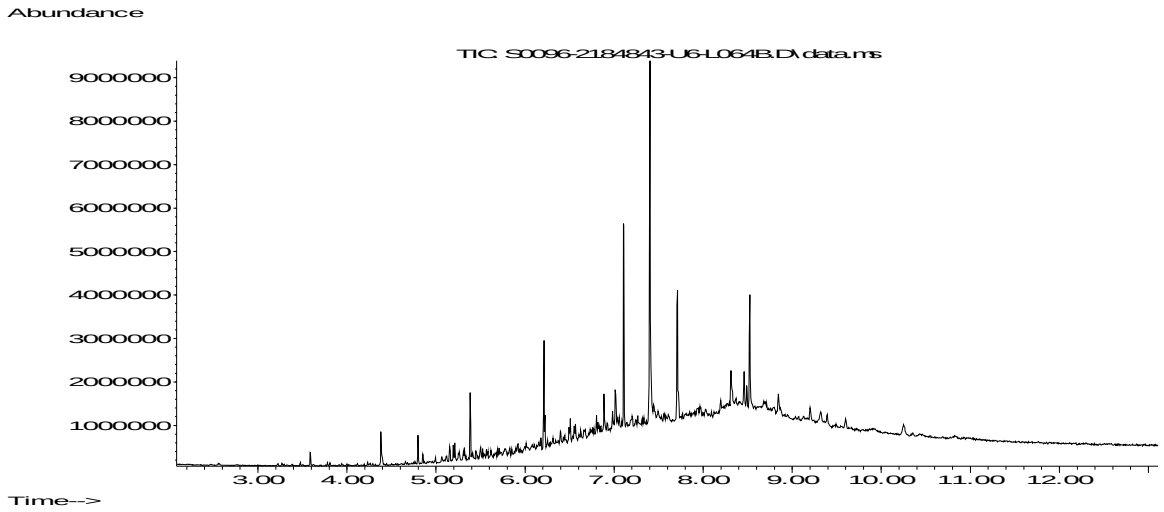
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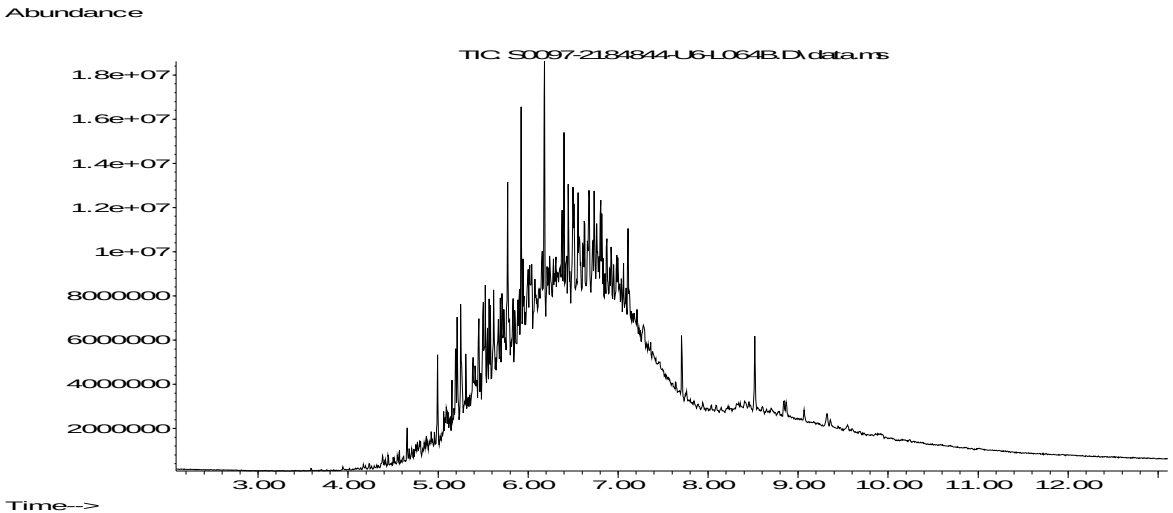
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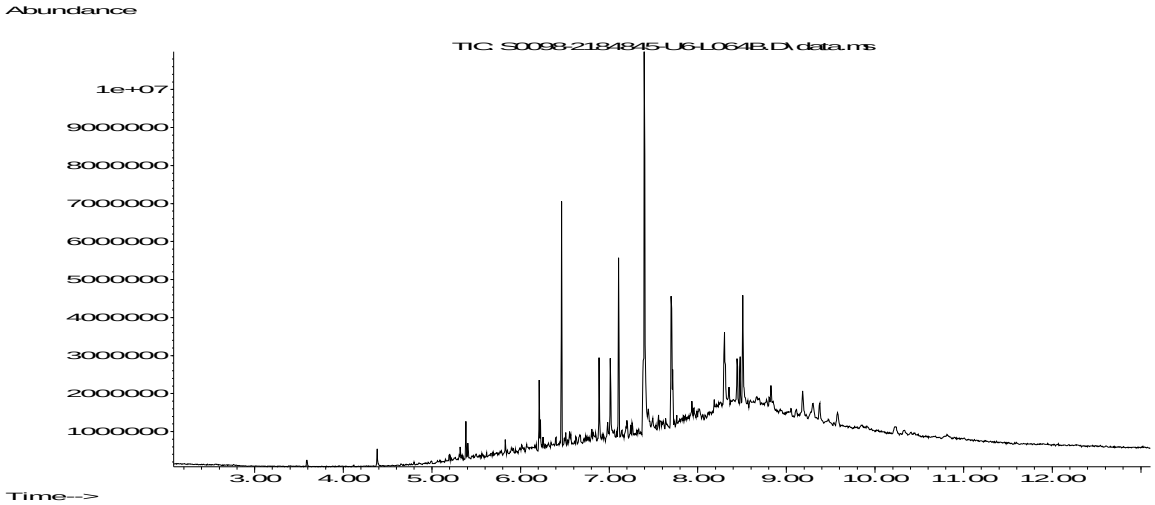
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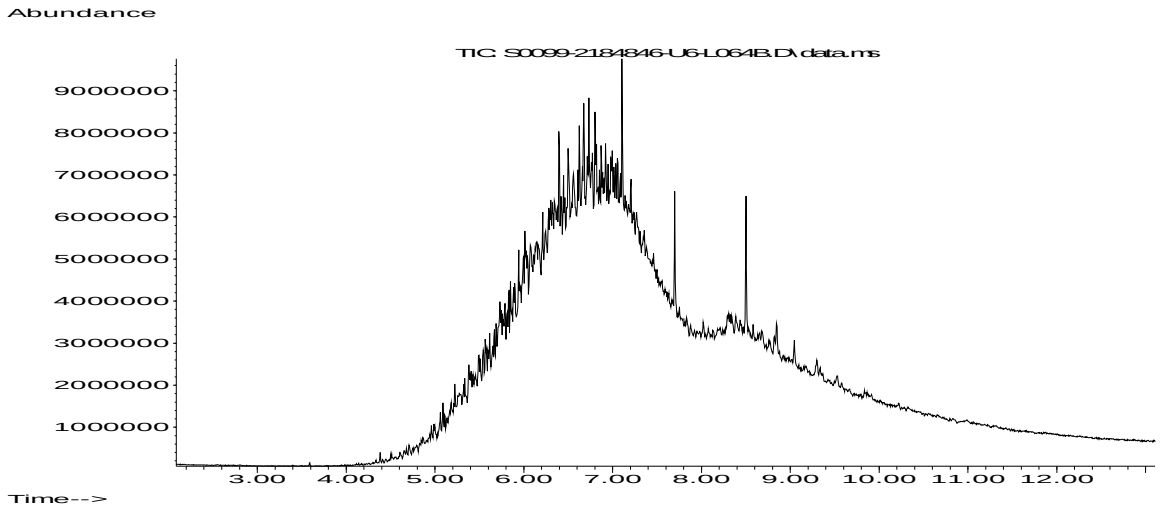
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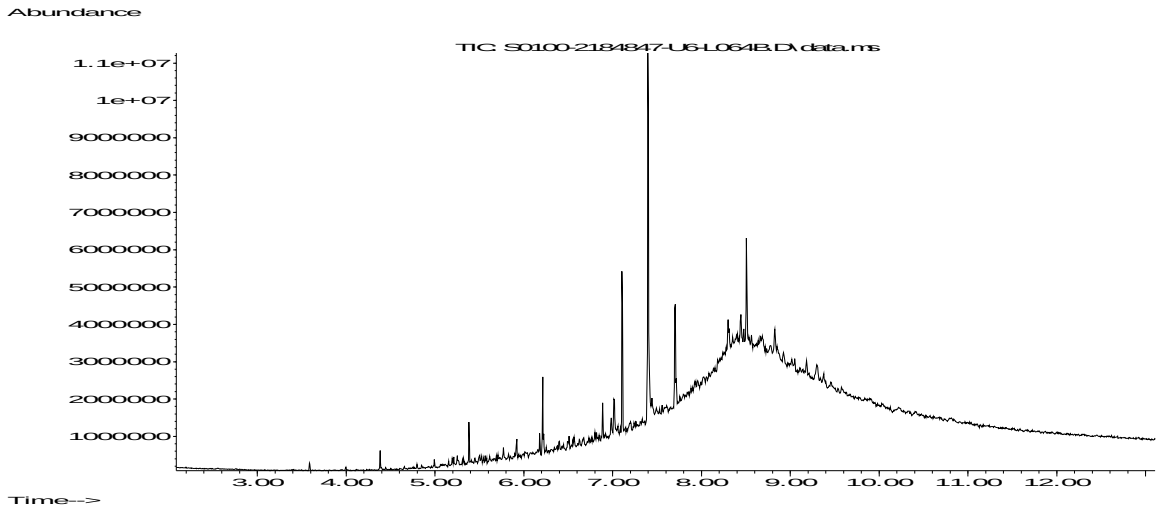
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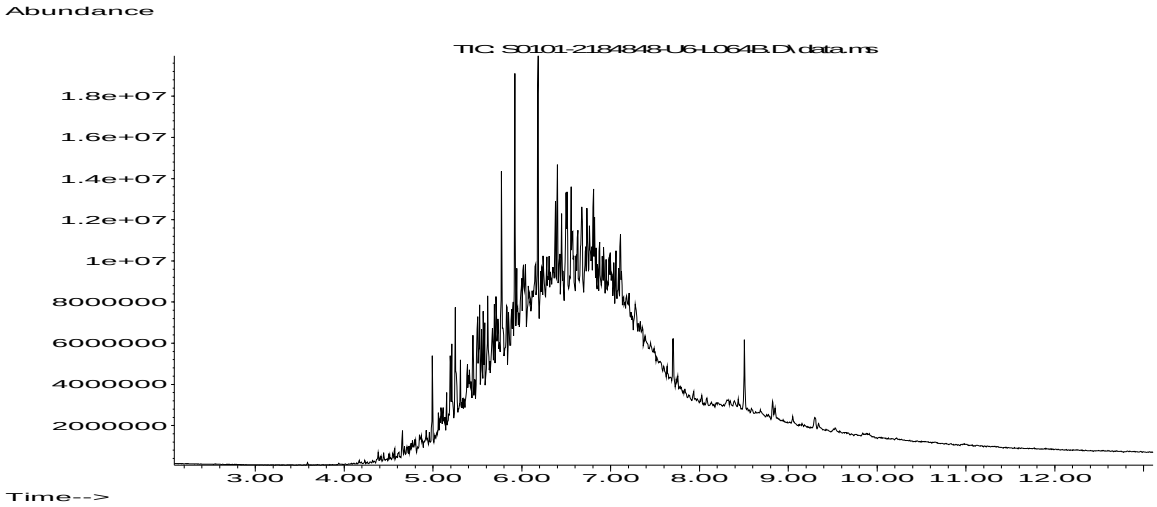
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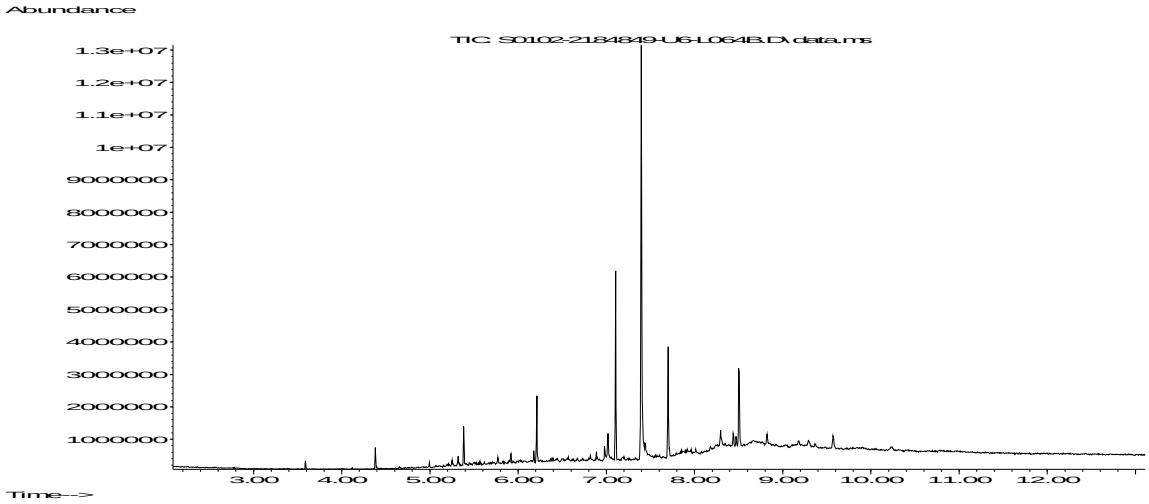
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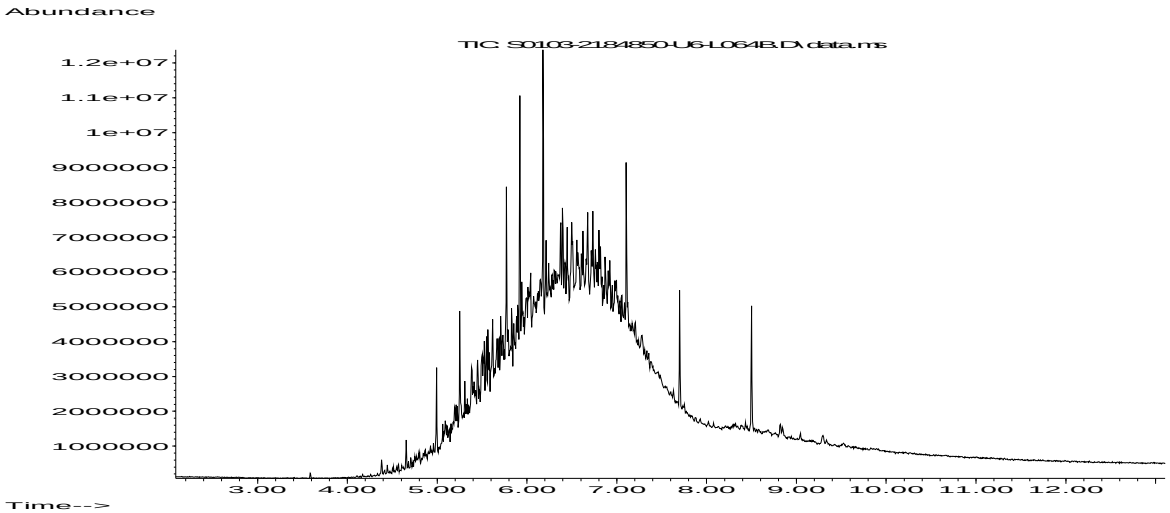
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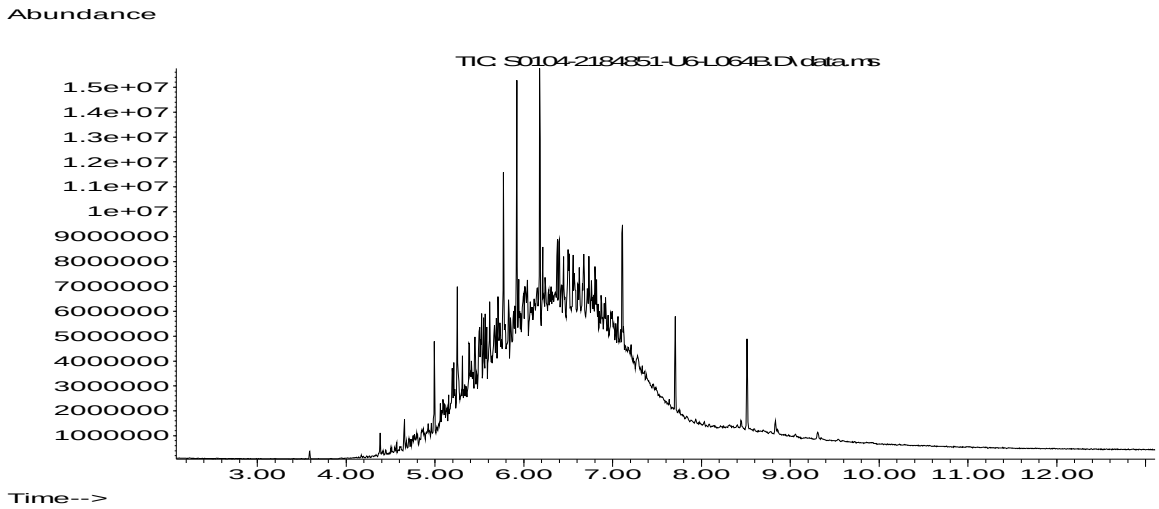
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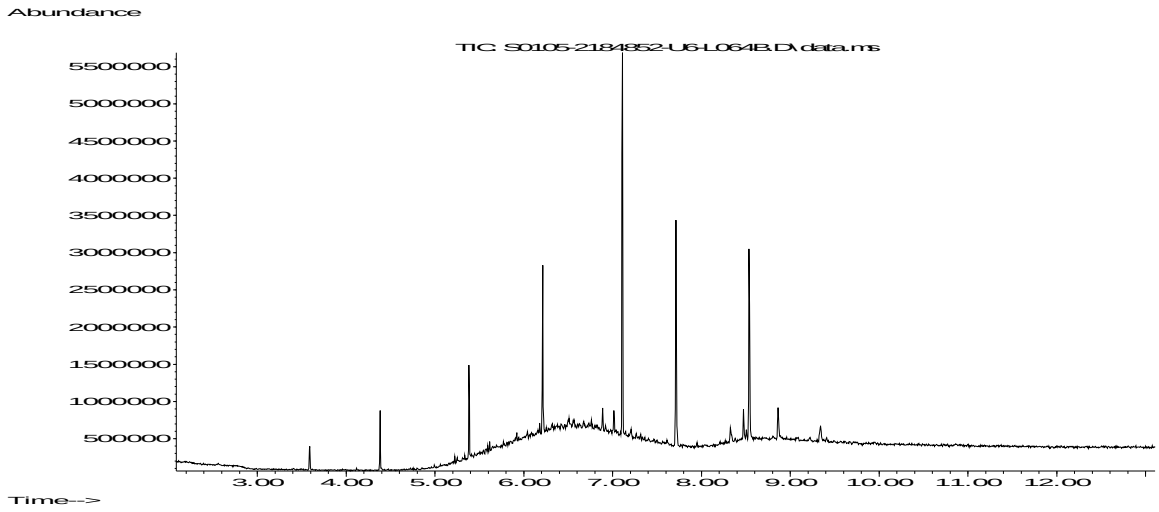
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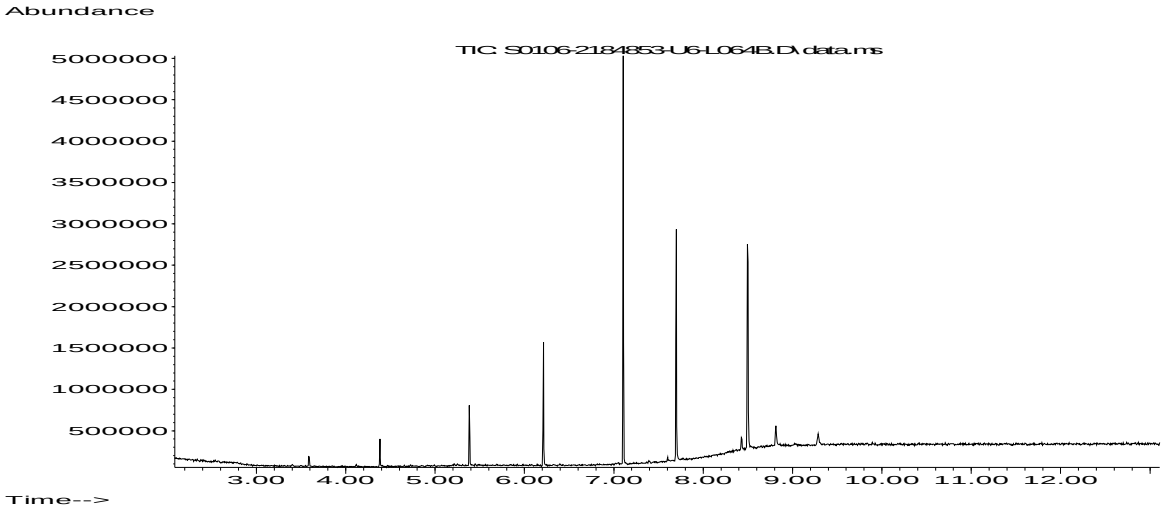
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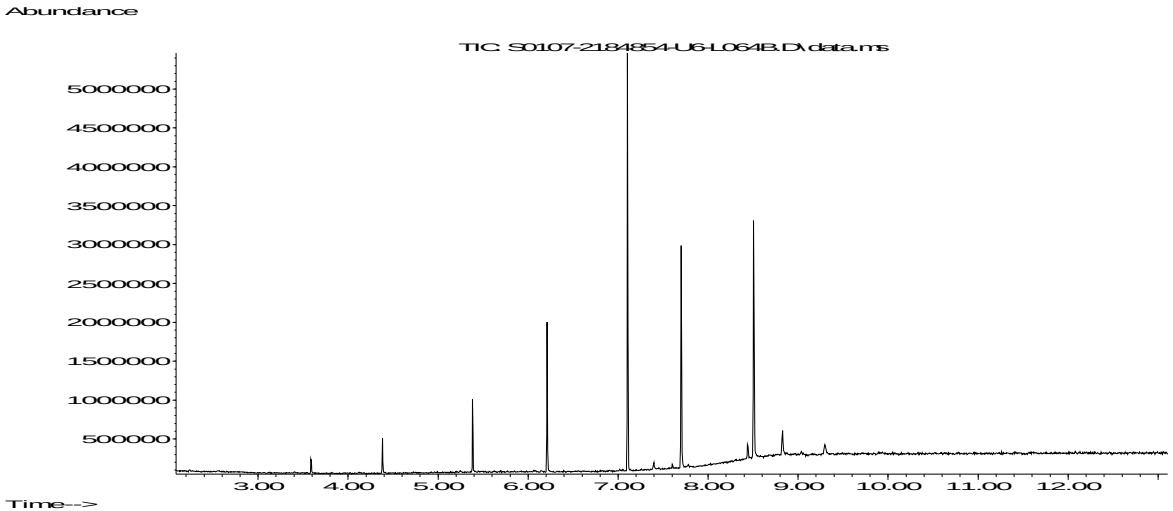
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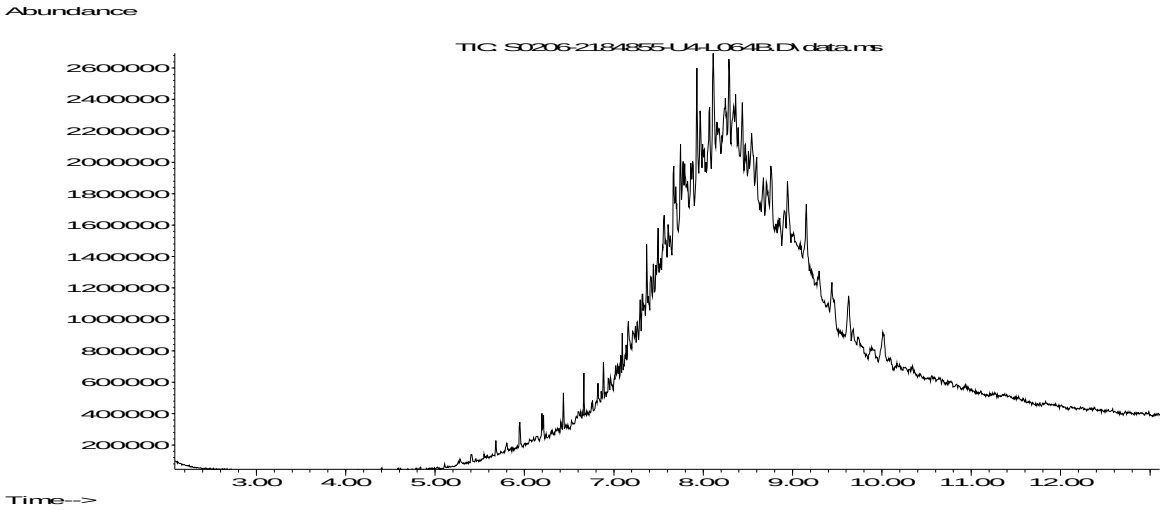
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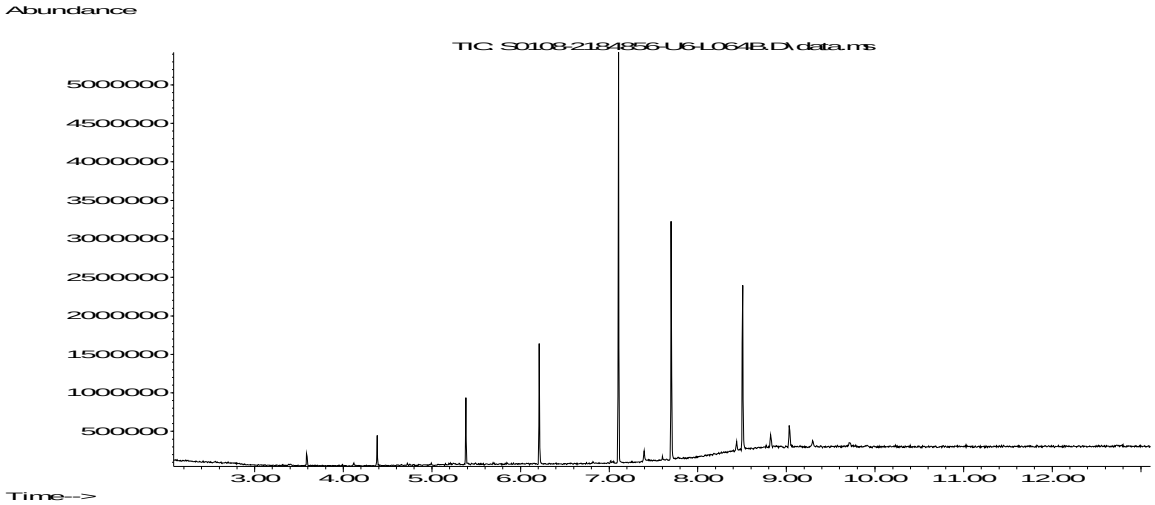
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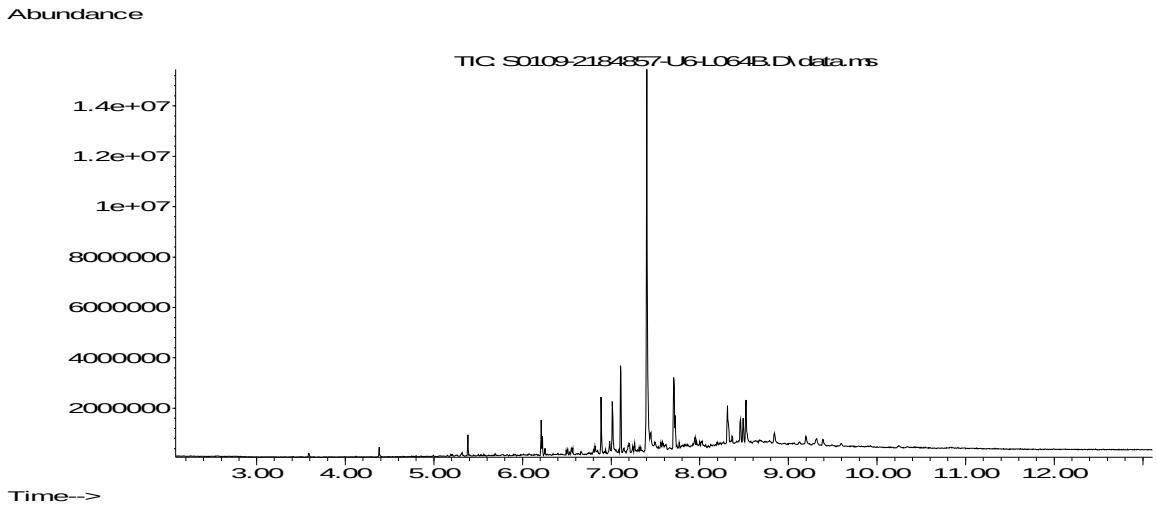
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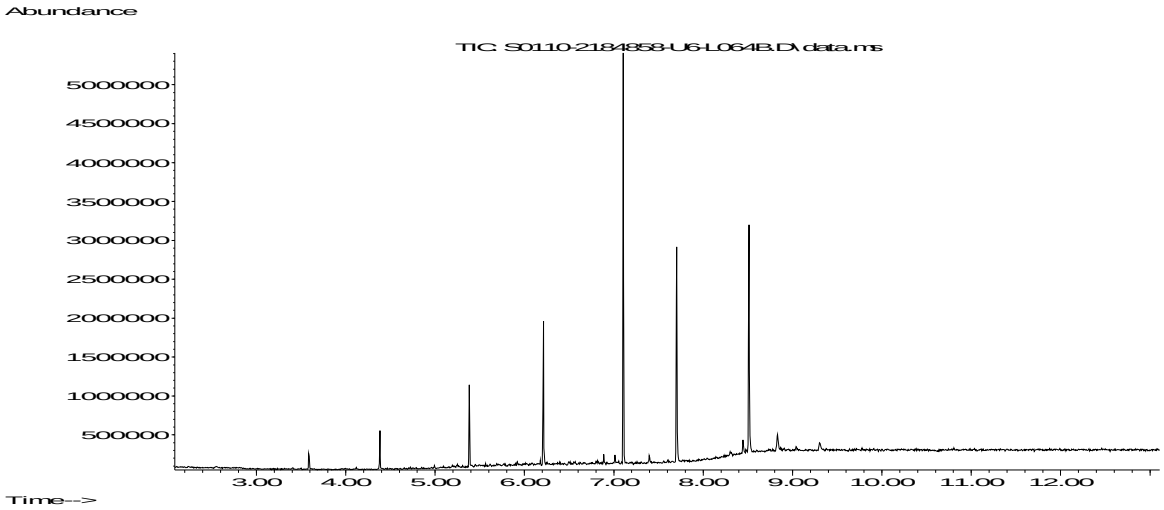
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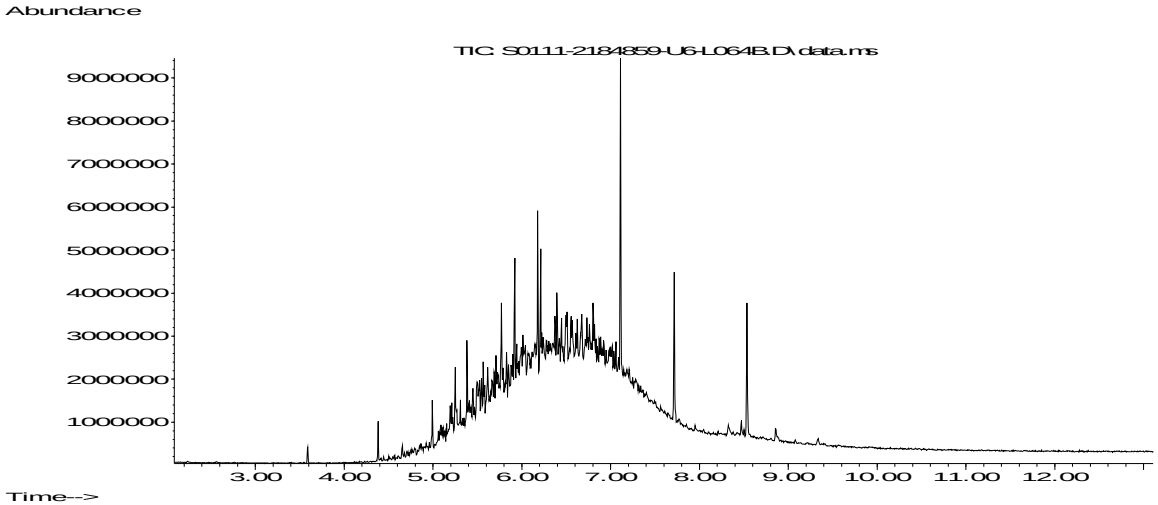
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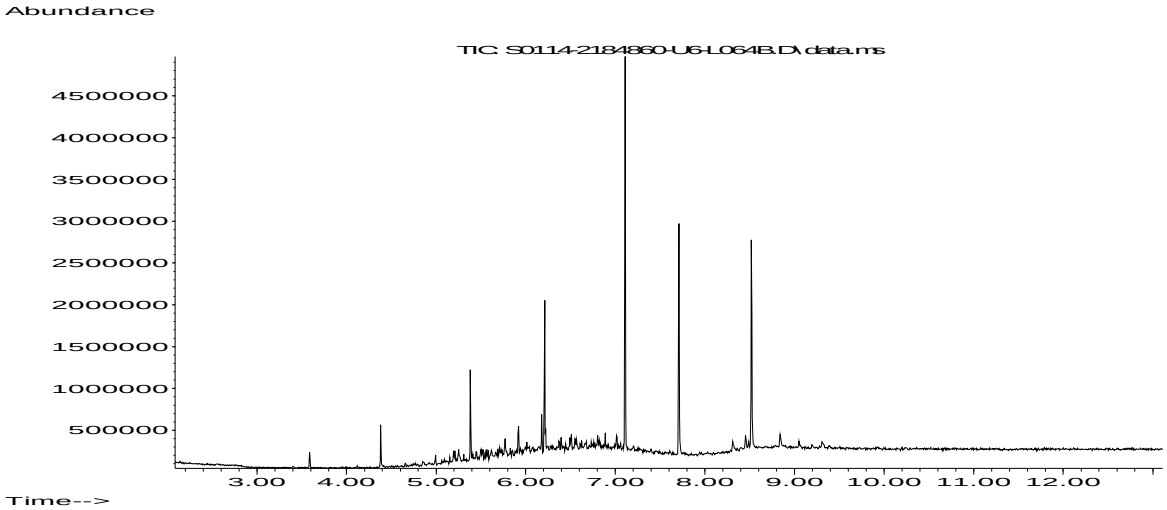
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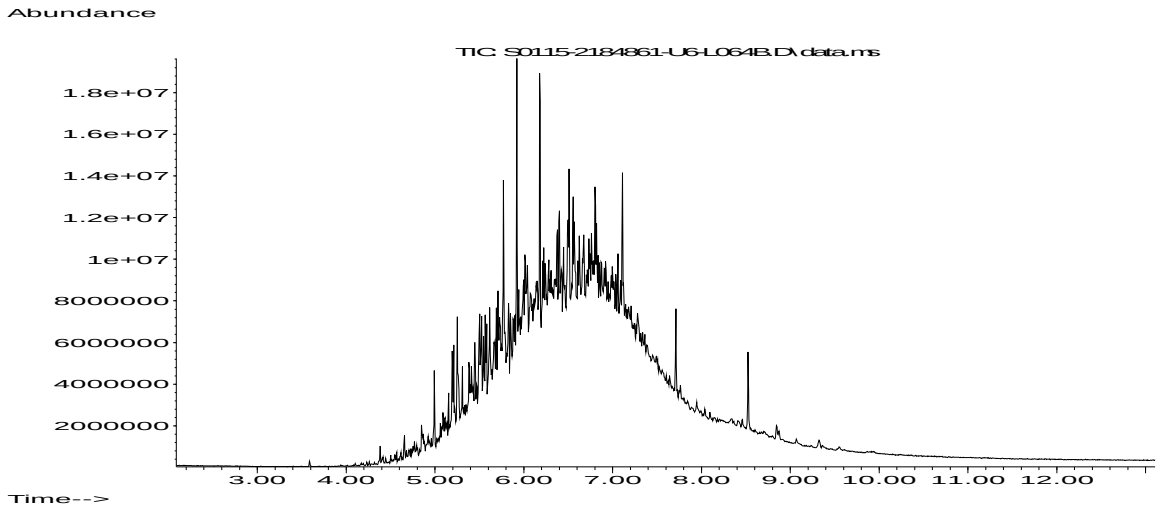
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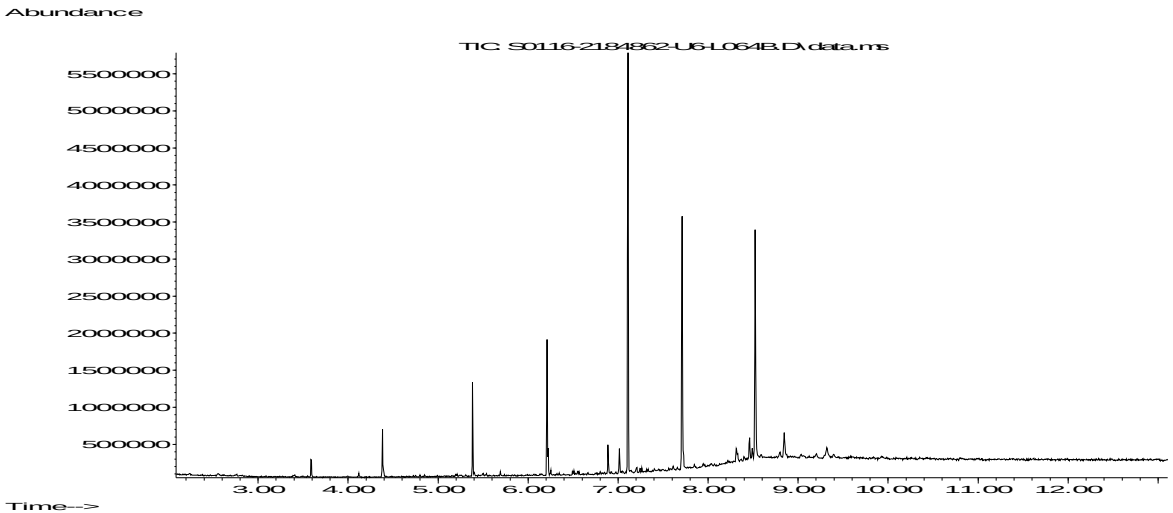
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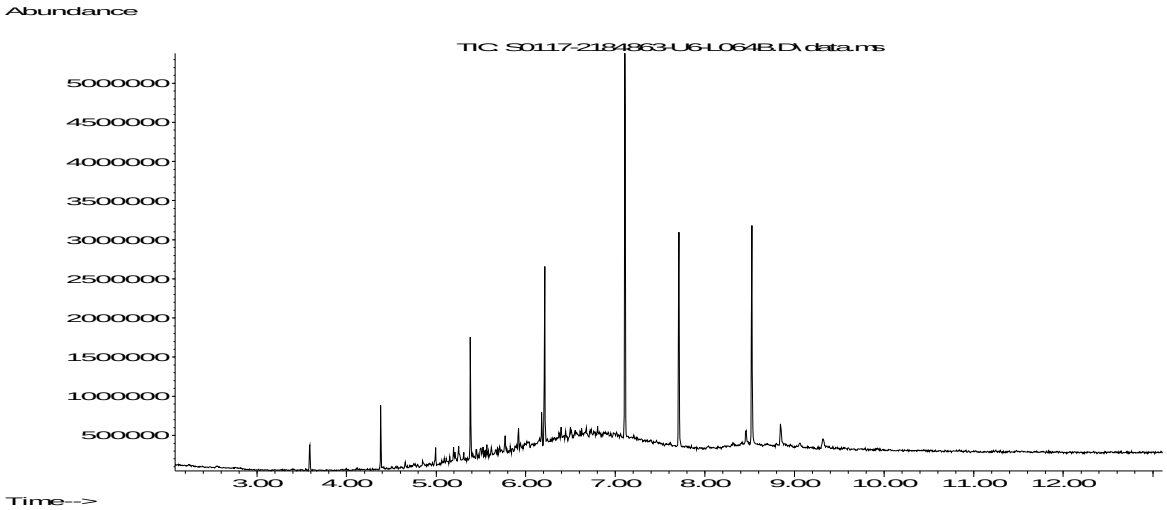
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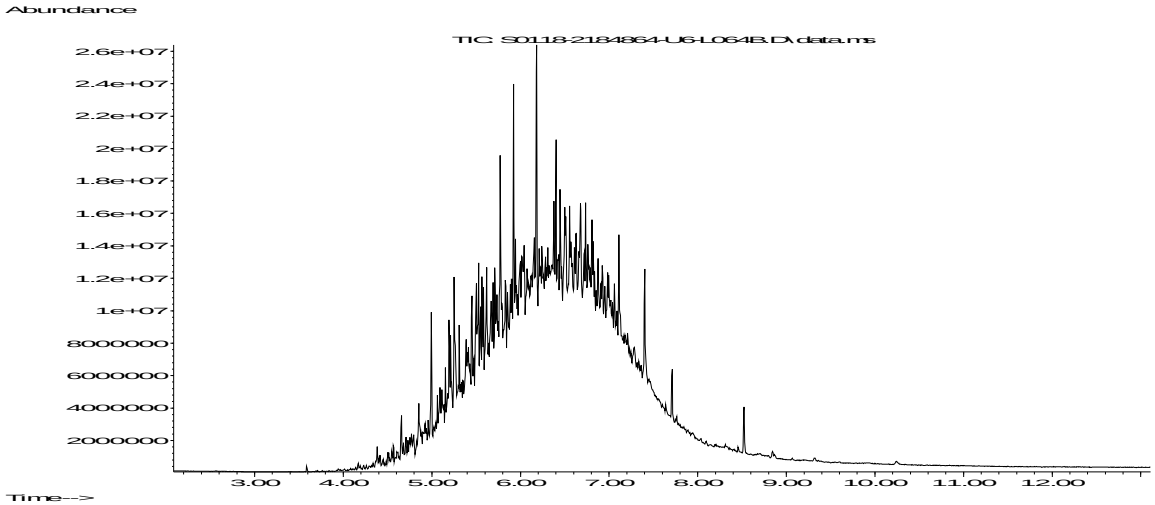
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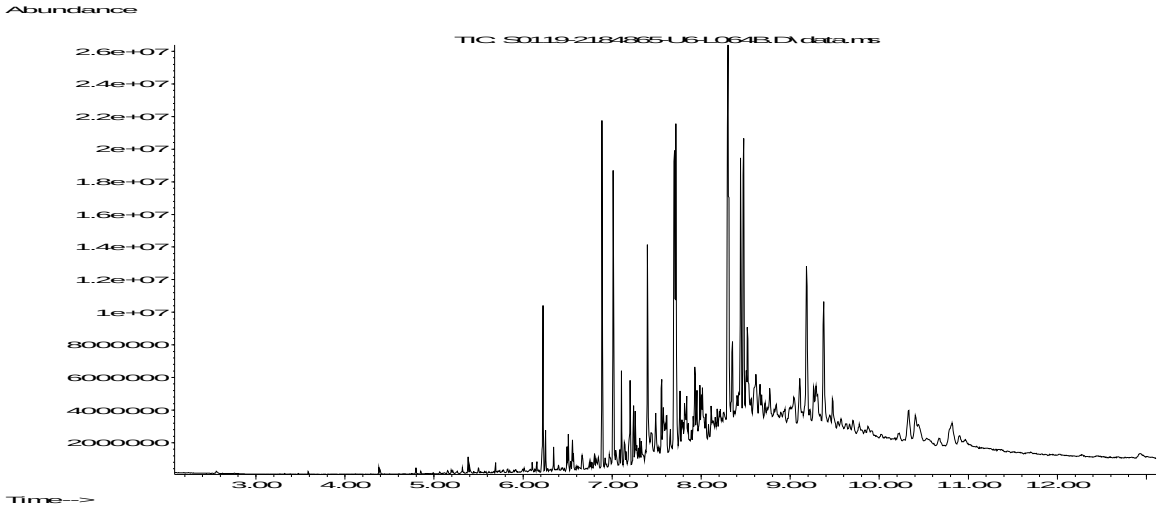
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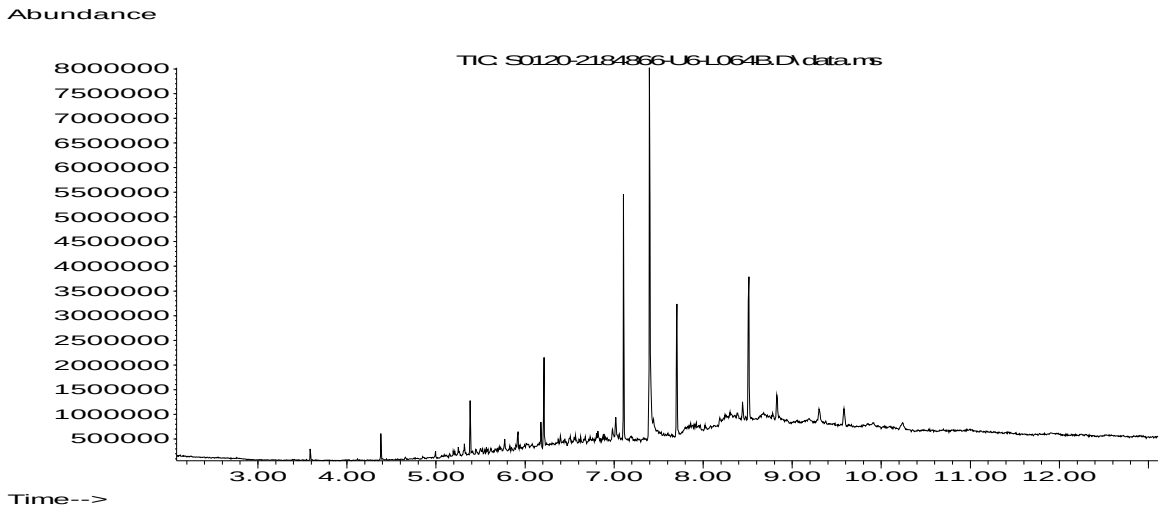
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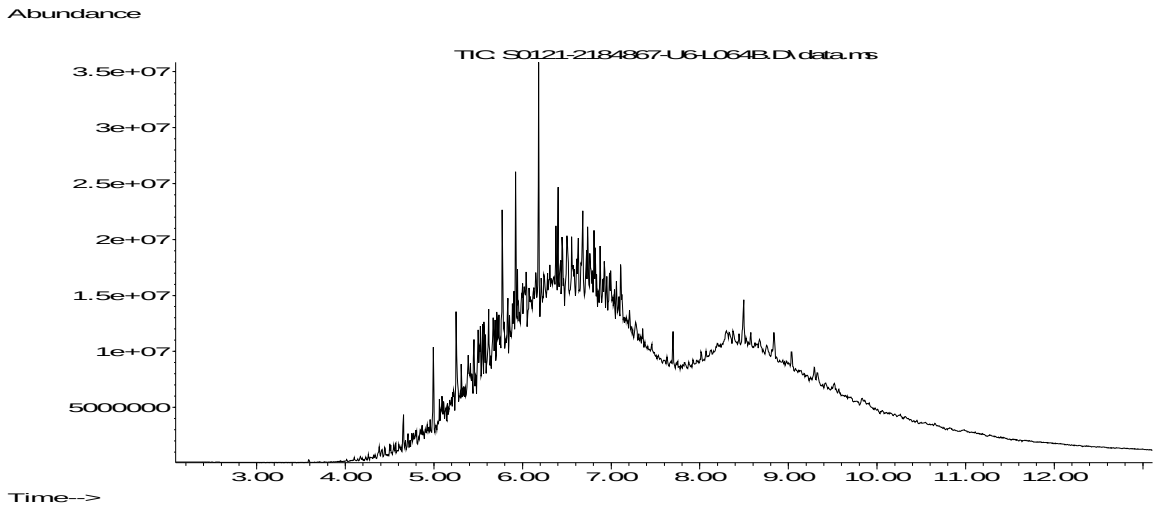
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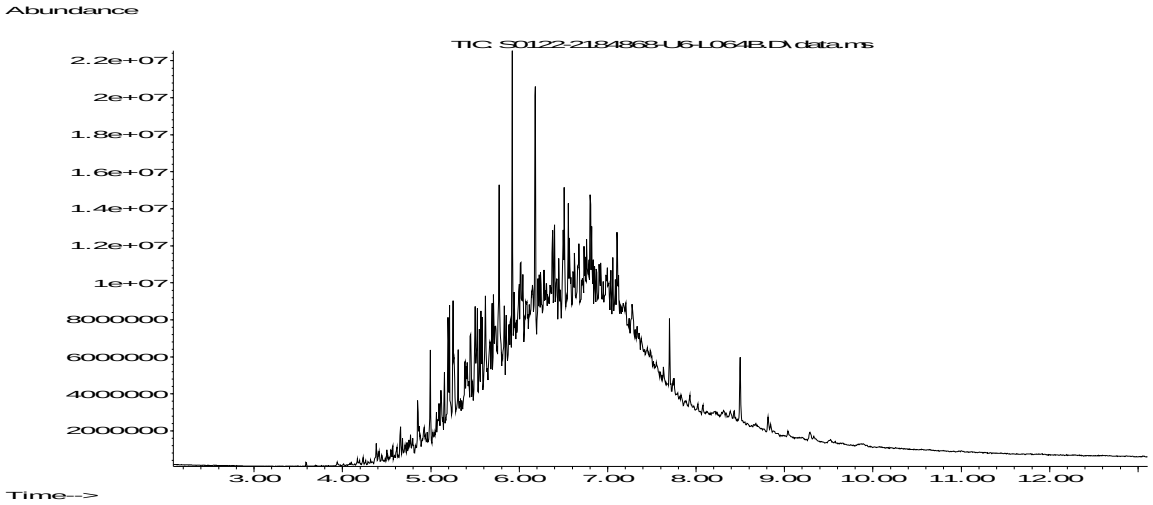
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Sample Deviation Report

Analytical Report Number : 22-41799
Project / Site name: Great Western Road Yard, Gloucester

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
CPT 201	None Supplied	S	2184865	c	Free cyanide in soil	L080-PL	c
CPT 206	None Supplied	S	2184866	c	Free cyanide in soil	L080-PL	c
TP201	None Supplied	S	2184829	c	Free cyanide in soil	L080-PL	c
TP203	None Supplied	S	2184831	c	Free cyanide in soil	L080-PL	c
TP205	None Supplied	S	2184835	c	Free cyanide in soil	L080-PL	c
TP205	None Supplied	S	2184835	c	Total cyanide in soil	L080-PL	c
TP206	None Supplied	S	2184837	c	Free cyanide in soil	L080-PL	c
TP207	None Supplied	S	2184840	c	Free cyanide in soil	L080-PL	c
TP209	None Supplied	S	2184842	c	Free cyanide in soil	L080-PL	c
TP210	None Supplied	S	2184843	c	Free cyanide in soil	L080-PL	c
TP210	None Supplied	S	2184844	c	Free cyanide in soil	L080-PL	c
TP211	None Supplied	S	2184845	c	Free cyanide in soil	L080-PL	c
TP213	None Supplied	S	2184847	c	Free cyanide in soil	L080-PL	c
TP214	None Supplied	S	2184849	c	Free cyanide in soil	L080-PL	c
TP214	None Supplied	S	2184850	c	Free cyanide in soil	L080-PL	c

Matthew Keehn
Hydrock Consultants Ltd
Over Court Barns
Over Lane
Bristol
BS32 4DF

t: 01454 619533
f: 01454 614125
e: Group Bristol cc engineer

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 : 22-42856

Replaces Analytical Report Number: 22-42856, issue no. 1
Client references/information amended.

Project / Site name:	Great Western Road Yard Gloucester	**Samples received on:**	02/03/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	02/03/2022
Your order number:	PO14375	**Analysis completed by:**	10/03/2022
Report Issue Number:	2	**Report issued on:**	10/03/2022
Samples Analysed:	11 soil samples		

Izabela Wójcik
Signed:

Izabela Wójcik
Technical Reviewer (Reporting Team)
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: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190673	2190674	2190675	2190676	2190677
Sample Reference				TP201	CPT201	DP201	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00	0.00	0.00	2.30	3.50
Date Sampled				16/02/2022	15/02/2022	22/02/2022	21/02/2022	21/02/2022
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	2.4	0.65	0.56	12	16
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	1.0	1.0

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	8.5	8.1
Free Cyanide	mg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	0.033	0.17
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	-	-	-	0.0020	0.021

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.31	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.33	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.38	< 0.05	0.34	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80	< 0.80

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190673	2190674	2190675	2190676	2190677
Sample Reference				TP201	CPT201	DP201	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00	0.00	0.00	2.30	3.50
Date Sampled				16/02/2022	15/02/2022	22/02/2022	21/02/2022	21/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	11	11
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	0.32	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	0.3	3.6
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 (III)	mg/kg	1	NONE	-	-	-	9.1	33
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	9.1	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	16	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	9.5	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	13	32
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	15	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	39	81
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	-	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	-	-	-	< 10	-
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	-	-	-	< 8.4	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	-	-	-	< 10	-
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	-	-	-	< 10	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	< 10	-
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	-	-	-	< 8.4	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-	< 10	-
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	-	-	-	< 10	-
TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	-	-	-	< 10	-

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190673	2190674	2190675	2190676	2190677
Sample Reference				TP201	CPT201	DP201	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00	0.00	0.00	2.30	3.50
Date Sampled				16/02/2022	15/02/2022	22/02/2022	21/02/2022	21/02/2022
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	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190673	2190674	2190675	2190676	2190677
Sample Reference				TP201	CPT201	DP201	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00	0.00	0.00	2.30	3.50
Date Sampled				16/02/2022	15/02/2022	22/02/2022	21/02/2022	21/02/2022
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	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

Miscellaneous Organics

Coal Tar		N/A	NONE	Not Identified	Not Identified	Not Identified	-	-
Total Residue	mg/kg	10	NONE	39	210	230	-	-

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

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190679	2190680	2190681	2190682	2190683
Sample Reference				WS203	WS203	WS203	WS204	WS205
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.80	3.50	3.80	1.30	1.20
Date Sampled				23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	13	11	21	12	12
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.0	1.0	1.0

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	-	8.0	-	-
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.20	-	0.19	-	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.019	-	0.031	-	-

Total Phenols

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

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	21	-	< 0.05	-	-
Phenanthrene	mg/kg	0.05	MCERTS	38	-	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	5.8	-	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	3.0	-	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	4.8	-	< 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	72.9	-	< 0.80	-	-

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190679	2190680	2190681	2190682	2190683
Sample Reference				WS203	WS203	WS203	WS204	WS205
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.80	3.50	3.80	1.30	1.20
Date Sampled				23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.5	-	7.5	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.32	-	1.3	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	-	2.7	-	-
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 (III)	mg/kg	1	NONE	8.1	-	42	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.1	-	42	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	-	42	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	7.9	-	14	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	-	42	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	-	31	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	34	-	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

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	35	< 0.001	< 0.001	41	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	230	< 1.0	3.3	380	50
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	2100	7.4	28	2700	1800
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	2600	18	36	4200	3000
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	1100	9.5	< 8.0	1500	740
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	3700	27	36	5600	3700
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	390	< 8.4	< 8.4	440	130
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	6100	35	74	8800	5600
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	6500	35	74	9200	5800

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	20	< 0.001	< 0.001	12	0.72
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	150	< 1.0	< 1.0	360	31
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	1900	< 2.0	14	3000	1300
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	2200	< 10	21	3800	2200
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	570	< 10	< 10	790	520
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	120	< 8.4	< 8.4	65	63
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	4800	< 10	44	8000	4100
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	5000	< 10	44	8000	4100

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	11000	35	120	17000	9900

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190679	2190680	2190681	2190682	2190683
Sample Reference				WS203	WS203	WS203	WS204	WS205
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.80	3.50	3.80	1.30	1.20
Date Sampled				23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	-	-
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: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190679	2190680	2190681	2190682	2190683
Sample Reference				WS203	WS203	WS203	WS204	WS205
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.80	3.50	3.80	1.30	1.20
Date Sampled				23/02/2022	23/02/2022	23/02/2022	23/02/2022	23/02/2022
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	-	-
1,2,4-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	-	-

Miscellaneous Organics

Coal Tar		N/A	NONE	-	-	-	-	-
Total Residue	mg/kg	10	NONE	-	-	-	-	-

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

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190684
Sample Reference				WS206
Sample Number				None Supplied
Depth (m)				1.20
Date Sampled				23/02/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	11
Total mass of sample received	kg	0.001	NONE	1.0

Asbestos in Soil	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-
Free Cyanide	mg/kg	1	MCERTS	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190684
Sample Reference				WS206
Sample Number				None Supplied
Depth (m)				1.20
Date Sampled				23/02/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-
Chromium (hexavalent)	mg/kg	1.2	NONE	-
Chromium (III)	mg/kg	1	NONE	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-

Monoaromatics & Oxygenates

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

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	14
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	29
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	1000
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	1800
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	630
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	2500
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	110
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	3600
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	3700

TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	0.25
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	18
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	820
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	1500
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	430
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	35
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	2700
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	2800

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	6400

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190684
Sample Reference				WS206
Sample Number				None Supplied
Depth (m)				1.20
Date Sampled				23/02/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
VOCs				
Chloromethane	µg/kg	1	ISO 17025	-
Chloroethane	µg/kg	1	NONE	-
Bromomethane	µg/kg	1	ISO 17025	-
Vinyl Chloride	µg/kg	1	NONE	-
Trichlorofluoromethane	µg/kg	1	NONE	-
1,1-Dichloroethene	µg/kg	1	NONE	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-
Trichloromethane	µg/kg	1	MCERTS	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-
Benzene	µg/kg	1	MCERTS	-
Tetrachloromethane	µg/kg	1	MCERTS	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-
Trichloroethene	µg/kg	1	MCERTS	-
Dibromomethane	µg/kg	1	MCERTS	-
Bromodichloromethane	µg/kg	1	MCERTS	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-
Toluene	µg/kg	1	MCERTS	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-
Dibromochloromethane	µg/kg	1	ISO 17025	-
Tetrachloroethene	µg/kg	1	NONE	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-
Chlorobenzene	µg/kg	1	MCERTS	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-
Ethylbenzene	µg/kg	1	MCERTS	-
p & m-Xylene	µg/kg	1	MCERTS	-
Styrene	µg/kg	1	MCERTS	-
Tribromomethane	µg/kg	1	NONE	-
o-Xylene	µg/kg	1	MCERTS	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-
Isopropylbenzene	µg/kg	1	MCERTS	-
Bromobenzene	µg/kg	1	MCERTS	-
n-Propylbenzene	µg/kg	1	ISO 17025	-
2-Chlorotoluene	µg/kg	1	MCERTS	-
4-Chlorotoluene	µg/kg	1	MCERTS	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-
tert-Butylbenzene	µg/kg	1	MCERTS	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-
sec-Butylbenzene	µg/kg	1	MCERTS	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-
Butylbenzene	µg/kg	1	MCERTS	-

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Analytical Report Number: 22-42856
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2190684
Sample Reference				WS206
Sample Number				None Supplied
Depth (m)				1.20
Date Sampled				23/02/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-

Miscellaneous Organics

Coal Tar		N/A	NONE	-
Total Residue	mg/kg	10	NONE	-

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

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Analytical Report Number : 22-42856
Project / Site name: Great Western Road Yard Gloucester

* 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 *
2190673	TP201	None Supplied	0	Non Soil**
2190674	CPT201	None Supplied	0	Non Soil**
2190675	DP201	None Supplied	0	Non Soil**
2190676	BH201	None Supplied	2.3	Brown clay and sand with vegetation and gravel
2190677	BH201	None Supplied	3.5	Brown clay with gravel.
2190679	WS203	None Supplied	1.8	Brown sand with vegetation and gravel
2190680	WS203	None Supplied	3.5	Brown sand with vegetation and gravel
2190681	WS203	None Supplied	3.8	Brown clay.
2190682	WS204	None Supplied	1.3	Brown clay and sand with vegetation and oil / petroleum.
2190683	WS205	None Supplied	1.2	Brown sand with vegetation and gravel
2190684	WS206	None Supplied	1.2	Brown sand with vegetation and gravel

**Non MCERTS Matrix.

Analytical Report Number : 22-42856
Project / Site name: Great Western Road Yard Gloucester

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	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
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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
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
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	NONE

Analytical Report Number : 22-42856
Project / Site name: Great Western Road Yard Gloucester

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
Coal Tar in Soil	DCM Extraction with qualitative interpretation via GC/MS	In-house method	L064-PL	D	NONE
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS

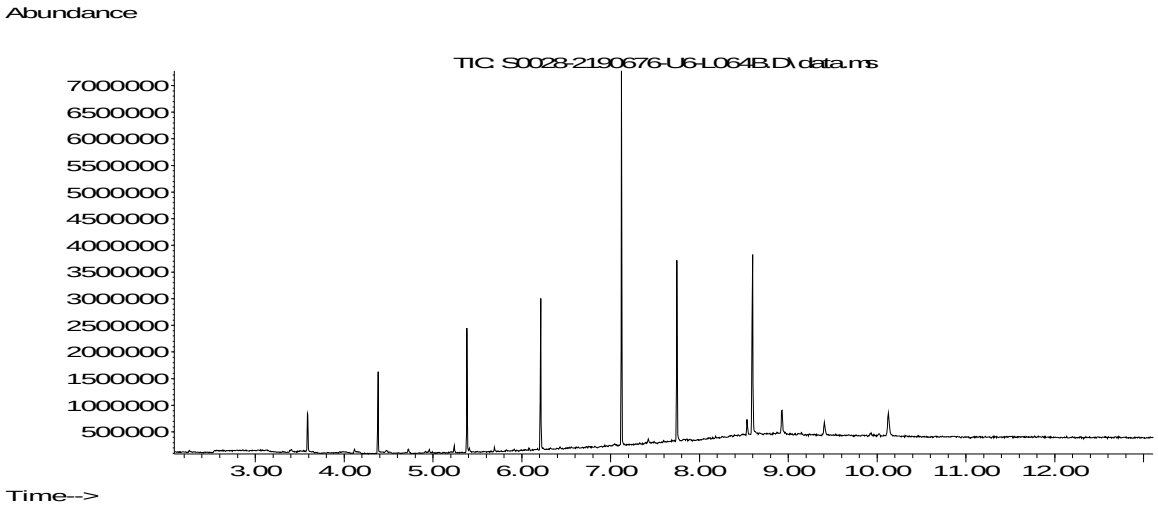
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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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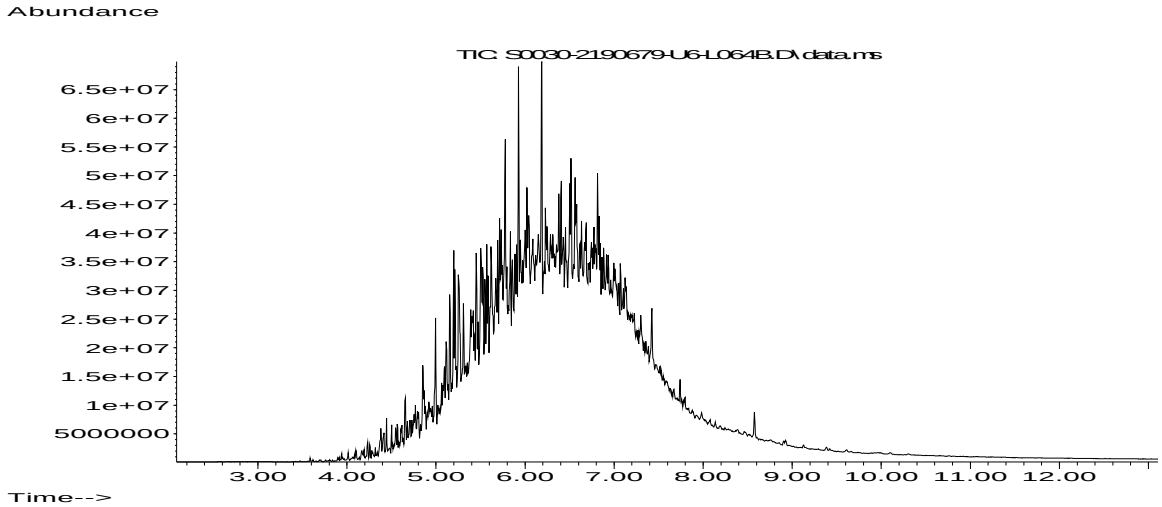
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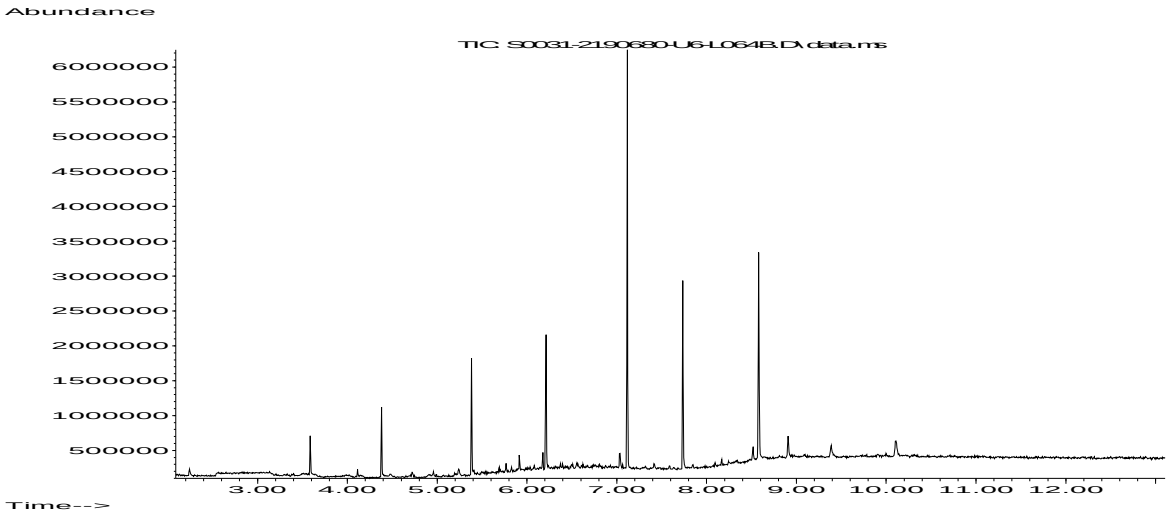
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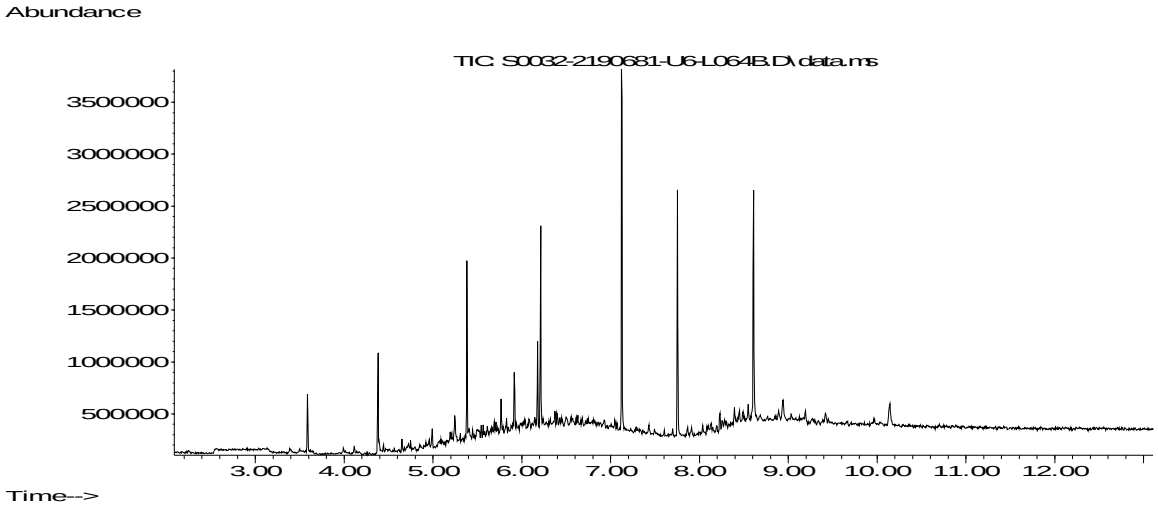
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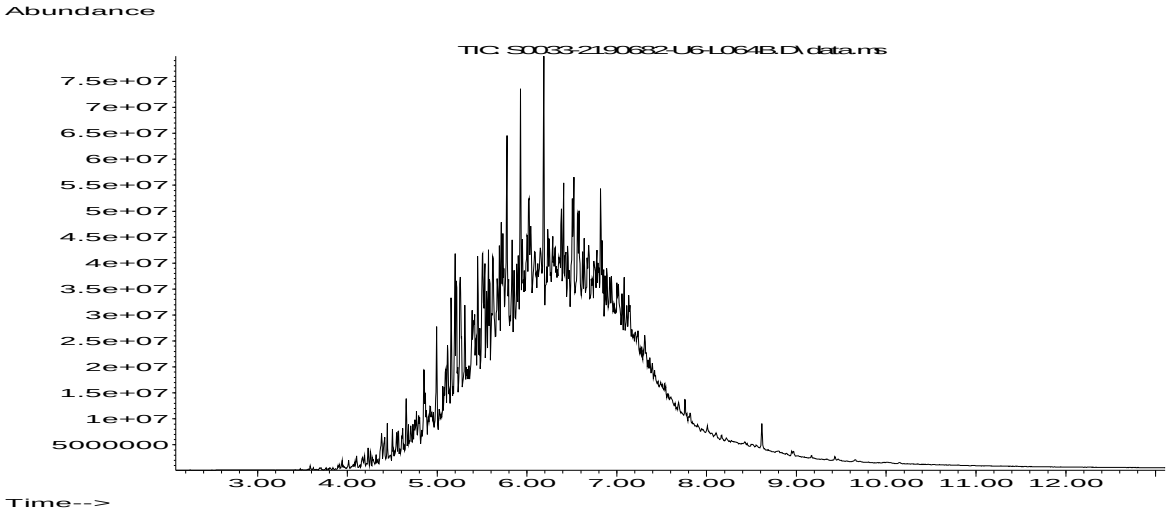
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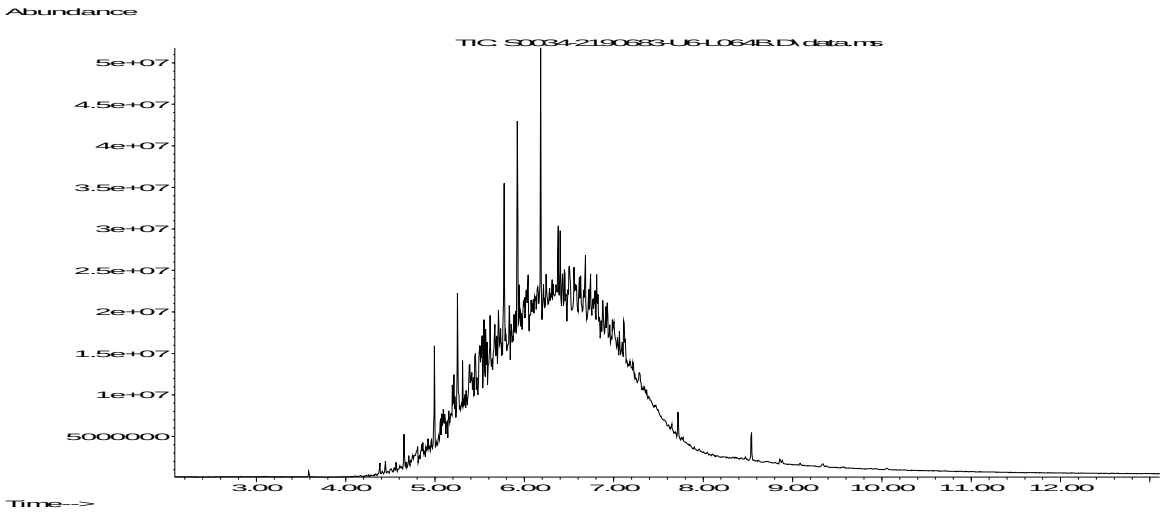
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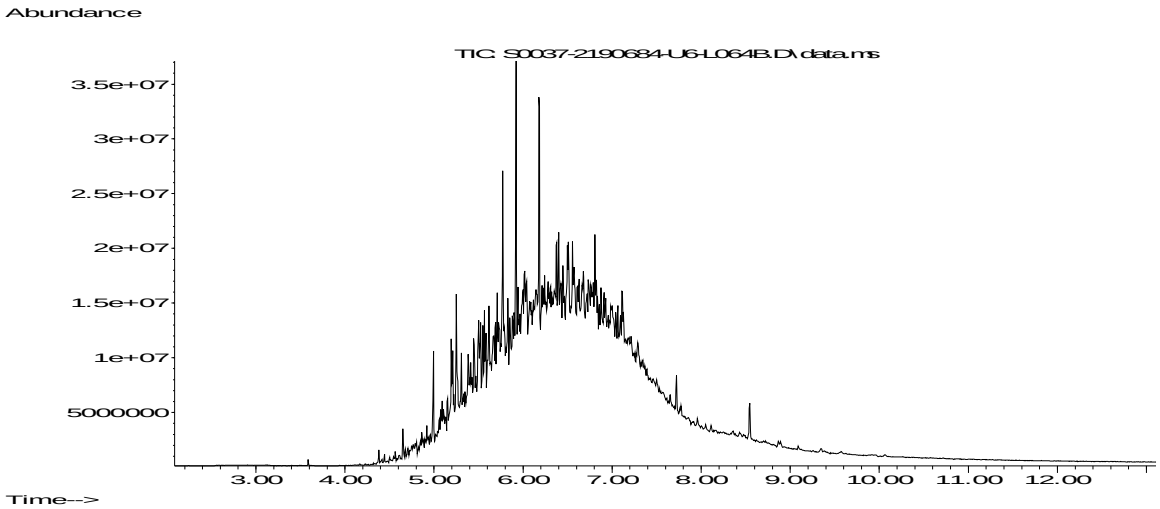
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Sample Deviation Report

Analytical Report Number : 22-42856
Project / Site name: Great Western Road Yard Gloucester

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
BH201	None Supplied	S	2190676	c	Free cyanide in soil	L080-PL	c
BH201	None Supplied	S	2190677	c	Free cyanide in soil	L080-PL	c
CPT201	None Supplied	S	2190674	b	Coal Tar in Soil	L064-PL	b
CPT201	None Supplied	S	2190674	b	Speciated EPA-16 PAHs in soil	L064-PL	b
DP201	None Supplied	S	2190675	b	Coal Tar in Soil	L064-PL	b
DP201	None Supplied	S	2190675	b	Speciated EPA-16 PAHs in soil	L064-PL	b
TP201	None Supplied	S	2190673	b	Coal Tar in Soil	L064-PL	b
TP201	None Supplied	S	2190673	b	Speciated EPA-16 PAHs in soil	L064-PL	b
WS203	None Supplied	S	2190679	c	Free cyanide in soil	L080-PL	c
WS203	None Supplied	S	2190681	c	Free cyanide in soil	L080-PL	c

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e: reception@i2analytical.com

Analytical Report Number : 22-44025

Project / Site name:	Great Western Road Yard Gloucester	**Samples received on:**	08/03/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	08/03/2022
Your order number:	PO14510	**Analysis completed by:**	15/03/2022
Report Issue Number:	1	**Report issued on:**	15/03/2022
Samples Analysed:	13 soil samples		

Signed: CCStone

Claire Stone
Quality Manager
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: 22-44025
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14510

Lab Sample Number				2196932	2196933	2196934	2196935	2196936
Sample Reference				BH202	BH203	BH203	BH204	BH204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.30	2.00	1.40	3.00
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
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	14	13	13	13	15
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1.1

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9	-	-	-	8.3
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0038	-	-	-	0.3
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0016	-	-	-	0.015

Total Phenols

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

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	< 0.05	-	-	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	-	-	< 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	< 0.80	-	-	-	< 0.80

Analytical Report Number: 22-44025
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14510

Lab Sample Number				2196932	2196933	2196934	2196935	2196936
Sample Reference				BH202	BH203	BH203	BH204	BH204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.30	2.00	1.40	3.00
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	-	-	-	8.2
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.28	-	-	-	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	-	-	-	3.6
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 (III)	mg/kg	1	NONE	8.6	-	-	-	36
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.8	-	-	-	37
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	-	-	-	25
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6.4	-	-	-	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	-	-	-	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	15	-	-	-	40
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	33	-	-	-	41
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
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	< 8.0	< 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	39	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	39	< 10
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	42	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	42	< 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	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Analytical Report Number: 22-44025
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14510

Lab Sample Number				2196932	2196933	2196934	2196935	2196936
Sample Reference				BH202	BH203	BH203	BH204	BH204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.30	2.00	1.40	3.00
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH Total C5 - C44 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	< 10	< 10	< 10	42	< 10
VOCs								
Chloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-	-	-

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Lab Sample Number				2196932	2196933	2196934	2196935	2196936
Sample Reference				BH202	BH203	BH203	BH204	BH204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.30	2.00	1.40	3.00
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
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	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-	-	-

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Lab Sample Number				2196937	2196938	2196939	2196940	2196941
Sample Reference				BH205	BH206	BH206	TP222	DP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	1.30	3.30	1.20	0.90
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
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	41	17	< 0.1	12	< 0.1
Moisture Content	%	0.01	NONE	9.5	9.1	16	13	7.5
Total mass of sample received	kg	0.001	NONE	1.4	1	1.1	1.2	1

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

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.6	-	8.9	-	8.7
Free Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0058	-	0.11	-	0.012
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.0014	-	0.014	-	0.0038

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	-	< 0.80

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Project / Site name: Great Western Road Yard Gloucester
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Lab Sample Number				2196937	2196938	2196939	2196940	2196941
Sample Reference				BH205	BH206	BH206	TP222	DP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	1.30	3.30	1.20	0.90
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	-	10	-	8.9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.25	-	1.1	-	0.28
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	-	3.6	-	0.5
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 (III)	mg/kg	1	NONE	8.7	-	32	-	11
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.8	-	32	-	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	10	-	30	-	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	5.3	-	14	-	11
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.9	-	38	-	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	-	26	-	16
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	29	-	42	-	28
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
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	5.9	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	150	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	200	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	87	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	280	< 10
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	17	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	< 10	< 10	< 10	440	< 10
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	450	< 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	47	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	210	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	35	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	300	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	300	< 10

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Lab Sample Number				2196937	2196938	2196939	2196940	2196941
Sample Reference				BH205	BH206	BH206	TP222	DP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	1.30	3.30	1.20	0.90
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH Total C5 - C44 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	< 10	< 10	< 10	750	< 10
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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Lab Sample Number				2196937	2196938	2196939	2196940	2196941
Sample Reference				BH205	BH206	BH206	TP222	DP201
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.50	1.30	3.30	1.20	0.90
Date Sampled				02/03/2022	02/03/2022	02/03/2022	02/03/2022	02/03/2022
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	-	-	-	-
1,2,4-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				2196942	2196943	2196944
Sample Reference				BH204	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				5.50	8.70	9.90
Date Sampled				02/03/2022	21/02/2022	21/02/2022
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	13	12	12
Total mass of sample received	kg	0.001	NONE	1	1	1

Asbestos in Soil	Type	N/A	ISO 17025	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-
Free Cyanide	mg/kg	1	MCERTS	-	-	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.024	0.028	0.037

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	-	-

Analytical Report Number: 22-44025
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14510

Lab Sample Number				2196942	2196943	2196944
Sample Reference				BH204	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				5.50	8.70	9.90
Date Sampled				02/03/2022	21/02/2022	21/02/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-
Chromium (hexavalent)	mg/kg	1.2	NONE	-	-	-
Chromium (III)	mg/kg	1	NONE	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-
Monoaromatics & Oxygenates						
Benzene	µg/kg	1	MCERTS	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-
Petroleum Hydrocarbons						
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	-	-
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	-	-	-
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	-	-	-
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	-	-	-

Analytical Report Number: 22-44025
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14510

Lab Sample Number				2196942	2196943	2196944
Sample Reference				BH204	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				5.50	8.70	9.90
Date Sampled				02/03/2022	21/02/2022	21/02/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
TPH Total C5 - C44 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	-	-	-
VOCs						
Chloromethane	µg/kg	1	ISO 17025	-	-	-
Chloroethane	µg/kg	1	NONE	-	-	-
Bromomethane	µg/kg	1	ISO 17025	-	-	-
Vinyl Chloride	µg/kg	1	NONE	-	-	-
Trichlorofluoromethane	µg/kg	1	NONE	-	-	-
1,1-Dichloroethene	µg/kg	1	NONE	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	-	-	-
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-
1,1-Dichloroethane	µg/kg	1	MCERTS	-	-	-
2,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-
Trichloromethane	µg/kg	1	MCERTS	-	-	-
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	-	-
1,2-Dichloroethane	µg/kg	1	MCERTS	-	-	-
1,1-Dichloropropene	µg/kg	1	MCERTS	-	-	-
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	-	-
Benzene	µg/kg	1	MCERTS	-	-	-
Tetrachloromethane	µg/kg	1	MCERTS	-	-	-
1,2-Dichloropropane	µg/kg	1	MCERTS	-	-	-
Trichloroethene	µg/kg	1	MCERTS	-	-	-
Dibromomethane	µg/kg	1	MCERTS	-	-	-
Bromodichloromethane	µg/kg	1	MCERTS	-	-	-
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	-	-
1,3-Dichloropropane	µg/kg	1	ISO 17025	-	-	-
Dibromochloromethane	µg/kg	1	ISO 17025	-	-	-
Tetrachloroethene	µg/kg	1	NONE	-	-	-
1,2-Dibromoethane	µg/kg	1	ISO 17025	-	-	-
Chlorobenzene	µg/kg	1	MCERTS	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-
p & m-Xylene	µg/kg	1	MCERTS	-	-	-
Styrene	µg/kg	1	MCERTS	-	-	-
Tribromomethane	µg/kg	1	NONE	-	-	-
o-Xylene	µg/kg	1	MCERTS	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	-	-
Isopropylbenzene	µg/kg	1	MCERTS	-	-	-
Bromobenzene	µg/kg	1	MCERTS	-	-	-
n-Propylbenzene	µg/kg	1	ISO 17025	-	-	-
2-Chlorotoluene	µg/kg	1	MCERTS	-	-	-
4-Chlorotoluene	µg/kg	1	MCERTS	-	-	-
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-
tert-Butylbenzene	µg/kg	1	MCERTS	-	-	-
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	-	-	-
sec-Butylbenzene	µg/kg	1	MCERTS	-	-	-
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	-	-	-
p-Isopropyltoluene	µg/kg	1	ISO 17025	-	-	-
1,2-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-
1,4-Dichlorobenzene	µg/kg	1	MCERTS	-	-	-
Butylbenzene	µg/kg	1	MCERTS	-	-	-

Analytical Report Number: 22-44025
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14510

Lab Sample Number				2196942	2196943	2196944
Sample Reference				BH204	BH201	BH201
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				5.50	8.70	9.90
Date Sampled				02/03/2022	21/02/2022	21/02/2022
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	-	-	-
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	-	-	-
Hexachlorobutadiene	µg/kg	1	MCERTS	-	-	-
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	-	-	-

Analytical Report Number : 22-44025
Project / Site name: Great Western Road Yard Gloucester

* 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 *
2196932	BH202	None Supplied	1.2	Brown sand with gravel.
2196933	BH203	None Supplied	1.3	Brown sand with gravel.
2196934	BH203	None Supplied	2	Brown sand with gravel.
2196935	BH204	None Supplied	1.4	Brown sand with gravel.
2196936	BH204	None Supplied	3	Grey clay.
2196937	BH205	None Supplied	1.5	Brown sand with gravel and stones.
2196938	BH206	None Supplied	1.3	Brown sand with gravel and stones.
2196939	BH206	None Supplied	3.3	Brown clay and loam.
2196940	TP222	None Supplied	1.2	Brown sand with gravel and stones.
2196941	DP201	None Supplied	0.9	Brown sand with gravel.
2196942	BH204	None Supplied	5.5	Brown clay and loam.
2196943	BH201	None Supplied	8.7	Brown clay and loam with gravel.
2196944	BH201	None Supplied	9.9	Brown clay and loam.

Analytical Report Number : 22-44025
Project / Site name: Great Western Road Yard Gloucester

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 disperion staining techniques.	In house method based on HSG 248	A001-PL	D	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
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
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
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
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS

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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
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS

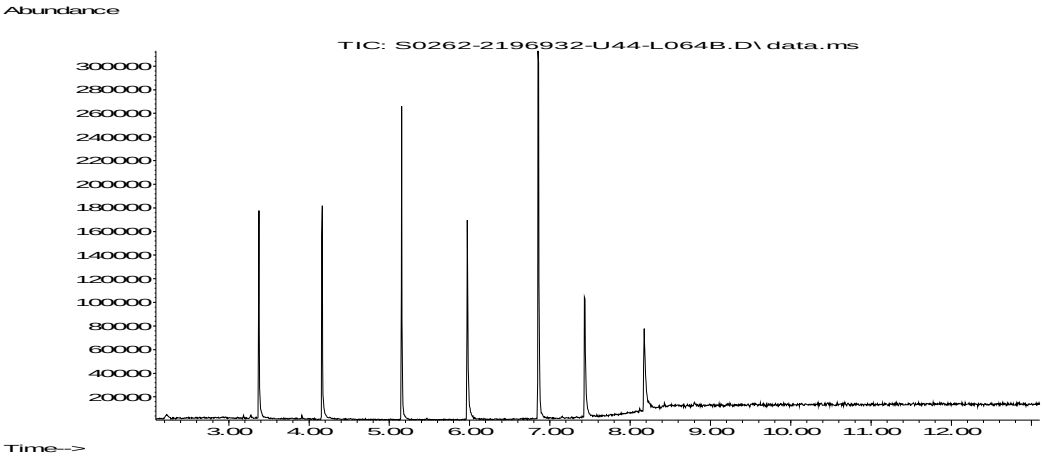
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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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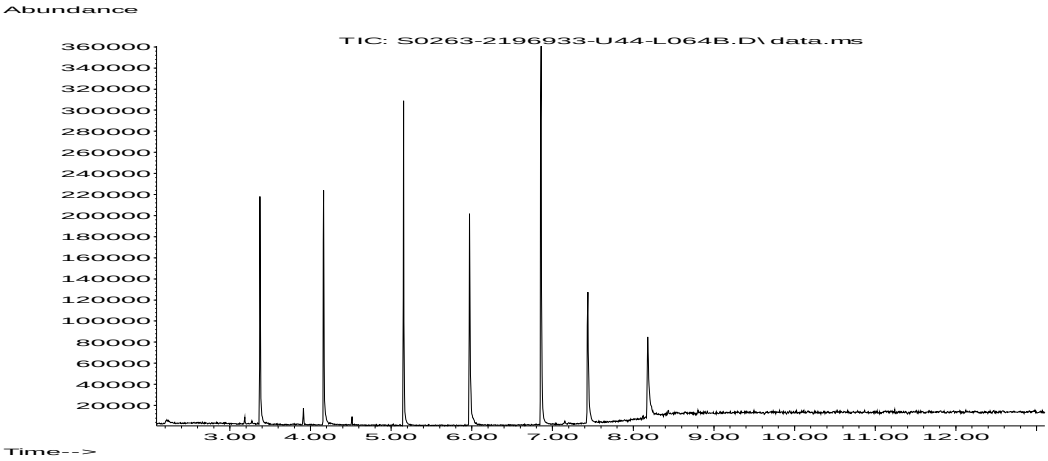
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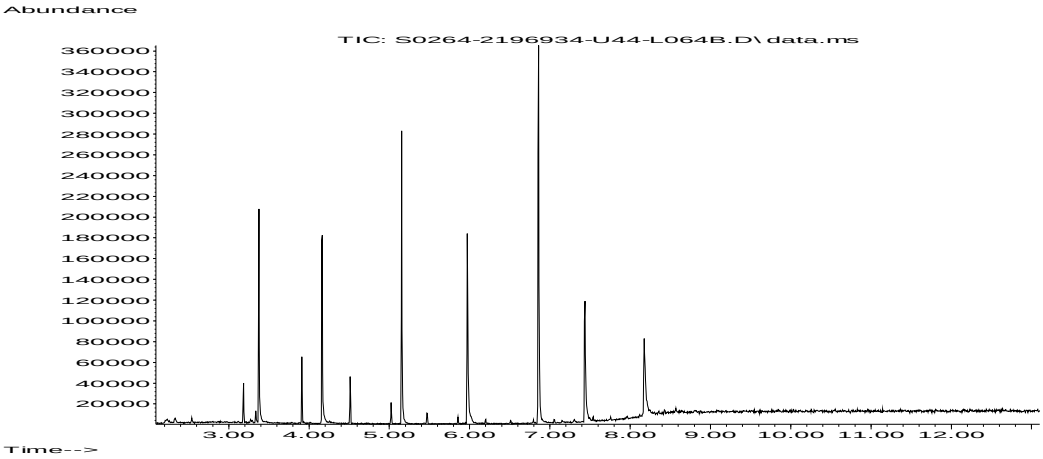
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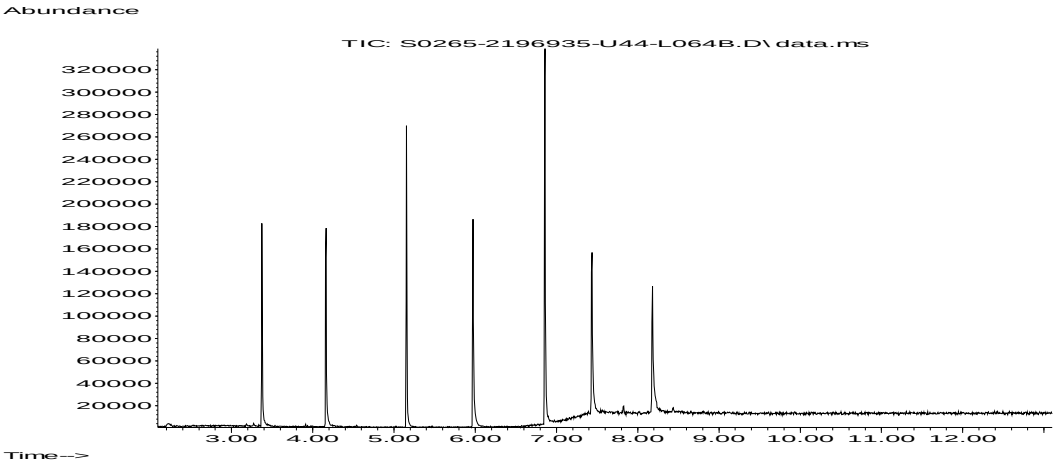
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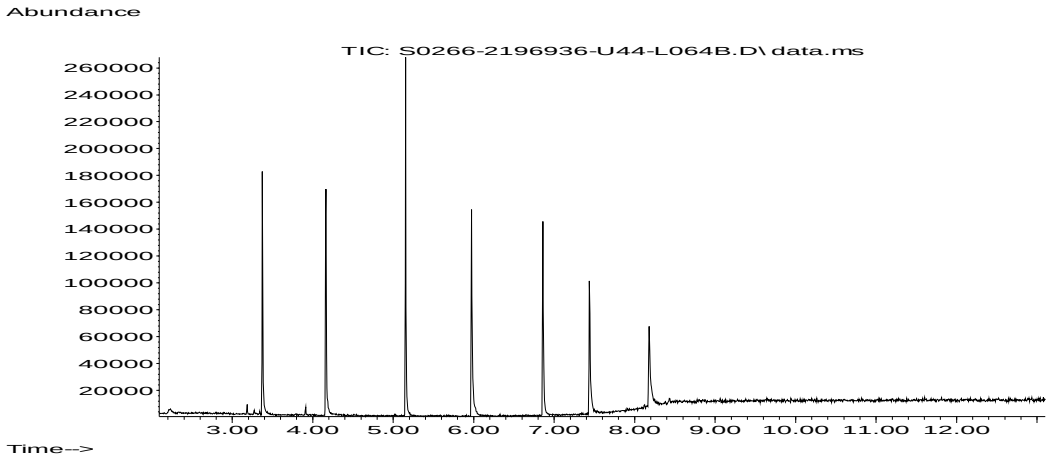
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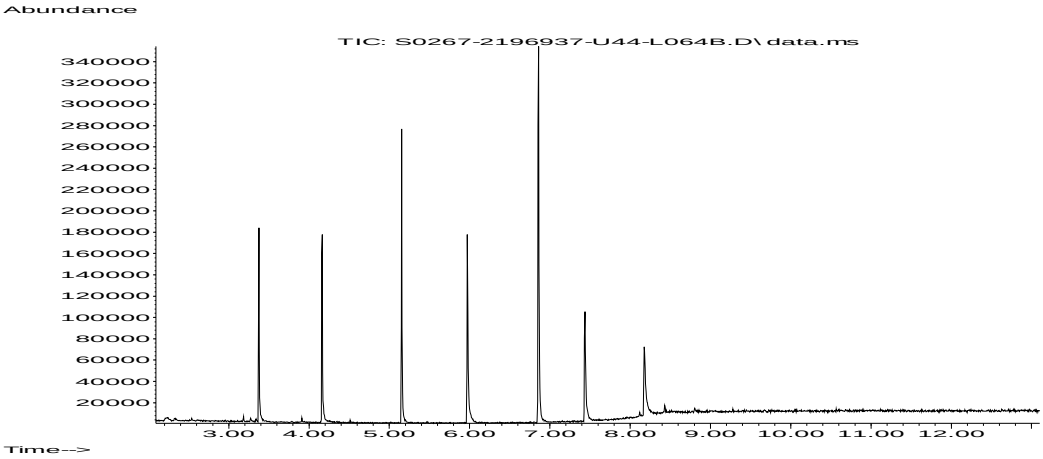
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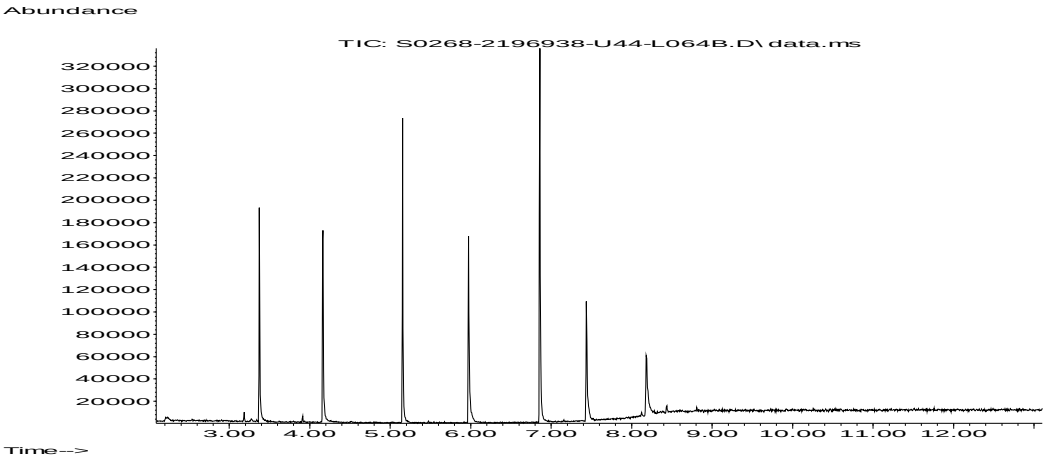
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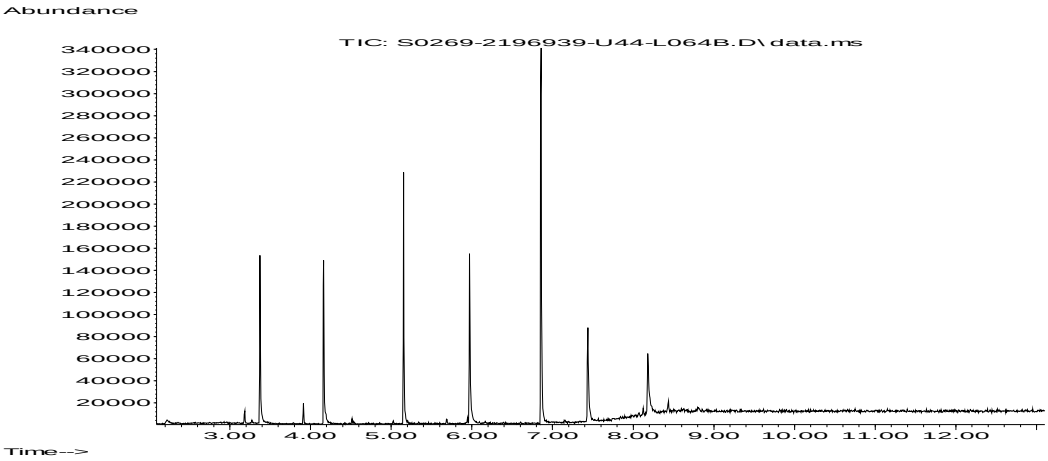
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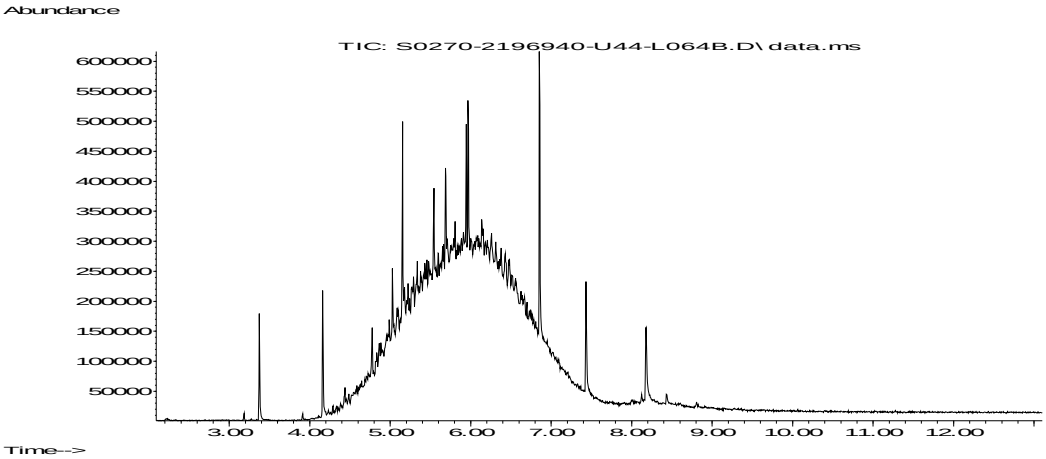
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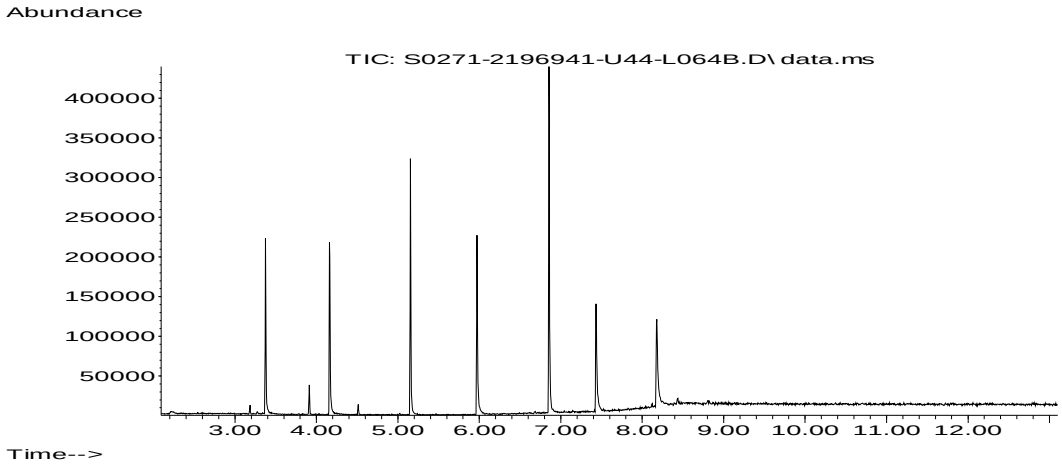
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Analytical Report Number : 22-44027

Project / Site name:	Great Western Road Yard Gloucester	**Samples received on:**	08/03/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	08/03/2022
Your order number:	PO14375	**Analysis completed by:**	15/03/2022
Report Issue Number:	1	**Report issued on:**	15/03/2022
Samples Analysed:	1 soil sample		

Signed: Izabela Wójcik

Izabela Wójcik
Technical Reviewer (Reporting Team)
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: 22-44027
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14375

Lab Sample Number				2196952
Sample Reference				WS203
Sample Number				None Supplied
Depth (m)				0.70
Date Sampled				23/02/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	28
Moisture Content	%	0.01	NONE	6.6
Total mass of sample received	kg	0.001	NONE	1

Monoaromatics & Oxygenates

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

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	10
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	38
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	31
TPH-CWG - Aliphatic >EC16 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	10	MCERTS	69
TPH-CWG - Aliphatic > EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	MCERTS	79
TPH-CWG - Aliphatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	79

TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.001	MCERTS	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic > EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	MCERTS	< 10
TPH-CWG - Aromatic (EC5 - EC44) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10

TPH Total C5 - C44 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	79

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

Analytical Report Number : 22-44027
Project / Site name: Great Western Road Yard Gloucester

* 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 *
2196952	WS203	None Supplied	0.7	Brown sand with gravel and stones.

Analytical Report Number : 22-44027
Project / Site name: Great Western Road Yard Gloucester

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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
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
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
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS

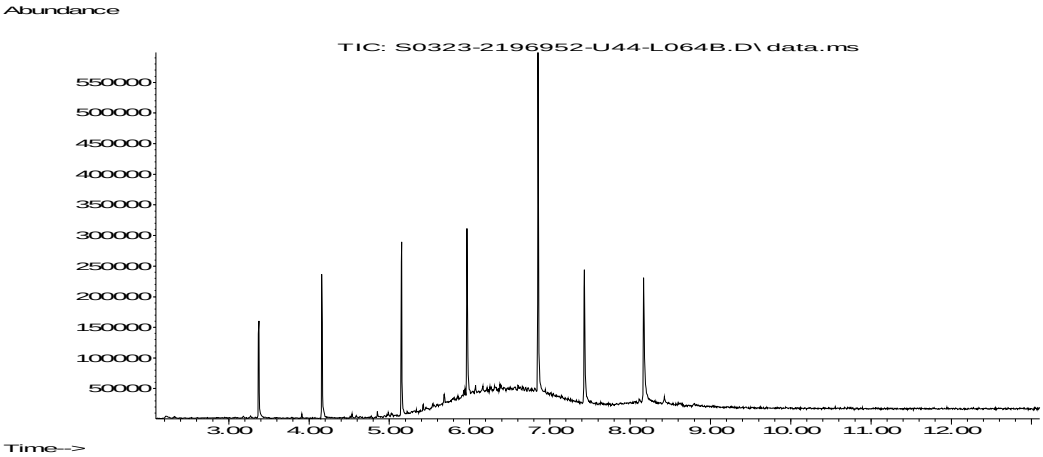
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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 : 22-46414

Replaces Analytical Report Number: 22-46414, issue no. 1
Client references/information amended.

Project / Site name:	Great Western Road Gloucester	**Samples received on:**	18/03/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	18/03/2022
Your order number:	PO14838	**Analysis completed by:**	25/03/2022
Report Issue Number:	2	**Report issued on:**	25/03/2022
Samples Analysed:	12 water samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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

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Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209386	2209387	2209388	2209389	2209390
Sample Reference				WS101	BH201	BH202	BH203	BH204S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	6.50	1.60	2.10	1.80
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
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	7.5	8.5	7.8	7.5	7.6
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	600	2300	550	600	630
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate as SO4	µg/l	45	ISO 17025	84200	198000	87000	24100	20200
Sulphate as SO4	mg/l	0.045	ISO 17025	-	-	-	-	20.2
Sulphide	µg/l	5	NONE	-	-	-	-	< 5.0
Chloride	mg/l	0.15	ISO 17025	9	460	18	12	11
Fluoride	µg/l	50	ISO 17025	150	2100	210	150	120
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	540	790	36	810	1400
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	650	950	44	980	1700
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	690	1000	47	1000	1800
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	7.4	5.85	3.02	36.7	41.4
Nitrate as N	mg/l	0.01	ISO 17025	0.07	0.09	0.65	0.13	0.19
Nitrate as NO3	mg/l	0.05	ISO 17025	0.31	0.41	2.9	0.57	0.83
Nitrite as N	µg/l	1	ISO 17025	11	7.4	160	< 1.0	1.8
Nitrite as NO2	µg/l	5	ISO 17025	37	24	530	< 5.0	6
Alkalinity as CaCO3	mg/l	3	ISO 17025	-	-	-	-	440

Hardness - Total	mgCaCO3/l	1	ISO 17025	343	44.3	242	380	480
Redox Potential	mV	-800	NONE	-	-	-	-	110.8
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209386	2209387	2209388	2209389	2209390
Sample Reference				WS101	BH201	BH202	BH203	BH204S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	6.50	1.60	2.10	1.80
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	0.37	< 0.01	< 0.01	< 0.01	0.5
Fluorene	µg/l	0.01	ISO 17025	0.84	< 0.01	< 0.01	< 0.01	1.47
Phenanthrene	µg/l	0.01	ISO 17025	0.25	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
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
PAH Sums								
Sum of Benzo(b)fluoranthene & Benzo(k)fluoranthene	µg/l	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Sum of Benzo(ghi)perylene & Indeno(1,2,3-cd)pyrene	µg/l	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Sum of Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benz	µg/l	0.04	NONE	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	1.46	< 0.16	< 0.16	< 0.16	1.97

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

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209386	2209387	2209388	2209389	2209390
Sample Reference				WS101	BH201	BH202	BH203	BH204S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	6.50	1.60	2.10	1.80
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	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	150	2200	87	300	330
Calcium (dissolved)	mg/l	0.012	ISO 17025	130	11	77	130	160
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Iron (dissolved)	mg/l	0.004	ISO 17025	0.055	0.05	0.1	0.042	0.064
Iron (dissolved)	µg/l	4	ISO 17025	56	50	100	42	64
Fe2+	mg/l	0.2	NONE	-	-	-	-	< 0.20
Fe3+	mg/l	0.2	NONE	-	-	-	-	< 0.20
Magnesium (dissolved)	mg/l	0.005	ISO 17025	7.4	4.1	12	13	18
Mn (II)	mg/l	0.02	NONE	-	-	-	-	0.27
Mn (IV)	mg/l	0.02	NONE	-	-	-	-	0.57
Sodium (dissolved)	mg/l	0.01	ISO 17025	14	530	34	13	11

Aluminium (dissolved)	µg/l	1	ISO 17025	2.1	44	1.8	1	1.3
Antimony (dissolved)	µg/l	0.4	ISO 17025	0.4	2	0.9	< 0.4	0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.95	11.3	0.8	1.1	2.02
Barium (dissolved)	µg/l	0.06	ISO 17025	55	13	42	110	92
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.13	0.03	< 0.02	0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.8	2	2.2	2.6	3.7
Cobalt (dissolved)	µg/l	0.2	ISO 17025	1.5	0.2	0.5	4.2	8.4
Copper (dissolved)	µg/l	0.5	ISO 17025	3.1	7.5	3.6	2.4	2.7
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	710	1.9	140	670	830
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	0.49	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.7	1	3.5	8.5	16
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	4	8.4	< 0.6	0.6
Silver (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tin (dissolved)	µg/l	0.2	ISO 17025	< 0.20	< 0.20	0.26	< 0.20	< 0.20
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	2.6	0.4	< 0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	2	1.1	3.5	1	4.8

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Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209386	2209387	2209388	2209389	2209390
Sample Reference				WS101	BH201	BH202	BH203	BH204S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	6.50	1.60	2.10	1.80
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
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
Sum of m, p & o-Xylene	µg/l	2	ISO 17025	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
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 >C16 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	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 - Aliphatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	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	40	< 10	< 10	33	35
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	130	< 10	< 10	240	320
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	110	< 10	< 10	370	380
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	90	170
TPH-CWG - Aromatic >C35 - C44 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	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	270	< 10	< 10	730	910
TPH-CWG - Aromatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	270	< 10	< 10	730	910
TPH-CWG Total C5 - C44 $_{EH+HS\_1D\_TOTAL\_\#1\_\#2\_MS}$	µg/l	10	NONE	270	< 10	< 10	730	910
VOCs								
Chloromethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Chloroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Bromomethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Vinyl Chloride	µg/l	1	NONE	-	-	-	-	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	-	-	-	-	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Trichloromethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Benzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Trichloroethene	µg/l	1	ISO 17025	-	-	-	-	< 1.0

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209386	2209387	2209388	2209389	2209390
Sample Reference				WS101	BH201	BH202	BH203	BH204S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	6.50	1.60	2.10	1.80
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Dibromomethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Toluene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Styrene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Tribromomethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
o-Xylene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Bromobenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Butylbenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	-	-	-	-	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	-	-	-	-	< 1.0

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

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209386	2209387	2209388	2209389	2209390
Sample Reference				WS101	BH201	BH202	BH203	BH204S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	6.50	1.60	2.10	1.80
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Dichloromethane	µg/l	3	NONE	-	-	-	-	< 3.0
Dichlorodifluoromethane	µg/l	1	NONE	-	-	-	-	< 1.0
Total Trihalomethanes	µg/l	4	NONE	-	-	-	-	< 4.0
Total Trichlorobenzenes	ug/l	3	NONE	-	-	-	-	< 3.0
Total Dichlorobenzenes	ug/l	3	NONE	-	-	-	-	< 3.0
Trichloroethylene (TCE) + Tetrachloroethylene (PCE)	ug/l	2	NONE	-	-	-	-	< 2.0
Total 1,2-Dichloroethene	ug/l	2	NONE	-	-	-	-	< 2.0
Total 1,3-Dichloropropane	ug/l	2	NONE	-	-	-	-	< 2.0
Tetrachloroethane	ug/l	2	NONE	-	-	-	-	< 2.0

SVOCs

Aniline	µg/l	0.05	NONE	-	-	-	-	-
Phenol	µg/l	0.05	NONE	-	-	-	-	-
2-Chlorophenol	µg/l	0.05	NONE	-	-	-	-	-
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	-	-	-	-	-
1,3-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	-	-
1,2-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	-	-
1,4-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	-	-
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	-	-	-	-	-
2-Methylphenol	µg/l	0.05	NONE	-	-	-	-	-
Hexachloroethane	µg/l	0.05	NONE	-	-	-	-	-
Nitrobenzene	µg/l	0.05	NONE	-	-	-	-	-
4-Methylphenol	µg/l	0.05	NONE	-	-	-	-	-
Isophorone	µg/l	0.05	NONE	-	-	-	-	-
2-Nitrophenol	µg/l	0.05	NONE	-	-	-	-	-
2,4-Dimethylphenol	µg/l	0.05	NONE	-	-	-	-	-
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	-	-	-	-	-
Naphthalene	µg/l	0.01	ISO 17025	-	-	-	-	-
2,4-Dichlorophenol	µg/l	0.05	NONE	-	-	-	-	-
4-Chloroaniline	µg/l	0.05	NONE	-	-	-	-	-
Hexachlorobutadiene	µg/l	0.05	NONE	-	-	-	-	-
4-Chloro-3-methylphenol	µg/l	0.05	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	µg/l	0.05	NONE	-	-	-	-	-
2,4,5-Trichlorophenol	µg/l	0.05	NONE	-	-	-	-	-
2-Methylnaphthalene	µg/l	0.05	NONE	-	-	-	-	-
2-Chloronaphthalene	µg/l	0.05	NONE	-	-	-	-	-
Dimethylphthalate	µg/l	0.05	NONE	-	-	-	-	-
2,6-Dinitrotoluene	µg/l	0.05	NONE	-	-	-	-	-
Acenaphthylene	µg/l	0.01	ISO 17025	-	-	-	-	-
Acenaphthene	µg/l	0.01	ISO 17025	-	-	-	-	-
2,4-Dinitrotoluene	µg/l	0.05	NONE	-	-	-	-	-
Dibenzofuran	µg/l	0.05	NONE	-	-	-	-	-
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	-	-	-	-	-
Diethyl phthalate	µg/l	0.05	NONE	-	-	-	-	-
4-Nitroaniline	µg/l	0.05	NONE	-	-	-	-	-
Fluorene	µg/l	0.01	ISO 17025	-	-	-	-	-
Azobenzene	µg/l	0.05	NONE	-	-	-	-	-
Bromophenyl phenyl ether	µg/l	0.05	NONE	-	-	-	-	-
Hexachlorobenzene	µg/l	0.05	NONE	-	-	-	-	-
Phenanthrene	µg/l	0.01	ISO 17025	-	-	-	-	-
Anthracene	µg/l	0.01	ISO 17025	-	-	-	-	-
Carbazole	µg/l	0.05	NONE	-	-	-	-	-
Dibutyl phthalate	µg/l	0.05	NONE	-	-	-	-	-
Anthraquinone	µg/l	0.05	NONE	-	-	-	-	-
Fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-	-

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209386	2209387	2209388	2209389	2209390
Sample Reference				WS101	BH201	BH202	BH203	BH204S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00	6.50	1.60	2.10	1.80
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Pyrene	µg/l	0.01	ISO 17025	-	-	-	-	-
Butyl benzyl phthalate	µg/l	0.05	NONE	-	-	-	-	-
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	-	-	-	-
Chrysene	µg/l	0.01	ISO 17025	-	-	-	-	-
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-	-
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-	-
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-	-	-	-	-
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-	-	-	-	-
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-	-	-	-	-

3&4-Methylphenol	µg/l	0.1	NONE	-	-	-	-	-

PCBs by GC-MS

PCB Congener 28	µg/l	0.02	NONE	-	-	-	-	-
PCB Congener 52	µg/l	0.02	NONE	-	-	-	-	-
PCB Congener 101	µg/l	0.02	NONE	-	-	-	-	-
PCB Congener 118	µg/l	0.02	NONE	-	-	-	-	-
PCB Congener 138	µg/l	0.02	NONE	-	-	-	-	-
PCB Congener 153	µg/l	0.02	NONE	-	-	-	-	-
PCB Congener 180	µg/l	0.02	NONE	-	-	-	-	-

PCBs by GC-MS

Total PCBs	µg/l	0.14	NONE	-	-	-	-	-

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

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209391	2209392	2209393	2209394	2209395
Sample Reference				BH204D	BH205	BH206	WS203	WS204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	1.80	2.30	1.70	1.50
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
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	7.6	7.5	7.8	6.9	7.3
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	1000	650	450	1100	710
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate as SO4	µg/l	45	ISO 17025	131000	35700	5290	118000	22900
Sulphate as SO4	mg/l	0.045	ISO 17025	-	35.7	5.29	118	22.9
Sulphide	µg/l	5	NONE	-	< 5.0	< 5.0	< 5.0	< 5.0
Chloride	mg/l	0.15	ISO 17025	88	9.9	8.4	9.3	12
Fluoride	µg/l	50	ISO 17025	310	170	270	160	170
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	170	27	4000	1900	940
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	210	33	4900	2300	1100
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	220	35	5200	2400	1200
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	7.64	5.65	30	50.2	35.8
Nitrate as N	mg/l	0.01	ISO 17025	0.12	0.47	0.06	0.12	0.12
Nitrate as NO3	mg/l	0.05	ISO 17025	0.52	2.07	0.26	0.52	0.52
Nitrite as N	µg/l	1	ISO 17025	35	16	< 1.0	< 1.0	2
Nitrite as NO2	µg/l	5	ISO 17025	120	51	< 5.0	< 5.0	6.5
Alkalinity as CaCO3	mg/l	3	ISO 17025	-	320	240	590	370

Hardness - Total	mgCaCO3/l	1	ISO 17025	279	378	217	674	375
Redox Potential	mV	-800	NONE	-	107.4	90	132.6	125.4
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209391	2209392	2209393	2209394	2209395
Sample Reference				BH204D	BH205	BH206	WS203	WS204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	1.80	2.30	1.70	1.50
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	0.24	0.71	0.33
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.85	2.92	1
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.01	5.61	2.13
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.83	2.36	0.81
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.001	NONE	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
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
PAH Sums								
Sum of Benzo(b)fluoranthene & Benzo(k)fluoranthene	µg/l	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Sum of Benzo(ghi)perylene & Indeno(1,2,3-cd)pyrene	µg/l	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Sum of Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benz	µg/l	0.04	NONE	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	4.93	11.6	4.27

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

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209391	2209392	2209393	2209394	2209395
Sample Reference				BH204D	BH205	BH206	WS203	WS204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	1.80	2.30	1.70	1.50
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	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	700	160	650	530	200
Calcium (dissolved)	mg/l	0.012	ISO 17025	89	130	55	250	140
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Iron (dissolved)	mg/l	0.004	ISO 17025	0.026	0.023	0.054	0.069	0.076
Iron (dissolved)	µg/l	4	ISO 17025	26	23	54	69	76
Fe2+	mg/l	0.2	NONE	-	< 0.20	< 0.20	< 0.20	< 0.20
Fe3+	mg/l	0.2	NONE	-	< 0.20	< 0.20	< 0.20	< 0.20
Magnesium (dissolved)	mg/l	0.005	ISO 17025	14	11	19	12	5.1
Mn (II)	mg/l	0.02	NONE	-	0.04	0.06	0.72	0.14
Mn (IV)	mg/l	0.02	NONE	-	< 0.02	0.24	0.35	0.64
Sodium (dissolved)	mg/l	0.01	ISO 17025	120	20	10	11	16

Aluminium (dissolved)	µg/l	1	ISO 17025	1.1	2.3	2.2	< 1.0	< 1.0
Antimony (dissolved)	µg/l	0.4	ISO 17025	0.8	< 0.4	0.4	0.7	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.85	0.31	1.25	5.27	4.17
Barium (dissolved)	µg/l	0.06	ISO 17025	43	48	89	150	140
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03	0.03	0.05	< 0.02	0.05
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.7	2.3	1.4	4.5	2.4
Cobalt (dissolved)	µg/l	0.2	ISO 17025	1.9	0.7	1.2	3.8	4.3
Copper (dissolved)	µg/l	0.5	ISO 17025	4.3	4	3	1.8	6.1
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	0.2	< 0.2	6.1
Manganese (dissolved)	µg/l	0.05	ISO 17025	170	50	290	1100	790
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	4.2	4.2	7.1	9	9.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.7	1.7	< 0.6	0.7	0.7
Silver (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Tin (dissolved)	µg/l	0.2	ISO 17025	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.4	< 0.2	< 0.2	< 0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.9	2.8	9.8	2.8	1.2

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Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209391	2209392	2209393	2209394	2209395
Sample Reference				BH204D	BH205	BH206	WS203	WS204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	1.80	2.30	1.70	1.50
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
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
Sum of m, p & o-Xylene	µg/l	2	ISO 17025	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
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 >C16 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	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 - Aliphatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	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	100	270	120
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	270	1100	590
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	160	570	340
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	290	68
TPH-CWG - Aromatic >C35 - C44 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	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	530	2200	1100
TPH-CWG - Aromatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	530	2200	1100
TPH-CWG Total C5 - C44 $_{EH+HS\_1D\_TOTAL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	530	2200	1100
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

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209391	2209392	2209393	2209394	2209395
Sample Reference				BH204D	BH205	BH206	WS203	WS204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	1.80	2.30	1.70	1.50
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
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	< 1.0	< 1.0	< 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
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

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Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209391	2209392	2209393	2209394	2209395
Sample Reference				BH204D	BH205	BH206	WS203	WS204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	1.80	2.30	1.70	1.50
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Dichloromethane	µg/l	3	NONE	-	< 3.0	< 3.0	< 3.0	< 3.0
Dichlorodifluoromethane	µg/l	1	NONE	-	< 1.0	< 1.0	< 1.0	< 1.0
Total Trihalomethanes	µg/l	4	NONE	-	< 4.0	< 4.0	< 4.0	< 4.0
Total Trichlorobenzenes	ug/l	3	NONE	-	< 3.0	< 3.0	< 3.0	< 3.0
Total Dichlorobenzenes	ug/l	3	NONE	-	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethylene (TCE) + Tetrachloroethylene (PCE)	ug/l	2	NONE	-	< 2.0	< 2.0	< 2.0	< 2.0
Total 1,2-Dichloroethene	ug/l	2	NONE	-	< 2.0	< 2.0	< 2.0	< 2.0
Total 1,3-Dichloropropane	ug/l	2	NONE	-	< 2.0	< 2.0	< 2.0	< 2.0
Tetrachloroethane	ug/l	2	NONE	-	< 2.0	< 2.0	< 2.0	< 2.0

SVOCs

Aniline	µg/l	0.05	NONE	-	-	-	< 0.05	-
Phenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
2-Chlorophenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	-	-	-	< 0.05	-
1,3-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	< 0.05	-
1,2-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	< 0.05	-
1,4-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	< 0.05	-
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	-	-	-	< 0.05	-
2-Methylphenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
Hexachloroethane	µg/l	0.05	NONE	-	-	-	< 0.05	-
Nitrobenzene	µg/l	0.05	NONE	-	-	-	< 0.05	-
4-Methylphenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
Isophorone	µg/l	0.05	NONE	-	-	-	< 0.05	-
2-Nitrophenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
2,4-Dimethylphenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	-	-	-	< 0.05	-
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	-	-	-	< 0.05	-
Naphthalene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
2,4-Dichlorophenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
4-Chloroaniline	µg/l	0.05	NONE	-	-	-	< 0.05	-
Hexachlorobutadiene	µg/l	0.05	NONE	-	-	-	< 0.05	-
4-Chloro-3-methylphenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
2,4,6-Trichlorophenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
2,4,5-Trichlorophenol	µg/l	0.05	NONE	-	-	-	< 0.05	-
2-Methylnaphthalene	µg/l	0.05	NONE	-	-	-	0.62	-
2-Chloronaphthalene	µg/l	0.05	NONE	-	-	-	< 0.05	-
Dimethylphthalate	µg/l	0.05	NONE	-	-	-	< 0.05	-
2,6-Dinitrotoluene	µg/l	0.05	NONE	-	-	-	< 0.05	-
Acenaphthylene	µg/l	0.01	ISO 17025	-	-	-	0.71	-
Acenaphthene	µg/l	0.01	ISO 17025	-	-	-	2.9	-
2,4-Dinitrotoluene	µg/l	0.05	NONE	-	-	-	< 0.05	-
Dibenzofuran	µg/l	0.05	NONE	-	-	-	2.7	-
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	-	-	-	< 0.05	-
Diethyl phthalate	µg/l	0.05	NONE	-	-	-	< 0.05	-
4-Nitroaniline	µg/l	0.05	NONE	-	-	-	< 0.05	-
Fluorene	µg/l	0.01	ISO 17025	-	-	-	5.6	-
Azobenzene	µg/l	0.05	NONE	-	-	-	< 0.05	-
Bromophenyl phenyl ether	µg/l	0.05	NONE	-	-	-	< 0.05	-
Hexachlorobenzene	µg/l	0.05	NONE	-	-	-	< 0.05	-
Phenanthrene	µg/l	0.01	ISO 17025	-	-	-	2.4	-
Anthracene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Carbazole	µg/l	0.05	NONE	-	-	-	6.3	-
Dibutyl phthalate	µg/l	0.05	NONE	-	-	-	< 0.05	-
Anthraquinone	µg/l	0.05	NONE	-	-	-	< 0.05	-
Fluoranthene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209391	2209392	2209393	2209394	2209395
Sample Reference				BH204D	BH205	BH206	WS203	WS204
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	1.80	2.30	1.70	1.50
Date Sampled				16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Pyrene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Butyl benzyl phthalate	µg/l	0.05	NONE	-	-	-	< 0.05	-
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Chrysene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-	-	-	< 0.01	-

3&4-Methylphenol	µg/l	0.1	NONE	-	-	-	< 0.10	-

PCBs by GC-MS

PCB Congener 28	µg/l	0.02	NONE	-	-	-	< 0.02	-
PCB Congener 52	µg/l	0.02	NONE	-	-	-	< 0.02	-
PCB Congener 101	µg/l	0.02	NONE	-	-	-	< 0.02	-
PCB Congener 118	µg/l	0.02	NONE	-	-	-	< 0.02	-
PCB Congener 138	µg/l	0.02	NONE	-	-	-	< 0.02	-
PCB Congener 153	µg/l	0.02	NONE	-	-	-	< 0.02	-
PCB Congener 180	µg/l	0.02	NONE	-	-	-	< 0.02	-

PCBs by GC-MS

Total PCBs	µg/l	0.14	NONE	-	-	-	< 0.14	-

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

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209396	2209397
Sample Reference				WS205	WS206
Sample Number				None Supplied	None Supplied
Depth (m)				1.50	1.60
Date Sampled				16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.1	7.2
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	810	700
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0
Sulphate as SO4	µg/l	45	ISO 17025	35800	6370
Sulphate as SO4	mg/l	0.045	ISO 17025	35.8	6.38
Sulphide	µg/l	5	NONE	< 5.0	< 5.0
Chloride	mg/l	0.15	ISO 17025	9.6	8.1
Fluoride	µg/l	50	ISO 17025	93	140
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	2900	3000
Ammoniacal Nitrogen as NH3	µg/l	15	ISO 17025	3500	3600
Ammoniacal Nitrogen as NH4	µg/l	15	ISO 17025	3700	3800
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	59.1	51.8
Nitrate as N	mg/l	0.01	ISO 17025	0.18	0.18
Nitrate as NO3	mg/l	0.05	ISO 17025	0.78	0.78
Nitrite as N	µg/l	1	ISO 17025	< 1.0	< 1.0
Nitrite as NO2	µg/l	5	ISO 17025	< 5.0	< 5.0
Alkalinity as CaCO3	mg/l	3	ISO 17025	440	410
Hardness - Total	mgCaCO3/l	1	ISO 17025	441	363
Redox Potential	mV	-800	NONE	127	124.8
Bromate by IC	mg/l	0.002	ISO 17025	< 0.002	< 0.002

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	15

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209396	2209397
Sample Reference				WS205	WS206
Sample Number				None Supplied	None Supplied
Depth (m)				1.50	1.60
Date Sampled				16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	0.22	0.54
Acenaphthene	µg/l	0.01	ISO 17025	1.02	1.77
Fluorene	µg/l	0.01	ISO 17025	1.74	3.71
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	2.21
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.001	NONE	< 0.001	< 0.001
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
PAH Sums					
Sum of Benzo(b)fluoranthene & Benzo(k)fluoranthene	µg/l	0.02	NONE	< 0.020	< 0.020
Sum of Benzo(ghi)perylene & Indeno(1,2,3-cd)pyrene	µg/l	0.02	NONE	< 0.020	< 0.020
Sum of Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benz	µg/l	0.04	NONE	< 0.040	< 0.040
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	2.98	8.23

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Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209396	2209397
Sample Reference				WS205	WS206
Sample Number				None Supplied	None Supplied
Depth (m)				1.50	1.60
Date Sampled				16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Boron (dissolved)	µg/l	10	ISO 17025	450	230
Calcium (dissolved)	mg/l	0.012	ISO 17025	160	110
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Iron (dissolved)	mg/l	0.004	ISO 17025	0.11	0.031
Iron (dissolved)	µg/l	4	ISO 17025	110	31
Fe2+	mg/l	0.2	NONE	< 0.20	< 0.20
Fe3+	mg/l	0.2	NONE	< 0.20	< 0.20
Magnesium (dissolved)	mg/l	0.005	ISO 17025	12	22
Mn (II)	mg/l	0.02	NONE	0.17	0.13
Mn (IV)	mg/l	0.02	NONE	0.09	0.51
Sodium (dissolved)	mg/l	0.01	ISO 17025	12	10
Aluminium (dissolved)	µg/l	1	ISO 17025	1.1	2.2
Antimony (dissolved)	µg/l	0.4	ISO 17025	< 0.4	0.5
Arsenic (dissolved)	µg/l	0.15	ISO 17025	4.47	7.58
Barium (dissolved)	µg/l	0.06	ISO 17025	170	200
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.5	2.9
Cobalt (dissolved)	µg/l	0.2	ISO 17025	2.4	2.7
Copper (dissolved)	µg/l	0.5	ISO 17025	1.7	5.9
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Manganese (dissolved)	µg/l	0.05	ISO 17025	270	630
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	9.9	4.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	0.7
Silver (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05
Tin (dissolved)	µg/l	0.2	ISO 17025	0.39	< 0.20
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.5	1.5

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Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209396	2209397
Sample Reference				WS205	WS206
Sample Number				None Supplied	None Supplied
Depth (m)				1.50	1.60
Date Sampled				16/03/2022	16/03/2022
Time Taken				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
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
Sum of m, p & o-Xylene	µg/l	2	ISO 17025	< 2.0	< 2.0
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >C5 - C6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	85	190
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	800	870
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	530	720
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	140	68
TPH-CWG - Aromatic >C35 - C44 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	1600	1800
TPH-CWG - Aromatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	1600	1800
TPH-CWG Total C5 - C44 $_{EH+HS\_1D\_TOTAL\_\#1\_\#2\_MS}$	µg/l	10	NONE	1600	1800
VOCs					
Chloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Vinyl Chloride	µg/l	1	NONE	< 1.0	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Trichloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0

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Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209396	2209397
Sample Reference				WS205	WS206
Sample Number				None Supplied	None Supplied
Depth (m)				1.50	1.60
Date Sampled				16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Dibromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
Styrene	µg/l	1	ISO 17025	< 1.0	< 1.0
Tribromomethane	µg/l	1	ISO 17025	< 1.0	< 1.0
o-Xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Bromobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Butylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	< 1.0

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209396	2209397
Sample Reference				WS205	WS206
Sample Number				None Supplied	None Supplied
Depth (m)				1.50	1.60
Date Sampled				16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Dichloromethane	µg/l	3	NONE	< 3.0	< 3.0
Dichlorodifluoromethane	µg/l	1	NONE	< 1.0	< 1.0
Total Trihalomethanes	µg/l	4	NONE	< 4.0	< 4.0
Total Trichlorobenzenes	ug/l	3	NONE	< 3.0	< 3.0
Total Dichlorobenzenes	ug/l	3	NONE	< 3.0	< 3.0
Trichloroethylene (TCE) + Tetrachloroethylene (PCE)	ug/l	2	NONE	< 2.0	< 2.0
Total 1,2-Dichloroethene	ug/l	2	NONE	< 2.0	< 2.0
Total 1,3-Dichloropropane	ug/l	2	NONE	< 2.0	< 2.0
Tetrachloroethane	ug/l	2	NONE	< 2.0	< 2.0

SVOCs

Aniline	µg/l	0.05	NONE	-	-
Phenol	µg/l	0.05	NONE	-	-
2-Chlorophenol	µg/l	0.05	NONE	-	-
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	-	-
1,3-Dichlorobenzene	µg/l	0.05	NONE	-	-
1,2-Dichlorobenzene	µg/l	0.05	NONE	-	-
1,4-Dichlorobenzene	µg/l	0.05	NONE	-	-
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	-	-
2-Methylphenol	µg/l	0.05	NONE	-	-
Hexachloroethane	µg/l	0.05	NONE	-	-
Nitrobenzene	µg/l	0.05	NONE	-	-
4-Methylphenol	µg/l	0.05	NONE	-	-
Isophorone	µg/l	0.05	NONE	-	-
2-Nitrophenol	µg/l	0.05	NONE	-	-
2,4-Dimethylphenol	µg/l	0.05	NONE	-	-
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	-	-
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	-	-
Naphthalene	µg/l	0.01	ISO 17025	-	-
2,4-Dichlorophenol	µg/l	0.05	NONE	-	-
4-Chloroaniline	µg/l	0.05	NONE	-	-
Hexachlorobutadiene	µg/l	0.05	NONE	-	-
4-Chloro-3-methylphenol	µg/l	0.05	NONE	-	-
2,4,6-Trichlorophenol	µg/l	0.05	NONE	-	-
2,4,5-Trichlorophenol	µg/l	0.05	NONE	-	-
2-Methylnaphthalene	µg/l	0.05	NONE	-	-
2-Chloronaphthalene	µg/l	0.05	NONE	-	-
Dimethylphthalate	µg/l	0.05	NONE	-	-
2,6-Dinitrotoluene	µg/l	0.05	NONE	-	-
Acenaphthylene	µg/l	0.01	ISO 17025	-	-
Acenaphthene	µg/l	0.01	ISO 17025	-	-
2,4-Dinitrotoluene	µg/l	0.05	NONE	-	-
Dibenzofuran	µg/l	0.05	NONE	-	-
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	-	-
Diethyl phthalate	µg/l	0.05	NONE	-	-
4-Nitroaniline	µg/l	0.05	NONE	-	-
Fluorene	µg/l	0.01	ISO 17025	-	-
Azobenzene	µg/l	0.05	NONE	-	-
Bromophenyl phenyl ether	µg/l	0.05	NONE	-	-
Hexachlorobenzene	µg/l	0.05	NONE	-	-
Phenanthrene	µg/l	0.01	ISO 17025	-	-
Anthracene	µg/l	0.01	ISO 17025	-	-
Carbazole	µg/l	0.05	NONE	-	-
Dibutyl phthalate	µg/l	0.05	NONE	-	-
Anthraquinone	µg/l	0.05	NONE	-	-
Fluoranthene	µg/l	0.01	ISO 17025	-	-

Analytical Report Number: 22-46414
Project / Site name: Great Western Road Gloucester

Your Order No: PO14838

Lab Sample Number				2209396	2209397
Sample Reference				WS205	WS206
Sample Number				None Supplied	None Supplied
Depth (m)				1.50	1.60
Date Sampled				16/03/2022	16/03/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Pyrene	µg/l	0.01	ISO 17025	-	-
Butyl benzyl phthalate	µg/l	0.05	NONE	-	-
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	-
Chrysene	µg/l	0.01	ISO 17025	-	-
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	-
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	-
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	-
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-	-
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-	-
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-	-

3&4-Methylphenol	µg/l	0.1	NONE	-	-

PCBs by GC-MS

PCB Congener 28	µg/l	0.02	NONE	-	-
PCB Congener 52	µg/l	0.02	NONE	-	-
PCB Congener 101	µg/l	0.02	NONE	-	-
PCB Congener 118	µg/l	0.02	NONE	-	-
PCB Congener 138	µg/l	0.02	NONE	-	-
PCB Congener 153	µg/l	0.02	NONE	-	-
PCB Congener 180	µg/l	0.02	NONE	-	-

PCBs by GC-MS

Total PCBs	µg/l	0.14	NONE	-	-

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

Analytical Report Number : 22-46414
Project / Site name: Great Western Road Gloucester

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
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
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
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Iron (II) and Iron (III) in water	Determination of Iron II and Iron III in water by coloration with phenanthroline and calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L079-PL	W	NONE
Fluoride in water	Determination of fluoride in water by 1:1 ratio with a buffer solution followed by Ion Selective Electrode. Accredited matrices: SW, PW, GW.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-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 - LOW LEVEL 1 ug/l	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
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry).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 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
PCB's By GC-MS in water	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L028-PL	W	NONE
Redox Potential of waters	Determination of redox potential in water by electrometric measurement versus Ag/AgCl electrode.	In house method.	L084-PL	W	NONE
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025

Analytical Report Number : 22-46414
Project / Site name: Great Western Road Gloucester

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
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
Speciated EPA-16 PAHs in water (LOW LEVEL Dets)	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270 (low level)	L102B-PL	W	NONE
TPH in (Water)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L070-PL	W	NONE
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
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (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
Nitrite as N in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by discrete analyser (colorimetry). 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
TPH Chromatogram in Water	TPH Chromatogram in Water.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water extended	Determination of volatile organic compounds in water by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. 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
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
Manganese II and IV in Water	Analysis of manganese compounds by periodate oxidation method.	In house method and calculation based on standard methods for the examination of water and waste water.	L090-PL	W	NONE

Analytical Report Number : 22-46414
Project / Site name: Great Western Road Gloucester

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
Free cyanide (low level) in water	Determination of free cyanide by distillation followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Bromate in Water	Determination of bromate in waters based on ion chromatography. Accredited matrices GW, PW, SW.	In house method based on Standard Methods for the Analysis of Water and Waste Water, method 4500	L008-PL	W	ISO 17025
Specific PAH sums in water	Determination of PAH compounds in water by extraction in hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L070-PL	W	NONE
Chloride in water	Determination of Chloride (diissolved) colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Alkalinity in Water (by discreet analyser)	Determination of Alkalinity by discreet analyser (colorimetry). Accredited matrices: SW, PW, GW.	In house method based on MEWAM & USEPA Method 310.2.	L082-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.

Analytical Report Number : 22-46414
Project / Site name: Great Western Road Gloucester

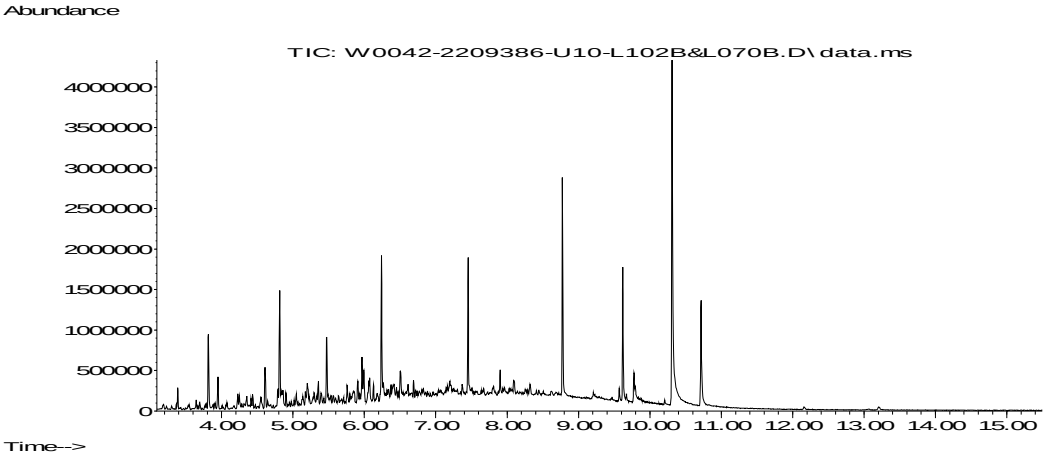
Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

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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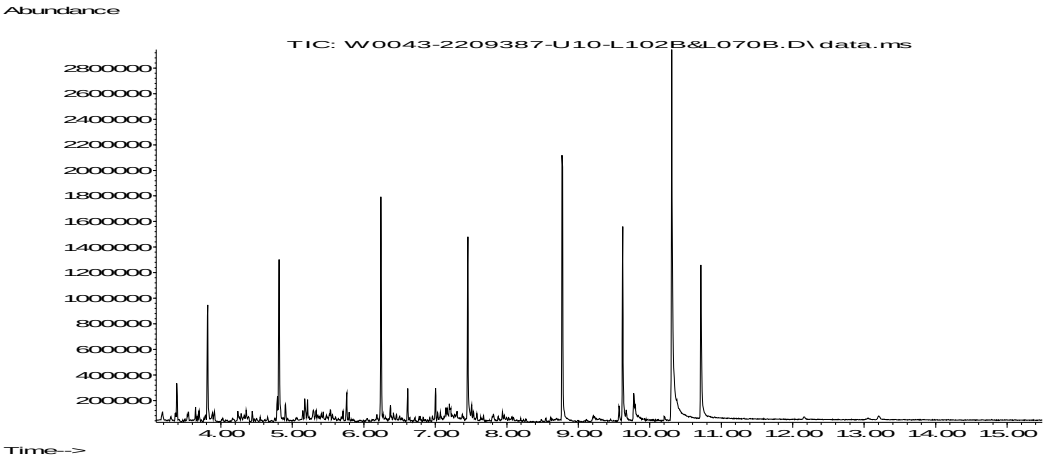
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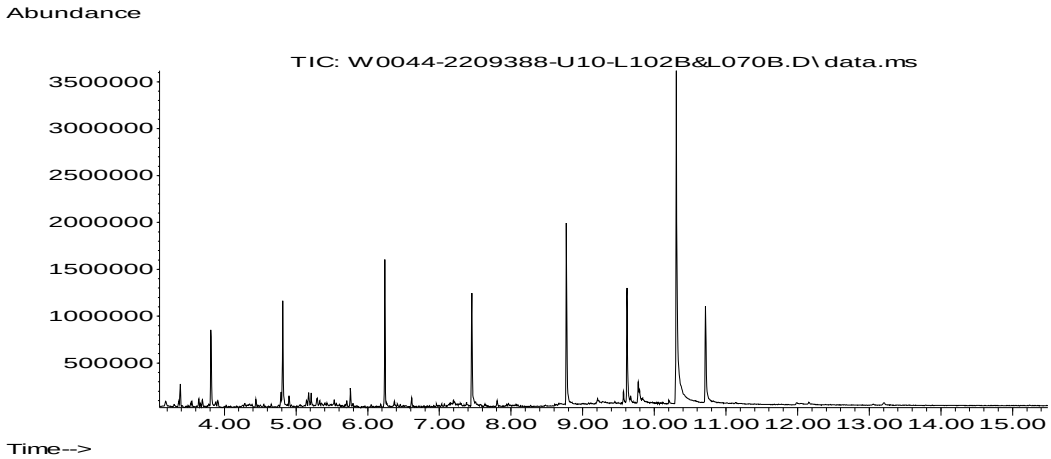
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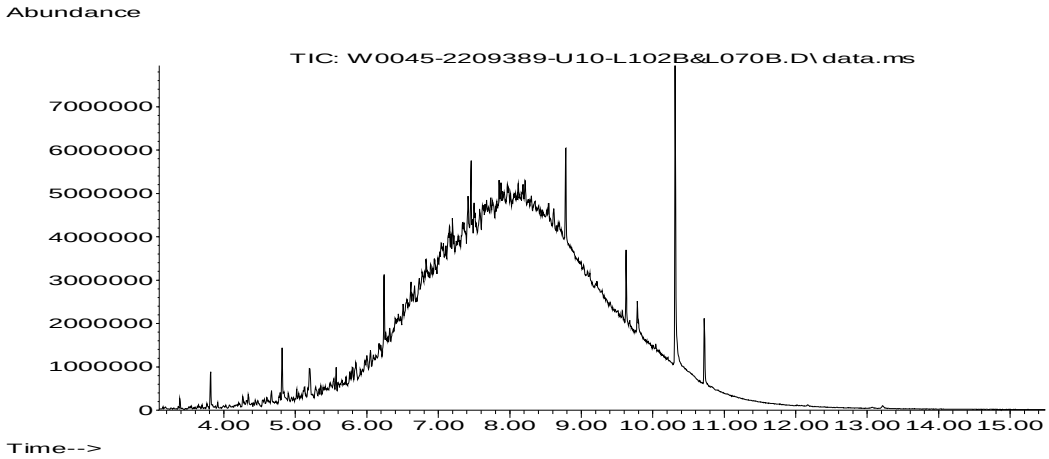
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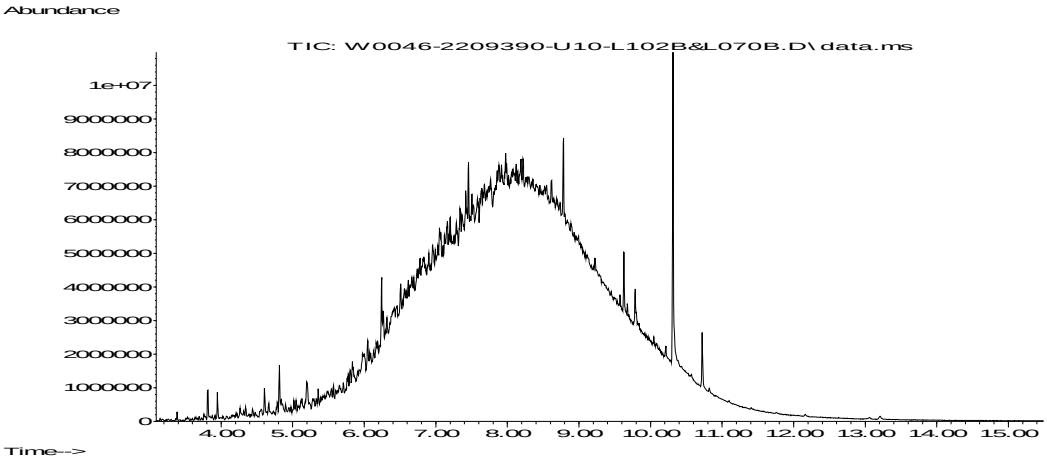
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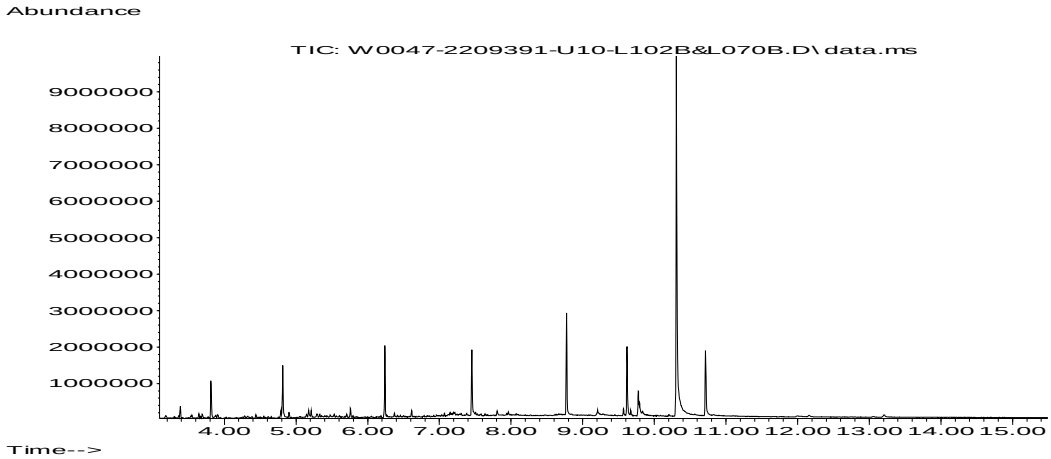
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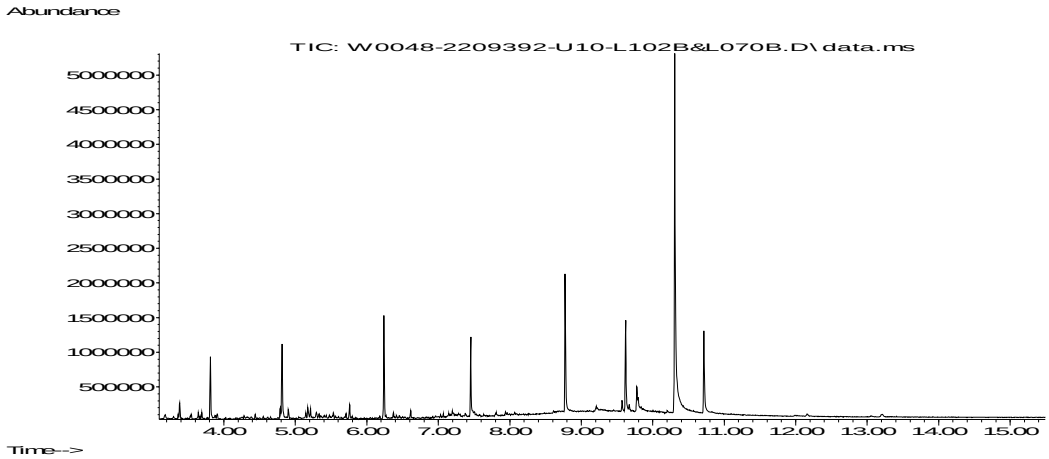
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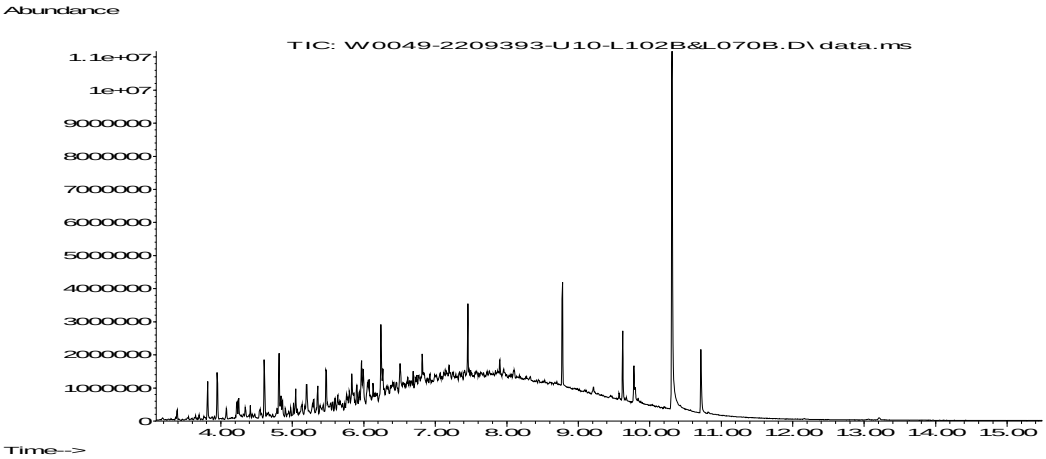
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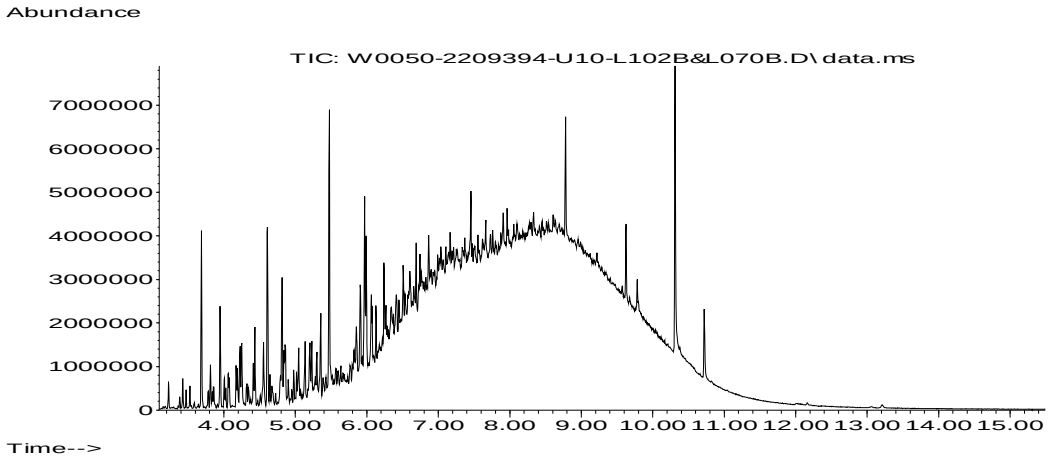
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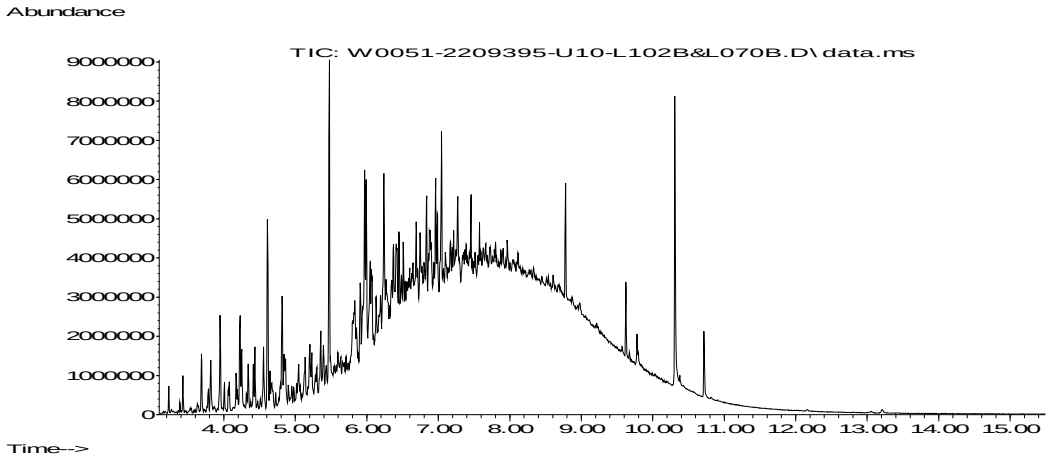
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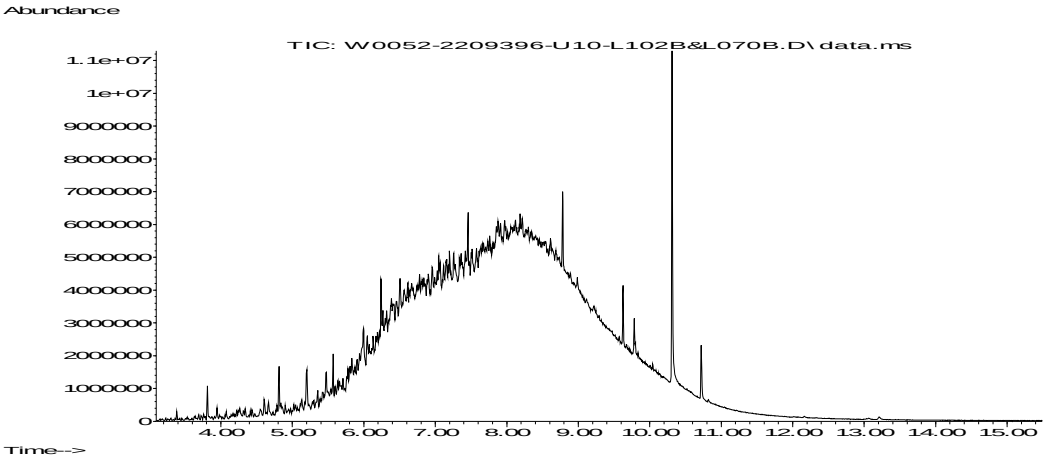
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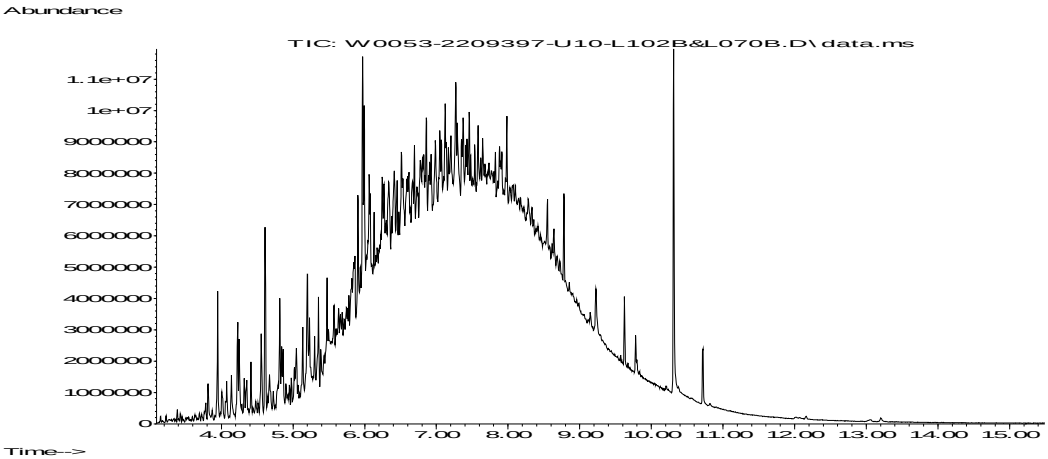
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Analytical Report Number : 22-47004

Project / Site name:	Great Western Road Yard Gloucester	**Samples received on:**	16/03/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	22/03/2022
Your order number:	PO14729	**Analysis completed by:**	29/03/2022
Report Issue Number:	1	**Report issued on:**	29/03/2022
Samples Analysed:	2 soil samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 22-47004
Project / Site name: Great Western Road Yard Gloucester
Your Order No: PO14729

Lab Sample Number				2212390	2212391
Sample Reference				TP206	TP229
Sample Number				None Supplied	None Supplied
Depth (m)				0.30	0.30
Date Sampled				16/02/2022	22/02/2022
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	11	14
Total mass of sample received	kg	0.001	NONE	1.4	1.4

General Inorganics

Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Thiocyanate as SCN	mg/kg	5	NONE	< 5.0	< 5.0

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

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 22-47004
Project / Site name: Great Western Road Yard Gloucester

* 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 *
2212390	TP206	None Supplied	0.3	Brown loam and sand with gravel and vegetation.
2212391	TP229	None Supplied	0.3	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 22-47004
Project / Site name: Great Western Road Yard Gloucester

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
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
Thiocyanate in soil	Determination of thiocyanate in soil by extraction in water followed by acidification followed by addition of ferric nitrate followed by discrete analyser (spectrophotometer).	In-house method	L082-PL	D	NONE
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 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

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 : 22-47004
Project / Site name: Great Western Road Yard Gloucester

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
TP206	None Supplied	S	2212390	c	Free cyanide in soil	L080-PL	c
TP206	None Supplied	S	2212390	c	Thiocyanate in soil	L082-PL	c
TP206	None Supplied	S	2212390	c	Total cyanide in soil	L080-PL	c
TP229	None Supplied	S	2212391	c	Free cyanide in soil	L080-PL	c
TP229	None Supplied	S	2212391	c	Thiocyanate in soil	L082-PL	c
TP229	None Supplied	S	2212391	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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Over Lane
Bristol
BS32 4DF

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f: 01454 614125
e: Group Bristol cc engineer

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WD18 8YS

t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 22-47072

Project / Site name:	Great Western Road Yard, Gloucester	**Samples received on:**	22/03/2022
Your job number:	20775	**Samples instructed on/ Analysis started on:**	22/03/2022
Your order number:	PO14942	**Analysis completed by:**	29/03/2022
Report Issue Number:	1	**Report issued on:**	29/03/2022
Samples Analysed:	4 water samples		

Izabela Wójcik

Signed:

Izabela Wójcik
Technical Reviewer (Reporting Team)
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: 22-47072
Project / Site name: Great Western Road Yard, Gloucester

Your Order No: PO14942

Lab Sample Number				2212840	2212841	2212842	2212843
Sample Reference				WS103	WS105	WS107	WS116
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				21/03/2022	21/03/2022	21/03/2022	21/03/2022
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
Sum of m, p & o-Xylene	µg/l	2	ISO 17025	< 2.0	< 2.0	< 2.0	< 2.0
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	320	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	3400	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	3300	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	1300	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C35 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	4600	< 10	< 10	< 10
TPH-CWG - Aliphatic >C35 - C44 $_{EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH\_1D\_AL\_\#1\_\#2\_MS}$	µg/l	10	NONE	8300	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	8300	< 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	150	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	970	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	1300	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	170	< 10	< 10	< 10
TPH-CWG - Aromatic >C35 - C44 $_{EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	2600	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C44) $_{HS+EH\_1D\_AR\_\#1\_\#2\_MS}$	µg/l	10	NONE	2600	< 10	< 10	< 10
TPH-CWG Total C5 - C44 $_{EH+HS\_1D\_TOTAL\_\#1\_\#2\_MS}$	µg/l	10	NONE	11000	< 10	< 10	< 10

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

Analytical Report Number : 22-47072
Project / Site name: Great Western Road Yard, Gloucester

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
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
TPH in (Water)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L070-PL	W	NONE
TPH Chromatogram in Water	TPH Chromatogram in Water.	In-house method	L070-PL	W	NONE

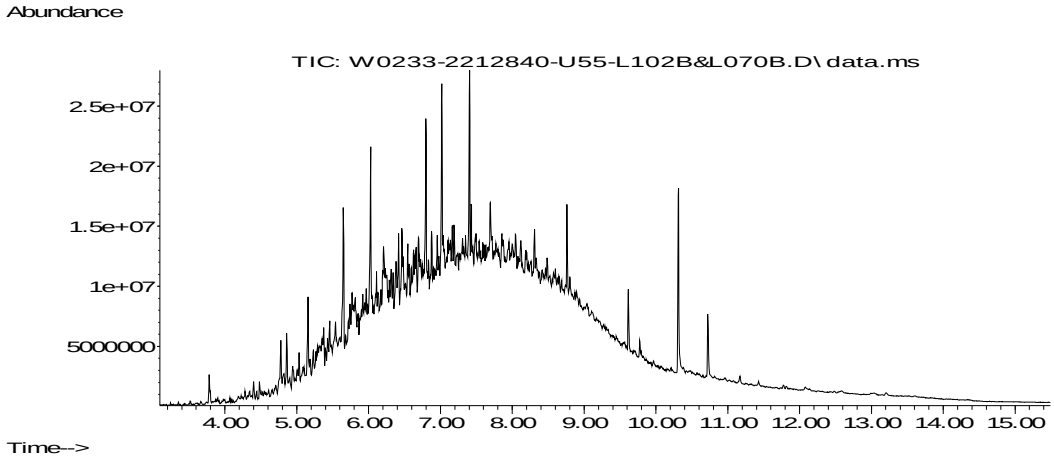
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received 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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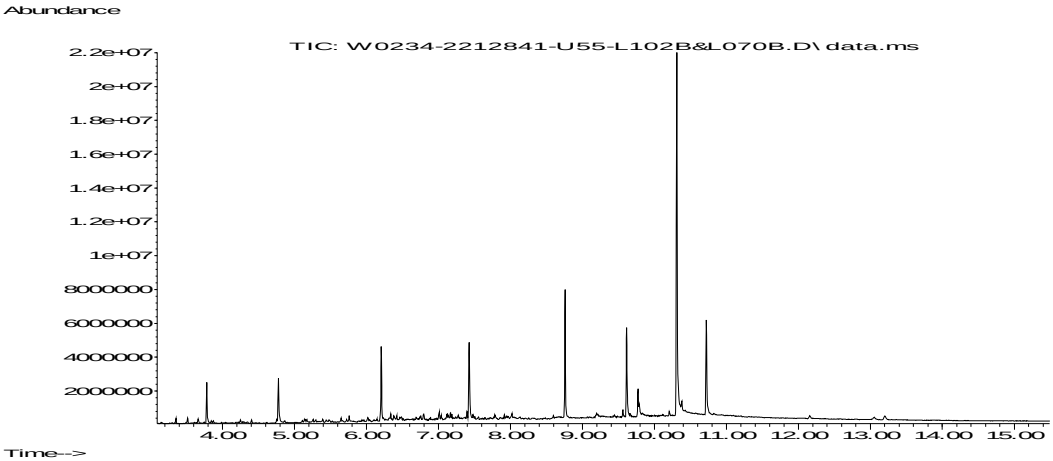
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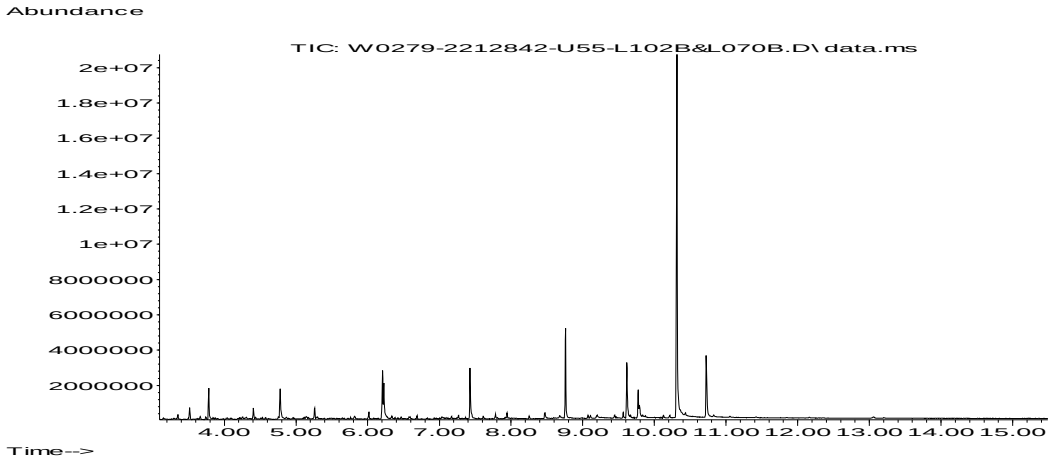
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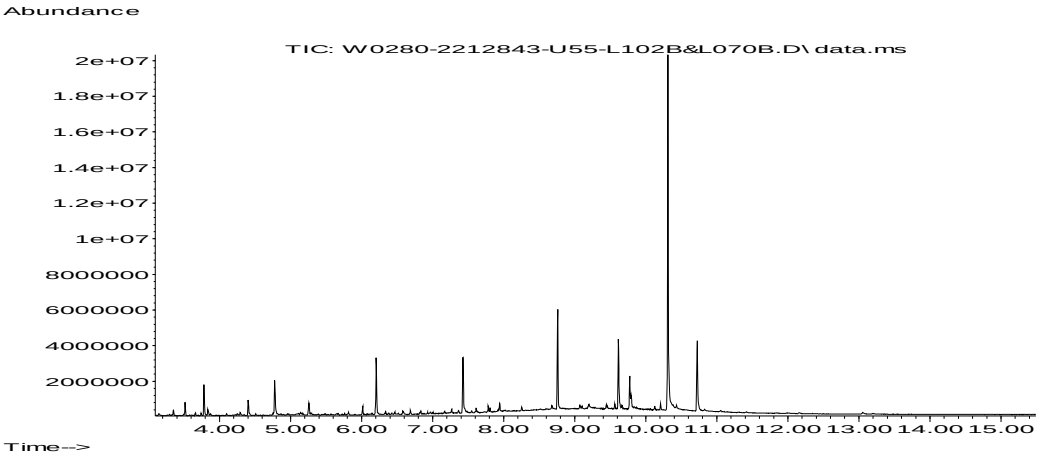
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Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	WS203										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**3.8**										
Benzene	0.001	1	0.001	0.001	0	0.2		0.001										
Toluene	0.001	1	0.001	0.001	0	300		0.001										
Ethylbenzene	0.001	1	0.001	0.001	0	180		0.001										
Xylene, o-	0.001	1	0.001	0.001	0	140		0.001										
Xylene, m- & p-	0.001	1	0.001	0.001	0	130		0.001										
MTBE	0.001	1	0.001	0.001	0	110		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	38		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	110		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.001	0.001	0	1.2		0.001										
Bromobenzene	0.001	1	0.001	0.001	0	2.8		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	1		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	55		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	0.98		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	92		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	3.6		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	6.4		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	0.81		0.001										

Risk parameter: **Human health - residential with plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	WS203										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**3.8**										
Benzene	0.001	1	0.001	0.001	0	0.7		0.001										
Toluene	0.001	1	0.001	0.001	0	1800		0.001										
Ethylbenzene	0.001	1	0.001	0.001	0	540		0.001										
Xylene, o-	0.001	1	0.001	0.001	0	200		0.001										
Xylene, m- & p-	0.001	1	0.001	0.001	0	180		0.001										
MTBE	0.001	1	0.001	0.001	0	170		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	40		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	140		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.001	0.001	0	1.4		0.001										
Bromobenzene	0.001	1	0.001	0.001	0	3		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	1.1		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	57		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	1.1		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	140		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	3.7		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	3.4		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	0.81		0.001										

Risk parameter: **Human health - residential without plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	WS203										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**3.8**										
Benzene	0.001	1	0.001	0.001	0	72		0.001										
Toluene	0.001	1	0.001	0.001	0	56000		0.001										
Ethylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
Xylene, o-	0.001	1	0.001	0.001	0	42000		0.001										
Xylene, m- & p-	0.001	1	0.001	0.001	0	42000		0.001										
MTBE	0.001	1	0.001	0.001	0	75000		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.001	0.001	0	250		0.001										
Bromobenzene	0.001	1	0.001	0.001	0	5400		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	13000		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	100000		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	300		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	17000		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	1800		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	11000		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	1700		0.001										

Risk parameter: Human health - POS resi (2.5%SOM)
Data set: Charmouth Mudstone Formation
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP207										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.60**										
Benzene	0.001	1	0.001	0.001	0	0.099		0.001										
Toluene	0.001	1	0.001	0.001	0	130		0.001										
Ethylbenzene	0.001	1	0.001	0.001	0	76		0.001										
Xylene, o-	0.001	1	0.001	0.001	0	59		0.001										
Xylene, m- & p-	0.001	1	0.001	0.001	0	55		0.001										
MTBE	0.001	1	0.001	0.001	0	62		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	15		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	46		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.001	0.001	0	0.47		0.001										
Bromobenzene	0.001	1	0.001	0.001	0	1.2		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	0.46		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	23		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	0.41		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	38		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	1.5		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	2.6		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	0.33		0.001										

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP207										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.60**										
Benzene	0.001	1	0.001	0.001	0	0.38		0.001										
Toluene	0.001	1	0.001	0.001	0	860		0.001										
Ethylbenzene	0.001	1	0.001	0.001	0	240		0.001										
Xylene, o-	0.001	1	0.001	0.001	0	85		0.001										
Xylene, m- & p-	0.001	1	0.001	0.001	0	76		0.001										
MTBE	0.001	1	0.001	0.001	0	100		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	17		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	57		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.001	0.001	0	0.58		0.001										
Bromobenzene	0.001	1	0.001	0.001	0	1.3		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	0.47		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	24		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	0.44		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	60		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	1.5		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	2.6		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	0.33		0.001										

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP207										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.60**										
Benzene	0.001	1	0.001	0.001	0	72		0.001										
Toluene	0.001	1	0.001	0.001	0	56000		0.001										
Ethylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
Xylene, o-	0.001	1	0.001	0.001	0	41000		0.001										
Xylene, m- & p-	0.001	1	0.001	0.001	0	41000		0.001										
MTBE	0.001	1	0.001	0.001	0	75000		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.001	0.001	0	250		0.001										
Bromobenzene	0.001	1	0.001	0.001	0	5200		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	12000		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	95000		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	300		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	17000		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	1700		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	10000		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	1600		0.001										

Risk parameter: Human health - POS resi (1%SOM)
Data set: Cheltenham Sands and Gravel
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type													
						All values in mg/kg unless otherwise stated Location & Depth	TP203	TP207	TP210	TP214	BH205								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**2.00**	**1.20**	**1.50**	**1.30**	**1.5**								
Benzene	0.001	5	0.001	0.001	0	0.099	0.001	0.001	0.001	0.001	0.001								
Toluene	0.001	5	0.001	0.0081	0	130	0.001	0.001	0.001	0.0081	0.001								
Ethylbenzene	0.001	5	0.001	0.001	0	76	0.001	0.001	0.001	0.001	0.001								
Xylene, o-	0.001	5	0.001	0.001	0	59	0.001	0.001	0.001	0.001	0.001								
Xylene, m- & p-	0.001	5	0.001	0.001	0	55	0.001	0.001	0.001	0.001	0.001								
MTBE	0.001	5	0.001	0.001	0	62	0.001	0.001	0.001	0.001	0.001								
Iso-propylbenzene	0.001	5	0.001	0.31	0	15	0.31	0.072	0.001	0.001	0.001								
Propylbenzene	0.001	5	0.001	0.35	0	46	0.35	0.16	0.001	0.001	0.001								
1,2,4-Trimethylbenzene	0.001	5	0.001	0.17	0	0.47	0.001	0.17	0.001	0.001	0.001								
Bromobenzene	0.001	5	0.001	0.001	0	1.2	0.001	0.001	0.001	0.001	0.001								
Chlorobenzene	0.001	5	0.001	0.001	0	0.46	0.001	0.001	0.001	0.001	0.001								
1,2-Dichlorobenzene	0.001	5	0.001	0.001	0	23	0.001	0.001	0.001	0.001	0.001								
1,3-Dichlorobenzene	0.001	5	0.001	0.001	0	0.41	0.001	0.001	0.001	0.001	0.001								
1,4-Dichlorobenzene	0.001	5	0.001	0.001	0	38	0.001	0.001	0.001	0.001	0.001								
1,2,3-trichlorobenzene	0.001	5	0.001	0.001	0	1.5	0.001	0.001	0.001	0.001	0.001								
1,2,4-trichlorobenzene	0.001	5	0.001	0.001	0	2.6	0.001	0.001	0.001	0.001	0.001								
1,3,5-trichlorobenzene	0.001	5	0.001	0.001	0	0.33	0.001	0.001	0.001	0.001	0.001								

Risk parameter: Human health - residential with plant uptake (1%SOM)
Data set: Cheltenham Sands and Gravel (Impacted)
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type													
						All values in mg/kg unless otherwise stated Location & Depth	TP203	TP207	TP210	TP214	BH205								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**2.00**	**1.20**	**1.50**	**1.30**	**1.5**								
Benzene	0.001	5	0.001	0.001	0	0.38	0.001	0.001	0.001	0.001	0.001								
Toluene	0.001	5	0.001	0.0081	0	860	0.001	0.001	0.001	0.0081	0.001								
Ethylbenzene	0.001	5	0.001	0.001	0	240	0.001	0.001	0.001	0.001	0.001								
Xylene, o-	0.001	5	0.001	0.001	0	85	0.001	0.001	0.001	0.001	0.001								
Xylene, m- & p-	0.001	5	0.001	0.001	0	76	0.001	0.001	0.001	0.001	0.001								
MTBE	0.001	5	0.001	0.001	0	100	0.001	0.001	0.001	0.001	0.001								
Iso-propylbenzene	0.001	5	0.001	0.31	0	17	0.31	0.072	0.001	0.001	0.001								
Propylbenzene	0.001	5	0.001	0.35	0	57	0.35	0.16	0.001	0.001	0.001								
1,2,4-Trimethylbenzene	0.001	5	0.001	0.17	0	0.58	0.001	0.17	0.001	0.001	0.001								
Bromobenzene	0.001	5	0.001	0.001	0	1.3	0.001	0.001	0.001	0.001	0.001								
Chlorobenzene	0.001	5	0.001	0.001	0	0.47	0.001	0.001	0.001	0.001	0.001								
1,2-Dichlorobenzene	0.001	5	0.001	0.001	0	24	0.001	0.001	0.001	0.001	0.001								
1,3-Dichlorobenzene	0.001	5	0.001	0.001	0	0.44	0.001	0.001	0.001	0.001	0.001								
1,4-Dichlorobenzene	0.001	5	0.001	0.001	0	60	0.001	0.001	0.001	0.001	0.001								
1,2,3-trichlorobenzene	0.001	5	0.001	0.001	0	1.5	0.001	0.001	0.001	0.001	0.001								
1,2,4-trichlorobenzene	0.001	5	0.001	0.001	0	2.6	0.001	0.001	0.001	0.001	0.001								
1,3,5-trichlorobenzene	0.001	5	0.001	0.001	0	0.33	0.001	0.001	0.001	0.001	0.001								

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel (Impacted)
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type													
						All values in mg/kg unless otherwise stated Location & Depth	TP203	TP207	TP210	TP214	BH205								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**2.00**	**1.20**	**1.50**	**1.30**	**1.5**								
Benzene	0.001	5	0.001	0.001	0	72	0.001	0.001	0.001	0.001	0.001								
Toluene	0.001	5	0.001	0.0081	0	56000	0.001	0.001	0.001	0.0081	0.001								
Ethylbenzene	0.001	5	0.001	0.001	0	25000	0.001	0.001	0.001	0.001	0.001								
Xylene, o-	0.001	5	0.001	0.001	0	41000	0.001	0.001	0.001	0.001	0.001								
Xylene, m- & p-	0.001	5	0.001	0.001	0	41000	0.001	0.001	0.001	0.001	0.001								
MTBE	0.001	5	0.001	0.001	0	75000	0.001	0.001	0.001	0.001	0.001								
Iso-propylbenzene	0.001	5	0.001	0.31	0	25000	0.31	0.072	0.001	0.001	0.001								
Propylbenzene	0.001	5	0.001	0.35	0	25000	0.35	0.16	0.001	0.001	0.001								
1,2,4-Trimethylbenzene	0.001	5	0.001	0.17	0	250	0.001	0.17	0.001	0.001	0.001								
Bromobenzene	0.001	5	0.001	0.001	0	5200	0.001	0.001	0.001	0.001	0.001								
Chlorobenzene	0.001	5	0.001	0.001	0	12000	0.001	0.001	0.001	0.001	0.001								
1,2-Dichlorobenzene	0.001	5	0.001	0.001	0	95000	0.001	0.001	0.001	0.001	0.001								
1,3-Dichlorobenzene	0.001	5	0.001	0.001	0	300	0.001	0.001	0.001	0.001	0.001								
1,4-Dichlorobenzene	0.001	5	0.001	0.001	0	17000	0.001	0.001	0.001	0.001	0.001								
1,2,3-trichlorobenzene	0.001	5	0.001	0.001	0	1700	0.001	0.001	0.001	0.001	0.001								
1,2,4-trichlorobenzene	0.001	5	0.001	0.001	0	10000	0.001	0.001	0.001	0.001	0.001								
1,3,5-trichlorobenzene	0.001	5	0.001	0.001	0	1600	0.001	0.001	0.001	0.001	0.001								

Risk parameter: Human health - POS resi (1%SOM)
Data set: Cheltenham Sands and Gravel (Impacted)
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	TP201	TP210	TP221									
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.40**	**0.30**	**0.20**									
Benzene	0.001	3	0.001	0.001	0	0.42	0.001	0.001	0.001									
Toluene	0.001	3	0.001	0.001	0	680	0.001	0.001	0.001									
Ethylbenzene	0.001	3	0.001	0.001	0	410	0.001	0.001	0.001									
Xylene, o-	0.001	3	0.001	0.001	0	320	0.001	0.001	0.001									
Xylene, m- & p-	0.001	3	0.001	0.001	0	300	0.001	0.001	0.001									
MTBE	0.001	3	0.001	0.001	0	210	0.001	0.001	0.001									
Iso-propylbenzene	0.001	3	0.001	0.001	0	89	0.001	0.001	0.001									
Propylbenzene	0.001	3	0.001	0.001	0	260	0.001	0.001	0.001									
1,2,4-Trimethylbenzene	0.001	3	0.001	0.001	0	2.7	0.001	0.001	0.001									
Bromobenzene	0.001	3	0.001	0.001	0	6.6	0.001	0.001	0.001									
Chlorobenzene	0.001	3	0.001	0.001	0	2.4	0.001	0.001	0.001									
1,2-Dichlorobenzene	0.001	3	0.001	0.001	0	130	0.001	0.001	0.001									
1,3-Dichlorobenzene	0.001	3	0.001	0.001	0	2.3	0.001	0.001	0.001									
1,4-Dichlorobenzene	0.001	3	0.001	0.001	0	220	0.001	0.001	0.001									
1,2,3-trichlorobenzene	0.001	3	0.001	0.001	0	8.6	0.001	0.001	0.001									
1,2,4-trichlorobenzene	0.001	3	0.001	0.001	0	15	0.001	0.001	0.001									
1,3,5-trichlorobenzene	0.001	3	0.001	0.001	0	1.9	0.001	0.001	0.001									

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP201	TP210	TP221								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.40**	**0.30**	**0.20**								
Benzene	0.001	3	0.001	0.001	0	1.4		0.001	0.001	0.001								
Toluene	0.001	3	0.001	0.001	0	3900		0.001	0.001	0.001								
Ethylbenzene	0.001	3	0.001	0.001	0	1200		0.001	0.001	0.001								
Xylene, o-	0.001	3	0.001	0.001	0	460		0.001	0.001	0.001								
Xylene, m- & p-	0.001	3	0.001	0.001	0	410		0.001	0.001	0.001								
MTBE	0.001	3	0.001	0.001	0	320		0.001	0.001	0.001								
Iso-propylbenzene	0.001	3	0.001	0.001	0	95		0.001	0.001	0.001								
Propylbenzene	0.001	3	0.001	0.001	0	320		0.001	0.001	0.001								
1,2,4-Trimethylbenzene	0.001	3	0.001	0.001	0	3.3		0.001	0.001	0.001								
Bromobenzene	0.001	3	0.001	0.001	0	7		0.001	0.001	0.001								
Chlorobenzene	0.001	3	0.001	0.001	0	2.4		0.001	0.001	0.001								
1,2-Dichlorobenzene	0.001	3	0.001	0.001	0	130		0.001	0.001	0.001								
1,3-Dichlorobenzene	0.001	3	0.001	0.001	0	2.5		0.001	0.001	0.001								
1,4-Dichlorobenzene	0.001	3	0.001	0.001	0	330		0.001	0.001	0.001								
1,2,3-trichlorobenzene	0.001	3	0.001	0.001	0	8.8		0.001	0.001	0.001								
1,2,4-trichlorobenzene	0.001	3	0.001	0.001	0	15		0.001	0.001	0.001								
1,3,5-trichlorobenzene	0.001	3	0.001	0.001	0	1.9		0.001	0.001	0.001								

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
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Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP201	TP210	TP221								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.40**	**0.30**	**0.20**								
Benzene	0.001	3	0.001	0.001	0	73		0.001	0.001	0.001								
Toluene	0.001	3	0.001	0.001	0	56000		0.001	0.001	0.001								
Ethylbenzene	0.001	3	0.001	0.001	0	25000		0.001	0.001	0.001								
Xylene, o-	0.001	3	0.001	0.001	0	43000		0.001	0.001	0.001								
Xylene, m- & p-	0.001	3	0.001	0.001	0	43000		0.001	0.001	0.001								
MTBE	0.001	3	0.001	0.001	0	75000		0.001	0.001	0.001								
Iso-propylbenzene	0.001	3	0.001	0.001	0	25000		0.001	0.001	0.001								
Propylbenzene	0.001	3	0.001	0.001	0	25000		0.001	0.001	0.001								
1,2,4-Trimethylbenzene	0.001	3	0.001	0.001	0	250		0.001	0.001	0.001								
Bromobenzene	0.001	3	0.001	0.001	0	5600		0.001	0.001	0.001								
Chlorobenzene	0.001	3	0.001	0.001	0	14000		0.001	0.001	0.001								
1,2-Dichlorobenzene	0.001	3	0.001	0.001	0	100000		0.001	0.001	0.001								
1,3-Dichlorobenzene	0.001	3	0.001	0.001	0	300		0.001	0.001	0.001								
1,4-Dichlorobenzene	0.001	3	0.001	0.001	0	17000		0.001	0.001	0.001								
1,2,3-trichlorobenzene	0.001	3	0.001	0.001	0	1800		0.001	0.001	0.001								
1,2,4-trichlorobenzene	0.001	3	0.001	0.001	0	12000		0.001	0.001	0.001								
1,3,5-trichlorobenzene	0.001	3	0.001	0.001	0	1800		0.001	0.001	0.001								

Risk parameter: Human health - POS resi (6%SOM)
Data set: Made Ground
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP219										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.00**										
Benzene	0.001	1	0.001	0.001	0	0.42		0.001										
Toluene	0.001	1	0.0025	0.0025	0	680		0.0025										
Ethylbenzene	0.001	1	0.001	0.001	0	410		0.001										
Xylene, o-	0.001	1	0.0026	0.0026	0	320		0.0026										
Xylene, m- & p-	0.001	1	0.001	0.001	0	300		0.001										
MTBE	0.001	1	0.001	0.001	0	210		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	89		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	260		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.021	0.021	0	2.7		0.021										
Bromobenzene	0.001	1	0.001	0.001	0	6.6		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	2.4		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	130		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	2.3		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	220		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	8.6		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	15		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	1.9		0.001										

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP219										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.00**										
Benzene	0.001	1	0.001	0.001	0	1.4		0.001										
Toluene	0.001	1	0.0025	0.0025	0	3900		0.0025										
Ethylbenzene	0.001	1	0.001	0.001	0	1200		0.001										
Xylene, o-	0.001	1	0.0026	0.0026	0	460		0.0026										
Xylene, m- & p-	0.001	1	0.001	0.001	0	410		0.001										
MTBE	0.001	1	0.001	0.001	0	320		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	95		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	320		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.021	0.021	0	3.3		0.021										
Bromobenzene	0.001	1	0.001	0.001	0	7		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	2.4		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	130		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	2.5		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	330		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	8.8		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	15		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	1.9		0.001										

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated	Location & Depth	TP219										
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**		**0.00**										
Benzene	0.001	1	0.001	0.001	0	73		0.001										
Toluene	0.001	1	0.0025	0.0025	0	56000		0.0025										
Ethylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
Xylene, o-	0.001	1	0.0026	0.0026	0	43000		0.0026										
Xylene, m- & p-	0.001	1	0.001	0.001	0	43000		0.001										
MTBE	0.001	1	0.001	0.001	0	75000		0.001										
Iso-propylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
Propylbenzene	0.001	1	0.001	0.001	0	25000		0.001										
1,2,4-Trimethylbenzene	0.001	1	0.021	0.021	0	250		0.021										
Bromobenzene	0.001	1	0.001	0.001	0	5600		0.001										
Chlorobenzene	0.001	1	0.001	0.001	0	14000		0.001										
1,2-Dichlorobenzene	0.001	1	0.001	0.001	0	100000		0.001										
1,3-Dichlorobenzene	0.001	1	0.001	0.001	0	300		0.001										
1,4-Dichlorobenzene	0.001	1	0.001	0.001	0	17000		0.001										
1,2,3-trichlorobenzene	0.001	1	0.001	0.001	0	1800		0.001										
1,2,4-trichlorobenzene	0.001	1	0.001	0.001	0	12000		0.001										
1,3,5-trichlorobenzene	0.001	1	0.001	0.001	0	1800		0.001										

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	TP219											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**											
Bromodichloromethane	0.001	1	0.001	0.001	0	0.1	0.001											
Chloroethane	0.001	1	0.001	0.001	0	26	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	0	0.0015	0.001											
Chloromethane	0.001	1	0.001	0.001	0	0.019	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	11	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	0.023	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	1.2	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.56	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	1	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	0.12	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	7.5	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	8.2	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	18	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	0.13	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	0.73	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	40	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	5.5	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	4.6	0.001											

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	TP219											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**											
Bromodichloromethane	0.001	1	0.001	0.001	0	0.082	0.001											
Chloroethane	0.001	1	0.001	0.001	0	26	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	0	0.0014	0.001											
Chloromethane	0.001	1	0.001	0.001	0	0.019	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	11	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	0.019	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	1.2	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.52	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.98	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	0.12	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	6.7	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	6.5	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	7.8	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	0.13	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	0.69	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	39	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	3.5	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	3.6	0.001											

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	TP219											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**											
Bromodichloromethane	0.001	1	0.001	0.001	0	74	0.001											
Chloroethane	0.001	1	0.001	0.001	0	5700	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	0	3.5	0.001											
Chloromethane	0.001	1	0.001	0.001	0	560	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	48000	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	29	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	11000	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	1400	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	4000	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	2200	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	3400	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1400	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1400	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	350	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	1300	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	140000	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	1000	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	1700	0.001											

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	WS203											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.8**											
Bromodichloromethane	0.001	1	0.001	0.001	0	0.049	0.001											
Chloroethane	0.001	1	0.001	0.001	0	16	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	1	0.001	0.001											
Chloromethane	0.001	1	0.001	0.001	0	0.014	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	5.8	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	0.013	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	0.58	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.29	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.5	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	0.06	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	3.3	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	3.6	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	8.3	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	0.056	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	0.33	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	18	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	2.5	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	2.3	0.001											

Risk parameter: **Human health - residential without plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	WS203											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.8**											
Bromodichloromethane	0.001	1	0.001	0.001	0	0.049	0.001											
Chloroethane	0.001	1	0.001	0.001	0	16	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	1	0.001	0.001											
Chloromethane	0.001	1	0.001	0.001	0	0.014	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	5.8	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	0.013	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	0.58	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.29	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.5	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	0.06	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	3.3	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	3.6	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	8.3	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	0.056	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	0.33	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	18	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	2.5	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	2.3	0.001											

Risk parameter: **Human health - residential without plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	WS203											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.8**											
Bromodichloromethane	0.001	1	0.001	0.001	0	73	0.001											
Chloroethane	0.001	1	0.001	0.001	0	3500	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	0	3.5	0.001											
Chloromethane	0.001	1	0.001	0.001	0	550	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	47000	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	29	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	3900	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	1300	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	4000	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	1900	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	3400	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1400	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1400	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	350	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	1300	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	140000	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	990	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	1700	0.001											

Risk parameter: Human health - POS resi (2.5%SOM)
Data set: Charmouth Mudstone Formation
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	TP207											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.60**											
Bromodichloromethane	0.001	1	0.001	0.001	0	73	0.001											
Chloroethane	0.001	1	0.001	0.001	0	2600	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	0	3.5	0.001											
Chloromethane	0.001	1	0.001	0.001	0	540	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	46000	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	29	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	2200	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	1300	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	3800	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	1700	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	3400	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1400	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1400	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	340	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	1200	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	140000	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	990	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	1700	0.001											

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	TP207											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.60**											
Bromodichloromethane	0.001	1	0.001	0.001	0	0.022	0.001											
Chloroethane	0.001	1	0.001	0.001	0	12	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	1	0.00064	0.001											
Chloromethane	0.001	1	0.001	0.001	0	0.012	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	3.4	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	0.0071	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	0.32	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.16	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.27	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	0.034	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	1.3	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1.2	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1.7	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	0.026	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	0.15	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	8.8	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	0.76	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	0.98	0.001											

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	TP207											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.60**											
Bromodichloromethane	0.001	1	0.001	0.001	0	0.027	0.001											
Chloroethane	0.001	1	0.001	0.001	0	12	0.001											
Chloroethene (aka vinyl chloride)	0.001	1	0.001	0.001	1	0.00077	0.001											
Chloromethane	0.001	1	0.001	0.001	0	0.012	0.001											
1,1-Dichloroethane	0.001	1	0.001	0.001	0	3.6	0.001											
1,2-Dichloroethane	0.001	1	0.001	0.001	0	0.0092	0.001											
1,1-Dichloroethene	0.001	1	0.001	0.001	0	0.33	0.001											
Cis 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.17	0.001											
Trans 1,2 Dichloroethene	0.001	1	0.001	0.001	0	0.28	0.001											
1,2-Dichloropropane	0.001	1	0.001	0.001	0	0.034	0.001											
Tetrachloroethene	0.001	1	0.001	0.001	0	1.5	0.001											
1,1,1,2-Tetrachloroethane	0.001	1	0.001	0.001	0	1.5	0.001											
1,1,2,2-Tetrachloroethane	0.001	1	0.001	0.001	0	4.1	0.001											
Tetrachloromethane	0.001	1	0.001	0.001	0	0.026	0.001											
Trichloroethene	0.001	1	0.001	0.001	0	0.16	0.001											
1,1,1-Trichloroethane	0.001	1	0.001	0.001	0	9	0.001											
1,1,2 Trichloroethane	0.001	1	0.001	0.001	0	1.3	0.001											
Trichloromethane	0.001	1	0.001	0.001	0	1.3	0.001											

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	TP203	TP207	TP210	TP214	BH205							
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**2.00**	**1.20**	**1.50**	**1.30**	**1.5**							
Bromodichloromethane	0.001	5	0.001	0.001	0	0.022	0.001	0.001	0.001	0.001	0.001							
Chloroethane	0.001	5	0.001	0.001	0	12	0.001	0.001	0.001	0.001	0.001							
Chloroethene (aka vinyl chloride)	0.001	5	0.001	0.001	5	0.00064	0.001	0.001	0.001	0.001	0.001							
Chloromethane	0.001	5	0.001	0.001	0	0.012	0.001	0.001	0.001	0.001	0.001							
1,1-Dichloroethane	0.001	5	0.001	0.001	0	3.4	0.001	0.001	0.001	0.001	0.001							
1,2-Dichloroethane	0.001	5	0.001	0.001	0	0.0071	0.001	0.001	0.001	0.001	0.001							
1,1-Dichloroethene	0.001	5	0.001	0.001	0	0.32	0.001	0.001	0.001	0.001	0.001							
Cis 1,2 Dichloroethene	0.001	5	0.001	0.001	0	0.16	0.001	0.001	0.001	0.001	0.001							
Trans 1,2 Dichloroethene	0.001	5	0.001	0.001	0	0.27	0.001	0.001	0.001	0.001	0.001							
1,2-Dichloropropane	0.001	5	0.001	0.001	0	0.034	0.001	0.001	0.001	0.001	0.001							
Tetrachloroethene	0.001	5	0.001	0.001	0	1.3	0.001	0.001	0.001	0.001	0.001							
1,1,1,2-Tetrachloroethane	0.001	5	0.001	0.001	0	1.2	0.001	0.001	0.001	0.001	0.001							
1,1,2,2-Tetrachloroethane	0.001	5	0.001	0.001	0	1.7	0.001	0.001	0.001	0.001	0.001							
Tetrachloromethane	0.001	5	0.001	0.001	0	0.026	0.001	0.001	0.001	0.001	0.001							
Trichloroethene	0.001	5	0.001	0.001	0	0.15	0.001	0.001	0.001	0.001	0.001							
1,1,1-Trichloroethane	0.001	5	0.001	0.001	0	8.8	0.001	0.001	0.001	0.001	0.001							
1,1,2 Trichloroethane	0.001	5	0.001	0.001	0	0.76	0.001	0.001	0.001	0.001	0.001							
Trichloromethane	0.001	5	0.001	0.001	0	0.98	0.001	0.001	0.001	0.001	0.001							

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel (Impacted)
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
All values in mg/kg unless otherwise stated						Location & Depth	TP203	TP207	TP210	TP214	BH205							
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**2.00**	**1.20**	**1.50**	**1.30**	**1.5**							
Bromodichloromethane	0.001	5	0.001	0.001	0	0.027	0.001	0.001	0.001	0.001	0.001							
Chloroethane	0.001	5	0.001	0.001	0	12	0.001	0.001	0.001	0.001	0.001							
Chloroethene (aka vinyl chloride)	0.001	5	0.001	0.001	5	0.00077	0.001	0.001	0.001	0.001	0.001							
Chloromethane	0.001	5	0.001	0.001	0	0.012	0.001	0.001	0.001	0.001	0.001							
1,1-Dichloroethane	0.001	5	0.001	0.001	0	3.6	0.001	0.001	0.001	0.001	0.001							
1,2-Dichloroethane	0.001	5	0.001	0.001	0	0.0092	0.001	0.001	0.001	0.001	0.001							
1,1-Dichloroethene	0.001	5	0.001	0.001	0	0.33	0.001	0.001	0.001	0.001	0.001							
Cis 1,2 Dichloroethene	0.001	5	0.001	0.001	0	0.17	0.001	0.001	0.001	0.001	0.001							
Trans 1,2 Dichloroethene	0.001	5	0.001	0.001	0	0.28	0.001	0.001	0.001	0.001	0.001							
1,2-Dichloropropane	0.001	5	0.001	0.001	0	0.034	0.001	0.001	0.001	0.001	0.001							
Tetrachloroethene	0.001	5	0.001	0.001	0	1.5	0.001	0.001	0.001	0.001	0.001							
1,1,1,2-Tetrachloroethane	0.001	5	0.001	0.001	0	1.5	0.001	0.001	0.001	0.001	0.001							
1,1,2,2-Tetrachloroethane	0.001	5	0.001	0.001	0	4.1	0.001	0.001	0.001	0.001	0.001							
Tetrachloromethane	0.001	5	0.001	0.001	0	0.026	0.001	0.001	0.001	0.001	0.001							
Trichloroethene	0.001	5	0.001	0.001	0	0.16	0.001	0.001	0.001	0.001	0.001							
1,1,1-Trichloroethane	0.001	5	0.001	0.001	0	9	0.001	0.001	0.001	0.001	0.001							
1,1,2 Trichloroethane	0.001	5	0.001	0.001	0	1.3	0.001	0.001	0.001	0.001	0.001							
Trichloromethane	0.001	5	0.001	0.001	0	1.3	0.001	0.001	0.001	0.001	0.001							

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel (Impacted)
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	TP203	TP207	TP210	TP214	BH205							
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**2.00**	**1.20**	**1.50**	**1.30**	**1.5**							
Bromodichloromethane	0.001	5	0.001	0.001	0	73	0.001	0.001	0.001	0.001	0.001							
Chloroethane	0.001	5	0.001	0.001	0	2600	0.001	0.001	0.001	0.001	0.001							
Chloroethene (aka vinyl chloride)	0.001	5	0.001	0.001	0	3.5	0.001	0.001	0.001	0.001	0.001							
Chloromethane	0.001	5	0.001	0.001	0	540	0.001	0.001	0.001	0.001	0.001							
1,1-Dichloroethane	0.001	5	0.001	0.001	0	46000	0.001	0.001	0.001	0.001	0.001							
1,2-Dichloroethane	0.001	5	0.001	0.001	0	29	0.001	0.001	0.001	0.001	0.001							
1,1-Dichloroethene	0.001	5	0.001	0.001	0	2200	0.001	0.001	0.001	0.001	0.001							
Cis 1,2 Dichloroethene	0.001	5	0.001	0.001	0	1300	0.001	0.001	0.001	0.001	0.001							
Trans 1,2 Dichloroethene	0.001	5	0.001	0.001	0	3800	0.001	0.001	0.001	0.001	0.001							
1,2-Dichloropropane	0.001	5	0.001	0.001	0	1700	0.001	0.001	0.001	0.001	0.001							
Tetrachloroethene	0.001	5	0.001	0.001	0	3400	0.001	0.001	0.001	0.001	0.001							
1,1,1,2-Tetrachloroethane	0.001	5	0.001	0.001	0	1400	0.001	0.001	0.001	0.001	0.001							
1,1,2,2-Tetrachloroethane	0.001	5	0.001	0.001	0	1400	0.001	0.001	0.001	0.001	0.001							
Tetrachloromethane	0.001	5	0.001	0.001	0	340	0.001	0.001	0.001	0.001	0.001							
Trichloroethene	0.001	5	0.001	0.001	0	1200	0.001	0.001	0.001	0.001	0.001							
1,1,1-Trichloroethane	0.001	5	0.001	0.001	0	140000	0.001	0.001	0.001	0.001	0.001							
1,1,2 Trichloroethane	0.001	5	0.001	0.001	0	990	0.001	0.001	0.001	0.001	0.001							
Trichloromethane	0.001	5	0.001	0.001	0	1700	0.001	0.001	0.001	0.001	0.001							

Risk parameter: Human health - POS resi (1%SOM)
Data set: Cheltenham Sands and Gravel (Impacted)
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	TP201	TP210	TP221									
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.40**	**0.30**	**0.20**									
Bromodichloromethane	1	3	1	1	3	0.082	1	1	1									
Chloroethane	1	3	1	1	0	26	1	1	1									
Chloroethene (aka vinyl chloride)	1	3	1	1	3	0.0014	1	1	1									
Chloromethane	1	3	1	1	3	0.019	1	1	1									
1,1-Dichloroethane	1	3	1	1	0	11	1	1	1									
1,2-Dichloroethane	1	3	1	1	3	0.019	1	1	1									
1,1-Dichloroethene	1	3	1	1	0	1.2	1	1	1									
Cis 1,2 Dichloroethene	1	3	1	1	3	0.52	1	1	1									
Trans 1,2 Dichloroethene	1	3	1	1	3	0.98	1	1	1									
1,2-Dichloropropane	1	3	1	1	3	0.12	1	1	1									
Tetrachloroethene	1	3	1	1	0	6.7	1	1	1									
1,1,1,2-Tetrachloroethane	1	3	1	1	0	6.5	1	1	1									
1,1,2,2-Tetrachloroethane	1	3	1	1	0	7.8	1	1	1									
Tetrachloromethane	1	3	1	1	3	0.13	1	1	1									
Trichloroethene	1	3	1	1	3	0.69	1	1	1									
1,1,1-Trichloroethane	1	3	1	1	0	39	1	1	1									
1,1,2 Trichloroethane	1	3	1	1	0	3.5	1	1	1									
Trichloromethane	1	3	1	1	0	3.6	1	1	1									

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	TP201	TP210	TP221									
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.40**	**0.30**	**0.20**									
Bromodichloromethane	1	3	1	1	3	0.1	1	1	1									
Chloroethane	1	3	1	1	0	26	1	1	1									
Chloroethene (aka vinyl chloride)	1	3	1	1	3	0.0015	1	1	1									
Chloromethane	1	3	1	1	3	0.019	1	1	1									
1,1-Dichloroethane	1	3	1	1	0	11	1	1	1									
1,2-Dichloroethane	1	3	1	1	3	0.023	1	1	1									
1,1-Dichloroethene	1	3	1	1	0	1.2	1	1	1									
Cis 1,2 Dichloroethene	1	3	1	1	3	0.56	1	1	1									
Trans 1,2 Dichloroethene	1	3	1	1	3	1	1	1	1									
1,2-Dichloropropane	1	3	1	1	3	0.12	1	1	1									
Tetrachloroethene	1	3	1	1	0	7.5	1	1	1									
1,1,1,2-Tetrachloroethane	1	3	1	1	0	8.2	1	1	1									
1,1,2,2-Tetrachloroethane	1	3	1	1	0	18	1	1	1									
Tetrachloromethane	1	3	1	1	3	0.13	1	1	1									
Trichloroethene	1	3	1	1	3	0.73	1	1	1									
1,1,1-Trichloroethane	1	3	1	1	0	40	1	1	1									
1,1,2 Trichloroethane	1	3	1	1	0	5.5	1	1	1									
Trichloromethane	1	3	1	1	0	4.6	1	1	1									

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type												
						All values in mg/kg unless otherwise stated Location & Depth	TP201	TP210	TP221									
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.40**	**0.30**	**0.20**									
Bromodichloromethane	1	3	1	1	0	74	1	1	1									
Chloroethane	1	3	1	1	0	5700	1	1	1									
Chloroethene (aka vinyl chloride)	1	3	1	1	0	3.5	1	1	1									
Chloromethane	1	3	1	1	0	560	1	1	1									
1,1-Dichloroethane	1	3	1	1	0	48000	1	1	1									
1,2-Dichloroethane	1	3	1	1	0	29	1	1	1									
1,1-Dichloroethene	1	3	1	1	0	11000	1	1	1									
Cis 1,2 Dichloroethene	1	3	1	1	0	1400	1	1	1									
Trans 1,2 Dichloroethene	1	3	1	1	0	4000	1	1	1									
1,2-Dichloropropane	1	3	1	1	0	2200	1	1	1									
Tetrachloroethene	1	3	1	1	0	3400	1	1	1									
1,1,1,2-Tetrachloroethane	1	3	1	1	0	1400	1	1	1									
1,1,2,2-Tetrachloroethane	1	3	1	1	0	1400	1	1	1									
Tetrachloromethane	1	3	1	1	0	350	1	1	1									
Trichloroethene	1	3	1	1	0	1300	1	1	1									
1,1,1-Trichloroethane	1	3	1	1	0	140000	1	1	1									
1,1,2 Trichloroethane	1	3	1	1	0	1000	1	1	1									
Trichloromethane	1	3	1	1	0	1700	1	1	1									

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: Made Ground
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	MG	NAT	MG	NAT								
						All values in mg/kg unless otherwise stated Location & Depth	TP205	TP205	TP210	TP210								
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	0.40	1.50	0.30	1.50								
PCB-28	0.001	4	0.001	0.001	0	0.24	0.001	0.001	0.001	0.001								
PCB-52	0.001	4	0.001	0.001	0	0.24	0.001	0.001	0.001	0.001								
PCB-101	0.001	4	0.001	0.001	0	0.5	0.001	0.001	0.001	0.001								
PCB-138	0.001	4	0.001	0.001	0	0.54	0.001	0.001	0.001	0.001								
PCB-153	0.001	4	0.001	0.001	0	0.56	0.001	0.001	0.001	0.001								
PCB-180	0.001	4	0.001	0.001	0	0.58	0.001	0.001	0.001	0.001								
						ADDITIVITY CHECK	HAZARD QUOTIENTS FOR EACH FRACTION											
						PCB-28	0.004	0.004	0.004	0.004								
						PCB-52	0.004	0.004	0.004	0.004								
						PCB-101	0.002	0.002	0.002	0.002								
						PCB-138	0.002	0.002	0.002	0.002								
						PCB-153	0.002	0.002	0.002	0.002								
						PCB-180	0.002	0.002	0.002	0.002								
						HAZARD INDEX	0.016	0.016	0.016	0.016								

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Made Ground and Impacted Natural Soils
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	NAT	NAT	NAT	NAT								
All values in mg/kg unless otherwise stated						Location & Depth	BH204	BH206	BH201	WS203								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.00**	**3.30**	**3.50**	**3.80**								
Arsenic	1	4	7.5	11	0	37	8.2	10	11	7.5								
Boron	0.2	4	2.7	3.6	0	300	3.6	3.6	3.6	2.7								
Cadmium	0.2	4	0.2	0.2	0	14	0.2	0.2	0.2	0.2								
Copper	1	4	25	42	0	2500	25	30	30	42								
Lead	1	4	13	14	0	200	13	14	13	14								
Mercury, inorganic	0.3	4	0.3	0.3	0	170	0.3	0.3	0.3	0.3								
Nickel	1	4	30	42	0	130	30	38	32	42								
Selenium	1	4	1	1	0	360	1	1	1	1								
Zinc	1	4	41	81	0	3900	41	42	81	62								
Phenol (total)	1	4	1	1	0	560	1	1	1	1								
Acenaphthene	0.05	4	0.05	0.05	0	520	0.05	0.05	0.05	0.05								
Acenaphthylene	0.05	4	0.05	0.05	0	430	0.05	0.05	0.05	0.05								
Anthracene	0.05	4	0.05	0.05	0	5500	0.05	0.05	0.05	0.05								
Benz(a)anthracene	0.05	4	0.05	0.05	0	6.7	0.05	0.05	0.05	0.05								
Benzo(a)pyrene	0.05	4	0.05	0.05	0	1.5	0.05	0.05	0.05	0.05								
Benzo(b)fluoranthene	0.05	4	0.05	0.05	0	9.4	0.05	0.05	0.05	0.05								
Benzo(ghi)perylene	0.05	4	0.05	0.05	0	69	0.05	0.05	0.05	0.05								
Benzo(k)fluoranthene	0.05	4	0.05	0.05	0	14	0.05	0.05	0.05	0.05								
Chrysene	0.05	4	0.05	0.05	0	11	0.05	0.05	0.05	0.05								
Dibenz(a,h)anthracene	0.05	4	0.05	0.05	0	1.3	0.05	0.05	0.05	0.05								
Fluoranthene	0.05	4	0.05	0.05	0	560	0.05	0.05	0.05	0.05								
Fluorene	0.05	4	0.05	0.05	0	410	0.05	0.05	0.05	0.05								
Indeno(1,2,3,cd)pyrene	0.05	4	0.05	0.05	0	5.5	0.05	0.05	0.05	0.05								
Naphthalene	0.05	4	0.05	0.05	0	5.2	0.05	0.05	0.05	0.05								
Phenanthrene	0.05	4	0.05	0.05	0	220	0.05	0.05	0.05	0.05								
Pyrene	0.05	4	0.05	0.05	0	1200	0.05	0.05	0.05	0.05								
Asbestos identified	Y/N						N	N	N	N								
FOC (dimensionless)	0.02025	**(mean)**					0.015	0.014	0.021	0.031								
SOM (calculated)	3.49%	**(mean)**					2.59%	2.41%	3.62%	5.34%								
pH (su)	8.3	**(mean)**					8.3	8.9	8.1	8								

Risk parameter: **Human health - residential with plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	NAT	NAT	NAT	NAT								
All values in mg/kg unless otherwise stated						Location & Depth	BH204	BH206	BH201	WS203								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.00**	**3.30**	**3.50**	**3.80**								
Arsenic	1	4	7.5	11	0	40	8.2	10	11	7.5								
Boron	0.2	4	2.7	3.6	0	11000	3.6	3.6	3.6	2.7								
Cadmium	0.2	4	0.2	0.2	0	87	0.2	0.2	0.2	0.2								
Copper	1	4	25	42	0	7300	25	30	30	42								
Lead	1	4	13	14	0	310	13	14	13	14								
Mercury, inorganic	0.3	4	0.3	0.3	0	240	0.3	0.3	0.3	0.3								
Nickel	1	4	30	42	0	180	30	38	32	42								
Selenium	1	4	1	1	0	600	1	1	1	1								
Zinc	1	4	41	81	0	40000	41	42	81	62								
Phenol (total)	1	4	1	1	0	1300	1	1	1	1								
Acenaphthene	0.05	4	0.05	0.05	0	4700	0.05	0.05	0.05	0.05								
Acenaphthylene	0.05	4	0.05	0.05	0	4600	0.05	0.05	0.05	0.05								
Anthracene	0.05	4	0.05	0.05	0	35000	0.05	0.05	0.05	0.05								
Benz(a)anthracene	0.05	4	0.05	0.05	0	7.8	0.05	0.05	0.05	0.05								
Benzo(a)pyrene	0.05	4	0.05	0.05	0	1.6	0.05	0.05	0.05	0.05								
Benzo(b)fluoranthene	0.05	4	0.05	0.05	0	11	0.05	0.05	0.05	0.05								
Benzo(ghi)perylene	0.05	4	0.05	0.05	0	72	0.05	0.05	0.05	0.05								
Benzo(k)fluoranthene	0.05	4	0.05	0.05	0	16	0.05	0.05	0.05	0.05								
Chrysene	0.05	4	0.05	0.05	0	16	0.05	0.05	0.05	0.05								
Dibenz(a,h)anthracene	0.05	4	0.05	0.05	0	1.4	0.05	0.05	0.05	0.05								
Fluoranthene	0.05	4	0.05	0.05	0	1600	0.05	0.05	0.05	0.05								
Fluorene	0.05	4	0.05	0.05	0	3800	0.05	0.05	0.05	0.05								
Indeno(1,2,3,cd)pyrene	0.05	4	0.05	0.05	0	6.6	0.05	0.05	0.05	0.05								
Naphthalene	0.05	4	0.05	0.05	0	5.6	0.05	0.05	0.05	0.05								
Phenanthrene	0.05	4	0.05	0.05	0	1500	0.05	0.05	0.05	0.05								
Pyrene	0.05	4	0.05	0.05	0	3800	0.05	0.05	0.05	0.05								
Asbestos identified	Y/N						N	N	N	N								
FOC (dimensionless)	0.02025	**(mean)**					0.015	0.014	0.021	0.031								
SOM (calculated)	3.49%	**(mean)**					2.59%	2.41%	3.62%	5.34%								
pH (su)	8.3	**(mean)**					8.3	8.9	8.1	8								

Risk parameter: **Human health - residential without plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	NAT	NAT	NAT	NAT									
All values in mg/kg unless otherwise stated						Location & Depth	BH204	BH206	BH201	WS203									
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.00**	**3.30**	**3.50**	**3.80**									
Arsenic	1	4	7.5	11	0	250	8.2	10	11	7.5									
Boron	0.2	4	2.7	3.6	3	3	3.6	3.6	3.6	2.7									
Chromium (III)	1	4	32	42	0	400	36	32	33	42									
Chromium (VI)	1.2	4	1.2	1.2	0	25	1.2	1.2	1.2	1.2									
Copper	1	4	25	42	0	200	25	30	30	42									
Nickel	1	4	30	42	0	110	30	38	32	42									
Zinc	1	4	41	81	0	300	41	42	81	62									
	Mean																		
pH (su)	8.3						8.3	8.9	8.1	8									

Risk parameter: **Plant life pH >7**
Data set: Charmouth Mudstone Formation - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	NAT	NAT	NAT	NAT								
All values in mg/kg unless otherwise stated						Location & Depth	BH204	BH206	BH201	WS203								
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.00**	**3.30**	**3.50**	**3.80**								
Arsenic	1	4	7.5	11	0	79	8.2	10	11	7.5								
Boron	0.2	4	2.7	3.6	0	21000	3.6	3.6	3.6	2.7								
Cadmium	0.2	4	0.2	0.2	0	120	0.2	0.2	0.2	0.2								
Copper	1	4	25	42	0	12000	25	30	30	42								
Lead	1	4	13	14	0	630	13	14	13	14								
Mercury, inorganic	0.3	4	0.3	0.3	0	470	0.3	0.3	0.3	0.3								
Nickel	1	4	30	42	0	290	30	38	32	42								
Selenium	1	4	1	1	0	1400	1	1	1	1								
Zinc	1	4	41	81	0	81000	41	42	81	62								
Phenol (total)	1	4	1	1	0	1500	1	1	1	1								
Acenaphthene	0.05	4	0.05	0.05	0	15000	0.05	0.05	0.05	0.05								
Acenaphthylene	0.05	4	0.05	0.05	0	15000	0.05	0.05	0.05	0.05								
Anthracene	0.05	4	0.05	0.05	0	74000	0.05	0.05	0.05	0.05								
Benz(a)anthracene	0.05	4	0.05	0.05	0	18	0.05	0.05	0.05	0.05								
Benzo(a)pyrene	0.05	4	0.05	0.05	0	2.6	0.05	0.05	0.05	0.05								
Benzo(b)fluoranthene	0.05	4	0.05	0.05	0	18	0.05	0.05	0.05	0.05								
Benzo(ghi)perylene	0.05	4	0.05	0.05	0	120	0.05	0.05	0.05	0.05								
Benzo(k)fluoranthene	0.05	4	0.05	0.05	0	26	0.05	0.05	0.05	0.05								
Chrysene	0.05	4	0.05	0.05	0	26	0.05	0.05	0.05	0.05								
Dibenz(a,h)anthracene	0.05	4	0.05	0.05	0	2.3	0.05	0.05	0.05	0.05								
Fluoranthene	0.05	4	0.05	0.05	0	3100	0.05	0.05	0.05	0.05								
Fluorene	0.05	4	0.05	0.05	0	9900	0.05	0.05	0.05	0.05								
Indeno(1,2,3,cd)pyrene	0.05	4	0.05	0.05	0	11	0.05	0.05	0.05	0.05								
Naphthalene	0.05	4	0.05	0.05	0	4100	0.05	0.05	0.05	0.05								
Phenanthrene	0.05	4	0.05	0.05	0	3100	0.05	0.05	0.05	0.05								
Pyrene	0.05	4	0.05	0.05	0	7400	0.05	0.05	0.05	0.05								
Asbestos identified	Y/N						N	N	N	N								
FOC (dimensionless)	0.02025	**(mean)**					0.015	0.014	0.021	0.031								
SOM (calculated)	3.49%	**(mean)**					2.59%	2.41%	3.62%	5.34%								
pH (su)	8.3	**(mean)**					8.3	8.9	8.1	8								

Risk parameter: **Human health - POS resi (2.5%SOM)**
Data set: Charmouth Mudstone Formation - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test												
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	
								Location & Depth	TP102	TP103	TP109	TP133	BH201	BH202	DP201	TP207	TP214	TP219	TP230	
									0.5	1.1	0.8	0.9	2.30	1.20	0.90	0.60	0.60	1.20	0.40	
Arsenic	0.6	11	8.2	27.5	0	37	20.85	POTENTIALLY SUITABLE FOR USE	13.3	11	11.8	27.5	11	8.2	8.9	16	14	12	18	
Boron	1	11	0.2	1.22	0	300	1.14	POTENTIALLY SUITABLE FOR USE	1.22	1	1	1.01	0.3	0.2	0.5	0.2	0.2	0.2	0.8	
Cadmium	0.02	11	0.02	0.35	0	14	0.31	POTENTIALLY SUITABLE FOR USE	0.02	0.209	0.299	0.35	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Copper	1.4	11	10.6	23	0	2500	20.63	POTENTIALLY SUITABLE FOR USE	14.7	10.6	15.7	20	16	11	11	15	19	12	23	
Lead	0.7	11	4.19	4690	1	200	2291.60	FURTHER ASSESSMENT REQUIRED	11.1	4.19	18.1	4690	9.5	6.4	11	9.1	27	6.9	19	
Mercury, inorganic	0.14	11	0.14	0.3	0	170	0.35	POTENTIALLY SUITABLE FOR USE	0.14	0.14	0.14	0.14	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Nickel	0.2	11	11	30	0	130	23.45	POTENTIALLY SUITABLE FOR USE	15.5	12	12.7	23.1	13	11	12	17	13	15	30	
Selenium	1	11	1	1	0	360	1.00	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	
Zinc	1.9	11	28	89.1	0	3900	70.17	POTENTIALLY SUITABLE FOR USE	50.6	32.7	42.2	89.1	39	33	28	48	52	41	65	
Phenol (total)	0.035	11	0.035	1	0	290	1.29	POTENTIALLY SUITABLE FOR USE	0.035	0.035	0.035	0.035	1	1	1	1	1	1	1	
Acenaphthene	0.008	11	0.008	0.05	0	220	0.06	POTENTIALLY SUITABLE FOR USE	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Acenaphthylene	0.012	11	0.002	0.05	0	180	0.06	POTENTIALLY SUITABLE FOR USE	0.002	0.002	0.002	0.002	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Anthracene	0.016	11	0.006	0.05	0	2400	0.06	POTENTIALLY SUITABLE FOR USE	0.006	0.006	0.006	0.006	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Benz(a)anthracene	0.014	11	0.004	0.61	0	4.2	0.32	POTENTIALLY SUITABLE FOR USE	0.004	0.004	0.004	0.004	0.05	0.05	0.05	0.05	0.61	0.05	0.05	
Benzo(a)pyrene	0.015	11	0.005	0.34	0	1.5	0.19	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.34	0.05	0.05	
Benzo(b)fluoranthene	0.015	11	0.005	0.57	0	7.6	0.30	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.57	0.05	0.05	
Benzo(ghi)perylene	0.024	11	0.024	0.22	0	64	0.13	POTENTIALLY SUITABLE FOR USE	0.024	0.024	0.024	0.024	0.05	0.05	0.05	0.05	0.22	0.05	0.05	
Benzo(k)fluoranthene	0.014	11	0.004	0.25	0	12	0.14	POTENTIALLY SUITABLE FOR USE	0.004	0.004	0.004	0.004	0.05	0.05	0.05	0.05	0.25	0.05	0.05	
Chrysene	0.01	11	0.01	0.46	0	7.7	0.24	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.46	0.05	0.05	
Dibenz(a,h)anthracene	0.023	11	0.023	0.05	0	1.1	0.06	POTENTIALLY SUITABLE FOR USE	0.023	0.023	0.023	0.023	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Fluoranthene	0.017	11	0.007	0.43	0	290	0.23	POTENTIALLY SUITABLE FOR USE	0.007	0.007	0.007	0.007	0.05	0.05	0.05	0.05	0.43	0.05	0.05	
Fluorene	0.01	11	0.01	0.05	0	170	0.06	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Indeno(1,2,3,cd)pyrene	0.018	11	0.008	0.27	0	4.3	0.15	POTENTIALLY SUITABLE FOR USE	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05	0.27	0.05	0.05	
Naphthalene	0.009	11	0.009	0.05	0	2.2	0.06	POTENTIALLY SUITABLE FOR USE	0.009	0.009	0.009	0.009	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Phenanthrene	0.015	11	0.005	0.36	0	97	0.20	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.36	0.05	0.05	
Pyrene	0.015	11	0.005	0.37	0	620	0.20	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.37	0.05	0.05	
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	
FOC (dimensionless)	0.005338	**(mean)**										0.002	0.0016	0.0038	0.0059	0.008	0.011	0.0016	0.0088	
SOM (calculated)	0.92%	**(mean)**										0.34%	0.28%	0.66%	1.02%	1.38%	1.90%	0.28%	1.52%	
pH (su)	8.5	**(mean)**							8.77	8.57	8.57	8.45	8.5	9	8.7	8	8.4	8.6	8.1	

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test												
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	
								Location & Depth	TP102	TP103	TP109	TP133	BH201	BH202	DP201	TP207	TP214	TP219	TP230	
									0.5	1.1	0.8	0.9	2.30	1.20	0.90	0.60	0.60	1.20	0.40	
Arsenic	0.6	11	8.2	27.5	0	40	20.85	POTENTIALLY SUITABLE FOR USE	13.3	11	11.8	27.5	11	8.2	8.9	16	14	12	18	
Boron	1	11	0.2	1.22	0	11000	1.14	POTENTIALLY SUITABLE FOR USE	1.22	1	1	1.01	0.3	0.2	0.5	0.2	0.2	0.2	0.8	
Cadmium	0.02	11	0.02	0.35	0	87	0.31	POTENTIALLY SUITABLE FOR USE	0.02	0.209	0.299	0.35	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Copper	1.4	11	10.6	23	0	7300	20.63	POTENTIALLY SUITABLE FOR USE	14.7	10.6	15.7	20	16	11	11	15	19	12	23	
Lead	0.7	11	4.19	4690	1	310	2291.60	FURTHER ASSESSMENT REQUIRED	11.1	4.19	18.1	4690	9.5	6.4	11	9.1	27	6.9	19	
Mercury, inorganic	0.14	11	0.14	0.3	0	240	0.35	POTENTIALLY SUITABLE FOR USE	0.14	0.14	0.14	0.14	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Nickel	0.2	11	11	30	0	180	23.45	POTENTIALLY SUITABLE FOR USE	15.5	12	12.7	23.1	13	11	12	17	13	15	30	
Selenium	1	11	1	1	0	600	1.00	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	
Zinc	1.9	11	28	89.1	0	40000	70.17	POTENTIALLY SUITABLE FOR USE	50.6	32.7	42.2	89.1	39	33	28	48	52	41	65	
Phenol (total)	0.035	11	0.035	1	0	750	1.29	POTENTIALLY SUITABLE FOR USE	0.035	0.035	0.035	0.035	1	1	1	1	1	1	1	
Acenaphthene	0.008	11	0.008	0.05	0	3000	0.06	POTENTIALLY SUITABLE FOR USE	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Acenaphthylene	0.012	11	0.002	0.05	0	2900	0.06	POTENTIALLY SUITABLE FOR USE	0.002	0.002	0.002	0.002	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Anthracene	0.016	11	0.006	0.05	0	31000	0.06	POTENTIALLY SUITABLE FOR USE	0.006	0.006	0.006	0.006	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Benz(a)anthracene	0.014	11	0.004	0.61	0	5.5	0.32	POTENTIALLY SUITABLE FOR USE	0.004	0.004	0.004	0.004	0.05	0.05	0.05	0.05	0.61	0.05	0.05	
Benzo(a)pyrene	0.015	11	0.005	0.34	0	1.5	0.19	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.34	0.05	0.05	
Benzo(b)fluoranthene	0.015	11	0.005	0.57	0	11	0.30	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.57	0.05	0.05	
Benzo(ghi)perylene	0.024	11	0.024	0.22	0	71	0.13	POTENTIALLY SUITABLE FOR USE	0.024	0.024	0.024	0.024	0.05	0.05	0.05	0.05	0.22	0.05	0.05	
Benzo(k)fluoranthene	0.014	11	0.004	0.25	0	15	0.14	POTENTIALLY SUITABLE FOR USE	0.004	0.004	0.004	0.004	0.05	0.05	0.05	0.05	0.25	0.05	0.05	
Chrysene	0.01	11	0.01	0.46	0	13	0.24	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.46	0.05	0.05	
Dibenz(a,h)anthracene	0.023	11	0.023	0.05	0	1.3	0.06	POTENTIALLY SUITABLE FOR USE	0.023	0.023	0.023	0.023	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Fluoranthene	0.017	11	0.007	0.43	0	1500	0.23	POTENTIALLY SUITABLE FOR USE	0.007	0.007	0.007	0.007	0.05	0.05	0.05	0.05	0.43	0.05	0.05	
Fluorene	0.01	11	0.01	0.05	0	2800	0.06	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Indeno(1,2,3,cd)pyrene	0.018	11	0.008	0.27	0	6.3	0.15	POTENTIALLY SUITABLE FOR USE	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05	0.27	0.05	0.05	
Naphthalene	0.009	11	0.009	0.05	0	2.3	0.06	POTENTIALLY SUITABLE FOR USE	0.009	0.009	0.009	0.009	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Phenanthrene	0.015	11	0.005	0.36	0	1300	0.20	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.36	0.05	0.05	
Pyrene	0.015	11	0.005	0.37	0	3700	0.20	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.37	0.05	0.05	
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	
FOC (dimensionless)	0.005338	**(mean)**										0.002	0.0016	0.0038	0.0059	0.008	0.011	0.0016	0.0088	
SOM (calculated)	0.92%	**(mean)**										0.34%	0.28%	0.66%	1.02%	1.38%	1.90%	0.28%	1.52%	
pH (su)	8.5	**(mean)**							8.77	8.57	8.57	8.45	8.5	9	8.7	8	8.4	8.6	8.1	

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
All values in mg/kg unless otherwise stated						Location & Depth	TP102	TP103	TP109	TP133	BH201	BH202	DP201	TP207	TP214	TP219	TP230
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.5**	**1.1**	**0.8**	**0.9**	**2.30**	**1.20**	**0.90**	**0.60**	**0.60**	**1.20**	**0.40**
Arsenic	0.6	11	8.2	27.5	0	250	13.3	11	11.8	27.5	11	8.2	8.9	16	14	12	18
Boron	1	11	0.2	1.22	0	3	1.22	1	1	1.01	0.3	0.2	0.5	0.2	0.2	0.2	0.8
Chromium (III)	1	7	8.6	31	0	400					9.1	8.6	11	13	8.9	9.2	31
Chromium (VI)	0	7	1.2	1.2	0	25					1.2	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1.4	11	10.6	23	0	200	14.7	10.6	15.7	20	16	11	11	15	19	12	23
Nickel	0.2	11	11	30	0	110	15.5	12	12.7	23.1	13	11	12	17	13	15	30
Zinc	1.9	11	28	89.1	0	300	50.6	32.7	42.2	89.1	39	33	28	48	52	41	65
	Mean																
pH (su)	8.5						8.77	8.57	8.57	8.45	8.5	9	8.7	8	8.4	8.6	8.1

Risk parameter: **Plant life pH >7**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test												
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	
								Location & Depth	TP102	TP103	TP109	TP133	BH201	BH202	DP201	TP207	TP214	TP219	TP230	
									0.5	1.1	0.8	0.9	2.30	1.20	0.90	0.60	0.60	1.20	0.40	
Arsenic	0.6	11	8.2	27.5	0	79	20.85	POTENTIALLY SUITABLE FOR USE	13.3	11	11.8	27.5	11	8.2	8.9	16	14	12	18	
Boron	1	11	0.2	1.22	0	21000	1.14	POTENTIALLY SUITABLE FOR USE	1.22	1	1	1.01	0.3	0.2	0.5	0.2	0.2	0.2	0.8	
Cadmium	0.02	11	0.02	0.35	0	120	0.31	POTENTIALLY SUITABLE FOR USE	0.02	0.209	0.299	0.35	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Copper	1.4	11	10.6	23	0	12000	20.63	POTENTIALLY SUITABLE FOR USE	14.7	10.6	15.7	20	16	11	11	15	19	12	23	
Lead	0.7	11	4.19	4690	1	630	2291.60	FURTHER ASSESSMENT REQUIRED	11.1	4.19	18.1	4690	9.5	6.4	11	9.1	27	6.9	19	
Mercury, inorganic	0.14	11	0.14	0.3	0	470	0.35	POTENTIALLY SUITABLE FOR USE	0.14	0.14	0.14	0.14	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Nickel	0.2	11	11	30	0	290	23.45	POTENTIALLY SUITABLE FOR USE	15.5	12	12.7	23.1	13	11	12	17	13	15	30	
Selenium	1	11	1	1	0	1400	1.00	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	
Zinc	1.9	11	28	89.1	0	81000	70.17	POTENTIALLY SUITABLE FOR USE	50.6	32.7	42.2	89.1	39	33	28	48	52	41	65	
Phenol (total)	0.035	11	0.035	1	0	760	1.29	POTENTIALLY SUITABLE FOR USE	0.035	0.035	0.035	0.035	1	1	1	1	1	1	1	
Acenaphthene	0.008	11	0.008	0.05	0	15000	0.06	POTENTIALLY SUITABLE FOR USE	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Acenaphthylene	0.012	11	0.002	0.05	0	15000	0.06	POTENTIALLY SUITABLE FOR USE	0.002	0.002	0.002	0.002	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Anthracene	0.016	11	0.006	0.05	0	74000	0.06	POTENTIALLY SUITABLE FOR USE	0.006	0.006	0.006	0.006	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Benz(a)anthracene	0.014	11	0.004	0.61	0	17	0.32	POTENTIALLY SUITABLE FOR USE	0.004	0.004	0.004	0.004	0.05	0.05	0.05	0.05	0.61	0.05	0.05	
Benzo(a)pyrene	0.015	11	0.005	0.34	0	2.6	0.19	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.34	0.05	0.05	
Benzo(b)fluoranthene	0.015	11	0.005	0.57	0	18	0.30	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.57	0.05	0.05	
Benzo(ghi)perylene	0.024	11	0.024	0.22	0	120	0.13	POTENTIALLY SUITABLE FOR USE	0.024	0.024	0.024	0.024	0.05	0.05	0.05	0.05	0.22	0.05	0.05	
Benzo(k)fluoranthene	0.014	11	0.004	0.25	0	26	0.14	POTENTIALLY SUITABLE FOR USE	0.004	0.004	0.004	0.004	0.05	0.05	0.05	0.05	0.25	0.05	0.05	
Chrysene	0.01	11	0.01	0.46	0	25	0.24	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.46	0.05	0.05	
Dibenz(a,h)anthracene	0.023	11	0.023	0.05	0	2.3	0.06	POTENTIALLY SUITABLE FOR USE	0.023	0.023	0.023	0.023	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Fluoranthene	0.017	11	0.007	0.43	0	3100	0.23	POTENTIALLY SUITABLE FOR USE	0.007	0.007	0.007	0.007	0.05	0.05	0.05	0.05	0.43	0.05	0.05	
Fluorene	0.01	11	0.01	0.05	0	9900	0.06	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Indeno(1,2,3,cd)pyrene	0.018	11	0.008	0.27	0	11	0.15	POTENTIALLY SUITABLE FOR USE	0.008	0.008	0.008	0.008	0.05	0.05	0.05	0.05	0.27	0.05	0.05	
Naphthalene	0.009	11	0.009	0.05	0	3900	0.06	POTENTIALLY SUITABLE FOR USE	0.009	0.009	0.009	0.009	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Phenanthrene	0.015	11	0.005	0.36	0	3100	0.20	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.36	0.05	0.05	
Pyrene	0.015	11	0.005	0.37	0	7400	0.20	POTENTIALLY SUITABLE FOR USE	0.005	0.005	0.005	0.005	0.05	0.05	0.05	0.05	0.37	0.05	0.05	
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	
FOC (dimensionless)	0.005338	**(mean)**										0.002	0.0016	0.0038	0.0059	0.008	0.011	0.0016	0.0088	
SOM (calculated)	0.92%	**(mean)**										0.34%	0.28%	0.66%	1.02%	1.38%	1.90%	0.28%	1.52%	
pH (su)	8.5	**(mean)**							8.77	8.57	8.57	8.45	8.5	9	8.7	8	8.4	8.6	8.1	

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	NAT	NAT	NAT	NAT	NAT	NAT							
All values in mg/kg unless otherwise stated						Location & Depth	TP104	BH205	WS203	TP210	TP214	TP230							
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**1.5**	**1.50**	**1.80**	**1.50**	**1.30**	**1.10**							
Arsenic	0.6	6	8.3	13.4	0	37	13.4	11	8.5	9.1	9.2	8.3							
Boron	1	6	0.2	1	0	300	1	0.2	0.4	0.4	0.2	0.2							
Cadmium	0.02	6	0.195	0.2	0	14	0.195	0.2	0.2	0.2	0.2	0.2							
Copper	1.4	6	10	16	0	2500	13.5	10	13	16	11	11							
Lead	0.7	6	5.3	7.9	0	200	5.93	5.3	7.9	7.4	6.4	6.1							
Mercury, inorganic	0.14	6	0.14	0.3	0	170	0.14	0.3	0.3	0.3	0.3	0.3							
Nickel	0.2	6	9.8	15.1	0	130	15.1	9.9	12	9.8	12	11							
Selenium	1	6	1	1	0	360	1	1	1	1	1	1							
Zinc	1.9	6	29	50.1	0	3900	50.1	29	34	32	34	34							
Phenol (total)	0.035	6	0.035	1	0	290	0.035	1	1	1	1	1							
Acenaphthene	0.008	6	0.05	2.17	0	220	2.17	0.05	0.05	0.05	0.05	0.05							
Acenaphthylene	0.012	6	0.05	0.738	0	180	0.738	0.05	0.05	0.05	0.05	0.05							
Anthracene	0.016	6	0.05	5.8	0	2400	0.413	0.05	5.8	1.5	0.05	1.4							
Benz(a)anthracene	0.014	6	0.05	0.135	0	4.2	0.135	0.05	0.05	0.05	0.05	0.05							
Benzo(a)pyrene	0.015	6	0.05	0.0722	0	1.5	0.0722	0.05	0.05	0.05	0.05	0.05							
Benzo(b)fluoranthene	0.015	6	0.05	0.136	0	7.6	0.136	0.05	0.05	0.05	0.05	0.05							
Benzo(ghi)perylene	0.024	6	0.0471	0.05	0	64	0.0471	0.05	0.05	0.05	0.05	0.05							
Benzo(k)fluoranthene	0.014	6	0.0277	0.05	0	12	0.0277	0.05	0.05	0.05	0.05	0.05							
Chrysene	0.01	6	0.05	0.212	0	7.7	0.212	0.05	0.05	0.05	0.05	0.05							
Dibenz(a,h)anthracene	0.023	6	0.023	0.05	0	1.1	0.023	0.05	0.05	0.05	0.05	0.05							
Fluoranthene	0.017	6	0.05	3	0	290	0.724	0.05	3	1.4	0.43	0.82							
Fluorene	0.01	6	0.05	21	0	170	5.87	0.05	21	8	2.2	5.6							
Indeno(1,2,3,cd)pyrene	0.018	6	0.05	0.0546	0	4.3	0.0546	0.05	0.05	0.05	0.05	0.05							
Naphthalene	0.009	6	0.05	0.897	0	2.2	0.897	0.05	0.05	0.05	0.05	0.05							
Phenanthrene	0.015	6	0.05	38	0	97	10.8	0.05	38	11	2	7.3							
Pyrene	0.015	6	0.05	4.8	0	620	0.862	0.05	4.8	1.1	0.6	0.72							
Asbestos identified	Y/N						N	N	N	N	N	N							
FOC (dimensionless)	0.01268	**(mean)**						0.0014	0.019	0.016	0.012	0.015							
SOM (calculated)	2.19%	**(mean)**						0.24%	3.28%	2.76%	2.07%	2.59%							
pH (su)	8.4	**(mean)**					8.56	8.6	8.3	8.6	8.1	8.5							

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel (impacted) - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	NAT	NAT	NAT	NAT	NAT	NAT							
All values in mg/kg unless otherwise stated						Location & Depth	TP104	BH205	WS203	TP210	TP214	TP230							
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**1.5**	**1.50**	**1.80**	**1.50**	**1.30**	**1.10**							
Arsenic	0.6	6	8.3	13.4	0	40	13.4	11	8.5	9.1	9.2	8.3							
Boron	1	6	0.2	1	0	11000	1	0.2	0.4	0.4	0.2	0.2							
Cadmium	0.02	6	0.195	0.2	0	87	0.195	0.2	0.2	0.2	0.2	0.2							
Copper	1.4	6	10	16	0	7300	13.5	10	13	16	11	11							
Lead	0.7	6	5.3	7.9	0	310	5.93	5.3	7.9	7.4	6.4	6.1							
Mercury, inorganic	0.14	6	0.14	0.3	0	240	0.14	0.3	0.3	0.3	0.3	0.3							
Nickel	0.2	6	9.8	15.1	0	180	15.1	9.9	12	9.8	12	11							
Selenium	1	6	1	1	0	600	1	1	1	1	1	1							
Zinc	1.9	6	29	50.1	0	40000	50.1	29	34	32	34	34							
Phenol (total)	0.035	6	0.035	1	0	750	0.035	1	1	1	1	1							
Acenaphthene	0.008	6	0.05	2.17	0	3000	2.17	0.05	0.05	0.05	0.05	0.05							
Acenaphthylene	0.012	6	0.05	0.738	0	2900	0.738	0.05	0.05	0.05	0.05	0.05							
Anthracene	0.016	6	0.05	5.8	0	31000	0.413	0.05	5.8	1.5	0.05	1.4							
Benz(a)anthracene	0.014	6	0.05	0.135	0	5.5	0.135	0.05	0.05	0.05	0.05	0.05							
Benzo(a)pyrene	0.015	6	0.05	0.0722	0	1.5	0.0722	0.05	0.05	0.05	0.05	0.05							
Benzo(b)fluoranthene	0.015	6	0.05	0.136	0	11	0.136	0.05	0.05	0.05	0.05	0.05							
Benzo(ghi)perylene	0.024	6	0.0471	0.05	0	71	0.0471	0.05	0.05	0.05	0.05	0.05							
Benzo(k)fluoranthene	0.014	6	0.0277	0.05	0	15	0.0277	0.05	0.05	0.05	0.05	0.05							
Chrysene	0.01	6	0.05	0.212	0	13	0.212	0.05	0.05	0.05	0.05	0.05							
Dibenz(a,h)anthracene	0.023	6	0.023	0.05	0	1.3	0.023	0.05	0.05	0.05	0.05	0.05							
Fluoranthene	0.017	6	0.05	3	0	1500	0.724	0.05	3	1.4	0.43	0.82							
Fluorene	0.01	6	0.05	21	0	2800	5.87	0.05	21	8	2.2	5.6							
Indeno(1,2,3,cd)pyrene	0.018	6	0.05	0.0546	0	6.3	0.0546	0.05	0.05	0.05	0.05	0.05							
Naphthalene	0.009	6	0.05	0.897	0	2.3	0.897	0.05	0.05	0.05	0.05	0.05							
Phenanthrene	0.015	6	0.05	38	0	1300	10.8	0.05	38	11	2	7.3							
Pyrene	0.015	6	0.05	4.8	0	3700	0.862	0.05	4.8	1.1	0.6	0.72							
Asbestos identified	Y/N						N	N	N	N	N	N							
FOC (dimensionless)	0.01268	**(mean)**						0.0014	0.019	0.016	0.012	0.015							
SOM (calculated)	2.19%	**(mean)**						0.24%	3.28%	2.76%	2.07%	2.59%							
pH (su)	8.4	**(mean)**					8.56	8.6	8.3	8.6	8.1	8.5							

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel (impacted) - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	NAT	NAT	NAT	NAT	NAT	NAT						
All values in mg/kg unless otherwise stated						Location & Depth	TP104	BH205	WS203	TP210	TP214	TP230						
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**1.5**	**1.50**	**1.80**	**1.50**	**1.30**	**1.10**						
Arsenic	0.6	6	8.3	13.4	0	250	13.4	11	8.5	9.1	9.2	8.3						
Boron	1	6	0.2	1	0	3	1	0.2	0.4	0.4	0.2	0.2						
Chromium (III)	1	5	5.5	8.8	0	400		8.7	8.1	5.5	8.8	7						
Chromium (VI)	0	5	1.2	1.2	0	25		1.2	1.2	1.2	1.2	1.2						
Copper	1.4	6	10	16	0	200	13.5	10	13	16	11	11						
Nickel	0.2	6	9.8	15.1	0	110	15.1	9.9	12	9.8	12	11						
Zinc	1.9	6	29	50.1	0	300	50.1	29	34	32	34	34						
	Mean																	
pH (su)	8.4						8.56	8.6	8.3	8.6	8.1	8.5						

Risk parameter: **Plant life pH >7**
Data set: Cheltenham Sands and Gravel (impacted) - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	NAT	NAT	NAT	NAT	NAT	NAT							
All values in mg/kg unless otherwise stated						Location & Depth	TP104	BH205	WS203	TP210	TP214	TP230							
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**1.5**	**1.50**	**1.80**	**1.50**	**1.30**	**1.10**							
Arsenic	0.6	6	8.3	13.4	0	79	13.4	11	8.5	9.1	9.2	8.3							
Boron	1	6	0.2	1	0	21000	1	0.2	0.4	0.4	0.2	0.2							
Cadmium	0.02	6	0.195	0.2	0	120	0.195	0.2	0.2	0.2	0.2	0.2							
Copper	1.4	6	10	16	0	12000	13.5	10	13	16	11	11							
Lead	0.7	6	5.3	7.9	0	630	5.93	5.3	7.9	7.4	6.4	6.1							
Mercury, inorganic	0.14	6	0.14	0.3	0	470	0.14	0.3	0.3	0.3	0.3	0.3							
Nickel	0.2	6	9.8	15.1	0	290	15.1	9.9	12	9.8	12	11							
Selenium	1	6	1	1	0	1400	1	1	1	1	1	1							
Zinc	1.9	6	29	50.1	0	81000	50.1	29	34	32	34	34							
Phenol (total)	0.035	6	0.035	1	0	760	0.035	1	1	1	1	1							
Acenaphthene	0.008	6	0.05	2.17	0	15000	2.17	0.05	0.05	0.05	0.05	0.05							
Acenaphthylene	0.012	6	0.05	0.738	0	15000	0.738	0.05	0.05	0.05	0.05	0.05							
Anthracene	0.016	6	0.05	5.8	0	74000	0.413	0.05	5.8	1.5	0.05	1.4							
Benz(a)anthracene	0.014	6	0.05	0.135	0	17	0.135	0.05	0.05	0.05	0.05	0.05							
Benzo(a)pyrene	0.015	6	0.05	0.0722	0	2.6	0.0722	0.05	0.05	0.05	0.05	0.05							
Benzo(b)fluoranthene	0.015	6	0.05	0.136	0	18	0.136	0.05	0.05	0.05	0.05	0.05							
Benzo(ghi)perylene	0.024	6	0.0471	0.05	0	120	0.0471	0.05	0.05	0.05	0.05	0.05							
Benzo(k)fluoranthene	0.014	6	0.0277	0.05	0	26	0.0277	0.05	0.05	0.05	0.05	0.05							
Chrysene	0.01	6	0.05	0.212	0	25	0.212	0.05	0.05	0.05	0.05	0.05							
Dibenz(a,h)anthracene	0.023	6	0.023	0.05	0	2.3	0.023	0.05	0.05	0.05	0.05	0.05							
Fluoranthene	0.017	6	0.05	3	0	3100	0.724	0.05	3	1.4	0.43	0.82							
Fluorene	0.01	6	0.05	21	0	9900	5.87	0.05	21	8	2.2	5.6							
Indeno(1,2,3,cd)pyrene	0.018	6	0.05	0.0546	0	11	0.0546	0.05	0.05	0.05	0.05	0.05							
Naphthalene	0.009	6	0.05	0.897	0	3900	0.897	0.05	0.05	0.05	0.05	0.05							
Phenanthrene	0.015	6	0.05	38	0	3100	10.8	0.05	38	11	2	7.3							
Pyrene	0.015	6	0.05	4.8	0	7400	0.862	0.05	4.8	1.1	0.6	0.72							
Asbestos identified	Y/N						N	N	N	N	N	N							
FOC (dimensionless)	0.01268	**(mean)**						0.0014	0.019	0.016	0.012	0.015							
SOM (calculated)	2.19%	**(mean)**						0.24%	3.28%	2.76%	2.07%	2.59%							
pH (su)	8.4	**(mean)**					8.56	8.6	8.3	8.6	8.1	8.5							

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel (impacted) - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP101	TP103	TP103	TP104	TP105	TP106	TP107	TP108	TP108	TP109	TP110	TP112	TP112	TP113	TP113
									0.4	0.15	0.6	0.4	0.5	0.4	0.1	0.3	0.7	0.3	0.3	0.4	0.9	0.1	0.6
Arsenic	0.6	40	5.07	96.7	1	37	29.84	POTENTIALLY SUITABLE FOR USE	7.6		16.8	25.1	14.2	15.1			32.5	96.7			29.5		24.1
Boron	1	40	0.2	2.61	0	300	1.29	POTENTIALLY SUITABLE FOR USE	1		1	1	1.36	1			1.08	1			1		1
Cadmium	0.02	40	0.02	1.6	0	14	0.52	POTENTIALLY SUITABLE FOR USE	0.279		0.185	0.2	0.598	0.48			0.02	0.206			0.2		0.0347
Copper	1.4	40	7.3	622	0	2500	227.04	POTENTIALLY SUITABLE FOR USE	19.2		54.6	50.4	51	102			183	242			218		188
Lead	0.7	40	7.53	460	7	200	175.84	POTENTIALLY SUITABLE FOR USE	27.7		68.3	42	89.2	57.6			125	248			119		63.3
Mercury, inorganic	0.14	40	0.14	2.4	0	170	0.67	POTENTIALLY SUITABLE FOR USE	0.14		0.14	1.4	0.14	0.14			0.196	1.4			1.4		0.333
Nickel	0.2	40	5.7	84.6	0	130	42.82	POTENTIALLY SUITABLE FOR USE	5.7		21.9	30.2	23.6	33.6			57.8	84.6			71.6		28.4
Selenium	1	40	1	10	0	360	3.36	POTENTIALLY SUITABLE FOR USE	1		1	10	1	1			1	10			10		1
Zinc	1.9	40	37.3	480	0	3900	183.95	POTENTIALLY SUITABLE FOR USE	62.1		78	94.1	140	69.8			86.4	149			92.9		106
Phenol (total)	0.035	40	0.035	1	0	1100	0.63	POTENTIALLY SUITABLE FOR USE	0.035		0.046	0.035	0.035	0.035			0.035	0.035			0.035		0.0928
Acenaphthene	0.008	40	0.008	2.8	0	1100	0.64	POTENTIALLY SUITABLE FOR USE	0.008		0.501	0.0121	0.904	0.112			0.0151	0.185			0.0161		0.135
Acenaphthylene	0.002	40	0.012	1.02	0	940	0.38	POTENTIALLY SUITABLE FOR USE	0.012		0.561	0.012	0.284	0.024			0.0602	0.129			0.0328		0.012
Anthracene	0.006	40	0.016	8.8	0	11000	1.73	POTENTIALLY SUITABLE FOR USE	0.016		1.8	0.016	0.016	0.281			0.0967	0.475			0.128		0.133
Benz(a)anthracene	0.004	40	0.014	55	2	8.6	9.50	FURTHER ASSESSMENT REQUIRED	0.014		7.69	0.101	0.014	1.14			0.486	0.866			0.367		0.349
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.5	8.11	FURTHER ASSESSMENT REQUIRED	0.015		12.4	0.0849	0.015	1.06			0.403	0.787			0.313		0.357
Benzo(b)fluoranthene	0.005	40	0.015	47.9	4	10	11.37	FURTHER ASSESSMENT REQUIRED	0.015		15.1	0.143	0.0348	1.72			0.622	1.73			0.773		0.58
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	71	5.81	POTENTIALLY SUITABLE FOR USE	0.024		9.02	0.0546	0.024	0.816			0.222	1.18			0.285		0.343
Benzo(k)fluoranthene	0.004	40	0.014	17	1	15	3.87	POTENTIALLY SUITABLE FOR USE	0.014		4.71	0.0459	0.014	0.54			0.168	0.506			0.219		0.222
Chrysene	0.01	40	0.01	42	2	13	7.92	POTENTIALLY SUITABLE FOR USE	0.01		7.48	0.106	0.01	1.11			0.535	1.01			0.435		0.328
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED	0.023		1.29	0.023	0.023	0.165			0.0727	0.195			0.0691		0.0703
Fluoranthene	0.007	40	0.017	46	0	900	9.54	POTENTIALLY SUITABLE FOR USE	0.017		11.6	0.189	0.241	2.18			0.709	1.46			0.504		0.65
Fluorene	0.01	40	0.01	3.6	0	880	0.86	POTENTIALLY SUITABLE FOR USE	0.01		0.812	0.0352	1.8	0.0907			0.0353	0.399			0.0361		0.0603
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.2	6.00	POTENTIALLY SUITABLE FOR USE	0.018		11.3	0.0746	0.018	0.958			0.258	1.34			0.274		0.331
Naphthalene	0.009	40	0.009	3.8	0	12	0.91	POTENTIALLY SUITABLE FOR USE	0.009		0.246	0.0107	0.308	0.187			0.0531	0.366			0.13		0.137
Phenanthrene	0.005	40	0.015	35	0	440	6.24	POTENTIALLY SUITABLE FOR USE	0.015		5.04	0.0858	2.88	1.69			0.336	1.66			0.338		0.359
Pyrene	0.005	40	0.015	41	0	2000	8.58	POTENTIALLY SUITABLE FOR USE	0.015		12.2	0.142	0.441	1.8			0.623	1.24			0.476		0.513
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**																					
SOM (calculated)	5.97%	**(mean)**																					
pH (su)	8.3	**(mean)**							8.97		7.9	7.45	7.41	8.23			8.5	8.01			8.13		8.14

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP115	TP116	TP118	TP118	TP119	TP119	TP120	TP120	TP120A	TP120A (PF	TP121	TP121	TP122	TP123	TP124	TP125
									0.1	0.4	0.25	0.35	0.3	0.6	0.2	0.4	0.6	0.6	0.3	0.6	0.2	0.25	0.2	0.25
Arsenic	0.6	40	5.07	96.7	1	37	29.84	POTENTIALLY SUITABLE FOR USE		7.71		13.2		25.7		24.5	24.7			20.4				8.42
Boron	1	40	0.2	2.61	0	300	1.29	POTENTIALLY SUITABLE FOR USE		1		1		2.61		2.24	1.93			1				1
Cadmium	0.02	40	0.02	1.6	0	14	0.52	POTENTIALLY SUITABLE FOR USE		0.2		0.372		0.123		0.377	0.814			0.02				0.224
Copper	1.4	40	7.3	622	0	2500	227.04	POTENTIALLY SUITABLE FOR USE		23.9		82.3		235		426	397			26.2				8.67
Lead	0.7	40	7.53	460	7	200	175.84	POTENTIALLY SUITABLE FOR USE		29.4		34.8		144		273	237			31.5				52.2
Mercury, inorganic	0.14	40	0.14	2.4	0	170	0.67	POTENTIALLY SUITABLE FOR USE		0.14		0.14		0.21		0.14	0.245			0.241				0.14
Nickel	0.2	40	5.7	84.6	0	130	42.82	POTENTIALLY SUITABLE FOR USE		8.3		27.1		64.3		29.7	42.2			28.9				9.12
Selenium	1	40	1	10	0	360	3.36	POTENTIALLY SUITABLE FOR USE		1		1		1		1	1			1				1
Zinc	1.9	40	37.3	480	0	3900	183.95	POTENTIALLY SUITABLE FOR USE		62.8		61.1		143		134	465			91.4				125
Phenol (total)	0.035	40	0.035	1	0	1100	0.63	POTENTIALLY SUITABLE FOR USE		0.035		0.035		0.035		0.035	0.035			0.035				0.035
Acenaphthene	0.008	40	0.008	2.8	0	1100	0.64	POTENTIALLY SUITABLE FOR USE		0.008		0.87		0.113		0.04	0.569			0.008				0.04
Acenaphthylene	0.002	40	0.012	1.02	0	940	0.38	POTENTIALLY SUITABLE FOR USE		0.012		0.0425		0.0214		0.06	0.172			0.012				0.06
Anthracene	0.006	40	0.016	8.8	0	11000	1.73	POTENTIALLY SUITABLE FOR USE		0.016		1.43		0.326		0.132	1.49			0.016				0.144
Benz(a)anthracene	0.004	40	0.014	55	2	8.6	9.50	FURTHER ASSESSMENT REQUIRED		0.0477		6.51		1.9		0.563	6.81			0.014				0.764
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.5	8.11	FURTHER ASSESSMENT REQUIRED		0.0462		6.7		1.73		0.547	6.98			0.015				0.814
Benzo(b)fluoranthene	0.005	40	0.015	47.9	4	10	11.37	FURTHER ASSESSMENT REQUIRED		0.0867		8.37		2.89		0.881	10.3			0.015				1.04
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	71	5.81	POTENTIALLY SUITABLE FOR USE		0.0527		4.57		1.15		0.401	5.22			0.024				0.548
Benzo(k)fluoranthene	0.004	40	0.014	17	1	15	3.87	POTENTIALLY SUITABLE FOR USE		0.0289		3.39		0.928		0.391	4.15			0.014				0.383
Chrysene	0.01	40	0.01	42	2	13	7.92	POTENTIALLY SUITABLE FOR USE		0.0532		6.13		1.96		0.647	6.1			0.01				0.793
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED		0.023		0.894		0.343		0.115	1.13			0.023				0.115
Fluoranthene	0.007	40	0.017	46	0	900	9.54	POTENTIALLY SUITABLE FOR USE		0.064		11.3		2.35		1.25	10.7			0.017				1.51
Fluorene	0.01	40	0.01	3.6	0	880	0.86	POTENTIALLY SUITABLE FOR USE		0.01		0.369		0.119		0.05	0.402			0.01				0.05
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.2	6.00	POTENTIALLY SUITABLE FOR USE		0.0545		5.03		1.29		0.458	5.49			0.018				0.547
Naphthalene	0.009	40	0.009	3.8	0	12	0.91	POTENTIALLY SUITABLE FOR USE		0.0365		0.29		0.154		0.107	0.577			0.009				0.045
Phenanthrene	0.005	40	0.015	35	0	440	6.24	POTENTIALLY SUITABLE FOR USE		0.0535		5.96		1.37		0.714	5.78			0.015				0.603
Pyrene	0.005	40	0.015	41	0	2000	8.58	POTENTIALLY SUITABLE FOR USE		0.0565		10.2		1.97		1.1	9.29			0.015				1.31
Asbestos identified	Y/N								N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y
FOC (dimensionless)	0.034092	**(mean)**																						
SOM (calculated)	5.97%	**(mean)**																						
pH (su)	8.3	**(mean)**								9.17		8.41		7.97		8.27	8.03			8.19				8.68

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test															
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP126	TP127	TP128	TP129	TP130	TP131	TP132	TP133	TP134	WS101	WS103	WS104	WS105	WS106	WS107	WS115
									0.25	0.25	0.25	0.5	0.3	0.3	0.3	0.2	0.4	0.7	0.8	0.4	0.3	0.4	0.3	0.6
Arsenic	0.6	40	5.07	96.7	1	37	29.84	POTENTIALLY SUITABLE FOR USE		7.9		7.82		6.58	17.4	14.2	21.4	18.6	25.9	22.9		5.07	10.5	19
Boron	1	40	0.2	2.61	0	300	1.29	POTENTIALLY SUITABLE FOR USE		1		1		1	1	1.21	1.19	1	1	1		1.39	1	1
Cadmium	0.02	40	0.02	1.6	0	14	0.52	POTENTIALLY SUITABLE FOR USE		0.238		0.431		0.292	0.296	0.0739	0.02	0.02	0.02	0.433		0.0783	0.316	0.02
Copper	1.4	40	7.3	622	0	2500	227.04	POTENTIALLY SUITABLE FOR USE		22.1		24.1		23.6	69.5	73.2	97.1	15.1	622	37.6		16.4	21.2	114
Lead	0.7	40	7.53	460	7	200	175.84	POTENTIALLY SUITABLE FOR USE		42.1		64.1		26.7	84.8	28.8	49.5	7.53	424	128		9.87	25.8	79.8
Mercury, inorganic	0.14	40	0.14	2.4	0	170	0.67	POTENTIALLY SUITABLE FOR USE		0.14		0.14		0.14	0.14	0.14	0.142	0.14	0.317	0.14		0.14	0.14	0.225
Nickel	0.2	40	5.7	84.6	0	130	42.82	POTENTIALLY SUITABLE FOR USE		8.44		11.7		8	25.5	45.3	31.9	38.5	35.3	11.3		35.3	14.3	40.1
Selenium	1	40	1	10	0	360	3.36	POTENTIALLY SUITABLE FOR USE		1		1		1	1	1	1	1	1	1		2.1	1	1
Zinc	1.9	40	37.3	480	0	3900	183.95	POTENTIALLY SUITABLE FOR USE		81.7		78.7		70.1	165	79	47.9	85.2	183	112		37.3	53.2	110
Phenol (total)	0.035	40	0.035	1	0	1100	0.63	POTENTIALLY SUITABLE FOR USE		0.035		0.035		0.035	0.035	0.035	0.035	0.035	0.035	0.035		0.035	0.035	0.035
Acenaphthene	0.008	40	0.008	2.8	0	1100	0.64	POTENTIALLY SUITABLE FOR USE		0.147		1.74		0.156	0.04	0.008	0.0398	0.249	0.0416	0.08		0.04	0.4	0.113
Acenaphthylene	0.002	40	0.012	1.02	0	940	0.38	POTENTIALLY SUITABLE FOR USE		0.788		1.02		0.138	0.06	0.012	0.0491	0.184	0.0739	0.233		0.06	0.6	0.06
Anthracene	0.006	40	0.016	8.8	0	11000	1.73	POTENTIALLY SUITABLE FOR USE		0.6		3.59		0.752	0.29	0.0685	0.149	0.085	0.146	0.396		0.08	0.8	0.329
Benz(a)anthracene	0.004	40	0.014	55	2	8.6	9.50	FURTHER ASSESSMENT REQUIRED		3.63		18.2		2.17	0.431	0.0869	0.548	0.0462	0.409	2.62		0.224	1.86	1.35
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.5	8.11	FURTHER ASSESSMENT REQUIRED		4.56		33.5		2.44	0.304	0.0473	0.498	0.0454	0.374	2.07		0.259	2.8	1.43
Benzo(b)fluoranthene	0.005	40	0.015	47.9	4	10	11.37	FURTHER ASSESSMENT REQUIRED		6.38		47.9		3.71	0.693	0.173	0.956	0.0495	0.565	3.44		0.398	4.46	2.2
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	71	5.81	POTENTIALLY SUITABLE FOR USE		3.59		28.9		2	0.448	0.0853	0.355	0.0303	0.228	1.4		0.224	2.94	1.04
Benzo(k)fluoranthene	0.004	40	0.014	17	1	15	3.87	POTENTIALLY SUITABLE FOR USE		2.08		13.6		1.38	0.213	0.0355	0.21	0.0194	0.221	1.11		0.144	1.29	0.805
Chrysene	0.01	40	0.01	42	2	13	7.92	POTENTIALLY SUITABLE FOR USE		3.57		20.3		2.05	0.53	0.114	0.628	0.0725	0.444	2.5		0.267	1.66	1.31
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED		0.714		6.24		0.457	0.115	0.023	0.101	0.023	0.0471	0.331		0.115	1.15	0.19
Fluoranthene	0.007	40	0.017	46	0	900	9.54	POTENTIALLY SUITABLE FOR USE		4.8		23.1		3.2	0.577	0.117	0.981	0.264	0.802	4.4		0.479	3.15	2.1
Fluorene	0.01	40	0.01	3.6	0	880	0.86	POTENTIALLY SUITABLE FOR USE		0.201		1.68		0.117	0.111	0.018	0.0427	1.36	0.0987	0.1		0.05	0.5	0.085
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.2	6.00	POTENTIALLY SUITABLE FOR USE		3.63		29		2.32	0.369	0.0797	0.41	0.0263	0.283	1.41		0.228	3.24	1.19
Naphthalene	0.009	40	0.009	3.8	0	12	0.91	POTENTIALLY SUITABLE FOR USE		0.045		0.128		0.22	0.768	0.108	0.0609	0.155	0.124	0.09		0.045	0.45	0.148
Phenanthrene	0.005	40	0.015	35	0	440	6.24	POTENTIALLY SUITABLE FOR USE		0.925		6.74		1.63	0.614	0.179	0.447	2.48	0.65	1.88		0.341	1.34	1.18
Pyrene	0.005	40	0.015	41	0	2000	8.58	POTENTIALLY SUITABLE FOR USE		4.54		20.5		2.82	0.627	0.106	1.01	0.256	0.657	3.5		0.411	3.79	1.79
Asbestos identified	Y/N								N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**																						
SOM (calculated)	5.97%	**(mean)**																						
pH (su)	8.3	**(mean)**								8.97		8.79		8.58	7.99	7.77	8.4	8.19	8.14	8.9		9.1	8.52	8.2

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test												
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	NAT	MG	MG	MG
								Location & Depth	TP201	TP203	TP205	TP206	TP209	TP210	TP211	TP213	TP216	TP221	CPT 201	CPT 206
									0.40	0.20	0.40	0.10	0.30	0.30	0.50	0.20	0.50	0.20	0.30	0.30
Arsenic	0.6	40	5.07	96.7	1	37	29.84	POTENTIALLY SUITABLE FOR USE	18	6.6	19	9.9	24	33	14	24	19	16	18	27
Boron	1	40	0.2	2.61	0	300	1.29	POTENTIALLY SUITABLE FOR USE	0.6	0.4	0.3	0.8	0.5	0.2	0.2	0.3	0.7	0.3	0.2	0.2
Cadmium	0.02	40	0.02	1.6	0	14	0.52	POTENTIALLY SUITABLE FOR USE	1.6	0.9	0.8	0.4	0.2	0.2	0.7	0.2	0.2	0.2	0.2	0.2
Copper	1.4	40	7.3	622	0	2500	227.04	POTENTIALLY SUITABLE FOR USE	180	23	92	42	380	460	71	150	38	99	94	7.3
Lead	0.7	40	7.53	460	7	200	175.84	POTENTIALLY SUITABLE FOR USE	210	100	76	27	280	460	61	95	38	55	53	23
Mercury, inorganic	0.14	40	0.14	2.4	0	170	0.67	POTENTIALLY SUITABLE FOR USE	2.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nickel	0.2	40	5.7	84.6	0	130	42.82	POTENTIALLY SUITABLE FOR USE	32	7.4	20	22	28	63	24	40	21	39	25	7.6
Selenium	1	40	1	10	0	360	3.36	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1
Zinc	1.9	40	37.3	480	0	3900	183.95	POTENTIALLY SUITABLE FOR USE	480	110	84	88	250	170	110	100	69	60	66	160
Phenol (total)	0.035	40	0.035	1	0	1100	0.63	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1
Acenaphthene	0.008	40	0.008	2.8	0	1100	0.64	POTENTIALLY SUITABLE FOR USE	0.48	0.05	0.05	0.05	0.27	0.05	0.23	0.05	0.05	0.22	2.8	0.05
Acenaphthylene	0.002	40	0.012	1.02	0	940	0.38	POTENTIALLY SUITABLE FOR USE	0.29	0.05	0.05	0.05	0.55	0.38	0.61	0.05	0.05	0.76	0.34	0.05
Anthracene	0.006	40	0.016	8.8	0	11000	1.73	POTENTIALLY SUITABLE FOR USE	1	0.05	0.24	0.37	1.2	0.38	1	0.44	0.05	0.9	8.8	0.05
Benz(a)anthracene	0.004	40	0.014	55	2	8.6	9.50	FURTHER ASSESSMENT REQUIRED	5.3	0.05	0.05	0.81	1.6	1.1	3.1	1.3	0.37	3.7	55	0.05
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.5	8.11	FURTHER ASSESSMENT REQUIRED	3.5	0.05	0.05	0.37	0.99	0.7	1.8	0.76	0.05	1.8	32	0.05
Benzo(b)fluoranthene	0.005	40	0.015	47.9	4	10	11.37	FURTHER ASSESSMENT REQUIRED	4.9	0.05	0.05	0.97	1.8	0.98	2.6	1.3	0.3	2.5	44	0.05
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	71	5.81	POTENTIALLY SUITABLE FOR USE	2.4	0.05	0.05	0.39	0.68	0.62	0.97	0.77	0.05	0.82	16	0.05
Benzo(k)fluoranthene	0.004	40	0.014	17	1	15	3.87	POTENTIALLY SUITABLE FOR USE	2.3	0.05	0.05	0.28	0.55	0.5	1.1	0.44	0.11	1.3	17	0.05
Chrysene	0.01	40	0.01	42	2	13	7.92	POTENTIALLY SUITABLE FOR USE	4.2	0.05	0.05	0.79	1.7	1.1	2.6	1.2	0.3	3.1	42	0.05
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED	0.97	0.05	0.05	0.05	0.21	0.05	0.38	0.05	0.05	0.36	6.5	0.05
Fluoranthene	0.007	40	0.017	46	0	900	9.54	POTENTIALLY SUITABLE FOR USE	5.4	0.05	0.23	1.1	3.1	1.2	4.1	1.6	0.44	5.1	46	0.3
Fluorene	0.01	40	0.01	3.6	0	880	0.86	POTENTIALLY SUITABLE FOR USE	0.84	0.05	0.43	0.05	0.44	0.33	0.33	0.38	0.05	0.43	3.6	0.22
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.2	6.00	POTENTIALLY SUITABLE FOR USE	2.4	0.05	0.05	0.35	0.65	0.65	1.1	0.63	0.05	0.92	16	0.05
Naphthalene	0.009	40	0.009	3.8	0	12	0.91	POTENTIALLY SUITABLE FOR USE	0.63	0.05	2.8	0.05	0.62	1.6	0.53	0.57	0.05	0.05	3.8	0.05
Phenanthrene	0.005	40	0.015	35	0	440	6.24	POTENTIALLY SUITABLE FOR USE	3.4	0.05	1.6	0.58	2.1	1.6	2.2	1.4	0.35	2.5	35	0.4
Pyrene	0.005	40	0.015	41	0	2000	8.58	POTENTIALLY SUITABLE FOR USE	4.8	0.05	0.26	1	2.9	1.1	3.3	1.5	0.51	4.3	41	0.26
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**							0.041	0.022	0.03	0.044	0.03	0.053	0.029	0.048	0.0016	0.039	0.066	0.0055
SOM (calculated)	5.97%	**(mean)**									5.17%	7.59%	5.17%	9.14%	5.00%	8.28%	0.28%	6.72%	11.38%	0.95%
pH (su)	8.3	**(mean)**							8.2	8.3	8.3	8.2	8.4	8.1	8.4	7.9	8.4	7.8	8.7	8.8

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP101	TP103	TP103	TP104	TP105	TP106	TP107	TP108	TP108	TP109	TP110	TP112	TP112	TP113	TP113
									0.4	0.15	0.6	0.4	0.5	0.4	0.1	0.3	0.7	0.3	0.3	0.4	0.9	0.1	0.6
Arsenic	0.6	40	5.07	96.7	1	40	29.84	POTENTIALLY SUITABLE FOR USE	7.6		16.8	25.1	14.2	15.1			32.5	96.7			29.5		24.1
Boron	1	40	0.2	2.61	0	11000	1.29	POTENTIALLY SUITABLE FOR USE	1		1	1	1.36	1			1.08	1			1		1
Cadmium	0.02	40	0.02	1.6	0	87	0.52	POTENTIALLY SUITABLE FOR USE	0.279		0.185	0.2	0.598	0.48			0.02	0.206			0.2		0.0347
Copper	1.4	40	7.3	622	0	7300	227.04	POTENTIALLY SUITABLE FOR USE	19.2		54.6	50.4	51	102			183	242			218		188
Lead	0.7	40	7.53	460	2	310	175.84	POTENTIALLY SUITABLE FOR USE	27.7		68.3	42	89.2	57.6			125	248			119		63.3
Mercury, inorganic	0.14	40	0.14	2.4	0	240	0.67	POTENTIALLY SUITABLE FOR USE	0.14		0.14	1.4	0.14	0.14			0.196	1.4			1.4		0.333
Nickel	0.2	40	5.7	84.6	0	180	42.82	POTENTIALLY SUITABLE FOR USE	5.7		21.9	30.2	23.6	33.6			57.8	84.6			71.6		28.4
Selenium	1	40	1	10	0	600	3.36	POTENTIALLY SUITABLE FOR USE	1		1	10	1	1			1	10			10		1
Zinc	1.9	40	37.3	480	0	40000	183.95	POTENTIALLY SUITABLE FOR USE	62.1		78	94.1	140	69.8			86.4	149			92.9		106
Phenol (total)	0.035	40	0.035	1	0	2300	0.63	POTENTIALLY SUITABLE FOR USE	0.035		0.046	0.035	0.035	0.035			0.035	0.035			0.035		0.0928
Acenaphthene	0.008	40	0.008	2.8	0	6000	0.64	POTENTIALLY SUITABLE FOR USE	0.008		0.501	0.0121	0.904	0.112			0.0151	0.185			0.0161		0.135
Acenaphthylene	0.002	40	0.012	1.02	0	6000	0.38	POTENTIALLY SUITABLE FOR USE	0.012		0.561	0.012	0.284	0.024			0.0602	0.129			0.0328		0.012
Anthracene	0.006	40	0.016	8.8	0	37000	1.73	POTENTIALLY SUITABLE FOR USE	0.016		1.8	0.016	0.016	0.281			0.0967	0.475			0.128		0.133
Benz(a)anthracene	0.004	40	0.014	55	2	9.4	9.50	FURTHER ASSESSMENT REQUIRED	0.014		7.69	0.101	0.014	1.14			0.486	0.866			0.367		0.349
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.6	8.11	FURTHER ASSESSMENT REQUIRED	0.015		12.4	0.0849	0.015	1.06			0.403	0.787			0.313		0.357
Benzo(b)fluoranthene	0.005	40	0.015	47.9	3	11	11.37	FURTHER ASSESSMENT REQUIRED	0.015		15.1	0.143	0.0348	1.72			0.622	1.73			0.773		0.58
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	72	5.81	POTENTIALLY SUITABLE FOR USE	0.024		9.02	0.0546	0.024	0.816			0.222	1.18			0.285		0.343
Benzo(k)fluoranthene	0.004	40	0.014	17	1	16	3.87	POTENTIALLY SUITABLE FOR USE	0.014		4.71	0.0459	0.014	0.54			0.168	0.506			0.219		0.222
Chrysene	0.01	40	0.01	42	2	15	7.92	POTENTIALLY SUITABLE FOR USE	0.01		7.48	0.106	0.01	1.11			0.535	1.01			0.435		0.328
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED	0.023		1.29	0.023	0.023	0.165			0.0727	0.195			0.0691		0.0703
Fluoranthene	0.007	40	0.017	46	0	1600	9.54	POTENTIALLY SUITABLE FOR USE	0.017		11.6	0.189	0.241	2.18			0.709	1.46			0.504		0.65
Fluorene	0.01	40	0.01	3.6	0	4500	0.86	POTENTIALLY SUITABLE FOR USE	0.01		0.812	0.0352	1.8	0.0907			0.0353	0.399			0.0361		0.0603
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.7	6.00	POTENTIALLY SUITABLE FOR USE	0.018		11.3	0.0746	0.018	0.958			0.258	1.34			0.274		0.331
Naphthalene	0.009	40	0.009	3.8	0	13	0.91	POTENTIALLY SUITABLE FOR USE	0.009		0.246	0.0107	0.308	0.187			0.0531	0.366			0.13		0.137
Phenanthrene	0.005	40	0.015	35	0	1500	6.24	POTENTIALLY SUITABLE FOR USE	0.015		5.04	0.0858	2.88	1.69			0.336	1.66			0.338		0.359
Pyrene	0.005	40	0.015	41	0	3800	8.58	POTENTIALLY SUITABLE FOR USE	0.015		12.2	0.142	0.441	1.8			0.623	1.24			0.476		0.513
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**																					
SOM (calculated)	5.97%	**(mean)**																					
pH (su)	8.3	**(mean)**							8.97		7.9	7.45	7.41	8.23			8.5	8.01			8.13		8.14

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP115	TP116	TP118	TP118	TP119	TP119	TP120	TP120	TP120A	TP120A (PF	TP121	TP121	TP122	TP123	TP124	TP125
									0.1	0.4	0.25	0.35	0.3	0.6	0.2	0.4	0.6	0.6	0.3	0.6	0.2	0.25	0.2	0.25
Arsenic	0.6	40	5.07	96.7	1	40	29.84	POTENTIALLY SUITABLE FOR USE		7.71		13.2		25.7		24.5	24.7			20.4				8.42
Boron	1	40	0.2	2.61	0	11000	1.29	POTENTIALLY SUITABLE FOR USE		1		1		2.61		2.24	1.93			1				1
Cadmium	0.02	40	0.02	1.6	0	87	0.52	POTENTIALLY SUITABLE FOR USE		0.2		0.372		0.123		0.377	0.814			0.02				0.224
Copper	1.4	40	7.3	622	0	7300	227.04	POTENTIALLY SUITABLE FOR USE		23.9		82.3		235		426	397			26.2				8.67
Lead	0.7	40	7.53	460	2	310	175.84	POTENTIALLY SUITABLE FOR USE		29.4		34.8		144		273	237			31.5				52.2
Mercury, inorganic	0.14	40	0.14	2.4	0	240	0.67	POTENTIALLY SUITABLE FOR USE		0.14		0.14		0.21		0.14	0.245			0.241				0.14
Nickel	0.2	40	5.7	84.6	0	180	42.82	POTENTIALLY SUITABLE FOR USE		8.3		27.1		64.3		29.7	42.2			28.9				9.12
Selenium	1	40	1	10	0	600	3.36	POTENTIALLY SUITABLE FOR USE		1		1		1		1	1			1				1
Zinc	1.9	40	37.3	480	0	40000	183.95	POTENTIALLY SUITABLE FOR USE		62.8		61.1		143		134	465			91.4				125
Phenol (total)	0.035	40	0.035	1	0	2300	0.63	POTENTIALLY SUITABLE FOR USE		0.035		0.035		0.035		0.035	0.035			0.035				0.035
Acenaphthene	0.008	40	0.008	2.8	0	6000	0.64	POTENTIALLY SUITABLE FOR USE		0.008		0.87		0.113		0.04	0.569			0.008				0.04
Acenaphthylene	0.002	40	0.012	1.02	0	6000	0.38	POTENTIALLY SUITABLE FOR USE		0.012		0.0425		0.0214		0.06	0.172			0.012				0.06
Anthracene	0.006	40	0.016	8.8	0	37000	1.73	POTENTIALLY SUITABLE FOR USE		0.016		1.43		0.326		0.132	1.49			0.016				0.144
Benz(a)anthracene	0.004	40	0.014	55	2	9.4	9.50	FURTHER ASSESSMENT REQUIRED		0.0477		6.51		1.9		0.563	6.81			0.014				0.764
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.6	8.11	FURTHER ASSESSMENT REQUIRED		0.0462		6.7		1.73		0.547	6.98			0.015				0.814
Benzo(b)fluoranthene	0.005	40	0.015	47.9	3	11	11.37	FURTHER ASSESSMENT REQUIRED		0.0867		8.37		2.89		0.881	10.3			0.015				1.04
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	72	5.81	POTENTIALLY SUITABLE FOR USE		0.0527		4.57		1.15		0.401	5.22			0.024				0.548
Benzo(k)fluoranthene	0.004	40	0.014	17	1	16	3.87	POTENTIALLY SUITABLE FOR USE		0.0289		3.39		0.928		0.391	4.15			0.014				0.383
Chrysene	0.01	40	0.01	42	2	15	7.92	POTENTIALLY SUITABLE FOR USE		0.0532		6.13		1.96		0.647	6.1			0.01				0.793
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED		0.023		0.894		0.343		0.115	1.13			0.023				0.115
Fluoranthene	0.007	40	0.017	46	0	1600	9.54	POTENTIALLY SUITABLE FOR USE		0.064		11.3		2.35		1.25	10.7			0.017				1.51
Fluorene	0.01	40	0.01	3.6	0	4500	0.86	POTENTIALLY SUITABLE FOR USE		0.01		0.369		0.119		0.05	0.402			0.01				0.05
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.7	6.00	POTENTIALLY SUITABLE FOR USE		0.0545		5.03		1.29		0.458	5.49			0.018				0.547
Naphthalene	0.009	40	0.009	3.8	0	13	0.91	POTENTIALLY SUITABLE FOR USE		0.0365		0.29		0.154		0.107	0.577			0.009				0.045
Phenanthrene	0.005	40	0.015	35	0	1500	6.24	POTENTIALLY SUITABLE FOR USE		0.0535		5.96		1.37		0.714	5.78			0.015				0.603
Pyrene	0.005	40	0.015	41	0	3800	8.58	POTENTIALLY SUITABLE FOR USE		0.0565		10.2		1.97		1.1	9.29			0.015				1.31
Asbestos identified	Y/N								N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y
FOC (dimensionless)	0.034092	**(mean)**																						
SOM (calculated)	5.97%	**(mean)**																						
pH (su)	8.3	**(mean)**								9.17		8.41		7.97		8.27	8.03			8.19				8.68

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP126	TP127	TP128	TP129	TP130	TP131	TP132	TP133	TP134	WS101	WS103	WS104	WS105	WS106	WS107	WS115
									0.25	0.25	0.25	0.5	0.3	0.3	0.3	0.2	0.4	0.7	0.8	0.4	0.3	0.4	0.3	0.6
Arsenic	0.6	40	5.07	96.7	1	40	29.84	POTENTIALLY SUITABLE FOR USE		7.9		7.82		6.58	17.4	14.2	21.4	18.6	25.9	22.9		5.07	10.5	19
Boron	1	40	0.2	2.61	0	11000	1.29	POTENTIALLY SUITABLE FOR USE		1		1		1	1	1.21	1.19	1	1	1		1.39	1	1
Cadmium	0.02	40	0.02	1.6	0	87	0.52	POTENTIALLY SUITABLE FOR USE		0.238		0.431		0.292	0.296	0.0739	0.02	0.02	0.02	0.433		0.0783	0.316	0.02
Copper	1.4	40	7.3	622	0	7300	227.04	POTENTIALLY SUITABLE FOR USE		22.1		24.1		23.6	69.5	73.2	97.1	15.1	622	37.6		16.4	21.2	114
Lead	0.7	40	7.53	460	2	310	175.84	POTENTIALLY SUITABLE FOR USE		42.1		64.1		26.7	84.8	28.8	49.5	7.53	424	128		9.87	25.8	79.8
Mercury, inorganic	0.14	40	0.14	2.4	0	240	0.67	POTENTIALLY SUITABLE FOR USE		0.14		0.14		0.14	0.14	0.14	0.142	0.14	0.317	0.14		0.14	0.14	0.225
Nickel	0.2	40	5.7	84.6	0	180	42.82	POTENTIALLY SUITABLE FOR USE		8.44		11.7		8	25.5	45.3	31.9	38.5	35.3	11.3		35.3	14.3	40.1
Selenium	1	40	1	10	0	600	3.36	POTENTIALLY SUITABLE FOR USE		1		1		1	1	1	1	1	1	1		2.1	1	1
Zinc	1.9	40	37.3	480	0	40000	183.95	POTENTIALLY SUITABLE FOR USE		81.7		78.7		70.1	165	79	47.9	85.2	183	112		37.3	53.2	110
Phenol (total)	0.035	40	0.035	1	0	2300	0.63	POTENTIALLY SUITABLE FOR USE		0.035		0.035		0.035	0.035	0.035	0.035	0.035	0.035	0.035		0.035	0.035	0.035
Acenaphthene	0.008	40	0.008	2.8	0	6000	0.64	POTENTIALLY SUITABLE FOR USE		0.147		1.74		0.156	0.04	0.008	0.0398	0.249	0.0416	0.08		0.04	0.4	0.113
Acenaphthylene	0.002	40	0.012	1.02	0	6000	0.38	POTENTIALLY SUITABLE FOR USE		0.788		1.02		0.138	0.06	0.012	0.0491	0.184	0.0739	0.233		0.06	0.6	0.06
Anthracene	0.006	40	0.016	8.8	0	37000	1.73	POTENTIALLY SUITABLE FOR USE		0.6		3.59		0.752	0.29	0.0685	0.149	0.085	0.146	0.396		0.08	0.8	0.329
Benz(a)anthracene	0.004	40	0.014	55	2	9.4	9.50	FURTHER ASSESSMENT REQUIRED		3.63		18.2		2.17	0.431	0.0869	0.548	0.0462	0.409	2.62		0.224	1.86	1.35
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.6	8.11	FURTHER ASSESSMENT REQUIRED		4.56		33.5		2.44	0.304	0.0473	0.498	0.0454	0.374	2.07		0.259	2.8	1.43
Benzo(b)fluoranthene	0.005	40	0.015	47.9	3	11	11.37	FURTHER ASSESSMENT REQUIRED		6.38		47.9		3.71	0.693	0.173	0.956	0.0495	0.565	3.44		0.398	4.46	2.2
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	72	5.81	POTENTIALLY SUITABLE FOR USE		3.59		28.9		2	0.448	0.0853	0.355	0.0303	0.228	1.4		0.224	2.94	1.04
Benzo(k)fluoranthene	0.004	40	0.014	17	1	16	3.87	POTENTIALLY SUITABLE FOR USE		2.08		13.6		1.38	0.213	0.0355	0.21	0.0194	0.221	1.11		0.144	1.29	0.805
Chrysene	0.01	40	0.01	42	2	15	7.92	POTENTIALLY SUITABLE FOR USE		3.57		20.3		2.05	0.53	0.114	0.628	0.0725	0.444	2.5		0.267	1.66	1.31
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED		0.714		6.24		0.457	0.115	0.023	0.101	0.023	0.0471	0.331		0.115	1.15	0.19
Fluoranthene	0.007	40	0.017	46	0	1600	9.54	POTENTIALLY SUITABLE FOR USE		4.8		23.1		3.2	0.577	0.117	0.981	0.264	0.802	4.4		0.479	3.15	2.1
Fluorene	0.01	40	0.01	3.6	0	4500	0.86	POTENTIALLY SUITABLE FOR USE		0.201		1.68		0.117	0.111	0.018	0.0427	1.36	0.0987	0.1		0.05	0.5	0.085
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.7	6.00	POTENTIALLY SUITABLE FOR USE		3.63		29		2.32	0.369	0.0797	0.41	0.0263	0.283	1.41		0.228	3.24	1.19
Naphthalene	0.009	40	0.009	3.8	0	13	0.91	POTENTIALLY SUITABLE FOR USE		0.045		0.128		0.22	0.768	0.108	0.0609	0.155	0.124	0.09		0.045	0.45	0.148
Phenanthrene	0.005	40	0.015	35	0	1500	6.24	POTENTIALLY SUITABLE FOR USE		0.925		6.74		1.63	0.614	0.179	0.447	2.48	0.65	1.88		0.341	1.34	1.18
Pyrene	0.005	40	0.015	41	0	3800	8.58	POTENTIALLY SUITABLE FOR USE		4.54		20.5		2.82	0.627	0.106	1.01	0.256	0.657	3.5		0.411	3.79	1.79
Asbestos identified	Y/N								N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**																						
SOM (calculated)	5.97%	**(mean)**																						
pH (su)	8.3	**(mean)**								8.97		8.79		8.58	7.99	7.77	8.4	8.19	8.14	8.9		9.1	8.52	8.2

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test												
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	NAT	MG	MG	MG
								Location & Depth	TP201	TP203	TP205	TP206	TP209	TP210	TP211	TP213	TP216	TP221	CPT 201	CPT 206
									0.40	0.20	0.40	0.10	0.30	0.30	0.50	0.20	0.50	0.20	0.30	0.30
Arsenic	0.6	40	5.07	96.7	1	40	29.84	POTENTIALLY SUITABLE FOR USE	18	6.6	19	9.9	24	33	14	24	19	16	18	27
Boron	1	40	0.2	2.61	0	11000	1.29	POTENTIALLY SUITABLE FOR USE	0.6	0.4	0.3	0.8	0.5	0.2	0.2	0.3	0.7	0.3	0.2	0.2
Cadmium	0.02	40	0.02	1.6	0	87	0.52	POTENTIALLY SUITABLE FOR USE	1.6	0.9	0.8	0.4	0.2	0.2	0.7	0.2	0.2	0.2	0.2	0.2
Copper	1.4	40	7.3	622	0	7300	227.04	POTENTIALLY SUITABLE FOR USE	180	23	92	42	380	460	71	150	38	99	94	7.3
Lead	0.7	40	7.53	460	2	310	175.84	POTENTIALLY SUITABLE FOR USE	210	100	76	27	280	460	61	95	38	55	53	23
Mercury, inorganic	0.14	40	0.14	2.4	0	240	0.67	POTENTIALLY SUITABLE FOR USE	2.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nickel	0.2	40	5.7	84.6	0	180	42.82	POTENTIALLY SUITABLE FOR USE	32	7.4	20	22	28	63	24	40	21	39	25	7.6
Selenium	1	40	1	10	0	600	3.36	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1
Zinc	1.9	40	37.3	480	0	40000	183.95	POTENTIALLY SUITABLE FOR USE	480	110	84	88	250	170	110	100	69	60	66	160
Phenol (total)	0.035	40	0.035	1	0	2300	0.63	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1
Acenaphthene	0.008	40	0.008	2.8	0	6000	0.64	POTENTIALLY SUITABLE FOR USE	0.48	0.05	0.05	0.05	0.27	0.05	0.23	0.05	0.05	0.22	2.8	0.05
Acenaphthylene	0.002	40	0.012	1.02	0	6000	0.38	POTENTIALLY SUITABLE FOR USE	0.29	0.05	0.05	0.05	0.55	0.38	0.61	0.05	0.05	0.76	0.34	0.05
Anthracene	0.006	40	0.016	8.8	0	37000	1.73	POTENTIALLY SUITABLE FOR USE	1	0.05	0.24	0.37	1.2	0.38	1	0.44	0.05	0.9	8.8	0.05
Benz(a)anthracene	0.004	40	0.014	55	2	9.4	9.50	FURTHER ASSESSMENT REQUIRED	5.3	0.05	0.05	0.81	1.6	1.1	3.1	1.3	0.37	3.7	55	0.05
Benzo(a)pyrene	0.005	40	0.015	33.5	13	1.6	8.11	FURTHER ASSESSMENT REQUIRED	3.5	0.05	0.05	0.37	0.99	0.7	1.8	0.76	0.05	1.8	32	0.05
Benzo(b)fluoranthene	0.005	40	0.015	47.9	3	11	11.37	FURTHER ASSESSMENT REQUIRED	4.9	0.05	0.05	0.97	1.8	0.98	2.6	1.3	0.3	2.5	44	0.05
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	72	5.81	POTENTIALLY SUITABLE FOR USE	2.4	0.05	0.05	0.39	0.68	0.62	0.97	0.77	0.05	0.82	16	0.05
Benzo(k)fluoranthene	0.004	40	0.014	17	1	16	3.87	POTENTIALLY SUITABLE FOR USE	2.3	0.05	0.05	0.28	0.55	0.5	1.1	0.44	0.11	1.3	17	0.05
Chrysene	0.01	40	0.01	42	2	15	7.92	POTENTIALLY SUITABLE FOR USE	4.2	0.05	0.05	0.79	1.7	1.1	2.6	1.2	0.3	3.1	42	0.05
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	1.4	1.53	FURTHER ASSESSMENT REQUIRED	0.97	0.05	0.05	0.05	0.21	0.05	0.38	0.05	0.05	0.36	6.5	0.05
Fluoranthene	0.007	40	0.017	46	0	1600	9.54	POTENTIALLY SUITABLE FOR USE	5.4	0.05	0.23	1.1	3.1	1.2	4.1	1.6	0.44	5.1	46	0.3
Fluorene	0.01	40	0.01	3.6	0	4500	0.86	POTENTIALLY SUITABLE FOR USE	0.84	0.05	0.43	0.05	0.44	0.33	0.33	0.38	0.05	0.43	3.6	0.22
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	6.7	6.00	POTENTIALLY SUITABLE FOR USE	2.4	0.05	0.05	0.35	0.65	0.65	1.1	0.63	0.05	0.92	16	0.05
Naphthalene	0.009	40	0.009	3.8	0	13	0.91	POTENTIALLY SUITABLE FOR USE	0.63	0.05	2.8	0.05	0.62	1.6	0.53	0.57	0.05	0.05	3.8	0.05
Phenanthrene	0.005	40	0.015	35	0	1500	6.24	POTENTIALLY SUITABLE FOR USE	3.4	0.05	1.6	0.58	2.1	1.6	2.2	1.4	0.35	2.5	35	0.4
Pyrene	0.005	40	0.015	41	0	3800	8.58	POTENTIALLY SUITABLE FOR USE	4.8	0.05	0.26	1	2.9	1.1	3.3	1.5	0.51	4.3	41	0.26
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**							0.041	0.022	0.03	0.044	0.03	0.053	0.029	0.048	0.0016	0.039	0.066	0.0055
SOM (calculated)	5.97%	**(mean)**									5.17%	7.59%	5.17%	9.14%	5.00%	8.28%	0.28%	6.72%	11.38%	0.95%
pH (su)	8.3	**(mean)**							8.2	8.3	8.3	8.2	8.4	8.1	8.4	7.9	8.4	7.8	8.7	8.8

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP101	TP103	TP103	TP104	TP105	TP106	TP107	TP108	TP108	TP109	TP110	TP112	TP112	TP113	TP113
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.4**	**0.15**	**0.6**	**0.4**	**0.5**	**0.4**	**0.1**	**0.3**	**0.7**	**0.3**	**0.3**	**0.4**	**0.9**	**0.1**	**0.6**
Arsenic	0.6	40	5.07	96.7	0	250	7.6		16.8	25.1	14.2	15.1			32.5	96.7			29.5		24.1
Boron	1	40	0.2	2.61	0	3	1		1	1	1.36	1			1.08	1			1		1
Chromium (III)	1	12	6.8	25	0	400															
Chromium (VI)	0	12	1.2	1.2	0	25															
Copper	1.4	40	7.3	622	8	200	19.2		54.6	50.4	51	102			183	242			218		188
Nickel	0.2	40	5.7	84.6	0	110	5.7		21.9	30.2	23.6	33.6			57.8	84.6			71.6		28.4
Zinc	1.9	40	37.3	480	2	300	62.1		78	94.1	140	69.8			86.4	149			92.9		106
	Mean																				
pH (su)	8.3						8.97		7.9	7.45	7.41	8.23			8.5	8.01			8.13		8.14

Risk parameter: **Plant life pH >7**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP115	TP116	TP118	TP118	TP119	TP119	TP120	TP120	TP120A	TP120A (PF	TP121	TP121	TP122	TP123	TP124	TP125	TP126	TP127	TP128
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.1**	**0.4**	**0.25**	**0.35**	**0.3**	**0.6**	**0.2**	**0.4**	**0.6**	**0.6**	**0.3**	**0.6**	**0.2**	**0.25**	**0.2**	**0.25**	**0.25**	**0.25**	**0.25**
Arsenic	0.6	40	5.07	96.7	0	250		7.71		13.2		25.7		24.5	24.7			20.4				8.42		7.9	
Boron	1	40	0.2	2.61	0	3		1		1		2.61		2.24	1.93			1				1		1	
Chromium (III)	1	12	6.8	25	0	400																			
Chromium (VI)	0	12	1.2	1.2	0	25																			
Copper	1.4	40	7.3	622	8	200		23.9		82.3		235		426	397			26.2				8.67		22.1	
Nickel	0.2	40	5.7	84.6	0	110		8.3		27.1		64.3		29.7	42.2			28.9				9.12		8.44	
Zinc	1.9	40	37.3	480	2	300		62.8		61.1		143		134	465			91.4				125		81.7	
	Mean																								
pH (su)	8.3							9.17		8.41		7.97		8.27	8.03			8.19				8.68		8.97	

Risk parameter: Plant life pH >7
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP129	TP130	TP131	TP132	TP133	TP134	WS101	WS103	WS104	WS105	WS106	WS107	WS115	TP201	TP203	TP205	TP206	TP209	TP210
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.5**	**0.3**	**0.3**	**0.3**	**0.2**	**0.4**	**0.7**	**0.8**	**0.4**	**0.3**	**0.4**	**0.3**	**0.6**	**0.40**	**0.20**	**0.40**	**0.10**	**0.30**	**0.30**
Arsenic	0.6	40	5.07	96.7	0	250	7.82		6.58	17.4	14.2	21.4	18.6	25.9	22.9		5.07	10.5	19	18	6.6	19	9.9	24	33
Boron	1	40	0.2	2.61	0	3	1		1	1	1.21	1.19	1	1	1		1.39	1	1	0.6	0.4	0.3	0.8	0.5	0.2
Chromium (III)	1	12	6.8	25	0	400														25	16	15	18	23	17
Chromium (VI)	0	12	1.2	1.2	0	25														1.2	1.2	1.2	1.2	1.2	1.2
Copper	1.4	40	7.3	622	8	200	24.1		23.6	69.5	73.2	97.1	15.1	622	37.6		16.4	21.2	114	180	23	92	42	380	460
Nickel	0.2	40	5.7	84.6	0	110	11.7		8	25.5	45.3	31.9	38.5	35.3	11.3		35.3	14.3	40.1	32	7.4	20	22	28	63
Zinc	1.9	40	37.3	480	2	300	78.7		70.1	165	79	47.9	85.2	183	112		37.3	53.2	110	480	110	84	88	250	170
	Mean																								
pH (su)	8.3						8.79		8.58	7.99	7.77	8.4	8.19	8.14	8.9		9.1	8.52	8.2	8.2	8.3	8.3	8.2	8.4	8.1

Risk parameter: **Plant life pH >7**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	MG	MG	NAT	MG	MG	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP211	TP213	TP216	TP221	CPT 201	CPT 206
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.50**	**0.20**	**0.50**	**0.20**	**0.30**	**0.30**
Arsenic	0.6	40	5.07	96.7	0	250	14	24	19	16	18	27
Boron	1	40	0.2	2.61	0	3	0.2	0.3	0.7	0.3	0.2	0.2
Chromium (III)	1	12	6.8	25	0	400	20	20	18	21	15	6.8
Chromium (VI)	0	12	1.2	1.2	0	25	1.2	1.2	1.2	1.2	1.2	1.2
Copper	1.4	40	7.3	622	8	200	71	150	38	99	94	7.3
Nickel	0.2	40	5.7	84.6	0	110	24	40	21	39	25	7.6
Zinc	1.9	40	37.3	480	2	300	110	100	69	60	66	160
	Mean											
pH (su)	8.3						8.4	7.9	8.4	7.8	8.7	8.8

Risk parameter: **Plant life pH >7**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP101	TP103	TP103	TP104	TP105	TP106	TP107	TP108	TP108	TP109	TP110	TP112	TP112	TP113	TP113
									0.4	0.15	0.6	0.4	0.5	0.4	0.1	0.3	0.7	0.3	0.3	0.4	0.9	0.1	0.6
Arsenic	0.6	40	5.07	96.7	1	79	29.84	POTENTIALLY SUITABLE FOR USE	7.6		16.8	25.1	14.2	15.1			32.5	96.7			29.5		24.1
Boron	1	40	0.2	2.61	0	21000	1.29	POTENTIALLY SUITABLE FOR USE	1		1	1	1.36	1			1.08	1			1		1
Cadmium	0.02	40	0.02	1.6	0	120	0.52	POTENTIALLY SUITABLE FOR USE	0.279		0.185	0.2	0.598	0.48			0.02	0.206			0.2		0.0347
Copper	1.4	40	7.3	622	0	12000	227.04	POTENTIALLY SUITABLE FOR USE	19.2		54.6	50.4	51	102			183	242			218		188
Lead	0.7	40	7.53	460	0	630	175.84	POTENTIALLY SUITABLE FOR USE	27.7		68.3	42	89.2	57.6			125	248			119		63.3
Mercury, inorganic	0.14	40	0.14	2.4	0	470	0.67	POTENTIALLY SUITABLE FOR USE	0.14		0.14	1.4	0.14	0.14			0.196	1.4			1.4		0.333
Nickel	0.2	40	5.7	84.6	0	290	42.82	POTENTIALLY SUITABLE FOR USE	5.7		21.9	30.2	23.6	33.6			57.8	84.6			71.6		28.4
Selenium	1	40	1	10	0	1400	3.36	POTENTIALLY SUITABLE FOR USE	1		1	10	1	1			1	10			10		1
Zinc	1.9	40	37.3	480	0	81000	183.95	POTENTIALLY SUITABLE FOR USE	62.1		78	94.1	140	69.8			86.4	149			92.9		106
Phenol (total)	0.035	40	0.035	1	0	3200	0.63	POTENTIALLY SUITABLE FOR USE	0.035		0.046	0.035	0.035	0.035			0.035	0.035			0.035		0.0928
Acenaphthene	0.008	40	0.008	2.8	0	15000	0.64	POTENTIALLY SUITABLE FOR USE	0.008		0.501	0.0121	0.904	0.112			0.0151	0.185			0.0161		0.135
Acenaphthylene	0.002	40	0.012	1.02	0	15000	0.38	POTENTIALLY SUITABLE FOR USE	0.012		0.561	0.012	0.284	0.024			0.0602	0.129			0.0328		0.012
Anthracene	0.006	40	0.016	8.8	0	74000	1.73	POTENTIALLY SUITABLE FOR USE	0.016		1.8	0.016	0.016	0.281			0.0967	0.475			0.128		0.133
Benz(a)anthracene	0.004	40	0.014	55	2	18	9.50	POTENTIALLY SUITABLE FOR USE	0.014		7.69	0.101	0.014	1.14			0.486	0.866			0.367		0.349
Benzo(a)pyrene	0.005	40	0.015	33.5	8	2.6	8.11	FURTHER ASSESSMENT REQUIRED	0.015		12.4	0.0849	0.015	1.06			0.403	0.787			0.313		0.357
Benzo(b)fluoranthene	0.005	40	0.015	47.9	2	18	11.37	POTENTIALLY SUITABLE FOR USE	0.015		15.1	0.143	0.0348	1.72			0.622	1.73			0.773		0.58
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	120	5.81	POTENTIALLY SUITABLE FOR USE	0.024		9.02	0.0546	0.024	0.816			0.222	1.18			0.285		0.343
Benzo(k)fluoranthene	0.004	40	0.014	17	0	26	3.87	POTENTIALLY SUITABLE FOR USE	0.014		4.71	0.0459	0.014	0.54			0.168	0.506			0.219		0.222
Chrysene	0.01	40	0.01	42	1	26	7.92	POTENTIALLY SUITABLE FOR USE	0.01		7.48	0.106	0.01	1.11			0.535	1.01			0.435		0.328
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	2.32	1.53	POTENTIALLY SUITABLE FOR USE	0.023		1.29	0.023	0.023	0.165			0.0727	0.195			0.0691		0.0703
Fluoranthene	0.007	40	0.017	46	0	3100	9.54	POTENTIALLY SUITABLE FOR USE	0.017		11.6	0.189	0.241	2.18			0.709	1.46			0.504		0.65
Fluorene	0.01	40	0.01	3.6	0	9900	0.86	POTENTIALLY SUITABLE FOR USE	0.01		0.812	0.0352	1.8	0.0907			0.0353	0.399			0.0361		0.0603
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	11	6.00	POTENTIALLY SUITABLE FOR USE	0.018		11.3	0.0746	0.018	0.958			0.258	1.34			0.274		0.331
Naphthalene	0.009	40	0.009	3.8	0	4200	0.91	POTENTIALLY SUITABLE FOR USE	0.009		0.246	0.0107	0.308	0.187			0.0531	0.366			0.13		0.137
Phenanthrene	0.005	40	0.015	35	0	3100	6.24	POTENTIALLY SUITABLE FOR USE	0.015		5.04	0.0858	2.88	1.69			0.336	1.66			0.338		0.359
Pyrene	0.005	40	0.015	41	0	7400	8.58	POTENTIALLY SUITABLE FOR USE	0.015		12.2	0.142	0.441	1.8			0.623	1.24			0.476		0.513
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**																					
SOM (calculated)	5.97%	**(mean)**																					
pH (su)	8.3	**(mean)**							8.97		7.9	7.45	7.41	8.23			8.5	8.01			8.13		8.14

Risk parameter: Human health - POS resi (6%SOM)
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP115	TP116	TP118	TP118	TP119	TP119	TP120	TP120	TP120A	TP120A (PF	TP121	TP121	TP122	TP123	TP124	TP125
									0.1	0.4	0.25	0.35	0.3	0.6	0.2	0.4	0.6	0.6	0.3	0.6	0.2	0.25	0.2	0.25
Arsenic	0.6	40	5.07	96.7	1	79	29.84	POTENTIALLY SUITABLE FOR USE		7.71		13.2		25.7		24.5	24.7			20.4				8.42
Boron	1	40	0.2	2.61	0	21000	1.29	POTENTIALLY SUITABLE FOR USE		1		1		2.61		2.24	1.93			1				1
Cadmium	0.02	40	0.02	1.6	0	120	0.52	POTENTIALLY SUITABLE FOR USE		0.2		0.372		0.123		0.377	0.814			0.02				0.224
Copper	1.4	40	7.3	622	0	12000	227.04	POTENTIALLY SUITABLE FOR USE		23.9		82.3		235		426	397			26.2				8.67
Lead	0.7	40	7.53	460	0	630	175.84	POTENTIALLY SUITABLE FOR USE		29.4		34.8		144		273	237			31.5				52.2
Mercury, inorganic	0.14	40	0.14	2.4	0	470	0.67	POTENTIALLY SUITABLE FOR USE		0.14		0.14		0.21		0.14	0.245			0.241				0.14
Nickel	0.2	40	5.7	84.6	0	290	42.82	POTENTIALLY SUITABLE FOR USE		8.3		27.1		64.3		29.7	42.2			28.9				9.12
Selenium	1	40	1	10	0	1400	3.36	POTENTIALLY SUITABLE FOR USE		1		1		1		1	1			1				1
Zinc	1.9	40	37.3	480	0	81000	183.95	POTENTIALLY SUITABLE FOR USE		62.8		61.1		143		134	465			91.4				125
Phenol (total)	0.035	40	0.035	1	0	3200	0.63	POTENTIALLY SUITABLE FOR USE		0.035		0.035		0.035		0.035	0.035			0.035				0.035
Acenaphthene	0.008	40	0.008	2.8	0	15000	0.64	POTENTIALLY SUITABLE FOR USE		0.008		0.87		0.113		0.04	0.569			0.008				0.04
Acenaphthylene	0.002	40	0.012	1.02	0	15000	0.38	POTENTIALLY SUITABLE FOR USE		0.012		0.0425		0.0214		0.06	0.172			0.012				0.06
Anthracene	0.006	40	0.016	8.8	0	74000	1.73	POTENTIALLY SUITABLE FOR USE		0.016		1.43		0.326		0.132	1.49			0.016				0.144
Benz(a)anthracene	0.004	40	0.014	55	2	18	9.50	POTENTIALLY SUITABLE FOR USE		0.0477		6.51		1.9		0.563	6.81			0.014				0.764
Benzo(a)pyrene	0.005	40	0.015	33.5	8	2.6	8.11	FURTHER ASSESSMENT REQUIRED		0.0462		6.7		1.73		0.547	6.98			0.015				0.814
Benzo(b)fluoranthene	0.005	40	0.015	47.9	2	18	11.37	POTENTIALLY SUITABLE FOR USE		0.0867		8.37		2.89		0.881	10.3			0.015				1.04
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	120	5.81	POTENTIALLY SUITABLE FOR USE		0.0527		4.57		1.15		0.401	5.22			0.024				0.548
Benzo(k)fluoranthene	0.004	40	0.014	17	0	26	3.87	POTENTIALLY SUITABLE FOR USE		0.0289		3.39		0.928		0.391	4.15			0.014				0.383
Chrysene	0.01	40	0.01	42	1	26	7.92	POTENTIALLY SUITABLE FOR USE		0.0532		6.13		1.96		0.647	6.1			0.01				0.793
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	2.32	1.53	POTENTIALLY SUITABLE FOR USE		0.023		0.894		0.343		0.115	1.13			0.023				0.115
Fluoranthene	0.007	40	0.017	46	0	3100	9.54	POTENTIALLY SUITABLE FOR USE		0.064		11.3		2.35		1.25	10.7			0.017				1.51
Fluorene	0.01	40	0.01	3.6	0	9900	0.86	POTENTIALLY SUITABLE FOR USE		0.01		0.369		0.119		0.05	0.402			0.01				0.05
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	11	6.00	POTENTIALLY SUITABLE FOR USE		0.0545		5.03		1.29		0.458	5.49			0.018				0.547
Naphthalene	0.009	40	0.009	3.8	0	4200	0.91	POTENTIALLY SUITABLE FOR USE		0.0365		0.29		0.154		0.107	0.577			0.009				0.045
Phenanthrene	0.005	40	0.015	35	0	3100	6.24	POTENTIALLY SUITABLE FOR USE		0.0535		5.96		1.37		0.714	5.78			0.015				0.603
Pyrene	0.005	40	0.015	41	0	7400	8.58	POTENTIALLY SUITABLE FOR USE		0.0565		10.2		1.97		1.1	9.29			0.015				1.31
Asbestos identified	Y/N								N	N	N	N	N	N	N	Y	N	Y	N	N	N	N	N	Y
FOC (dimensionless)	0.034092	**(mean)**																						
SOM (calculated)	5.97%	**(mean)**																						
pH (su)	8.3	**(mean)**								9.17		8.41		7.97		8.27	8.03			8.19				8.68

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test																
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP126	TP127	TP128	TP129	TP130	TP131	TP132	TP133	TP134	WS101	WS103	WS104	WS105	WS106	WS107	WS115
									0.25	0.25	0.25	0.5	0.3	0.3	0.3	0.2	0.4	0.7	0.8	0.4	0.3	0.4	0.3	0.6
Arsenic	0.6	40	5.07	96.7	1	79	29.84	POTENTIALLY SUITABLE FOR USE		7.9		7.82		6.58	17.4	14.2	21.4	18.6	25.9	22.9		5.07	10.5	19
Boron	1	40	0.2	2.61	0	21000	1.29	POTENTIALLY SUITABLE FOR USE		1		1		1	1	1.21	1.19	1	1	1		1.39	1	1
Cadmium	0.02	40	0.02	1.6	0	120	0.52	POTENTIALLY SUITABLE FOR USE		0.238		0.431		0.292	0.296	0.0739	0.02	0.02	0.02	0.433		0.0783	0.316	0.02
Copper	1.4	40	7.3	622	0	12000	227.04	POTENTIALLY SUITABLE FOR USE		22.1		24.1		23.6	69.5	73.2	97.1	15.1	622	37.6		16.4	21.2	114
Lead	0.7	40	7.53	460	0	630	175.84	POTENTIALLY SUITABLE FOR USE		42.1		64.1		26.7	84.8	28.8	49.5	7.53	424	128		9.87	25.8	79.8
Mercury, inorganic	0.14	40	0.14	2.4	0	470	0.67	POTENTIALLY SUITABLE FOR USE		0.14		0.14		0.14	0.14	0.14	0.142	0.14	0.317	0.14		0.14	0.14	0.225
Nickel	0.2	40	5.7	84.6	0	290	42.82	POTENTIALLY SUITABLE FOR USE		8.44		11.7		8	25.5	45.3	31.9	38.5	35.3	11.3		35.3	14.3	40.1
Selenium	1	40	1	10	0	1400	3.36	POTENTIALLY SUITABLE FOR USE		1		1		1	1	1	1	1	1	1		2.1	1	1
Zinc	1.9	40	37.3	480	0	81000	183.95	POTENTIALLY SUITABLE FOR USE		81.7		78.7		70.1	165	79	47.9	85.2	183	112		37.3	53.2	110
Phenol (total)	0.035	40	0.035	1	0	3200	0.63	POTENTIALLY SUITABLE FOR USE		0.035		0.035		0.035	0.035	0.035	0.035	0.035	0.035	0.035		0.035	0.035	0.035
Acenaphthene	0.008	40	0.008	2.8	0	15000	0.64	POTENTIALLY SUITABLE FOR USE		0.147		1.74		0.156	0.04	0.008	0.0398	0.249	0.0416	0.08		0.04	0.4	0.113
Acenaphthylene	0.002	40	0.012	1.02	0	15000	0.38	POTENTIALLY SUITABLE FOR USE		0.788		1.02		0.138	0.06	0.012	0.0491	0.184	0.0739	0.233		0.06	0.6	0.06
Anthracene	0.006	40	0.016	8.8	0	74000	1.73	POTENTIALLY SUITABLE FOR USE		0.6		3.59		0.752	0.29	0.0685	0.149	0.085	0.146	0.396		0.08	0.8	0.329
Benz(a)anthracene	0.004	40	0.014	55	2	18	9.50	POTENTIALLY SUITABLE FOR USE		3.63		18.2		2.17	0.431	0.0869	0.548	0.0462	0.409	2.62		0.224	1.86	1.35
Benzo(a)pyrene	0.005	40	0.015	33.5	8	2.6	8.11	FURTHER ASSESSMENT REQUIRED		4.56		33.5		2.44	0.304	0.0473	0.498	0.0454	0.374	2.07		0.259	2.8	1.43
Benzo(b)fluoranthene	0.005	40	0.015	47.9	2	18	11.37	POTENTIALLY SUITABLE FOR USE		6.38		47.9		3.71	0.693	0.173	0.956	0.0495	0.565	3.44		0.398	4.46	2.2
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	120	5.81	POTENTIALLY SUITABLE FOR USE		3.59		28.9		2	0.448	0.0853	0.355	0.0303	0.228	1.4		0.224	2.94	1.04
Benzo(k)fluoranthene	0.004	40	0.014	17	0	26	3.87	POTENTIALLY SUITABLE FOR USE		2.08		13.6		1.38	0.213	0.0355	0.21	0.0194	0.221	1.11		0.144	1.29	0.805
Chrysene	0.01	40	0.01	42	1	26	7.92	POTENTIALLY SUITABLE FOR USE		3.57		20.3		2.05	0.53	0.114	0.628	0.0725	0.444	2.5		0.267	1.66	1.31
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	2.32	1.53	POTENTIALLY SUITABLE FOR USE		0.714		6.24		0.457	0.115	0.023	0.101	0.023	0.0471	0.331		0.115	1.15	0.19
Fluoranthene	0.007	40	0.017	46	0	3100	9.54	POTENTIALLY SUITABLE FOR USE		4.8		23.1		3.2	0.577	0.117	0.981	0.264	0.802	4.4		0.479	3.15	2.1
Fluorene	0.01	40	0.01	3.6	0	9900	0.86	POTENTIALLY SUITABLE FOR USE		0.201		1.68		0.117	0.111	0.018	0.0427	1.36	0.0987	0.1		0.05	0.5	0.085
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	11	6.00	POTENTIALLY SUITABLE FOR USE		3.63		29		2.32	0.369	0.0797	0.41	0.0263	0.283	1.41		0.228	3.24	1.19
Naphthalene	0.009	40	0.009	3.8	0	4200	0.91	POTENTIALLY SUITABLE FOR USE		0.045		0.128		0.22	0.768	0.108	0.0609	0.155	0.124	0.09		0.045	0.45	0.148
Phenanthrene	0.005	40	0.015	35	0	3100	6.24	POTENTIALLY SUITABLE FOR USE		0.925		6.74		1.63	0.614	0.179	0.447	2.48	0.65	1.88		0.341	1.34	1.18
Pyrene	0.005	40	0.015	41	0	7400	8.58	POTENTIALLY SUITABLE FOR USE		4.54		20.5		2.82	0.627	0.106	1.01	0.256	0.657	3.5		0.411	3.79	1.79
Asbestos identified	Y/N								N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**																						
SOM (calculated)	5.97%	**(mean)**																						
pH (su)	8.3	**(mean)**								8.97		8.79		8.58	7.99	7.77	8.4	8.19	8.14	8.9		9.1	8.52	8.2

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test												
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	NAT	MG	MG	MG
								Location & Depth	TP201	TP203	TP205	TP206	TP209	TP210	TP211	TP213	TP216	TP221	CPT 201	CPT 206
									0.40	0.20	0.40	0.10	0.30	0.30	0.50	0.20	0.50	0.20	0.30	0.30
Arsenic	0.6	40	5.07	96.7	1	79	29.84	POTENTIALLY SUITABLE FOR USE	18	6.6	19	9.9	24	33	14	24	19	16	18	27
Boron	1	40	0.2	2.61	0	21000	1.29	POTENTIALLY SUITABLE FOR USE	0.6	0.4	0.3	0.8	0.5	0.2	0.2	0.3	0.7	0.3	0.2	0.2
Cadmium	0.02	40	0.02	1.6	0	120	0.52	POTENTIALLY SUITABLE FOR USE	1.6	0.9	0.8	0.4	0.2	0.2	0.7	0.2	0.2	0.2	0.2	0.2
Copper	1.4	40	7.3	622	0	12000	227.04	POTENTIALLY SUITABLE FOR USE	180	23	92	42	380	460	71	150	38	99	94	7.3
Lead	0.7	40	7.53	460	0	630	175.84	POTENTIALLY SUITABLE FOR USE	210	100	76	27	280	460	61	95	38	55	53	23
Mercury, inorganic	0.14	40	0.14	2.4	0	470	0.67	POTENTIALLY SUITABLE FOR USE	2.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Nickel	0.2	40	5.7	84.6	0	290	42.82	POTENTIALLY SUITABLE FOR USE	32	7.4	20	22	28	63	24	40	21	39	25	7.6
Selenium	1	40	1	10	0	1400	3.36	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1
Zinc	1.9	40	37.3	480	0	81000	183.95	POTENTIALLY SUITABLE FOR USE	480	110	84	88	250	170	110	100	69	60	66	160
Phenol (total)	0.035	40	0.035	1	0	3200	0.63	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1
Acenaphthene	0.008	40	0.008	2.8	0	15000	0.64	POTENTIALLY SUITABLE FOR USE	0.48	0.05	0.05	0.05	0.27	0.05	0.23	0.05	0.05	0.22	2.8	0.05
Acenaphthylene	0.002	40	0.012	1.02	0	15000	0.38	POTENTIALLY SUITABLE FOR USE	0.29	0.05	0.05	0.05	0.55	0.38	0.61	0.05	0.05	0.76	0.34	0.05
Anthracene	0.006	40	0.016	8.8	0	74000	1.73	POTENTIALLY SUITABLE FOR USE	1	0.05	0.24	0.37	1.2	0.38	1	0.44	0.05	0.9	8.8	0.05
Benz(a)anthracene	0.004	40	0.014	55	2	18	9.50	POTENTIALLY SUITABLE FOR USE	5.3	0.05	0.05	0.81	1.6	1.1	3.1	1.3	0.37	3.7	55	0.05
Benzo(a)pyrene	0.005	40	0.015	33.5	8	2.6	8.11	FURTHER ASSESSMENT REQUIRED	3.5	0.05	0.05	0.37	0.99	0.7	1.8	0.76	0.05	1.8	32	0.05
Benzo(b)fluoranthene	0.005	40	0.015	47.9	2	18	11.37	POTENTIALLY SUITABLE FOR USE	4.9	0.05	0.05	0.97	1.8	0.98	2.6	1.3	0.3	2.5	44	0.05
Benzo(ghi)perylene	0.024	40	0.024	28.9	0	120	5.81	POTENTIALLY SUITABLE FOR USE	2.4	0.05	0.05	0.39	0.68	0.62	0.97	0.77	0.05	0.82	16	0.05
Benzo(k)fluoranthene	0.004	40	0.014	17	0	26	3.87	POTENTIALLY SUITABLE FOR USE	2.3	0.05	0.05	0.28	0.55	0.5	1.1	0.44	0.11	1.3	17	0.05
Chrysene	0.01	40	0.01	42	1	26	7.92	POTENTIALLY SUITABLE FOR USE	4.2	0.05	0.05	0.79	1.7	1.1	2.6	1.2	0.3	3.1	42	0.05
Dibenz(a,h)anthracene	0.023	40	0.023	6.5	2	2.32	1.53	POTENTIALLY SUITABLE FOR USE	0.97	0.05	0.05	0.05	0.21	0.05	0.38	0.05	0.05	0.36	6.5	0.05
Fluoranthene	0.007	40	0.017	46	0	3100	9.54	POTENTIALLY SUITABLE FOR USE	5.4	0.05	0.23	1.1	3.1	1.2	4.1	1.6	0.44	5.1	46	0.3
Fluorene	0.01	40	0.01	3.6	0	9900	0.86	POTENTIALLY SUITABLE FOR USE	0.84	0.05	0.43	0.05	0.44	0.33	0.33	0.38	0.05	0.43	3.6	0.22
Indeno(1,2,3,cd)pyrene	0.008	40	0.018	29	3	11	6.00	POTENTIALLY SUITABLE FOR USE	2.4	0.05	0.05	0.35	0.65	0.65	1.1	0.63	0.05	0.92	16	0.05
Naphthalene	0.009	40	0.009	3.8	0	4200	0.91	POTENTIALLY SUITABLE FOR USE	0.63	0.05	2.8	0.05	0.62	1.6	0.53	0.57	0.05	0.05	3.8	0.05
Phenanthrene	0.005	40	0.015	35	0	3100	6.24	POTENTIALLY SUITABLE FOR USE	3.4	0.05	1.6	0.58	2.1	1.6	2.2	1.4	0.35	2.5	35	0.4
Pyrene	0.005	40	0.015	41	0	7400	8.58	POTENTIALLY SUITABLE FOR USE	4.8	0.05	0.26	1	2.9	1.1	3.3	1.5	0.51	4.3	41	0.26
Asbestos identified	Y/N								N	N	N	N	N	N	N	N	N	N	N	N
FOC (dimensionless)	0.034092	**(mean)**							0.041	0.022	0.03	0.044	0.03	0.053	0.029	0.048	0.0016	0.039	0.066	0.0055
SOM (calculated)	5.97%	**(mean)**									5.17%	7.59%	5.17%	9.14%	5.00%	8.28%	0.28%	6.72%	11.38%	0.95%
pH (su)	8.3	**(mean)**							8.2	8.3	8.3	8.2	8.4	8.1	8.4	7.9	8.4	7.8	8.7	8.8

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP219
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**
Arsenic	0.6	1	17	17	0	37	17
Boron	1	1	8.2	8.2	0	300	8.2
Cadmium	0.02	1	0.2	0.2	0	14	0.2
Copper	1.4	1	45	45	0	2500	45
Lead	0.7	1	32	32	0	200	32
Mercury, inorganic	0.14	1	0.3	0.3	0	170	0.3
Nickel	0.2	1	22	22	0	130	22
Selenium	1	1	1	1	0	360	1
Zinc	1.9	1	1200	1200	0	3900	1200
Phenol (total)	0.035	1	1.4	1.4	0	1100	1.4
Acenaphthene	0.008	1	0.05	0.05	0	1100	0.05
Acenaphthylene	0.002	1	0.05	0.05	0	940	0.05
Anthracene	0.006	1	5.2	5.2	0	11000	5.2
Benz(a)anthracene	0.004	1	0.05	0.05	0	8.6	0.05
Benzo(a)pyrene	0.005	1	0.05	0.05	0	1.5	0.05
Benzo(b)fluoranthene	0.005	1	0.05	0.05	0	10	0.05
Benzo(ghi)perylene	0.024	1	0.05	0.05	0	71	0.05
Benzo(k)fluoranthene	0.004	1	0.05	0.05	0	15	0.05
Chrysene	0.01	1	0.05	0.05	0	13	0.05
Dibenz(a,h)anthracene	0.023	1	0.05	0.05	0	1.4	0.05
Fluoranthene	0.007	1	1.9	1.9	0	900	1.9
Fluorene	0.01	1	0.05	0.05	0	880	0.05
Indeno(1,2,3,cd)pyrene	0.008	1	0.05	0.05	0	6.2	0.05
Naphthalene	0.009	1	0.05	0.05	0	12	0.05
Phenanthrene	0.005	1	9.3	9.3	0	440	9.3
Pyrene	0.005	1	3.1	3.1	0	2000	3.1
Asbestos identified	Y/N						N
FOC (dimensionless)		**(mean)**					
SOM (calculated)		**(mean)**					
pH (su)	8.4	**(mean)**					8.4

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP219
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**
Arsenic	0.6	1	17	17	0	40	17
Boron	1	1	8.2	8.2	0	11000	8.2
Cadmium	0.02	1	0.2	0.2	0	87	0.2
Copper	1.4	1	45	45	0	7300	45
Lead	0.7	1	32	32	0	310	32
Mercury, inorganic	0.14	1	0.3	0.3	0	240	0.3
Nickel	0.2	1	22	22	0	180	22
Selenium	1	1	1	1	0	600	1
Zinc	1.9	1	1200	1200	0	40000	1200
Phenol (total)	0.035	1	1.4	1.4	0	2300	1.4
Acenaphthene	0.008	1	0.05	0.05	0	6000	0.05
Acenaphthylene	0.002	1	0.05	0.05	0	6000	0.05
Anthracene	0.006	1	5.2	5.2	0	37000	5.2
Benz(a)anthracene	0.004	1	0.05	0.05	0	9.4	0.05
Benzo(a)pyrene	0.005	1	0.05	0.05	0	1.6	0.05
Benzo(b)fluoranthene	0.005	1	0.05	0.05	0	11	0.05
Benzo(ghi)perylene	0.024	1	0.05	0.05	0	72	0.05
Benzo(k)fluoranthene	0.004	1	0.05	0.05	0	16	0.05
Chrysene	0.01	1	0.05	0.05	0	15	0.05
Dibenz(a,h)anthracene	0.023	1	0.05	0.05	0	1.4	0.05
Fluoranthene	0.007	1	1.9	1.9	0	1600	1.9
Fluorene	0.01	1	0.05	0.05	0	4500	0.05
Indeno(1,2,3,cd)pyrene	0.008	1	0.05	0.05	0	6.7	0.05
Naphthalene	0.009	1	0.05	0.05	0	13	0.05
Phenanthrene	0.005	1	9.3	9.3	0	1500	9.3
Pyrene	0.005	1	3.1	3.1	0	3800	3.1
Asbestos identified	Y/N						N
FOC (dimensionless)		**(mean)**					
SOM (calculated)		**(mean)**					
pH (su)	8.4	**(mean)**					8.4

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life

Hydrock

						Soil Type	MG											
All values in mg/kg unless otherwise stated						Location & Depth	TP219											
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**											
Arsenic	0.6	1	17	17	0	250	17											
Boron	1	1	8.2	8.2	1	3	8.2											
Chromium (III)	1	1	17	17	0	400	17											
Chromium (VI)	0	1	1.2	1.2	0	25	1.2											
Copper	1.4	1	45	45	0	200	45											
Nickel	0.2	1	22	22	0	110	22											
Zinc	1.9	1	1200	1200	1	300	1200											
	Mean																	
pH (su)	8.4						8.4											

Risk parameter: **Plant life pH >7**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799-2

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP219
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**
Arsenic	0.6	1	17	17	0	79	17
Boron	1	1	8.2	8.2	0	21000	8.2
Cadmium	0.02	1	0.2	0.2	0	120	0.2
Copper	1.4	1	45	45	0	12000	45
Lead	0.7	1	32	32	0	630	32
Mercury, inorganic	0.14	1	0.3	0.3	0	470	0.3
Nickel	0.2	1	22	22	0	290	22
Selenium	1	1	1	1	0	1400	1
Zinc	1.9	1	1200	1200	0	81000	1200
Phenol (total)	0.035	1	1.4	1.4	0	3200	1.4
Acenaphthene	0.008	1	0.05	0.05	0	15000	0.05
Acenaphthylene	0.002	1	0.05	0.05	0	15000	0.05
Anthracene	0.006	1	5.2	5.2	0	74000	5.2
Benz(a)anthracene	0.004	1	0.05	0.05	0	18	0.05
Benzo(a)pyrene	0.005	1	0.05	0.05	0	2.6	0.05
Benzo(b)fluoranthene	0.005	1	0.05	0.05	0	18	0.05
Benzo(ghi)perylene	0.024	1	0.05	0.05	0	120	0.05
Benzo(k)fluoranthene	0.004	1	0.05	0.05	0	26	0.05
Chrysene	0.01	1	0.05	0.05	0	26	0.05
Dibenz(a,h)anthracene	0.023	1	0.05	0.05	0	2.32	0.05
Fluoranthene	0.007	1	1.9	1.9	0	3100	1.9
Fluorene	0.01	1	0.05	0.05	0	9900	0.05
Indeno(1,2,3,cd)pyrene	0.008	1	0.05	0.05	0	11	0.05
Naphthalene	0.009	1	0.05	0.05	0	4200	0.05
Phenanthrene	0.005	1	9.3	9.3	0	3100	9.3
Pyrene	0.005	1	3.1	3.1	0	7400	3.1
Asbestos identified	Y/N						N
FOC (dimensionless)		**(mean)**					
SOM (calculated)		**(mean)**					
pH (su)	8.4	**(mean)**					8.4

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: TP219
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type			
						All values in mg/kg unless otherwise stated Location & Depth	BH204	BH206	WS203
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	3.00	3.30	3.80
Aliphatics EC5-EC6	0.001	3	0.001	0.001	0	78	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.001	3	0.001	0.001	0	230	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.001	3	0.001	0.001	0	65	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	3	1	3.3	0	120	1	1	3.3
Aliphatics >EC12-EC16	2	3	2	28	0	59	2	2	28
Aliphatics >EC16-EC35	10	3	10	36	0	92000	10	10	36
Aliphatics >EC35-EC44	8.4	3	8.4	8.4	0	92000	8.4	8.4	8.4
Aromatics EC5-EC7	0.001	3	0.001	0.001	0	150	0.001	0.001	0.001
Aromatics >EC7-EC8	0.001	3	0.001	0.001	0	300	0.001	0.001	0.001
Aromatics >EC8-EC10	0.001	3	0.001	0.001	0	84	0.001	0.001	0.001
Aromatics >EC10-EC12	1	3	1	1	0	180	1	1	1
Aromatics >EC12-EC16	2	3	2	14	0	330	2	2	14
Aromatics >EC16-EC21	10	3	10	21	0	550	10	10	21
Aromatics >EC21-EC35	10	3	10	10	0	1500	10	10	10
Aromatics >EC35-EC44	8.4	3	8.4	8.4	0	1500	8.4	8.4	8.4

ADDITIVITY CHECK		HAZARD QUOTIENTS FOR EACH FRACTION		
	Aliphatics EC5-EC6	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.000	0.000
Considered additive	Aliphatics >EC10-EC12	0.008	0.008	0.028
Considered additive	Aliphatics >EC12-EC16	0.034	0.034	0.475
	Aliphatics >EC16-EC35	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.000
Considered additive	Aromatics >EC10-EC12	0.006	0.006	0.006
Considered additive	Aromatics >EC12-EC16	0.006	0.006	0.042
Considered additive	Aromatics >EC16-EC21	0.018	0.018	0.038
Considered additive	Aromatics >EC21-EC35	0.007	0.007	0.007
	Aromatics >EC35-EC44	0.006	0.006	0.006
	Hazard Index for ali>C8-C16	**0.042**	**0.042**	**0.502**
	Hazard Index for aro>C8-C16	**0.012**	**0.012**	**0.048**
	Hazard Index for aro>C16-C35	**0.025**	**0.025**	**0.045**

Risk parameter: **Human health - residential with plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.

Legend: Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type			
						All values in mg/kg unless otherwise stated Location & Depth	BH204	BH206	WS203
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.00**	**3.30**	**3.80**
Aliphatics EC5-EC6	0.001	3	0.001	0.001	0	78	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.001	3	0.001	0.001	0	230	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.001	3	0.001	0.001	0	65	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	3	1	3.3	0	120	1	1	3.3
Aliphatics >EC12-EC16	2	3	2	28	0	59	2	2	28
Aliphatics >EC16-EC35	10	3	10	36	0	93000	10	10	36
Aliphatics >EC35-EC44	8.4	3	8.4	8.4	0	93000	8.4	8.4	8.4
Aromatics EC5-EC7	0.001	3	0.001	0.001	0	690	0.001	0.001	0.001
Aromatics >EC7-EC8	0.001	3	0.001	0.001	0	1800	0.001	0.001	0.001
Aromatics >EC8-EC10	0.001	3	0.001	0.001	0	120	0.001	0.001	0.001
Aromatics >EC10-EC12	1	3	1	1	0	590	1	1	1
Aromatics >EC12-EC16	2	3	2	14	0	2300	2	2	14
Aromatics >EC16-EC21	10	3	10	21	0	1900	10	10	21
Aromatics >EC21-EC35	10	3	10	10	0	1900	10	10	10
Aromatics >EC35-EC44	8.4	3	8.4	8.4	0	1900	8.4	8.4	8.4

	ADDITIVITY CHECK	**HAZARD QUOTIENTS FOR EACH FRACTION**		
	Aliphatics EC5-EC6	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.000	0.000
Considered additive	Aliphatics >EC10-EC12	0.008	0.008	0.028
Considered additive	Aliphatics >EC12-EC16	0.034	0.034	0.475
	Aliphatics >EC16-EC35	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.000
Considered additive	Aromatics >EC10-EC12	0.002	0.002	0.002
Considered additive	Aromatics >EC12-EC16	0.001	0.001	0.006
Considered additive	Aromatics >EC16-EC21	0.005	0.005	0.011
Considered additive	Aromatics >EC21-EC35	0.005	0.005	0.005
	Aromatics >EC35-EC44	0.004	0.004	0.004
	Hazard Index for ali>C8-C16	**0.042**	**0.042**	**0.502**
	Hazard Index for aro>C8-C16	**0.003**	**0.003**	**0.008**
	Hazard Index for aro>C16-C35	**0.011**	**0.011**	**0.016**

Risk parameter: **Human health - residential without plant uptake (2.5%SOM)**
Data set: Charmouth Mudstone Formation - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type			
						All values in mg/kg unless otherwise stated Location & Depth	BH204	BH206	WS203
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**3.00**	**3.30**	**3.80**
Aliphatics EC5-EC6	0.001	3	0.001	0.001	0	590000	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.001	3	0.001	0.001	0	610000	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.001	3	0.001	0.001	0	13000	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	3	1	3.3	0	13000	1	1	3.3
Aliphatics >EC12-EC16	2	3	2	28	0	13000	2	2	28
Aliphatics >EC16-EC35	10	3	10	36	0	250000	10	10	36
Aliphatics >EC35-EC44	8.4	3	8.4	8.4	0	250000	8.4	8.4	8.4
Aromatics EC5-EC7	0.001	3	0.001	0.001	0	56000	0.001	0.001	0.001
Aromatics >EC7-EC8	0.001	3	0.001	0.001	0	56000	0.001	0.001	0.001
Aromatics >EC8-EC10	0.001	3	0.001	0.001	0	5000	0.001	0.001	0.001
Aromatics >EC10-EC12	1	3	1	1	0	5000	1	1	1
Aromatics >EC12-EC16	2	3	2	14	0	5000	2	2	14
Aromatics >EC16-EC21	10	3	10	21	0	3800	10	10	21
Aromatics >EC21-EC35	10	3	10	10	0	3800	10	10	10
Aromatics >EC35-EC44	8.4	3	8.4	8.4	0	3800	8.4	8.4	8.4

	ADDITIVITY CHECK	**HAZARD QUOTIENTS FOR EACH FRACTION**		
	Aliphatics EC5-EC6	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.000	0.000
Considered additive	Aliphatics >EC10-EC12	0.000	0.000	0.000
Considered additive	Aliphatics >EC12-EC16	0.000	0.000	0.002
	Aliphatics >EC16-EC35	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.000
Considered additive	Aromatics >EC10-EC12	0.000	0.000	0.000
Considered additive	Aromatics >EC12-EC16	0.000	0.000	0.003
Considered additive	Aromatics >EC16-EC21	0.003	0.003	0.006
Considered additive	Aromatics >EC21-EC35	0.003	0.003	0.003
	Aromatics >EC35-EC44	0.002	0.002	0.002
	Hazard Index for ali>C8-C16	**0.000**	**0.000**	**0.002**
	Hazard Index for aro>C8-C16	**0.001**	**0.001**	**0.003**
	Hazard Index for aro>C16-C35	**0.005**	**0.005**	**0.008**

Risk parameter: **Human health - POS resi (2.5%SOM)**
Data set: Charmouth Mudstone Formation - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP101	TP102	TP103	TP107	TP108	TP109	TP113	TP114	TP115	TP116	TP116	TP117	TP118	TP119	TP120A
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP101	TP102	TP103	TP107	TP108	TP109	TP113	TP114	TP115	TP116	TP116	TP117	TP118	TP119	TP120A
									2.4	0.5	1.1	1.3	1.3	0.8	1.5	1.6	1.4	1.1	2.4	1.8	1.1	1.6	2
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	42	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	100	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0112	0.01	0.0108	0.01	0.01	0.01	0.0116	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	27	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.0112	0.0168	0.01	0.012	0.01	0.01	0.01	0.022	0.0102	0.0322	0.01	0.01	0.01	0.01
Aliphatics >EC10-EC12	1	40	1	5	0	48	2.10	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aliphatics >EC12-EC16	1	40	1	55	5	24	15.57	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	5.5	1	1	1	1
Aliphatics >EC16-EC35	2	40	2	140	0	65000	47.67	POTENTIALLY SUITABLE FOR USE	2	2	3.71	2	2	20.56	2	2	2	2	11.39	2	2	2	2
Aliphatics >EC35-EC44	1	40	1	40	0	65000	12.86	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	73	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	130	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	35	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0112	0.01	0.01	0.01	0.01	0.01	0.0151	0.01	0.0211	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	1	40	1	5	0	75	2.17	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	150	14.81	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1.87	1	1	1	1	1	1	1	1	1
Aromatics >EC16-EC21	1	40	1	284	1	260	54.67	POTENTIALLY SUITABLE FOR USE	1	1	3.34	1	1	2.63	1	1	1	1	1	1	1	1	1
Aromatics >EC21-EC35	1	40	1	1130	1	1100	160.75	POTENTIALLY SUITABLE FOR USE	1	1	3.33	1	1	11.5	1	3.72	1	1	1.56	1	1	1	1
Aromatics >EC35-EC44	1	40	1	167	0	1100	27.41	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	4.2	1	1	1	1	1	1	1	1	1

ADDITIVITY CHECK

		HAZARD QUOTIENTS FOR EACH FRACTION														
	Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000
	Aliphatics >EC10-EC12	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
	Aliphatics >EC12-EC16	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.229	0.042	0.042	0.042	0.042
	Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
	Aromatics >EC10-EC12	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
	Aromatics >EC12-EC16	0.007	0.007	0.007	0.007	0.007	0.012	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
	Aromatics >EC16-EC21	0.004	0.004	0.013	0.004	0.004	0.010	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Considered additive	Aromatics >EC21-EC35	0.001	0.001	0.003	0.001	0.001	0.010	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Aromatics >EC35-EC44	0.001	0.001	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Hazard Index for ali>C8-C16	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.251**	**0.063**	**0.063**	**0.063**	**0.063**
	Hazard Index for aro>C8-C16	**0.020**	**0.020**	**0.020**	**0.020**	**0.020**	**0.026**	**0.020**	**0.020**	**0.020**	**0.020**	**0.021**	**0.020**	**0.020**	**0.020**	**0.020**
	Hazard Index for aro>C16-C35	**0.005**	**0.005**	**0.016**	**0.005**	**0.005**	**0.021**	**0.005**	**0.007**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP125	TP126	TP127	TP128	TP133	TP134	WS105	WS115	WS116	TP203	TP206	TP207	TP214	TP216	TP217
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP125	TP126	TP127	TP128	TP133	TP134	WS105	WS115	WS116	TP203	TP206	TP207	TP214	TP216	TP217
									2	2	2.1	1.5	0.9	1.7	0.8	2.8	1	0.60	0.50	0.60	0.60	0.50	1.10
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	42	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0143	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	100	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0262	0.0189	0.0152	0.01	0.021	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	27	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0738	0.0511	0.0199	0.01	0.061	0.0104	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	40	1	5	0	48	2.10	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	4	1	2	2.7	1	1
Aliphatics >EC12-EC16	1	40	1	55	5	24	15.57	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1.42	1	1	1.05	1	55	13	18	33	28	2
Aliphatics >EC16-EC35	2	40	2	140	0	65000	47.67	POTENTIALLY SUITABLE FOR USE	2	2	2	26	76.7	2	2	3.13	2	140	83	91	55	65	10
Aliphatics >EC35-EC44	1	40	1	40	0	65000	12.86	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	40	32	34	8.6	8.4	8.4
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	73	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	130	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	35	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0488	0.0333	0.0129	0.01	0.041	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	40	1	5	0	75	2.17	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	4.6	2	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	150	14.81	POTENTIALLY SUITABLE FOR USE	1	1	1	7.18	1	1	1	1	1	55	15	13	27	25	2
Aromatics >EC16-EC21	1	40	1	284	1	260	54.67	POTENTIALLY SUITABLE FOR USE	1	1	1.16	284	62.5	1	1	1	1	83	28	29	42	93	10
Aromatics >EC21-EC35	1	40	1	1130	1	1100	160.75	POTENTIALLY SUITABLE FOR USE	1.17	1	1.36	1130	39.9	1	1	1	3.31	47	38	43	10	36	10
Aromatics >EC35-EC44	1	40	1	167	0	1100	27.41	POTENTIALLY SUITABLE FOR USE	1	1	1	167	4.14	1	1	1	1	39	8.4	14	8.4	8.4	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.003	0.002	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.021	0.021	0.021	0.104	0.021	0.021	0.021	0.021	0.021	0.083	0.021	0.042	0.056	0.021	0.021
Aliphatics >EC12-EC16	0.042	0.042	0.042	0.208	0.059	0.042	0.042	0.044	0.042	2.292	0.542	0.750	1.375	1.167	0.083
Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.001	0.000
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.013	0.013	0.013	0.067	0.013	0.013	0.013	0.013	0.013	0.061	0.027	0.013	0.013	0.013	0.013
Aromatics >EC12-EC16	0.007	0.007	0.007	0.048	0.007	0.007	0.007	0.007	0.007	0.367	0.100	0.087	0.180	0.167	0.013
Aromatics >EC16-EC21	0.004	0.004	0.004	1.092	0.240	0.004	0.004	0.004	0.004	0.319	0.108	0.112	0.162	0.358	0.038
Aromatics >EC21-EC35	0.001	0.001	0.001	1.027	0.036	0.001	0.001	0.001	0.003	0.043	0.035	0.039	0.009	0.033	0.009
Aromatics >EC35-EC44	0.001	0.001	0.001	0.152	0.004	0.001	0.001	0.001	0.001	0.035	0.008	0.013	0.008	0.008	0.008
Hazard Index for ali>C8-C16	**0.063**	**0.063**	**0.063**	**0.315**	**0.082**	**0.063**	**0.063**	**0.067**	**0.063**	**2.375**	**0.563**	**0.792**	**1.431**	**1.188**	**0.104**
Hazard Index for aro>C8-C16	**0.020**	**0.020**	**0.020**	**0.116**	**0.021**	**0.020**	**0.020**	**0.021**	**0.020**	**0.428**	**0.127**	**0.100**	**0.193**	**0.180**	**0.027**
Hazard Index for aro>C16-C35	**0.005**	**0.005**	**0.006**	**2.120**	**0.277**	**0.005**	**0.005**	**0.005**	**0.007**	**0.362**	**0.142**	**0.151**	**0.171**	**0.390**	**0.048**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test									
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP217	TP219	TP227	TP230	BH202	BH203	BH206	DP201	BH201
									1.60	1.20	1.10	0.40	1.20	1.30	1.30	0.90	2.30
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	42	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	100	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	27	0.02	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	40	1	5	0	48	2.10	POTENTIALLY SUITABLE FOR USE	1	1	2.7	5	1	1	1	1	1
Aliphatics >EC12-EC16	1	40	1	55	5	24	15.57	POTENTIALLY SUITABLE FOR USE	2	2	24	44	2	2	2	2	2
Aliphatics >EC16-EC35	2	40	2	140	0	65000	47.67	POTENTIALLY SUITABLE FOR USE	10	10	42	120	10	10	10	10	10
Aliphatics >EC35-EC44	1	40	1	40	0	65000	12.86	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	20	8.4	8.4	8.4	8.4	8.4
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	73	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	130	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	35	0.02	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	40	1	5	0	75	2.17	POTENTIALLY SUITABLE FOR USE	1	1	4.7	4.4	1	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	150	14.81	POTENTIALLY SUITABLE FOR USE	2	2	30	41	2	2	2	2	2
Aromatics >EC16-EC21	1	40	1	284	1	260	54.67	POTENTIALLY SUITABLE FOR USE	10	10	37	68	10	10	10	10	10
Aromatics >EC21-EC35	1	40	1	1130	1	1100	160.75	POTENTIALLY SUITABLE FOR USE	10	10	12	46	10	10	10	10	10
Aromatics >EC35-EC44	1	40	1	167	0	1100	27.41	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.021	0.021	0.056	0.104	0.021	0.021	0.021	0.021	0.021
Aliphatics >EC12-EC16	0.083	0.083	1.000	1.833	0.083	0.083	0.083	0.083	0.083
Aliphatics >EC16-EC35	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.013	0.013	0.063	0.059	0.013	0.013	0.013	0.013	0.013
Aromatics >EC12-EC16	0.013	0.013	0.200	0.273	0.013	0.013	0.013	0.013	0.013
Aromatics >EC16-EC21	0.038	0.038	0.142	0.262	0.038	0.038	0.038	0.038	0.038
Aromatics >EC21-EC35	0.009	0.009	0.011	0.042	0.009	0.009	0.009	0.009	0.009
Aromatics >EC35-EC44	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Hazard Index for ali>C8-C16	**0.104**	**0.104**	**1.056**	**1.938**	**0.104**	**0.104**	**0.104**	**0.104**	**0.104**
Hazard Index for aro>C8-C16	**0.027**	**0.027**	**0.263**	**0.332**	**0.027**	**0.027**	**0.027**	**0.027**	**0.027**
Hazard Index for aro>C16-C35	**0.048**	**0.048**	**0.153**	**0.303**	**0.048**	**0.048**	**0.048**	**0.048**	**0.048**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP101	TP102	TP103	TP107	TP108	TP109	TP113	TP114	TP115	TP116	TP116	TP117	TP118	TP119	TP120A
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP101	TP102	TP103	TP107	TP108	TP109	TP113	TP114	TP115	TP116	TP116	TP117	TP118	TP119	TP120A
									2.4	0.5	1.1	1.3	1.3	0.8	1.5	1.6	1.4	1.1	2.4	1.8	1.1	1.6	2
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	42	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	100	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0112	0.01	0.0108	0.01	0.01	0.01	0.0116	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	27	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.0112	0.0168	0.01	0.012	0.01	0.01	0.01	0.022	0.0102	0.0322	0.01	0.01	0.01	0.01
Aliphatics >EC10-EC12	1	40	1	5	0	48	2.10	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aliphatics >EC12-EC16	1	40	1	55	5	24	15.57	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	5.5	1	1	1	1
Aliphatics >EC16-EC35	2	40	2	140	0	65000	47.67	POTENTIALLY SUITABLE FOR USE	2	2	3.71	2	2	20.56	2	2	2	2	11.39	2	2	2	2
Aliphatics >EC35-EC44	1	40	1	40	0	65000	12.86	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	370	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	860	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	47	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0112	0.01	0.01	0.01	0.01	0.01	0.0151	0.01	0.0211	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	1	40	1	5	0	250	2.17	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	1800	14.81	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1.87	1	1	1	1	1	1	1	1	1
Aromatics >EC16-EC21	1	40	1	284	0	1900	54.67	POTENTIALLY SUITABLE FOR USE	1	1	3.34	1	1	2.63	1	1	1	1	1	1	1	1	1
Aromatics >EC21-EC35	1	40	1	1130	0	1900	160.75	POTENTIALLY SUITABLE FOR USE	1	1	3.33	1	1	11.5	1	3.72	1	1	1.56	1	1	1	1
Aromatics >EC35-EC44	1	40	1	167	0	1900	27.41	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	4.2	1	1	1	1	1	1	1	1	1

ADDITIVITY CHECK

		HAZARD QUOTIENTS FOR EACH FRACTION														
	Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000
	Aliphatics >EC10-EC12	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
	Aliphatics >EC12-EC16	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.229	0.042	0.042	0.042	0.042
	Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC10-EC12	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
	Aromatics >EC12-EC16	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Aromatics >EC16-EC21	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Considered additive	Aromatics >EC21-EC35	0.001	0.001	0.002	0.001	0.001	0.006	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Aromatics >EC35-EC44	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Hazard Index for ali>C8-C16	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.063**	**0.251**	**0.063**	**0.063**	**0.063**	**0.063**
	Hazard Index for aro>C8-C16	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
	Hazard Index for aro>C16-C35	**0.001**	**0.001**	**0.004**	**0.001**	**0.001**	**0.007**	**0.001**	**0.002**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP125	TP126	TP127	TP128	TP133	TP134	WS105	WS115	WS116	TP203	TP206	TP207	TP214	TP216	TP217
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP125	TP126	TP127	TP128	TP133	TP134	WS105	WS115	WS116	TP203	TP206	TP207	TP214	TP216	TP217
									2	2	2.1	1.5	0.9	1.7	0.8	2.8	1	0.60	0.50	0.60	0.60	0.50	1.10
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	42	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0143	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	100	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0262	0.0189	0.0152	0.01	0.021	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	27	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0738	0.0511	0.0199	0.01	0.061	0.0104	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	40	1	5	0	48	2.10	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	4	1	2	2.7	1	1
Aliphatics >EC12-EC16	1	40	1	55	5	24	15.57	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1.42	1	1	1.05	1	55	13	18	33	28	2
Aliphatics >EC16-EC35	2	40	2	140	0	65000	47.67	POTENTIALLY SUITABLE FOR USE	2	2	2	26	76.7	2	2	3.13	2	140	83	91	55	65	10
Aliphatics >EC35-EC44	1	40	1	40	0	65000	12.86	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	40	32	34	8.6	8.4	8.4
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	370	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	860	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	47	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0488	0.0333	0.0129	0.01	0.041	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	40	1	5	0	250	2.17	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	4.6	2	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	1800	14.81	POTENTIALLY SUITABLE FOR USE	1	1	1	7.18	1	1	1	1	1	55	15	13	27	25	2
Aromatics >EC16-EC21	1	40	1	284	0	1900	54.67	POTENTIALLY SUITABLE FOR USE	1	1	1.16	284	62.5	1	1	1	1	83	28	29	42	93	10
Aromatics >EC21-EC35	1	40	1	1130	0	1900	160.75	POTENTIALLY SUITABLE FOR USE	1.17	1	1.36	1130	39.9	1	1	1	3.31	47	38	43	10	36	10
Aromatics >EC35-EC44	1	40	1	167	0	1900	27.41	POTENTIALLY SUITABLE FOR USE	1	1	1	167	4.14	1	1	1	1	39	8.4	14	8.4	8.4	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.003	0.002	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.021	0.021	0.021	0.104	0.021	0.021	0.021	0.021	0.021	0.083	0.021	0.042	0.056	0.021	0.021
Aliphatics >EC12-EC16	0.042	0.042	0.042	0.208	0.059	0.042	0.042	0.044	0.042	2.292	0.542	0.750	1.375	1.167	0.083
Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.001	0.000
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.004	0.004	0.004	0.020	0.004	0.004	0.004	0.004	0.004	0.018	0.008	0.004	0.004	0.004	0.004
Aromatics >EC12-EC16	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.001	0.001	0.031	0.008	0.007	0.015	0.014	0.001
Aromatics >EC16-EC21	0.001	0.001	0.001	0.149	0.033	0.001	0.001	0.001	0.001	0.044	0.015	0.015	0.022	0.049	0.005
Aromatics >EC21-EC35	0.001	0.001	0.001	0.595	0.021	0.001	0.001	0.001	0.002	0.025	0.020	0.023	0.005	0.019	0.005
Aromatics >EC35-EC44	0.001	0.001	0.001	0.088	0.002	0.001	0.001	0.001	0.001	0.021	0.004	0.007	0.004	0.004	0.004
Hazard Index for ali>C8-C16	**0.063**	**0.063**	**0.063**	**0.315**	**0.082**	**0.063**	**0.063**	**0.067**	**0.063**	**2.375**	**0.563**	**0.792**	**1.431**	**1.188**	**0.104**
Hazard Index for aro>C8-C16	**0.005**	**0.005**	**0.005**	**0.025**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**	**0.049**	**0.016**	**0.011**	**0.019**	**0.018**	**0.005**
Hazard Index for aro>C16-C35	**0.001**	**0.001**	**0.001**	**0.744**	**0.054**	**0.001**	**0.001**	**0.001**	**0.002**	**0.068**	**0.035**	**0.038**	**0.027**	**0.068**	**0.011**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test									
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP217	TP219	TP227	TP230	BH202	BH203	BH206	DP201	BH201
									1.60	1.20	1.10	0.40	1.20	1.30	1.30	0.90	2.30
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	42	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	100	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	27	0.02	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	40	1	5	0	48	2.10	POTENTIALLY SUITABLE FOR USE	1	1	2.7	5	1	1	1	1	1
Aliphatics >EC12-EC16	1	40	1	55	5	24	15.57	POTENTIALLY SUITABLE FOR USE	2	2	24	44	2	2	2	2	2
Aliphatics >EC16-EC35	2	40	2	140	0	65000	47.67	POTENTIALLY SUITABLE FOR USE	10	10	42	120	10	10	10	10	10
Aliphatics >EC35-EC44	1	40	1	40	0	65000	12.86	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	20	8.4	8.4	8.4	8.4	8.4
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	370	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	860	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	47	0.02	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	40	1	5	0	250	2.17	POTENTIALLY SUITABLE FOR USE	1	1	4.7	4.4	1	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	1800	14.81	POTENTIALLY SUITABLE FOR USE	2	2	30	41	2	2	2	2	2
Aromatics >EC16-EC21	1	40	1	284	0	1900	54.67	POTENTIALLY SUITABLE FOR USE	10	10	37	68	10	10	10	10	10
Aromatics >EC21-EC35	1	40	1	1130	0	1900	160.75	POTENTIALLY SUITABLE FOR USE	10	10	12	46	10	10	10	10	10
Aromatics >EC35-EC44	1	40	1	167	0	1900	27.41	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.021	0.021	0.056	0.104	0.021	0.021	0.021	0.021	0.021
Aliphatics >EC12-EC16	0.083	0.083	1.000	1.833	0.083	0.083	0.083	0.083	0.083
Aliphatics >EC16-EC35	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.004	0.004	0.019	0.018	0.004	0.004	0.004	0.004	0.004
Aromatics >EC12-EC16	0.001	0.001	0.017	0.023	0.001	0.001	0.001	0.001	0.001
Aromatics >EC16-EC21	0.005	0.005	0.019	0.036	0.005	0.005	0.005	0.005	0.005
Aromatics >EC21-EC35	0.005	0.005	0.006	0.024	0.005	0.005	0.005	0.005	0.005
Aromatics >EC35-EC44	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Hazard Index for ali>C8-C16	**0.104**	**0.104**	**1.056**	**1.938**	**0.104**	**0.104**	**0.104**	**0.104**	**0.104**
Hazard Index for aro>C8-C16	**0.005**	**0.005**	**0.035**	**0.040**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**
Hazard Index for aro>C16-C35	**0.011**	**0.011**	**0.026**	**0.060**	**0.011**	**0.011**	**0.011**	**0.011**	**0.011**

Considered additive (Aliphatics >EC8-EC10 to Aliphatics >EC12-EC16)

Considered additive (Aromatics >EC8-EC10 to Aromatics >EC12-EC16)

Considered additive (Aromatics >EC16-EC21 to Aromatics >EC21-EC35)

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP101	TP102	TP103	TP107	TP108	TP109	TP113	TP114	TP115	TP116	TP116	TP117	TP118	TP119	TP120A
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP101	TP102	TP103	TP107	TP108	TP109	TP113	TP114	TP115	TP116	TP116	TP117	TP118	TP119	TP120A
									2.4	0.5	1.1	1.3	1.3	0.8	1.5	1.6	1.4	1.1	2.4	1.8	1.1	1.6	2
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	300	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	600000	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0112	0.01	0.0108	0.01	0.01	0.01	0.0116	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	13000	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.0112	0.0168	0.01	0.012	0.01	0.01	0.01	0.022	0.0102	0.0322	0.01	0.01	0.01	0.01
Aliphatics >EC10-EC12	1	40	1	5	0	13000	2.10	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aliphatics >EC12-EC16	1	40	1	55	0	13000	15.57	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	5.5	1	1	1	1
Aliphatics >EC16-EC35	2	40	2	140	0	250000	47.67	POTENTIALLY SUITABLE FOR USE	2	2	3.71	2	2	20.56	2	2	2	2	11.39	2	2	2	2
Aliphatics >EC35-EC44	1	40	1	40	0	250000	12.86	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	56000	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	56000	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	5000	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0112	0.01	0.01	0.01	0.01	0.01	0.0151	0.01	0.0211	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	1	40	1	5	0	5000	2.17	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	5000	14.81	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1.87	1	1	1	1	1	1	1	1	1
Aromatics >EC16-EC21	1	40	1	284	0	3800	54.67	POTENTIALLY SUITABLE FOR USE	1	1	3.34	1	1	2.63	1	1	1	1	1	1	1	1	1
Aromatics >EC21-EC35	1	40	1	1130	0	3800	160.75	POTENTIALLY SUITABLE FOR USE	1	1	3.33	1	1	11.5	1	3.72	1	1	1.56	1	1	1	1
Aromatics >EC35-EC44	1	40	1	167	0	3800	27.41	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	4.2	1	1	1	1	1	1	1	1	1

ADDITIVITY CHECK

		HAZARD QUOTIENTS FOR EACH FRACTION														
	Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC10-EC12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC12-EC16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC10-EC12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC12-EC16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aromatics >EC16-EC21	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC21-EC35	0.000	0.000	0.001	0.000	0.000	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Hazard Index for ali>C8-C16	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**
	Hazard Index for aro>C8-C16	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
	Hazard Index for aro>C16-C35	**0.001**	**0.001**	**0.002**	**0.001**	**0.001**	**0.004**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP125	TP126	TP127	TP128	TP133	TP134	WS105	WS115	WS116	TP203	TP206	TP207	TP214	TP216	TP217
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP125	TP126	TP127	TP128	TP133	TP134	WS105	WS115	WS116	TP203	TP206	TP207	TP214	TP216	TP217
									2	2	2.1	1.5	0.9	1.7	0.8	2.8	1	0.60	0.50	0.60	0.60	0.50	1.10
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	300	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0143	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	600000	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0262	0.0189	0.0152	0.01	0.021	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	13000	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0738	0.0511	0.0199	0.01	0.061	0.0104	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	40	1	5	0	13000	2.10	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	4	1	2	2.7	1	1
Aliphatics >EC12-EC16	1	40	1	55	0	13000	15.57	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1.42	1	1	1.05	1	55	13	18	33	28	2
Aliphatics >EC16-EC35	2	40	2	140	0	250000	47.67	POTENTIALLY SUITABLE FOR USE	2	2	2	26	76.7	2	2	3.13	2	140	83	91	55	65	10
Aliphatics >EC35-EC44	1	40	1	40	0	250000	12.86	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	40	32	34	8.6	8.4	8.4
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	56000	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	56000	0.01	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	5000	0.02	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.0488	0.0333	0.0129	0.01	0.041	0.01	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	40	1	5	0	5000	2.17	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1	1	1	1	4.6	2	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	5000	14.81	POTENTIALLY SUITABLE FOR USE	1	1	1	7.18	1	1	1	1	1	55	15	13	27	25	2
Aromatics >EC16-EC21	1	40	1	284	0	3800	54.67	POTENTIALLY SUITABLE FOR USE	1	1	1.16	284	62.5	1	1	1	1	83	28	29	42	93	10
Aromatics >EC21-EC35	1	40	1	1130	0	3800	160.75	POTENTIALLY SUITABLE FOR USE	1.17	1	1.36	1130	39.9	1	1	1	3.31	47	38	43	10	36	10
Aromatics >EC35-EC44	1	40	1	167	0	3800	27.41	POTENTIALLY SUITABLE FOR USE	1	1	1	167	4.14	1	1	1	1	39	8.4	14	8.4	8.4	8.4
ADDITIVITY CHECK																							
								Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
								Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
								Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Considered additive					Aliphatics >EC10-EC12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
								Aliphatics >EC12-EC16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.001	0.003	0.002	0.000
								Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
								Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
								Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
								Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
								Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
			Considered additive					Aromatics >EC10-EC12	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
								Aromatics >EC12-EC16	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.011	0.003	0.003	0.005	0.005	0.000
								Aromatics >EC16-EC21	0.000	0.000	0.000	0.075	0.016	0.000	0.000	0.000	0.000	0.022	0.007	0.008	0.011	0.024	0.003
			Considered additive					Aromatics >EC21-EC35	0.000	0.000	0.000	0.297	0.011	0.000	0.000	0.000	0.001	0.012	0.010	0.011	0.003	0.009	0.003
								Aromatics >EC35-EC44	0.000	0.000	0.000	0.044	0.001	0.000	0.000	0.000	0.000	0.010	0.002	0.004	0.002	0.002	0.002
								Hazard Index for ali>C8-C16	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**	**0.001**	**0.002**	**0.003**	**0.002**	**0.000**
								Hazard Index for aro>C8-C16	**0.000**	**0.000**	**0.000**	**0.002**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.012**	**0.003**	**0.003**	**0.006**	**0.005**	**0.001**
								Hazard Index for aro>C16-C35	**0.001**	**0.001**	**0.001**	**0.372**	**0.027**	**0.001**	**0.001**	**0.001**	**0.001**	**0.034**	**0.017**	**0.019**	**0.014**	**0.034**	**0.005**

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test									
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP217	TP219	TP227	TP230	BH202	BH203	BH206	DP201	BH201
									1.60	1.20	1.10	0.40	1.20	1.30	1.30	0.90	2.30
Aliphatics EC5-EC6	0.01	40	0.001	0.0143	0	300	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	40	0.001	0.0262	0	600000	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	40	0.001	0.0738	0	13000	0.02	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	40	1	5	0	13000	2.10	POTENTIALLY SUITABLE FOR USE	1	1	2.7	5	1	1	1	1	1
Aliphatics >EC12-EC16	1	40	1	55	0	13000	15.57	POTENTIALLY SUITABLE FOR USE	2	2	24	44	2	2	2	2	2
Aliphatics >EC16-EC35	2	40	2	140	0	250000	47.67	POTENTIALLY SUITABLE FOR USE	10	10	42	120	10	10	10	10	10
Aliphatics >EC35-EC44	1	40	1	40	0	250000	12.86	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	20	8.4	8.4	8.4	8.4	8.4
Aromatics EC5-EC7	0.01	40	0.001	0.01	0	56000	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	40	0.001	0.01	0	56000	0.01	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	40	0.001	0.0488	0	5000	0.02	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	40	1	5	0	5000	2.17	POTENTIALLY SUITABLE FOR USE	1	1	4.7	4.4	1	1	1	1	1
Aromatics >EC12-EC16	1	40	1	55	0	5000	14.81	POTENTIALLY SUITABLE FOR USE	2	2	30	41	2	2	2	2	2
Aromatics >EC16-EC21	1	40	1	284	0	3800	54.67	POTENTIALLY SUITABLE FOR USE	10	10	37	68	10	10	10	10	10
Aromatics >EC21-EC35	1	40	1	1130	0	3800	160.75	POTENTIALLY SUITABLE FOR USE	10	10	12	46	10	10	10	10	10
Aromatics >EC35-EC44	1	40	1	167	0	3800	27.41	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC12-EC16	0.000	0.000	0.002	0.003	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000
Aromatics >EC12-EC16	0.000	0.000	0.006	0.008	0.000	0.000	0.000	0.000	0.000
Aromatics >EC16-EC21	0.003	0.003	0.010	0.018	0.003	0.003	0.003	0.003	0.003
Aromatics >EC21-EC35	0.003	0.003	0.003	0.012	0.003	0.003	0.003	0.003	0.003
Aromatics >EC35-EC44	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Hazard Index for ali>C8-C16	**0.000**	**0.000**	**0.002**	**0.004**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Hazard Index for aro>C8-C16	**0.001**	**0.001**	**0.007**	**0.009**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**
Hazard Index for aro>C16-C35	**0.005**	**0.005**	**0.013**	**0.030**	**0.005**	**0.005**	**0.005**	**0.005**	**0.005**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP104	TP105	TP105	TP109	TP111	TP111	TP112	TP112	TP112	TP132	TP133	WS101	WS101	WS102	WS102
									1.5	1.1	1.6	1.1	1.9	2.4	1.3	2.3	3	1.3	1.3	1.1	1.7	1	1.55
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	42	0.13	POTENTIALLY SUITABLE FOR USE	0.263	0.31	0.305	0.0161	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.146	0.206	0.01	0.2
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	100	6.05	POTENTIALLY SUITABLE FOR USE	35.7	3.81	8.31	0.038	8.86	0.0375	1.79	10.3	2.6	1	2.41	0.671	16.4	0.413	0.64
Aliphatics >EC8-EC10	0.01	45	0.001	284	13	27	72.39	FURTHER ASSESSMENT REQUIRED	284	44.8	68.1	1.12	162	0.0617	48.7	173	30.3	34.6	75.5	9.21	161	22.7	8.26
Aliphatics >EC10-EC12	1	45	1	1260	31	48	445.28	FURTHER ASSESSMENT REQUIRED	981	662	445	51.5	618	24.2	829	672	285	577	617	402	219	462	531
Aliphatics >EC12-EC16	1	45	1	5060	38	24	2851.92	FURTHER ASSESSMENT REQUIRED	4970	4330	3260	752	3420	159	5060	3740	1530	3340	4330	2880	1660	3320	4090
Aliphatics >EC16-EC35	2	45	3.7	9120	0	65000	4970.23	POTENTIALLY SUITABLE FOR USE	9120	7640	6170	1100	5720	300.3	8280	6110	2726	6710	5830	4100	2172	4960	5200
Aliphatics >EC35-EC44	1	45	1	960	0	65000	343.58	POTENTIALLY SUITABLE FOR USE	400	47.9	52	41.8	135	6.64	244	157	96	155	139	121	79.4	180	189
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	73	0.11	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.01	0.2
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	130	0.11	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.01	0.2
Aromatics >EC8-EC10	0.01	45	0.001	190	7	35	47.10	FURTHER ASSESSMENT REQUIRED	190	29.9	45.4	0.75	108	0.0411	32.5	116	20.2	23.1	50.3	6.14	108	15.1	5.51
Aromatics >EC10-EC12	1	45	1	360	22	75	152.88	FURTHER ASSESSMENT REQUIRED	202	135	99.9	5.89	181	6.98	340	308	131	203	194	124	59.9	86.9	156
Aromatics >EC12-EC16	1	45	1	3160	35	150	1885.48	FURTHER ASSESSMENT REQUIRED	2550	2120	1670	181	1970	101	3160	2420	874	2210	1680	1470	680	1660	1710
Aromatics >EC16-EC21	1	45	1	4200	33	260	2298.66	FURTHER ASSESSMENT REQUIRED	1220	1220	882	167	1510	63.8	1730	1280	567	1120	1440	977	529	1300	1300
Aromatics >EC21-EC35	1	45	1	2400	2	1100	651.00	POTENTIALLY SUITABLE FOR USE	216	122	95.9	22.6	115	5.94	203	166	74.1	121	104	88.2	36.9	94.8	116
Aromatics >EC35-EC44	1	45	1	900	0	1100	124.66	POTENTIALLY SUITABLE FOR USE	1	1	5	2	1	1	1	1	2	5	5	5	1	2	5

ADDITIVITY CHECK

		HAZARD QUOTIENTS FOR EACH FRACTION														
	Aliphatics EC5-EC6	0.006	0.007	0.007	0.000	0.005	0.000	0.005	0.005	0.005	0.000	0.005	0.003	0.005	0.000	0.005
	Aliphatics >EC6-EC8	0.357	0.038	0.083	0.000	0.089	0.000	0.018	0.103	0.026	0.010	0.024	0.007	0.164	0.004	0.006
Considered additive	Aliphatics >EC8-EC10	10.519	1.659	2.522	0.041	6.000	0.002	1.804	6.407	1.122	1.281	2.796	0.341	5.963	0.841	0.306
Considered additive	Aliphatics >EC10-EC12	20.438	13.792	9.271	1.073	12.875	0.504	17.271	14.000	5.938	12.021	12.854	8.375	4.563	9.625	11.063
Considered additive	Aliphatics >EC12-EC16	207.083	180.417	135.833	31.333	142.500	6.625	210.833	155.833	63.750	139.167	180.417	120.000	69.167	138.333	170.417
	Aliphatics >EC16-EC35	0.140	0.118	0.095	0.017	0.088	0.005	0.127	0.094	0.042	0.103	0.090	0.063	0.033	0.076	0.080
	Aliphatics >EC35-EC44	0.006	0.001	0.001	0.001	0.002	0.000	0.004	0.002	0.001	0.002	0.002	0.002	0.001	0.003	0.003
	Aromatics EC5-EC7	0.003	0.003	0.003	0.000	0.003	0.000	0.003	0.003	0.003	0.000	0.003	0.000	0.003	0.000	0.003
	Aromatics >EC7-EC8	0.002	0.002	0.002	0.000	0.002	0.000	0.002	0.002	0.002	0.000	0.002	0.000	0.002	0.000	0.002
Considered additive	Aromatics >EC8-EC10	5.429	0.854	1.297	0.021	3.086	0.001	0.929	3.314	0.577	0.660	1.437	0.175	3.086	0.431	0.157
Considered additive	Aromatics >EC10-EC12	2.693	1.800	1.332	0.079	2.413	0.093	4.533	4.107	1.747	2.707	2.587	1.653	0.799	1.159	2.080
Considered additive	Aromatics >EC12-EC16	17.000	14.133	11.133	1.207	13.133	0.673	21.067	16.133	5.827	14.733	11.200	9.800	4.533	11.067	11.400
Considered additive	Aromatics >EC16-EC21	4.692	4.692	3.392	0.642	5.808	0.245	6.654	4.923	2.181	4.308	5.538	3.758	2.035	5.000	5.000
Considered additive	Aromatics >EC21-EC35	0.196	0.111	0.087	0.021	0.105	0.005	0.185	0.151	0.067	0.110	0.095	0.080	0.034	0.086	0.105
	Aromatics >EC35-EC44	0.001	0.001	0.005	0.002	0.001	0.001	0.001	0.001	0.002	0.005	0.005	0.005	0.001	0.002	0.005
	Hazard Index for ali>C8-C16	**238.039**	**195.868**	**147.626**	**32.448**	**161.375**	**7.131**	**229.908**	**176.241**	**70.810**	**152.469**	**196.067**	**128.716**	**79.692**	**148.799**	**181.785**
	Hazard Index for aro>C8-C16	**25.122**	**16.788**	**13.762**	**1.307**	**18.632**	**0.768**	**26.529**	**23.554**	**8.150**	**18.100**	**15.224**	**11.629**	**8.418**	**12.657**	**13.637**
	Hazard Index for aro>C16-C35	**4.889**	**4.803**	**3.479**	**0.663**	**5.912**	**0.251**	**6.838**	**5.074**	**2.248**	**4.418**	**5.633**	**3.838**	**2.068**	**5.086**	**5.105**

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	WS107	WS115	BH203	BH204	BH205	TP222	WS203	WS203	WS204	WS205	WS206	TP202	TP203	TP204	TP205
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	WS107	WS115	BH203	BH204	BH205	TP222	WS203	WS203	WS204	WS205	WS206	TP202	TP203	TP204	TP205
									1.65	1.45	2.00	1.40	1.50	1.20	1.80	3.50	1.30	1.20	1.20	1.50	2.00	0.80	1.50
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	42	0.13	POTENTIALLY SUITABLE FOR USE	0.0105	0.0146	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	100	6.05	POTENTIALLY SUITABLE FOR USE	0.0374	0.0256	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	45	0.001	284	13	27	72.39	FURTHER ASSESSMENT REQUIRED	0.164	0.129	0.001	0.001	0.001	0.001	35	0.001	41	0.001	14	3.1	14	2.3	16
Aliphatics >EC10-EC12	1	45	1	1260	31	48	445.28	FURTHER ASSESSMENT REQUIRED	1	28.9	1	1	1	5.9	230	1	380	50	29	190	210	24	190
Aliphatics >EC12-EC16	1	45	1	5060	38	24	2851.92	FURTHER ASSESSMENT REQUIRED	1	285	2	2	2	150	2100	7.4	2700	1800	1000	2400	2800	400	2900
Aliphatics >EC16-EC35	2	45	3.7	9120	0	65000	4970.23	POTENTIALLY SUITABLE FOR USE	3.7	470	10	39	10	280	3700	27	5600	3700	2500	4200	5100	940	5800
Aliphatics >EC35-EC44	1	45	1	960	0	65000	343.58	POTENTIALLY SUITABLE FOR USE	1	5.91	8.4	8.4	8.4	17	390	8.4	440	130	110	8.4	930	99	630
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	73	0.11	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	130	0.11	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	45	0.001	190	7	35	47.10	FURTHER ASSESSMENT REQUIRED	0.109	0.0866	0.001	0.001	0.001	0.001	20	0.001	12	0.72	0.25	1.5	0.66	0.052	2.6
Aromatics >EC10-EC12	1	45	1	360	22	75	152.88	FURTHER ASSESSMENT REQUIRED	1	4.33	1	1	1	1	150	1	360	31	18	100	130	22	160
Aromatics >EC12-EC16	1	45	1	3160	35	150	1885.48	FURTHER ASSESSMENT REQUIRED	1	105	2	2	2	47	1900	2	3000	1300	820	1800	2100	480	2700
Aromatics >EC16-EC21	1	45	1	4200	33	260	2298.66	FURTHER ASSESSMENT REQUIRED	1	94.4	10	10	10	210	2200	10	3800	2200	1500	3400	3000	810	4000
Aromatics >EC21-EC35	1	45	1	2400	2	1100	651.00	POTENTIALLY SUITABLE FOR USE	1	29.6	10	10	10	35	570	10	790	520	430	650	1000	290	1200
Aromatics >EC35-EC44	1	45	1	900	0	1100	124.66	POTENTIALLY SUITABLE FOR USE	1	9.86	8.4	8.4	8.4	8.4	120	8.4	65	63	35	8.4	12	47	17

ADDITIVITY CHECK

	WS107	WS115	BH203	BH204	BH205	TP222	WS203	WS203	WS204	WS205	WS206	TP202	TP203	TP204	TP205
Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.006	0.005	0.000	0.000	0.000	0.000	1.296	0.000	1.519	0.000	0.519	0.115	0.519	0.085	0.593
Aliphatics >EC10-EC12	0.021	0.602	0.021	0.021	0.021	0.123	4.792	0.021	7.917	1.042	0.604	3.958	4.375	0.500	3.958
Aliphatics >EC12-EC16	0.042	11.875	0.083	0.083	0.083	6.250	87.500	0.308	112.500	75.000	41.667	100.000	116.667	16.667	120.833
Aliphatics >EC16-EC35	0.000	0.007	0.000	0.001	0.000	0.004	0.057	0.000	0.086	0.057	0.038	0.065	0.078	0.014	0.089
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.007	0.002	0.002	0.000	0.014	0.002	0.010
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.003	0.002	0.000	0.000	0.000	0.000	0.571	0.000	0.343	0.021	0.007	0.043	0.019	0.001	0.074
Aromatics >EC10-EC12	0.013	0.058	0.013	0.013	0.013	0.013	2.000	0.013	4.800	0.413	0.240	1.333	1.733	0.293	2.133
Aromatics >EC12-EC16	0.007	0.700	0.013	0.013	0.013	0.313	12.667	0.013	20.000	8.667	5.467	12.000	14.000	3.200	18.000
Aromatics >EC16-EC21	0.004	0.363	0.038	0.038	0.038	0.808	8.462	0.038	14.615	8.462	5.769	13.077	11.538	3.115	15.385
Aromatics >EC21-EC35	0.001	0.027	0.009	0.009	0.009	0.032	0.518	0.009	0.718	0.473	0.391	0.591	0.909	0.264	1.091
Aromatics >EC35-EC44	0.001	0.009	0.008	0.008	0.008	0.008	0.109	0.008	0.059	0.057	0.032	0.008	0.011	0.043	0.015
Hazard Index for ali>C8-C16	**0.069**	**12.482**	**0.104**	**0.104**	**0.104**	**6.373**	**93.588**	**0.329**	**121.935**	**76.042**	**42.789**	**104.073**	**121.560**	**17.252**	**125.384**
Hazard Index for aro>C8-C16	**0.023**	**0.760**	**0.027**	**0.027**	**0.027**	**0.327**	**15.238**	**0.027**	**25.143**	**9.101**	**5.714**	**13.376**	**15.752**	**3.495**	**20.208**
Hazard Index for aro>C16-C35	**0.005**	**0.390**	**0.048**	**0.048**	**0.048**	**0.840**	**8.980**	**0.048**	**15.334**	**8.934**	**6.160**	**13.668**	**12.448**	**3.379**	**16.476**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP206	TP207	TP210	TP211	TP213	TP214	TP215	TP120	TP223	TP226	TP228	TP229	TP230	CPT 206	CPT 208
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP206	TP207	TP210	TP211	TP213	TP214	TP215	TP120	TP223	TP226	TP228	TP229	TP230	CPT 206	CPT 208
									1.50	1.20	1.50	1.50	1.50	1.30	1.20	2	1.60	1.60	1.50	1.40	1.10	1.20	0.80
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	42	0.13	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	100	6.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.757	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	45	0.001	284	13	27	72.39	FURTHER ASSESSMENT REQUIRED	18	6.4	0.001	0.001	7.2	2.3	5	168	0.001	0.001	0.001	0.001	2.5	0.001	9.6
Aliphatics >EC10-EC12	1	45	1	1260	31	48	445.28	FURTHER ASSESSMENT REQUIRED	170	120	250	140	110	58	48	1260	1.7	14	31	1	130	190	120
Aliphatics >EC12-EC16	1	45	1	5060	38	24	2851.92	FURTHER ASSESSMENT REQUIRED	2500	1800	3400	2200	1900	1700	710	776	12	270	490	2	1400	2200	1400
Aliphatics >EC16-EC35	2	45	3.7	9120	0	65000	4970.23	POTENTIALLY SUITABLE FOR USE	5200	4100	5500	4500	3700	3100	1300	7.73	21	540	1100	10	2300	5000	2800
Aliphatics >EC35-EC44	1	45	1	960	0	65000	343.58	POTENTIALLY SUITABLE FOR USE	250	420	570	580	330	250	67	1	8.4	37	48	8.4	43	960	140
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	73	0.11	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	130	0.11	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.008	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	45	0.001	190	7	35	47.10	FURTHER ASSESSMENT REQUIRED	4.8	0.45	0.001	0.001	0.001	0.001	0.001	112	0.001	0.001	0.36	0.001	0.81	0.001	0.68
Aromatics >EC10-EC12	1	45	1	360	22	75	152.88	FURTHER ASSESSMENT REQUIRED	190	71	160	30	62	23	21	37.6	1	5.5	24	1	79	120	87
Aromatics >EC12-EC16	1	45	1	3160	35	150	1885.48	FURTHER ASSESSMENT REQUIRED	2500	1400	2400	1200	1500	830	670	235	2	220	580	2	1900	2400	1800
Aromatics >EC16-EC21	1	45	1	4200	33	260	2298.66	FURTHER ASSESSMENT REQUIRED	3600	2400	3700	3000	2300	1700	1100	1.28	10	450	990	10	3000	4200	2800
Aromatics >EC21-EC35	1	45	1	2400	2	1100	651.00	POTENTIALLY SUITABLE FOR USE	840	570	680	1000	480	330	300	1	10	140	320	10	760	2400	940
Aromatics >EC35-EC44	1	45	1	900	0	1100	124.66	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	48	8.4	8.4	27	1	8.4	13	29	8.4	40	900	110

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.667	0.237	0.000	0.000	0.267	0.085	0.185	6.222	0.000	0.000	0.000	0.000	0.093	0.000	0.356
Aliphatics >EC10-EC12	3.542	2.500	5.208	2.917	2.292	1.208	1.000	26.250	0.035	0.292	0.646	0.021	2.708	3.958	2.500
Aliphatics >EC12-EC16	104.167	75.000	141.667	91.667	79.167	70.833	29.583	32.333	0.500	11.250	20.417	0.083	58.333	91.667	58.333
Aliphatics >EC16-EC35	0.080	0.063	0.085	0.069	0.057	0.048	0.020	0.000	0.000	0.008	0.017	0.000	0.035	0.077	0.043
Aliphatics >EC35-EC44	0.004	0.006	0.009	0.009	0.005	0.004	0.001	0.000	0.000	0.001	0.001	0.000	0.001	0.015	0.002
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.137	0.013	0.000	0.000	0.000	0.000	0.000	3.200	0.000	0.000	0.010	0.000	0.023	0.000	0.019
Aromatics >EC10-EC12	2.533	0.947	2.133	0.400	0.827	0.307	0.280	0.501	0.013	0.073	0.320	0.013	1.053	1.600	1.160
Aromatics >EC12-EC16	16.667	9.333	16.000	8.000	10.000	5.533	4.467	1.567	0.013	1.467	3.867	0.013	12.667	16.000	12.000
Aromatics >EC16-EC21	13.846	9.231	14.231	11.538	8.846	6.538	4.231	0.005	0.038	1.731	3.808	0.038	11.538	16.154	10.769
Aromatics >EC21-EC35	0.764	0.518	0.618	0.909	0.436	0.300	0.273	0.001	0.009	0.127	0.291	0.009	0.691	2.182	0.855
Aromatics >EC35-EC44	0.008	0.008	0.008	0.044	0.008	0.008	0.025	0.001	0.008	0.012	0.026	0.008	0.036	0.818	0.100
Hazard Index for ali>C8-C16	**108.375**	**77.737**	**146.875**	**94.583**	**81.725**	**72.127**	**30.769**	**64.806**	**0.535**	**11.542**	**21.063**	**0.104**	**61.134**	**95.625**	**61.189**
Hazard Index for aro>C8-C16	**19.337**	**10.293**	**18.133**	**8.400**	**10.827**	**5.840**	**4.747**	**5.268**	**0.027**	**1.540**	**4.197**	**0.027**	**13.743**	**17.600**	**13.179**
Hazard Index for aro>C16-C35	**14.610**	**9.749**	**14.849**	**12.448**	**9.283**	**6.838**	**4.503**	**0.006**	**0.048**	**1.858**	**4.099**	**0.048**	**12.229**	**18.336**	**11.624**

Considered additive (Aliphatics >EC8-EC10 to Aliphatics >EC12-EC16)

Considered additive (Aromatics >EC8-EC10 to Aromatics >EC12-EC16)

Considered additive (Aromatics >EC16-EC21 to Aromatics >EC21-EC35)

Risk parameter: **Human health - residential with plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP104	TP105	TP105	TP109	TP111	TP111	TP112	TP112	TP112	TP132	TP133	WS101	WS101	WS102	WS102
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP104	TP105	TP105	TP109	TP111	TP111	TP112	TP112	TP112	TP132	TP133	WS101	WS101	WS102	WS102
									1.5	1.1	1.6	1.1	1.9	2.4	1.3	2.3	3	1.3	1.3	1.1	1.7	1	1.55
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	42	0.13	POTENTIALLY SUITABLE FOR USE	0.263	0.31	0.305	0.0161	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.146	0.206	0.01	0.2
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	100	6.05	POTENTIALLY SUITABLE FOR USE	35.7	3.81	8.31	0.038	8.86	0.0375	1.79	10.3	2.6	1	2.41	0.671	16.4	0.413	0.64
Aliphatics >EC8-EC10	0.01	45	0.001	284	13	27	72.39	FURTHER ASSESSMENT REQUIRED	284	44.8	68.1	1.12	162	0.0617	48.7	173	30.3	34.6	75.5	9.21	161	22.7	8.26
Aliphatics >EC10-EC12	1	45	1	1260	31	48	445.28	FURTHER ASSESSMENT REQUIRED	981	662	445	51.5	618	24.2	829	672	285	577	617	402	219	462	531
Aliphatics >EC12-EC16	1	45	1	5060	38	24	2851.92	FURTHER ASSESSMENT REQUIRED	4970	4330	3260	752	3420	159	5060	3740	1530	3340	4330	2880	1660	3320	4090
Aliphatics >EC16-EC35	2	45	3.7	9120	0	65000	4970.23	POTENTIALLY SUITABLE FOR USE	9120	7640	6170	1100	5720	300.3	8280	6110	2726	6710	5830	4100	2172	4960	5200
Aliphatics >EC35-EC44	1	45	1	960	0	65000	343.58	POTENTIALLY SUITABLE FOR USE	400	47.9	52	41.8	135	6.64	244	157	96	155	139	121	79.4	180	189
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	370	0.11	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.01	0.2
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	860	0.11	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.01	0.2
Aromatics >EC8-EC10	0.01	45	0.001	190	6	47	47.10	FURTHER ASSESSMENT REQUIRED	190	29.9	45.4	0.75	108	0.0411	32.5	116	20.2	23.1	50.3	6.14	108	15.1	5.51
Aromatics >EC10-EC12	1	45	1	360	3	250	152.88	POTENTIALLY SUITABLE FOR USE	202	135	99.9	5.89	181	6.98	340	308	131	203	194	124	59.9	86.9	156
Aromatics >EC12-EC16	1	45	1	3160	16	1800	1885.48	FURTHER ASSESSMENT REQUIRED	2550	2120	1670	181	1970	101	3160	2420	874	2210	1680	1470	680	1660	1710
Aromatics >EC16-EC21	1	45	1	4200	14	1900	2298.66	FURTHER ASSESSMENT REQUIRED	1220	1220	882	167	1510	63.8	1730	1280	567	1120	1440	977	529	1300	1300
Aromatics >EC21-EC35	1	45	1	2400	1	1900	651.00	POTENTIALLY SUITABLE FOR USE	216	122	95.9	22.6	115	5.94	203	166	74.1	121	104	88.2	36.9	94.8	116
Aromatics >EC35-EC44	1	45	1	900	0	1900	124.66	POTENTIALLY SUITABLE FOR USE	1	1	5	2	1	1	1	1	2	5	5	5	1	2	5

ADDITIVITY CHECK

	HAZARD QUOTIENTS FOR EACH FRACTION															
Aliphatics EC5-EC6	0.006	0.007	0.007	0.000	0.005	0.000	0.005	0.005	0.005	0.000	0.005	0.003	0.005	0.000	0.005
Aliphatics >EC6-EC8	0.357	0.038	0.083	0.000	0.089	0.000	0.018	0.103	0.026	0.010	0.024	0.007	0.164	0.004	0.006
Aliphatics >EC8-EC10	10.519	1.659	2.522	0.041	6.000	0.002	1.804	6.407	1.122	1.281	2.796	0.341	5.963	0.841	0.306
Aliphatics >EC10-EC12	20.438	13.792	9.271	1.073	12.875	0.504	17.271	14.000	5.938	12.021	12.854	8.375	4.563	9.625	11.063
Aliphatics >EC12-EC16	207.083	180.417	135.833	31.333	142.500	6.625	210.833	155.833	63.750	139.167	180.417	120.000	69.167	138.333	170.417
Aliphatics >EC16-EC35	0.140	0.118	0.095	0.017	0.088	0.005	0.127	0.094	0.042	0.103	0.090	0.063	0.033	0.076	0.080
Aliphatics >EC35-EC44	0.006	0.001	0.001	0.001	0.002	0.000	0.004	0.002	0.001	0.002	0.002	0.002	0.001	0.003	0.003
Aromatics EC5-EC7	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.000	0.001
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	4.043	0.636	0.966	0.016	2.298	0.001	0.691	2.468	0.430	0.491	1.070	0.131	2.298	0.321	0.117
Aromatics >EC10-EC12	0.808	0.540	0.400	0.024	0.724	0.028	1.360	1.232	0.524	0.812	0.776	0.496	0.240	0.348	0.624
Aromatics >EC12-EC16	1.417	1.178	0.928	0.101	1.094	0.056	1.756	1.344	0.486	1.228	0.933	0.817	0.378	0.922	0.950
Aromatics >EC16-EC21	0.642	0.642	0.464	0.088	0.795	0.034	0.911	0.674	0.298	0.589	0.758	0.514	0.278	0.684	0.684
Aromatics >EC21-EC35	0.114	0.064	0.050	0.012	0.061	0.003	0.107	0.087	0.039	0.064	0.055	0.046	0.019	0.050	0.061
Aromatics >EC35-EC44	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.003	0.003	0.001	0.001	0.003
Hazard Index for ali>C8-C16	**238.039**	**195.868**	**147.626**	**32.448**	**161.375**	**7.131**	**229.908**	**176.241**	**70.810**	**152.469**	**196.067**	**128.716**	**79.692**	**148.799**	**181.785**
Hazard Index for aro>C8-C16	**6.267**	**2.354**	**2.293**	**0.140**	**4.116**	**0.085**	**3.807**	**5.045**	**1.439**	**2.531**	**2.780**	**1.443**	**2.915**	**1.591**	**1.691**
Hazard Index for aro>C16-C35	**0.756**	**0.706**	**0.515**	**0.100**	**0.855**	**0.037**	**1.017**	**0.761**	**0.337**	**0.653**	**0.813**	**0.561**	**0.298**	**0.734**	**0.745**

Considered additive (Aliphatics >EC8-EC10 to Aliphatics >EC12-EC16)

Considered additive (Aromatics >EC8-EC10 to Aromatics >EC12-EC16)

Considered additive (Aromatics >EC16-EC21 to Aromatics >EC21-EC35)

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	WS107	WS115	BH203	BH204	BH205	TP222	WS203	WS203	WS204	WS205	WS206	TP202	TP203	TP204	TP205
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	WS107	WS115	BH203	BH204	BH205	TP222	WS203	WS203	WS204	WS205	WS206	TP202	TP203	TP204	TP205
									1.65	1.45	2.00	1.40	1.50	1.20	1.80	3.50	1.30	1.20	1.20	1.50	2.00	0.80	1.50
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	42	0.13	POTENTIALLY SUITABLE FOR USE	0.0105	0.0146	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	100	6.05	POTENTIALLY SUITABLE FOR USE	0.0374	0.0256	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	45	0.001	284	13	27	72.39	FURTHER ASSESSMENT REQUIRED	0.164	0.129	0.001	0.001	0.001	0.001	35	0.001	41	0.001	14	3.1	14	2.3	16
Aliphatics >EC10-EC12	1	45	1	1260	31	48	445.28	FURTHER ASSESSMENT REQUIRED	1	28.9	1	1	1	5.9	230	1	380	50	29	190	210	24	190
Aliphatics >EC12-EC16	1	45	1	5060	38	24	2851.92	FURTHER ASSESSMENT REQUIRED	1	285	2	2	2	150	2100	7.4	2700	1800	1000	2400	2800	400	2900
Aliphatics >EC16-EC35	2	45	3.7	9120	0	65000	4970.23	POTENTIALLY SUITABLE FOR USE	3.7	470	10	39	10	280	3700	27	5600	3700	2500	4200	5100	940	5800
Aliphatics >EC35-EC44	1	45	1	960	0	65000	343.58	POTENTIALLY SUITABLE FOR USE	1	5.91	8.4	8.4	8.4	17	390	8.4	440	130	110	8.4	930	99	630
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	370	0.11	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	860	0.11	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	45	0.001	190	6	47	47.10	FURTHER ASSESSMENT REQUIRED	0.109	0.0866	0.001	0.001	0.001	0.001	20	0.001	12	0.72	0.25	1.5	0.66	0.052	2.6
Aromatics >EC10-EC12	1	45	1	360	3	250	152.88	POTENTIALLY SUITABLE FOR USE	1	4.33	1	1	1	1	150	1	360	31	18	100	130	22	160
Aromatics >EC12-EC16	1	45	1	3160	16	1800	1885.48	FURTHER ASSESSMENT REQUIRED	1	105	2	2	2	47	1900	2	3000	1300	820	1800	2100	480	2700
Aromatics >EC16-EC21	1	45	1	4200	14	1900	2298.66	FURTHER ASSESSMENT REQUIRED	1	94.4	10	10	10	210	2200	10	3800	2200	1500	3400	3000	810	4000
Aromatics >EC21-EC35	1	45	1	2400	1	1900	651.00	POTENTIALLY SUITABLE FOR USE	1	29.6	10	10	10	35	570	10	790	520	430	650	1000	290	1200
Aromatics >EC35-EC44	1	45	1	900	0	1900	124.66	POTENTIALLY SUITABLE FOR USE	1	9.86	8.4	8.4	8.4	8.4	120	8.4	65	63	35	8.4	12	47	17

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.006	0.005	0.000	0.000	0.000	0.000	1.296	0.000	1.519	0.000	0.519	0.115	0.519	0.085	0.593
Aliphatics >EC10-EC12	0.021	0.602	0.021	0.021	0.021	0.123	4.792	0.021	7.917	1.042	0.604	3.958	4.375	0.500	3.958
Aliphatics >EC12-EC16	0.042	11.875	0.083	0.083	0.083	6.250	87.500	0.308	112.500	75.000	41.667	100.000	116.667	16.667	120.833
Aliphatics >EC16-EC35	0.000	0.007	0.000	0.001	0.000	0.004	0.057	0.000	0.086	0.057	0.038	0.065	0.078	0.014	0.089
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.007	0.002	0.002	0.000	0.014	0.002	0.010
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.002	0.002	0.000	0.000	0.000	0.000	0.426	0.000	0.255	0.015	0.005	0.032	0.014	0.001	0.055
Aromatics >EC10-EC12	0.004	0.017	0.004	0.004	0.004	0.004	0.600	0.004	1.440	0.124	0.072	0.400	0.520	0.088	0.640
Aromatics >EC12-EC16	0.001	0.058	0.001	0.001	0.001	0.026	1.056	0.001	1.667	0.722	0.456	1.000	1.167	0.267	1.500
Aromatics >EC16-EC21	0.001	0.050	0.005	0.005	0.005	0.111	1.158	0.005	2.000	1.158	0.789	1.789	1.579	0.426	2.105
Aromatics >EC21-EC35	0.001	0.016	0.005	0.005	0.005	0.018	0.300	0.005	0.416	0.274	0.226	0.342	0.526	0.153	0.632
Aromatics >EC35-EC44	0.001	0.005	0.004	0.004	0.004	0.004	0.063	0.004	0.034	0.033	0.018	0.004	0.006	0.025	0.009
Hazard Index for ali>C8-C16	**0.069**	**12.482**	**0.104**	**0.104**	**0.104**	**6.373**	**93.588**	**0.329**	**121.935**	**76.042**	**42.789**	**104.073**	**121.560**	**17.252**	**125.384**
Hazard Index for aro>C8-C16	**0.007**	**0.077**	**0.005**	**0.005**	**0.005**	**0.030**	**2.081**	**0.005**	**3.362**	**0.862**	**0.533**	**1.432**	**1.701**	**0.356**	**2.195**
Hazard Index for aro>C16-C35	**0.001**	**0.065**	**0.011**	**0.011**	**0.011**	**0.129**	**1.458**	**0.011**	**2.416**	**1.432**	**1.016**	**2.132**	**2.105**	**0.579**	**2.737**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP206	TP207	TP210	TP211	TP213	TP214	TP215	TP120	TP223	TP226	TP228	TP229	TP230	CPT 206	CPT 208
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP206	TP207	TP210	TP211	TP213	TP214	TP215	TP120	TP223	TP226	TP228	TP229	TP230	CPT 206	CPT 208
									1.50	1.20	1.50	1.50	1.50	1.30	1.20	2	1.60	1.60	1.50	1.40	1.10	1.20	0.80
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	42	0.13	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	100	6.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.757	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	45	0.001	284	13	27	72.39	FURTHER ASSESSMENT REQUIRED	18	6.4	0.001	0.001	7.2	2.3	5	168	0.001	0.001	0.001	0.001	2.5	0.001	9.6
Aliphatics >EC10-EC12	1	45	1	1260	31	48	445.28	FURTHER ASSESSMENT REQUIRED	170	120	250	140	110	58	48	1260	1.7	14	31	1	130	190	120
Aliphatics >EC12-EC16	1	45	1	5060	38	24	2851.92	FURTHER ASSESSMENT REQUIRED	2500	1800	3400	2200	1900	1700	710	776	12	270	490	2	1400	2200	1400
Aliphatics >EC16-EC35	2	45	3.7	9120	0	65000	4970.23	POTENTIALLY SUITABLE FOR USE	5200	4100	5500	4500	3700	3100	1300	7.73	21	540	1100	10	2300	5000	2800
Aliphatics >EC35-EC44	1	45	1	960	0	65000	343.58	POTENTIALLY SUITABLE FOR USE	250	420	570	580	330	250	67	1	8.4	37	48	8.4	43	960	140
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	370	0.11	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	860	0.11	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.008	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	45	0.001	190	6	47	47.10	FURTHER ASSESSMENT REQUIRED	4.8	0.45	0.001	0.001	0.001	0.001	0.001	112	0.001	0.001	0.36	0.001	0.81	0.001	0.68
Aromatics >EC10-EC12	1	45	1	360	3	250	152.88	POTENTIALLY SUITABLE FOR USE	190	71	160	30	62	23	21	37.6	1	5.5	24	1	79	120	87
Aromatics >EC12-EC16	1	45	1	3160	16	1800	1885.48	FURTHER ASSESSMENT REQUIRED	2500	1400	2400	1200	1500	830	670	235	2	220	580	2	1900	2400	1800
Aromatics >EC16-EC21	1	45	1	4200	14	1900	2298.66	FURTHER ASSESSMENT REQUIRED	3600	2400	3700	3000	2300	1700	1100	1.28	10	450	990	10	3000	4200	2800
Aromatics >EC21-EC35	1	45	1	2400	1	1900	651.00	POTENTIALLY SUITABLE FOR USE	840	570	680	1000	480	330	300	1	10	140	320	10	760	2400	940
Aromatics >EC35-EC44	1	45	1	900	0	1900	124.66	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	48	8.4	8.4	27	1	8.4	13	29	8.4	40	900	110

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.667	0.237	0.000	0.000	0.267	0.085	0.185	6.222	0.000	0.000	0.000	0.000	0.093	0.000	0.356
Aliphatics >EC10-EC12	3.542	2.500	5.208	2.917	2.292	1.208	1.000	26.250	0.035	0.292	0.646	0.021	2.708	3.958	2.500
Aliphatics >EC12-EC16	104.167	75.000	141.667	91.667	79.167	70.833	29.583	32.333	0.500	11.250	20.417	0.083	58.333	91.667	58.333
Aliphatics >EC16-EC35	0.080	0.063	0.085	0.069	0.057	0.048	0.020	0.000	0.000	0.008	0.017	0.000	0.035	0.077	0.043
Aliphatics >EC35-EC44	0.004	0.006	0.009	0.009	0.005	0.004	0.001	0.000	0.000	0.001	0.001	0.000	0.001	0.015	0.002
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.102	0.010	0.000	0.000	0.000	0.000	0.000	2.383	0.000	0.000	0.008	0.000	0.017	0.000	0.014
Aromatics >EC10-EC12	0.760	0.284	0.640	0.120	0.248	0.092	0.084	0.150	0.004	0.022	0.096	0.004	0.316	0.480	0.348
Aromatics >EC12-EC16	1.389	0.778	1.333	0.667	0.833	0.461	0.372	0.131	0.001	0.122	0.322	0.001	1.056	1.333	1.000
Aromatics >EC16-EC21	1.895	1.263	1.947	1.579	1.211	0.895	0.579	0.001	0.005	0.237	0.521	0.005	1.579	2.211	1.474
Aromatics >EC21-EC35	0.442	0.300	0.358	0.526	0.253	0.174	0.158	0.001	0.005	0.074	0.168	0.005	0.400	1.263	0.495
Aromatics >EC35-EC44	0.004	0.004	0.004	0.025	0.004	0.004	0.014	0.001	0.004	0.007	0.015	0.004	0.021	0.474	0.058
Hazard Index for ali>C8-C16	**108.375**	**77.737**	**146.875**	**94.583**	**81.725**	**72.127**	**30.769**	**64.806**	**0.535**	**11.542**	**21.063**	**0.104**	**61.134**	**95.625**	**61.189**
Hazard Index for aro>C8-C16	**2.251**	**1.071**	**1.973**	**0.787**	**1.081**	**0.553**	**0.456**	**2.664**	**0.005**	**0.144**	**0.426**	**0.005**	**1.389**	**1.813**	**1.362**
Hazard Index for aro>C16-C35	**2.337**	**1.563**	**2.305**	**2.105**	**1.463**	**1.068**	**0.737**	**0.001**	**0.011**	**0.311**	**0.689**	**0.011**	**1.979**	**3.474**	**1.968**

Considered additive (Aliphatics >EC8-EC10 to Aliphatics >EC12-EC16)

Considered additive (Aromatics >EC8-EC10 to Aromatics >EC12-EC16)

Considered additive (Aromatics >EC16-EC21 to Aromatics >EC21-EC35)

Risk parameter: **Human health - residential without plant uptake (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP104	TP105	TP105	TP109	TP111	TP111	TP112	TP112	TP112	TP132	TP133	WS101	WS101	WS102	WS102
									1.5	1.1	1.6	1.1	1.9	2.4	1.3	2.3	3	1.3	1.3	1.1	1.7	1	1.55
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	300	0.13	POTENTIALLY SUITABLE FOR USE	0.263	0.31	0.305	0.0161	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.146	0.206	0.01	0.2
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	600000	6.05	POTENTIALLY SUITABLE FOR USE	35.7	3.81	8.31	0.038	8.86	0.0375	1.79	10.3	2.6	1	2.41	0.671	16.4	0.413	0.64
Aliphatics >EC8-EC10	0.01	45	0.001	284	0	13000	72.39	POTENTIALLY SUITABLE FOR USE	284	44.8	68.1	1.12	162	0.0617	48.7	173	30.3	34.6	75.5	9.21	161	22.7	8.26
Aliphatics >EC10-EC12	1	45	1	1260	0	13000	445.28	POTENTIALLY SUITABLE FOR USE	981	662	445	51.5	618	24.2	829	672	285	577	617	402	219	462	531
Aliphatics >EC12-EC16	1	45	1	5060	0	13000	2851.92	POTENTIALLY SUITABLE FOR USE	4970	4330	3260	752	3420	159	5060	3740	1530	3340	4330	2880	1660	3320	4090
Aliphatics >EC16-EC35	2	45	3.7	9120	0	250000	4970.23	POTENTIALLY SUITABLE FOR USE	9120	7640	6170	1100	5720	300.3	8280	6110	2726	6710	5830	4100	2172	4960	5200
Aliphatics >EC35-EC44	1	45	1	960	0	250000	343.58	POTENTIALLY SUITABLE FOR USE	400	47.9	52	41.8	135	6.64	244	157	96	155	139	121	79.4	180	189
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	56000	0.11	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.01	0.2
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	56000	0.11	POTENTIALLY SUITABLE FOR USE	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.2	0.2	0.01	0.2	0.01	0.2	0.01	0.2
Aromatics >EC8-EC10	0.01	45	0.001	190	0	5000	47.10	POTENTIALLY SUITABLE FOR USE	190	29.9	45.4	0.75	108	0.0411	32.5	116	20.2	23.1	50.3	6.14	108	15.1	5.51
Aromatics >EC10-EC12	1	45	1	360	0	5000	152.88	POTENTIALLY SUITABLE FOR USE	202	135	99.9	5.89	181	6.98	340	308	131	203	194	124	59.9	86.9	156
Aromatics >EC12-EC16	1	45	1	3160	0	5000	1885.48	POTENTIALLY SUITABLE FOR USE	2550	2120	1670	181	1970	101	3160	2420	874	2210	1680	1470	680	1660	1710
Aromatics >EC16-EC21	1	45	1	4200	3	3800	2298.66	POTENTIALLY SUITABLE FOR USE	1220	1220	882	167	1510	63.8	1730	1280	567	1120	1440	977	529	1300	1300
Aromatics >EC21-EC35	1	45	1	2400	0	3800	651.00	POTENTIALLY SUITABLE FOR USE	216	122	95.9	22.6	115	5.94	203	166	74.1	121	104	88.2	36.9	94.8	116
Aromatics >EC35-EC44	1	45	1	900	0	3800	124.66	POTENTIALLY SUITABLE FOR USE	1	1	5	2	1	1	1	1	2	5	5	5	1	2	5

ADDITIVITY CHECK

	HAZARD QUOTIENTS FOR EACH FRACTION														
Aliphatics EC5-EC6	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.000	0.001
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.022	0.003	0.005	0.000	0.012	0.000	0.004	0.013	0.002	0.003	0.006	0.001	0.012	0.002	0.001
Aliphatics >EC10-EC12	0.075	0.051	0.034	0.004	0.048	0.002	0.064	0.052	0.022	0.044	0.047	0.031	0.017	0.036	0.041
Aliphatics >EC12-EC16	0.382	0.333	0.251	0.058	0.263	0.012	0.389	0.288	0.118	0.257	0.333	0.222	0.128	0.255	0.315
Aliphatics >EC16-EC35	0.036	0.031	0.025	0.004	0.023	0.001	0.033	0.024	0.011	0.027	0.023	0.016	0.009	0.020	0.021
Aliphatics >EC35-EC44	0.002	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.001	0.001	0.000	0.000	0.001	0.001
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.038	0.006	0.009	0.000	0.022	0.000	0.007	0.023	0.004	0.005	0.010	0.001	0.022	0.003	0.001
Aromatics >EC10-EC12	0.040	0.027	0.020	0.001	0.036	0.001	0.068	0.062	0.026	0.041	0.039	0.025	0.012	0.017	0.031
Aromatics >EC12-EC16	0.510	0.424	0.334	0.036	0.394	0.020	0.632	0.484	0.175	0.442	0.336	0.294	0.136	0.332	0.342
Aromatics >EC16-EC21	0.321	0.321	0.232	0.044	0.397	0.017	0.455	0.337	0.149	0.295	0.379	0.257	0.139	0.342	0.342
Aromatics >EC21-EC35	0.057	0.032	0.025	0.006	0.030	0.002	0.053	0.044	0.020	0.032	0.027	0.023	0.010	0.025	0.031
Aromatics >EC35-EC44	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.001	0.001
Hazard Index for ali>C8-C16	**0.480**	**0.387**	**0.290**	**0.062**	**0.323**	**0.014**	**0.457**	**0.353**	**0.142**	**0.304**	**0.386**	**0.253**	**0.157**	**0.293**	**0.356**
Hazard Index for aro>C8-C16	**0.588**	**0.457**	**0.363**	**0.038**	**0.452**	**0.022**	**0.707**	**0.569**	**0.205**	**0.487**	**0.385**	**0.320**	**0.170**	**0.352**	**0.374**
Hazard Index for aro>C16-C35	**0.378**	**0.353**	**0.257**	**0.050**	**0.428**	**0.018**	**0.509**	**0.381**	**0.169**	**0.327**	**0.406**	**0.280**	**0.149**	**0.367**	**0.373**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	WS107	WS115	BH203	BH204	BH205	TP222	WS203	WS203	WS204	WS205	WS206	TP202	TP203	TP204	TP205
									1.65	1.45	2.00	1.40	1.50	1.20	1.80	3.50	1.30	1.20	1.20	1.50	2.00	0.80	1.50
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	300	0.13	POTENTIALLY SUITABLE FOR USE	0.0105	0.0146	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	600000	6.05	POTENTIALLY SUITABLE FOR USE	0.0374	0.0256	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	45	0.001	284	0	13000	72.39	POTENTIALLY SUITABLE FOR USE	0.164	0.129	0.001	0.001	0.001	0.001	35	0.001	41	0.001	14	3.1	14	2.3	16
Aliphatics >EC10-EC12	1	45	1	1260	0	13000	445.28	POTENTIALLY SUITABLE FOR USE	1	28.9	1	1	1	5.9	230	1	380	50	29	190	210	24	190
Aliphatics >EC12-EC16	1	45	1	5060	0	13000	2851.92	POTENTIALLY SUITABLE FOR USE	1	285	2	2	2	150	2100	7.4	2700	1800	1000	2400	2800	400	2900
Aliphatics >EC16-EC35	2	45	3.7	9120	0	250000	4970.23	POTENTIALLY SUITABLE FOR USE	3.7	470	10	39	10	280	3700	27	5600	3700	2500	4200	5100	940	5800
Aliphatics >EC35-EC44	1	45	1	960	0	250000	343.58	POTENTIALLY SUITABLE FOR USE	1	5.91	8.4	8.4	8.4	17	390	8.4	440	130	110	8.4	930	99	630
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	56000	0.11	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	56000	0.11	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	45	0.001	190	0	5000	47.10	POTENTIALLY SUITABLE FOR USE	0.109	0.0866	0.001	0.001	0.001	0.001	20	0.001	12	0.72	0.25	1.5	0.66	0.052	2.6
Aromatics >EC10-EC12	1	45	1	360	0	5000	152.88	POTENTIALLY SUITABLE FOR USE	1	4.33	1	1	1	1	150	1	360	31	18	100	130	22	160
Aromatics >EC12-EC16	1	45	1	3160	0	5000	1885.48	POTENTIALLY SUITABLE FOR USE	1	105	2	2	2	47	1900	2	3000	1300	820	1800	2100	480	2700
Aromatics >EC16-EC21	1	45	1	4200	3	3800	2298.66	POTENTIALLY SUITABLE FOR USE	1	94.4	10	10	10	210	2200	10	3800	2200	1500	3400	3000	810	4000
Aromatics >EC21-EC35	1	45	1	2400	0	3800	651.00	POTENTIALLY SUITABLE FOR USE	1	29.6	10	10	10	35	570	10	790	520	430	650	1000	290	1200
Aromatics >EC35-EC44	1	45	1	900	0	3800	124.66	POTENTIALLY SUITABLE FOR USE	1	9.86	8.4	8.4	8.4	8.4	120	8.4	65	63	35	8.4	12	47	17

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.003	0.000	0.001	0.000	0.001	0.000	0.001
Aliphatics >EC10-EC12	0.000	0.002	0.000	0.000	0.000	0.000	0.018	0.000	0.029	0.004	0.002	0.015	0.016	0.002	0.015
Aliphatics >EC12-EC16	0.000	0.022	0.000	0.000	0.000	0.012	0.162	0.001	0.208	0.138	0.077	0.185	0.215	0.031	0.223
Aliphatics >EC16-EC35	0.000	0.002	0.000	0.000	0.000	0.001	0.015	0.000	0.022	0.015	0.010	0.017	0.020	0.004	0.023
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.001	0.000	0.000	0.004	0.000	0.003
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.001
Aromatics >EC10-EC12	0.000	0.001	0.000	0.000	0.000	0.000	0.030	0.000	0.072	0.006	0.004	0.020	0.026	0.004	0.032
Aromatics >EC12-EC16	0.000	0.021	0.000	0.000	0.000	0.009	0.380	0.000	0.600	0.260	0.164	0.360	0.420	0.096	0.540
Aromatics >EC16-EC21	0.000	0.025	0.003	0.003	0.003	0.055	0.579	0.003	1.000	0.579	0.395	0.895	0.789	0.213	1.053
Aromatics >EC21-EC35	0.000	0.008	0.003	0.003	0.003	0.009	0.150	0.003	0.208	0.137	0.113	0.171	0.263	0.076	0.316
Aromatics >EC35-EC44	0.000	0.003	0.002	0.002	0.002	0.002	0.032	0.002	0.017	0.017	0.009	0.002	0.003	0.012	0.004
Hazard Index for ali>C8-C16	**0.000**	**0.024**	**0.000**	**0.000**	**0.000**	**0.012**	**0.182**	**0.001**	**0.240**	**0.142**	**0.080**	**0.199**	**0.233**	**0.033**	**0.239**
Hazard Index for aro>C8-C16	**0.000**	**0.022**	**0.001**	**0.001**	**0.001**	**0.010**	**0.414**	**0.001**	**0.674**	**0.266**	**0.168**	**0.380**	**0.446**	**0.100**	**0.573**
Hazard Index for aro>C16-C35	**0.001**	**0.033**	**0.005**	**0.005**	**0.005**	**0.064**	**0.729**	**0.005**	**1.208**	**0.716**	**0.508**	**1.066**	**1.053**	**0.289**	**1.368**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP206	TP207	TP210	TP211	TP213	TP214	TP215	TP120	TP223	TP226	TP228	TP229	TP230	CPT 206	CPT 208
								Soil Type	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT	NAT
								Location & Depth	TP206	TP207	TP210	TP211	TP213	TP214	TP215	TP120	TP223	TP226	TP228	TP229	TP230	CPT 206	CPT 208
									1.50	1.20	1.50	1.50	1.50	1.30	1.20	2	1.60	1.60	1.50	1.40	1.10	1.20	0.80
Aliphatics EC5-EC6	0.01	45	0.001	0.31	0	300	0.13	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	45	0.001	35.7	0	600000	6.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.757	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	45	0.001	284	0	13000	72.39	POTENTIALLY SUITABLE FOR USE	18	6.4	0.001	0.001	7.2	2.3	5	168	0.001	0.001	0.001	0.001	2.5	0.001	9.6
Aliphatics >EC10-EC12	1	45	1	1260	0	13000	445.28	POTENTIALLY SUITABLE FOR USE	170	120	250	140	110	58	48	1260	1.7	14	31	1	130	190	120
Aliphatics >EC12-EC16	1	45	1	5060	0	13000	2851.92	POTENTIALLY SUITABLE FOR USE	2500	1800	3400	2200	1900	1700	710	776	12	270	490	2	1400	2200	1400
Aliphatics >EC16-EC35	2	45	3.7	9120	0	250000	4970.23	POTENTIALLY SUITABLE FOR USE	5200	4100	5500	4500	3700	3100	1300	7.73	21	540	1100	10	2300	5000	2800
Aliphatics >EC35-EC44	1	45	1	960	0	250000	343.58	POTENTIALLY SUITABLE FOR USE	250	420	570	580	330	250	67	1	8.4	37	48	8.4	43	960	140
Aromatics EC5-EC7	0.01	45	0.001	0.2	0	56000	0.11	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	45	0.001	0.2	0	56000	0.11	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.008	0.001	0.2	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	45	0.001	190	0	5000	47.10	POTENTIALLY SUITABLE FOR USE	4.8	0.45	0.001	0.001	0.001	0.001	0.001	112	0.001	0.001	0.36	0.001	0.81	0.001	0.68
Aromatics >EC10-EC12	1	45	1	360	0	5000	152.88	POTENTIALLY SUITABLE FOR USE	190	71	160	30	62	23	21	37.6	1	5.5	24	1	79	120	87
Aromatics >EC12-EC16	1	45	1	3160	0	5000	1885.48	POTENTIALLY SUITABLE FOR USE	2500	1400	2400	1200	1500	830	670	235	2	220	580	2	1900	2400	1800
Aromatics >EC16-EC21	1	45	1	4200	3	3800	2298.66	POTENTIALLY SUITABLE FOR USE	3600	2400	3700	3000	2300	1700	1100	1.28	10	450	990	10	3000	4200	2800
Aromatics >EC21-EC35	1	45	1	2400	0	3800	651.00	POTENTIALLY SUITABLE FOR USE	840	570	680	1000	480	330	300	1	10	140	320	10	760	2400	940
Aromatics >EC35-EC44	1	45	1	900	0	3800	124.66	POTENTIALLY SUITABLE FOR USE	8.4	8.4	8.4	48	8.4	8.4	27	1	8.4	13	29	8.4	40	900	110

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Aliphatics >EC10-EC12	0.013	0.009	0.019	0.011	0.008	0.004	0.004	0.097	0.000	0.001	0.002	0.000	0.010	0.015	0.009
Aliphatics >EC12-EC16	0.192	0.138	0.262	0.169	0.146	0.131	0.055	0.060	0.001	0.021	0.038	0.000	0.108	0.169	0.108
Aliphatics >EC16-EC35	0.021	0.016	0.022	0.018	0.015	0.012	0.005	0.000	0.000	0.002	0.004	0.000	0.009	0.020	0.011
Aliphatics >EC35-EC44	0.001	0.002	0.002	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.001
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.038	0.014	0.032	0.006	0.012	0.005	0.004	0.008	0.000	0.001	0.005	0.000	0.016	0.024	0.017
Aromatics >EC12-EC16	0.500	0.280	0.480	0.240	0.300	0.166	0.134	0.047	0.000	0.044	0.116	0.000	0.380	0.480	0.360
Aromatics >EC16-EC21	0.947	0.632	0.974	0.789	0.605	0.447	0.289	0.000	0.003	0.118	0.261	0.003	0.789	1.105	0.737
Aromatics >EC21-EC35	0.221	0.150	0.179	0.263	0.126	0.087	0.079	0.000	0.003	0.037	0.084	0.003	0.200	0.632	0.247
Aromatics >EC35-EC44	0.002	0.002	0.002	0.013	0.002	0.002	0.007	0.000	0.002	0.003	0.008	0.002	0.011	0.237	0.029
Hazard Index for ali>C8-C16	**0.207**	**0.148**	**0.281**	**0.180**	**0.155**	**0.135**	**0.059**	**0.170**	**0.001**	**0.022**	**0.040**	**0.000**	**0.118**	**0.184**	**0.118**
Hazard Index for aro>C8-C16	**0.539**	**0.294**	**0.512**	**0.246**	**0.312**	**0.171**	**0.138**	**0.077**	**0.001**	**0.045**	**0.121**	**0.001**	**0.396**	**0.504**	**0.378**
Hazard Index for aro>C16-C35	**1.168**	**0.782**	**1.153**	**1.053**	**0.732**	**0.534**	**0.368**	**0.001**	**0.005**	**0.155**	**0.345**	**0.005**	**0.989**	**1.737**	**0.984**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - POS resi (1%SOM)**
Data set: Cheltenham Sands and Gravel Impacted - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP101	TP103	TP104	TP105	TP106	TP108	TP109	TP111	TP112	TP113	TP116	TP118	TP119	TP120	TP120A
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP101	TP103	TP104	TP105	TP106	TP108	TP109	TP111	TP112	TP113	TP116	TP118	TP119	TP120	TP120A
									0.4	0.6	0.4	0.5	0.4	0.7	0.3	0.6	0.9	0.6	0.4	0.35	0.6	0.4	0.6
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	160	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.0115	0.1	0.05	0.01	0.01	0.0117	0.01	0.0124	0.0128	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	530	0.50	POTENTIALLY SUITABLE FOR USE	0.01	0.0495	2.61	1.04	0.01	0.01	0.0573	0.0504	0.026	0.0278	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	150	6.75	POTENTIALLY SUITABLE FOR USE	0.01	0.11	22	7.63	0.01	0.01	0.0725	0.059	0.0422	0.058	0.0106	0.01	0.01	0.01	0.01
Aliphatics >EC10-EC12	1	38	1	392	1	280	71.36	POTENTIALLY SUITABLE FOR USE	1	4.99	1	392	1	1	16.2	2.16	4.2	1.52	1	1	1	1.3	1.2
Aliphatics >EC12-EC16	1	38	1	3950	6	140	682.89	FURTHER ASSESSMENT REQUIRED	1	112	1.7	3950	1.46	1.82	207	5.41	5.97	5.64	1	1.31	19	6.21	3.9
Aliphatics >EC16-EC35	2	38	2	6680	0	110000	1228.22	POTENTIALLY SUITABLE FOR USE	7.72	170.3	8.66	6680	4.02	3.45	503	4.48	8.04	37.9	17.79	9.52	40.13	40.3	21.15
Aliphatics >EC35-EC44	1	38	1	870	0	110000	153.65	POTENTIALLY SUITABLE FOR USE	1	1	1	44.1	1	1	1	1	1	1	1	1	1	1	1
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	310	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.1	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	680	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.1	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	190	4.50	POTENTIALLY SUITABLE FOR USE	0.01	0.0736	14.7	5.09	0.01	0.01	0.048	0.0394	0.0285	0.0383	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	1	38	1	84.7	0	390	16.33	POTENTIALLY SUITABLE FOR USE	1	1.25	1	84.7	1	1	9.62	1	4.56	1.35	1	1	1	1	1
Aromatics >EC12-EC16	1	38	1	1320	2	670	262.26	POTENTIALLY SUITABLE FOR USE	1	24.3	1	1320	1.88	1.76	120	7.29	12.9	15.6	1	3.28	2.09	4.4	10.3
Aromatics >EC16-EC21	1	38	1	1130	1	930	271.60	POTENTIALLY SUITABLE FOR USE	1.19	55.9	1	1130	14	3.74	76.2	33.6	35.5	34.8	1.24	40.3	73.6	9.38	66.4
Aromatics >EC21-EC35	1	38	1.32	1400	0	1700	455.21	POTENTIALLY SUITABLE FOR USE	29.9	76.4	1.33	171	183	10.8	336	623	298	286	140	142	427	235	315
Aromatics >EC35-EC44	1	38	1	790	0	1700	200.36	POTENTIALLY SUITABLE FOR USE	31.9	7.16	1	5	105	1	128	175	89.8	203	24.6	24.3	88.8	49.4	111

ADDITIVITY CHECK

		HAZARD QUOTIENTS FOR EACH FRACTION														
	Aliphatics EC5-EC6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.005	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.001	0.147	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC10-EC12	0.004	0.018	0.004	1.400	0.004	0.004	0.058	0.008	0.015	0.005	0.004	0.004	0.004	0.005	0.004
	Aliphatics >EC12-EC16	0.007	0.800	0.012	28.214	0.010	0.013	1.479	0.039	0.043	0.040	0.007	0.009	0.136	0.044	0.028
	Aliphatics >EC16-EC35	0.000	0.002	0.000	0.061	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.077	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC10-EC12	0.003	0.003	0.003	0.217	0.003	0.003	0.025	0.003	0.012	0.003	0.003	0.003	0.003	0.003	0.003
	Aromatics >EC12-EC16	0.001	0.036	0.001	1.970	0.003	0.003	0.179	0.011	0.019	0.023	0.001	0.005	0.003	0.007	0.015
Considered additive	Aromatics >EC16-EC21	0.001	0.060	0.001	1.215	0.015	0.004	0.082	0.036	0.038	0.037	0.001	0.043	0.079	0.010	0.071
	Aromatics >EC21-EC35	0.018	0.045	0.001	0.101	0.108	0.006	0.198	0.366	0.175	0.168	0.082	0.084	0.251	0.138	0.185
	Aromatics >EC35-EC44	0.019	0.004	0.001	0.003	0.062	0.001	0.075	0.103	0.053	0.119	0.014	0.014	0.052	0.029	0.065
	Hazard Index for ali>C8-C16	**0.011**	**0.819**	**0.162**	**29.665**	**0.014**	**0.017**	**1.537**	**0.047**	**0.058**	**0.046**	**0.011**	**0.013**	**0.139**	**0.049**	**0.032**
	Hazard Index for aro>C8-C16	**0.004**	**0.040**	**0.081**	**2.214**	**0.005**	**0.005**	**0.204**	**0.014**	**0.031**	**0.027**	**0.004**	**0.008**	**0.006**	**0.009**	**0.018**
	Hazard Index for aro>C16-C35	**0.019**	**0.105**	**0.002**	**1.316**	**0.123**	**0.010**	**0.280**	**0.403**	**0.213**	**0.206**	**0.084**	**0.127**	**0.330**	**0.148**	**0.257**

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP121	TP125	TP127	TP129	TP131	TP132	TP133	TP134	WS101	WS103	WS103	WS104	WS106	WS107	WS115
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP121	TP125	TP127	TP129	TP131	TP132	TP133	TP134	WS101	WS103	WS103	WS104	WS106	WS107	WS115
									0.6	0.25	0.25	0.5	0.3	0.3	0.2	0.4	0.7	0.8	1.85	0.4	0.4	0.3	0.6
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	160	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.0399	0.0134	0.01	0.2	0.01	0.164	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	530	0.50	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0169	0.01	0.01	0.105	0.0403	0.01	1.1	0.0439	0.599	0.01	0.0149	0.0364	0.01
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	150	6.75	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0285	0.01	0.01	0.121	0.0439	0.01	36.5	0.0226	4.23	0.01	0.01	0.0642	0.01
Aliphatics >EC10-EC12	1	38	1	392	1	280	71.36	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1.55	1	1	199	1	96	1.39	1	29.4	1
Aliphatics >EC12-EC16	1	38	1	3950	6	140	682.89	FURTHER ASSESSMENT REQUIRED	1	1	16.2	11.1	1.72	26.5	3.49	1.36	1710	4.89	664	13.9	1	197	5.33
Aliphatics >EC16-EC35	2	38	2	6680	0	110000	1228.22	POTENTIALLY SUITABLE FOR USE	2	59.44	31	17.68	15.23	56.6	77.5	19.48	2461	7.11	1065	173.8	7.57	360.1	29.99
Aliphatics >EC35-EC44	1	38	1	870	0	110000	153.65	POTENTIALLY SUITABLE FOR USE	1	28.5	1	5	1	1.18	1	1	86.9	1	29.1	148	12.2	6.33	1
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	310	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.2	0.01	0.1	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	680	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.2	0.01	0.1	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	190	4.50	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.019	0.01	0.01	0.0811	0.0293	0.01	24.3	0.0146	2.82	0.01	0.01	0.0428	0.01
Aromatics >EC10-EC12	1	38	1	84.7	0	390	16.33	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	4.02	1	1	45.3	1	15.1	1	1	2.14	1
Aromatics >EC12-EC16	1	38	1	1320	2	670	262.26	POTENTIALLY SUITABLE FOR USE	1	1	12.7	5.3	12.4	18.3	4.15	2.24	810	9.03	365	3.64	1	137	2.59
Aromatics >EC16-EC21	1	38	1	1130	1	930	271.60	POTENTIALLY SUITABLE FOR USE	1	8.69	75.3	76.6	28.1	397	63.5	5.45	638	18.1	265	13.5	1.03	176	22
Aromatics >EC21-EC35	1	38	1.32	1400	0	1700	455.21	POTENTIALLY SUITABLE FOR USE	1.32	79.5	418	862	138	726	306	102	56.5	34.9	25.8	507	30.2	677	243
Aromatics >EC35-EC44	1	38	1	790	0	1700	200.36	POTENTIALLY SUITABLE FOR USE	1	12.1	74.9	134	44.3	108	39.3	25.4	1	2.28	2	83.2	31.1	564	142
ADDITIVITY CHECK																							
								Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000
								Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000
								Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.243	0.000	0.028	0.000	0.000	0.000	0.000
Considered additive								Aliphatics >EC10-EC12	0.004	0.004	0.004	0.018	0.004	0.006	0.004	0.004	0.711	0.004	0.343	0.005	0.004	0.105	0.004
								Aliphatics >EC12-EC16	0.007	0.007	0.116	0.079	0.012	0.189	0.025	0.010	12.214	0.035	4.743	0.099	0.007	1.407	0.038
								Aliphatics >EC16-EC35	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.022	0.000	0.010	0.002	0.000	0.003	0.000
								Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000
								Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
								Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
								Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.128	0.000	0.015	0.000	0.000	0.000	0.000
Considered additive								Aromatics >EC10-EC12	0.003	0.003	0.003	0.013	0.003	0.010	0.003	0.003	0.116	0.003	0.039	0.003	0.003	0.005	0.003
								Aromatics >EC12-EC16	0.001	0.001	0.019	0.008	0.019	0.027	0.006	0.003	1.209	0.013	0.545	0.005	0.001	0.204	0.004
								Aromatics >EC16-EC21	0.001	0.009	0.081	0.082	0.030	0.427	0.068	0.006	0.686	0.019	0.285	0.015	0.001	0.189	0.024
Considered additive								Aromatics >EC21-EC35	0.001	0.047	0.246	0.507	0.081	0.427	0.180	0.060	0.033	0.021	0.015	0.298	0.018	0.398	0.143
								Aromatics >EC35-EC44	0.001	0.007	0.044	0.079	0.026	0.064	0.023	0.015	0.001	0.001	0.001	0.049	0.018	0.332	0.084
								Hazard Index for ali>C8-C16	**0.011**	**0.011**	**0.119**	**0.097**	**0.016**	**0.196**	**0.029**	**0.013**	**13.168**	**0.039**	**5.114**	**0.104**	**0.011**	**1.513**	**0.042**
								Hazard Index for aro>C8-C16	**0.004**	**0.004**	**0.022**	**0.021**	**0.021**	**0.038**	**0.009**	**0.006**	**1.453**	**0.016**	**0.598**	**0.008**	**0.004**	**0.210**	**0.006**
								Hazard Index for aro>C16-C35	**0.002**	**0.056**	**0.327**	**0.589**	**0.111**	**0.854**	**0.248**	**0.066**	**0.719**	**0.040**	**0.300**	**0.313**	**0.019**	**0.587**	**0.167**

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP201	TP203	TP206	TP209	TP210	TP211	TP213	TP221
								Soil Type								
								Location & Depth	TP201	TP203	TP206	TP209	TP210	TP211	TP213	TP221
									0.40	0.20	0.10	0.30	0.30	0.50	0.20	0.20
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	160	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	530	0.50	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	150	6.75	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	38	1	392	1	280	71.36	POTENTIALLY SUITABLE FOR USE	9.9	1	1	1	2.3	4	6.4	3.6
Aliphatics >EC12-EC16	1	38	1	3950	6	140	682.89	FURTHER ASSESSMENT REQUIRED	220	19	15	9	24	34	52	11
Aliphatics >EC16-EC35	2	38	2	6680	0	110000	1228.22	POTENTIALLY SUITABLE FOR USE	2000	290	110	320	120	110	370	13
Aliphatics >EC35-EC44	1	38	1	870	0	110000	153.65	POTENTIALLY SUITABLE FOR USE	870	76	46	190	35	56	230	8.4
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	310	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	680	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	190	4.50	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	38	1	84.7	0	390	16.33	POTENTIALLY SUITABLE FOR USE	5.4	1.8	1	2.2	2	1	4.5	2.1
Aromatics >EC12-EC16	1	38	1	1320	2	670	262.26	POTENTIALLY SUITABLE FOR USE	150	23	5.7	18	32	23	58	14
Aromatics >EC16-EC21	1	38	1	1130	1	930	271.60	POTENTIALLY SUITABLE FOR USE	590	39	23	28	59	55	100	17
Aromatics >EC21-EC35	1	38	1.32	1400	0	1700	455.21	POTENTIALLY SUITABLE FOR USE	1400	63	23	130	60	44	220	18
Aromatics >EC35-EC44	1	38	1	790	0	1700	200.36	POTENTIALLY SUITABLE FOR USE	790	44	14	90	18	11	200	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.035	0.004	0.004	0.004	0.008	0.014	0.023	0.013
Aliphatics >EC12-EC16	1.571	0.136	0.107	0.064	0.171	0.243	0.371	0.079
Aliphatics >EC16-EC35	0.018	0.003	0.001	0.003	0.001	0.001	0.003	0.000
Aliphatics >EC35-EC44	0.008	0.001	0.000	0.002	0.000	0.001	0.002	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.014	0.005	0.003	0.006	0.005	0.003	0.012	0.005
Aromatics >EC12-EC16	0.224	0.034	0.009	0.027	0.048	0.034	0.087	0.021
Aromatics >EC16-EC21	0.634	0.042	0.025	0.030	0.063	0.059	0.108	0.018
Aromatics >EC21-EC35	0.824	0.037	0.014	0.076	0.035	0.026	0.129	0.011
Aromatics >EC35-EC44	0.465	0.026	0.008	0.053	0.011	0.006	0.118	0.005
Hazard Index for ali>C8-C16	**1.607**	**0.139**	**0.111**	**0.068**	**0.180**	**0.257**	**0.394**	**0.091**
Hazard Index for aro>C8-C16	**0.238**	**0.039**	**0.011**	**0.033**	**0.053**	**0.037**	**0.098**	**0.026**
Hazard Index for aro>C16-C35	**1.458**	**0.079**	**0.038**	**0.107**	**0.099**	**0.085**	**0.237**	**0.029**

Considered additive (Aliphatics >EC8-EC10 to Aliphatics >EC12-EC16)

Considered additive (Aromatics >EC8-EC10 to Aromatics >EC12-EC16)

Considered additive (Aromatics >EC16-EC21 to Aromatics >EC21-EC35)

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP101	TP103	TP104	TP105	TP106	TP108	TP109	TP111	TP112	TP113	TP116	TP118	TP119	TP120	TP120A
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP101	TP103	TP104	TP105	TP106	TP108	TP109	TP111	TP112	TP113	TP116	TP118	TP119	TP120	TP120A
									0.4	0.6	0.4	0.5	0.4	0.7	0.3	0.6	0.9	0.6	0.4	0.35	0.6	0.4	0.6
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	160	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.0115	0.1	0.05	0.01	0.01	0.0117	0.01	0.0124	0.0128	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	530	0.50	POTENTIALLY SUITABLE FOR USE	0.01	0.0495	2.61	1.04	0.01	0.01	0.0573	0.0504	0.026	0.0278	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	160	6.75	POTENTIALLY SUITABLE FOR USE	0.01	0.11	22	7.63	0.01	0.01	0.0725	0.059	0.0422	0.058	0.0106	0.01	0.01	0.01	0.01
Aliphatics >EC10-EC12	1	38	1	392	1	280	71.36	POTENTIALLY SUITABLE FOR USE	1	4.99	1	392	1	1	16.2	2.16	4.2	1.52	1	1	1	1.3	1.2
Aliphatics >EC12-EC16	1	38	1	3950	6	140	682.89	FURTHER ASSESSMENT REQUIRED	1	112	1.7	3950	1.46	1.82	207	5.41	5.97	5.64	1	1.31	19	6.21	3.9
Aliphatics >EC16-EC35	2	38	2	6680	0	110000	1228.22	POTENTIALLY SUITABLE FOR USE	7.72	170.3	8.66	6680	4.02	3.45	503	4.48	8.04	37.9	17.79	9.52	40.13	40.3	21.15
Aliphatics >EC35-EC44	1	38	1	870	0	110000	153.65	POTENTIALLY SUITABLE FOR USE	1	1	1	44.1	1	1	1	1	1	1	1	1	1	1	1
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	1400	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.1	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	3900	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.1	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	270	4.50	POTENTIALLY SUITABLE FOR USE	0.01	0.0736	14.7	5.09	0.01	0.01	0.048	0.0394	0.0285	0.0383	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	1	38	1	84.7	0	1200	16.33	POTENTIALLY SUITABLE FOR USE	1	1.25	1	84.7	1	1	9.62	1	4.56	1.35	1	1	1	1	1
Aromatics >EC12-EC16	1	38	1	1320	0	2500	262.26	POTENTIALLY SUITABLE FOR USE	1	24.3	1	1320	1.88	1.76	120	7.29	12.9	15.6	1	3.28	2.09	4.4	10.3
Aromatics >EC16-EC21	1	38	1	1130	0	1900	271.60	POTENTIALLY SUITABLE FOR USE	1.19	55.9	1	1130	14	3.74	76.2	33.6	35.5	34.8	1.24	40.3	73.6	9.38	66.4
Aromatics >EC21-EC35	1	38	1.32	1400	0	1900	455.21	POTENTIALLY SUITABLE FOR USE	29.9	76.4	1.33	171	183	10.8	336	623	298	286	140	142	427	235	315
Aromatics >EC35-EC44	1	38	1	790	0	1900	200.36	POTENTIALLY SUITABLE FOR USE	31.9	7.16	1	5	105	1	128	175	89.8	203	24.6	24.3	88.8	49.4	111

ADDITIVITY CHECK

		HAZARD QUOTIENTS FOR EACH FRACTION														
	Aliphatics EC5-EC6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.005	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.001	0.138	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC10-EC12	0.004	0.018	0.004	1.400	0.004	0.004	0.058	0.008	0.015	0.005	0.004	0.004	0.004	0.005	0.004
	Aliphatics >EC12-EC16	0.007	0.800	0.012	28.214	0.010	0.013	1.479	0.039	0.043	0.040	0.007	0.009	0.136	0.044	0.028
	Aliphatics >EC16-EC35	0.000	0.002	0.000	0.061	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.054	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC10-EC12	0.001	0.001	0.001	0.071	0.001	0.001	0.008	0.001	0.004	0.001	0.001	0.001	0.001	0.001	0.001
	Aromatics >EC12-EC16	0.000	0.010	0.000	0.528	0.001	0.001	0.048	0.003	0.005	0.006	0.000	0.001	0.001	0.002	0.004
Considered additive	Aromatics >EC16-EC21	0.001	0.029	0.001	0.595	0.007	0.002	0.040	0.018	0.019	0.018	0.001	0.021	0.039	0.005	0.035
	Aromatics >EC21-EC35	0.016	0.040	0.001	0.090	0.096	0.006	0.177	0.328	0.157	0.151	0.074	0.075	0.225	0.124	0.166
	Aromatics >EC35-EC44	0.017	0.004	0.001	0.003	0.055	0.001	0.067	0.092	0.047	0.107	0.013	0.013	0.047	0.026	0.058
	Hazard Index for ali>C8-C16	**0.011**	**0.819**	**0.153**	**29.662**	**0.014**	**0.017**	**1.537**	**0.047**	**0.058**	**0.046**	**0.011**	**0.013**	**0.139**	**0.049**	**0.032**
	Hazard Index for aro>C8-C16	**0.001**	**0.011**	**0.056**	**0.617**	**0.002**	**0.002**	**0.056**	**0.004**	**0.009**	**0.008**	**0.001**	**0.002**	**0.002**	**0.003**	**0.005**
	Hazard Index for aro>C16-C35	**0.016**	**0.070**	**0.001**	**0.685**	**0.104**	**0.008**	**0.217**	**0.346**	**0.176**	**0.169**	**0.074**	**0.096**	**0.263**	**0.129**	**0.201**

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP121	TP125	TP127	TP129	TP131	TP132	TP133	TP134	WS101	WS103	WS103	WS104	WS106	WS107	WS115
									0.6	0.25	0.25	0.5	0.3	0.3	0.2	0.4	0.7	0.8	1.85	0.4	0.4	0.3	0.6
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	160	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.0399	0.0134	0.01	0.2	0.01	0.164	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	530	0.50	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0169	0.01	0.01	0.105	0.0403	0.01	1.1	0.0439	0.599	0.01	0.0149	0.0364	0.01
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	160	6.75	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0285	0.01	0.01	0.121	0.0439	0.01	36.5	0.0226	4.23	0.01	0.01	0.0642	0.01
Aliphatics >EC10-EC12	1	38	1	392	1	280	71.36	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1.55	1	1	199	1	96	1.39	1	29.4	1
Aliphatics >EC12-EC16	1	38	1	3950	6	140	682.89	FURTHER ASSESSMENT REQUIRED	1	1	16.2	11.1	1.72	26.5	3.49	1.36	1710	4.89	664	13.9	1	197	5.33
Aliphatics >EC16-EC35	2	38	2	6680	0	110000	1228.22	POTENTIALLY SUITABLE FOR USE	2	59.44	31	17.68	15.23	56.6	77.5	19.48	2461	7.11	1065	173.8	7.57	360.1	29.99
Aliphatics >EC35-EC44	1	38	1	870	0	110000	153.65	POTENTIALLY SUITABLE FOR USE	1	28.5	1	5	1	1.18	1	1	86.9	1	29.1	148	12.2	6.33	1
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	1400	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.2	0.01	0.1	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	3900	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.2	0.01	0.1	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	270	4.50	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.019	0.01	0.01	0.0811	0.0293	0.01	24.3	0.0146	2.82	0.01	0.01	0.0428	0.01
Aromatics >EC10-EC12	1	38	1	84.7	0	1200	16.33	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	4.02	1	1	45.3	1	15.1	1	1	2.14	1
Aromatics >EC12-EC16	1	38	1	1320	0	2500	262.26	POTENTIALLY SUITABLE FOR USE	1	1	12.7	5.3	12.4	18.3	4.15	2.24	810	9.03	365	3.64	1	137	2.59
Aromatics >EC16-EC21	1	38	1	1130	0	1900	271.60	POTENTIALLY SUITABLE FOR USE	1	8.69	75.3	76.6	28.1	397	63.5	5.45	638	18.1	265	13.5	1.03	176	22
Aromatics >EC21-EC35	1	38	1.32	1400	0	1900	455.21	POTENTIALLY SUITABLE FOR USE	1.32	79.5	418	862	138	726	306	102	56.5	34.9	25.8	507	30.2	677	243
Aromatics >EC35-EC44	1	38	1	790	0	1900	200.36	POTENTIALLY SUITABLE FOR USE	1	12.1	74.9	134	44.3	108	39.3	25.4	1	2.28	2	83.2	31.1	564	142

ADDITIVITY CHECK

Considered additive

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.228	0.000	0.026	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.004	0.004	0.004	0.018	0.004	0.006	0.004	0.004	0.711	0.004	0.343	0.005	0.004	0.105	0.004
Aliphatics >EC12-EC16	0.007	0.007	0.116	0.079	0.012	0.189	0.025	0.010	12.214	0.035	4.743	0.099	0.007	1.407	0.038
Aliphatics >EC16-EC35	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.022	0.000	0.010	0.002	0.000	0.003	0.000
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.000	0.010	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.001	0.001	0.001	0.004	0.001	0.003	0.001	0.001	0.038	0.001	0.013	0.001	0.001	0.002	0.001
Aromatics >EC12-EC16	0.000	0.000	0.005	0.002	0.005	0.007	0.002	0.001	0.324	0.004	0.146	0.001	0.000	0.055	0.001
Aromatics >EC16-EC21	0.001	0.005	0.040	0.040	0.015	0.209	0.033	0.003	0.336	0.010	0.139	0.007	0.001	0.093	0.012
Aromatics >EC21-EC35	0.001	0.042	0.220	0.454	0.073	0.382	0.161	0.054	0.030	0.018	0.014	0.267	0.016	0.356	0.128
Aromatics >EC35-EC44	0.001	0.006	0.039	0.071	0.023	0.057	0.021	0.013	0.001	0.001	0.001	0.044	0.016	0.297	0.075
Hazard Index for ali>C8-C16	**0.011**	**0.011**	**0.119**	**0.097**	**0.016**	**0.196**	**0.029**	**0.013**	**13.153**	**0.039**	**5.112**	**0.104**	**0.011**	**1.513**	**0.042**
Hazard Index for aro>C8-C16	**0.001**	**0.001**	**0.006**	**0.006**	**0.006**	**0.011**	**0.003**	**0.002**	**0.452**	**0.004**	**0.169**	**0.002**	**0.001**	**0.057**	**0.002**
Hazard Index for aro>C16-C35	**0.001**	**0.046**	**0.260**	**0.494**	**0.087**	**0.591**	**0.194**	**0.057**	**0.366**	**0.028**	**0.153**	**0.274**	**0.016**	**0.449**	**0.139**

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP201	TP203	TP206	TP209	TP210	TP211	TP213	TP221
								Soil Type								
								Location & Depth	TP201	TP203	TP206	TP209	TP210	TP211	TP213	TP221
									0.40	0.20	0.10	0.30	0.30	0.50	0.20	0.20
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	160	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	530	0.50	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	160	6.75	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	38	1	392	1	280	71.36	POTENTIALLY SUITABLE FOR USE	9.9	1	1	1	2.3	4	6.4	3.6
Aliphatics >EC12-EC16	1	38	1	3950	6	140	682.89	FURTHER ASSESSMENT REQUIRED	220	19	15	9	24	34	52	11
Aliphatics >EC16-EC35	2	38	2	6680	0	110000	1228.22	POTENTIALLY SUITABLE FOR USE	2000	290	110	320	120	110	370	13
Aliphatics >EC35-EC44	1	38	1	870	0	110000	153.65	POTENTIALLY SUITABLE FOR USE	870	76	46	190	35	56	230	8.4
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	1400	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	3900	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	270	4.50	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	38	1	84.7	0	1200	16.33	POTENTIALLY SUITABLE FOR USE	5.4	1.8	1	2.2	2	1	4.5	2.1
Aromatics >EC12-EC16	1	38	1	1320	0	2500	262.26	POTENTIALLY SUITABLE FOR USE	150	23	5.7	18	32	23	58	14
Aromatics >EC16-EC21	1	38	1	1130	0	1900	271.60	POTENTIALLY SUITABLE FOR USE	590	39	23	28	59	55	100	17
Aromatics >EC21-EC35	1	38	1.32	1400	0	1900	455.21	POTENTIALLY SUITABLE FOR USE	1400	63	23	130	60	44	220	18
Aromatics >EC35-EC44	1	38	1	790	0	1900	200.36	POTENTIALLY SUITABLE FOR USE	790	44	14	90	18	11	200	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.035	0.004	0.004	0.004	0.008	0.014	0.023	0.013
Aliphatics >EC12-EC16	1.571	0.136	0.107	0.064	0.171	0.243	0.371	0.079
Aliphatics >EC16-EC35	0.018	0.003	0.001	0.003	0.001	0.001	0.003	0.000
Aliphatics >EC35-EC44	0.008	0.001	0.000	0.002	0.000	0.001	0.002	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.005	0.002	0.001	0.002	0.002	0.001	0.004	0.002
Aromatics >EC12-EC16	0.060	0.009	0.002	0.007	0.013	0.009	0.023	0.006
Aromatics >EC16-EC21	0.311	0.021	0.012	0.015	0.031	0.029	0.053	0.009
Aromatics >EC21-EC35	0.737	0.033	0.012	0.068	0.032	0.023	0.116	0.009
Aromatics >EC35-EC44	0.416	0.023	0.007	0.047	0.009	0.006	0.105	0.004
Hazard Index for ali>C8-C16	**1.607**	**0.139**	**0.111**	**0.068**	**0.180**	**0.257**	**0.394**	**0.091**
Hazard Index for aro>C8-C16	**0.065**	**0.011**	**0.003**	**0.009**	**0.014**	**0.010**	**0.027**	**0.007**
Hazard Index for aro>C16-C35	**1.047**	**0.054**	**0.024**	**0.083**	**0.063**	**0.052**	**0.168**	**0.018**

Considered additive (Aliphatics >EC8-EC10 to Aliphatics >EC12-EC16)

Considered additive (Aromatics >EC8-EC10 to Aromatics >EC12-EC16)

Considered additive (Aromatics >EC16-EC21 to Aromatics >EC21-EC35)

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP101	TP103	TP104	TP105	TP106	TP108	TP109	TP111	TP112	TP113	TP116	TP118	TP119	TP120	TP120A
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP101	TP103	TP104	TP105	TP106	TP108	TP109	TP111	TP112	TP113	TP116	TP118	TP119	TP120	TP120A
									0.4	0.6	0.4	0.5	0.4	0.7	0.3	0.6	0.9	0.6	0.4	0.35	0.6	0.4	0.6
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	600000	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.0115	0.1	0.05	0.01	0.01	0.0117	0.01	0.0124	0.0128	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	620000	0.50	POTENTIALLY SUITABLE FOR USE	0.01	0.0495	2.61	1.04	0.01	0.01	0.0573	0.0504	0.026	0.0278	0.01	0.01	0.01	0.01	0.01
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	13000	6.75	POTENTIALLY SUITABLE FOR USE	0.01	0.11	22	7.63	0.01	0.01	0.0725	0.059	0.0422	0.058	0.0106	0.01	0.01	0.01	0.01
Aliphatics >EC10-EC12	1	38	1	392	0	13000	71.36	POTENTIALLY SUITABLE FOR USE	1	4.99	1	392	1	1	16.2	2.16	4.2	1.52	1	1	1	1.3	1.2
Aliphatics >EC12-EC16	1	38	1	3950	0	13000	682.89	POTENTIALLY SUITABLE FOR USE	1	112	1.7	3950	1.46	1.82	207	5.41	5.97	5.64	1	1.31	19	6.21	3.9
Aliphatics >EC16-EC35	2	38	2	6680	0	250000	1228.22	POTENTIALLY SUITABLE FOR USE	7.72	170.3	8.66	6680	4.02	3.45	503	4.48	8.04	37.9	17.79	9.52	40.13	40.3	21.15
Aliphatics >EC35-EC44	1	38	1	870	0	250000	153.65	POTENTIALLY SUITABLE FOR USE	1	1	1	44.1	1	1	1	1	1	1	1	1	1	1	1
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	56000	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.1	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	56000	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.1	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	5000	4.50	POTENTIALLY SUITABLE FOR USE	0.01	0.0736	14.7	5.09	0.01	0.01	0.048	0.0394	0.0285	0.0383	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	1	38	1	84.7	0	5000	16.33	POTENTIALLY SUITABLE FOR USE	1	1.25	1	84.7	1	1	9.62	1	4.56	1.35	1	1	1	1	1
Aromatics >EC12-EC16	1	38	1	1320	0	5000	262.26	POTENTIALLY SUITABLE FOR USE	1	24.3	1	1320	1.88	1.76	120	7.29	12.9	15.6	1	3.28	2.09	4.4	10.3
Aromatics >EC16-EC21	1	38	1	1130	0	3800	271.60	POTENTIALLY SUITABLE FOR USE	1.19	55.9	1	1130	14	3.74	76.2	33.6	35.5	34.8	1.24	40.3	73.6	9.38	66.4
Aromatics >EC21-EC35	1	38	1.32	1400	0	3800	455.21	POTENTIALLY SUITABLE FOR USE	29.9	76.4	1.33	171	183	10.8	336	623	298	286	140	142	427	235	315
Aromatics >EC35-EC44	1	38	1	790	0	3800	200.36	POTENTIALLY SUITABLE FOR USE	31.9	7.16	1	5	105	1	128	175	89.8	203	24.6	24.3	88.8	49.4	111

ADDITIVITY CHECK

		HAZARD QUOTIENTS FOR EACH FRACTION														
	Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aliphatics >EC8-EC10	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC10-EC12	0.000	0.000	0.000	0.030	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC12-EC16	0.000	0.009	0.000	0.304	0.000	0.000	0.016	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
	Aliphatics >EC16-EC35	0.000	0.001	0.000	0.027	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Considered additive	Aromatics >EC8-EC10	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC10-EC12	0.000	0.000	0.000	0.017	0.000	0.000	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
	Aromatics >EC12-EC16	0.000	0.005	0.000	0.264	0.000	0.000	0.024	0.001	0.003	0.003	0.000	0.001	0.000	0.001	0.002
Considered additive	Aromatics >EC16-EC21	0.000	0.015	0.000	0.297	0.004	0.001	0.020	0.009	0.009	0.009	0.000	0.011	0.019	0.002	0.017
	Aromatics >EC21-EC35	0.008	0.020	0.000	0.045	0.048	0.003	0.088	0.164	0.078	0.075	0.037	0.037	0.112	0.062	0.083
	Aromatics >EC35-EC44	0.008	0.002	0.000	0.001	0.028	0.000	0.034	0.046	0.024	0.053	0.006	0.006	0.023	0.013	0.029
	Hazard Index for ali>C8-C16	**0.000**	**0.009**	**0.002**	**0.335**	**0.000**	**0.000**	**0.017**	**0.001**	**0.001**	**0.001**	**0.000**	**0.000**	**0.002**	**0.001**	**0.000**
	Hazard Index for aro>C8-C16	**0.000**	**0.005**	**0.003**	**0.282**	**0.001**	**0.001**	**0.026**	**0.002**	**0.003**	**0.003**	**0.000**	**0.001**	**0.001**	**0.001**	**0.002**
	Hazard Index for aro>C16-C35	**0.008**	**0.035**	**0.001**	**0.342**	**0.052**	**0.004**	**0.108**	**0.173**	**0.088**	**0.084**	**0.037**	**0.048**	**0.132**	**0.064**	**0.100**

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Legend: Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test														
								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG
								Location & Depth	TP121	TP125	TP127	TP129	TP131	TP132	TP133	TP134	WS101	WS103	WS103	WS104	WS106	WS107	WS115
									0.6	0.25	0.25	0.5	0.3	0.3	0.2	0.4	0.7	0.8	1.85	0.4	0.4	0.3	0.6
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	600000	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.0399	0.0134	0.01	0.2	0.01	0.164	0.01	0.01	0.01	0.01
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	620000	0.50	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0169	0.01	0.01	0.105	0.0403	0.01	1.1	0.0439	0.599	0.01	0.0149	0.0364	0.01
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	13000	6.75	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.0285	0.01	0.01	0.121	0.0439	0.01	36.5	0.0226	4.23	0.01	0.01	0.0642	0.01
Aliphatics >EC10-EC12	1	38	1	392	0	13000	71.36	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	1.55	1	1	199	1	96	1.39	1	29.4	1
Aliphatics >EC12-EC16	1	38	1	3950	0	13000	682.89	POTENTIALLY SUITABLE FOR USE	1	1	16.2	11.1	1.72	26.5	3.49	1.36	1710	4.89	664	13.9	1	197	5.33
Aliphatics >EC16-EC35	2	38	2	6680	0	250000	1228.22	POTENTIALLY SUITABLE FOR USE	2	59.44	31	17.68	15.23	56.6	77.5	19.48	2461	7.11	1065	173.8	7.57	360.1	29.99
Aliphatics >EC35-EC44	1	38	1	870	0	250000	153.65	POTENTIALLY SUITABLE FOR USE	1	28.5	1	5	1	1.18	1	1	86.9	1	29.1	148	12.2	6.33	1
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	56000	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.2	0.01	0.1	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	56000	0.05	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.2	0.01	0.1	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	5000	4.50	POTENTIALLY SUITABLE FOR USE	0.01	0.01	0.019	0.01	0.01	0.0811	0.0293	0.01	24.3	0.0146	2.82	0.01	0.01	0.0428	0.01
Aromatics >EC10-EC12	1	38	1	84.7	0	5000	16.33	POTENTIALLY SUITABLE FOR USE	1	1	1	5	1	4.02	1	1	45.3	1	15.1	1	1	2.14	1
Aromatics >EC12-EC16	1	38	1	1320	0	5000	262.26	POTENTIALLY SUITABLE FOR USE	1	1	12.7	5.3	12.4	18.3	4.15	2.24	810	9.03	365	3.64	1	137	2.59
Aromatics >EC16-EC21	1	38	1	1130	0	3800	271.60	POTENTIALLY SUITABLE FOR USE	1	8.69	75.3	76.6	28.1	397	63.5	5.45	638	18.1	265	13.5	1.03	176	22
Aromatics >EC21-EC35	1	38	1.32	1400	0	3800	455.21	POTENTIALLY SUITABLE FOR USE	1.32	79.5	418	862	138	726	306	102	56.5	34.9	25.8	507	30.2	677	243
Aromatics >EC35-EC44	1	38	1	790	0	3800	200.36	POTENTIALLY SUITABLE FOR USE	1	12.1	74.9	134	44.3	108	39.3	25.4	1	2.28	2	83.2	31.1	564	142

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.007	0.000	0.000	0.002	0.000
Aliphatics >EC12-EC16	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000	0.132	0.000	0.051	0.001	0.000	0.015	0.000
Aliphatics >EC16-EC35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.004	0.001	0.000	0.001	0.000
Aliphatics >EC35-EC44	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.001	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.009	0.000	0.003	0.000	0.000	0.000	0.000
Aromatics >EC12-EC16	0.000	0.000	0.003	0.001	0.002	0.004	0.001	0.000	0.162	0.002	0.073	0.001	0.000	0.027	0.001
Aromatics >EC16-EC21	0.000	0.002	0.020	0.020	0.007	0.104	0.017	0.001	0.168	0.005	0.070	0.004	0.000	0.046	0.006
Aromatics >EC21-EC35	0.000	0.021	0.110	0.227	0.036	0.191	0.081	0.027	0.015	0.009	0.007	0.133	0.008	0.178	0.064
Aromatics >EC35-EC44	0.000	0.003	0.020	0.035	0.012	0.028	0.010	0.007	0.000	0.001	0.001	0.022	0.008	0.148	0.037
Hazard Index for ali>C8-C16	**0.000**	**0.000**	**0.001**	**0.001**	**0.000**	**0.002**	**0.000**	**0.000**	**0.150**	**0.000**	**0.059**	**0.001**	**0.000**	**0.017**	**0.000**
Hazard Index for aro>C8-C16	**0.000**	**0.000**	**0.003**	**0.002**	**0.003**	**0.004**	**0.001**	**0.001**	**0.176**	**0.002**	**0.077**	**0.001**	**0.000**	**0.028**	**0.001**
Hazard Index for aro>C16-C35	**0.001**	**0.023**	**0.130**	**0.247**	**0.044**	**0.296**	**0.097**	**0.028**	**0.183**	**0.014**	**0.077**	**0.137**	**0.008**	**0.224**	**0.070**

Considered additive: Aliphatics >EC8-EC10, Aliphatics >EC10-EC12, Aliphatics >EC12-EC16

Considered additive: Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16

Considered additive: Aromatics >EC16-EC21, Aromatics >EC21-EC35

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

All values in mg/kg unless otherwise stated

Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US_{95}	Result of Significance Test	TP201	TP203	TP206	TP209	TP210	TP211	TP213	TP221
								Soil Type								
								Location & Depth	TP201	TP203	TP206	TP209	TP210	TP211	TP213	TP221
									0.40	0.20	0.10	0.30	0.30	0.50	0.20	0.20
Aliphatics EC5-EC6	0.01	38	0.001	0.2	0	600000	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC6-EC8	0.01	38	0.001	2.61	0	620000	0.50	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC8-EC10	0.01	38	0.001	36.5	0	13000	6.75	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aliphatics >EC10-EC12	1	38	1	392	0	13000	71.36	POTENTIALLY SUITABLE FOR USE	9.9	1	1	1	2.3	4	6.4	3.6
Aliphatics >EC12-EC16	1	38	1	3950	0	13000	682.89	POTENTIALLY SUITABLE FOR USE	220	19	15	9	24	34	52	11
Aliphatics >EC16-EC35	2	38	2	6680	0	250000	1228.22	POTENTIALLY SUITABLE FOR USE	2000	290	110	320	120	110	370	13
Aliphatics >EC35-EC44	1	38	1	870	0	250000	153.65	POTENTIALLY SUITABLE FOR USE	870	76	46	190	35	56	230	8.4
Aromatics EC5-EC7	0.01	38	0.001	0.2	0	56000	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC7-EC8	0.01	38	0.001	0.2	0	56000	0.05	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC8-EC10	0.01	38	0.001	24.3	0	5000	4.50	POTENTIALLY SUITABLE FOR USE	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Aromatics >EC10-EC12	1	38	1	84.7	0	5000	16.33	POTENTIALLY SUITABLE FOR USE	5.4	1.8	1	2.2	2	1	4.5	2.1
Aromatics >EC12-EC16	1	38	1	1320	0	5000	262.26	POTENTIALLY SUITABLE FOR USE	150	23	5.7	18	32	23	58	14
Aromatics >EC16-EC21	1	38	1	1130	0	3800	271.60	POTENTIALLY SUITABLE FOR USE	590	39	23	28	59	55	100	17
Aromatics >EC21-EC35	1	38	1.32	1400	0	3800	455.21	POTENTIALLY SUITABLE FOR USE	1400	63	23	130	60	44	220	18
Aromatics >EC35-EC44	1	38	1	790	0	3800	200.36	POTENTIALLY SUITABLE FOR USE	790	44	14	90	18	11	200	8.4

ADDITIVITY CHECK

Aliphatics EC5-EC6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC6-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC10-EC12	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aliphatics >EC12-EC16	0.017	0.001	0.001	0.001	0.002	0.003	0.004	0.001
Aliphatics >EC16-EC35	0.008	0.001	0.000	0.001	0.000	0.000	0.001	0.000
Aliphatics >EC35-EC44	0.003	0.000	0.000	0.001	0.000	0.000	0.001	0.000
Aromatics EC5-EC7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC7-EC8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC8-EC10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aromatics >EC10-EC12	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000
Aromatics >EC12-EC16	0.030	0.005	0.001	0.004	0.006	0.005	0.012	0.003
Aromatics >EC16-EC21	0.155	0.010	0.006	0.007	0.016	0.014	0.026	0.004
Aromatics >EC21-EC35	0.368	0.017	0.006	0.034	0.016	0.012	0.058	0.005
Aromatics >EC35-EC44	0.208	0.012	0.004	0.024	0.005	0.003	0.053	0.002
Hazard Index for ali>C8-C16	**0.018**	**0.002**	**0.001**	**0.001**	**0.002**	**0.003**	**0.004**	**0.001**
Hazard Index for aro>C8-C16	**0.031**	**0.005**	**0.001**	**0.004**	**0.007**	**0.005**	**0.013**	**0.003**
Hazard Index for aro>C16-C35	**0.524**	**0.027**	**0.012**	**0.042**	**0.031**	**0.026**	**0.084**	**0.009**

Considered additive (Aliphatics >EC8-EC10 to Aliphatics >EC12-EC16)

Considered additive (Aromatics >EC8-EC10 to Aromatics >EC12-EC16)

Considered additive (Aromatics >EC16-EC21 to Aromatics >EC21-EC35)

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: Made Ground - Entire Site
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: Multiple

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	MG
						All values in mg/kg unless otherwise stated Location & Depth	TP219
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**
Aliphatics EC5-EC6	0.001	1	0.001	0.001	0	600000	0.001
Aliphatics >EC6-EC8	0.001	1	0.001	0.001	0	620000	0.001
Aliphatics >EC8-EC10	0.001	1	0.001	0.001	0	13000	0.001
Aliphatics >EC10-EC12	1	1	85	85	0	13000	85
Aliphatics >EC12-EC16	2	1	1900	1900	0	13000	1900
Aliphatics >EC16-EC35	10	1	110000	110000	0	250000	110000
Aliphatics >EC35-EC44	8.4	1	28000	28000	0	250000	28000
Aromatics EC5-EC7	0.001	1	0.001	0.001	0	56000	0.001
Aromatics >EC7-EC8	0.001	1	0.003	0.003	0	56000	0.003
Aromatics >EC8-EC10	0.001	1	0.024	0.024	0	5000	0.024
Aromatics >EC10-EC12	1	1	230	230	0	5000	230
Aromatics >EC12-EC16	2	1	1100	1100	0	5000	1100
Aromatics >EC16-EC21	10	1	2300	2300	0	3800	2300
Aromatics >EC21-EC35	10	1	23000	23000	1	3800	23000
Aromatics >EC35-EC44	8.4	1	5900	5900	1	3800	5900

	ADDITIVITY CHECK	**HAZARD QUOTIENTS FOR EACH FRACTION**
	Aliphatics EC5-EC6	0.000
	Aliphatics >EC6-EC8	0.000
Considered additive	Aliphatics >EC8-EC10	0.000
Considered additive	Aliphatics >EC10-EC12	0.007
Considered additive	Aliphatics >EC12-EC16	0.146
	Aliphatics >EC16-EC35	0.440
	Aliphatics >EC35-EC44	0.112
	Aromatics EC5-EC7	0.000
	Aromatics >EC7-EC8	0.000
Considered additive	Aromatics >EC8-EC10	0.000
Considered additive	Aromatics >EC10-EC12	0.046
Considered additive	Aromatics >EC12-EC16	0.220
Considered additive	Aromatics >EC16-EC21	0.605
Considered additive	Aromatics >EC21-EC35	6.053
	Aromatics >EC35-EC44	1.553
	Hazard Index for ali>C8-C16	**0.153**
	Hazard Index for aro>C8-C16	**0.266**
	Hazard Index for aro>C16-C35	**6.658**

Risk parameter: **Human health - POS resi (6%SOM)**
Data set: TP219 black residue
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799-2

Legend:
Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP219
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**
Aliphatics EC5-EC6	0.001	1	0.001	0.001	0	160	0.001
Aliphatics >EC6-EC8	0.001	1	0.001	0.001	0	530	0.001
Aliphatics >EC8-EC10	0.001	1	0.001	0.001	0	150	0.001
Aliphatics >EC10-EC12	1	1	85	85	0	280	85
Aliphatics >EC12-EC16	2	1	1900	1900	1	140	1900
Aliphatics >EC16-EC35	10	1	110000	110000	1	110000	110000
Aliphatics >EC35-EC44	8.4	1	28000	28000	0	110000	28000
Aromatics EC5-EC7	0.001	1	0.001	0.001	0	310	0.001
Aromatics >EC7-EC8	0.001	1	0.003	0.003	0	680	0.003
Aromatics >EC8-EC10	0.001	1	0.024	0.024	0	190	0.024
Aromatics >EC10-EC12	1	1	230	230	0	390	230
Aromatics >EC12-EC16	2	1	1100	1100	1	670	1100
Aromatics >EC16-EC21	10	1	2300	2300	1	930	2300
Aromatics >EC21-EC35	10	1	23000	23000	1	1700	23000
Aromatics >EC35-EC44	8.4	1	5900	5900	1	1700	5900

	ADDITIVITY CHECK	HAZARD QUOTIENTS FOR EACH FRACTION
	Aliphatics EC5-EC6	0.000
	Aliphatics >EC6-EC8	0.000
Considered additive	Aliphatics >EC8-EC10	0.000
Considered additive	Aliphatics >EC10-EC12	0.304
Considered additive	Aliphatics >EC12-EC16	13.571
	Aliphatics >EC16-EC35	1.000
	Aliphatics >EC35-EC44	0.255
	Aromatics EC5-EC7	0.000
	Aromatics >EC7-EC8	0.000
Considered additive	Aromatics >EC8-EC10	0.000
Considered additive	Aromatics >EC10-EC12	0.590
Considered additive	Aromatics >EC12-EC16	1.642
Considered additive	Aromatics >EC16-EC21	2.473
Considered additive	Aromatics >EC21-EC35	13.529
	Aromatics >EC35-EC44	3.471
	Hazard Index for ali>C8-C16	**13.875**
	Hazard Index for aro>C8-C16	**2.232**
	Hazard Index for aro>C16-C35	**16.003**

Risk parameter: **Human health - residential with plant uptake (6%SOM)**
Data set: TP219 black residue
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799-2

Legend:
Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Human Health

Hydrock

						Soil Type	MG
All values in mg/kg unless otherwise stated						Location & Depth	TP219
Chemical of Potential Concern	**Lab. RL**	**No. Samples**	**Min. Value**	**Max. Value**	**No. Samples > or = GAC**	**GAC**	**0.00**
Aliphatics EC5-EC6	0.001	1	0.001	0.001	0	160	0.001
Aliphatics >EC6-EC8	0.001	1	0.001	0.001	0	530	0.001
Aliphatics >EC8-EC10	0.001	1	0.001	0.001	0	160	0.001
Aliphatics >EC10-EC12	1	1	85	85	0	280	85
Aliphatics >EC12-EC16	2	1	1900	1900	1	140	1900
Aliphatics >EC16-EC35	10	1	110000	110000	1	110000	110000
Aliphatics >EC35-EC44	8.4	1	28000	28000	0	110000	28000
Aromatics EC5-EC7	0.001	1	0.001	0.001	0	1400	0.001
Aromatics >EC7-EC8	0.001	1	0.003	0.003	0	3900	0.003
Aromatics >EC8-EC10	0.001	1	0.024	0.024	0	270	0.024
Aromatics >EC10-EC12	1	1	230	230	0	1200	230
Aromatics >EC12-EC16	2	1	1100	1100	0	2500	1100
Aromatics >EC16-EC21	10	1	2300	2300	1	1900	2300
Aromatics >EC21-EC35	10	1	23000	23000	1	1900	23000
Aromatics >EC35-EC44	8.4	1	5900	5900	1	1900	5900

	ADDITIVITY CHECK	**HAZARD QUOTIENTS FOR EACH FRACTION**
	Aliphatics EC5-EC6	0.000
	Aliphatics >EC6-EC8	0.000
Considered additive	Aliphatics >EC8-EC10	0.000
Considered additive	Aliphatics >EC10-EC12	0.304
Considered additive	Aliphatics >EC12-EC16	13.571
	Aliphatics >EC16-EC35	1.000
	Aliphatics >EC35-EC44	0.255
	Aromatics EC5-EC7	0.000
	Aromatics >EC7-EC8	0.000
Considered additive	Aromatics >EC8-EC10	0.000
Considered additive	Aromatics >EC10-EC12	0.192
Considered additive	Aromatics >EC12-EC16	0.440
Considered additive	Aromatics >EC16-EC21	1.211
Considered additive	Aromatics >EC21-EC35	12.105
	Aromatics >EC35-EC44	3.105
	Hazard Index for ali>C8-C16	**13.875**
	Hazard Index for aro>C8-C16	**0.632**
	Hazard Index for aro>C16-C35	**13.316**

Risk parameter: **Human health - residential without plant uptake (6%SOM)**
Data set: TP219 black residue
Client: Eutopia Homes Ltd.
Site: Great Western Road Yard
Job no.: 20775
Lab. report no(s).: 22-41799-2

Legend:
Hazard Index table - HI or HQ greater than 1 highlighted with yellow shading.
Main table values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate.
Main table alues in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

	Possible origin														
PAH ratio		TP103	TP104	TP105	TP106	TP108	TP109	TP112	TP113	TP116	TP118	TP119	TP120	TP120A	TP121
Benzo(a)anthracene / Chrysene		-	pyrogenic	-	-	pyrogenic	pyrogenic	pyrogenic	-	pyrogenic	-	pyrogenic	pyrogenic	-	-
Fluoranthene / Pyrene		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene / Antracene		pyrogenic	pyrogenic	-	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic
Pyrene / Benzo(a)pyrene		pyrogenic	pyrogenic	petrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic
Indeno(1,2,3,cd)pyrene / Benzo(ghi)perylene		pyrogenic	pyrogenic	-	pyrogenic	pyrogenic	pyrogenic	-	-	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	-
L/H*		pyrogenic	pyrogenic	petrogenic	petrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	petrogenic	pyrogenic	pyrogenic
LPAH/HPAH**		-	-	petrogenic	pyrogenic	-	pyrogenic	-	pyrogenic	pyrogenic	-	-	-	-	-
Benzo(a)pyrene / Benzo(ghi)perylene		-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data set: Made Ground
Client: Eutopia Homes
Site: Great Western Road Yard
Job no.: 20775

*(phenanthrene+anthracene+pyrene+fluoranthene)/(benzo(a)anthracene+chrysene+benzo(k)fluoranthene+benzo(a)pyrene+indeno(1,2,3,cd)pyrene+dibenz(ah)anthracene+benzo(ghi)perylene)

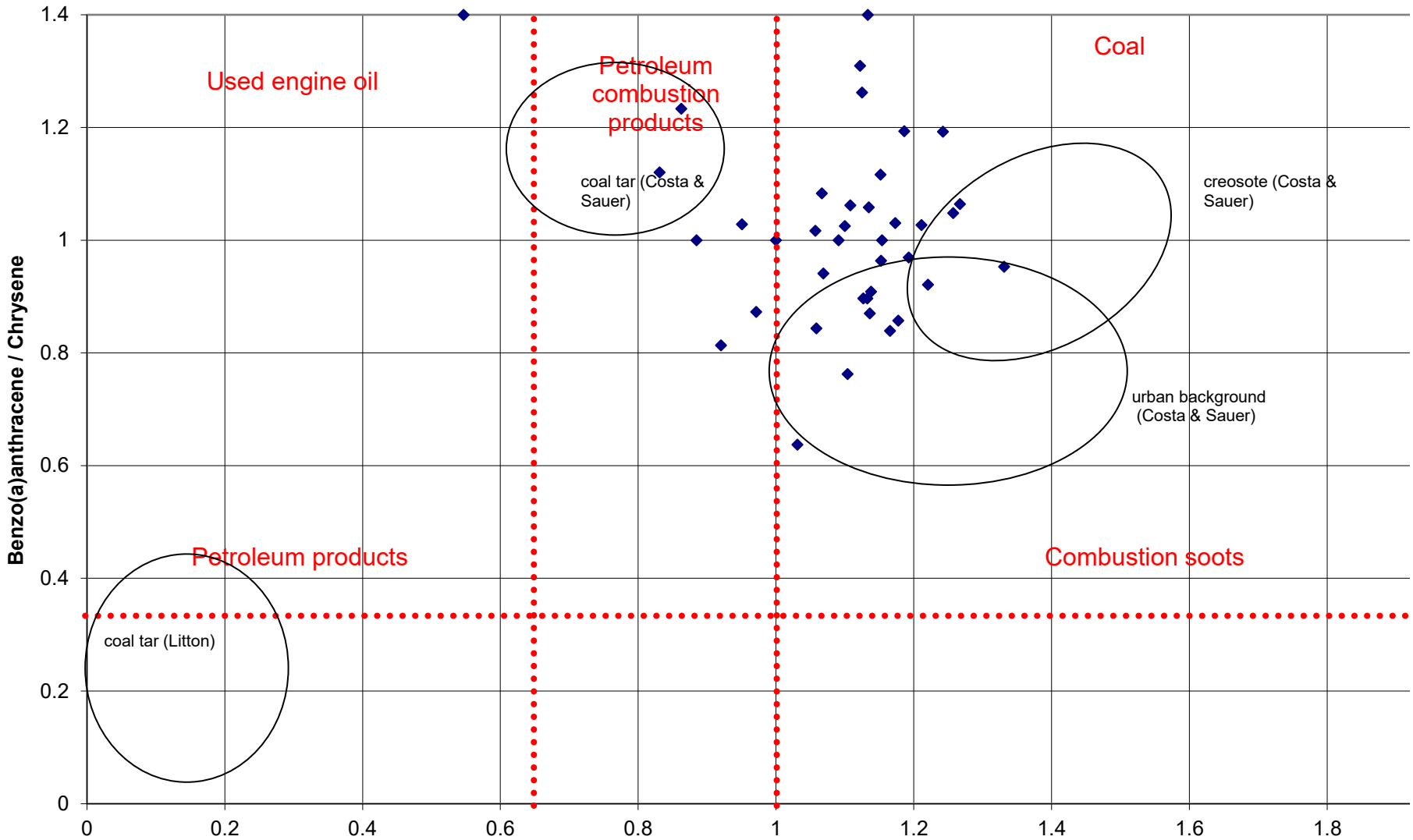
**(naphthalene+acenaphthene+acenaphthylene+fluorene+phenanthrene+anthracene)/(pyrene+anthracene+fluoranthene+chrysene+benzo(a)anthracene+benzo(b)fluoranthene+benzo(k)fluoranthene+benzo(a)pyrene+indeno(1,2,3,cd)pyrene+dibenz(ah)anthracene+benzo(ghi)perylene)

Pyrogenic PAHs originate from burning or pyrolysis of organic materials such as fossil fuels or biomass. Petrogenic PAHs originate in petroleum hydrocarbons (e.g. oil spills). (In addition, natural PAHs can form via biofgenic or diagenic processes.) The indicators of origin are based on PAH ratios and can be used in the process of judging the potential origin, but there are a great many factors that determine the PAH ratios, leading to uncertainty in the identification.

	Possible origin														
PAH ratio		TP125	TP127	TP129	TP131	TP132	TP133	TP134	WS101	WS103	WS104	WS106	WS107	WS115	TP201
Benzo(a)anthracene / Chrysene		pyrogenic	-	pyrogenic	-	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	-	pyrogenic	-	-	-
Fluoranthene / Pyrene		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene / Antracene		pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	petrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic
Pyrene / Benzo(a)pyrene		pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic
Indeno(1,2,3,cd)pyrene / Benzo(ghi)perylene		-	pyrogenic	pyrogenic	pyrogenic	-	-	pyrogenic	-	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	-
L/H*		pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	petrogenic	petrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic
LPAH/HPAH**		-	-	-	-	-	-	-	petrogenic	pyrogenic	-	pyrogenic	-	-	-
Benzo(a)pyrene / Benzo(ghi)perylene		-	-	-	-	-	non-traffic	-	-	-	-	-	-	-	-
Data set:	Made Ground														
Client:	Eutopia Homes														
Site:	Great Western R														
Job no.:	20775														

	Possible origin											
PAH ratio		TP203	TP205	TP206	TP209	TP210	TP211	TP213	TP216	TP221	CPT 201	CPT 206
Benzo(a)anthracene / Chrysene		pyrogenic	pyrogenic	-	pyrogenic	pyrogenic	-	-	-	-	-	pyrogenic
Fluoranthene / Pyrene		-	-	-	-	-	-	-	-	-	-	-
Phenanthrene / Antracene		pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic
Pyrene / Benzo(a)pyrene		pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	pyrogenic	petrogenic	pyrogenic	pyrogenic	pyrogenic
Indeno(1,2,3,cd)pyrene / Benzo(ghi)perylene		-	-	-	-	pyrogenic	pyrogenic	-	-	pyrogenic	-	-
L/H*		pyrogenic	petrogenic	petrogenic	petrogenic	pyrogenic	pyrogenic	pyrogenic	petrogenic	petrogenic	pyrogenic	petrogenic
LPAH/HPAH**		-	petrogenic	-	pyrogenic	-	pyrogenic	pyrogenic	pyrogenic	pyrogenic	-	-
Benzo(a)pyrene / Benzo(ghi)perylene		-	-	-	-	-	-	-	-	-	-	-
Data set:	Made Ground											
Client:	Eutopia Homes											
Site:	Great Western R											
Job no.:	20775											

Source Signature Double Ratio Plot
Made Ground Soils



Hydrock H-E plot - after ALcontrol Laboratories (2006), Jones (2009), Costa & Sauer (2005) and Litton (2006)

Remedial Targets Methodology Data Table

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)

RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples

Water body receptor(s): Groundwater and surface water
Secondary receptor(s): 0
Data set: Groundwater (Round 1 - JFHR October 2020)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): JFH: Multiple

Dataset ALL ZONES

PNEC calculated (inland EQS)

123* Exceeds solubility value
<1 Grey text and "<" sign if value <= LoD

Red fill if value > Inland Waters EQS

Surface Water Representative Hardness as mg/l $CaCO_3$ 10

CAS / AGS Number	Chemical of Potential Concern (µg/l)	WFD Designation	Hazardous Substance Status	Solubility Limit (µg/l)	No. of samples	Limit of Detection	Inland Waters EQS	BH101S	BH101D	BH102	BH103	WS101	WS102	WS103	WS104	WS105	WS107	WS109	WS110	WS111	WS112	WS113	WS114	WS116
							Strata / Zone	SHALLOW	DEEP	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW
							Date sampled:	20/10/2020	20/10/2020	20/10/2020	21/10/2020	21/10/2020	20/10/2020	21/10/2020	20/10/2020	20/10/2020	20/10/2020	21/10/2020	21/10/2020	21/10/2020	20/10/2020	21/10/2020	21/10/2020	20/10/2020
7440-38-2	Arsenic (As) (dissolved)	SP	H		17	0.5	50	<0.5	0.654	0.629	<0.5	2.73	11.1	1.1	<0.5	<0.5	6.27	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.786
7440-42-8	Boron (B) (dissolved)		NP		17	10	2000	343	772	578	569	179	326	140	191	199	198	192	507	379	738	570	602	196
7440-39-3	Barium (Ba) (dissolved)				17	0.2	n/a	39.7	23.2	89.2	65	102	107	137	50.6	40.5	158	83.8	114	131	70.6	402	110	64.9
7440-43-9	Cadmium (Cd) (dissolved)	PH	NP		17	0.08	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
7440-47-3	Chromium (Cr) (total) (dissolved)				17	1	n/a	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
7440-50-8	Copper (Cu) (dissolved)	SP	NP		17	0.3	1	2.37	<0.3	0.458	1.74	<0.3	<0.3	6.95	0.484	0.366	<0.3	1.56	1.2	2.26	1.27	0.68	<0.3	<0.3
7439-89-6	Iron (Fe) (dissolved)	SP			17	19	1000	<19	792	341	<19	6080	8680	130	<19	<19	10700	<19	<19	<19	<19	53.8	<19	1070
7439-97-6	Mercury (Hg) (dissolved)	PH	H		17	0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
P1286	Manganese (Mn) (dissolved)	SP			17	3	123	73	117	715	502	648	364	127	4.17	58.9	671	90.6	877	249	378	1340	765	578
7440-02-0	Nickel (Ni) (dissolved)	P	NP		17	0.4	4	2.43	4.26	5.69	3.88	3.85	2.55	6.99	1.22	2.7	3.15	4.87	5.58	7.58	2.57	6.45	11.3	4.65
7439-92-1	Lead (Pb) (dissolved)	P	H		17	0.2	1.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.326	0.213	<0.2	<0.2	<0.2
7440-36-0	Antimony (Sb) (dissolved)		NP		17	1	n/a	<1	<1	<1	<1	<1	<1	4.03	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
7782-49-2	Selenium (Se) (dissolved)		NP		17	1	n/a	2.34	3.48	<1	1.1	<1	<1	1.79	<1	2.38	<1	<1	<1	3.54	1.48	1.8	<1	<1
7440-66-6	Zinc (Zn) (dissolved)	SP	NP		17	1	12.3	2.84	3.9	2.01	13.2	<1	1.06	15.1	<1	<1	4	11.1	1.82	52.7	3.86	3.75	3.6	3.28
16887-00-6	Chloride (Cl^-)				17	2000	250000	32200	124000	55900	59700	8300	17300	9600	18900	7700	8300	18900	70700	57100	53900	50700	128000	16700
16984-48-8	Fluoride (F^-)				17	500	1000	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
P1348	Nitrate (NO_3^-)				17	300	n/a	741	<300	<300	57800	1500	561	3530	8030	4430	<300	539	26800	38000	24300	11000	14100	963
P1349	Nitrite (NO_2^-)				17	50	n/a	<50	<50	<50	327	71	<50	75	71	<50	<50	265	265	232	581	359	78	85
14808-79-8	Sulfate (SO_4^{2-})				17	2000	400000	58300	1330000	171000	135000	46300	39200	43500	41700	32200	113000	37300	78100	78900	80600	69100	143000	44300
P1134	pH (min.) (su)				17	0	6	7.18	7.17	7.84	7.3	7.4	7.21	7.09	7.8	7.18	7.12	7.34	7.32	7.31	7.13	7.19	7.45	7.57
P1134	pH (max.) (su)				17	0	9	7.18	7.17	7.84	7.3	7.4	7.21	7.09	7.8	7.18	7.12	7.34	7.32	7.31	7.13	7.19	7.45	7.57
P1287	Electrical conductivity (µS/cm)				17	20	n/a	851	2950	960	997	628	722	801	584	691	892	746	1000	975	950	975	1150	704
120-12-7	Anthracene	PH	H	56	17	0.005	0.1	<0.005	<0.005	<0.005	0.00584	<0.005	<0.005	<0.005	<0.005	<0.005	0.00504	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
50-32-8	Benzo(a)pyrene	PH	H	3.8	17	0.002	0.00017	<0.002	<0.002	<0.002	0.0598	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0643	0.0161	0.18	0.0154	<0.002
206-44-0	Fluoranthene	P	H	230	17	0.005	0.0063	0.00777	<0.005	<0.005	0.0734	0.0306	0.0179	<0.005	<0.005	<0.005	0.00844	<0.005	<0.005	0.0117	0.0337	0.0665	0.0234	0.00586
91-20-3	Naphthalene	P	NP	19000	17	0.01	2	<0.01	<0.01	<0.01	0.0126	<0.01	0.131	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0188	<0.01
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	P	H		17	0.02	n/a	<0.02	<0.02	<0.02	0.2699	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.3089	0.06343	0.5418	0.05355	<0.02
P1877	Phenol	SP	NP	84100000	17	2	7.7	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
P1407	All EC5-EC6			35900	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1408	All >EC6-EC8			5370	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	31	<10	<10	<10	<10	<10	<10	<10
P1409	All >EC8-EC10			427	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	79	<10	<10	<10	<10	<10	<10	<10
P1410	All >EC10-EC12			33.9	17	10	10	<10	<10	<10	<10	<10	31	<10	<10	<10	71 *	<10	<10	<10	<10	<10	<10	<10
P1411	All >EC12-EC16			0.759	17	10	10	<10	<10	<10	<10	89 *	97 *	<10	<10	<10	<10	<10	<10	31 *	<10	<10	<10	<10
P1938	All >EC16-EC35			0.00254	17	20	10	<20	<20	<20	<20	126 *	118 *	<20	<20	<20	<20	<20	<20	68 *	<20	<20	<20	<20
P1441	Aro EC5-EC7			1780000	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1355	Aro >EC7-EC8			590000	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1356	Aro >EC8-EC10			64600	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	53	<10	<10	<10	<10	<10	<10	<10
P1357	Aro >EC10-EC12			24500	17	10	10	<10	<10	<10	<10	<10	20	<10	<10	<10	47	<10	<10	<10	<10	<10	<10	<10
P1358	Aro > EC12-EC16			5750	17	10	10	<10	<10	<10	<10	129	122	<10	<10	<10	18	<10	<10	<10	<10	<10	<10	17
P1359	Aro >EC16-EC21			653	17	10	10	<10	<10	<10	<10	93	59	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1360	Aro >EC21-EC35			6.61	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	104 *	<10	<10
71-43-2	Benzene	P	H	1780000	17	7	10	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
108-88-3	Toluene	SP	H	590000	17	4	74	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
100-41-4	Ethylbenzene		H	180000	17	5	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
95-47-6	o-Xylene		H	173000	17	3	30	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
P1374	m,p-Xylene		H	200000	17	8	30	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
1634-04-04	Methyl tertiary butyl ether (MTBE)		NP	48000000	17	3	n/a	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3

Summary of Remedial Targets Methodology Screening

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondary receptor(s):
Data set: Groundwater (Round 1 - JFHR October 2020)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): JFH: Multiple
Dataset DEEP

PNEC calculated (inland EQS)

2013/39/EU Annex I
P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant
JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data: No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value	Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red): Inland Waters EQS	No. Samples Exceeding Water Quality Target: Inland Waters EQS	No. Samples above LoD Exceeding Water: Inland Waters EQS	Notes
P1133	Hardness as mg/l $CaCO_3$			-	-	-	10	-	-	-	-			Representative hardness of receiving surface water environment used in some inland EQS
7440-38-2	Arsenic (As) (dissolved)	SP	**H**	1	1	0.5	0.654	0.654	0.654	0.654	50	0	0	
7440-42-8	Boron (B) (dissolved)		NP	1	1	10	772	772	772	772	2000	0	0	
7440-39-3	Barium (Ba) (dissolved)			1	1	0.2	23.2	23.2	23.2	23.2	n/a			
7440-43-9	Cadmium (Cd) (dissolved)	**PH**	NP	1	0	0.08	<0.08	<0.08	<0.08	<0.08	0.08	0	0	EQS (inland) dependent on hardness of receiving surface water environment
7440-47-3	Chromium (Cr) (total) (dissolved)			1	0	1	<1	<1	<1	<1	n/a			
7440-50-8	Copper (Cu) (dissolved)	SP	NP	1	0	0.3	<0.3	<0.3	<0.3	<0.3	1	0	0	Bioavailable EQS (inland)
7439-89-6	Iron (Fe) (dissolved)	SP		1	1	19	792	792	792	792	1000	0	0	
7439-97-6	Mercury (Hg) (dissolved)	**PH**	**H**	1	0	0.01	<0.01	<0.01	<0.01	<0.01	0.07	0	0	
P1286	Manganese (Mn) (dissolved)	SP		1	1	3	117	117	117	117	123	0	0	Bioavailable EQS (inland)
7440-02-0	Nickel (Ni) (dissolved)	***P***	NP	1	1	0.4	4.26	4.26	4.26	4.26	4	1	1	Bioavailable EQS (inland)
7439-92-1	Lead (Pb) (dissolved)	***P***	**H**	1	0	0.2	<0.2	<0.2	<0.2	<0.2	1.2	0	0	Bioavailable EQS (inland)
7440-36-0	Antimony (Sb) (dissolved)		NP	1	0	1	<1	<1	<1	<1	n/a			
7782-49-2	Selenium (Se) (dissolved)		NP	1	1	1	3.48	3.48	3.48	3.48	n/a			
7440-66-6	Zinc (Zn) (dissolved)	SP	NP	1	1	1	3.9	3.9	3.9	3.9	12.3	0	0	Bioavailable EQS (inland) + ambient background concentration (ABC)
16887-00-6	Chloride (Cl^-)			1	1	2000	124000	124000	124000	124000	250000	0	0	
16984-48-8	Fluoride (F^-)			1	0	500	<500	<500	<500	<500	1000	0	0	EQS (inland) dependent on hardness of receiving surface water environment
P1348	Nitrate (NO_3^-)			1	0	300	<300	<300	<300	<300	n/a			
P1349	Nitrite (NO_2^-)			1	0	50	<50	<50	<50	<50	n/a			
14808-79-8	Sulfate (SO_4^{2-})			1	1	2000	1330000	1330000	1330000	1330000	400000	1	1	
P1134	pH (min.) (su)			1	1	0	7.17	7.17	7.17	7.17	6	0	0	
P1134	pH (max.) (su)			1	1	0	7.17	7.17	7.17	7.17	9	0	0	
P1287	Electrical conductivity (µS/cm)			1	1	20	2950	2950	2950	2950	n/a			
120-12-7	Anthracene	***PH***	**H**	1	0	0.005	<0.005	<0.005	<0.005	<0.005	0.1	0	0	
50-32-8	Benzo(a)pyrene	***PH***	H	1	0	0.002	<0.002	<0.002	<0.002	<0.002	0.00017	1	0	Benzo(a)pyrene EQS used as marker substance for the group of benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene & indeno (1,2,3-cd)pyrene
206-44-0	Fluoranthene	***P***	**H**	1	0	0.005	<0.005	<0.005	<0.005	<0.005	0.0063	0	0	
91-20-3	Naphthalene	P	NP	1	0	0.01	<0.01	<0.01	<0.01	<0.01	2	0	0	
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	***P***	**H**	1	0	0.02	<0.02	<0.02	<0.02	<0.02	n/a			
P1877	Phenol	SP	**NP**	1	0	2	<2	<2	<2	<2	7.7	0	0	
P1407	Ali EC5-EC6			1	0	10	<10	<10	<10	<10	10	0	0	n-hexane fall within this fraction
P1408	Ali >EC6-EC8			1	0	10	<10	<10	<10	<10	10	0	0	n-heptane falls within this fraction
P1409	Ali >EC8-EC10			1	0	10	<10	<10	<10	<10	10	0	0	n-octane and n-nonane fall within this fraction
P1410	Ali >EC10-EC12			1	0	10	<10	<10	<10	<10	10	0	0	
P1411	Ali >EC12-EC16			1	0	10	<10	<10	<10	<10	10	0	0	
P1938	Ali >EC16-EC35			1	0	20	<20	<20	<20	<20	10	1	0	
P1441	Aro EC5-EC7			1	0	10	<10	<10	<10	<10	10	0	0	Benzene wholly representative of this fraction
P1355	Aro >EC7-EC8			1	0	10	<10	<10	<10	<10	10	0	0	Toluene wholly representative of this fraction
P1356	Aro >EC8-EC10			1	0	10	<10	<10	<10	<10	10	0	0	Ethylbenzene / xylene / trimethylbenzene representative of this range
P1357	Aro >EC10-EC12			1	0	10	<10	<10	<10	<10	10	0	0	Naphthalene often forms a reasonable percentage of this fraction
P1358	Aro > EC12-EC16			1	0	10	<10	<10	<10	<10	10	0	0	2-methylnaphthalene, acenpthylene, acenapthene falls within this fraction
P1359	Aro >EC16-EC21			1	0	10	<10	<10	<10	<10	10	0	0	fluorene, anthracene, phenanthrene, pyrene falls within this range
P1360	Aro >EC21-EC35			1	0	10	<10	<10	<10	<10	10	0	0	Benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(cd)pyrene fall within this fraction
71-43-2	Benzene	P	**H**	1	0	7	<7	<7	<7	<7	10	0	0	
108-88-3	Toluene	SP	**H**	1	0	4	<4	<4	<4	<4	74	0	0	
100-41-4	Ethylbenzene		**H**	1	0	5	<5	<5	<5	<5	20	0	0	Proposed EQS for Ethylbenzene in Water, R&D Technical Report P2-115/TR4. EA 2001
95-47-6	o-Xylene		**H**	1	0	3	<3	<3	<3	<3	30	0	0	EQS for total xylene
P1374	m,p-Xylene		**H**	1	0	8	<8	<8	<8	<8	30	0	0	EQS for total xylene
1634-04-04	Methyl tertiary butyl ether (MTBE)		**NP**	1	0	3	<3	<3	<3	<3	n/a			

Summary of Remedial Targets Methodology Screening

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondary receptor(s):
Data set: Groundwater (Round 1 - JFHR October 2020)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): JFH: Multiple
Dataset SHALLOW

PNEC calculated (inland EQS)

2013/39/EU Annex I
P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant
JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data: No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value	Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red): Inland Waters EQS	No. Samples Exceeding Water Quality Target: Inland Waters EQS	No. Samples above LoD Exceeding Water: Inland Waters EQS	Notes
P1133	Hardness as mg/l $CaCO_3$			-	-	-	10	-	-	-	-			Representative hardness of receiving surface water environment used in some inland EQS
7440-38-2	Arsenic (As) (dissolved)	SP	**H**	16	6	0.5	<0.5	11.1	7.4775	11.1	50	0	0	
7440-42-8	Boron (B) (dissolved)		NP	16	16	10	140	738	636	738	2000	0	0	
7440-39-3	Barium (Ba) (dissolved)			16	16	0.2	39.7	402	219	402	n/a			
7440-43-9	Cadmium (Cd) (dissolved)	**PH**	NP	16	0	0.08	<0.08	<0.08	<0.08	<0.08	0.08	0	0	EQS (inland) dependent on hardness of receiving surface water environment
7440-47-3	Chromium (Cr) (total) (dissolved)			16	0	1	<1	<1	<1	<1	n/a			
7440-50-8	Copper (Cu) (dissolved)	SP	NP	16	11	0.3	<0.3	6.95	3.515	6.95	1	7	7	Bioavailable EQS (inland)
7439-89-6	Iron (Fe) (dissolved)	SP		16	7	19	<19	10700	9185	10700	1000	4	4	
7439-97-6	Mercury (Hg) (dissolved)	**PH**	**H**	16	0	0.01	<0.01	<0.01	<0.01	<0.01	0.07	0	0	
P1286	Manganese (Mn) (dissolved)	SP		16	16	3	4.17	1340	992.75	1340	123	12	12	Bioavailable EQS (inland)
7440-02-0	Nickel (Ni) (dissolved)	***P***	NP	16	16	0.4	1.22	11.3	8.51	11.3	4	8	8	Bioavailable EQS (inland)
7439-92-1	Lead (Pb) (dissolved)	***P***	**H**	16	2	0.2	<0.2	0.326	0.24125	0.326	1.2	0	0	Bioavailable EQS (inland)
7440-36-0	Antimony (Sb) (dissolved)		NP	16	1	1	<1	4.03	1.7575	4.03	n/a			
7782-49-2	Selenium (Se) (dissolved)		NP	16	7	1	<1	3.54	2.67	3.54	n/a			
7440-66-6	Zinc (Zn) (dissolved)	SP	NP	16	13	1	<1	52.7	24.5	52.7	12.3	3	3	Bioavailable EQS (inland) + ambient background concentration (ABC)
16887-00-6	Chloride (Cl^-)			16	16	2000	7700	128000	85025	128000	250000	0	0	
16984-48-8	Fluoride (F^-)			16	0	500	<500	<500	<500	<500	1000	0	0	EQS (inland) dependent on hardness of receiving surface water environment
P1348	Nitrate (NO_3^-)			16	14	300	<300	57800	42950	57800	n/a			
P1349	Nitrite (NO_2^-)			16	11	50	<50	581	414.5	581	n/a			
14808-79-8	Sulfate (SO_4^{2-})			16	16	2000	32200	171000	150000	171000	400000	0	0	
P1134	pH (min.) (su)			16	16	0	7.09	7.84	7.81	7.84	6	0	0	
P1134	pH (max.) (su)			16	16	0	7.09	7.84	7.81	7.84	9	0	0	
P1287	Electrical conductivity (µS/cm)			16	16	20	584	1150	1037.5	1150	n/a			
120-12-7	Anthracene	***PH***	**H**	16	2	0.005	<0.005	0.00584	0.00524	0.00584	0.1	0	0	
50-32-8	Benzo(a)pyrene	***PH***	H	16	5	0.002	<0.002	0.18	0.093225	0.18	0.00017	16	5	Benzo(a)pyrene EQS used as marker substance for the group of benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene & indeno (1,2,3-cd)pyrene
206-44-0	Fluoranthene	***P***	**H**	16	10	0.005	<0.005	0.0734	0.068225	0.0734	0.0063	9	9	
91-20-3	Naphthalene	P	NP	16	3	0.01	<0.01	0.131	0.04685	0.131	2	0	0	
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	***P***	**H**	16	5	0.02	<0.02	0.5418	0.367125	0.5418	n/a			
P1877	Phenol	SP	**NP**	16	0	2	<2	<2	<2	<2	7.7	0	0	
P1407	Ali EC5-EC6			16	0	10	<10	<10	<10	<10	10	0	0	n-hexane fall within this fraction
P1408	Ali >EC6-EC8			16	1	10	<10	31	15.25	31	10	1	1	n-heptane falls within this fraction
P1409	Ali >EC8-EC10			16	1	10	<10	79	27.25	79	10	1	1	n-octane and n-nonane fall within this fraction
P1410	Ali >EC10-EC12			16	2	10	<10	71	41	71	10	2	2	
P1411	Ali >EC12-EC16			16	3	10	<10	97	91	97	10	3	3	
P1938	Ali >EC16-EC35			16	3	20	<20	126	120	126	10	16	3	
P1441	Aro EC5-EC7			16	0	10	<10	<10	<10	<10	10	0	0	Benzene wholly representative of this fraction
P1355	Aro >EC7-EC8			16	0	10	<10	<10	<10	<10	10	0	0	Toluene wholly representative of this fraction
P1356	Aro >EC8-EC10			16	1	10	<10	53	20.75	53	10	1	1	Ethylbenzene / xylene / trimethylbenzene representative of this range
P1357	Aro >EC10-EC12			16	2	10	<10	47	26.75	47	10	2	2	Naphthalene often forms a reasonable percentage of this fraction
P1358	Aro > EC12-EC16			16	4	10	<10	129	123.75	129	10	4	4	2-methylnaphthalene, acenpthylene, acenapthene falls within this fraction
P1359	Aro >EC16-EC21			16	2	10	<10	93	67.5	93	10	2	2	fluorene, anthracene, phenanthrene, pyrene falls within this range
P1360	Aro >EC21-EC35			16	1	10	<10	104	33.5	104	10	1	1	Benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(cd)pyrene fall within this fraction
71-43-2	Benzene	P	**H**	16	0	7	<7	<7	<7	<7	10	0	0	
108-88-3	Toluene	SP	**H**	16	0	4	<4	<4	<4	<4	74	0	0	
100-41-4	Ethylbenzene		**H**	16	0	5	<5	<5	<5	<5	20	0	0	Proposed EQS for Ethylbenzene in Water, R&D Technical Report P2-115/TR4. EA 2001
95-47-6	o-Xylene		**H**	16	0	3	<3	<3	<3	<3	30	0	0	EQS for total xylene
P1374	m,p-Xylene		**H**	16	0	8	<8	<8	<8	<8	30	0	0	EQS for total xylene
1634-04-04	Methyl tertiary butyl ether (MTBE)		**NP**	16	0	3	<3	<3	<3	<3	n/a			

Remedial Targets Methodology Data Table

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)

RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples

Water body receptor(s): Groundwater and surface water
Secondary receptor(s): 0
Data set: Groundwater (Round 2 - JFHR November 2020)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): JFH: Multiple

Dataset ALL ZONES

PNEC calculated (inland EQS)

123* Exceeds solubility value
<1 Grey text and "<" sign if value <= LoD
Red fill if value > Inland Waters EQS

Surface Water Representative Hardness as mg/l $CaCO_3$ 10

CAS / AGS Number	Chemical of Potential Concern (µg/l)	WFD Designation	Hazardous Substance Status	Solubility Limit (µg/l)	No. of samples	Limit of Detection	Inland Waters EQS	BH101S	BH101D	BH102	BH103	WS101	WS102	WS103	WS104	WS105	WS107	WS109	WS110	WS111	WS112	WS113	WS114	WS116
							Strata / Zone	SHALLOW	DEEP	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW
							Date sampled:	03/11/2020	03/11/2020	04/11/2020	04/11/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020	03/11/2020	04/11/2020	04/11/2020	04/11/2020	04/11/2020	04/11/2020	04/11/2020	04/11/2020	03/11/2020
7440-38-2	Arsenic (As) (dissolved)	SP	H		17	0.5	50	<0.5	1.14	0.794	0.557	4.64	20.1	1.31	0.731	<0.5	4.36	<0.5	<0.5	<0.5	<0.5	1.07	<0.5	0.584
7440-42-8	Boron (B) (dissolved)		NP		17	10	2000	393	895	549	460	164	385	116	168	184	135	168	503	364	757	530	603	214
7440-43-9	Cadmium (Cd) (dissolved)	PH	NP		17	0.08	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
7440-47-3	Chromium (Cr) (total) (dissolved)				17	1	na	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
7440-50-8	Copper (Cu) (dissolved)	SP	NP		17	0.3	1	0.785	0.354	<0.3	2.42	<0.3	1.01	4	0.754	0.359	<0.3	1.64	0.655	1.25	9.09	0.462	0.324	<0.3
7439-97-6	Mercury (Hg) (dissolved)	PH	H		17	0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
7440-02-0	Nickel (Ni) (dissolved)	P	NP		17	0.4	4	1.19	6.36	5.24	2.58	4.57	3.51	6.46	1.22	1.95	3.91	3.18	5.8	6.88	1.98	6.4	7.88	4.44
7439-92-1	Lead (Pb) (dissolved)	P	H		17	0.2	1.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.249	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.558	<0.2	<0.2	<0.2
7782-49-2	Selenium (Se) (dissolved)		NP		17	1	na	4.04	<1	<1	<1	<1	<1	4.67	4.49	2.98	1.91	<1	<1	2.73	3.49	<1	<1	<1
7440-66-6	Zinc (Zn) (dissolved)	SP	NP		17	1	12.3	6.01	<1	3.17	27.4	<1	2.86	13.2	1.21	1.32	4.24	19.4	<1	1.78	2.52	1.37	3.1	1.73
14808-79-8	Sulfate (SO_4^{2-})				17	2000	400000	58300	1410000	166000	128000	84500	33300	34400	46700	30700	58700	19900	68100	68300	75700	61500	150000	47100
P1134	pH (min.) (su)				17	0	6	6.96	7.24	7.28	7.38	7.15	6.91	7.01	7.35	7.1	6.94	6.77	7.11	7.07	7.19	7.19	7.18	7.08
P1134	pH (max.) (su)				17	0	9	6.96	7.24	7.28	7.38	7.15	6.91	7.01	7.35	7.1	6.94	6.77	7.11	7.07	7.19	7.19	7.18	7.08
120-12-7	Anthracene	PH	H	56	17	0.005	0.1	<0.005	<0.005	<0.005	0.0112	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00501	<0.005	<0.005
50-32-8	Benzo(a)pyrene	PH	H	3.8	17	0.002	0.00017	<0.002	<0.002	<0.002	0.101	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.00775	<0.002	<0.002
206-44-0	Fluoranthene	P	H	230	17	0.005	0.0063	<0.005	<0.005	<0.005	0.104	<0.005	0.0125	<0.005	<0.005	<0.005	0.00709	<0.005	0.0126	<0.005	<0.005	0.0676	0.00565	<0.005
91-20-3	Naphthalene	P	NP	19000	17	0.01	2	<0.01	0.0126	<0.01	0.0186	<0.01	0.176	<0.01	<0.01	0.0118	0.0273	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	P	H		17	0.02	na	<0.02	<0.02	<0.02	0.5421	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02585	<0.02	<0.02
P1877	Phenol	SP	NP	84100000	17	2	7.7	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
P1407	Ali EC5-EC6			35900	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1408	Ali >EC6-EC8			5370	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1409	Ali >EC8-EC10			427	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1410	Ali >EC10-EC12			33.9	17	10	10	<10	<10	<10	<10	<10	16	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1411	Ali >EC12-EC16			0.759	17	10	10	<10	<10	<10	<10	<10	13 *	<10	<10	11 *	<10	<10	<10	<10	<10	<10	<10	<10
P1938	Ali >EC16-EC35			0.00254	17	20	10	<20	<20	<20	<20	<20	29 *	<20	<20	21 *	<20	<20	<20	<20	<20	<20	<20	<20
P1441	Aro EC5-EC7			1780000	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1355	Aro >EC7-EC8			590000	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1356	Aro >EC8-EC10			64600	17	10	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1357	Aro >EC10-EC12			24500	17	10	10	<10	<10	<10	<10	<10	11	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1358	Aro > EC12-EC16			5750	17	10	10	<10	<10	<10	<10	116	109	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1359	Aro >EC16-EC21			653	17	10	10	<10	<10	<10	<10	74	39	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1360	Aro >EC21-EC35			6.61	17	10	10	<10	<10	<10	<10	58 *	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
71-43-2	Benzene	P	H	1780000	17	7	10	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7	<7
108-88-3	Toluene	SP	H	590000	17	4	74	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4	<4
100-41-4	Ethylbenzene		H	180000	17	5	20	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
95-47-6	o-Xylene		H	173000	17	3	30	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
P1374	m,p-Xylene		H	200000	17	8	30	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
1634-04-04	Methyl tertiary butyl ether (MTBE)		NP	48000000	17	3	na	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3

Summary of Remedial Targets Methodology Screening

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondary receptor(s):
Data set: Groundwater (Round 2 - JFHR November 2020)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): JFH: Multiple
Dataset DEEP

PNEC calculated (inland EQS)

2013/39/EU Annex I
P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant
JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data						Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red		No. Samples Exceeding Water Quality Target		No. Samples above LoD Exceeding Water		Notes
				No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value			Inland Waters EQS		Inland Waters EQS		Inland Waters EQS	EQS compared to dissolved metals as an initial screen, with no adjustment for bioavailability or ABC.
P1133	Hardness as mg/l $CaCO_3$			-	-	-	10	-	-	-		-					Representative hardness of receiving surface water environment used in some inland EQS
7440-38-2	Arsenic (As) (dissolved)	SP	**H**	1	1	0.5	1.14	1.14	1.14	1.14		50		0		0	
7440-42-8	Boron (B) (dissolved)		NP	1	1	10	895	895	895	895		2000		0		0	
7440-43-9	Cadmium (Cd) (dissolved)	**PH**	NP	1	0	0.08	<0.08	<0.08	<0.08	<0.08		0.08		0		0	EQS (inland) dependent on hardness of receiving surface water environment
7440-47-3	Chromium (Cr) (total) (dissolved)			1	0	1	<1	<1	<1	<1		n/a					
7440-50-8	Copper (Cu) (dissolved)	SP	NP	1	1	0.3	0.354	0.354	0.354	0.354		1		0		0	Bioavailable EQS (inland)
7439-97-6	Mercury (Hg) (dissolved)	**PH**	**H**	1	0	0.01	<0.01	<0.01	<0.01	<0.01		0.07		0		0	
7440-02-0	Nickel (Ni) (dissolved)	***P***	NP	1	1	0.4	6.36	6.36	6.36	6.36		4		1		1	Bioavailable EQS (inland)
7439-92-1	Lead (Pb) (dissolved)	***P***	**H**	1	0	0.2	<0.2	<0.2	<0.2	<0.2		1.2		0		0	Bioavailable EQS (inland)
7782-49-2	Selenium (Se) (dissolved)		NP	1	0	1	<1	<1	<1	<1		n/a					
7440-66-6	Zinc (Zn) (dissolved)	SP	NP	1	0	1	<1	<1	<1	<1		12.3		0		0	Bioavailable EQS (inland) + ambient background concentration (ABC)
14808-79-8	Sulfate (SO_4^{2-})			1	1	2000	1410000	1410000	1410000	1410000		400000		1		1	
P1134	pH (min.) (su)			1	1	0	7.24	7.24	7.24	7.24		6		0		0	
P1134	pH (max.) (su)			1	1	0	7.24	7.24	7.24	7.24		9		0		0	
120-12-7	Anthracene	***PH***	**H**	1	0	0.005	<0.005	<0.005	<0.005	<0.005		0.1		0		0	
50-32-8	Benzo(a)pyrene	***PH***	H	1	0	0.002	<0.002	<0.002	<0.002	<0.002		0.00017		1		0	Benzo(a)pyrene EQS used as marker substance for the group of benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene & indeno (1,2,3-cd)pyrene
206-44-0	Fluoranthene	***P***	**H**	1	0	0.005	<0.005	<0.005	<0.005	<0.005		0.0063		0		0	
91-20-3	Naphthalene	P	NP	1	1	0.01	0.0126	0.0126	0.0126	0.0126		2		0		0	
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	***P***	**H**	1	0	0.02	<0.02	<0.02	<0.02	<0.02		n/a					
P1877	Phenol	SP	**NP**	1	0	2	<2	<2	<2	<2		7.7		0		0	
P1407	Ali EC5-EC6			1	0	10	<10	<10	<10	<10		10		0		0	n-hexane fall within this fraction
P1408	Ali >EC6-EC8			1	0	10	<10	<10	<10	<10		10		0		0	n-heptane falls within this fraction
P1409	Ali >EC8-EC10			1	0	10	<10	<10	<10	<10		10		0		0	n-octane and n-nonane fall within this fraction
P1410	Ali >EC10-EC12			1	0	10	<10	<10	<10	<10		10		0		0	
P1411	Ali >EC12-EC16			1	0	10	<10	<10	<10	<10		10		0		0	
P1938	Ali >EC16-EC35			1	0	20	<20	<20	<20	<20		10		1		0	
P1441	Aro EC5-EC7			1	0	10	<10	<10	<10	<10		10		0		0	Benzene wholly representative of this fraction
P1355	Aro >EC7-EC8			1	0	10	<10	<10	<10	<10		10		0		0	Toluene wholly representative of this fraction
P1356	Aro >EC8-EC10			1	0	10	<10	<10	<10	<10		10		0		0	Ethylbenzene / xylene / trimethylbenzene representative of this range
P1357	Aro >EC10-EC12			1	0	10	<10	<10	<10	<10		10		0		0	Naphthalene often forms a reasonable percentage of this fraction
P1358	Aro > EC12-EC16			1	0	10	<10	<10	<10	<10		10		0		0	2-methylnaphthalene, acenpthylene, acenapthene falls within this fraction
P1359	Aro >EC16-EC21			1	0	10	<10	<10	<10	<10		10		0		0	fluorene, anthracene, phenanthrene, pyrene falls within this range
P1360	Aro >EC21-EC35			1	0	10	<10	<10	<10	<10		10		0		0	Benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(cd)pyrene fall within this fraction
71-43-2	Benzene	P	**H**	1	0	7	<7	<7	<7	<7		10		0		0	
108-88-3	Toluene	SP	**H**	1	0	4	<4	<4	<4	<4		74		0		0	
100-41-4	Ethylbenzene		**H**	1	0	5	<5	<5	<5	<5		20		0		0	Proposed EQS for Ethylbenzene in Water, R&D Technical Report P2-115/TR4. EA 2001
95-47-6	o-Xylene		**H**	1	0	3	<3	<3	<3	<3		30		0		0	EQS for total xylene
P1374	m,p-Xylene		**H**	1	0	8	<8	<8	<8	<8		30		0		0	EQS for total xylene
1634-04-04	Methyl tertiary butyl ether (MTBE)		**NP**	1	0	3	<3	<3	<3	<3		n/a					

Summary of Remedial Targets Methodology Screening

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondary receptor(s):
Data set: Groundwater (Round 2 - JFHR November 2020)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): JFH: Multiple
Dataset SHALLOW

PNEC calculated (inland EQS)

2013/39/EU Annex I
P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant
JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data						Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red		No. Samples Exceeding Water Quality Target		No. Samples above LoD Exceeding Water		Notes
				No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value			Inland Waters EQS		Inland Waters EQS		Inland Waters EQS	EQS compared to dissolved metals as an initial screen, with no adjustment for bioavailability or ABC.
P1133	Hardness as mg/l $CaCO_3$			-	-	-	10	-	-	-		-					Representative hardness of receiving surface water environment used in some inland EQS
7440-38-2	Arsenic (As) (dissolved)	SP	**H**	16	9	0.5	<0.5	20.1	8.505	20.1		50		0		0	
7440-42-8	Boron (B) (dissolved)		NP	16	16	10	116	757	641.5	757		2000		0		0	
7440-43-9	Cadmium (Cd) (dissolved)	**PH**	NP	16	0	0.08	<0.08	<0.08	<0.08	<0.08		0.08		0		0	EQS (inland) dependent on hardness of receiving surface water environment
7440-47-3	Chromium (Cr) (total) (dissolved)			16	0	1	<1	<1	<1	<1		n/a					
7440-50-8	Copper (Cu) (dissolved)	SP	NP	16	12	0.3	<0.3	9.09	5.2725	9.09		1		6		6	Bioavailable EQS (inland)
7439-97-6	Mercury (Hg) (dissolved)	**PH**	**H**	16	0	0.01	<0.01	<0.01	<0.01	<0.01		0.07		0		0	
7440-02-0	Nickel (Ni) (dissolved)	***P***	NP	16	16	0.4	1.19	7.88	7.13	7.88		4		8		8	Bioavailable EQS (inland)
7439-92-1	Lead (Pb) (dissolved)	***P***	**H**	16	2	0.2	<0.2	0.558	0.32625	0.558		1.2		0		0	Bioavailable EQS (inland)
7782-49-2	Selenium (Se) (dissolved)		NP	16	7	1	<1	4.67	4.535	4.67		n/a					
7440-66-6	Zinc (Zn) (dissolved)	SP	NP	16	14	1	<1	27.4	21.4	27.4		12.3		3		3	Bioavailable EQS (inland) + ambient background concentration (ABC)
14808-79-8	Sulfate (SO_4^{2-})			16	16	2000	19900	166000	154000	166000		400000		0		0	
P1134	pH (min.) (su)			16	16	0	6.77	7.38	7.3575	7.38		6		0		0	
P1134	pH (max.) (su)			16	16	0	6.77	7.38	7.3575	7.38		9		0		0	
120-12-7	Anthracene	***PH***	**H**	16	2	0.005	<0.005	0.0112	0.006558	0.0112		0.1		0		0	
50-32-8	Benzo(a)pyrene	***PH***	H	16	2	0.002	<0.002	0.101	0.031063	0.101		0.00017		16		2	Benzo(a)pyrene EQS used as marker substance for the group of benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene & indeno (1,2,3-cd)pyrene
206-44-0	Fluoranthene	***P***	**H**	16	6	0.005	<0.005	0.104	0.0767	0.104		0.0063		5		5	
91-20-3	Naphthalene	P	NP	16	4	0.01	<0.01	0.176	0.064475	0.176		2		0		0	
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	***P***	**H**	16	2	0.02	<0.02	0.5421	0.154913	0.5421		n/a					
P1877	Phenol	SP	**NP**	16	0	2	<2	<2	<2	<2		7.7		0		0	
P1407	Ali EC5-EC6			16	0	10	<10	<10	<10	<10		10		0		0	n-hexane fall within this fraction
P1408	Ali >EC6-EC8			16	0	10	<10	<10	<10	<10		10		0		0	n-heptane falls within this fraction
P1409	Ali >EC8-EC10			16	0	10	<10	<10	<10	<10		10		0		0	n-octane and n-nonane fall within this fraction
P1410	Ali >EC10-EC12			16	1	10	<10	16	11.5	16		10		1		1	
P1411	Ali >EC12-EC16			16	2	10	<10	13	11.5	13		10		2		2	
P1938	Ali >EC16-EC35			16	2	20	<20	29	23	29		10		16		2	
P1441	Aro EC5-EC7			16	0	10	<10	<10	<10	<10		10		0		0	Benzene wholly representative of this fraction
P1355	Aro >EC7-EC8			16	0	10	<10	<10	<10	<10		10		0		0	Toluene wholly representative of this fraction
P1356	Aro >EC8-EC10			16	0	10	<10	<10	<10	<10		10		0		0	Ethylbenzene / xylene / trimethylbenzene representative of this range
P1357	Aro >EC10-EC12			16	1	10	<10	11	10.25	11		10		1		1	Naphthalene often forms a reasonable percentage of this fraction
P1358	Aro > EC12-EC16			16	2	10	<10	116	110.75	116		10		2		2	2-methylnaphthalene, acenpthylene, acenapthene falls within this fraction
P1359	Aro >EC16-EC21			16	2	10	<10	74	47.75	74		10		2		2	fluorene, anthracene, phenanthrene, pyrene falls within this range
P1360	Aro >EC21-EC35			16	1	10	<10	58	22	58		10		1		1	Benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(cd)pyrene fall within this fraction
71-43-2	Benzene	P	**H**	16	0	7	<7	<7	<7	<7		10		0		0	
108-88-3	Toluene	SP	**H**	16	0	4	<4	<4	<4	<4		74		0		0	
100-41-4	Ethylbenzene		**H**	16	0	5	<5	<5	<5	<5		20		0		0	Proposed EQS for Ethylbenzene in Water, R&D Technical Report P2-115/TR4. EA 2001
95-47-6	o-Xylene		**H**	16	0	3	<3	<3	<3	<3		30		0		0	EQS for total xylene
P1374	m,p-Xylene		**H**	16	0	8	<8	<8	<8	<8		30		0		0	EQS for total xylene
1634-04-04	Methyl tertiary butyl ether (MTBE)		**NP**	16	0	3	<3	<3	<3	<3		n/a					

Remedial Targets Methodology Data Table

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondarv receptor(s): 0
Data set: Groundwater (Round 3 - Hydrock 2022)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): Multiole
Dataset ALL ZONES

PNEC calculated (inland EQS)

123* Exceeds solubility value
<1 Grev text and "<" sign if value <= LoD
Red fill if value > Inland Waters EQS

Surface Water Representative Hardness as mg/l $CaCO_3$ 10

								Strata / Zone	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	DEEP	DEEP
								Date sampled:	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	21/03/2022	21/03/2022	21/03/2022	21/03/2022	21/03/2022	16/03/2022	16/03/2022
CAS / AGS Number	Chemical of Potential Concern (µg/l)	WFD Designation	Hazardous Substance Status	Solubility Limit (µg/l)	No. of samples	Limit of Detection		Inland Waters EQS	WS101	BH202	BH203	BH2045	BH205	BH206	WS203	WS204	WS205	WS206	WS103	WS105	WS107	WS116	BH201	BH204D
7440-22-4	Silver (Ag) (dissolved)				12	0.05		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						<0.05	<0.05
7429-90-5	Aluminium (Al) (dissolved)				12	1		n/a	2.1	1.8	<1	1.3	2.3	2.2	<1	<1	1.1	2.2						1.8	2.3
7440-38-2	Arsenic (As) (dissolved)	SP	H		12	0.15		50	0.95	0.8	1.1	2.02	0.31	1.25	5.27	4.17	4.47	7.58						11.3	0.85
7440-42-8	Boron (B) (dissolved)		NP		12	10		2000	150	87	300	330	160	650	530	200	450	230						2200	700
7440-39-3	Barium (Ba) (dissolved)				12	0.06		n/a	55	42	110	92	48	89	150	140	170	200						13	43
7440-43-9	Cadmium (Cd) (dissolved)	PH	NP		12	0.02		0.08	<0.02	0.03	<0.02	<0.02	0.03	0.05	<0.02	0.05	<0.02	<0.02						0.13	0.03
7440-48-4	Cobalt (Co) (dissolved)		NP		12	0.2		3	1.5	0.5	4.2	8.4	0.7	1.2	3.8	4.3	2.4	2.7						<0.2	1.9
18540-29-9	Chromium (VI) (Cr) (dissolved)	SP	H		12	5		3.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5						<5	<5
16065-83-1	Chromium (III) (Cr) (dissolved)	SP			12	5		4.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5						<5	<5
7440-47-3	Chromium (Cr) (total) (dissolved)				12	0.2		n/a	1.8	2.2	2.6	3.7	2.3	1.4	4.5	2.4	2.5	2.9						2	2.7
7440-50-8	Copper (Cu) (dissolved)	SP	NP		12	0.5		4	3.1	3.6	2.4	2.7	4	3	1.8	6.1	1.7	5.9						7.5	4.3
7439-89-6	Iron (Fe) (dissolved)	SP			12	4		1000	56	100	42	64	23	54	69	76	110	31						50	26
7439-97-6	Mercury (Hg) (dissolved)	PH	H		12	0.05		0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						0.49	<0.05
P1286	Manganese (Mn) (dissolved)	SP			12	0.05		123	710	140	670	830	50	290	1100	790	270	630						1.9	170
7440-23-5	Sodium (Na) (dissolved)				12	1		n/a	14000	34000	13000	11000	20000	10000	11000	16000	12000	10000						530000	120000
7440-02-0	Nickel (Ni) (dissolved)	P	NP		12	0.5		4	3.7	3.5	8.5	16	4.2	7.1	9	9.5	9.9	4.5						1	4.2
7439-92-1	Lead (Pb) (dissolved)	P	H		12	0.2		1.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6.1	<0.2	<0.2						<0.2	<0.2
7440-36-0	Antimony (Sb) (dissolved)		NP		12	0.4		n/a	<0.4	0.9	<0.4	<0.4	<0.4	<0.4	0.7	<0.4	<0.4	0.5						2	0.8
7782-49-2	Selenium (Se) (dissolved)		NP		12	0.6		n/a	<0.6	8.4	<0.6	<0.6	1.7	<0.6	0.7	0.7	<0.6	0.7						4	0.7
7440-31-5	Tin (Sn) (dissolved)				12	0.2		25	<0.2	0.26	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.39	<0.2						<0.2	<0.2
7440-62-2	Vanadium (V) (dissolved)				12	0.2		20	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						2.6	0.4
7440-66-6	Zinc (Zn) (dissolved)	SP	NP		12	0.5		12.3	2	3.5	1	4.8	2.8	9.8	2.8	1.2	1.5	1.5						1.1	3.9
P1095	Cyanide (free) (hydrogen cyanide)	SP	NP		12	1		1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1						<1	<1
57-12-5	Cyanide (total)				12	1		n/a	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1						<1	<1
P1140	Ammonium (NH_4^+)		NP		12	15		n/a	690	47	1000	1800	36	5200	2400	1200	3700	3800						1000	220
P1238	Ammoniacal Nitrogen (as N)		NP		12	15		300	540	36	910	1400	27	4000	1900	940	2900	3000						790	170
P1720	Ammonia (unionised) (NH_3 as N) (free ammonia)	SP	NP		12	15		n/a	650	44	980	1700	33	4900	2300	1100	3500	3600						950	210
10541-45-4	Bromate (BrO_3^-)				12	2		n/a	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2						<2	<2
16887-00-6	Chloride (Cl^-)				12	150		250000	9000	18000	12000	11000	9900	8400	9300	12000	9600	8100						460000	88000
16984-48-8	Fluoride (F^-)				12	50		1000	150	210	150	120	170	270	160	170	93	140						2100	310
P1348	Nitrate (NO_3^-)				12	50		n/a	310	2900	570	830	2070	260	520	520	780	780						410	520
P1349	Nitrite (NO_2^-)				12	5		n/a	37	530	<5	6	51	<5	<5	6.5	<5	<5						24	120
14808-79-8	Sulfate (SO_4^{2-})				12	45		400000	84200	87000	24100	20200	35700	5290	118000	22900	35800	6370						198000	131000
P1134	pH (min.) (su)				12	0		6	7.6	7.6	7.5	7.6	7.6	7.6	7.6	7.5	7.4	7.2						8.4	7.4
P1287	Electrical conductivity (µS/cm)				12	10		n/a	600	550	600	630	650	450	1100	710	810	700						2300	1000
120-12-7	Anthracene	PH	H	56	12	0.01		0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	<0.01
50-32-8	Benzo(a)pyrene	PH	H	3.8	12	0.01		0.00017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	<0.01
206-44-0	Fluoranthene	P	H	230	12	0.01		0.0063	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	<0.01
91-20-3	Naphthalene	P	NP	19000	12	0.01		2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	<0.01
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	P	H		12	0.04		n/a	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04						<0.04	<0.04
P1877	Phenol	SP	NP	84100000	12	1		7.7	<1	<1	<1	<1	<1	<1	<1	<1	<1	15						<1	<1
P1407	Ali EC5-EC6			35900	16	1		10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
P1408	Ali >EC6-EC8			5370	16	1		10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
P1409	Ali >EC8-EC10			427	16	1		10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
P1410	Ali >EC10-EC12			33.9	16	10		10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**320 ***	<10	<10	<10	<10	<10
P1411	Ali >EC12-EC16			0.759	16	10		10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**3400 ***	<10	<10	<10	<10	<10
P1938	Ali >EC16-EC35			0.00254	16	10		10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**4600 ***	<10	<10	<10	<10	<10
P1415	Ali >EC35-EC44			0.00254	16	10		10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
P1441	Aro EC5-EC7			1780000	16	1		10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
P1355	Aro >EC7-EC8			590000	16	1		10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
P1356	Aro >EC8-EC10			64600	16	1		10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
P1357	Aro >EC10-EC12			24500	16	10		10	40	<10	33	36	<10	100	270	120	85	190	150	<10	<10	<10	<10	<10
P1358	Aro > EC12-EC16			5750	16	10		10	130	<10	240	320	<10	270	1100	590	800	870	970	<10	<10	<10	<10	<10
P1359	Aro >EC16-EC21			653	16	10		10	110	<10	370	380	<10	160	570	340	530	**720 ***	**1300 ***	<10	<10	<10	<10	<10
P1360	Aro >EC21-EC35			6.61	16	10		10	<10	<10	**90 ***	**170 ***	<10	<10	**290 ***	**68 ***	**140 ***	**68 ***	**170 ***	<10	<10	<10	<10	<10
P1362	Aro >EC35-EC44			6.61	16	10		10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
71-43-2	Benzene	P	H	1780000	16	1		10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
108-88-3	Toluene	SP	H	590000	16	1		74	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
100-41-4	Ethylbenzene		H	180000	16	1		20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
95-47-6	o-Xylene		H	173000	16	1		30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
P1374	m,p-Xylene		H	200000	16	1		30	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1634-04-04	Methyl tertiary butyl ether (MTBE)		NP	48000000	16	1		n/a	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
71-55-6	1,1,1-Trichloroethane		NP	1300000	7	1		100				<1	<1	<1	<1	<1	<1	<1						
79-00-5	1,1,2-Trichloroethane		NP	4490000	7	1		400				<1	<1	<1	<1	<1	<1	<1						
96-12-8	1,2-Dibromo-3-chloropropane			1230000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
106-93-4	1,2-Dibromoethane		H	4300000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
95-50-1	1,2-Dichlorobenzene		H	133000	7	1		20				<1	<1	<1	<1	<1	<1	<1						
107-06-2	1,2-Dichloroethane (EDC)	P	NP	8680000	7	1		10				<1	<1	<1	<1	<1	<1	<1						
156-59-2	cis 1,2-Dichloroethene (cis 1,2 DCE)		NP	7550000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
156-60-5	trans 1,2-Dichloroethene (trans 1,2 DCE)		NP	5250000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
78-87-5	1,2-Dichloropropane		H	2050000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
10061-01-5	cis 1,3-Dichloropropene		H	2700000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
10061-02-6	trans 1,3-Dichloropropene		H	2800000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
106-46-7	1,4-Dichlorobenzene		H	103000	7	1		20				<1	<1	<1	<1	<1	<1	<1						
75-27-4	Bromodichloromethane			3000000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
75-01-4	Chloroethene (vinyl chloride)		H	2760000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
124-48-1	Dibromochloromethane			1050000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
26321-22-6	Dichlorobenzenes (1,2-, 1,3- & 1,4-)				7	1		20				<1	<1	<1	<1	<1	<1	<1						
75-09-2	Dichloromethane	P	NP	20100000	7	1		20				<1	<1	<1	<1	<1	<1	<1						
87-68-3	Hexachlorobutadiene (HCBD)	PH	H	4800	7	1		0.6				<1	<1	<1	<1	<1	<1	<1						
100-42-5	Styrene		H	290000	7	1		80				<1	<1	<1	<1	<1	<1	<1						
127-18-4	Tetrachloroethene (PCE)	OP	NP	225000	7	1		10				<1	<1	<1	<1	<1	<1	<1						
GRP02	Tetrachloroethene (PCE) and trichloroethene (TCE)				7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
56-23-5	Tetrachloromethane (Carbon Tetrachloride)	OP	H	846000	7	1		12				<1	<1	<1	<1	<1	<1	<1						
75-25-2	Tribromomethane (bromoform)			3000000	7	1		n/a				<1	<1	<1	<1	<1	<1	<1						
12002-48-1	Trichlorobenzenes	P	NP		7	1		0.4				<1	<1	<1	<1	<1	<1	<1						
79-01-6	Trichloroethene	OP	H	1370000	7	1		10				<1	<1	<1	<1	<1	<1	<1						
67-66-3	Trichloromethane (chloroform)	P	H	8950000	7	1		2.5				<1	<1	<1	<1	<1	<1	<1						

Remedial Targets Methodology Data Table

Hydrock

Water body receptor(s): Groundwater and surface water
Secondary receotor(s): 0
Data set: Groundwater (Round 3 - Hydrock 2022)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): Multiole
Dataset ALL ZONES

PNEC calculated (inland EQS)

123* Exceeds solubility value
<1 Grey text and "<" sign if value <= LoD
Red fill if value > Inland Waters EQS

Surface Water Representative Hardness as mg/l $CaCO_3$ 10

CAS / AGS Number	Chemical of Potential Concern (µg/l)	WFD Designation	Hazardous Substance Status	Solubility Limit (µg/l)	No. of samples	Limit of Detection		Inland Waters EQS	WS101	BH202	BH203	BH204S	BH205	BH206	WS203	WS204	WS205	WS206	WS103	WS105	WS107	WS116	BH201	BH204D
							Strata / Zone		SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	SHALLOW	DEEP	DEEP
							Date sampled:		16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	16/03/2022	21/03/2022	21/03/2022	21/03/2022	21/03/2022	16/03/2022	16/03/2022
GRP03	Trihalomethanes, sum of trichloromethane, tribromomethane, dibromchloromethane & bromodichloromethane				7	4		n/a				<4	<4	<4	<4	<4	<4	<4						
88-06-2	2,4,6-Trichlorophenol		H	434000	1	0.05		n/a							<0.05									
120-83-2	2,4-Dichlorophenol	SP	H	4500000	1	0.05		4.2							<0.05									
95-57-8	2-Chlorophenol		H	22700000	1	0.05		50							<0.05									
59-50-7	4-Chloro, 3-methylphenol		H		1	0.05		40							<0.05									
85-68-7	Benzyl butyl phthalate	SP			1	0.05		7.5							<0.05									
84-74-2	Dibutyl phthalate		NP		1	0.05		8							<0.05									
84-66-2	Diethyl phthalate (DEP)				1	0.05		200							<0.05									
131-11-3	Dimethyl phthalate (DMP)				1	0.05		800							<0.05									
118-74-1	Hexachlorobenzene	PH	H	9.6	1	0.05		0.05							<0.05									
1336-36-3	Polychlorinated Biphenyls (PCB)		H		1	0.14		n/a							<0.14									

Summary of Remedial Targets Methodology Screening

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondary receptor(s):
Data set: Groundwater (Round 3 - Hydrock 2022)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): Multiple
Dataset DEEP

PNEC calculated (inland EQS)

2013/39/EU Annex I
P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant
JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data: No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value	Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red): Inland Waters EQS	No. Samples Exceeding Water Quality Target: Inland Waters EQS	No. Samples above LoD Exceeding Water: Inland Waters EQS	Notes
P1133	Hardness as mg/l $CaCO_3$			-	-	-	10	-	-	-	-			Representative hardness of receiving surface water environment used in some inland EQS
7440-22-4	Silver (Ag) (dissolved)			2	0	0.05	<0.05	<0.05	<0.05	<0.05	0.05	0	0	
7429-90-5	Aluminium (Al) (dissolved)			2	2	1	1.8	2.3	2.275	2.3	n/a			
7440-38-2	Arsenic (As) (dissolved)	SP	**H**	2	2	0.15	0.85	11.3	10.7775	11.3	50	0	0	
7440-42-8	Boron (B) (dissolved)		NP	2	2	10	700	2200	2125	2200	2000	1	1	
7440-39-3	Barium (Ba) (dissolved)			2	2	0.06	13	43	41.5	43	n/a			
7440-43-9	Cadmium (Cd) (dissolved)	**PH**	NP	2	2	0.02	0.03	0.13	0.125	0.13	0.08	1	1	EQS (inland) dependent on hardness of receiving surface water environment
7440-48-4	Cobalt (Co) (dissolved)		NP	2	1	0.2	<0.2	1.9	1.815	1.9	3	0	0	
18540-29-9	Chromium (VI) (Cr) (dissolved)	SP	**H**	2	0	5	<5	<5	<5	<5	3.4	2	0	
16065-83-1	Chromium (III) (Cr) (dissolved)	SP		2	0	5	<5	<5	<5	<5	4.7	2	0	
7440-47-3	Chromium (Cr) (total) (dissolved)			2	2	0.2	2	2.7	2.665	2.7	n/a			
7440-50-8	Copper (Cu) (dissolved)	SP	NP	2	2	0.5	4.3	7.5	7.34	7.5	1	2	2	Bioavailable EQS (inland)
7439-89-6	Iron (Fe) (dissolved)	SP		2	2	4	26	50	48.8	50	1000	0	0	
7439-97-6	Mercury (Hg) (dissolved)	**PH**	**H**	2	1	0.05	<0.05	0.49	0.468	0.49	0.07	1	1	
P1286	Manganese (Mn) (dissolved)	SP		2	2	0.05	1.9	170	161.595	170	123	1	1	Bioavailable EQS (inland)
7440-23-5	Sodium (Na) (dissolved)			2	2	1	120000	530000	509500	530000	n/a			
7440-02-0	Nickel (Ni) (dissolved)	***P***	NP	2	2	0.5	1	4.2	4.04	4.2	4	1	1	Bioavailable EQS (inland)
7439-92-1	Lead (Pb) (dissolved)	***P***	**H**	2	0	0.2	<0.2	<0.2	<0.2	<0.2	1.2	0	0	Bioavailable EQS (inland)
7440-36-0	Antimony (Sb) (dissolved)		NP	2	2	0.4	0.8	2	1.94	2	n/a			
7782-49-2	Selenium (Se) (dissolved)		NP	2	2	0.6	0.7	4	3.835	4	n/a			
7440-31-5	Tin (Sn) (dissolved)			2	0	0.2	<0.2	<0.2	<0.2	<0.2	25	0	0	
7440-62-2	Vanadium (V) (dissolved)			2	2	0.2	0.4	2.6	2.49	2.6	20	0	0	EQS (inland) dependent on hardness of receiving surface water environment
7440-66-6	Zinc (Zn) (dissolved)	SP	NP	2	2	0.5	1.1	3.9	3.76	3.9	12.3	0	0	Bioavailable EQS (inland) + ambient background concentration (ABC)
P1095	Cyanide (free) (hydrogen cyanide)	SP	NP	2	0	1	<1	<1	<1	<1	1	0	0	
57-12-5	Cyanide (total)			2	0	1	<1	<1	<1	<1	n/a			
P1140	Ammonium (NH_4^+)		NP	2	2	15	220	1000	961	1000	n/a			
P1238	Ammonia (unionised) (NH_3 as N)		NP	2	2	15	170	790	759	790	300	1	1	
P1720	Ammonia (unionised) (NH_3 as N) (free ammonia)	SP	NP	2	2	15	210	950	913	950	n/a			
15541-45-4	Bromate (BrO_3)			2	0	2	<2	<2	<2	<2	n/a			
16887-00-6	Chloride (Cl^-)			2	2	150	88000	460000	441400	460000	250000	1	1	
16984-48-8	Fluoride (F^-)			2	2	50	310	2100	2010.5	2100	1000	1	1	EQS (inland) dependent on hardness of receiving surface water environment
P1348	Nitrate (NO_3^-)			2	2	50	410	520	514.5	520	n/a			
P1349	Nitrite (NO_2^-)			2	2	5	24	120	115.2	120	n/a			
14808-79-8	Sulfate (SO_4^{2-})			2	2	45	131000	198000	194650	198000	400000	0	0	
P1134	pH (min.) (su)			2	2	0	7.6	8.5	8.455	8.5	6	0	0	
P1287	Electrical conductivity (µS/cm)			2	2	10	1000	2300	2235	2300	n/a			
120-12-7	Anthracene	***PH***	**H**	2	0	0.01	<0.01	<0.01	<0.01	<0.01	0.1	0	0	
50-32-8	Benzo(a)pyrene	***PH***	H	2	0	0.01	<0.01	<0.01	<0.01	<0.01	0.00017	2	0	Benzo(a)pyrene EQS used as marker substance for the group of benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene & indeno (1,2,3-cd)pyrene
206-44-0	Fluoranthene	***P***	**H**	2	0	0.01	<0.01	<0.01	<0.01	<0.01	0.0063	2	0	
91-20-3	Naphthalene	P	NP	2	0	0.01	<0.01	<0.01	<0.01	<0.01	2	0	0	
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	***P***	**H**	2	0	0.04	<0.04	<0.04	<0.04	<0.04	n/a			
P1877	Phenol	SP	**NP**	2	0	1	<1	<1	<1	<1	7.7	0	0	
P1407	Ali EC5-EC6			2	0	1	<1	<1	<1	<1	10	0	0	n-hexane fall within this fraction
P1408	Ali >EC6-EC8			2	0	1	<1	<1	<1	<1	10	0	0	n-heptane falls within this fraction
P1409	Ali >EC8-EC10			2	0	1	<1	<1	<1	<1	10	0	0	n-octane and n-nonane fall within this fraction
P1410	Ali >EC10-EC12			2	0	10	<10	<10	<10	<10	10	0	0	
P1411	Ali >EC12-EC16			2	0	10	<10	<10	<10	<10	10	0	0	
P1938	Ali >EC16-EC35			2	0	10	<10	<10	<10	<10	10	0	0	
P1415	Ali >EC35-EC44			2	0	10	<10	<10	<10	<10	10	0	0	
P1441	Aro EC5-EC7			2	0	1	<1	<1	<1	<1	10	0	0	Benzene wholly representative of this fraction
P1355	Aro >EC7-EC8			2	0	1	<1	<1	<1	<1	10	0	0	Toluene wholly representative of this fraction
P1356	Aro >EC8-EC10			2	0	1	<1	<1	<1	<1	10	0	0	Ethylbenzene / xylene / trimethylbenzene representative of this range
P1357	Aro >EC10-EC12			2	0	10	<10	<10	<10	<10	10	0	0	Naphthalene often forms a reasonable percentage of this fraction
P1358	Aro > EC12-EC16			2	0	10	<10	<10	<10	<10	10	0	0	2-methylnaphthalene, acenpthylene, acenapthene falls within this fraction
P1359	Aro >EC16-EC21			2	0	10	<10	<10	<10	<10	10	0	0	fluorene, anthracene, phenanthrene, pyrene falls within this range
P1360	Aro >EC21-EC35			2	0	10	<10	<10	<10	<10	10	0	0	Benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(cd)pyrene fall within this fraction
P1362	Aro >EC35-EC44			2	0	10	<10	<10	<10	<10	10	0	0	
71-43-2	Benzene	P	**H**	2	0	1	<1	<1	<1	<1	10	0	0	
108-88-3	Toluene	SP	**H**	2	0	1	<1	<1	<1	<1	74	0	0	

Summary of Remedial Targets Methodology Screening

Hydrock

RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondary receptor(s):
Data set: Groundwater (Round 3 - Hydrock 2022)
Client: Eutoia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): Multiple
Dataset DEEP

PNEC calculated (inland EQS)

P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant
JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data						Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red		No. Samples Exceeding Water Quality Target		No. Samples above LoD Exceeding Water		Notes
				No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value			Inland Waters EQS		Inland Waters EQS		Inland Waters EQS	EQS compared to dissolved metals as an initial screen, with no adjustment for bioavailability or ABC.
100-41-4	Ethylbenzene		H	2	0	1	<1	<1	<1	<1		20		0		0	Proposed EQS for Ethylbenzene in Water, R&D Technical Report P2-115/TR4. EA 2001
95-47-6	o-Xylene		H	2	0	1	<1	<1	<1	<1		30		0		0	EQS for total xylene
P1374	m,p-Xylene		H	2	0	1	<1	<1	<1	<1		30		0		0	EQS for total xylene
1634-04-04	Methyl tertiary butyl ether (MTBE)		NP	2	0	1	<1	<1	<1	<1		n/a					

Summary of Remedial Targets Methodology Screening

Hydrock

Hydrock Scenario: Scenario B - EQS (inland)
RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
Water body receptor(s): Groundwater and surface water
Secondary receptor(s):
Data set: Groundwater (Round 3 - Hydrock 2022)
Client: Eutpia Homes Ltd.
Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): Multiple
Dataset SHALLOW

PNEC calculated (inland EQS)

2013/39/EU Annex I
P = priority substance
PH = priority hazardous substances.
WFD Designation (2015 Directions)
OP = Other substance identical to previous legislation
SP = Specific Pollutant
JAGDAG Hazardous Substances Determination (UK)
H Hazardous substance
NP Non-hazardous pollutant
(blank) Not included in assessment

CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data						Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red		No. Samples Exceeding Water Quality Target		No. Samples above LoD Exceeding Water		Notes
				No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value			Inland Waters EQS		Inland Waters EQS		Inland Waters EQS	EQS compared to dissolved metals as an initial screen, with no adjustment for bioavailability or ABC.
P1133	Hardness as mg/l $CaCO_3$			-	-	-	10	-	-	-		-					Representative hardness of receiving surface water environment used in some inland EQS
7440-22-4	Silver (Ag) (dissolved)			10	0	0.05	<0.05	<0.05	<0.05	<0.05		0.05		0		0	
7429-90-5	Aluminium (Al) (dissolved)			10	7	1	<1	2.3	2.255	2.3		n/a					
7440-38-2	Arsenic (As) (dissolved)	SP	**H**	10	10	0.15	0.31	7.58	6.5405	7.58		50		0		0	
7440-42-8	Boron (B) (dissolved)		NP	10	10	10	87	650	596	650		2000		0		0	
7440-39-3	Barium (Ba) (dissolved)			10	10	0.06	42	200	186.5	200		n/a					
7440-43-9	Cadmium (Cd) (dissolved)	**PH**	NP	10	4	0.02	<0.02	0.05	0.05	0.05		0.08		0		0	EQS (inland) dependent on hardness of receiving surface water environment
7440-48-4	Cobalt (Co) (dissolved)		NP	10	10	0.2	0.5	8.4	6.555	8.4		3		4		4	
18540-29-9	Chromium (VI) (Cr) (dissolved)	SP	**H**	10	0	5	<5	<5	<5	<5		3.4		10		0	
16065-83-1	Chromium (III) (Cr) (dissolved)	SP		10	0	5	<5	<5	<5	<5		4.7		10		0	
7440-47-3	Chromium (Cr) (total) (dissolved)			10	10	0.2	1.4	4.5	4.14	4.5		n/a					
7440-50-8	Copper (Cu) (dissolved)	SP	NP	10	10	0.5	1.7	6.1	6.01	6.1		1		10		10	Bioavailable EQS (inland)
7439-89-6	Iron (Fe) (dissolved)	SP		10	10	4	23	110	105.5	110		1000		0		0	
7439-97-6	Mercury (Hg) (dissolved)	**PH**	**H**	10	0	0.05	<0.05	<0.05	<0.05	<0.05		0.07		0		0	
P1286	Manganese (Mn) (dissolved)	SP		10	10	0.05	50	1100	978.5	1100		123		9		9	Bioavailable EQS (inland)
7440-23-5	Sodium (Na) (dissolved)			10	10	1	10000	34000	27700	34000		n/a					
7440-02-0	Nickel (Ni) (dissolved)	***P***	NP	10	10	0.5	3.5	16	13.255	16		4		8		8	Bioavailable EQS (inland)
7439-92-1	Lead (Pb) (dissolved)	***P***	**H**	10	1	0.2	<0.2	6.1	3.445	6.1		1.2		1		1	Bioavailable EQS (inland)
7440-36-0	Antimony (Sb) (dissolved)		NP	10	3	0.4	<0.4	0.9	0.81	0.9		n/a					
7782-49-2	Selenium (Se) (dissolved)		NP	10	5	0.6	<0.6	8.4	5.385	8.4		n/a					
7440-31-5	Tin (Sn) (dissolved)			10	2	0.2	<0.2	0.39	0.3315	0.39		25		0		0	
7440-62-2	Vanadium (V) (dissolved)			10	1	0.2	<0.2	0.4	0.31	0.4		20		0		0	EQS (inland) dependent on hardness of receiving surface water environment
7440-66-6	Zinc (Zn) (dissolved)	SP	NP	10	10	0.5	1	9.8	7.55	9.8		12.3		0		0	Bioavailable EQS (inland) + ambient background concentration (ABC)
P1095	Cyanide (free) (hydrogen cyanide)	SP	NP	10	0	1	<1	<1	<1	<1		1		0		0	
57-12-5	Cyanide (total)			10	0	1	<1	<1	<1	<1		n/a					
P1140	Ammonium (NH_4^+)		NP	10	10	15	35	5200	4570	5200		n/a					
P1238	Ammnoniacal Nitrogen (as N)		NP	10	10	15	27	4000	3550	4000		300		8		8	
P1720	Ammonia (unionised) (NH_3 as N) (free ammonia)	SP	NP	10	10	15	33	4900	4315	4900		n/a					
15541-45-4	Bromate (BrO_3)			10	0	2	<2	<2	<2	<2		n/a					
16887-00-6	Chloride (Cl^-)			10	10	150	8100	18000	15300	18000		250000		0		0	
16984-48-8	Fluoride (F^-)			10	10	50	93	270	243	270		1000		0		0	EQS (inland) dependent on hardness of receiving surface water environment
P1348	Nitrate (NO_3^-)			10	10	50	260	2900	2526.5	2900		n/a					
P1349	Nitrite (NO_2^-)			10	5	5	<5	530	314.45	530		n/a					
14808-79-8	Sulfate (SO_4^{2-})			10	10	45	5290	118000	104050	118000		400000		0		0	
P1134	pH (min.) (su)			10	10	0	6.9	7.8	7.8	7.8		6		0		0	
P1287	Electrical conductivity (µS/cm)			10	10	10	450	1100	969.5	1100		n/a					
120-12-7	Anthracene	***PH***	**H**	10	0	0.01	<0.01	<0.01	<0.01	<0.01		0.1		0		0	
50-32-8	Benzo(a)pyrene	***PH***	H	10	0	0.01	<0.01	<0.01	<0.01	<0.01		0.00017		10		0	Benzo(a)pyrene EQS used as marker substance for the group of benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene & indeno (1,2,3-cd)pyrene
206-44-0	Fluoranthene	***P***	**H**	10	0	0.01	<0.01	<0.01	<0.01	<0.01		0.0063		10		0	
91-20-3	Naphthalene	P	NP	10	0	0.01	<0.01	<0.01	<0.01	<0.01		2		0		0	
GRP01	PAHs = sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3-cd)pyrene	***P***	**H**	10	0	0.04	<0.04	<0.04	<0.04	<0.04		n/a					
P1877	Phenol	SP	**NP**	10	1	1	<1	15	8.7	15		7.7		1		1	
P1407	Ali EC5-EC6			14	0	1	<1	<1	<1	<1		10		0		0	n-hexane fall within this fraction
P1408	Ali >EC6-EC8			14	0	1	<1	<1	<1	<1		10		0		0	n-heptane falls within this fraction
P1409	Ali >EC8-EC10			14	0	1	<1	<1	<1	<1		10		0		0	n-octane and n-nonane fall within this fraction
P1410	Ali >EC10-EC12			14	1	10	<10	320	118.5	320		10		1		1	
P1411	Ali >EC12-EC16			14	1	10	<10	3400	1196.5	3400		10		1		1	
P1938	Ali >EC16-EC35			14	1	10	<10	4600	1616.5	4600		10		1		1	
P1415	Ali >EC35-EC44			14	0	10	<10	<10	<10	<10		10		0		0	
P1441	Aro EC5-EC7			14	0	1	<1	<1	<1	<1		10		0		0	Benzene wholly representative of this fraction
P1355	Aro >EC7-EC8			14	0	1	<1	<1	<1	<1		10		0		0	Toluene wholly representative of this fraction
P1356	Aro >EC8-EC10			14	0	1	<1	<1	<1	<1		10		0		0	Ethylbenzene / xylene / trimethylbenzene representative of this range
P1357	Aro >EC10-EC12			14	9	10	<10	270	218	270		10		9		9	Naphthalene often forms a reasonable percentage of this fraction
P1358	Aro > EC12-EC16			14	9	10	<10	1100	1015.5	1100		10		9		9	2-methylnaphthalene, acenpthylene, acenapthene falls within this fraction
P1359	Aro >EC16-EC21			14	9	10	<10	1300	923	1300		10		9		9	fluorene, anthracene, phenanthrene, pyrene falls within this range
P1360	Aro >EC21-EC35			14	7	10	<10	290	212	290		10		7		7	Benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(cd)pyrene fall within this fraction
P1362	Aro >EC35-EC44			14	0	10	<10	<10	<10	<10		10		0		0	
71-43-2	Benzene	P	**H**	14	0	1	<1	<1	<1	<1		10		0		0	
108-88-3	Toluene	SP	**H**	14	0	1	<1	<1	<1	<1		74		0		0	

Summary of Remedial Targets Methodology Screening

Hydrock

RTM Level: RTM Level 2 - Groundwater Beneath Source Assessment - groundwater samples
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Secondary receptor(s):
Data set: Groundwater (Round 3 - Hydrock 2022)
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Site: Great Western Road Yard
Job no: 20775
Test Certificates(s): Multiple
Dataset SHALLOW

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CAS / AGS Number	Chemicals of Potential Concern (concentrations in µg/l)	WFD Designation	Hazardous Substance Status	Summary of Sample Data						Value Being Compared to Target = Maximum Value	Water Quality Target (Exceeded if Red)		No. Samples Exceeding Water Quality Target		No. Samples above LoD Exceeding Water		Notes
				No. of Samples	No. of Samples > LoD	Limit of Detection	Minimum Value	Maximum Value	95-%ile Value			Inland Waters EQS		Inland Waters EQS		Inland Waters EQS	EQS compared to dissolved metals as an initial screen, with no adjustment for bioavailability or ABC.
100-41-4	Ethylbenzene		H	14	0	1	<1	<1	<1	<1		20		0		0	Proposed EQS for Ethylbenzene in Water, R&D Technical Report P2-115/TR4. EA 2001
95-47-6	o-Xylene		H	14	0	1	<1	<1	<1	<1		30		0		0	EQS for total xylene
P1374	m,p-Xylene		H	14	0	1	<1	<1	<1	<1		30		0		0	EQS for total xylene
1634-04-04	Methyl tertiary butyl ether (MTBE)		NP	14	0	1	<1	<1	<1	<1		n/a					
71-55-6	1,1,1-Trichloroethane		NP	7	0	1	<1	<1	<1	<1		100		0		0	
79-00-5	1,1,2-Trichloroethane		NP	7	0	1	<1	<1	<1	<1		400		0		0	
96-12-8	1,2-Dibromo-3-chloropropane			7	0	1	<1	<1	<1	<1		n/a					
106-93-4	1,2-Dibromoethane		H	7	0	1	<1	<1	<1	<1		n/a					
95-50-1	1,2-Dichlorobenzene		H	7	0	1	<1	<1	<1	<1		20		0		0	
107-06-2	1,2-Dichloroethane (EDC)	P	NP	7	0	1	<1	<1	<1	<1		10		0		0	
156-59-2	cis 1,2-Dichloroethene (cis 1,2 DCE)		NP	7	0	1	<1	<1	<1	<1		n/a					
156-60-5	trans 1,2-Dichloroethene (trans 1,2 DCE)		NP	7	0	1	<1	<1	<1	<1		n/a					
78-87-5	1,2-Dichloropropane		H	7	0	1	<1	<1	<1	<1		n/a					
10061-01-5	cis 1,3-Dichloropropene		H	7	0	1	<1	<1	<1	<1		n/a					
10061-02-6	trans 1,3-Dichloropropene		H	7	0	1	<1	<1	<1	<1		n/a					
106-46-7	1,4-Dichlorobenzene		H	7	0	1	<1	<1	<1	<1		20		0		0	
75-27-4	Bromodichloromethane			7	0	1	<1	<1	<1	<1		n/a					
75-01-4	Chloroethene (vinyl chloride)		H	7	0	1	<1	<1	<1	<1		n/a					
124-48-1	Dibromochloromethane			7	0	1	<1	<1	<1	<1		n/a					
25321-22-6	Dichlorobenzenes (1,2-, 1,3- & 1,4-)			7	0	1	<1	<1	<1	<1		20		0		0	
75-09-2	Dichloromethane	P	NP	7	0	1	<1	<1	<1	<1		20		0		0	
87-68-3	Hexachlorobutadiene (HCBD)	PH	H	7	0	1	<1	<1	<1	<1		0.6		7		0	
100-42-5	Styrene		H	7	0	1	<1	<1	<1	<1		50		0		0	
127-18-4	Tetrachloroethene (PCE)	OP	NP	7	0	1	<1	<1	<1	<1		10		0		0	
GRP02	Tetrachloroethene (PCE) and trichloroethene (TCE)			7	0	1	<1	<1	<1	<1		n/a					
56-23-5	Tetrachloromethane (Carbon Tetrachloride)	OP	H	7	0	1	<1	<1	<1	<1		12		0		0	
75-25-2	Tribromomethane (bromoform)			7	0	1	<1	<1	<1	<1		n/a					
12002-48-1	Trichlorobenzenes	P	NP	7	0	1	<1	<1	<1	<1		0.4		7		0	
79-01-6	Trichloroethene	OP	H	7	0	1	<1	<1	<1	<1		10		0		0	
67-66-3	Trichloromethane (chloroform)	P	H	7	0	1	<1	<1	<1	<1		2.5		0		0	
GRP03	Trihalomethanes, sum of trichloromethane, tribromomethane, dibromchloromethane & bromodichloromethane			7	0	4	<4	<4	<4	<4		n/a					
88-06-2	2,4,6-Trichlorophenol		H	1	0	0.05	<0.05	<0.05	<0.05	<0.05		n/a					
120-83-2	2,4-Dichlorophenol	SP	H	1	0	0.05	<0.05	<0.05	<0.05	<0.05		4.2		0		0	
95-57-8	2-Chlorophenol		H	1	0	0.05	<0.05	<0.05	<0.05	<0.05		50		0		0	
59-50-7	4-Chloro, 3-methylphenol		H	1	0	0.05	<0.05	<0.05	<0.05	<0.05		40		0		0	
85-68-7	Benzyl butyl phthalate	SP		1	0	0.05	<0.05	<0.05	<0.05	<0.05		7.5		0		0	
84-74-2	Dibutyl phthalate		NP	1	0	0.05	<0.05	<0.05	<0.05	<0.05		8		0		0	
84-66-2	Diethyl phthalate (DEP)			1	0	0.05	<0.05	<0.05	<0.05	<0.05		200		0		0	
131-11-3	Dimethyl phthalate (DMP)			1	0	0.05	<0.05	<0.05	<0.05	<0.05		800		0		0	
118-74-1	Hexachlorobenzene	PH	H	1	0	0.05	<0.05	<0.05	<0.05	<0.05		0.05		0		0	
1336-36-3	Polychlorinated Biphenyls (PCB)		H	1	0	0.14	<0.14	<0.14	<0.14	<0.14		n/a					

Appendix H Waste Assessment

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

Z3M70-YHMV0-VSDUR

Job name

22-41799_HWOL_Results

Description/Comments

i2 certs: 22-41799-2, 22-42856-2, and 22-44025-1.

Project

20775

Site

Great Western Road Yard

Classified by

Name:
Matthew Keehn
Company:
Hydrock Consultants Ltd
Date:
05 Apr 2022 08:43 GMT
Telephone:

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	08 Sep 2020

Next 3 year Refresher due by Sep 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP201--16022022-0.40		Hazardous	HP 3(i), HP 7, HP 11	3
2	TP202--16022022-1.50		Hazardous	HP 3(i), HP 7, HP 11	8
3	TP203--16022022-0.20		Non Hazardous		10
4	TP203--16022022-0.60		Non Hazardous		13
5	TP203--16022022-2.00		Hazardous	HP 3(i), HP 7, HP 11	14
6	TP204--16022022-0.80		Hazardous	HP 3(i), HP 7, HP 11	17
7	TP205--16022022-0.40		Non Hazardous		19
8	TP205--16022022-1.50		Hazardous	HP 3(i), HP 7, HP 11	21
9	TP206--16022022-0.10		Non Hazardous		23
10	TP206--16022022-0.50		Non Hazardous		26
11	TP206--16022022-1.50		Hazardous	HP 3(i), HP 7, HP 11	27
12	TP207--17022022-0.60		Non Hazardous		29
13	TP207--17022022-1.20		Hazardous	HP 3(i), HP 7, HP 11	33
14	TP209--17022022-0.30		Non Hazardous		37
15	TP210--17022022-0.30		Non Hazardous		40
16	TP210--17022022-1.50		Hazardous	HP 3(i), HP 7, HP 11	45
17	TP211--17022022-0.50		Non Hazardous		50
18	TP211--17022022-1.50		Hazardous	HP 3(i), HP 7, HP 11	53
19	TP213--17022022-0.20		Hazardous	HP 3(i), HP 7, HP 11	55
20	TP213--17022022-1.50		Hazardous	HP 3(i), HP 7, HP 11	58
21	TP214--17022022-0.60		Non Hazardous		60
22	TP214--17022022-1.30		Hazardous	HP 3(i), HP 7, HP 11	63
23	TP215--17022022-1.20		Hazardous	HP 3(i), HP 7, HP 11	68
24	TP216--21022022-0.50		Non Hazardous		70
25	TP217--21022022-1.10		Non Hazardous		73
26	TP217--21022022-1.60		Non Hazardous		74
27	TP219--21022022-0.00		Hazardous	HP 3(i), HP 5, HP 7, HP 10, HP 11, HP 14	75
28	TP219--21022022-1.20		Non Hazardous		80
29	TP221--21022022-0.20		Non Hazardous		83

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
30	TP223--21022022-1.60		Non Hazardous		87
31	TP226--22022022-1.60		Hazardous	HP 3(i), HP 7, HP 11	88
32	TP227--22022022-1.10		Non Hazardous		90
33	TP228--22022022-1.50		Hazardous	HP 3(i), HP 7, HP 11	91
34	TP229--22022022-1.40		Non Hazardous		93
35	TP230--22022022-0.40		Non Hazardous		94
36	TP230--22022022-1.10		Hazardous	HP 3(i), HP 7, HP 11	97
37	CPT 201--15022022-0.30		Non Hazardous		100
38	CPT 206--17022022-0.30		Non Hazardous		102
39	CPT 206--17022022-1.20		Hazardous	HP 3(i), HP 7, HP 11	104
40	CPT 208--17022022-0.80		Hazardous	HP 3(i), HP 7, HP 11	106

Related documents

#	Name	Description
1	22-41799_HWOL_Results.hwol	.hwol file used to create the Job
2	Hydrock Standard plus Cresol (ammended Lead)	waste stream template used to create this Job

Report

Created by: Matthew Keehn

Created date: 05 Apr 2022 08:43 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	108
Appendix B: Rationale for selection of metal species	111
Appendix C: Version	112

Classification of sample: TP201--16022022-0.40

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP201--16022022-0.40
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.525%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.525%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.525%)

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		1,1-dichloroethane and 1,2-dichloroethane (combined)	203-458-1, 200-863-5	107-06-2, 75-34-3		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
2		acenaphthene	201-469-6	83-32-9		0.48 mg/kg		0.413 mg/kg	0.0000413 %	✓	
3		acenaphthylene	205-917-1	208-96-8		0.29 mg/kg		0.249 mg/kg	0.0000249 %	✓	
4		anthracene	204-371-1	120-12-7		1 mg/kg		0.86 mg/kg	0.000086 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18	mg/kg	1.32	20.439	mg/kg	0.00204 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		5.3	mg/kg		4.558	mg/kg	0.000456 %	✓	
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		3.5	mg/kg		3.01	mg/kg	0.000301 %	✓	
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		4.9	mg/kg		4.214	mg/kg	0.000421 %	✓	
10		benzo[ghi]perylene		205-883-8	191-24-2		2.4	mg/kg		2.064	mg/kg	0.000206 %	✓	
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		2.3	mg/kg		1.978	mg/kg	0.000198 %	✓	
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1	mg/kg	2.775	2.387	mg/kg	0.000239 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.6	mg/kg	13.43	6.93	mg/kg	0.000693 %	✓	
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	1.6	mg/kg	1.285	1.769	mg/kg	0.000138 %	✓	
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25	mg/kg	1.462	36.539	mg/kg	0.00365 %		
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
17		chrysene	601-048-00-0	205-923-4	218-01-9		4.2	mg/kg		3.612	mg/kg	0.000361 %	✓	
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		180	mg/kg	1.126	174.288	mg/kg	0.0174 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.97	mg/kg		0.834	mg/kg	0.0000834 %	✓	
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
22		fluoranthene		205-912-4	206-44-0		5.4	mg/kg		4.644	mg/kg	0.000464 %	✓	
23		fluorene		201-695-5	86-73-7		0.84	mg/kg		0.722	mg/kg	0.0000722 %	✓	
24		indeno[123-cd]pyrene		205-893-2	193-39-5		2.4	mg/kg		2.064	mg/kg	0.000206 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	210	mg/kg		180.6	mg/kg	0.0181 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		2.4	mg/kg	1.353	2.794	mg/kg	0.000279 %	✓	
27		naphthalene	601-052-00-2	202-049-5	91-20-3		0.63	mg/kg		0.542	mg/kg	0.0000542 %	✓	
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		32	mg/kg	1.579	43.468	mg/kg	0.00435 %	✓	
29		pH			PH		8.2	pH		8.2	pH	8.2 pH		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
30		phenanthrene		201-581-5	85-01-8		3.4	mg/kg		2.924	mg/kg	0.000292 %	✓	
31		pyrene		204-927-3	129-00-0		4.8	mg/kg		4.128	mg/kg	0.000413 %	✓	
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
34		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
35		TPH (C6 to C40) petroleum group			TPH		6100	mg/kg		5246	mg/kg	0.525 %	✓	
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		**<LOD**
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		480	mg/kg	1.245	513.818	mg/kg	0.0514 %	✓	
39		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
40		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
41		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
42		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
43		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
44		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
45		1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
46		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
47		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
48		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
49		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
50		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
51		1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
52		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
53		2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
54		bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
55		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
56		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
57		n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
58		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
59		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
60		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
61		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
62		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
63		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
65		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
66		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
67		hexachlorobutadiene		201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
68		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
69		4-isopropyltoluene		202-796-7	99-87-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
70		sec-butylbenzene		205-227-0	135-98-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
71		styrene	601-026-00-0	202-851-5	100-42-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
72		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
73		tert-butylbenzene		202-632-4	98-06-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
74		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
75		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
76		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
77		trichlorofluoromethane		200-892-3	75-69-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
78		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
79		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
80		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		30	mg/kg	1.785	46.058	mg/kg	0.00461 %	✓	
81		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
82		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
83		cumene; [1] propylbenzene [2]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
								Total:	0.632 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP202--16022022-1.50

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP202--16022022-1.50
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.17%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.17%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.17%)

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				13000	mg/kg		11700	mg/kg	1.17 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	1.17 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP203--16022022-0.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP203--16022022-0.20
Moisture content:
5.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 5.6% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	6.6	mg/kg	1.32	8.226	mg/kg	0.000823 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		benzo[ghi]perylene		205-883-8	191-24-2	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9	0.19	mg/kg	2.775	0.498	mg/kg	0.0000498 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2	0.4	mg/kg	13.43	5.071	mg/kg	0.000507 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	0.9	mg/kg	1.285	1.092	mg/kg	0.000085 %	✓	
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9	16	mg/kg	1.462	23.385	mg/kg	0.00234 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		23	mg/kg	1.126	24.445	mg/kg	0.00244 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	100	mg/kg		94.4	mg/kg	0.00944 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		7.4	mg/kg	1.579	11.034	mg/kg	0.0011 %	✓	
28		pH			PH		8.3	pH		8.3	pH	8.3 pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		560	mg/kg		528.64	mg/kg	0.0529 %	✓	
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		110	mg/kg	1.245	129.251	mg/kg	0.0129 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
38		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		7.3	mg/kg	1.785	12.302	mg/kg	0.00123 %	✓	
											Total:	0.0846 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0529%)

Classification of sample: TP203--16022022-0.60

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
TP203--16022022-0.60		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:			
7.8% (wet weight correction)		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.8% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
2	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
4	•	TPH (C6 to C40) petroleum group			TPH		470	mg/kg		433.34	mg/kg	0.0433 %	✓	
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.0433 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0433%)

Classification of sample: TP203--16022022-2.00

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP203--16022022-2.00
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.35%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.35%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 1.35%)
n-butylbenzene: (conc.: 0.00007%)
sec-butylbenzene: (conc.: 0.00009%)
cumene; [1] propylbenzene [2]: (conc.: 0.00005%)

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	●	1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
2		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
3	●	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
4		naphthalene				<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
5		tetrachloroethylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
6		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
7		TPH (C6 to C40) petroleum group				15000	mg/kg		13500	mg/kg	1.35 %	✓	
				TPH									
8		trichloroethylene; trichloroethene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
9		xylene				<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
10		1,1,1-trichloroethane; methyl chloroform				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
11		1,1,2,2-tetrachloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-015-00-3	201-197-8	79-34-5									
12		1,1,2-trichloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-014-00-8	201-166-9	79-00-5									
13		1,1-dichloroethylene; vinylidene chloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
14		1,1-dichloropropene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
15		1,2,3-trichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
			201-757-1	87-61-6									
16		1,2,4-trimethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
17		1,2-dibromoethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-010-00-6	203-444-5	106-93-4									
18		1,2-dichlorobenzene; o-dichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
19		1,2-dichloropropane; propylene dichloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
20		1,3-dichlorbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
21		1,3-dichloropropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
			205-531-3	142-28-9									
22		1,4-dichlorobenzene; p-dichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
23		2,2-dichloropropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
			209-832-0	594-20-7									
24		bromodichloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
			200-856-7	75-27-4									
25		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
26		bromobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
27		n-butylbenzene				0.85	mg/kg		0.765	mg/kg	0.0000765 %	✓	
			203-209-7	104-51-8									
28		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
29		chlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-033-00-1	203-628-5	108-90-7									
30		carbon tetrachloride; tetrachloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
31		chloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		602-009-00-0	200-830-5	75-00-3									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
32		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
34	•	dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
35		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
36		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
37	•	hexachlorobutadiene		201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
38		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
39	•	4-isopropyltoluene		202-796-7	99-87-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
40	•	sec-butylbenzene		205-227-0	135-98-8		1	mg/kg		0.9	mg/kg	0.00009 %	✓	
41		styrene	601-026-00-0	202-851-5	100-42-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
42	•	trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
43	•	tert-butylbenzene		202-632-4	98-06-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
44		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
45		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
46	•	1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
47	•	trichlorofluoromethane		200-892-3	75-69-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
48		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
49		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
50		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		0.72	mg/kg		0.648	mg/kg	0.0000648 %	✓	
51		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
52		cumene; [1] propylbenzene [2]	601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]		0.66	mg/kg		0.594	mg/kg	0.0000594 %	✓	
											Total:	1.35 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Potentially Hazardous result
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP204--16022022-0.80

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP204--16022022-0.80
Moisture content:
5.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.292%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.292%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.292%)

Determinands

Moisture content: 5.9% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				3100	mg/kg		2917.1	mg/kg	0.292 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4							
								Total:	0.292 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP205--16022022-0.40

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP205--16022022-0.40
Moisture content:
8%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene		204-371-1	120-12-7		0.24	mg/kg		0.221	mg/kg	0.0000221 %	✓	
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19	mg/kg	1.32	23.079	mg/kg	0.00231 %	✓	
5		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
6		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
7		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.3	mg/kg	2.775	3.319	mg/kg	0.000332 %	✓	
11		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.3	mg/kg	13.43	3.707	mg/kg	0.000371 %	✓	
12		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.8	mg/kg	1.285	0.946	mg/kg	0.0000736 %	✓	
13		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
14		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
15		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		92	mg/kg	1.126	95.295	mg/kg	0.00953 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
19		fluoranthene		205-912-4	206-44-0		0.23	mg/kg		0.212	mg/kg	0.0000212 %	✓	
20		fluorene		201-695-5	86-73-7		0.43	mg/kg		0.396	mg/kg	0.0000396 %	✓	
21		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	76	mg/kg		69.92	mg/kg	0.00699 %	✓	
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		2.8	mg/kg		2.576	mg/kg	0.000258 %	✓	
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		20	mg/kg	1.579	29.063	mg/kg	0.00291 %	✓	
26		pH			PH		8.3	pH		8.3	pH	8.3 pH		
27		phenanthrene		201-581-5	85-01-8		1.6	mg/kg		1.472	mg/kg	0.000147 %	✓	
28		pyrene		204-927-3	129-00-0		0.26	mg/kg		0.239	mg/kg	0.0000239 %	✓	
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		84	mg/kg	1.245	96.191	mg/kg	0.00962 %	✓	
31		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		**<LOD**
32		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
33		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		25	mg/kg	1.785	41.059	mg/kg	0.00411 %	✓	
											Total:	0.0397 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP205--16022022-1.50

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP205--16022022-1.50
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.602%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.602%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.602%)

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2	●	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4	●	TPH (C6 to C40) petroleum group				18000	mg/kg		16020	mg/kg	1.602 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6	•	polychlorobiphenyls; PCB									
		602-039-00-4	215-648-1	1336-36-3		<0.007 mg/kg		<0.007 mg/kg	<0.0000007 %		**<LOD**
7		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	1.602 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP206--16022022-0.10

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP206--16022022-0.10
Moisture content:
9.3%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.3% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene		204-371-1	120-12-7		0.37	mg/kg		0.336	mg/kg	0.0000336 %	✓	
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.9	mg/kg	1.32	11.856	mg/kg	0.00119 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.81	mg/kg		0.735	mg/kg	0.0000735 %	✓	
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.37	mg/kg		0.336	mg/kg	0.0000336 %	✓	
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.97	mg/kg		0.88	mg/kg	0.000088 %	✓	
9		benzo[ghi]perylene		205-883-8	191-24-2		0.39	mg/kg		0.354	mg/kg	0.0000354 %	✓	
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.28	mg/kg		0.254	mg/kg	0.0000254 %	✓	
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.9	mg/kg	2.775	2.266	mg/kg	0.000227 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.8	mg/kg	13.43	9.745	mg/kg	0.000974 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	0.4	mg/kg	1.285	0.466	mg/kg	0.0000363 %	✓	
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18	mg/kg	1.462	26.308	mg/kg	0.00263 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9		0.79	mg/kg		0.717	mg/kg	0.0000717 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		42	mg/kg	1.126	42.89	mg/kg	0.00429 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		1.1	mg/kg		0.998	mg/kg	0.0000998 %	✓	
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		0.35	mg/kg		0.317	mg/kg	0.0000317 %	✓	
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	27	mg/kg		24.489	mg/kg	0.00245 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		22	mg/kg	1.579	31.517	mg/kg	0.00315 %	✓	
28		pH			PH		8.2	pH		8.2	pH	8.2 pH		
29		phenanthrene		201-581-5	85-01-8		0.58	mg/kg		0.526	mg/kg	0.0000526 %	✓	
30		pyrene		204-927-3	129-00-0		1	mg/kg		0.907	mg/kg	0.0000907 %	✓	
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		230	mg/kg		208.61	mg/kg	0.0209 %	✓	
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		88	mg/kg	1.245	99.348	mg/kg	0.00993 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
38		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		18	mg/kg	1.785	29.145	mg/kg	0.00291 %	✓	
											Total:	0.05 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0209%)

Classification of sample: TP206--16022022-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP206--16022022-0.50
Moisture content:
6.5%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6.5% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							
2	•	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4							
3		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3							
4	•	TPH (C6 to C40) petroleum group				210 mg/kg		196.35 mg/kg	0.0196 %	✓	
				TPH							
5		xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4							
								Total:	0.0196 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0196%)

Classification of sample: TP206--16022022-1.50

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP206--16022022-1.50
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.305%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.305%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.305%)

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2	●	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4	●	TPH (C6 to C40) petroleum group				15000	mg/kg		13050	mg/kg	1.305 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	1.305 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP207--17022022-0.60

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP207--17022022-0.60
Moisture content:
7.2%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.2% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
2		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
3		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
4		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16 mg/kg	1.32	19.604 mg/kg	0.00196 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
10		benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.36 mg/kg	2.775	0.927 mg/kg	0.0000927 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		**<LOD**
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		**<LOD**
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		13 mg/kg	1.462	19 mg/kg	0.0019 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
17		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15	mg/kg	1.126	15.672	mg/kg	0.00157 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
22		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
24		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	9.1	mg/kg		8.445	mg/kg	0.000844 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
27		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		<LOD
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		17	mg/kg	1.579	24.918	mg/kg	0.00249 %	✓	
29		pH			PH		8	pH		8	pH	8pH		
30		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		<LOD
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
34		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
35		TPH (C6 to C40) petroleum group			TPH		240	mg/kg		222.72	mg/kg	0.0223 %	✓	
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		48	mg/kg	1.245	55.445	mg/kg	0.00554 %	✓	
39		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
40		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
41		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
42		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
43		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
44		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
45	•	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
46		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
47		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
48		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
49		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
50		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
51	•	1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
52		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
53	•	2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
54	•	bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
55		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
56		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
57	•	n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
58		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
59		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
60		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
61		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
62		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
63		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
64	•	dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
65		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
66		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
67	•	hexachlorobutadiene		201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
68		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
69	•	4-isopropyltoluene		202-796-7	99-87-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
70	•	sec-butylbenzene		205-227-0	135-98-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
71		styrene	601-026-00-0	202-851-5	100-42-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
72	•	trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
73	•	tert-butylbenzene		202-632-4	98-06-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
74		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
75		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
76	•	1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
77	•	trichlorofluoromethane		200-892-3	75-69-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
78		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
79		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
80		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		23	mg/kg	1.785	38.103	mg/kg	0.00381 %	✓	
81		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
82		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
83		cumene; [1] propylbenzene [2]	601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
											Total:	0.0416 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0223%)

Classification of sample: TP207--17022022-1.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP207--17022022-1.20
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.99%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.99%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.99%)
1,2,4-trimethylbenzene: (conc.: 0.00001%)
n-butylbenzene: (conc.: 0.00001%)
sec-butylbenzene: (conc.: 0.00001%)
mesitylene; 1,3,5-trimethylbenzene: (conc.: 4.77e-06%)
cumene; [1] propylbenzene [2]: (conc.: 0.00002%)

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3							
2		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
3	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
4		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		**<LOD**
5		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
6		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
7	•	TPH (C6 to C40) petroleum group			TPH		11000	mg/kg		9900	mg/kg	0.99 %	✓	
8		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
9		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		**<LOD**
10		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
11		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
12		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
13		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
14		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
15	•	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
16		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		0.17	mg/kg		0.153	mg/kg	0.0000153 %	✓	
17		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
18		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
19		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
20		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21	•	1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
22		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
23	•	2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
24	•	bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
25		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
26		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
27	•	n-butylbenzene		203-209-7	104-51-8		0.2	mg/kg		0.18	mg/kg	0.000018 %	✓	
28		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
29		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
30		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
31		chloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-009-00-0	200-830-5	75-00-3									
32		chloroform; trichloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-006-00-4	200-663-8	67-66-3									
33		chloromethane; methyl chloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-001-00-7	200-817-4	74-87-3									
34	•	dibromochloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			204-704-0	124-48-1									
35		1,2-dibromo-3-chloropropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-021-00-6	202-479-3	96-12-8									
36		dibromomethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-003-00-8	200-824-2	74-95-3									
37	•	hexachlorobutadiene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			201-765-5	87-68-3									
38		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
39	•	4-isopropyltoluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			202-796-7	99-87-6									
40	•	sec-butylbenzene				0.22	mg/kg		0.198	mg/kg	0.0000198 %	✓	
			205-227-0	135-98-8									
41		styrene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-026-00-0	202-851-5	100-42-5									
42	•	trans-1,3-dichloropropene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			431-460-4	10061-02-6									
43	•	tert-butylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			202-632-4	98-06-6									
44		bromoform; tribromomethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-007-00-X	200-854-6	75-25-2									
45		1,2,4-trichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-087-00-6	204-428-0	120-82-1									
46	•	1,1,1,2-tetrachloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			211-135-1	630-20-6									
47	•	trichlorofluoromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			200-892-3	75-69-4									
48		mesitylene; 1,3,5-trimethylbenzene				0.053	mg/kg		0.0477	mg/kg	0.00000477 %	✓	
		601-025-00-5	203-604-4	108-67-8									
49		vinyl chloride; chloroethylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-023-00-7	200-831-0	75-01-4									
50		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
51		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
52		cumene; [1] propylbenzene [2]				0.232	mg/kg		0.209	mg/kg	0.0000209 %	✓	
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]									
										Total:	0.99 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP209--17022022-0.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP209--17022022-0.30
Moisture content:
9.5%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.5% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		0.27	mg/kg		0.244	mg/kg	0.0000244 %	✓	
2		acenaphthylene		205-917-1	208-96-8		0.55	mg/kg		0.498	mg/kg	0.0000498 %	✓	
3		anthracene		204-371-1	120-12-7		1.2	mg/kg		1.086	mg/kg	0.000109 %	✓	
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		24	mg/kg	1.32	28.677	mg/kg	0.00287 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.6	mg/kg		1.448	mg/kg	0.000145 %	✓	
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.99	mg/kg		0.896	mg/kg	0.0000896 %	✓	
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.8	mg/kg		1.629	mg/kg	0.000163 %	✓	
9		benzo[ghi]perylene		205-883-8	191-24-2		0.68	mg/kg		0.615	mg/kg	0.0000615 %	✓	
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.55	mg/kg		0.498	mg/kg	0.0000498 %	✓	
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.86	mg/kg	2.775	2.16	mg/kg	0.000216 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.5	mg/kg	13.43	6.077	mg/kg	0.000608 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23	mg/kg	1.462	33.616	mg/kg	0.00336 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9		1.7	mg/kg		1.539	mg/kg	0.000154 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		380	mg/kg	1.126	387.193	mg/kg	0.0387 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.21	mg/kg		0.19	mg/kg	0.000019 %	✓	
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		3.1	mg/kg		2.806	mg/kg	0.000281 %	✓	
22		fluorene		201-695-5	86-73-7		0.44	mg/kg		0.398	mg/kg	0.0000398 %	✓	
23		indeno[123-cd]pyrene		205-893-2	193-39-5		0.65	mg/kg		0.588	mg/kg	0.0000588 %	✓	
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	280	mg/kg		253.4	mg/kg	0.0253 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		0.62	mg/kg		0.561	mg/kg	0.0000561 %	✓	
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		28	mg/kg	1.579	40.025	mg/kg	0.004 %	✓	
28		pH			PH		8.4	pH		8.4	pH	8.4 pH		
29		phenanthrene		201-581-5	85-01-8		2.1	mg/kg		1.901	mg/kg	0.00019 %	✓	
30		pyrene		204-927-3	129-00-0		2.9	mg/kg		2.625	mg/kg	0.000262 %	✓	
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		790	mg/kg		714.95	mg/kg	0.0715 %	✓	
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		250	mg/kg	1.245	281.617	mg/kg	0.0282 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
38		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		31	mg/kg	1.785	50.083	mg/kg	0.00501 %	✓	
											Total:	0.182 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0715%)

Classification of sample: TP210--17022022-0.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP210--17022022-0.30
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
2		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		acenaphthylene		205-917-1	208-96-8		0.38	mg/kg		0.331	mg/kg	0.0000331 %	✓	
4		anthracene		204-371-1	120-12-7		0.38	mg/kg		0.331	mg/kg	0.0000331 %	✓	
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		33	mg/kg	1.32	37.907	mg/kg	0.00379 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.1	mg/kg		0.957	mg/kg	0.0000957 %	✓	
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.7	mg/kg		0.609	mg/kg	0.0000609 %	✓	
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.98	mg/kg		0.853	mg/kg	0.0000853 %	✓	
10		benzo[ghi]perylene		205-883-8	191-24-2		0.62	mg/kg		0.539	mg/kg	0.0000539 %	✓	
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.5	mg/kg		0.435	mg/kg	0.0000435 %	✓	
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		3	mg/kg	2.775	7.244	mg/kg	0.000724 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.2	mg/kg	13.43	2.337	mg/kg	0.000234 %	✓	
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		17	mg/kg	1.462	24.846	mg/kg	0.00248 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
17		chrysene	601-048-00-0	205-923-4	218-01-9		1.1	mg/kg		0.957	mg/kg	0.0000957 %	✓	
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		460	mg/kg	1.126	450.581	mg/kg	0.0451 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
22		fluoranthene		205-912-4	206-44-0		1.2	mg/kg		1.044	mg/kg	0.000104 %	✓	
23		fluorene		201-695-5	86-73-7		0.33	mg/kg		0.287	mg/kg	0.0000287 %	✓	
24		indeno[123-cd]pyrene		205-893-2	193-39-5		0.65	mg/kg		0.566	mg/kg	0.0000566 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	460	mg/kg		400.2	mg/kg	0.04 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
27		naphthalene	601-052-00-2	202-049-5	91-20-3		1.6	mg/kg		1.392	mg/kg	0.000139 %	✓	
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		63	mg/kg	1.579	86.572	mg/kg	0.00866 %	✓	
29		pH			PH		8.1	pH		8.1	pH	8.1 pH		
30		phenanthrene		201-581-5	85-01-8		1.6	mg/kg		1.392	mg/kg	0.000139 %	✓	
31		pyrene		204-927-3	129-00-0		1.1	mg/kg		0.957	mg/kg	0.0000957 %	✓	
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
34		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
35		TPH (C6 to C40) petroleum group			TPH		360	mg/kg		313.2	mg/kg	0.0313 %	✓	
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		**<LOD**
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		170	mg/kg	1.245	184.093	mg/kg	0.0184 %	✓	
39		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		**<LOD**
40		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
41		1,1,1-trichloroethane; methyl chloroform				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-013-00-2	200-756-3	71-55-6									
42		1,1,2,2-tetrachloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-015-00-3	201-197-8	79-34-5									
43		1,1,2-trichloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-014-00-8	201-166-9	79-00-5									
44		1,1-dichloroethylene; vinylidene chloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-025-00-8	200-864-0	75-35-4									
45		1,1-dichloropropene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-031-00-0	209-253-3	563-58-6									
46	•	1,2,3-trichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			201-757-1	87-61-6									
47		1,2,4-trimethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-043-00-3	202-436-9	95-63-6									
48		1,2-dibromoethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-010-00-6	203-444-5	106-93-4									
49		1,2-dichlorobenzene; o-dichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-034-00-7	202-425-9	95-50-1									
50		1,2-dichloropropane; propylene dichloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-020-00-0	201-152-2	78-87-5									
51		1,3-dichlorbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-067-00-7	208-792-1	541-73-1									
52	•	1,3-dichloropropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			205-531-3	142-28-9									
53		1,4-dichlorobenzene; p-dichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-035-00-2	203-400-5	106-46-7									
54	•	2,2-dichloropropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			209-832-0	594-20-7									
55	•	bromodichloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			200-856-7	75-27-4									
56		bromomethane; methylbromide				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-002-00-2	200-813-2	74-83-9									
57		bromobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-060-00-9	203-623-8	108-86-1									
58	•	n-butylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			203-209-7	104-51-8									
59		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									
60		chlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-033-00-1	203-628-5	108-90-7									
61		carbon tetrachloride; tetrachloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-008-00-5	200-262-8	56-23-5									
62		chloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-009-00-0	200-830-5	75-00-3									
63		chloroform; trichloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-006-00-4	200-663-8	67-66-3									
64		chloromethane; methyl chloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-001-00-7	200-817-4	74-87-3									
65	•	dibromochloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			204-704-0	124-48-1									
66		1,2-dibromo-3-chloropropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-021-00-6	202-479-3	96-12-8									
67		dibromomethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-003-00-8	200-824-2	74-95-3									
68	•	hexachlorobutadiene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			201-765-5	87-68-3									
69		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
70		4-isopropyltoluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			202-796-7	99-87-6									
71		sec-butylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			205-227-0	135-98-8									
72		styrene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-026-00-0	202-851-5	100-42-5									
73		trans-1,3-dichloropropene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			431-460-4	10061-02-6									
74		tert-butylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			202-632-4	98-06-6									
75		bromoform; tribromomethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-007-00-X	200-854-6	75-25-2									
76		1,2,4-trichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-087-00-6	204-428-0	120-82-1									
77		1,1,1,2-tetrachloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			211-135-1	630-20-6									
78		trichlorofluoromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			200-892-3	75-69-4									
79		mesitylene; 1,3,5-trimethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-025-00-5	203-604-4	108-67-8									
80		vinyl chloride; chloroethylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-023-00-7	200-831-0	75-01-4									
81		vanadium { divanadium pentaoxide; vanadium pentoxide }				40	mg/kg	1.785	62.124	mg/kg	0.00621 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
82		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
83		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
84		cumene; [1] propylbenzene [2]				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]									
										Total:	0.159 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0313%)

Classification of sample: TP210--17022022-1.50

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP210--17022022-1.50
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.496%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.496%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.496%)

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
2		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9									
3		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-917-1	208-96-8									
4		anthracene				1.5	mg/kg		1.32	mg/kg	0.000132 %	✓	
			204-371-1	120-12-7									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.1	mg/kg	1.32	10.573	mg/kg	0.00106 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.22	mg/kg	2.775	0.537	mg/kg	0.0000537 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.4	mg/kg	13.43	4.727	mg/kg	0.000473 %	✓	
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		5.5	mg/kg	1.462	8.039	mg/kg	0.000804 %		
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
17		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16	mg/kg	1.126	15.853	mg/kg	0.00159 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
22		fluoranthene		205-912-4	206-44-0		1.4	mg/kg		1.232	mg/kg	0.000123 %	✓	
23		fluorene		201-695-5	86-73-7		8	mg/kg		7.04	mg/kg	0.000704 %	✓	
24		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	7.4	mg/kg		6.512	mg/kg	0.000651 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
27		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		<LOD
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		9.8	mg/kg	1.579	13.622	mg/kg	0.00136 %	✓	
29		pH			PH		8.6	pH		8.6	pH	8.6 pH		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
30		phenanthrene		201-581-5	85-01-8		11	mg/kg		9.68	mg/kg	0.000968 %	✓	
31		pyrene		204-927-3	129-00-0		1.1	mg/kg		0.968	mg/kg	0.0000968 %	✓	
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
34		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
35		TPH (C6 to C40) petroleum group			TPH		17000	mg/kg		14960	mg/kg	1.496 %	✓	
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		**<LOD**
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		32	mg/kg	1.245	35.051	mg/kg	0.00351 %	✓	
39		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.007	mg/kg		<0.007	mg/kg	<0.0000007 %		**<LOD**
40		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
41		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
42		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
43		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
44		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
45		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
46		1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
47		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
48		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
49		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
50		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
51		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
52		1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
53		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
54		2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
55		bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
56		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
57		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
58		n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
59		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
60		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
61		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
62		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
63		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
64		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
65		dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
66		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
67		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
68		hexachlorobutadiene		201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
69		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
70		4-isopropyltoluene		202-796-7	99-87-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
71		sec-butylbenzene		205-227-0	135-98-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
72		styrene	601-026-00-0	202-851-5	100-42-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
73		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
74		tert-butylbenzene		202-632-4	98-06-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
75		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
76		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
77		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
78		trichlorofluoromethane		200-892-3	75-69-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
79		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
80		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
81		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		13	mg/kg	1.785	20.423	mg/kg	0.00204 %	✓	
82		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
83		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
84		cumene; [1] propylbenzene [2]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
								Total:	1.51 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP211--17022022-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP211--17022022-0.50
Moisture content:
6.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6.7% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		acenaphthene	201-469-6	83-32-9		0.23	mg/kg		0.215	mg/kg	0.0000215 %	✓	
2		acenaphthylene	205-917-1	208-96-8		0.61	mg/kg		0.569	mg/kg	0.0000569 %	✓	
3		anthracene	204-371-1	120-12-7		1	mg/kg		0.933	mg/kg	0.0000933 %	✓	
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	14	mg/kg	1.32	17.246	mg/kg	0.00172 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	3.1	mg/kg		2.892	mg/kg	0.000289 %	✓	
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	1.8	mg/kg		1.679	mg/kg	0.000168 %	✓	
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	2.6	mg/kg		2.426	mg/kg	0.000243 %	✓	
9		benzo[ghi]perylene		205-883-8	191-24-2	0.97	mg/kg		0.905	mg/kg	0.0000905 %	✓	
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	1.1	mg/kg		1.026	mg/kg	0.000103 %	✓	
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9	0.61	mg/kg	2.775	1.58	mg/kg	0.000158 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2	<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		**<LOD**
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	0.7	mg/kg	1.285	0.839	mg/kg	0.0000653 %	✓	
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9	20	mg/kg	1.462	29.231	mg/kg	0.00292 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9	2.6	mg/kg		2.426	mg/kg	0.000243 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		copper { dicopper oxide; copper (I) oxide }				71	mg/kg	1.126	74.582	mg/kg	0.00746 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
		006-007-00-5											
19		dibenz[a,h]anthracene				0.38	mg/kg		0.355	mg/kg	0.0000355 %	✓	
		601-041-00-2	200-181-8	53-70-3									
20		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
21		fluoranthene				4.1	mg/kg		3.825	mg/kg	0.000383 %	✓	
			205-912-4	206-44-0									
22		fluorene				0.33	mg/kg		0.308	mg/kg	0.0000308 %	✓	
			201-695-5	86-73-7									
23		indeno[123-cd]pyrene				1.1	mg/kg		1.026	mg/kg	0.000103 %	✓	
			205-893-2	193-39-5									
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	61	mg/kg		56.913	mg/kg	0.00569 %	✓	
		082-001-00-6											
25		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
		080-010-00-X	231-299-8	7487-94-7									
26		naphthalene				0.53	mg/kg		0.494	mg/kg	0.0000494 %	✓	
		601-052-00-2	202-049-5	91-20-3									
27		nickel { nickel dihydroxide }				24	mg/kg	1.579	35.368	mg/kg	0.00354 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
28		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
29		phenanthrene				2.2	mg/kg		2.053	mg/kg	0.000205 %	✓	
			201-581-5	85-01-8									
30		pyrene				3.3	mg/kg		3.079	mg/kg	0.000308 %	✓	
			204-927-3	129-00-0									
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
32		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
33		TPH (C6 to C40) petroleum group				340	mg/kg		317.22	mg/kg	0.0317 %	✓	
				TPH									
34		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		zinc { zinc oxide }				110	mg/kg	1.245	127.745	mg/kg	0.0128 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
36		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
38		vanadium { divanadium pentaoxide; vanadium pentoxide }				23	mg/kg	1.785	38.308	mg/kg	0.00383 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0733 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0317%)

Classification of sample: TP211--17022022-1.50

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP211--17022022-1.50
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.105%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.105%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.105%)

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2	●	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4	●	TPH (C6 to C40) petroleum group				13000	mg/kg		11050	mg/kg	1.105 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4							
								Total:	1.105 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP213--17022022-0.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP213--17022022-0.20
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9									
2		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-917-1	208-96-8									
3		anthracene				0.44	mg/kg		0.378	mg/kg	0.0000378 %	✓	
			204-371-1	120-12-7									
4		arsenic { arsenic trioxide }				24	mg/kg	1.32	27.252	mg/kg	0.00273 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
5		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		1.3	mg/kg		1.118	mg/kg	0.000112 %	✓	
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.76	mg/kg		0.654	mg/kg	0.0000654 %	✓	
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		1.3	mg/kg		1.118	mg/kg	0.000112 %	✓	
9		benzo[ghi]perylene		205-883-8	191-24-2		0.77	mg/kg		0.662	mg/kg	0.0000662 %	✓	
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.44	mg/kg		0.378	mg/kg	0.0000378 %	✓	
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.8	mg/kg	2.775	4.296	mg/kg	0.00043 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.3	mg/kg	13.43	3.465	mg/kg	0.000346 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20	mg/kg	1.462	29.231	mg/kg	0.00292 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9		1.2	mg/kg		1.032	mg/kg	0.000103 %	✓	
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		150	mg/kg	1.126	145.24	mg/kg	0.0145 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		1.6	mg/kg		1.376	mg/kg	0.000138 %	✓	
22		fluorene		201-695-5	86-73-7		0.38	mg/kg		0.327	mg/kg	0.0000327 %	✓	
23		indeno[123-cd]pyrene		205-893-2	193-39-5		0.63	mg/kg		0.542	mg/kg	0.0000542 %	✓	
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	95	mg/kg		81.7	mg/kg	0.00817 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		0.57	mg/kg		0.49	mg/kg	0.000049 %	✓	
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		40	mg/kg	1.579	54.335	mg/kg	0.00543 %	✓	
28		pH			PH		7.9	pH		7.9	pH	7.9 pH		
29		phenanthrene		201-581-5	85-01-8		1.4	mg/kg		1.204	mg/kg	0.00012 %	✓	
30		pyrene		204-927-3	129-00-0		1.5	mg/kg		1.29	mg/kg	0.000129 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
32		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
33		TPH (C6 to C40) petroleum group				1200	mg/kg		1032	mg/kg	0.103 %	✓	
				TPH									
34		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		zinc { zinc oxide }				100	mg/kg	1.245	107.045	mg/kg	0.0107 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
36		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
38		vanadium { divanadium pentaoxide; vanadium pentoxide }				36	mg/kg	1.785	55.269	mg/kg	0.00553 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.156 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP213--17022022-1.50

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP213--17022022-1.50
Moisture content:
9.2%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.908%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.908%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.908%)

Determinands

Moisture content: 9.2% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				10000	mg/kg		9080	mg/kg	0.908 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	0.908 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP214--17022022-0.60

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP214--17022022-0.60
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		14	mg/kg	1.32	16.636	mg/kg	0.00166 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.61	mg/kg		0.549	mg/kg	0.0000549 %	✓	
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.34	mg/kg		0.306	mg/kg	0.0000306 %	✓	
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.57	mg/kg		0.513	mg/kg	0.0000513 %	✓	
9		benzo[ghi]perylene		205-883-8	191-24-2		0.22	mg/kg		0.198	mg/kg	0.0000198 %	✓	
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.25	mg/kg		0.225	mg/kg	0.0000225 %	✓	
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.36	mg/kg	2.775	0.899	mg/kg	0.0000899 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		8.9	mg/kg	1.462	13.008	mg/kg	0.0013 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		0.46	mg/kg		0.414	mg/kg	0.0000414 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	19.253	mg/kg	0.00193 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
		006-007-00-5											
19		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
20		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
21		fluoranthene				0.43	mg/kg		0.387	mg/kg	0.0000387 %	✓	
			205-912-4	206-44-0									
22		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7									
23		indeno[123-cd]pyrene				0.27	mg/kg		0.243	mg/kg	0.0000243 %	✓	
			205-893-2	193-39-5									
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	27	mg/kg		24.3	mg/kg	0.00243 %	✓	
		082-001-00-6											
25		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
		080-010-00-X	231-299-8	7487-94-7									
26		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-052-00-2	202-049-5	91-20-3									
27		nickel { nickel dihydroxide }				13	mg/kg	1.579	18.48	mg/kg	0.00185 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
28		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
29		phenanthrene				0.36	mg/kg		0.324	mg/kg	0.0000324 %	✓	
			201-581-5	85-01-8									
30		pyrene				0.37	mg/kg		0.333	mg/kg	0.0000333 %	✓	
			204-927-3	129-00-0									
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
32		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
33		TPH (C6 to C40) petroleum group				180	mg/kg		162	mg/kg	0.0162 %	✓	
				TPH									
34		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		zinc { zinc oxide }				52	mg/kg	1.245	58.253	mg/kg	0.00583 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
36		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
38		vanadium { divanadium pentaoxide; vanadium pentoxide }				18	mg/kg	1.785	28.92	mg/kg	0.00289 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0355 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0162%)

Classification of sample: TP214--17022022-1.30

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP214--17022022-1.30
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.712%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.712%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene: (conc.: 7.21e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 0.712%)
sec-butylbenzene: (conc.: 4.63e-06%)

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3							
2		acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9							

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
3		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.2	mg/kg	1.32	10.811	mg/kg	0.00108 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.26	mg/kg	2.775	0.642	mg/kg	0.0000642 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		8.8	mg/kg	1.462	12.862	mg/kg	0.00129 %		
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
17		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11	mg/kg	1.126	11.022	mg/kg	0.0011 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
22		fluoranthene		205-912-4	206-44-0		0.43	mg/kg		0.383	mg/kg	0.0000383 %	✓	
23		fluorene		201-695-5	86-73-7		2.2	mg/kg		1.958	mg/kg	0.000196 %	✓	
24		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	6.4	mg/kg		5.696	mg/kg	0.00057 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
27		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		12	mg/kg	1.579	16.869	mg/kg	0.00169 %	✓	
29		pH			PH		8.1	pH		8.1	pH	8.1 pH		
30		phenanthrene		201-581-5	85-01-8		2	mg/kg		1.78	mg/kg	0.000178 %	✓	
31		pyrene		204-927-3	129-00-0		0.6	mg/kg		0.534	mg/kg	0.0000534 %	✓	
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
34		toluene	601-021-00-3	203-625-9	108-88-3		0.0081	mg/kg		0.0072	mg/kg	0.000000721 %	✓	
35		TPH (C6 to C40) petroleum group			TPH		8000	mg/kg		7120	mg/kg	0.712 %	✓	
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		**<LOD**
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		34	mg/kg	1.245	37.665	mg/kg	0.00377 %	✓	
39		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
40		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
41		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
42		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
43		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
44		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
45		1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
46		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
47		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
48		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
49		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
50		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
51		1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
52		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
53		2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
54		bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
55		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
56		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
57		n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
58		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
59		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
60		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
61		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
62		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
63		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
65		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
66		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
67		hexachlorobutadiene		201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
68		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
69		4-isopropyltoluene		202-796-7	99-87-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
70		sec-butylbenzene		205-227-0	135-98-8		0.052	mg/kg		0.0463	mg/kg	0.00000463 %	✓	
71		styrene	601-026-00-0	202-851-5	100-42-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
72		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
73		tert-butylbenzene		202-632-4	98-06-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
74		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
75		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
76		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
77		trichlorofluoromethane		200-892-3	75-69-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
78		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
79		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
80		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		16	mg/kg	1.785	25.421	mg/kg	0.00254 %	✓	
81		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
82		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
83		cumene; [1] propylbenzene [2]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
								Total:	0.726 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP215--17022022-1.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP215--17022022-1.20
Moisture content:
9.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.379%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.379%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.379%)

Determinands

Moisture content: 9.7% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				4200	mg/kg		3792.6	mg/kg	0.379 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	0.379 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP216--21022022-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP216--21022022-0.50
Moisture content:
8.7%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8.7% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		19	mg/kg	1.32	22.904	mg/kg	0.00229 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.37	mg/kg		0.338	mg/kg	0.0000338 %	✓	
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.3	mg/kg		0.274	mg/kg	0.0000274 %	✓	
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.11	mg/kg		0.1	mg/kg	0.00001 %	✓	
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.64	mg/kg	2.775	1.622	mg/kg	0.000162 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.7	mg/kg	13.43	8.583	mg/kg	0.000858 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18	mg/kg	1.462	26.308	mg/kg	0.00263 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9		0.3	mg/kg		0.274	mg/kg	0.0000274 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		copper { dicopper oxide; copper (I) oxide }				38	mg/kg	1.126	39.062	mg/kg	0.00391 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
		006-007-00-5											
19		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
20		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
21		fluoranthene				0.44	mg/kg		0.402	mg/kg	0.0000402 %	✓	
			205-912-4	206-44-0									
22		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7									
23		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5									
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	38	mg/kg		34.694	mg/kg	0.00347 %	✓	
		082-001-00-6											
25		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
		080-010-00-X	231-299-8	7487-94-7									
26		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-052-00-2	202-049-5	91-20-3									
27		nickel { nickel dihydroxide }				21	mg/kg	1.579	30.284	mg/kg	0.00303 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
28		pH				8.4	pH		8.4	pH	8.4 pH		
				PH									
29		phenanthrene				0.35	mg/kg		0.32	mg/kg	0.000032 %	✓	
			201-581-5	85-01-8									
30		pyrene				0.51	mg/kg		0.466	mg/kg	0.0000466 %	✓	
			204-927-3	129-00-0									
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
32		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
33		TPH (C6 to C40) petroleum group				250	mg/kg		228.25	mg/kg	0.0228 %	✓	
				TPH									
34		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		zinc { zinc oxide }				69	mg/kg	1.245	78.413	mg/kg	0.00784 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
36		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
38		vanadium { divanadium pentaoxide; vanadium pentoxide }				28	mg/kg	1.785	45.636	mg/kg	0.00456 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0526 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0228%)

Classification of sample: TP217--21022022-1.10

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP217--21022022-1.10
Moisture content:
9.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.9% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							
2	•	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4							
3		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3							
4	•	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
				TPH							
5		xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4							
								Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP217--21022022-1.60

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP217--21022022-1.60
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2	•	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4	•	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
				TPH									
5		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP219--21022022-0.00

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:	
TP219--21022022-0.00	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:		
11% (wet weight correction)	Entry:	17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 5: Specific Target Organ Toxicity (STOT)/Aspiration Toxicity "waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration"

Hazard Statements hit:

STOT RE 2; H373 "May cause damage to organs [or state all organs affected, if known] through prolonged or repeated exposure [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 15.13%)

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 15.13%)

HP 10: Toxic for reproduction "waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring"

Hazard Statements hit:

Repr. 2; H361d "Suspected of damaging the unborn child."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 15.13%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 15.13%)

HP 14: Ecotoxic "waste which presents or may present immediate or delayed risks for one or more sectors of the environment"

Hazard Statements hit:

Aquatic Chronic 1; H410 "Very toxic to aquatic life with long lasting effects."

Because of determinand:

zinc oxide: (compound conc.: 0.133%)

Aquatic Chronic 2; H411 "Toxic to aquatic life with long lasting effects."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 15.13%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene: (conc.: 2.23e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group: (conc.: 15.13%)
xylene: (conc.: 4.63e-07%)
1,2,4-trimethylbenzene: (conc.: 1.87e-06%)

HP 5: Specific Target Organ Toxicity (STOT)/Aspiration Toxicity "waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration"

Hazard Statements hit:

Asp. Tox. 1; H304 "May be fatal if swallowed and enters airways."

Because of determinands:

toluene: (conc.: 2.23e-07%)
TPH (C6 to C40) petroleum group: (conc.: 15.13%)

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
2		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
3		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
4		anthracene				5.2	mg/kg		4.628	mg/kg	0.000463 %	✓	
			204-371-1	120-12-7									
5		arsenic { arsenic trioxide }				17	mg/kg	1.32	19.977	mg/kg	0.002 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
6		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
7		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
8		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
9		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
10		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
11		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
12		beryllium { beryllium oxide }				1.3	mg/kg	2.775	3.211	mg/kg	0.000321 %	✓	
		004-003-00-8	215-133-1	1304-56-9									
13		boron { boron tribromide/trichloride/trifluoride (combined) }				8.2	mg/kg	13.43	98.012	mg/kg	0.0098 %	✓	
				10294-33-4, 10294-34-5, 7637-07-2									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
		048-010-00-4	215-147-8	1306-23-6									
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				17	mg/kg	1.462	24.846	mg/kg	0.00248 %		
			215-160-9	1308-38-9									
16		chromium in chromium(VI) compounds { chromium(VI) oxide }				<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
		024-001-00-0	215-607-8	1333-82-0									
17		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-048-00-0	205-923-4	218-01-9									
18		copper { dicopper oxide; copper (I) oxide }				45	mg/kg	1.126	45.092	mg/kg	0.00451 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
		006-007-00-5											
20		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
21		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
22		fluoranthene				1.9	mg/kg		1.691	mg/kg	0.000169 %	✓	
			205-912-4	206-44-0									
23		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-695-5	86-73-7									
24		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5									
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	32	mg/kg		28.48	mg/kg	0.00285 %	✓	
		082-001-00-6											
26		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
		080-010-00-X	231-299-8	7487-94-7									
27		naphthalene				<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		**<LOD**
		601-052-00-2	202-049-5	91-20-3									
28		nickel { nickel dihydroxide }				22	mg/kg	1.579	30.927	mg/kg	0.00309 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
29		pH				7.6	pH		7.6	pH	7.6 pH		
				PH									
30		phenanthrene				9.3	mg/kg		8.277	mg/kg	0.000828 %	✓	
			201-581-5	85-01-8									
31		pyrene				3.1	mg/kg		2.759	mg/kg	0.000276 %	✓	
			204-927-3	129-00-0									
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
33		tetrachloroethylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-028-00-4	204-825-9	127-18-4									
34		toluene				0.0025	mg/kg		0.0022	mg/kg	0.000000223 %	✓	
		601-021-00-3	203-625-9	108-88-3									
35		TPH (C6 to C40) petroleum group				170000	mg/kg		151300	mg/kg	15.13 %	✓	
				TPH									
36		trichloroethylene; trichloroethene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-027-00-9	201-167-4	79-01-6									
37		xylene				0.0052	mg/kg		0.0046	mg/kg	0.000000463 %	✓	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		1200	mg/kg	1.245	1329.355	mg/kg	0.133 %	✓	
39		monohydric phenols			P1186		1.4	mg/kg		1.4	mg/kg	0.00014 %		
40		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
41		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
42		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
43		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
44		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
45		1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
46		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		0.021	mg/kg		0.0187	mg/kg	0.00000187 %	✓	
47		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
48		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
49		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
50		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
51		1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
52		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
53		2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
54		bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
55		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
56		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
57		n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
58		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
59		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
60		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
61		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
62		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
63		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
65		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
66		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD

#		Determinand	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number											
67		hexachlorobutadiene	201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
68		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X											
69		4-isopropyltoluene	202-796-7	99-87-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
70		sec-butylbenzene	205-227-0	135-98-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
71		styrene	202-851-5	100-42-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-026-00-0											
72		trans-1,3-dichloropropene	431-460-4	10061-02-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
73		tert-butylbenzene	202-632-4	98-06-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
74		bromoform; tribromomethane	200-854-6	75-25-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-007-00-X											
75		1,2,4-trichlorobenzene	204-428-0	120-82-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-087-00-6											
76		1,1,1,2-tetrachloroethane	211-135-1	630-20-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
77		trichlorofluoromethane	200-892-3	75-69-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
78		mesitylene; 1,3,5-trimethylbenzene	203-604-4	108-67-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-025-00-5											
79		vinyl chloride; chloroethylene	200-831-0	75-01-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-023-00-7											
80		vanadium { divanadium pentaoxide; vanadium pentoxide }	215-239-8	1314-62-1		28	mg/kg	1.785	44.487	mg/kg	0.00445 %	✓	
		023-001-00-8											
81		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		602-040-00-X											
82		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		602-026-00-3											
83		cumene; [1] propylbenzene [2]	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-024-00-X											
										Total:	15.295 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Potentially Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP219--21022022-1.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP219--21022022-1.20
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		12	mg/kg	1.32	13.784	mg/kg	0.00138 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.3	mg/kg	2.775	0.724	mg/kg	0.0000724 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		9.2	mg/kg	1.462	13.446	mg/kg	0.00134 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12	mg/kg	1.126	11.754	mg/kg	0.00118 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	6.9	mg/kg		6.003	mg/kg	0.0006 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		15	mg/kg	1.579	20.612	mg/kg	0.00206 %	✓	
28		pH			PH		8.6	pH		8.6	pH	8.6 pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		41	mg/kg	1.245	44.399	mg/kg	0.00444 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
38		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		18	mg/kg	1.785	27.956	mg/kg	0.0028 %	✓	
											Total:	0.0159 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP221--21022022-0.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP221--21022022-0.20
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
2		acenaphthene		201-469-6	83-32-9		0.22	mg/kg		0.187	mg/kg	0.0000187 %	✓	
3		acenaphthylene		205-917-1	208-96-8		0.76	mg/kg		0.646	mg/kg	0.0000646 %	✓	
4		anthracene		204-371-1	120-12-7		0.9	mg/kg		0.765	mg/kg	0.0000765 %	✓	
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		16	mg/kg	1.32	17.956	mg/kg	0.0018 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		3.7	mg/kg		3.145	mg/kg	0.000315 %	✓	
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		1.8	mg/kg		1.53	mg/kg	0.000153 %	✓	
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		2.5	mg/kg		2.125	mg/kg	0.000213 %	✓	
10		benzo[ghi]perylene		205-883-8	191-24-2		0.82	mg/kg		0.697	mg/kg	0.0000697 %	✓	
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.3	mg/kg		1.105	mg/kg	0.000111 %	✓	
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.5	mg/kg	2.775	3.539	mg/kg	0.000354 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.3	mg/kg	13.43	3.425	mg/kg	0.000342 %	✓	
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21	mg/kg	1.462	30.693	mg/kg	0.00307 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
17		chrysene	601-048-00-0	205-923-4	218-01-9		3.1	mg/kg		2.635	mg/kg	0.000263 %	✓	
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		99	mg/kg	1.126	94.744	mg/kg	0.00947 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.36	mg/kg		0.306	mg/kg	0.0000306 %	✓	
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
22		fluoranthene		205-912-4	206-44-0		5.1	mg/kg		4.335	mg/kg	0.000433 %	✓	
23		fluorene		201-695-5	86-73-7		0.43	mg/kg		0.366	mg/kg	0.0000366 %	✓	
24		indeno[123-cd]pyrene		205-893-2	193-39-5		0.92	mg/kg		0.782	mg/kg	0.0000782 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	55	mg/kg		46.75	mg/kg	0.00468 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
27		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		<LOD
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		39	mg/kg	1.579	52.36	mg/kg	0.00524 %	✓	
29		pH			PH		7.8	pH		7.8	pH	7.8 pH		
30		phenanthrene		201-581-5	85-01-8		2.5	mg/kg		2.125	mg/kg	0.000213 %	✓	
31		pyrene		204-927-3	129-00-0		4.3	mg/kg		3.655	mg/kg	0.000366 %	✓	
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		<LOD
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
34		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
35		TPH (C6 to C40) petroleum group			TPH		87	mg/kg		73.95	mg/kg	0.0074 %	✓	
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		60	mg/kg	1.245	63.48	mg/kg	0.00635 %	✓	
39		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
40		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
41		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
42		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
43		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
44		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
45	•	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
46		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
47		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
48		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
49		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
50		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
51	•	1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
52		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
53	•	2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
54	•	bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
55		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
56		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
57	•	n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
58		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
59		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
60		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
61		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
62		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
63		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
64	•	dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
65		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
66		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
67	•	hexachlorobutadiene		201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
68		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
69	•	4-isopropyltoluene		202-796-7	99-87-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
70	●	sec-butylbenzene		205-227-0	135-98-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
71		styrene	601-026-00-0	202-851-5	100-42-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
72	●	trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
73	●	tert-butylbenzene		202-632-4	98-06-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
74		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
75		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
76	●	1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
77	●	trichlorofluoromethane		200-892-3	75-69-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
78		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
79		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
80		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		50	mg/kg	1.785	75.87	mg/kg	0.00759 %	✓	
81		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
82		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
83		cumene; [1] propylbenzene [2]	601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
											Total:	0.0494 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0074%)

Classification of sample: TP223--21022022-1.60

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
TP223--21022022-1.60		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:			
16% (wet weight correction)		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
2	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
4	•	TPH (C6 to C40) petroleum group			TPH		34	mg/kg		28.56	mg/kg	0.00286 %	✓	
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.00286 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00286%)

Classification of sample: TP226--22022022-1.60

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP226--22022022-1.60
Moisture content:
17%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.141%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.141%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.141%)

Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				1700	mg/kg		1411	mg/kg	0.141 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	0.141 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP227--22022022-1.10

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP227--22022022-1.10
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
2	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
4	•	TPH (C6 to C40) petroleum group			TPH		150 mg/kg		127.5 mg/kg	0.0127 %	✓	
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
									Total:	0.0128 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0127%)

Classification of sample: TP228--22022022-1.50

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP228--22022022-1.50
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.31%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.31%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.31%)

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2	●	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4	●	TPH (C6 to C40) petroleum group				3600	mg/kg		3096	mg/kg	0.31 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4							
								Total:	0.31 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP229--22022022-1.40

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
TP229--22022022-1.40		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:			
15% (wet weight correction)		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2	•	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4	•	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
				TPH									
5		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: TP230--22022022-0.40

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP230--22022022-0.40
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18	mg/kg	1.32	20.914	mg/kg	0.00209 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.77	mg/kg	2.775	1.881	mg/kg	0.000188 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.8	mg/kg	13.43	9.455	mg/kg	0.000945 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		31	mg/kg	1.462	45.308	mg/kg	0.00453 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		23	mg/kg	1.126	22.788	mg/kg	0.00228 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	19	mg/kg		16.72	mg/kg	0.00167 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		30	mg/kg	1.579	41.699	mg/kg	0.00417 %	✓	
28		pH			PH		8.1	pH		8.1	pH	8.1 pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		350	mg/kg		308	mg/kg	0.0308 %	✓	
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		65	mg/kg	1.245	71.198	mg/kg	0.00712 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
38		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		42	mg/kg	1.785	65.98	mg/kg	0.0066 %	✓	
											Total:	0.0612 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0308%)

Classification of sample: TP230--22022022-1.10

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP230--22022022-1.10
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.872%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.872%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.872%)

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			201-469-6	83-32-9									
2		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-917-1	208-96-8									
3		anthracene				1.4	mg/kg		1.246	mg/kg	0.000125 %	✓	
			204-371-1	120-12-7									
4		arsenic { arsenic trioxide }				8.3	mg/kg	1.32	9.753	mg/kg	0.000975 %	✓	
		033-003-00-0	215-481-4	1327-53-3									
5		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.22	mg/kg	2.775	0.543	mg/kg	0.0000543 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		7	mg/kg	1.462	10.231	mg/kg	0.00102 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11	mg/kg	1.126	11.022	mg/kg	0.0011 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
21		fluoranthene		205-912-4	206-44-0		0.82	mg/kg		0.73	mg/kg	0.000073 %	✓	
22		fluorene		201-695-5	86-73-7		5.6	mg/kg		4.984	mg/kg	0.000498 %	✓	
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	6.1	mg/kg		5.429	mg/kg	0.000543 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		11	mg/kg	1.579	15.463	mg/kg	0.00155 %	✓	
28		pH			PH		8.5	pH		8.5	pH	8.5 pH		
29		phenanthrene		201-581-5	85-01-8		7.3	mg/kg		6.497	mg/kg	0.00065 %	✓	
30		pyrene		204-927-3	129-00-0		0.72	mg/kg		0.641	mg/kg	0.0000641 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
32		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
33		TPH (C6 to C40) petroleum group				9800	mg/kg		8722	mg/kg	0.872 %	✓	
				TPH									
34		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		zinc { zinc oxide }				34	mg/kg	1.245	37.665	mg/kg	0.00377 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
36		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
38		vanadium { divanadium pentaoxide; vanadium pentoxide }				13	mg/kg	1.785	20.655	mg/kg	0.00207 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.886 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: CPT 201--15022022-0.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
CPT 201--15022022-0.30
Moisture content:
8.5%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8.5% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		2.8	mg/kg		2.562	mg/kg	0.000256 %	✓	
2		acenaphthylene		205-917-1	208-96-8		0.34	mg/kg		0.311	mg/kg	0.0000311 %	✓	
3		anthracene		204-371-1	120-12-7		8.8	mg/kg		8.052	mg/kg	0.000805 %	✓	
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		18	mg/kg	1.32	21.746	mg/kg	0.00217 %	✓	
5		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		55	mg/kg		50.325	mg/kg	0.00503 %	✓	
6		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		32	mg/kg		29.28	mg/kg	0.00293 %	✓	
7		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		44	mg/kg		40.26	mg/kg	0.00403 %	✓	
8		benzo[ghi]perylene		205-883-8	191-24-2		16	mg/kg		14.64	mg/kg	0.00146 %	✓	
9		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		17	mg/kg		15.555	mg/kg	0.00156 %	✓	
10		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.1	mg/kg	2.775	2.793	mg/kg	0.000279 %	✓	
11		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		**<LOD**
12		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
13		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
14		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
15		chrysene	601-048-00-0	205-923-4	218-01-9		42	mg/kg		38.43	mg/kg	0.00384 %	✓	
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		94	mg/kg	1.126	96.838	mg/kg	0.00968 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				6.5	mg/kg		5.948	mg/kg	0.000595 %	✓	
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				46	mg/kg		42.09	mg/kg	0.00421 %	✓	
			205-912-4	206-44-0									
20		fluorene				3.6	mg/kg		3.294	mg/kg	0.000329 %	✓	
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				16	mg/kg		14.64	mg/kg	0.00146 %	✓	
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	53	mg/kg		48.495	mg/kg	0.00485 %	✓	
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				3.8	mg/kg		3.477	mg/kg	0.000348 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				25	mg/kg	1.579	36.131	mg/kg	0.00361 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.7	pH		8.7	pH	8.7 pH		
				PH									
27		phenanthrene				35	mg/kg		32.025	mg/kg	0.0032 %	✓	
			201-581-5	85-01-8									
28		pyrene				41	mg/kg		37.515	mg/kg	0.00375 %	✓	
			204-927-3	129-00-0									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
30		zinc { zinc oxide }				66	mg/kg	1.245	75.168	mg/kg	0.00752 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
31		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
32		vanadium { divanadium pentaoxide; vanadium pentoxide }				29	mg/kg	1.785	47.37	mg/kg	0.00474 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0699 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: CPT 206--17022022-0.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
CPT 206--17022022-0.30
Moisture content:
5.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 5.9% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	27	mg/kg	1.32	33.546	mg/kg	0.00335 %	✓	
5		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
6		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
7		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[ghi]perylene	205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9	0.14	mg/kg	2.775	0.366	mg/kg	0.0000366 %	✓	
11		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2	<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		**<LOD**
12		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
13		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		6.8	mg/kg	1.462	9.939	mg/kg	0.000994 %		
14		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
15		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		7.3	mg/kg	1.126	7.734	mg/kg	0.000773 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
		006-007-00-5											
18		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-041-00-2	200-181-8	53-70-3									
19		fluoranthene				0.3	mg/kg		0.282	mg/kg	0.0000282 %	✓	
			205-912-4	206-44-0									
20		fluorene				0.22	mg/kg		0.207	mg/kg	0.0000207 %	✓	
			201-695-5	86-73-7									
21		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
			205-893-2	193-39-5									
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	23	mg/kg		21.643	mg/kg	0.00216 %	✓	
		082-001-00-6											
23		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
		080-010-00-X	231-299-8	7487-94-7									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
		601-052-00-2	202-049-5	91-20-3									
25		nickel { nickel dihydroxide }				7.6	mg/kg	1.579	11.296	mg/kg	0.00113 %	✓	
		028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
26		pH				8.8	pH		8.8	pH	8.8 pH		
				PH									
27		phenanthrene				0.4	mg/kg		0.376	mg/kg	0.0000376 %	✓	
			201-581-5	85-01-8									
28		pyrene				0.26	mg/kg		0.245	mg/kg	0.0000245 %	✓	
			204-927-3	129-00-0									
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
30		zinc { zinc oxide }				160	mg/kg	1.245	187.404	mg/kg	0.0187 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
31		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
32		vanadium { divanadium pentaoxide; vanadium pentoxide }				5.2	mg/kg	1.785	8.735	mg/kg	0.000874 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.0292 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: CPT 206--17022022-1.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
CPT 206--17022022-1.20
Moisture content:
9.8%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.624%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.624%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.624%)

Determinands

Moisture content: 9.8% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							
2		ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4							
3		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3							
4		TPH (C6 to C40) petroleum group				18000 mg/kg		16236 mg/kg	1.624 %	✓	
				TPH							

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	1.624 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: CPT 208--17022022-0.80

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
CPT 208--17022022-0.80
Moisture content:
5.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.941%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.941%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.941%)

Determinands

Moisture content: 5.9% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							
2		ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4							
3		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3							
4		TPH (C6 to C40) petroleum group				10000 mg/kg		9410 mg/kg	0.941 %	✓	
				TPH							

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	0.941 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Appendix A: Classifier defined and non GB MCL determinands

- **1,1-dichloroethane and 1,2-dichloroethane (combined)** (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **boron tribromide/trichloride/trifluoride (combined)** (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06 Aug 2015
Hazard Statements: EUH014 , Acute Tox. 2; H330 , Acute Tox. 2; H300 , Skin Corr. 1A; H314 , Skin Corr. 1B; H314

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **lead compounds with the exception of those specified elsewhere in this Annex**

GB MCL index number: 082-001-00-6
Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 £ conc. < 3 % , Eye Irrit. 2; H319 1 £ conc. < 3 % , Aquatic Chronic 2; H411

- **1,2,3-trichlorobenzene** (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

- **1,3-dichloropropane** (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

- **2,2-dichloropropane** (EC Number: 209-832-0, CAS Number: 594-20-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Acute Tox. 4; H312 , Eye Irrit. 2; H319

- **bromodichloromethane** (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

- **n-butylbenzene** (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **dibromochloromethane** (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

- **hexachlorobutadiene** (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **4-isopropyltoluene** (EC Number: 202-796-7, CAS Number: 99-87-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Chronic 2; H411

- **sec-butylbenzene** (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

- **trans-1,3-dichloropropene** (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

- **tert-butylbenzene** (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

- **1,1,1,2-tetrachloroethane** (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

trichlorofluoromethane (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

divanadium pentaoxide; vanadium pentoxide (EC Number: 215-239-8, CAS Number: 1314-62-1)

EU CLP index number: 023-001-00-8
Description/Comments:
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Hazard Statements: Muta. 2; H341 , Repr. 2; H361d , STOT RE 1; H372 , Acute Tox. 4; H332 , Acute Tox. 4; H302 , STOT SE 3; H335 , Aquatic Chronic 2; H411

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on hazard statements

beryllium {beryllium oxide}

Worst case species based on hazard statements

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species based on hazard statements

cadmium {cadmium sulfide}

Worst case species based on hazard statements

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Worst case species based on hazard statements

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species based on hazard statements

copper {dicopper oxide; copper (I) oxide}

Most likely common species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Worst case species

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Worst case species based on hazard statements

mercury {mercury dichloride}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Worst case species based on hazard statements

zinc {zinc oxide}

Worst case species based on hazard statements

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species based on hazard statements.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2017.202.300.300 (23 Mar 2022)
HazWasteOnline Database: 2022.81.5064.9565 (22 Mar 2022)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

9ANDK-Q45GN-CKVCW

Job name

22-42856_HWOL_Results

Description/Comments

i2 certs: 22-41799-2, 22-42856-2, and 22-44025-1.

Project

20775

Site

Great Western Road Yard

Classified by

Name:
Matthew Keehn
Company:
Hydrock Consultants Ltd
Date:
05 Apr 2022 08:45 GMT
Telephone:

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	08 Sep 2020

Next 3 year Refresher due by Sep 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP201--16022022-0.00		Non Hazardous		2
2	CPT201--15022022-0.00		Non Hazardous		4
3	DP201--22022022-0.00		Non Hazardous		6
4	BH201--21022022-2.30		Non Hazardous		8
5	BH201--21022022-3.50		Non Hazardous		11
6	WS203--23022022-1.80		Hazardous	HP 3(i), HP 7, HP 11	13
7	WS203--23022022-3.50		Non Hazardous		16
8	WS203--23022022-3.80		Non Hazardous		17
9	WS204--23022022-1.30		Hazardous	HP 3(i), HP 7, HP 11	22
10	WS205--23022022-1.20		Hazardous	HP 3(i), HP 7, HP 11	24
11	WS206--23022022-1.20		Hazardous	HP 3(i), HP 7, HP 11	26

Related documents

#	Name	Description
1	22-42856_HWOL_Results.hwol	.hwol file used to create the Job
2	Hydrock Standard plus Cresol (ammended Lead)	waste stream template used to create this Job

Report

Created by: Matthew Keehn

Created date: 05 Apr 2022 08:45 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	28
Appendix B: Rationale for selection of metal species	31
Appendix C: Version	31

Classification of sample: TP201--16022022-0.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP201--16022022-0.00
Moisture content:
2.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 2.4% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
5		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
6		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[ghi]perylene	205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		chrysene	601-048-00-0	205-923-4	218-01-9	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		fluoranthene	205-912-4	206-44-0		0.33	mg/kg		0.322	mg/kg	0.0000322 %	✓	
12		fluorene	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13		indeno[123-cd]pyrene	205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
14		naphthalene	601-052-00-2	202-049-5	91-20-3	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
15		phenanthrene	201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		pyrene	204-927-3	129-00-0		0.38	mg/kg		0.371	mg/kg	0.0000371 %	✓	
										Total:	0.00013 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: CPT201--15022022-0.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
CPT201--15022022-0.00
Moisture content:
0.65%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0.65% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	●	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
2	●	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
3	●	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
4		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
5		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
6		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
7	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
8		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
9		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
10		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
11	●	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
12	●	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
13	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
14		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
15	●	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
16	●	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
									Total:	0.00008 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: DP201--22022022-0.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DP201--22022022-0.00
Moisture content:
0.56%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0.56% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	●	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3	●	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
4		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
5		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
6		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
7	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
11	●	fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
12	●	fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
13	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
14		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
15	●	phenanthrene		201-581-5	85-01-8		0.31	mg/kg		0.308	mg/kg	0.0000308 %	✓	
16	●	pyrene		204-927-3	129-00-0		0.34	mg/kg		0.338	mg/kg	0.0000338 %	✓	
											Total:	0.00013 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: BH201--21022022-2.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH201--21022022-2.30
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11	mg/kg	1.32	12.781	mg/kg	0.00128 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.32	mg/kg	2.775	0.782	mg/kg	0.0000782 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.3	mg/kg	13.43	3.546	mg/kg	0.000355 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		9.1	mg/kg	1.462	13.3	mg/kg	0.00133 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16	mg/kg	1.126	15.853	mg/kg	0.00159 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	9.5	mg/kg		8.36	mg/kg	0.000836 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		13	mg/kg	1.579	18.069	mg/kg	0.00181 %	✓	
28		pH			PH		8.5	pH		8.5	pH	8.5 pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		39	mg/kg	1.245	42.719	mg/kg	0.00427 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
38		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		15	mg/kg	1.785	23.564	mg/kg	0.00236 %	✓	
											Total:	0.0157 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH201--21022022-3.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH201--21022022-3.50
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11	mg/kg	1.32	12.2	mg/kg	0.00122 %	✓	
5		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
6		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
7		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.1	mg/kg	2.775	2.564	mg/kg	0.000256 %	✓	
11		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		3.6	mg/kg	13.43	40.612	mg/kg	0.00406 %	✓	
12		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
13		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		33	mg/kg	1.462	48.231	mg/kg	0.00482 %		
14		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
15		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
16		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30	mg/kg	1.126	28.372	mg/kg	0.00284 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
18		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
19		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
21		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	13	mg/kg		10.92	mg/kg	0.00109 %	✓	
23		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
25		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		32	mg/kg	1.579	42.457	mg/kg	0.00425 %	✓	
26		pH			PH		8.1	pH		8.1	pH	8.1 pH		
27		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
28		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
29		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
30		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		81	mg/kg	1.245	84.69	mg/kg	0.00847 %	✓	
31		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
32		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		33	mg/kg	1.785	49.485	mg/kg	0.00495 %	✓	
											Total:	0.0328 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS203--23022022-1.80

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS203--23022022-1.80
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.957%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.957%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.957%)

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene		204-371-1	120-12-7		5.8	mg/kg		5.046	mg/kg	0.000505 %	✓	
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.5	mg/kg	1.32	9.764	mg/kg	0.000976 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.32	mg/kg	2.775	0.773	mg/kg	0.0000773 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.4	mg/kg	13.43	4.674	mg/kg	0.000467 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		8.1	mg/kg	1.462	11.839	mg/kg	0.00118 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		13	mg/kg	1.126	12.734	mg/kg	0.00127 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		3	mg/kg		2.61	mg/kg	0.000261 %	✓	
22		fluorene		201-695-5	86-73-7		21	mg/kg		18.27	mg/kg	0.00183 %	✓	
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	7.9	mg/kg		6.873	mg/kg	0.000687 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		12	mg/kg	1.579	16.49	mg/kg	0.00165 %	✓	
28		pH			PH		8.3	pH		8.3	pH	8.3 pH		
29		phenanthrene		201-581-5	85-01-8		38	mg/kg		33.06	mg/kg	0.00331 %	✓	
30		pyrene		204-927-3	129-00-0		4.8	mg/kg		4.176	mg/kg	0.000418 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
		034-002-00-8											
32		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
33		TPH (C6 to C40) petroleum group				11000	mg/kg		9570	mg/kg	0.957 %	✓	
				TPH									
34		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
35		zinc { zinc oxide }				34	mg/kg	1.245	36.819	mg/kg	0.00368 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
36		monohydric phenols				<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
				P1186									
37		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
38		vanadium { divanadium pentaoxide; vanadium pentoxide }				16	mg/kg	1.785	24.85	mg/kg	0.00248 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
										Total:	0.977 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS203--23022022-3.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS203--23022022-3.50
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2							
2	•	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4							
3		toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3							
4	•	TPH (C6 to C40) petroleum group				35 mg/kg		31.15 mg/kg	0.00311 %	✓	
				TPH							
5		xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4							
								Total:	0.00312 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00311%)

Classification of sample: WS203--23022022-3.80

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS203--23022022-3.80
Moisture content:
21%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 21% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
2		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
4		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.5	mg/kg	1.32	7.823	mg/kg	0.000782 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.3	mg/kg	2.775	2.85	mg/kg	0.000285 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		2.7	mg/kg	13.43	28.646	mg/kg	0.00286 %	✓	
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		42	mg/kg	1.462	61.385	mg/kg	0.00614 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
17		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		42	mg/kg	1.126	37.357	mg/kg	0.00374 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
22		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
24		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	14	mg/kg		11.06	mg/kg	0.00111 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
27		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		<LOD
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		42	mg/kg	1.579	52.408	mg/kg	0.00524 %	✓	
29		pH			PH		8	pH		8	pH	8pH		
30		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		<LOD
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
34		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
35		TPH (C6 to C40) petroleum group			TPH		120	mg/kg		94.8	mg/kg	0.00948 %	✓	
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		62	mg/kg	1.245	60.966	mg/kg	0.0061 %	✓	
39		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
40		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
41		vanadium { divanadium pentaoxide; vanadium pentoxide }				31	mg/kg	1.785	43.719	mg/kg	0.00437 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
42		chloromethane; methyl chloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-001-00-7	200-817-4	74-87-3									
43		dibromochloromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			204-704-0	124-48-1									
44		1,2-dibromo-3-chloropropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-021-00-6	202-479-3	96-12-8									
45		dibromomethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-003-00-8	200-824-2	74-95-3									
46		hexachlorobutadiene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			201-765-5	87-68-3									
47		4-isopropyltoluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			202-796-7	99-87-6									
48		sec-butylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			205-227-0	135-98-8									
49		styrene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-026-00-0	202-851-5	100-42-5									
50		trans-1,3-dichloropropene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			431-460-4	10061-02-6									
51		tert-butylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			202-632-4	98-06-6									
52		bromoform; tribromomethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-007-00-X	200-854-6	75-25-2									
53		1,2,4-trichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-087-00-6	204-428-0	120-82-1									
54		1,1,1,2-tetrachloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			211-135-1	630-20-6									
55		trichlorofluoromethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			200-892-3	75-69-4									
56		mesitylene; 1,3,5-trimethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-025-00-5	203-604-4	108-67-8									
57		vinyl chloride; chloroethylene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-023-00-7	200-831-0	75-01-4									
58		1,1,1-trichloroethane; methyl chloroform				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-013-00-2	200-756-3	71-55-6									
59		1,1,2,2-tetrachloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-015-00-3	201-197-8	79-34-5									
60		1,1,2-trichloroethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-014-00-8	201-166-9	79-00-5									
61		1,1-dichloroethylene; vinylidene chloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-025-00-8	200-864-0	75-35-4									
62		1,1-dichloropropene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-031-00-0	209-253-3	563-58-6									
63		1,2,3-trichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
			201-757-1	87-61-6									
64		1,2,4-trimethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-043-00-3	202-436-9	95-63-6									
65		1,2-dibromoethane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-010-00-6	203-444-5	106-93-4									
66		1,2-dichlorobenzene; o-dichlorobenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-034-00-7	202-425-9	95-50-1									
67		1,2-dichloropropane; propylene dichloride				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-020-00-0	201-152-2	78-87-5									
68		1,3-dichlorbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		602-067-00-7	208-792-1	541-73-1									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
69	•	1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
70		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
71	•	2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
72	•	bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
73		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
74		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
75	•	n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
76		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
77		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
78		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
79		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
80		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
81		cumene; [1] propylbenzene [2]	601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
82		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]	602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
83		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]	602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
											Total:	0.0409 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00948%)

Classification of sample: WS204--23022022-1.30

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS204--23022022-1.30
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.496%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.496%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 1.496%)

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				17000	mg/kg		14960	mg/kg	1.496 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	1.496 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: WS205--23022022-1.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS205--23022022-1.20
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.871%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.871%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.871%)

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				9900	mg/kg		8712	mg/kg	0.871 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	0.871 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: WS206--23022022-1.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
WS206--23022022-1.20
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.57%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.57%)

Hazard properties (substances considered hazardous until shown otherwise)

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.57%)

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
2		ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
4		TPH (C6 to C40) petroleum group				6400	mg/kg		5696	mg/kg	0.57 %	✓	
				TPH									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
5		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane									
		603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
								Total:	0.57 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Appendix A: Classifier defined and non GB MCL determinands

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **boron tribromide/trichloride/trifluoride (combined)** (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06 Aug 2015
Hazard Statements: EUH014 , Acute Tox. 2; H330 , Acute Tox. 2; H300 , Skin Corr. 1A; H314 , Skin Corr. 1B; H314

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

lead compounds with the exception of those specified elsewhere in this Annex

GB MCL index number: 082-001-00-6
Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 £ conc. < 3 % , Eye Irrit. 2; H319 1 £ conc. < 3 % , Aquatic Chronic 2; H411

divanadium pentaoxide; vanadium pentoxide (EC Number: 215-239-8, CAS Number: 1314-62-1)

EU CLP index number: 023-001-00-8
Description/Comments:
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Hazard Statements: Muta. 2; H341 , Repr. 2; H361d , STOT RE 1; H372 , Acute Tox. 4; H332 , Acute Tox. 4; H302 , STOT SE 3; H335 , Aquatic Chronic 2; H411

1,1-dichloroethane and 1,2-dichloroethane (combined) (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

- **dibromochloromethane** (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

- **hexachlorobutadiene** (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **4-isopropyltoluene** (EC Number: 202-796-7, CAS Number: 99-87-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Chronic 2; H411

- **sec-butylbenzene** (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

- **trans-1,3-dichloropropene** (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

- **tert-butylbenzene** (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

- **1,1,1,2-tetrachloroethane** (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

- **trichlorofluoromethane** (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

- **1,2,3-trichlorobenzene** (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

- **1,3-dichloropropane** (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

- **2,2-dichloropropane** (EC Number: 209-832-0, CAS Number: 594-20-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Acute Tox. 4; H312 , Eye Irrit. 2; H319

- **bromodichloromethane** (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

- **n-butylbenzene** (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on hazard statements

beryllium {beryllium oxide}

Worst case species based on hazard statements

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species based on hazard statements

cadmium {cadmium sulfide}

Worst case species based on hazard statements

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Worst case species based on hazard statements

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species based on hazard statements

copper {dicopper oxide; copper (I) oxide}

Most likely common species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Worst case species

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Worst case species based on hazard statements

mercury {mercury dichloride}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Worst case species based on hazard statements

zinc {zinc oxide}

Worst case species based on hazard statements

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species based on hazard statements.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2017.202.300.300 (23 Mar 2022)
HazWasteOnline Database: 2022.81.5064.9565 (22 Mar 2022)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

026LP-NZB0B-Q18HS

Job name

22-44025_HWOL_Results

Description/Comments

i2 certs: 22-41799-2, 22-42856-2, and 22-44025-1.

Project

20775

Site

Great Western Road Yard, Gloucester

Classified by

Name:
Matthew Keehn
Company:
Hydrock Consultants Ltd
Date:
04 Apr 2022 14:49 GMT
Telephone:

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	08 Sep 2020

Next 3 year Refresher due by Sep 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH202--02032022-1.20		Non Hazardous		2
2	BH203--02032022-1.30		Non Hazardous		5
3	BH203--02032022-2.00		Non Hazardous		6
4	BH204--02032022-1.40		Non Hazardous		7
5	BH204--02032022-3.00		Non Hazardous		8
6	BH205--02032022-1.50		Non Hazardous		11
7	BH206--02032022-1.30		Non Hazardous		15
8	BH206--02032022-3.30		Non Hazardous		16
9	TP222--02032022-1.20		Non Hazardous		19
10	DP201--02032022-0.90		Non Hazardous		20

Related documents

#	Name	Description
1	22-44025_HWOL_Results.hwol	.hwol file used to create the Job
2	Hydrock Standard plus Cresol (ammended Lead)	waste stream template used to create this Job

Report

Created by: Matthew Keehn

Created date: 04 Apr 2022 14:49 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	23
Appendix B: Rationale for selection of metal species	26
Appendix C: Version	26

Classification of sample: BH202--02032022-1.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH202--02032022-1.20
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.2	mg/kg	1.32	9.311	mg/kg	0.000931 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.28	mg/kg	2.775	0.668	mg/kg	0.0000668 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		<0.2	mg/kg	13.43	<2.686	mg/kg	<0.000269 %		<LOD
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		8.6	mg/kg	1.462	12.569	mg/kg	0.00126 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11	mg/kg	1.126	10.651	mg/kg	0.00107 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	6.4	mg/kg		5.504	mg/kg	0.00055 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		11	mg/kg	1.579	14.942	mg/kg	0.00149 %	✓	
28		pH			PH		9	pH		9	pH	9pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		33	mg/kg	1.245	35.325	mg/kg	0.00353 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		15	mg/kg	1.785	23.029	mg/kg	0.0023 %	✓	
38		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.0133 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH203--02032022-1.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH203--02032022-1.30
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
2	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
4	•	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
									Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: BH203--02032022-2.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH203--02032022-2.00
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
2	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
4	•	TPH (C6 to C40) petroleum group			TPH		<10 mg/kg		<10 mg/kg	<0.001 %		**<LOD**
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
									Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: BH204--02032022-1.40

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
BH204--02032022-1.40		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:			
13% (wet weight correction)		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
2	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
4	•	TPH (C6 to C40) petroleum group			TPH		42	mg/kg		36.54	mg/kg	0.00365 %	✓	
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.00365 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00365%)

Classification of sample: BH204--02032022-3.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH204--02032022-3.00
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.2	mg/kg	1.32	9.203	mg/kg	0.00092 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.3	mg/kg	2.775	3.067	mg/kg	0.000307 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		3.6	mg/kg	13.43	41.096	mg/kg	0.00411 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		36	mg/kg	1.462	52.616	mg/kg	0.00526 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25	mg/kg	1.126	23.925	mg/kg	0.00239 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	13	mg/kg		11.05	mg/kg	0.00111 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		30	mg/kg	1.579	40.277	mg/kg	0.00403 %	✓	
28		pH			PH		8.3	pH		8.3	pH	8.3 pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		41	mg/kg	1.245	43.378	mg/kg	0.00434 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		40	mg/kg	1.785	60.696	mg/kg	0.00607 %	✓	
38		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.0303 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH205--02032022-1.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH205--02032022-1.50
Moisture content:
9.5%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.5% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
2		acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
3		acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
4		anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
5		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		11 mg/kg	1.32	13.144 mg/kg	0.00131 %	✓	
6		benzene	601-020-00-8	200-753-7	71-43-2		<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
7		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
8		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
9		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
10		benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
11		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		**<LOD**
12		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.25 mg/kg	2.775	0.628 mg/kg	0.0000628 %	✓	
13		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		0.2 mg/kg	13.43	2.431 mg/kg	0.000243 %	✓	
14		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		**<LOD**
15		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		8.7 mg/kg	1.462	12.716 mg/kg	0.00127 %		

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
16		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
17		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		10	mg/kg	1.126	10.189	mg/kg	0.00102 %	✓	
19		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
20		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
21		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
22		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
23		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
24		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	5.3	mg/kg		4.797	mg/kg	0.00048 %	✓	
26		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
27		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.0001	mg/kg		<0.0001	mg/kg	<0.00000001 %		<LOD
28		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		9.9	mg/kg	1.579	14.152	mg/kg	0.00142 %	✓	
29		pH			PH		8.6	pH		8.6	pH	8.6 pH		
30		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
32		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		<LOD
33		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
34		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
35		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
36		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
37		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.004	mg/kg		<0.004	mg/kg	<0.0000004 %		<LOD
38		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		29	mg/kg	1.245	32.668	mg/kg	0.00327 %	✓	
39		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
40		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		16	mg/kg	1.785	25.849	mg/kg	0.00258 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
41		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
42		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
43		1,1,2,2-tetrachloroethane	602-015-00-3	201-197-8	79-34-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
44		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
45		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
46		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
47	•	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
48		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
49		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
50		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
51		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
52		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
53	•	1,3-dichloropropane		205-531-3	142-28-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
54		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
55	•	2,2-dichloropropane		209-832-0	594-20-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
56	•	bromodichloromethane		200-856-7	75-27-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
57		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
58		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
59	•	n-butylbenzene		203-209-7	104-51-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
61		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
62		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
63		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
64		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
65		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
66	•	dibromochloromethane		204-704-0	124-48-1		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
67		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
68		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
69	•	hexachlorobutadiene		201-765-5	87-68-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
70	•	4-isopropyltoluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
			202-796-7	99-87-6							
71	•	sec-butylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
			205-227-0	135-98-8							
72		styrene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-026-00-0	202-851-5	100-42-5							
73	•	trans-1,3-dichloropropene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
			431-460-4	10061-02-6							
74	•	tert-butylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
			202-632-4	98-06-6							
75		bromoform; tribromomethane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		602-007-00-X	200-854-6	75-25-2							
76		1,2,4-trichlorobenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		602-087-00-6	204-428-0	120-82-1							
77	•	1,1,1,2-tetrachloroethane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
			211-135-1	630-20-6							
78	•	trichlorofluoromethane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
			200-892-3	75-69-4							
79		mesitylene; 1,3,5-trimethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		601-025-00-5	203-604-4	108-67-8							
80		vinyl chloride; chloroethylene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		**<LOD**
		602-023-00-7	200-831-0	75-01-4							
81		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
82		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
83		cumene; [1] propylbenzene [2]				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %		**<LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
								Total:	0.0135 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH206--02032022-1.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
BH206--02032022-1.30		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:			
9.1% (wet weight correction)		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.1% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-020-00-8	200-753-7	71-43-2									
2	•	ethylbenzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-023-00-4	202-849-4	100-41-4									
3		toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		601-021-00-3	203-625-9	108-88-3									
4	•	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
				TPH									
5		xylene				<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
		603-181-00-X	216-653-1	1634-04-4									
										Total:	0.001 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Classification of sample: BH206--02032022-3.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH206--02032022-3.30
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
2		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		10	mg/kg	1.32	11.091	mg/kg	0.00111 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.1	mg/kg	2.775	2.564	mg/kg	0.000256 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2		3.6	mg/kg	13.43	40.612	mg/kg	0.00406 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		32	mg/kg	1.462	46.77	mg/kg	0.00468 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		<LOD
16		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30	mg/kg	1.126	28.372	mg/kg	0.00284 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	14	mg/kg		11.76	mg/kg	0.00118 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		38	mg/kg	1.579	50.418	mg/kg	0.00504 %	✓	
28		pH			PH		8.9	pH		8.9	pH	8.9 pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		42	mg/kg	1.245	43.914	mg/kg	0.00439 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		26	mg/kg	1.785	38.988	mg/kg	0.0039 %	✓	
38		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.0292 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP222--02032022-1.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:		LoW Code:	
TP222--02032022-1.20		Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:			
13% (wet weight correction)		Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		benzene	601-020-00-8	200-753-7	71-43-2		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
2	•	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
3		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
4	•	TPH (C6 to C40) petroleum group			TPH		750	mg/kg		652.5	mg/kg	0.0653 %	✓	
5		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
6		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.0653 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
•	Determinand defined or amended by HazWasteOnline (see Appendix A)
<LOD	Below limit of detection
ND	Not detected

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because Flammability of soils due to TPH is likely to be in the region of 10,000mg/kg, therefore, anything below 1,000mg/kg is unlikely to be a flammable and, therefore, non-hazardous.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0653%)

Classification of sample: DP201--02032022-0.90

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DP201--02032022-0.90
Moisture content:
7.5%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.5% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		acenaphthene	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
2		acenaphthylene	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
3		anthracene	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
4		arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3	8.9	mg/kg	1.32	10.87	mg/kg	0.00109 %	✓	
5		benzene	601-020-00-8	200-753-7	71-43-2	<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
6		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
7		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
8		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
9		benzo[ghi]perylene		205-883-8	191-24-2	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
10		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
11		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9	0.28	mg/kg	2.775	0.719	mg/kg	0.0000719 %	✓	
12		boron { boron tribromide/trichloride/trifluoride (combined) }			10294-33-4, 10294-34-5, 7637-07-2	0.5	mg/kg	13.43	6.211	mg/kg	0.000621 %	✓	
13		cadmium { cadmium sulfide }	048-010-00-4	215-147-8	1306-23-6	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		**<LOD**
14		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9	11	mg/kg	1.462	16.077	mg/kg	0.00161 %		
15		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<1.2	mg/kg	1.923	<2.308	mg/kg	<0.000231 %		**<LOD**
16		chrysene	601-048-00-0	205-923-4	218-01-9	<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
17		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		11	mg/kg	1.126	11.456	mg/kg	0.00115 %	✓	
18		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
19		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
20		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
21		fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
22		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
23		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
24		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	11	mg/kg		10.175	mg/kg	0.00102 %	✓	
25		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
26		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
27		nickel { nickel dihydroxide }	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]		12	mg/kg	1.579	17.532	mg/kg	0.00175 %	✓	
28		pH			PH		8.7	pH		8.7	pH	8.7 pH		
29		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
30		pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
31		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<1	mg/kg	1.405	<1.405	mg/kg	<0.000141 %		**<LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
33		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		**<LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		**<LOD**
35		zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2		28	mg/kg	1.245	32.238	mg/kg	0.00322 %	✓	
36		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
37		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		16	mg/kg	1.785	26.421	mg/kg	0.00264 %	✓	
38		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		**<LOD**
											Total:	0.015 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
	This determinand is defined in the EU CLP Table 3
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

boron tribromide/trichloride/trifluoride (combined) (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride
Data source: N/A
Data source date: 06 Aug 2015
Hazard Statements: EUH014 , Acute Tox. 2; H330 , Acute Tox. 2; H300 , Skin Corr. 1A; H314 , Skin Corr. 1B; H314

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

lead compounds with the exception of those specified elsewhere in this Annex

GB MCL index number: 082-001-00-6
Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 £ conc. < 3 % , Eye Irrit. 2; H319 1 £ conc. < 3 % , Aquatic Chronic 2; H411

divanadium pentaoxide; vanadium pentoxide (EC Number: 215-239-8, CAS Number: 1314-62-1)

EU CLP index number: 023-001-00-8
Description/Comments:
Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)
Hazard Statements: Muta. 2; H341 , Repr. 2; H361d , STOT RE 1; H372 , Acute Tox. 4; H332 , Acute Tox. 4; H302 , STOT SE 3; H335 , Aquatic Chronic 2; H411

1,1-dichloroethane and 1,2-dichloroethane (combined) (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

1,2,3-trichlorobenzene (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

- **1,3-dichloropropane** (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

- **2,2-dichloropropane** (EC Number: 209-832-0, CAS Number: 594-20-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Acute Tox. 4; H312 , Eye Irrit. 2; H319

- **bromodichloromethane** (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

- **n-butylbenzene** (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **dibromochloromethane** (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

- **hexachlorobutadiene** (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **4-isopropyltoluene** (EC Number: 202-796-7, CAS Number: 99-87-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Chronic 2; H411

- **sec-butylbenzene** (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

- **trans-1,3-dichloropropene** (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

- **tert-butylbenzene** (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

- **1,1,1,2-tetrachloroethane** (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

- **trichlorofluoromethane** (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on hazard statements

beryllium {beryllium oxide}

Worst case species based on hazard statements

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species based on hazard statements

cadmium {cadmium sulfide}

Worst case species based on hazard statements

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Worst case species based on hazard statements

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species based on hazard statements

copper {dicopper oxide; copper (I) oxide}

Most likely common species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Worst case species

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Worst case species based on hazard statements

mercury {mercury dichloride}

Worst case species based on hazard statements

nickel {nickel dihydroxide}

Worst case species based on hazard statements

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Worst case species based on hazard statements

zinc {zinc oxide}

Worst case species based on hazard statements

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species based on hazard statements.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2017.202.300.300 (23 Mar 2022)
HazWasteOnline Database: 2022.81.5064.9565 (22 Mar 2022)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021

Appendix I Preliminary Geotechnical Risk Register

Geotechnical Hazard Identification – Desk Study Stage

Potential geotechnical hazards have been assessed in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents HD 41/15 and CD 622. The following pages set out the identified geotechnical risks and hazards which are associated with the proposed development and establish the approach which is to be taken to manage the risks including the geotechnical input and analysis.

Table I.1 is a preliminary assessment of possible geotechnical hazards at the site at Desk Study stage. This information is used to assist with ground investigation design.

Table I.1: Possible geotechnical hazards

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Uncontrolled Made Ground (variable strength and compressibility).	Made ground has been confirmed across the site in previous investigations.	✓	-
Soft / loose compressible ground (low strength and high settlement potential).	None have been recorded in previous investigations.	-	✓
Shrink swell of the clay fraction of soils under the influence of vegetation.	The shallow horizon of the Charmouth Mudstone Formation is weathered to a clay.	✓	-
Variable lateral and vertical changes in ground conditions.	Made ground has been confirmed across the site in previous investigations, and it is evident from the walkover and topographic survey that ground levels vary.	✓	-
High sulphates present in the soils.	The Charmouth Mudstone Formation contains high sulphate levels.	✓	-
Adverse chemical ground conditions, (e.g. expansive slag).	Slag has been noted in previous investigations.	✓	-
Obstructions.	Obstructions where noted during the previous investigations and it is to be expected due to the amount of the historical features on site.	✓	-
Existing below ground structures to remain (on or off-site tunnels, foundations, basements, and adjacent sub-structures).	None currently anticipated.	-	✓
Shallow groundwater.	Groundwater has confirmed to be shallow in previous investigations.	✓	-
Changing groundwater conditions.	Groundwater is likely to be affected by seasonal fluctuations.	✓	-
Risk from erosion.	Not anticipated.	-	✓
Risk from flooding.	Not anticipated.	-	✓
Blowing sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.	Previous investigations state numerous window sample locations aborted due to "lack of progress" this is inferred as blowing sands.	✓	-
Slope stability issues – general slopes.	None anticipated.	-	✓
Slope stability issues – retaining walls.	None anticipated.	-	✓

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Earthworks – settlement (due to placement of fill on soft / loose ground).	No soft or loose ground anticipated.	-	✓
Earthworks – poor bearing capacity of new fill.	No significant earthworks anticipated.	-	✓
Earthworks – potential unsuitability of site won material to be reused as fill due to hydrocarbon and LNAPL contamination.	Site won materials, depending on location, may be impacted with petroleum hydrocarbons. Risk assessments/earthworks testing required to determine suitability for reuse.	✓	-
Solution features in Chalk.	No chalk present.	-	✓
Cavities in the Superficial Deposits due to solution features.	Not anticipated.	-	✓
Dissolution (associated with “wet rock head”).	Not anticipated.	-	✓
Brine extraction.	Not anticipated.	-	✓
Mining.	Not anticipated.	-	✓
Cambered ground with gulls possibly present.	Not anticipated.	-	✓
Relict Slip Surfaces.	Not anticipated.	-	✓
Solifluction.	Not anticipated.	-	✓
Problematic soils (silts and rewetting etc.).	Not anticipated.	-	✓
Japanese knotweed.	Noted on ecological survey and during walkover near the substation in the north eastern corner.	✓	-

Geotechnical Hazard Identification – Following Ground Investigation

The preliminary Geotechnical Risk Register following Ground Investigation is set out in Table I.3.

The probability and impact of a hazard have been judged on a qualitative scale as set out in Table I.2. The degree of risk (R) is determined by combining tan assessment of the probability (P) of the hazard occurring with an assessment of the impact (I) of the hazard and associated mitigation it will require if it occurs (R = P x I).

Table I.2: Qualitative assessment of hazards and risks

P = Probability			I = Impact			R = Risk Rating (P x I)	
1	Very unlikely (VU)		1	Very Low		1 – 4	None / negligible
2	Unlikely (U)		2	Low		5 – 9	Minor
3	Plausible(P)		3	Medium		10 – 14	Moderate
4	Likely (Lk)		4	High		15 – 19	Substantial
5	Very Likely (VLk)		5	Very High		20 - 25	Severe

Table I.3: Preliminary geotechnical risk register Hazard	Comments	Who is at Risk	Consequence	Risk Before Mitigation			Actions Required
				P	I	R	
Uncontrolled Made Ground (variable strength and compressibility).	There is Made Ground due to historical rail activity at the site.	Residential Dwellings.	Bearing capacity failure, settlement (total and differential).	5	4	20	Design foundations to found below Made Ground or on Made Ground which has been improved.
			Floor slab failure.	5	4	20	Design floor slabs as suspended where made ground is not being improved.
		Roads and Pavements.	Settlement (total and differential) of roads and pavements.	5	2	10	Design roads and pavements using suitable geotechnical parameters and increase the sub-base and use geo-grids as appropriate.
		Services.	Settlement (differential), causing damage to services.	5	2	10	Anticipated settlements are significant with regard to services. There is a requirement to improve the Made Ground prior to installation of services. It is also advisable to steepen falls in drainage to prevent back fall and use rocker boxes and flexible couplings.
		Gardens.	Settlement (differential), in gardens.	5	2	10	It is unlikely that settlements will be significant with regard to gardens.
		Construction staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	5	3	15	Where soft spots encountered, over-excavation and replacement with suitable fill. Outline design of working platform to include geo-grid. Site inspection and watching brief by Contractor to review working platform frequently and regularly.
Shrinkage / swelling of the clay fraction of soils under the influence of vegetation.	The clays of the Charmouth Mudstone Formation are of medium heave potential.	Foundations.	Shrinkage or heave of soils and associated damage to foundations.	2	3	6	Design foundations in accordance with NHBC standards. Deepen foundations due to trees as appropriate.
		Floor slabs.	Floor slab failure.	2	4	8	Design floor slabs in accordance with NHBC standards. Design floor slab as suspended with a void, unless the warranty provider is satisfied the soil is not desiccated, or slabs are constructed when soils are not seasonally desiccated (i.e. during winter and spring).

Table I.3: Preliminary geotechnical risk register Hazard	Comments	Who is at Risk	Consequence	Risk Before Mitigation			Actions Required
				P	I	R	
Variable lateral and vertical changes in ground conditions.	The Made Ground soils vary laterally and vertically, both in composition and strength.	Residential Dwellings.	Foundation bearing capacity failure, settlement (total and differential).	5	4	20	Design foundations to found below Made Ground or on Made Ground which has been improved. Design foundations to found below any loose relative density sand and gravel or soft clay.
			Floor slab failure.	5	4	20	Design floor slab as suspended.
		Roads and Pavements.	Settlement (total and differential), of roads and pavements.	5	3	15	Design roads and pavements using suitable geotechnical parameters and increase the sub-base and use geo-grids as appropriate. If anticipated settlements are significant, and cannot be mitigated by design, over-excavate and replace unsuitable soils.
		Services.	Settlement (differential), causing damage to services.	5	3	15	Settlements are not anticipated to be significant with regard to services. No additional design requirements envisaged.
		Gardens.	Settlement (differential), in gardens.	5	3	15	It is unlikely that settlements will be significant with respect to gardens.
		Construction staff, vehicles and plant operators.	Trafficking of the site in temporary conditions. Overturning of plant during construction.	5	3	15	Where soft spots encountered, over-excavate and replace with suitable fill. Design working platform to suit the ground conditions. Outline design of working platform to include geo-grid if necessary. Site inspection and watching brief by Contractor to review working platform frequently and regularly.
Sulphates present in the soils.	The ground investigation has proven that the Charmouth Mudstone Formation has high sulphate levels.	Attack of buried concrete.	Damage to concrete and reduction in strength.	4	4	16	Classify concrete in accordance with BRE SD1 and design concrete accordingly.
		Earthworks.	Sulphate heave following the use of hydraulic binders.	4	4	16	Supplementary sulphate testing in accordance with BRE guidelines to be undertaken during earthworks. Before the use of hydraulic binders is approved, comprehensive testing and design will need to be completed by a Specialist Contractor to satisfy both themselves and the Engineer of the

Table I.3: Preliminary geotechnical risk register Hazard	Comments	Who is at Risk	Consequence	Risk Before Mitigation			Actions Required
				P	I	R	
							suitability of the soils for treatment, and confirm that the requisite end-performance of the material is achievable. The use of modification / stabilisation to be restricted to suitable materials following laboratory trials. In all instances where improvement by the inclusion of binders is considered, a mix design is required and as part of this design, samples should be checked for swelling, even where very low sulphate values are recorded.
Adverse chemical ground conditions, (e.g. expansive slag).	The historical investigations indicate there is the potential for expansive slag to be present. However, during the Hydrock 2022 GI the volume and type of slag recorded is not in significant quantities and is not anticipated to be in the form that should pose a significant risk.	Concrete below ground.	Damage to concrete and reduction in strength.	1	4	4	n/a
		Earthworks.	Potential for heave if hydraulic binders are used to modify the moisture content / stabilise the soils.	1	4	4	n/a
Obstructions.	Obstructions have been proven by the investigation and there is a potential for additional obstructions to be present due to historical construction activity, or unknown fill in Made Ground.	Construction staff, vehicles and plant operators.	Risk of collapse of excavation as obstructions are pulled out.	5	3	15	Undertake Enablement Works and remove all obstructions.
		Roads and Pavements.	Hard spots in externals and roads / pavements.	5	2	10	
		Residential Dwellings.	Impact on piling / VSC, resulting in additional piles / columns and re-design of foundations.	5	3	15	
			Difficulty with excavation.	5	2	10	

Table I.3: Preliminary geotechnical risk register Hazard	Comments	Who is at Risk	Consequence	Risk Before Mitigation			Actions Required
				P	I	R	
Shallow groundwater.	Monitoring during the ground investigations has proven a shallow groundwater table (at approximately 0.73 - 2.12m bgl), with fast inflows of water seen during the ground investigation.	Construction staff, vehicles and plant operators.	Limit state failure, excessive deformation, trafficking of site plant, inability to place and compact fill.				Contractor to appoint competent Temporary Works Designer to design temporary works, in accordance with BS 5975:2008+A1:2011. Temporary Works Designer to consider in their analysis the impact of, and requirements for, de-watering of excavations. Any water that collects at the base of excavations to be removed as soon as practicable.
Changing groundwater conditions.	Monitoring during the ground investigations has proven that the groundwater table is variable.	Construction staff, vehicles and plant operators.	Difficulty with excavation. Limit state failure, excessive deformation, trafficking of site plant, inability to place and compact fill.	5	2	10	Contractor to appoint competent Temporary Works Designer to design temporary works as required, in accordance with BS 5975:2008+A1:2011. Temporary Works Designer to consider in their analysis the impact of a variable water table.
		Slopes and Retaining.	Serviceability issues.	5	2	10	Contractor to appoint competent Temporary Works Designer to design temporary works, as required in accordance with BS 5975:2008+A1:2011. Design drainage for retaining walls to account for fluctuating groundwater levels. The shallow groundwater is to be taken into account during geotechnical design of the permanent works.
Blowing sands and loose Made Ground, leading to difficulty with excavation and collapse of side walls.	The ground investigation has indicated that there is a potential for loose soils and Made Ground to be present at the site.	Construction staff, vehicles and plant operators.	Ground failure, instability of plant and machinery.	5	4	20	As instability has been noted in all pits from surface, foundation options should be reviewed to ensure minimal excavation (e.g. piles). Contractor to appoint competent Temporary Works Designer to design temporary works, in accordance with BS 5975:2008+A1:2011. Temporary Works Design to include recommendations for inspection of excavations. No person entry to unsupported excavations.
			Risk of collapse of excavation.	5	3	15	
		Services.	Settlement (differential), causing damage to services.	5	3	15	
		Gardens.	Settlement (differential), in gardens.	5	3	15	
		Construction staff, vehicles	Trafficking of the site in temporary conditions.	5	3	15	

Table I.3: Preliminary geotechnical risk register Hazard	Comments	Who is at Risk	Consequence	Risk Before Mitigation			Actions Required
				P	I	R	
		and plant operators.	Overturning of plant during construction.				
Earthworks – Potential unsuitability of site won material to be reused as fill.	Soils excavated from site have the potential to be impacted with hydrocarbons and NAPL depending on there location within site.	Earthworks control, inability to place and compact fill.	Service limit state failure, excessive and intolerable total and differential settlement.	4	3	12	The design is to describe the processes required to produce suitable fill for reuse. Contractor to design site control measures, plant, equipment and arrangement to comply with processing requirements. Site testing to be undertaken to confirm the works are in accordance with the design. A suitable watching brief and independent verification. Adequate investigation required of soil types and characterisation of the soils to be undertaken during investigation. Some fill may be unsuitable for use.
		Project Budgets - Insufficient fill to complete earthworks.	Additional Costs, due to importation of fill or having to modify designs.	4	2	8	
Unforeseen ground conditions - risk associated with limited data.	Ground investigation has been undertaken. However, additional information will be obtained during construction. Ground conditions are only defined at exploratory hole locations.	All aspects of the development		3	4	12	Designers to be contacted if conditions encountered are different to those identified during investigation. Regular inspections of excavations and earthworks for evidence of stability. Adequate investigation required to characterise the site and understand the potential risks.
Japanese knotweed	Japanese knotweed has been identified in the ecology survey and walkover.	Roads and Pavements. Residential Dwellings.	Root systems infiltrating foundations and hard standing.	3	3	9	Removal to be undertaken during enabling works.

Whilst the probability and impact of the hazard occurring can be reduced to a minimum by geotechnical design, the impact cannot be reduced below very low. The risk register will need to be up-dated, as necessary, to reflect design, additional information, data and experience as it is gained through the construction process.

Impacts of the design with regard to health and Safety considerations will need to be included by the designer at design stage.

Appendix J Plausible Source-Pathway-Receptor Contaminant Linkages

Summary of Potential Contaminant Linkages

Table J.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2019) and additional risk assessment is required.

Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland et al 2001) but modified to add a 'no linkage' category and to remove low/moderate risk (See Table J.1).

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site demolition and redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table J.1: Consequence versus probability assessment.

		Consequence			
Probability		Severe	Medium	Mild	Minor
	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Very low risk
	No Linkage	No risk			

Table J.2: Exposure model – final source-pathway-receptor contaminant linkages

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Made Ground associated with the historical use of the site, including as a railway siding and road transport depot, possibly including elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons (S01).	Ingestion, inhalation or direct contact.	Site users.	Likely	Medium	Moderate	Made Ground containing heavy metals and PAHS identified across the site. Significant exceedances of the GAC.	Contact with these materials is likely in gardens and areas of POS. Mitigation measures will be required to break the SPR linkage in the form of a cover system or hardstanding.
	Inhalation of fugitive dust.	Neighbours.	Low likelihood	Medium	Low		The risk of significant generation of dust is likely only during site development process and can therefore be controlled. Suppression should be included in control measures.
	Root uptake by plant life.	Plant life.	Likely	Medium	Moderate		Import of clean topsoil for use in clean cover system, including tree pits for new trees.
	Leaching through unsaturated zone.	Groundwater Surface water Aquatic ecosystems.	Low likelihood	Medium	Low	Inorganics in shallow groundwater are largely marginal exceedances of WQTs using a conservative screening assessment. In addition, the concentrations may be representative of the industrial nature of the surrounding wider area and the 'moderate' status of the water body. PAHs have historically been recorded in shallow groundwater at very low concentrations, however, recent sampling all below MDL. Inorganics and PAHs not considered to represent a significant risk to Controlled Waters. Petroleum hydrocarbons have been recorded significantly in excess of the initial WQT, however, these are detailed in S03 below.	
	Base flow from contaminated groundwater.		Low likelihood	Medium	Low		
	Surface water via drainage discharge.		Low likelihood	Medium	Low		
	Direct contact	Water supply pipes.	Likely	Medium	Moderate	The site is brownfield and organics including PAH and petroleum hydrocarbons have been recorded across the site. Barrier pipe will be required. This should be confirmed with the water supply authority.	

Continued.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Made Ground potentially containing asbestos fibres and ACMs from demolition of historical structures (S02).	Inhalation of fugitive dust.	Site users.	Low likelihood	Severe	Moderate	There is ACM present in buildings and has been identified during the historical investigations as visible fragments and fibres.	Contact with these materials is likely in gardens and areas of POS. Mitigation measures will be required to break the SPR linkage in the form of a cover system or hardstanding.
		Neighbours.	Low likelihood	Severe	Moderate		The risk of significant generation of dust is likely only during site development process and can therefore be controlled. Suppression should be included in control measures.
Petroleum hydrocarbon fuels, lubricants, and solvents from the operation of the numerous former train refuelling and servicing areas, including leakage from ASTs and associated infrastructure (S03).	Ingestion, inhalation or direct contact.	Site users.	Likely	Medium	Moderate	Petroleum hydrocarbons have been recorded within Made Ground and natural soils, notably in the railway sidings area, and includes LNAPL and significant exceedances of the GAC. Associated with historical sources, including tank farm, refuelling area and interceptor. Contact with these materials is likely in gardens and areas of POS. Mitigation measures will be required to break the SPR linkage, including the installation of a cover system or hardstanding.	
	Leaching	Groundwater	Likely	Medium	Moderate	LNAPL recorded on top of groundwater within excavations and monitoring wells. Significant exceedances of petroleum hydrocarbons WQT (for EQS) within the shallow groundwater. Higher tiers of risk assessment to determine if petroleum hydrocarbons are a risk to Controlled Waters, comprising a DQRA supported by additional targeted groundwater sampling.	
	Base flow from groundwater.	Surface water. Aquatic ecosystems.	Likely	Medium	Moderate		
	Direct contact	Water supply pipes.	Likely	Medium	Moderate	The site is brownfield and organics including petroleum hydrocarbons have been recorded across the site. Barrier pipe will be required. This should be confirmed with the water supply authority.	
	Vapours.	Discussed below.					

Continued.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Made ground associated with the historical infilling of the former sand pit in the east of the site, possibly including elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons (S04).	Ingestion, inhalation or direct contact.	Site users.	Low likelihood	Medium	Low	Significantly different Made Ground within the footprint of the historical sand pit was not identified (WS104, BH7 and TP209) and appeared consistent in description, content and chemical signature relative to the rest of the site. Significant organic material not identified. Therefore, Made Ground in this area of the site to be treated similar to S01 listed above. It is noted that the Made Ground was encountered deeper to a depth of approximately 2 m bgl at WS104.
	Root uptake by plant life.	Landscaping	Low likelihood	Medium	Low	
	Inhalation of fugitive dust.	Neighbours.	Low likelihood	Medium	Low	
	Leaching through unsaturated zone.	Groundwater Surface water Aquatic ecosystems.	Low likelihood	Medium	Low	
	Base flow from contaminated groundwater.		Low likelihood	Medium	Low	
	Surface water via drainage discharge.		Low likelihood	Medium	Low	
Coal tar potentially present in the bituminous bound pavements present on site (S05).	n/a	Re-use or removal of impacted material.	n/a	n/a	n/a	Coal tar has not been identified within the laboratory tests.
PCBs associated with the historical use of railway related equipment and components (S06).	Ingestion, inhalation or direct contact.	Site users.	Low likelihood	Medium	Low	Laboratory testing did not identify any PCBs in Made Ground or natural soils associated with the significant source areas and railway operations.
	Leaching through unsaturated zone / base flow.	Groundwater Surface water Aquatic ecosystems.	Low likelihood		Low	

Continued.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Pesticides associated with the historical control of weeds and vegetation across the site (S07).	Leaching through unsaturated zone.	Groundwater	Low likelihood	Medium	Low	Pesticides would likely have been used to control plant life during the operation of the railway sidings.	None identified in laboratory testing.
	Base flow from contaminated groundwater.	Surface water. Aquatic ecosystems.	Low likelihood	Medium	Low		
Ground gases (carbon dioxide and methane) from organic materials in the Made Ground (S08).	Migration, build up and explosion.	Site users.	Unlikely	Severe	Low	The GSV for methane indicates CS1 conditions. The GSV for carbon dioxide also indicates CS1 conditions, however, carbon dioxide concentrations are occasionally above 5%. Assessment of the data using ternary plots indicates the ground gas is likely to represent microbial respiration of organic material in soil (direct consumption of oxygen to produce carbon dioxide), which is considered low risk.	
		Neighbours.					
		Buildings on site.					
		Buildings on adjacent sites.					
Hydrocarbon vapours from spillages and/or leaks of petroleum hydrocarbons, lubricants and solvents (S09).	Migration, build up and explosion.	Site users.	Low likelihood	Severe	Moderate	PID readings in areas of significant petroleum hydrocarbons have been recorded >50.0 ppm. In order to protect future occupants, it is currently considered necessary to install suitable hydrocarbon vapour resistant membranes across all proposed structures as a precautionary approach. There may be potential to reduce the requirements of such a membrane, however, Hydrock consider it would be prudent to adopt cautionary vapour protection across all proposed structures until it is demonstrated otherwise. The findings of the higher tiers of risk assessment that are now required due to the unacceptable risks to Controlled Waters will support the decision if/where the requirement for a hydrocarbon vapour resistant membrane can be removed.	

Continued.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Asbestos within existing buildings (S10).	Inhalation.	Site users.	Low likelihood	Severe	Moderate	ACM recorded in existing/historical buildings in historical surveys. Asbestos demolition survey required and careful removal in line with current guidelines required during demolition.
		Neighbours.	Unlikely	Severe	Low	
Off site sources						
Hydrocarbon fuels, lubricants, and solvents from the operation of the refuelling station approximately 100m northeast of the site, including leakage from USTs, ASTs and associated infrastructure (S11).	Leaching through unsaturated zone.	Groundwater	Low likelihood	Medium	Low	Petroleum hydrocarbons have been identified on site but are attributed to the on-site sources of contamination. Petroleum hydrocarbons on eastern boundary, i.e., hydraulically downgradient of potential off site sources, are all below <MDL.
	Migration, build up, asphyxiation and explosion. (vapours)	Site users. Buildings on site.	Unlikely	Severe	Low	
Made Ground associated with the historical use of the surrounding industrial area, including extensive use as railway sidings to the east, south and west, possibly including asbestos and elevated concentrations of metals, metalloids, PAHs and petroleum hydrocarbons (S12).	Leaching through unsaturated zone.	Groundwater	Low likelihood	Medium	Low	Inorganics in shallow groundwater are largely marginal exceedances of WQTs using a conservative screening assessment. In addition, the concentrations may be representative of the industrial nature of the surrounding wider area and the 'moderate' status of the water body. Inorganics are not considered to represent a significant risk to Controlled Waters.
Continued.						

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Petroleum hydrocarbon fuels, lubricants, and solvents from the historical operation of the numerous former train refuelling areas and tanks across the surrounding area, including leakage from USTs, ASTs and associated infrastructure (S13).	Leaching through unsaturated zone.	Groundwater	Low likelihood	Medium	Low	Petroleum hydrocarbons have been identified on site but are attributed to the on-site sources of contamination. Petroleum hydrocarbons on eastern boundary, i.e., hydraulically downgradient of potential off site sources, are all below <MDL.
Made Ground, associated with the historical gas works approximately 20m north east, possibly including asbestos and elevated concentrations of metals, metalloids, PAHs, petroleum hydrocarbons, ammoniacal liquor, foul lime and tar contamination (S14).	Leaching through unsaturated zone.	Groundwater	Low likelihood	Medium	Low	No contaminants specifically linked to the operation of a gas works site have been recorded within soil or groundwater. The cyanide suite was analysed for in Made Ground samples that displayed 'blue/green' gravel deposits and all samples were below <MDL. Ammoniacal nitrogen was recorded in excess of the WQT within the shallow and deep groundwater across the site. A potential source is historical gas works due to the generation of the by-product ammoniacal liquor. However, the gas works is to the northeast and the groundwater flow direction has been proven to the west/northwest, therefore, any residual contamination associated with the gas works may not have impacted site. In addition, the highest ammoniacal nitrogen concentrations are not recorded in the east of the site (i.e., hydraulically downgradient of the historical gas works) and no spatial distribution trends are apparent. Ammonia is also recorded to be high within the surface water bodies across the surrounding area, it is considered likely that the concentrations are reflective of background conditions.

Continued.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments
Ground gases (carbon dioxide and methane) from organic materials in the Made Ground associated with the industrial use of the surrounding area (S15).	Migration, build up, asphyxiation and explosion. (vapours)	Site users. Buildings on site.	Unlikely	Severe	Low	The GSV for methane indicates CS1 conditions. The GSV for carbon dioxide also indicates CS1 conditions, however, carbon dioxide concentrations are occasionally above 5%. Assessment of the data using ternary plots indicates the ground gas is likely to represent microbial respiration of organic material in soil (direct consumption of oxygen to produce carbon dioxide), which is considered low risk.

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