

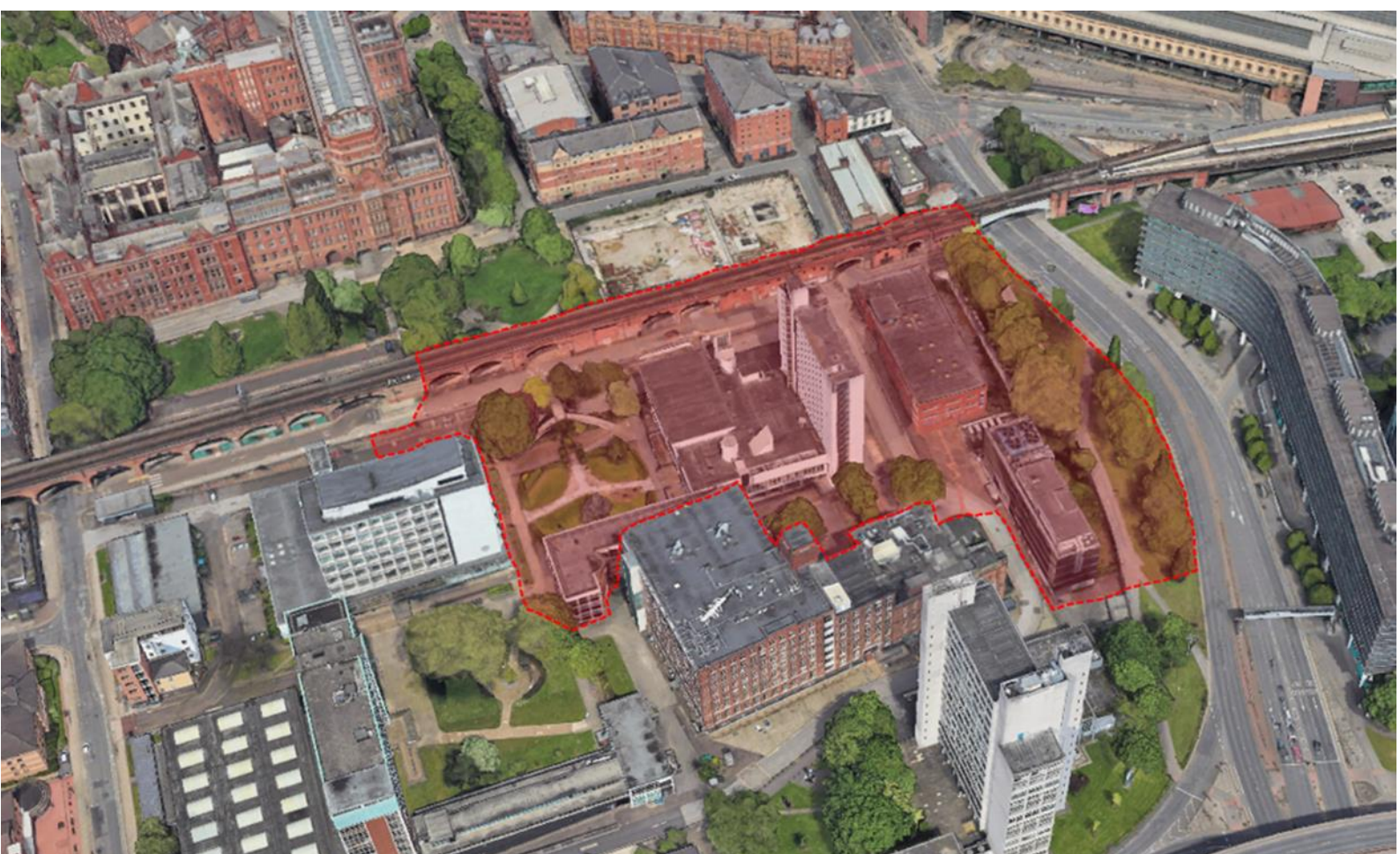
Sister – Plot C and Enabling Works Area

Site Investigation Report

30 April 2025

Prepared For

ID Manchester Limited and University of Manchester



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Site Investigation Report

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Executive Summary

Description	The site is located on the University of Manchester's (UOM) former North Campus, which occupies land between Fairfield Street, London Road, Mancunian Way and Princess Street and forms part of the wider Sister masterplan development. The site is approximately 2.2 ha in size and currently comprises a landscaped area known as the Bowling Green and the Barnes Wallis and Wright Robinson Building, Manchester Meeting Place (MMP), Morton Laboratory and Moffat Building which are former UOM buildings. The Grade II Listed Holloway Wall is located in the east of the site and the Grade II Listed Manchester South Junction and Altrincham Street Railway Viaduct is located in the north of the site. A landscaped area is also present in the east of the site, to the east of the Holloway Wall.
Proposed Development	Current proposals for the redevelopment of the site include the demolition of Barnes Wallis, Wright Robinson, MMP, Morton Laboratory and Moffat Buildings and the construction of two commercial-led buildings. The proposals will also include works to the Holloway Wall, the change of use of the railway arches to retail and food/beverage uses, and the creation of a new public square, access and other associated works. At this stage, development proposals for enabling works area to the south of the two new commercial-led buildings have not been progress. For the basis of this report, it is assumed that this enabling works area will possibly include a mixed commercial and residential development. The introduction of a new river channel, linked to the River Medlock, onto the wider Sister area is being considered, although yet to be explored in detail.
Historical Development	Earliest available mapping indicates that the site was historically occupied by residential / smaller structures and various significant industrial activities including a <i>Chemical Works, Iron Foundry, Cotton Mill, Nut and Bolt Works, Cloth Finishing Works, Tank and Retort House</i> . The site continued to have heavy industrial use until the mid-1960s when it was extensively redeveloped into UOM facilities.
Published Geology	Published BGS mapping indicates that the site is anticipated to be underlain by Till (Diamicton). Superficial deposits of Alluvium are indicated in the south of the wider Sister area along the historical route of the River Medlock, and therefore may be present where the river historically flowed. The superficial deposits are indicated to be underlain by the Chester Formation (Sandstone). A northwest-southeast trending fault in the bedrock is indicated to cross the western part of the wider Sister area. Deposits of Made Ground are also indicated across the site.
Hydrology and Hydrogeological Setting	The superficial deposits of Alluvium and Till are designated as Secondary Undifferentiated aquifers. The underlying Chester Formation sandstone bedrock is designated as a Principal aquifer. The site and the wider Sister area are not located within a groundwater Source Protection Zone (SPZ). Following the River Medlock's historical diversion into a culvert, the river no longer flows within the wider Sister area, and is understood to be currently located within a culvert to the south of the wider Sister area. Shooters Brook is identified to travel below Granby Row in Plot A, south down Sackville Street passing below the Network Rail viaduct, then south-southwest beneath Charles Street Car Park before discharging into the River Medlock at Charles Street bridge. Regional groundwater flow direction is anticipated to be towards the southwest.
Previous Investigations	A historical site investigation was undertaken by AEG/Arup in 2020 which comprised a series of cable/rotary boreholes, dynamic sample boreholes, trial pits and horizontal cores across the wider Sister area including the site. The exploratory holes undertaken across the site area typically recorded a variable thickness of Made Ground overlying the bedrock of the Chester Formation. Two groundwater bodies were recorded; perched water within the Made Ground and the Principal aquifer within the Chester Formation.
Site Investigation	<p>Site investigations were undertaken by Civic Earth to obtain information to support detailed design of the site and a new river channel in the south of the wider Sister area, with some site investigation located within the wider Sister area to obtain information to understand the wider ground model, and to delineate hydrocarbon contamination encountered in the site during the initial phase of site investigation.</p> <p>The ground conditions were typically found to comprise a variable thickness of Made Ground (typically up to 3m to 4m in thickness), with areas of local deepening (up to 8.4m in thickness) along the route of the historically infilled River Medlock as well as in the east of the site where existing ground level is raised to the level of Altrincham Street. Obstructions were recorded within the Made Ground including brick and concrete slabs and suspected brick walls. Superficial deposits of Alluvium and Glacial Till were inconsistently recorded across the wider Sister area. Made Ground deposits were recorded to directly overlie the Chester Formation sandstone bedrock in the majority of boreholes, suggesting that the previous development of the wider Sister area has resulted in the removal of the superficial deposits above the bedrock.</p> <p>Perched water was recorded in the Made Ground and Glacial Till which is variable in level and appears to be limited in nature, confined by surrounding cohesive deposits. The Principal aquifer within the Chester Formation was recorded between 29.24mOD and 23.0mOD during the spot groundwater monitoring rounds, with the continuous groundwater monitoring indicating similar levels between 28.5mOD and 27.0mOD. Groundwater flow is indicated towards the southwest, although it is noted that groundwater flow is likely to be influenced by fractures within the sandstone bedrock, buried infrastructure across the wider Sister area (e.g. historical buried structures, existing basements and foundations) and the historical channel of the River Medlock. Regional groundwater flow direction is considered to be towards the southwest.</p>
Contamination Assessment	Human Health: Shallow soils and perched water are impacted with elevated contaminant concentrations and asbestos was detected within the Made Ground soils within the site. Hardstanding and/or buildings are proposed across large areas which will act as a barrier between receptor and contamination in the underlying soils. Capping layers will be required to mitigate the risks to future site users in areas of soft landscaping. Consideration should be given to the incorporation of vapour protection measures to mitigate the risks from naphthalene in the shallow soils should the proposed development of the site be amended to incorporate a residential end use, and where residential end uses are proposed across the wider Sister area. Assessment of contaminant concentrations from dissolved phase contaminants indicates a low risk to human health via vapour intrusion. A marginally elevated concentration of TPH aliphatic EC>10-12 was recorded in the perched water in borehole WS1001 (45µg/l against a GAC of 37µg/l) during the first sampling round; however, concentrations less than the laboratory LOD were recorded on the second round. On this basis and in consideration that the water in the Made Ground is considered to be perched, limited in nature and non-

	<p>laterally pervasive, the risk from vapours from groundwater at this location is considered to be low.</p> <p>Ground Gases: The conceptual site model includes a historically infilled river channel, contaminative historical industries and variable thicknesses of Made Ground recorded during site investigations (up to approximately 7m). Ground gas monitoring recorded elevated concentrations of carbon dioxide (above 5%v/v). The site is considered to be representative of CS2 and ground gas protection measures considered to be required. It is noted that further detailed ground gas risk assessment could be undertaken once the detailed design has progressed where proposed formation levels, ventilated basement / service vehicle access routes, waterproofing and ground slab thickness details can be considered, which may allow the ground gas protection level to be reduced.</p> <p>Controlled Waters: Elevated soil leachate concentrations have been recorded against the EQS and the DWV, and elevated concentrations of total phenols, total cyanide, total TPH, fluoranthene, ammoniacal nitrogen in the perched water of the Made Ground have been recorded against the EQS and DWV. However, concentrations of free cyanide are recorded as less than the laboratory limit of detection and PAH concentrations are less than 1µg/l. Elevated TPH and ammoniacal nitrogen are noted to be inconsistent. A continuous groundwater table was not observed within the Made Ground or superficial deposits and the cohesive horizons of the Made Ground and Glacial Till (where present) are considered to limit lateral and vertical migration of potential contaminants. Where proposed, buildings and hardstanding will also limit infiltration and leaching potential. In addition, the DWVs are considered to be a conservative assessment as the shallow Secondary undifferentiated aquifer is unlikely to be used as a drinking water source. Therefore the potential risks to controlled waters are generally considered to be low.</p> <p>Notwithstanding the above, hotspots of higher concentrations of heavy metal and hydrocarbon contamination has been identified within the Made Ground which may pose a potential risk to the Principal aquifer. It is recommended that the hotspots of contamination are delineated and excavated / remediated to mitigate the potential risks to controlled waters. In addition, localised hydrocarbon contamination was encountered at depth within the Principal aquifer at BH1005. Gross contamination has not been encountered in surrounding (upgradient and downgradient) boreholes indicating that the contamination is localised to BH1005. Further investigation of BH1005 to confirm vertical extent of hydrocarbon contamination is recommended. Localised remediation of hydrocarbon contamination likely to be required.</p> <p>Plants and Vegetation: Elevated concentrations of phytotoxic contaminants have been recorded within the Made Ground. In addition, it is considered unlikely that the Made Ground will provide a suitable growth medium for new plants and vegetation. A growth medium will likely be required for areas of proposed new soft landscaping.</p> <p>Buried Water Supply Pipes: Based on the historical contaminative industries that have been identified at within the site and the rest of the wider Sister area, and elevated hydrocarbon concentrations and acidic / alkaline pH levels recorded in the shallow soils and perched water, it is considered that barrier pipes will be required for new buried water supply pipes.</p> <p>It is noted that further investigation and assessment will be required for the wider Sister area as the development of those plots progresses.</p>
Preliminary Waste Characterisation	<p>The preliminary waste assessment (carried out using the HazWaste Online Toolkit) indicates that the material tested would predominantly be characterised as non-hazardous material and therefore considered to be acceptable to an inert waste facility (subject to WAC testing) or a non-hazardous waste facility. However, it is noted that Made Ground from BH1002 within the site is classified as hazardous material due to elevated total TPH concentrations. In addition, where asbestos has been detected in the Made Ground, this material would require disposal to a non-hazardous waste facility that accepts asbestos material (where concentrations are <0.1% by weight) or a hazardous waste facility that accepts asbestos material (where visible asbestos containing material fragments are present or concentrations are >0.1% by weight in the soil matrix). WAC testing carried out indicated that the majority of the material tested would be acceptable to an inert waste facility with the exception of 5 WAC tests indicating elevated sulphate, fluoride and TDS and therefore requiring disposal to a non-hazardous waste facility. The results of the hazardous WAC analysis of 7 samples indicates that the materials would be acceptable to a hazardous waste facility without the need for prior treatment.</p>
Revised Conceptual Site Model	<p>The risks to human health are considered to be low to moderate based on the results of the soil assessment. Elevated concentrations of phytotoxic contaminants within the shallow soils are considered to be a potential risk to plants and vegetation. The risks from ground gases are considered to be low to moderate. The risks to controlled waters are generally considered to be low; however, hotspots of high concentrations of heavy metal and hydrocarbon contamination has been identified within the Made Ground and localised hydrocarbon contamination was encountered at depth within the Principal aquifer at BH1005 which may pose a potential risk to the Principal aquifer. It is anticipated that barrier pipes will be required for new buried water supply pipes. Buried concrete will need to be designed as appropriate for the ground conditions.</p>
Geoenvironmental Recommendations	<p>A remediation strategy and verification plan are to be produced by Civic Earth under a separate cover to outline the remediation requirements in consideration of the recommendations within this report. Based on the findings of the site investigation and subsequent contamination assessments, recommended additional investigation and remedial measures include further investigation and delineation of the localised hydrocarbon contamination at BH1005, removal of Made Ground hotspots considered to present a potential risk to controlled waters, a watching brief is carried out by the Contractor during the enabling works, earthworks and construction works, decommissioning of existing monitoring wells prior to commencement of significant earthworks and measures implemented to mitigate the potential impact to controlled waters during construction works, ground gas protection measures, installation of capping layers in areas of soft landscaping and installation of barrier pipes for new water supply pipes. Completion of a United Utilities Risk Assessment including sampling of soils at depth and location of proposed water supply pipes will likely be required. In addition, it is recommended a piling works risk assessment including groundwater reassurance monitoring is completed to demonstrate that the works do not result in deterioration of the groundwater quality of the Principal aquifer. The Contractor should be responsible for the material management and waste classification and the “waste hierarchy” should be used to rank waste management options.</p>
Geotechnical Recommendations	<p>Geotechnical recommendations including design parameters for the proposed redevelopment of the site have been outlined based on the site investigations completed by Civic Earth.</p>

Foundations: Depending on final formation levels, formation is likely to be within the Made Ground, superficial deposits or the bedrock of the Chester Formation. Given the variability of the Made Ground and superficial deposits, it is recommended that shallow foundations are not constructed within the Made Ground or superficial deposits due to the variable bearing capacity and potential for differential settlement of these deposits. If feasible, shallow foundations could be constructed within the Chester Formation, subject to proposed finish levels and the level of the sandstone bedrock. Based on the physical properties of the sandstone bedrock recorded during the site investigations, an allowable bearing capacity representative of a very dense sand (500kPa) could be adopted at a minimum embedment of 0.3m into the top of the bedrock. Depending on the proposed formation levels of the proposed structures, it is noted that a raft or piled raft as a foundation solution could be adopted for the proposed structures which may be more economical. If a piled foundation is utilised, it is anticipated that piles will be socketed approximately 5m into the sandstone bedrock. Early consultation with an appropriate piling contractor is essential to the design of the piles. Preliminary pile capacities assuming no pile tests and assuming working / prelim pile tests have been provided.

Ground Improvement: Due to variable composition, thickness and strength of the Made Ground soils present, ground surface settlement is likely to occur under ground bearing slabs and areas of landraise / fill, and differential settlements more onerous than desired may occur. It is recommended that ground improvement options be considered to limit the potential for ground movements post-construction.

Infilled River Medlock: Deposits of locally deeper Made Ground have been recorded along the route of the historical River Medlock, where the route has been inferred from historical mapping. There is considered to be some uncertainty as to the full extent of the possible deeper Made Ground deposits which should be considered during foundation design.

BT Guardian Tunnel: It is recommended that confirmation is sought from the asset owners / managing agent for details on the design and location of the buried infrastructure, and detailed surveys carried out on the infrastructure if not already available. It is noted that dialogue between Civic Earth and BT on behalf of the Client is currently on-going with respect to the tunnel and it is understood that BT will require the Client to carry out a survey of the tunnel to confirm its exact position before any site investigation works in proximity to the tunnel are permitted to proceed.

Network Rail Viaduct and Altrincham Street Arches/Vaults: The foundation depths and construction details of the viaduct and arches/vaults are currently unknown. It is anticipated that Network Rail will require an asset impact assessment in consideration of the proposed development works in proximity to the viaduct, and site investigation recommended to investigate foundation depth, construction and founding strata to inform potential ground movement analysis and proposed service tunnel design.

Holloway Wall: The preliminary investigation concluded that the foundations of the wall are likely at a greater depth than 1.60mbgl and supplementary investigation was therefore undertaken in October 2024 by Civic Earth. The findings of the supplementary investigation and requirements for analysis are reported under a separate cover to this report.

Unexploded Ordnance: A strong ferrous signal was detected by the supervising UXO engineer during the drilling of borehole WS1015 at 3.45mbgl. It is recommended that investigation by a UXO specialist is carried out at and in proximity to borehole WS1015 to confirm the source of the ferrous signal. UXO mitigation measures will be required in the moderate UXO risk area of the site for enabling and construction works.

Floor Slabs and Pavement Design: Pavements/roadways founded on the Made Ground or superficial deposits should be designed to a conservative CBR of 2.5% and to 5% for the sandstone bedrock. Floor slab design will need to take account of the potential variability in ground conditions at the formation level, and suspended slabs will need to be utilised where there is insufficient bearing capacity or potential for an unacceptable level of differential settlement.

Excavations: Excavations during the development should not pose difficulties for conventional excavators or earth moving equipment for the identified strata including some excavation in the upper sandstone horizons. Localised groundwater control may be required to managed perched water ingress; however, excavations are not currently anticipated to extend below the Principal aquifer level with the exception of potentially where the service tunnel will be constructed within the site.

Buried Concrete Design: Buried concrete design classes for the Made Ground, Alluvium, Glacial Till and sandstone have been calculated as DS-2 (AC-2), DS-2 (AC-1s), DS1 (AC-1s) and DS-1 (AC-1) respectively.

Infiltration: Conventional soakaways into the Made Ground and/or superficial deposits are not likely to be effective. It is also noted that given the conceptual site model, infiltration into/within the Made Ground is not recommended. Infiltration into the underlying sandstone bedrock will likely prove effective, however, infiltration will be required to confirm this and consideration should be given to the environmental sensitivity of the aquifer in the design of any soakaways into the aquifer and agreement would be required from the Local Authority and Environment Agency.

Buried Infrastructure: Consideration should be given to existing buried infrastructure within the site including the UOM services tunnel. If the services tunnel is to be retained, it is recommended that a ground movement analysis and impact assessment is undertaken. Consideration must also be given to the potential for differential settlement where new services are to be located within areas of cut and fill and pass between Made Ground and natural soils.

Buried Obstructions and Voids: There is potential for encountering buried obstructions and/or voids at the site due to its development history which may present a risk to shallow foundations and piling activities.

Retaining Structures: Any change to ground levels in front of existing retaining structures (for example in front of the Altrincham Street retaining wall) will require careful review to assess the impact on wall stability and requirement for stabilisation measures such as underpinning.

Earthworks: An extensive cut and fill exercise is anticipated to be carried out and an Earthworks Specification should be produced in accordance with the Specification for Highway Works.

1. Introduction

Civic Earth Limited was appointed on 21 February 2024 by ID Manchester Limited and University of Manchester (the Client) to undertake a geotechnical and geoenvironmental site investigation to support the detailed design of Plot C and associated enabling works area (herein referred to as “the site”), with some site investigation located across the rest of the wider Sister masterplan development area (herein referred to as “the wider Sister area”) to obtain information to understand the wider ground conditions including investigation along the proposed route of a new river channel within the south of the wider Sister area.

The wider Sister area is currently split into seven development plots as illustrated in Plate 1. The site is located within the east of the wider Sister area, as illustrated in Plate 2.

Plate 1: Sister Indicative Masterplan Plots

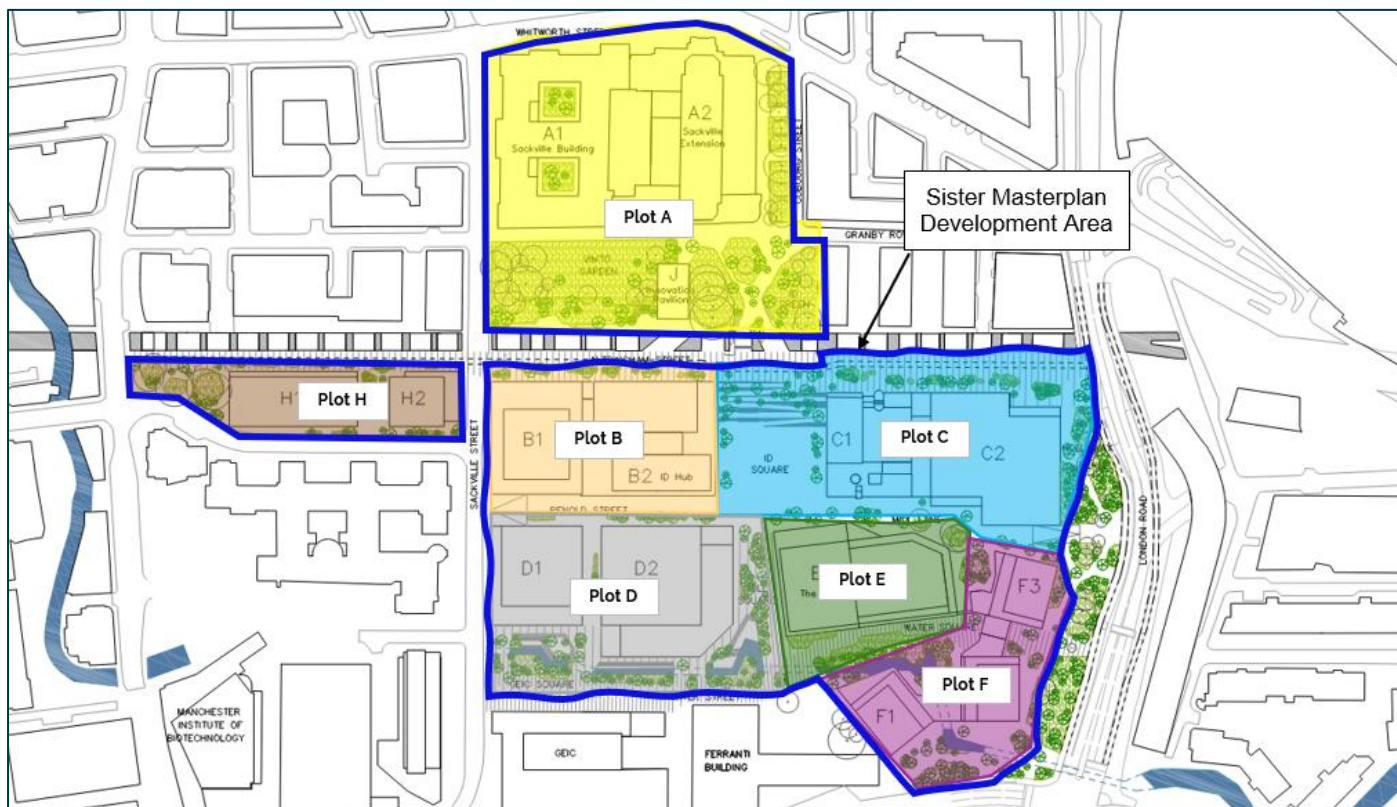
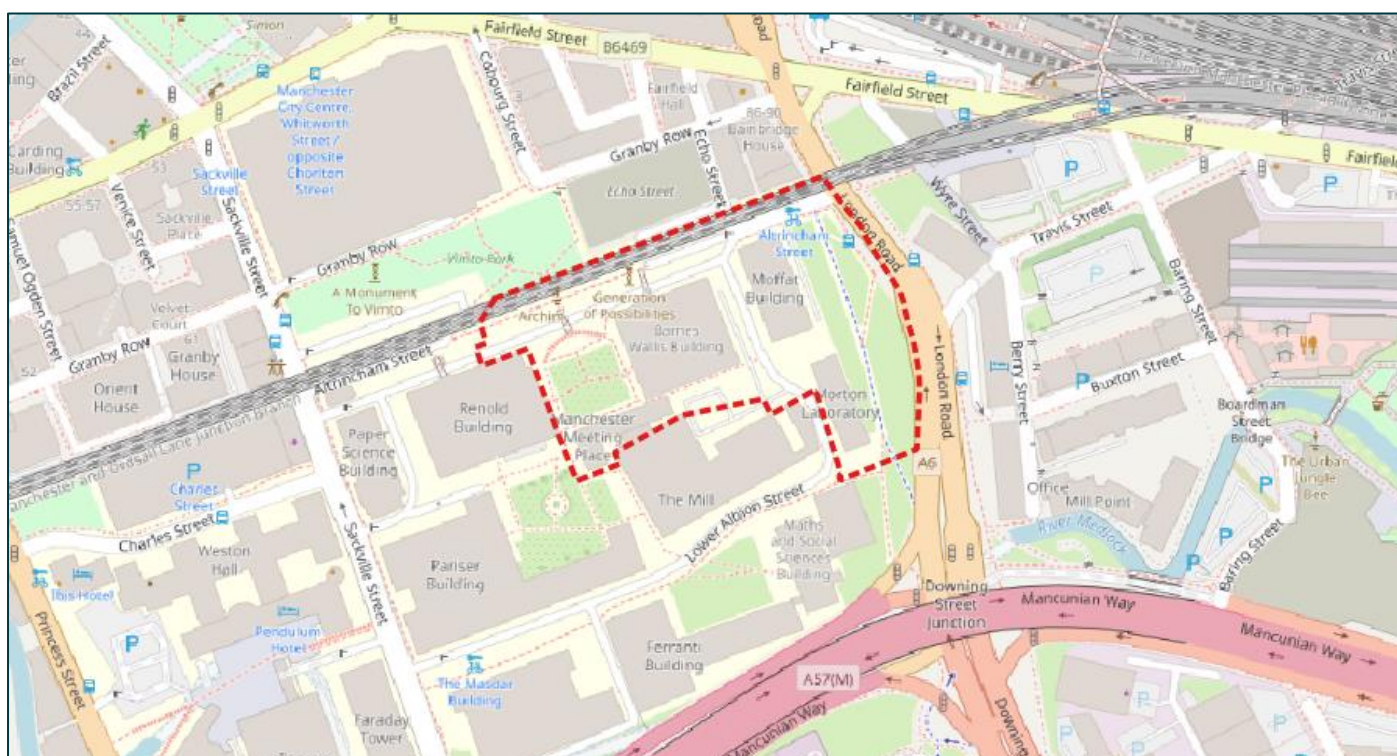


Plate 2: Approximate Site Location Plan (©OpenStreetMap Contributors)



The following reports have been produced by Civic Earth for the Sister masterplan redevelopment:

- Civic Earth (2025) *Sister – Plot C and Enabling Works Area. Phase 1 Desk Study and Data Review*. April 2025. Reference 51019-CE-XX-XX-R-G-1001. Revision P05¹.
- Civic Earth (2025) *New River Channel, Sister. Factual Site Investigation Report*. April 2025. Reference 51019-CE-03-XX-R-G-1001. Revision P02².
- Civic Earth (2025) *Sister Masterplan Area. Factual Site Investigation Report*. April 2025. Reference 51019-CE-02-XX-R-G-1001. Revision P03³.
- Civic Earth (2025) *Plot A, Sister. Desk Study and Preliminary Site Investigation Report*. January 2025. Reference 51019-CE-04-XX-R-G-1001. Revision P02⁴.
- Civic Earth (2025) *New River Channel, Sister. Site Investigation Report*. January 2025. Reference 51019-CE-03-XX-R-G-1001. Revision P01⁵.
- Civic Earth (2024) *Holloway Wall, Sister Manchester. Factual Site Investigation Report*. November 2024. Reference 51019-CE-06-XX-R-G-1001. Revision P01⁶.
- Civic Earth (2024) *Plot H, Sister Manchester. Phase 1 Desk Study*. December 2024. Reference 51019-CE-05-XX-R-G-1001. Revision P01⁷.

The following reports have been produced by others for the wider Sister area and have been provided to Civic Earth for review:

- Arup (2019) *University of Manchester North Campus. Ground Conditions Desk Study*. November 2019. Reference UNMC-ARUP-ZZ-XX-RP-CG-0001. Revision 2⁸.
- Allied Exploration & Geotechnics Limited (2020) *ID Manchester. Preliminary Ground Investigation*. April 2020. Reference NW1588⁹.
- 1st Line Defence (2022) *Detailed Unexploded Ordnance (UXO) Risk Assessment*. April 2022. Reference DA14968-00¹⁰.
- Arup (2022) *ID Manchester. Preliminary Ground Investigation Interpretative Report*. November 2022. Reference IDM00-ARP-ZZ-ZZ-RP-ZZ-00001. Revision 3¹¹.

The above reports have been used as supporting documentation in the preparation of this report, and reference should be made to the reports for full details of the investigations completed.

The aim of this report is to evaluate potential human health, environmental and geotechnical risks and constraints associated with the proposed development, including:

- A brief summary of the history, anticipated geology and historical ground investigation data, hydrogeological setting and preliminary risk assessments and conceptual site model for the site and rest of the wider Sister area;
- A summary of the ground and groundwater conditions encountered during the site investigations^{2,3}, and analysis and interpretation of chemical and geotechnical laboratory testing carried out as part of the site investigations;
- A summary of the geoenvironmental assessments and revised semi-quantitative risk assessment based on the findings of the site investigations; and

¹ Civic Earth (2025) *Sister – Plot C and Enabling Works Area. Phase 1 Desk Study and Data Review*. April 2025. Reference 51019-CE-XX-XX-R-G-1001. Revision P05.

² Civic Earth (2025) *New River Channel, Sister. Factual Site Investigation Report*. April 2025. Reference 51019-CE-03-XX-R-G-1001. Revision P02.

³ Civic Earth (2025) *ID Manchester Masterplan Area. Factual Site Investigation Report*. April 2025. Reference 51019-CE-02-XX-R-G-1001. Revision P03.

⁴ Civic Earth (2025) *Plot A, Sister. Desk Study and Preliminary Site Investigation Report*. January 2025. Reference 51019-CE-04-XX-R-G-1001. Revision P02.

⁵ Civic Earth (2025) *New River Channel, Sister. Site Investigation Report*. January 2025. Reference 51019-CE-03-XX-R-G-1001. Revision P01.

⁶ Civic Earth (2024) *Holloway Wall, Sister Manchester. Factual Site Investigation Report*. November 2024. Reference 51019-CE-06-XX-R-G-1001. Revision P01.

⁷ Civic Earth (2024) *Plot H, Sister Manchester. Phase 1 Desk Study*. December 2024. Reference 51019-CE-05-XX-R-G-1001. Revision P01.

⁸ Arup (2019) *University of Manchester North Campus. Ground Conditions Desk Study*. November 2019. Reference UNMC-ARUP-ZZ-XX-RP-CG-0001. Revision 2.

⁹ Allied Exploration & Geotechnics Limited (2020) *ID Manchester. Preliminary Ground Investigation*. April 2020. Reference NW1588.

¹⁰ 1st Line Defence (2022) *Detailed Unexploded Ordnance (UXO) Risk Assessment*. April 2022. Reference DA14968-00.

¹¹ Arup (2022) *ID Manchester. Preliminary Ground Investigation Interpretative Report*. November 2022. Reference IDM00-ARP-ZZ-ZZ-RP-ZZ-00001. Revision 3

- Recommendations with respect to the potential risks identified to receptors, waste disposal and the geotechnical design of the project associated with the site.

2. Site Context

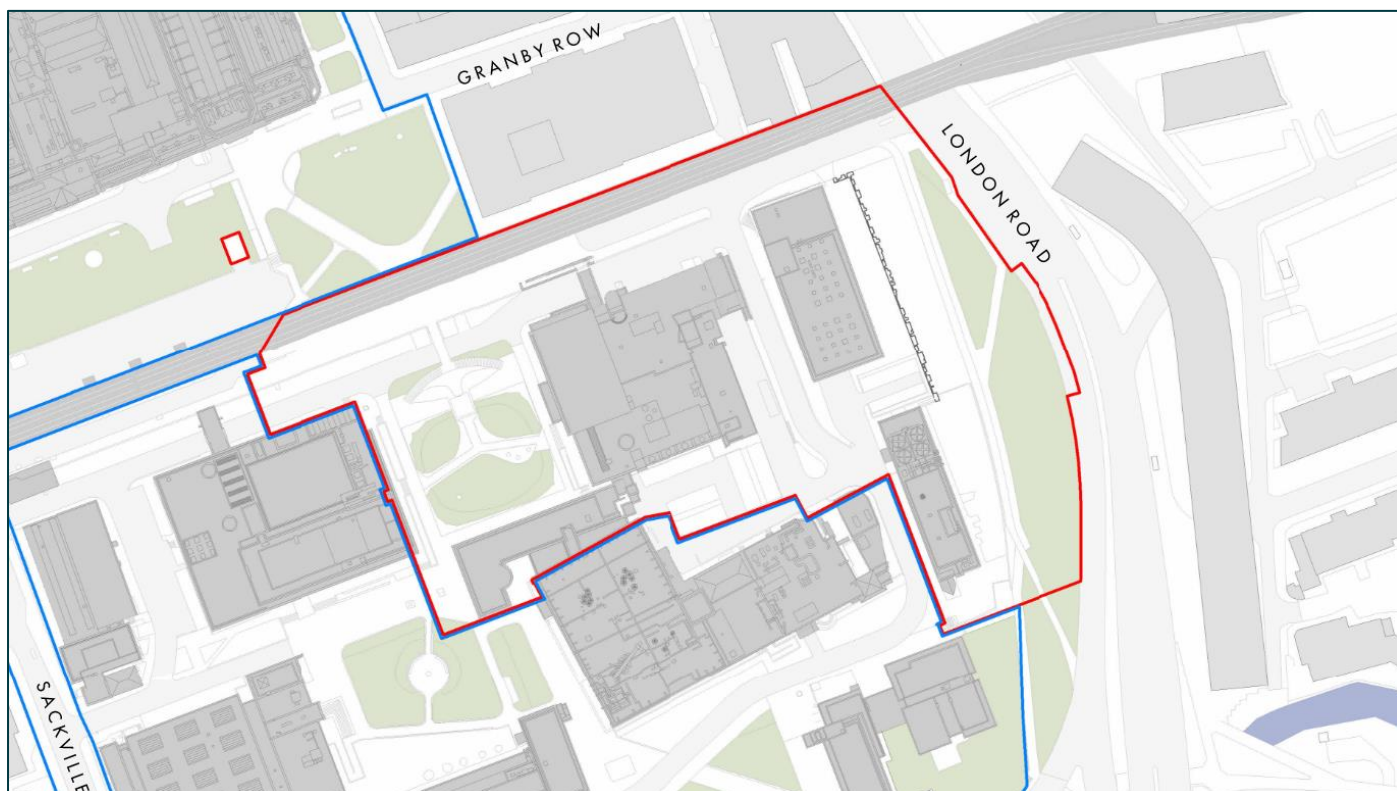
2.1. Site Location

The site is located on the University of Manchester's (UOM) former North Campus, which occupies land between Fairfield Street, London Road, Mancunian Way and Princess Street. The site is bound by the Manchester South Junction and Altrincham Street Railway Viaduct to the north, London Road to the east, The Mill (a former UOM building) to the south and the Renold Building (a former UOM building) to the west. The approximate postcode for the site is M1 3AL and the National Grid coordinates for the approximate centre of the site are 384722E, 397637N.

2.2. Site Description

The site is approximately 2.2 ha in size and currently comprises a landscaped area known as the Bowling Green and the Barnes Wallis and Wright Robinson Building, Manchester Meeting Place (MMP), Morton Laboratory and Moffat Building which are former UOM buildings. The Grade II Listed Holloway Wall is located in the east of the site and the Grade II Viaduct is located in the north of the site. A landscaped area is also present in the east of the site, to the east of the Holloway Wall. The existing site layout is illustrated in Plate 3.

Plate 3: Site Layout Plan



With reference to the Phase 1 desk study report¹, the Barnes Wallis is a three storey building with basement constructed in the 1960s and previously used as conferencing facilities with commercial kitchen as well as computer laboratories, study space and former nightclub. The Wright Robinson is a 14 storey building with basement level (shared with the Barnes Wallis building) constructed in the 1960s and previously provided student accommodation. Moffat is a two storey building with basement level, believed to have been constructed in the 1960s. The building was previously occupied by the "Campus Vision Centre" including a combination of offices, laboratory spaces, consultation rooms and lecture theatre, and later by Balfour Beatty and Laing O'Rourke as temporary site offices for nearby site works. Morton Laboratory is a six storey structure constructed c.1965 and previously used as research and laboratory facilities, and was previously referred to as the "Chemical Building". MMP is a four storey building constructed in 1960 and used as conferencing facilities with commercial kitchen with a basement plant room.

The Butterfly Staircase leads up from the Bowling Green to Altrincham Street which runs approximately east-west in the north of the site. An operational Network Rail (NR) viaduct, a Grade II listed structure, is located in the north of the site in an approximate east-west orientation. A series of vaults are present beneath Altrincham Street, accessed from Service Road which runs parallel to Altrincham Street at a lower level. Lower Albion Road is located in the east of the site in a north-south orientation, between the Wright Robinson and Moffat buildings. A second area of soft landscaping in the east of the site runs alongside the Grade II Listed Holloway Wall.

Ground level in the north of the site at the base of the NR viaduct (i.e. at Altrincham Street level) ranges from approximately +38.9mOD in the east to approximately +36.8mOD in the west. Service Road ranges in level from +33.1mOD in the east, down to +32.9mOD and rising again to approximately +36.5mOD in the west. A raised walkway also links Altrincham Street to the Barnes Wallis and Wright Robinson buildings. The site slopes upwards from the

south of Lower Albion Street to the base level of the viaduct.

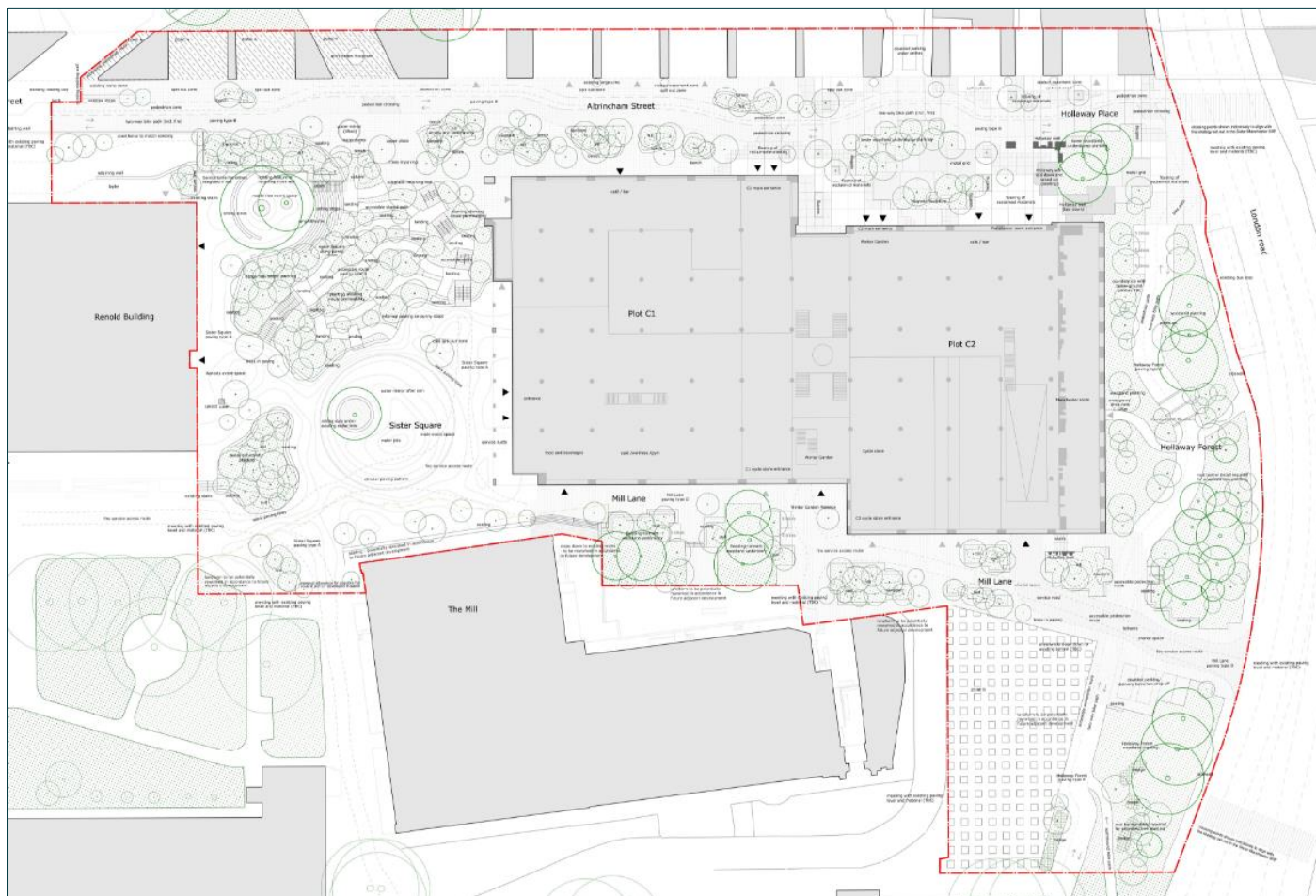
Anecdotal information provided by the UOM outlines that general chemicals, oils, mercury and lead were used within Morton Laboratory. The information noted that if present, traces of these potential residual contaminants would likely be in sink traps and drains, lab benches, ventilation extraction equipment, storage cabinets and areas with wooden/parquet flooring. Each of the buildings were also identified to have asbestos within the building fabric. In addition, the use of radioactive substances was noted in Morton Laboratory; however, the UOM states that they expect trace levels of radiation only, if detectable at all. The UOM also states that there have been no contamination events in the laboratories in the last five years and that there is no information to suggest otherwise in the UOM records for earlier years. Several gas and chemical storage areas were observed in the courtyard area to the south of the Barnes Wallis and Wright Robinson, with signage on the empty external storage compound to the north of Morton Laboratory indicating previous storage of flammable materials.

2.3. Proposed Development

It is understood that the current proposals for the redevelopment of the site include the demolition of existing UOM buildings and the construction of two commercial-led buildings. The proposals will also include works to the Holloway Wall, the change of use of the railway arches to retail and food/beverage uses, and the creation of a new public square, access and other associated works. The proposed general arrangement of the site is illustrated in Plate 4.

At this stage, development proposals for enabling works area to the south of the two new commercial-led buildings have not been progress. For the basis of this report, it is assumed that this enabling works area (which falls into Plot F as outlined in Plate 1) will possibly include a mixed commercial and residential development. As noted in Section 1, the introduction of a new river channel, linked to the River Medlock, onto the wider Sister area is being considered, although yet to be explored in detail.

Plate 4: General Landscape Arrangement Plan (SLR Drawing SISC0-SLA-LA-ZZ-DR-LA-00001 Revision 04)



3. Summary of Desk Study and Data Review

3.1. Introduction

As outlined in Section 1, a desk study was previously carried out for the wider Sister area by Arup in 2019⁸. A preliminary site investigation was subsequently carried out by Allied Exploration and Geotechnics (AEG)⁹ under the direction of Arup between October and December 2019 and Arup produced a preliminary ground investigation interpretative report based on the results of the preliminary AEG investigation¹¹.

A Phase 1 desk study and data review, which includes a review of the Arup desk study, AEG site investigation and Arup interpretative assessments, was subsequently produced by Civic Earth¹ for the site and the wider Sister area. The following sections provide a summary of the Civic Earth Phase 1 desk study and data review; for full details the original report should be referred to.

3.2. Historical Development

3.2.1. Site Historical Development

Earliest available mapping dated 1848 and 1951 indicates that the site was occupied by *Temple Street Mill (Cotton)* in the west of the site, on the western bank of the River Medlock which flowed southeast to northwest across the west of the site. An *Engine House* was located to the north of the mill and a *Chemical Works* in the southeast of the site. A *Retort House* and *Tank* were present within the middle of the site adjacent to the southern site boundary, associated with *Jackson Street Mills (Cotton)* located off-site to the south. It was considered that the retort house is likely to be associated with the mill and may have been used for local gas production rather than town gas works, as no gasworks were indicated in the local vicinity on the historical mapping. Terraced properties and London Road School were located on the eastern side of the River Medlock and across the eastern area of the site. The central area of the site was predominantly undeveloped. Altrincham Street and Lower Albion Street were shown in their present day positions with the railway viaduct along the northern boundary of the site in its present day position.

By 1889-1893, the west and central areas of the site had been extensively redeveloped and *Manchester Nut & Bolt Works* was indicated on the northeastern side of the River Medlock in the centre of the site, and *London Road Iron Works* (later indicated as an *Iron Foundry* on mapping of 1922) encroached onto the west of the site on the west bank of the River Medlock. The east of the site remained unchanged.

By 1932, a *Cloth Finishing Works* was constructed in the southeast of the site across the footprint of the former *Chemical Works* until 1948-1950 when it was indicated as disused. By 1955-1956, the disused *Cloth Finishing Works* was indicated to be a *Warehouse*.

By 1965, the site had again been extensively redeveloped. The central and eastern areas of the site were cleared and indicated as open space, and a *Depot* (later *Estates & Engineering Depot*) was indicated in the east of the site (in the present day layout of the Moffat building) along with a rectangular structure to the east. The alignment of the Holloway Wall was also indicated at this time. The River Medlock was no longer indicated to flow in its original location, “disappearing” from the historical mapping to the southeast of the wider Sister area and “reappearing” to the southwest of the wider Sister area. By 1968, the Butterfly Staircase and Morton Laboratory were indicated in their present day positions with the Barnes Wallis and Wright Robinson buildings indicated from c.1984. The site remained in a similar layout until the present day.

3.2.2. Wider Sister Area Historical Development

The rest of the wider Sister area had a similar industrial history with a *Slaughter House*, *Lead Pipe Manufactory*, *Coal, Timber* and *Slate Wharves* and *Cotton Store* indicated within the area to the north of the NR viaduct in the late 1800s and early 1900s. A canal, oriented north-south, between the wharves, was also indicated, feeding from Rochdale Canal to the north. The northern area was subsequently redeveloped into a School of Technology by c.1908, and into the College of Technology by the mid-1950s in a similar layout to the present day.

The central part of the wider Sister area, to the south and west of the site, was historically occupied by *Ardwick Bridge Chemical Works* (including *Vitriol Chambers*, *Store Rooms*, *Solution of Tin House*, *Cylinder House* and *Garancine Works*), a *Reservoir* (subsequently infilled), *Joiners Shop*, *Nitrate of Soda Works*, *Iron Works*, *Iron Foundry* and *Atlas Box Works* in the late 1800s to early 1900s with the River Medlock meandering across the area. From the mid-1950s, *Mills (Cotton)*, a *Motor Engineering Works* and a *Garage* were indicated. By 1965, this central area was extensively redeveloped and the UOM Maths and Social Sciences (MSS), Paper Science, Pariser and Renold buildings were indicated in their present day layout. The River Medlock was also no longer indicated to flow in its original location and the area remained in a similar layout until the present day.

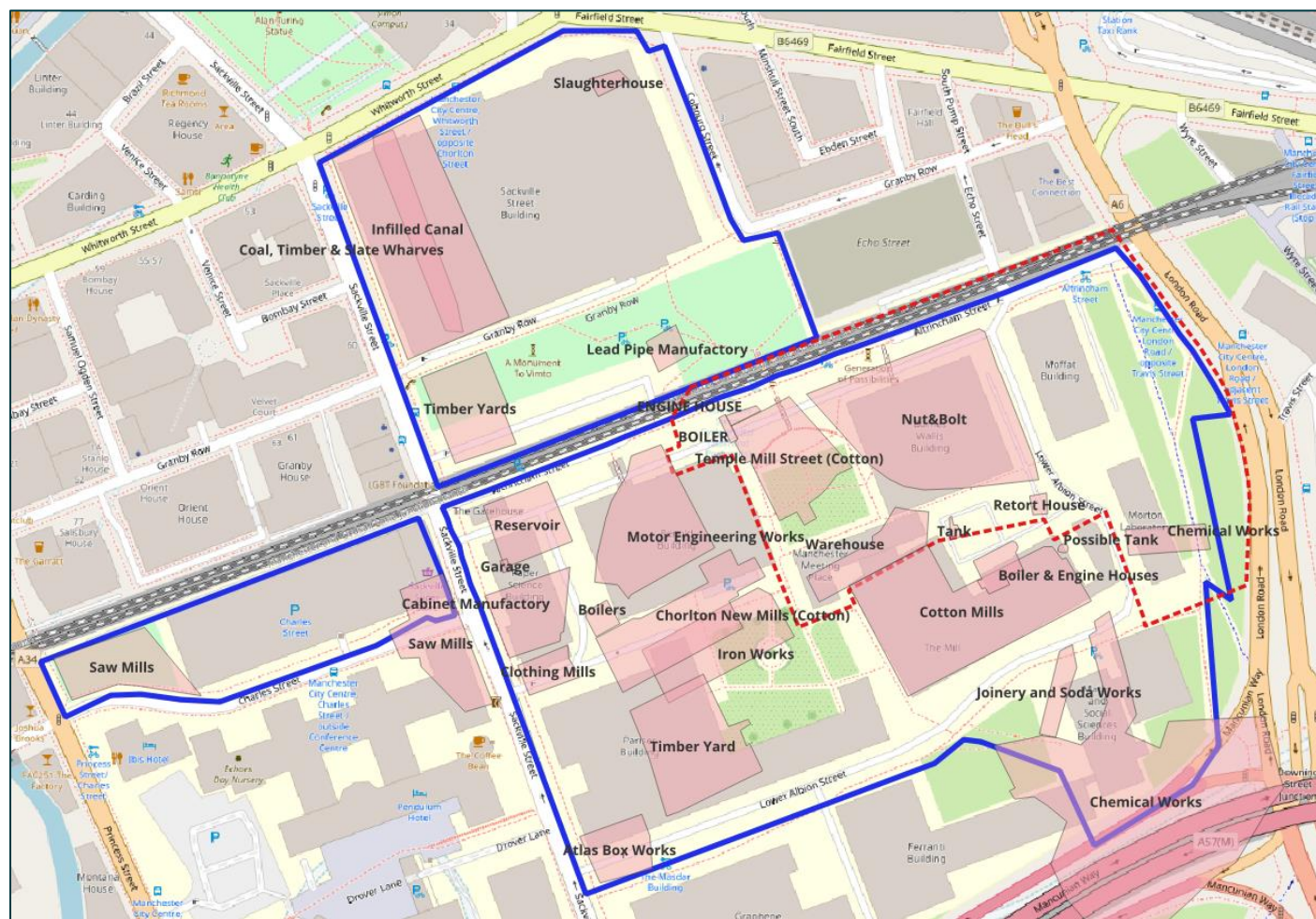
The western part of the wider Sister area, to the west of Sackville Street, was historically occupied by *Saw Mills* in the late 1800s with the River Medlock approximately 10m to the south of the wider Sister boundary. By the 1930s, a *Box Works* was present and the *Saw Mills* has relocated further southwest. The present day Charles Street Car Park was indicated from the mid-1980s.

3.2.3. Surrounding Area Historical Development

The wider Sister area was located within an area of combined residential and industrial use. *London Road Railway Station* was indicated approximately 250m northeast of the wider Sister area and a *Cotton Mill* and *Dye Works* were

3.2.4. Summary of Historical Development

Plate 5: Pertinent Historical Industrial Activities identified on Historical Mapping



The report recommended that UXO safety awareness briefings are provided and a UXO Risk Management Plan put in place prior to all intrusive works. It was also recommended that an intrusive magnetometer probe survey is carried out at any proposed pile positions within the moderate risk zone, and a watching brief is carried out by an EOD engineer during excavation of all open excavations and magnetometer survey of all site investigation borehole locations within the moderate risk zone down to the maximum bomb penetration depth. It is noted that the maximum bomb penetration depth has not been outlined within the report; however, based on Civic Earth's experience in the local area, this depth

is typically specified as the top of the competent sandstone bedrock.

Plate 6: Extract from 1st Line Defence Detailed UXO Risk Assessment



3.4. Published Geology

With reference to the British Geological Survey (BGS) website¹², BGS Sheet 85¹³ and the Groundsure Enviro + Geo Insight report obtained as part of the Civic Earth desk study¹, the site is anticipated to be underlain by Till (Diamicton). Superficial deposits of Alluvium are indicated in the south of the wider Sister area along the route historical route of the River Medlock, and therefore may be present where the river historically flowed. The superficial deposits are indicated to be underlain by the Chester Formation (Sandstone). A northwest-southeast trending fault in the bedrock is to cross the western part of the wider Sister area. Deposits of Made Ground are also indicated across the site.

3.5. Hydrology and Hydrogeology

The Environment Agency (EA) has produced an aquifer designation system consistent with the requirements of the Water Framework Directive. The designations have been set for superficial and bedrock geologies and are based on the importance of aquifers for potable water supply and their role in supporting surface water bodies and wetland ecosystems. The superficial deposits of Alluvium and Till are designated as Secondary Undifferentiated aquifers. The underlying Chester Formation sandstone bedrock is designated as a Principal aquifer.

The site and wider Sister area are not located within a groundwater Source Protection Zone (SPZ). There are eight records for groundwater abstraction points within 1km of the wider Sister area. The records relate to historical abstraction points for non-evaporative cooling and general cooling, and active abstraction points for general use relating to Secondary Category (Medium Loss) and heat pump.

Following the River Medlock's historical diversion into a culvert, the river no longer flows within the wider Sister area and is understood to be currently located within a culvert to the south of the wider Sister area. The river culvert is generally orientated east-west and flows west/southwest. Regional groundwater flow direction is anticipated to be towards the southwest.

¹² British Geological Survey (BGS), www.bgs.ac.uk (Accessed May 2023)

¹³ BGS (2011) Manchester, Sheet 85. Solid and Drift. 1:50,000.

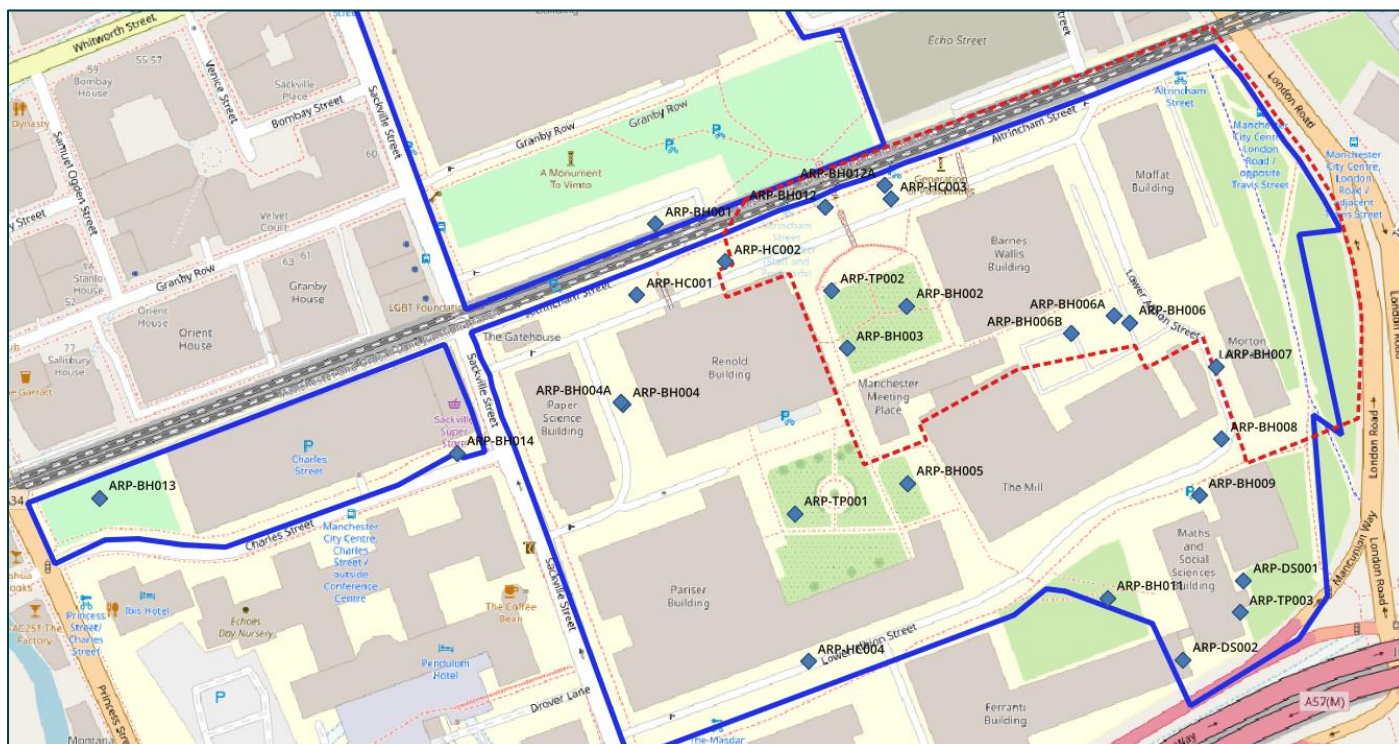
A culverted watercourse (understood to be a sewer), referred to as the “Charles Street Culverted Watercourse” or “Shooters Brook”, passes beneath the Charles Street Car Park in the west of the wider Sister area (Plot H). The watercourse is identified to travel below Granby Row in Plot A to the north of the NR viaduct, south down Sackville Street passing below the Network Rail viaduct, then south-southwest beneath Charles Street Car Park before discharging into the River Medlock at Charles Street bridge.

3.6. Previous AEG / Arup Investigation

The scope of the historical AEG site investigation included 17 cable percussion or combined cable percussion/rotary boreholes (ARP-BH001 to ARP-BH014, ARP-BH004A, ARP-BH006A, ARP-BH006B and ARP-BH012A), two dynamic sample boreholes (ARP-DS001 and ARP-DS002), three machine excavated trial pits (ARP-TP001 to ARP-TP003) and four horizontal core holes (ARP-HC001 to ARP-HC004). The approximate locations based on the AEG report are illustrated in Plate 7.

Of these locations, eight boreholes (ARP-BH002, BH003, BH006, BH006A, BH006B, BH1007, BH012 and BH012A), one trial pit (ARP-TP002) and one horizontal core (ARP-HC003) were undertaken within the site boundary.

Plate 7: Exploratory Hole Plan of AEG Exploratory Holes



3.6.1. Ground Conditions

The exploratory holes undertaken across the site typically recorded a variable thickness of Made Ground (between 0.25m and 8.40m), overlying the bedrock of the Chester Formation. Superficial deposits of Alluvium were recorded to the south of the site at boreholes ARP-BH005 and ARP-DS001 and recorded as medium dense, brown, clayey, very sandy gravel and black silty gravel with the upper surface of the deposits encountered between 1.50mbgl and 4.40mbgl (31.92mOD to 29.82mOD). The upper surface of the Chester Formation was encountered between 3.70mbgl and 10.40mbgl (30.32mOD to 25.32mOD) and proven to a maximum borehole penetration depth of 21.50mbgl (11.92mOD). The competent bedrock typically comprised extremely weak to weak, rarely medium strong, red to red-brown, fine to coarse grained sandstone.

3.6.2. Groundwater Conditions

Distinct groundwater strikes were not encountered during the AEG ground investigation within the site or the wider Sister area; however, it is noted that the addition of water during the drilling process may have obscured groundwater strikes.

Two groundwater monitoring rounds were carried out during the AEG site investigation on 22 November and 3 December 2019 at the installations that had been completed at the time of the monitoring rounds and a total of four groundwater monitoring rounds were carried out by AEG post-completion of the site investigation. Two groundwater bodies were recorded during the monitoring rounds:

- **Perched water within the Made Ground:** 32.29mOD to 28.54mOD (2.60mbgl and 5.99mbgl); and
- **Principal aquifer within the Chester Formation:** 31.68mOD and 24.39mOD (3.00mbgl to 9.8mbgl).

The groundwater monitoring results suggested that the Principal aquifer flows northeast/east to southwest/west across the wider Sister area, with a groundwater level of approximately 29mOD recorded in the east and a groundwater level of approximately 27.5mOD recorded in the west. However, limited groundwater data was available for review and it

was noted there are numerous below ground obstructions across the site and the wider Sister area in terms of basement levels, historical foundations and existing foundations which could impact the groundwater regime.

3.6.3. Summary of Contamination

Soil Contamination

An assessment of soil contamination was carried out by Arup¹¹ where the soil chemical analysis results from the AEG site investigation were assessed against a 'Commercial' end use criteria on the basis that the underlying assumptions for commercial generic assessment criteria (GAC) include "human exposure to soil/water/gas contaminants during outdoor lunches". Arup assumed that future residents of the proposed flats would have a similar exposure to this and the assumption is based on limited exposure to soils (i.e. no gardens) and elevated positions i.e. high-rise apartments. Arup considered that the use of residential end use GACs would be too conservative and not representative of contaminant exposure pathways for the finished development. Contaminant concentrations above the GACs were not identified within the site with the exception of the detection of asbestos in three locations:

- ARP-BH002 at 1.0mbgl, – 'small bundle' of amosite at <0.001% by weight;
- ARP-BH006 at 1.2mbgl – 'small bundle' of amosite at <0.001% by weight; and
- ARP-BH007 at 3.3mbgl – chrysotile at 0.192% by weight.

Groundwater Contamination

An assessment of groundwater contamination in the Principal aquifer was carried out by Arup where the water chemical analysis results obtained from the AEG site investigation were assessed against Arup's controlled waters generic assessment criteria (GWGAC), which are based on the Environmental Quality Standards (EQS) (2015) and Drinking Water Standards (DWS) (2016).

The Arup assessment outlines that several inorganic compounds (arsenic, cadmium, chromium, copper, manganese, nickel and zinc) were detected at concentrations above the CWGAC; however, the compounds were considered to be trace metals typical of mineral cements within local aquifers. A comparison of the AEG chemical data relative to aquifer baseline data was subsequently undertaken and Arup concluded that the metal concentrations were found to be within baseline ranges and considered to be naturally occurring, and therefore not considered further within their assessment.

The groundwater chemical data also indicated elevated concentrations of lead, naphthalene, fluoranthene, total cyanide and ammoniacal nitrogen in boreholes ARP-BH004 (wider Sister area), ARP-BH007 (on-site), ARP-BH011 (wider Sister area) and ARP-BH013 (wider Sister area) against the DWS and EQS, with an acidic pH also recorded in borehole ARP-BH011.

No leachate analysis was undertaken as part of the Arup assessment and there is considered to be a potential risk of leachable contaminants being present within the Made Ground which may pose a potential risk to controlled waters. The Arup soil assessment undertaken with respect to the risks to human health was based on a commercial end use, where the GAC adopted are very high in some cases, and whilst only a single location of elevated lead was identified to exceed the GAC, soil contaminants may be present at concentrations which present a potential risk to controlled waters. A review of the Arup soil screening assessment previously undertaken by Civic Earth¹ identified elevated concentrations of chromium, zinc, copper, arsenic, lead, total PAHs and naphthalene at concentrations which may present a risk to controlled waters within the wider Sister area. In addition, inconsistencies with the Arup CWGAC presented in their report were identified, and the data reassessed as part of the Civic Earth desk study¹. The reassessment identified elevated concentrations of total cyanide, ammoniacal nitrogen and an acidic pH.

Ground Gas

Ground gas monitoring of the Made Ground was carried out by AEG across the wider Sister area, which included four monitoring rounds in boreholes ARP-BH012A (located within the site) and ARP-DS001, ARP-BH002, ARP-BH004A, ARP-BH008 and ARP-BH009 (located within the wider Sister area). The monitoring was carried out in rising and falling pressure systems, with atmospheric pressures recorded between 997mbar and 1031mbar. A ground gas risk assessment was carried out by Arup who concluded that based on the maximum methane (<0.1%v/v) and carbon dioxide (0.1%v/v to 1.3%v/v) concentrations at each individual borehole and the maximum flow rates (0.0l/hr) at each individual borehole, the results were representative of Characteristic Situation (CS) 1.

3.6.4. Waste Characterisation

A preliminary waste characterisation was undertaken by Arup¹¹ using the HazWasteOnline screening tool to assess the hazardous properties of the Made Ground soil samples. None of the soil samples were classified as hazardous material based on the recorded chemical concentrations; however, it was noted that asbestos was detected in three of the Made Ground soil samples within the site and where asbestos has been quantified as greater than 0.1% (as it has been in borehole ARP-BH007 at 3.3mbgl at 0.192%), this material would be classified as hazardous.

3.6.5. Civic Earth Preliminary Risk Assessment

The Civic Earth preliminary risk assessment concluded that there is considered to be a low to moderate risk to the identified receptors from potential contamination associated with the current and former uses of the site, wider Sister area and surrounding areas, and potential Made Ground associated with the former development of the area. In

addition, the assessment identified a number of potential geotechnical constraints associated with the anticipated underlying ground conditions, including the potential for below ground obstructions, infilled former channel of the River Medlock, third party infrastructure, variable thickness of Made Ground and superficial deposits, historical and existing structures such as basements, a UOM services tunnel, the Network Rail infrastructure and foundations and retaining walls.

4. Civic Earth Phase 2 Site Investigations

4.1. Introduction

Four phases of site investigation have been undertaken across the wider Sister area, including the site:

- Between April and May 2024^{2,3} to support detailed design of the site and associated enabling works area and detailed design of a new river channel in the south of the wider Sister area, with some site investigation located within the wider Sister area to obtain information to understand the wider ground model.
- In September 2024 within the footprint of the Pariser building to obtain information for the detailed design of the new river channel².
- In October 2024 in the Bowling Green area of the site to delineate hydrocarbon contamination encountered during the first phase of investigation in April/May 2024³.
- In March 2025 in the footprint of a historical retort house within the site to investigate the potential source of hydrocarbon contamination encountered during the first phase of investigation in April/May 2024³.

A summary of the exploratory holes completed during the four phases of investigation above is summarised in Table 1.

Table 1: Summary of Exploratory Hole Locations

Location Reference	Type of Exploratory Hole	Ground Level (mOD)	Base Depth (mbgl)	Base Levels (mOD)	Reason for Termination
On-Site Exploratory Holes					
BH1001	CP + RH	35.24*	25.00	10.24	Achieved target depth
BH1002	CP + RH	38.79*	25.00	13.79	Achieved target depth
BH1003	CP + RH	34.06*	25.00	9.06	Achieved target depth
BH1004	RH	36.50	19.50	17.00	Achieved target depth
BH1005	CP + RH	33.51*	16.50	17.01	Terminated due to contamination
BH1016	RH	34.03*	1.10	32.93	Terminated due to obstruction
BH1016A	RH	34.04	23.00	11.04	Achieved target depth
BH1017	RH	33.30*	18.00	15.30	Achieved target depth
WS1004	WS	32.88	0.70	32.18	Terminated due to obstruction
WS1004A	WS	32.96	0.60	32.36	Terminated due to obstruction
WS1005	WS	38.62	4.45	34.17	Terminated due to instability
WS1007	WS	33.20	3.45	29.75	Terminated due to refusal
WS1008	WS	35.00	2.45	32.55	Terminated due to obstruction
WS1009	WS	38.70	3.40	35.30	Terminated due to refusal
WS1012	WS	37.91	5.45	32.46	Achieved target depth
WS1019	WS	33.30	5.45	27.85	Achieved target depth
WS1020	WS	32.88	5.45	27.43	Achieved target depth
WS1022	WS	34.03	0.70	33.33	Terminated due to obstruction
WS1022A	WS	34.03	0.90	33.13	Terminated due to obstruction
WS1022B	WS	34.03	1.20	32.83	Terminated due to obstruction
WS1023	WS	33.00	0.20	32.80	Terminated due to obstruction
WS1023A	WS	33.00	3.45	29.55	Terminated due to instability
WS1025	WS	35.41	5.45	29.96	Achieved target depth
FIP1001	FIP	34.04*	0.21	34.03	Terminated due to obstruction
FIP1002	FIP	34.07*	0.32	33.75	Terminated due to obstruction
FIP1003	FIP	34.06*	1.57	32.49	Maximum excavation depth
FIP1004	FIP	34.06*	0.48	33.58	Terminated due to obstruction
FIP1005	FIP	34.07*	0.70	33.37	Maximum pilot hole depth
FIP1006	FIP	36.00*	0.37	35.63	Terminated due to obstruction

Location Reference	Type of Exploratory Hole	Ground Level (mOD)	Base Depth (mbgl)	Base Levels (mOD)	Reason for Termination
FIP1007	FIP	37.47*	1.10	36.37	Base of foundation located
FIP1010	FIP	33.08*	1.00	32.08	Terminated due to obstruction
FIP1011	FIP	33.15*	1.50	31.65	Maximum excavation depth
FIP1012	FIP	33.12*	1.60	31.52	Maximum excavation depth
FIP1013	FIP	33.01*	1.50	31.51	Maximum excavation depth
FIP1018	FIP	34.24*	1.60	32.64	Maximum excavation depth
FIP1019	FIP	33.30*	1.50	31.80	Maximum pilot hole depth
FIP1020	FIP	33.30*	1.50	31.80	Maximum pilot hole depth
FIP1021	FIP	33.09*	1.10	31.99	Base of foundation located
FIP1029	FIP	37.42	1.50	35.92	Maximum excavation depth
FIP1033	FIP	39.42*	1.50	37.92	Maximum excavation depth
FIP1034	FIP	38.20*	1.50	36.70	Terminated due to refusal
FIP1035	FIP	38.95*	1.50	37.45	Maximum excavation depth
HC1003	CC	34.59*	2.50	34.59	Achieved target length
HC1004	CC	36.56*	2.00	36.56	Achieved target length
Wider Sister Area Exploratory Holes					
BH1006	CP + RH	34.19	15.00	19.19	Achieved target depth
BH1007	CP + RH	34.10*	15.00	19.10	Achieved target depth
BH1008	CP + RH	33.60*	10.50	23.10	Achieved target depth
BH1009	CP + RH	40.51*	15.00	25.51	Achieved target depth
BH1012	CP	40.60	6.50	34.10	Achieved target depth
BH1013	CP	33.40*	0.40	33.00	Terminated due to obstruction
BH1013A	CP + RH	33.60*	20.00	13.60	Achieved target depth
BH1014	WS	32.62*	2.20	30.42	Terminated due to obstruction
BH1014A	WS	32.62*	4.50	28.12	Terminated due to refusal
BH1015	CP	33.26	0.90	32.36	Terminated due to obstruction
BH1015A	CP	33.00*	1.00	32.00	Terminated due to obstruction
BH1015B	CP	33.83*	6.00	27.83	Achieved target depth
BH2001	CP	34.04	4.00	30.04	Terminated due to obstruction
BH2002	CP + RH	33.81	15.00	18.81	Achieved target depth
BH2004	CP + RH	34.04*	15.50	18.54	Achieved target depth
BH2005	WS	34.36*	5.45	28.91	Achieved target depth
BH2006 ^A	RH	30.74*	15.00	15.74	Achieved target depth
BH2007 ^A	RH	35.16*	15.00	20.16	Achieved target depth
WS1001	WS	41.50	5.45	36.05	Achieved target depth
WS1002	WS	38.40	4.45	33.95	Terminated due to refusal
WS1003	WS	37.62	4.45	33.17	Terminated due to refusal
WS1006	WS	33.62	2.50	31.12	Terminated due to refusal
WS1010	WS	33.76	0.10	33.66	Terminated due to obstruction
WS1010A	WS	33.76	3.45	30.31	Terminated due to refusal
WS1011	WS	34.53	5.45	29.08	Achieved target depth
WS1013	WS	33.60	5.45	28.15	Achieved target depth
WS1014	WS	34.30	5.45	28.85	Achieved target depth

Location Reference	Type of Exploratory Hole	Ground Level (mOD)	Base Depth (mbgl)	Base Levels (mOD)	Reason for Termination
WS1015	WS	34.08	3.45	30.63	Terminated under instruction of UXO Engineer
WS1016	WS	34.17	5.45	28.72	Achieved target depth
WS1017	WS	34.00	3.70	30.30	Terminated due to refusal
WS1018	WS	34.30	4.45	29.85	Terminated due to refusal
WS1021	WS	34.30	3.45	30.85	Terminated due to refusal
WS1024	WS	35.00	5.45	29.55	Achieved target depth
WS1026	WS	33.14	3.45	29.69	Terminated due to refusal
WS2001	WS	34.30*	4.00	30.30	Terminated due to obstruction
WS2002	WS	33.80	3.45	30.35	Terminated due to refusal
WS2003	WS	33.81	2.45	31.36	Terminated due to refusal
WS2004	WS	34.00*	2.45	31.55	Terminated due to refusal
WS2005	WS	34.26*	5.45	28.81	Achieved target depth
WS2006	WS	34.74*	4.45	30.29	Terminated due to refusal
WS2007	WS	30.30*	0.45	29.85	Terminated due to suspected service strike
WS2007A	WS	30.30*	4.10	26.20	Terminated due to refusal
WS2008	WS	30.30*	1.30	29.00	Terminated due to refusal
WS2009	WS	30.30*	2.20	28.10	Terminated due to refusal
FIP1014	FIP	NA	1.10	NA	Base of foundation located
FIP1015	FIP	NA	1.60	NA	Maximum excavation depth
FIP1016	FIP	NA	1.20	NA	Base of foundation located
FIP1017	FIP	33.50*	1.50	32.00	Maximum excavation depth
FIP1022	FIP	34.30*	0.50	33.80	Maximum pilot hole depth
FIP1023	FIP	34.19*	1.00	33.19	Base of foundation located
FIP1024	FIP	NA	1.50	NA	Maximum pilot hole depth
FIP1036	FIP	34.66*	1.60	33.06	Maximum excavation depth
HC1001	CC	35.60	2.00	35.60	Achieved target length
HC1002	CC	34.09	2.00	34.09	Achieved target length

CP = cable percussion borehole; CP + RH = cable percussion with follow on rotary cored borehole; RH = rotary cored hole; WS = window sample borehole; FIP = foundation inspection trial pit; CC = horizontal concrete core; * = ground level estimated from topographical survey; ** = Not Available as internal position; A = located off-wider Sister area.

Prior to breaking ground, exploratory holes were cleared for buried services by a specialist utility contractor utilising a cable avoidance tool (CAT) and signal generator. Coordinates and ground levels were surveyed where possible for each exploratory hole position; however, due to the heights of the surrounding buildings a GPS signal was unable to be achieved at a number of positions. Where no GPS signal was available, the exploratory hole position was measured in from fixed points and the coordinates and ground level generated from the wider Sister area's topographical survey.

Downhole unexploded ordnance (UXO) magnetometer testing was carried out in boreholes which were located within the moderate risk area as identified in the detailed UXO assessment¹⁰ and it is noted that borehole WS1015 was terminated following instruction from the UXO engineer due to an anomalous reading during magnetometer probing.

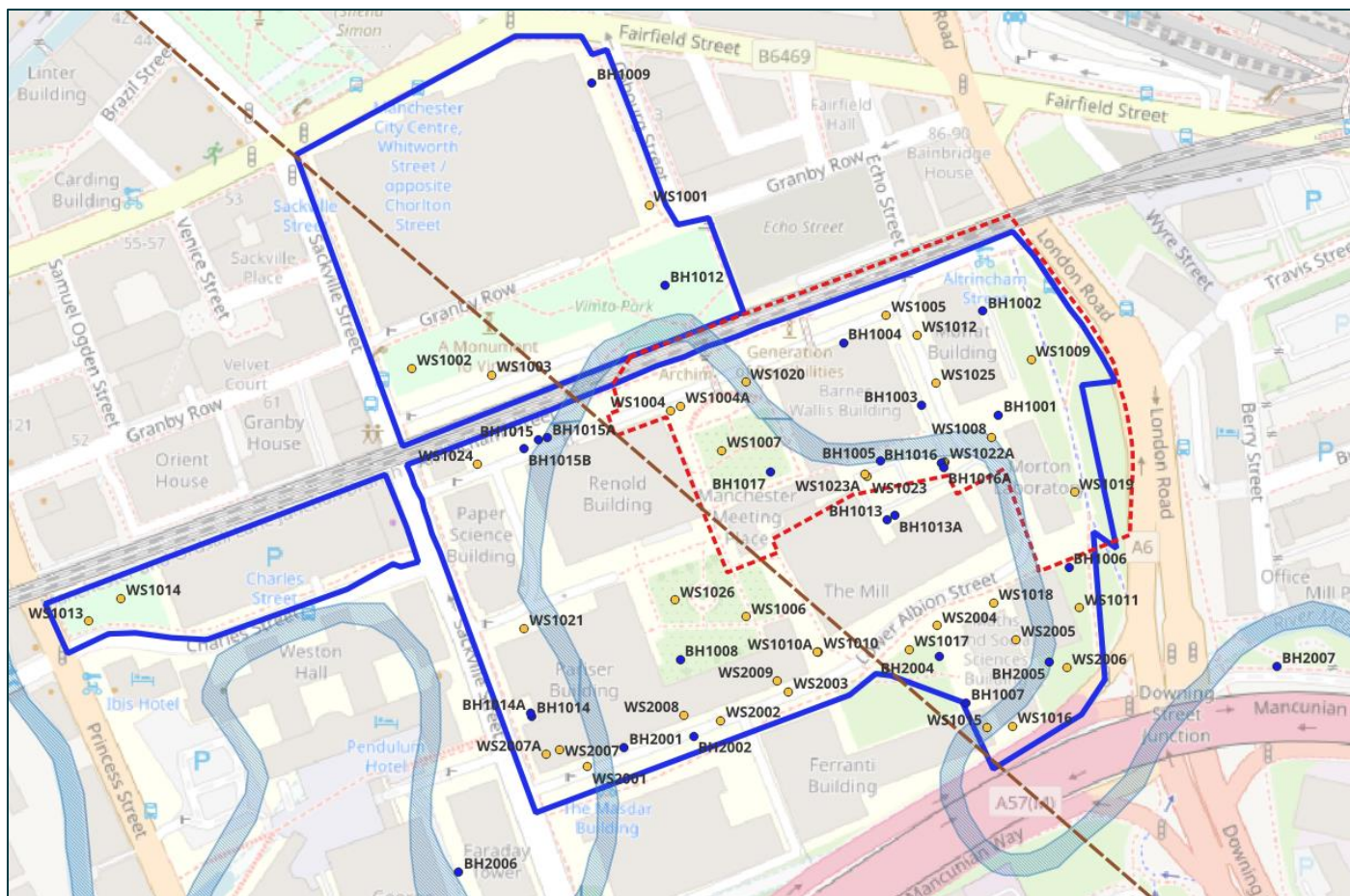
In-situ Standard Penetration Tests (SPTs) were carried out within the cable/rotary boreholes and window sample boreholes. In addition, headspace volatile monitoring with a Photoionisation Detector (PID) was carried out on samples of Made Ground and hand shear vane (HSV) tests where suitable cohesive soil samples were retrieved.

Due to access restrictions at borehole BH1014/BH1014A (originally proposed as a cable percussion borehole), the borehole was undertaken using a window sample terrier rig, which limited the borehole depth. Due to access restrictions to the rear of the MSS Tower, borehole BH2005 (originally proposed as a cable percussion with follow on rotary borehole) was undertaken using a window sample terrier drilling rig, again limiting the borehole depth. Borehole BH2001 was terminated on an obstruction at 4.00mbgl and therefore rotary follow on was not carried out.

The investigations were undertaken in general accordance with the requirements of BS 5930:2015+A1:2020¹⁴ and BS

¹⁴ British Standards Institution (2015) Code of practice for ground investigations. BS 5930:2015+A1:2020.

Plate 8: Illustrative Exploratory Hole Location Plan – Boreholes and Window Sample Boreholes (REMOVE 300)



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4.2. Ground Gas Monitoring

A total of seven ground gas monitoring rounds have been carried out across the wider Sister area, including the boreholes installed within monitoring wells within the site. The ground gas monitoring rounds have been completed on 29 May, 10 June, 26 June, 9 July, 23 July, 7 August and 17 September 2024. A summary of the monitoring wells installed is provided in Table 2 and the ground gas monitoring records are included in [Appendix D](#).

Table 2: Summary of Ground Gas Monitoring Well Response Zones

Location Reference	Target Response Zone	Response Zone Top Depth (mbgl)	Response Zone Base Depth (mbgl)	Response Zone Top Level (mOD)	Response Zone Base Level (mOD)
On-Site Ground Gas Monitoring Locations					
BH1003	Alluvium	4.50	25.00	29.56	9.06
WS1008	Made Ground	0.50	2.00	34.50	33.00
WS1012	Made Ground	1.00	4.00	36.91	33.91
WS1020	Made Ground	1.00	4.00	31.88	28.88
WS1023A	Made Ground	1.00	1.45	32.00	31.55
Wider Sister Area Gas Monitoring Locations					
BH1014A	Made Ground	1.00	4.00	31.62	28.62
WS1001	Made Ground	1.00	5.00	40.50	36.50
WS1006	Made Ground	1.00	1.50	32.62	32.12
WS1014	Made Ground	1.00	2.00	33.30	32.30
WS1016	Made Ground	1.00	5.00	33.17	29.17
WS1024	Made Ground	1.00	3.70	34.00	31.30
WS2001	Made Ground	1.00	4.00	33.30	30.30
WS2002	Made Ground	1.00	3.00	32.80	30.80
WS2004	Made Ground	0.50	1.50	33.50	32.50
WS2006	Made Ground	0.70	1.70	34.04	33.04
WS2007A	Made Ground	1.00	3.80	29.30	26.50
WS2009	Made Ground	1.20	2.00	29.10	28.30

4.3. Groundwater Monitoring

A total of 12 monthly groundwater level monitoring visits have been carried out within the site on 14 and 15 May, 25 June, 23 July, 20 August, 17 September, 12 October, 12 November and 10 December 2024, and 16 January, 12 February, 11 March and 7 April 2025. In addition, groundwater drivers for continuous groundwater level monitoring were installed in boreholes BH1002 within the site, in boreholes BH1006, BH1007, BH1008, BH1013A and BH2002 within the wider Sister area, and within boreholes BH2006 and BH2007 off-site to the east and west.

A summary of the groundwater monitoring wells installed is provided in Table 3 and the groundwater monitoring records are included in [Appendix D](#).

Table 3: Summary of Groundwater Monitoring Well Response Zones

Location Reference	Target Response Zone	Response Zone Top Depth (mbgl)	Response Zone Base Depth (mbgl)	Response Zone Top Level (mOD)	Response Zone Base Level (mOD)
On-Site Groundwater Monitoring Locations					
BH1001	Chester Formation	5.00	25.00	30.24	10.24
BH1002	Chester Formation	5.50	25.00	33.29	13.79
BH1003	Alluvium	4.50	25.00	29.56	9.06
BH1004	Chester Formation	7.00	19.50	29.50	17.00
BH1005	Chester Formation	7.00	16.50	26.51	17.01
BH1016A	Chester Formation	10.00	20.00	24.04	14.04
BH1017	Chester Formation	7.00	18.00	26.30	15.30

Location Reference	Target Response Zone	Response Zone Top Depth (mbgl)	Response Zone Base Depth (mbgl)	Response Zone Top Level (mOD)	Response Zone Base Level (mOD)
WS1008	Made Ground	0.50	2.00	34.50	33.00
WS1009	Glacial Till	1.90	2.60	36.80	36.10
WS1012	Made Ground	1.00	4.00	36.91	33.91
WS1020	Made Ground	1.00	4.00	31.88	28.88
WS1023A	Made Ground	1.00	1.45	32.00	31.55
Wider Sister Area Groundwater Monitoring					
BH1006	Chester Formation	7.00	15.00	27.19	19.19
BH1007	Chester Formation	4.00	15.00	30.10	19.10
BH1008	Chester Formation	3.00	10.50	30.60	23.10
BH1009	Glacial Till	6.00	15.00	34.51	25.51
BH1012	Glacial Till	4.00	5.50	36.60	35.10
BH1013A	Chester Formation	5.00	20.00	28.60	13.60
BH1014A	Made Ground	1.00	4.00	31.62	28.62
BH1015B	Chester Formation	4.50	6.00	29.33	27.83
WS1001	Made Ground	1.00	5.00	40.50	36.50
WS1002	Glacial Till	3.60	4.00	34.80	34.40
WS1006	Made Ground	1.00	1.50	32.62	32.12
WS1014	Made Ground	1.00	2.00	33.30	32.30
WS1016	Made Ground	1.00	5.00	33.17	29.17
WS1024	Made Ground	1.00	3.70	34.00	31.30

4.4. Groundwater Sampling

Three rounds of groundwater sampling of the Principal aquifer within the Chester Formation have been carried out at the site at the boreholes installed as part of the April/May 2024 site investigation; the first on 14 and 15 May 2024, the second on 10 and 11 June 2024 and the third on 25 March 2025 (with two samples obtained on 2 April 2025 from the borehole locations that were inaccessible on 25 March 2025). In addition, groundwater samples were obtained from the perched water and shallow aquifer during the first two rounds where sufficient water was present for sampling.

Two groundwater sampling rounds were also carried out at borehole BH1017 following completion of the borehole on 17 and 28 October 2024, and within borehole BH1016A following completion of the borehole on 25 March and 2 April 2025.

The groundwater sampling records are included in [Appendix D](#).

4.5. Infiltration Testing

Rising head tests were carried out in boreholes BH1003 (Alluvium) within the site, and boreholes BH1009 and WS1002 (Glacial Till) and WS2002 (Made Ground) within the wider Sister area on 10 June 2024. The infiltration results and calculations are included in [Appendix D](#).

4.6. Chemical Laboratory

4.6.1. Soil Testing

Selected soil samples were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical soil testing. The analysis included the following determinants and the results are included in [Appendix E](#).

- pH
- Soil organic matter (SOM);
- Total sulphate as SO_4 ;
- Total cyanide;
- Heavy metal suite (antimony, arsenic, barium, beryllium, boron, cadmium, chromium (III and VI), copper, lead, mercury, nickel, selenium, vanadium and zinc);
- Polycyclic aromatic hydrocarbons (PAH);

- Total petroleum hydrocarbons (TPH);
- Total monohydric phenols;
- BTEX compounds (benzene, toluene, ethylbenzene, xylenes);
- Volatile organic compounds (VOC);
- Semi-volatile organic compounds (SVOC);
- Tributyltin;
- Ammoniacal nitrogen;
- Acid/alkali reserve test;
- Waste Acceptance Criteria (WAC) tests;
- Polychlorinated biphenyls (PCB) tests;
- Asbestos screen and identification; and
- Asbestos quantification (where asbestos was positively identified following initial screen).

4.6.2. Leachate Testing

Selected soil samples were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical soil leachate testing. The analysis included the following determinants and the results are included in [Appendix E](#).

- pH
- Dissolved organic carbon (DOC);
- Total sulphate as SO₄;
- Total cyanide;
- Heavy metal suite (antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium (III and VI), copper, lead, mercury, nickel, selenium, vanadium and zinc);
- PAH;
- TPH; and
- Total monohydric phenols.

4.6.3. Groundwater Testing

Selected water samples were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical water testing. The analysis included the following determinants and the results are included in [Appendix F](#).

- pH
- Dissolved organic carbon (DOC);
- Redox potential;
- Total sulphate as SO₄;
- Ammoniacal nitrogen as N;
- Total cyanide;
- Free cyanide;
- Hardness;
- Heavy metal suite (antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium (III and VI), copper, lead, magnesium, mercury, nickel, selenium, vanadium and zinc);
- Tin;
- Tributyl tin;
- PAH;
- BTEX compounds;
- VOC;
- SVOC;
- TPH; and

- Total monohydric phenols.

4.7. Geotechnical Laboratory Analysis

Selected soil samples were submitted to Geolabs Limited (a UKAS accredited laboratory) for geotechnical testing in general accordance with BS 1377¹⁶. The following tests were scheduled and the results are included in [Appendix G](#).

- Particle size distribution (PSD) (wet sieve);
- PSD sedimentation (by pipette);
- Atterberg (4 Point);
- Single stage quick undrained triaxial;
- Point load strength of rock;
- Uniaxial compressive strength of rock including 3 Nr. determination of Young's Modulus and Poisson's Ratio; and
- Water content; and
- Building Research Establishment (BRE) Special Digest (SD)¹⁷ Suite – including 2:1 water soluble sulphate, 2:1 water soluble chloride, 2:1 water soluble nitrate, water soluble magnesium and pH.

¹⁶ British Standard (2018). Methods of testing for soils for civil engineering purposes. BS 1377:2018.

¹⁷ Building Research Establishment (2006). BRE Special Digest Part 1: Concrete in aggressive ground

5. Ground and Groundwater Conditions

5.1. Summary of Ground Conditions

A summary of the ground conditions encountered during historical Arup and Civic Earth site investigations is provided in the following tables:

- Table 4 – On-Site
- Table 5 – Wider Sister Area
- Table 6 – Sister Masterplan Area (Table 4 and Table 5 combined)

It is noted that the ground conditions recorded in the foundation inspection trial pits are not included in Table 4 to Table 6 and are reported separately in Section 5.12.

Table 4: Summary of Site Investigation Ground Conditions – On-Site

Stratum	Top of Stratum (mbgl)* [mOD]	Thickness (m)
Concrete / bituminous macadam over: <i>Granular horizons:</i> typically loose to medium dense, occasionally very dense, yellow grey brown to grey black cobbly sandy gravel / clayey sandy gravel / cobbly gravelly sand / silty sand. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick, concrete, dolomite, macadam, granite, clinker, wood, sandstone, siltstone and coal. Cobbles are angular of brick and sandstone. Frequent ash noted. <i>Cohesive horizons:</i> typically soft to stiff dark brown slightly sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse of coal, sandstone, brick and concrete. Sand is fine to coarse. Occasional subangular cobble of brick noted. Frequent ash noted. [MADE GROUND]	0.00 [38.79 to 32.88]	>0.30 to 8.40
Very dense light brown grey sandy GRAVEL. Gravel is subrounded fine to coarse of quartzite and sandstone. Stratum encountered in BH1003 only. [ALLUVIUM]	3.00 [31.06]	0.60
Very stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of siltstone and sandstone. Sand is fine to medium. Stratum encountered in WS1009 only. [GLACIAL TILL]	1.80 [36.90]	1.10 to 1.80
Dense to very dense red orange brown SAND / slightly gravelly to gravelly SAND. Sand is fine to coarse with occasional areas of weak cementation. Gravel is angular to subrounded fine to coarse of sandstone and quartz. [WEATHERED CHESTER FORMATION]	2.90 to 8.40 [35.80 to 27.80]	0.20 to >20.10
Extremely weak to weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, moderately cemented. Rare subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly infilled with fine to medium sand, some clean. Stratum encountered in BH1001, BH1003, BH1004 and BH1005. [CHESTER FORMATION]	4.50 to 13.50 [29.56 to 23.00]	>0.40 to >20.50

Table 5: Summary of Site Investigation Ground Conditions – Wider Sister Area

Stratum	Top of Stratum (mbgl)* [mOD]	Thickness (m)
Vegetation overlying soft dark brown silty gravelly silt / slightly sandy silt. Sand is fine to medium. Stratum encountered in ARP-BH005, ARP-TP002, WS1011, WS1013, WS1014, WS1017 and WS2006 only. [TOPSOIL]	0.00 [34.74 to 33.42]	0.10 to 0.30
<i>Granular horizons:</i> typically loose to medium dense, occasionally very dense, yellow grey brown to grey black cobbly sandy gravel / clayey sandy gravel / cobbly gravelly sand / silty sand. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick, concrete, dolomite, macadam, granite, clinker, wood, sandstone, siltstone and coal. Cobbles are angular of brick and sandstone. Frequent ash noted. <i>Cohesive horizons:</i> typically soft to stiff dark brown slightly sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse of coal, sandstone, brick and concrete.	0.00 to 0.30 [41.50 to 30.30]	>0.10 to 8.10

Stratum	Top of Stratum (mbgl)* [mOD]	Thickness (m)
Sand is fine to coarse. Occasional subangular cobble of brick noted. Frequent ash noted. [MADE GROUND]		
Medium dense to very dense light brown to red brown sandy GRAVEL / gravelly SAND / black silt. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of siltstone, sandstone, quartz, mudstone, flint and limestone. Occasional gravel of coal noted. [ALLUVIUM]	1.40 to 7.00 [32.54 to 27.22]	0.30 to 4.50
Loose to very dense red orange brown SAND / slightly gravelly to gravelly SAND. Sand is fine to coarse with occasional areas of weak cementation. Gravel is angular to subrounded fine to coarse of sandstone and quartz. Occasional pockets of soft red brown clay noted. [WEATHERED CHESTER FORMATION]	0.90 to 9.40 [34.90 to 25.08]	>0.10 to >11.50
Extremely weak to weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, moderately cemented. Rare subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly infilled with fine to medium sand, some clean. [CHESTER FORMATION]	3.00 to 10.50 [31.81 to 22.58]	Proven to 21.50mbgl [11.92mOD]

Table 6: Summary of Site Investigation Ground Conditions – Sister Masterplan Area

Stratum	Top of Stratum (mbgl)* [mOD]	Thickness (m)
Vegetation overlying soft dark brown slightly sandy silt. Sand is fine to medium. Occasional roots up to 10mm in diameter noted. Stratum encountered in ARP-BH005, ARP-TP002, WS1011, WS1013, WS1014, WS1017 and WS2006 only. [TOPSOIL]	0.00 [34.74 to 33.42]	0.10 to 0.30
<i>Granular horizons:</i> typically loose to medium dense, occasionally very dense, yellow grey brown to grey black cobbly sandy gravel / clayey sandy gravel / cobbly gravelly sand / silty sand. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick, concrete, dolomite, macadam, granite, clinker, wood, sandstone, siltstone and coal. Cobbles are angular of brick and sandstone. Frequent ash noted. <i>Cohesive horizons:</i> typically soft to stiff dark brown slightly sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse of coal, sandstone, brick and concrete. Sand is fine to coarse. Occasional subangular cobble of brick noted. Frequent ash noted. [MADE GROUND]	0.00 to 0.30 [41.50 to 30.30]	>0.10 to 8.40
Medium dense to very dense light brown to red brown sandy GRAVEL and gravelly SAND. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of siltstone, sandstone, quartz, mudstone, flint and limestone. Occasional gravel of coal noted. Cohesive horizon of firm dark grey brown slightly sandy silty CLAY recorded in borehole BH1015B. [ALLUVIUM]	1.40 to 7.00 [32.54 to 27.22]	0.30 to 4.50
Stiff to very stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse of coal, siltstone and sandstone. Sand is fine to coarse. Granular horizon of medium dense slightly gravelly SAND recorded in borehole BH1009. [GLACIAL TILL]	0.55 to 3.70 [39.96 to 34.80]	0.40 to 5.25
Loose to very dense red orange brown SAND / slightly gravelly to gravelly SAND. Sand is fine to coarse with occasional areas of weak cementation. Gravel is angular to subrounded fine to coarse of sandstone and quartz. Occasional pockets of soft red brown clay noted. [WEATHERED CHESTER FORMATION]	0.90 to 8.40 [35.80 to 25.08]	>0.10 to >20.10
Extremely weak to weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, moderately cemented. Rare subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly infilled with fine to medium sand, some clean. [CHESTER FORMATION]	3.00 to 13.50 [31.81 to 22.58]	Proven to 25.00mbgl [9.06mOD]

*Boreholes WS2007, WS2007A, WS2008 and WS2009 metres below basement level.

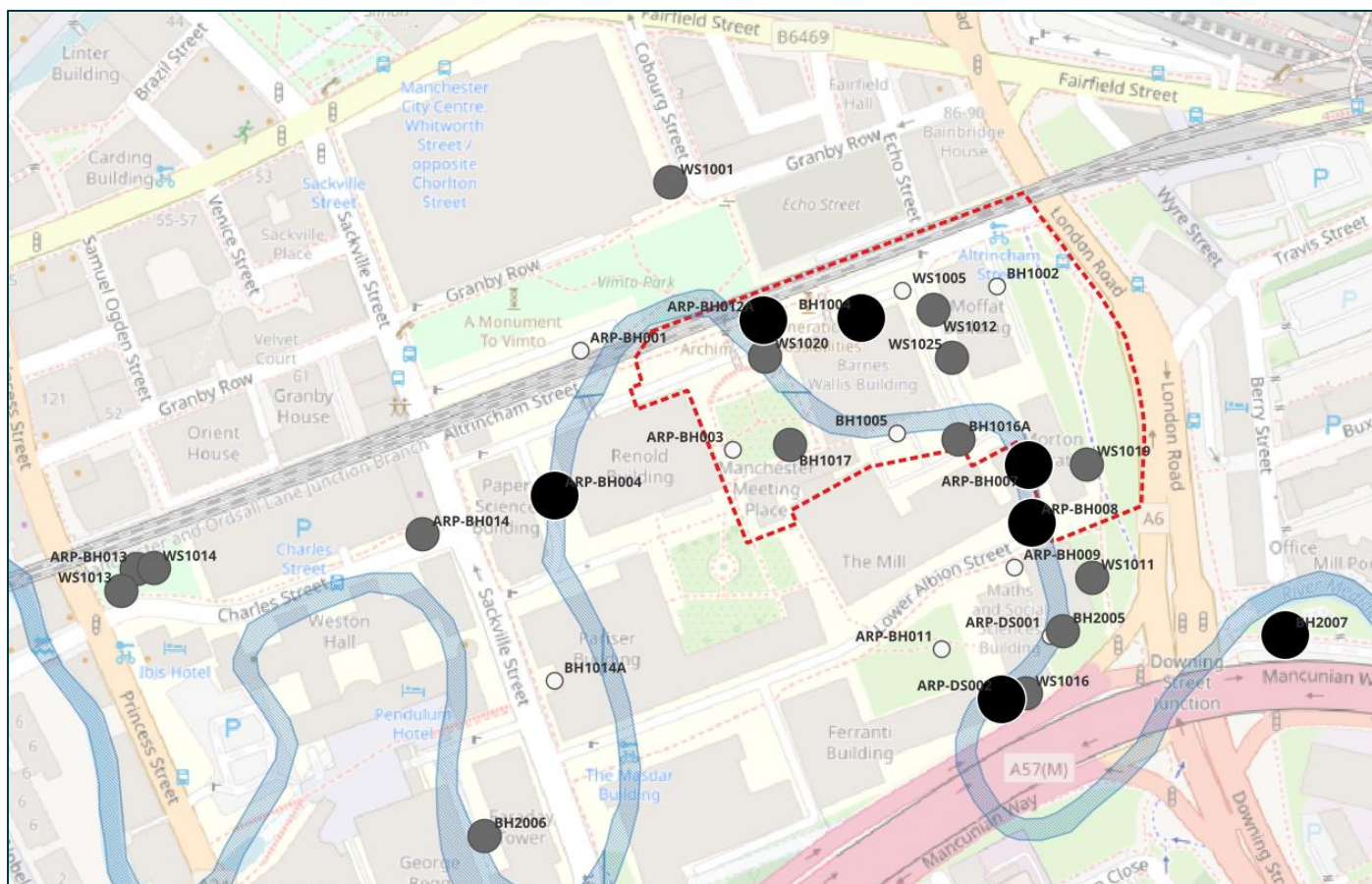
5.2. Topsoil

Topsoil was recorded in exploratory holes ARP-BH005, ARP-TP002, WS1011, WS1013, WS1014, WS1017 and WS2006. The topsoil was recorded to range between 0.10m and 0.30m in thickness. Due to the limited thickness of the stratum, no in-situ testing was carried out. In addition, geotechnical testing was not carried out on the topsoil as topsoil is considered to be unsuitable for re-use within bulk earthworks and it is understood that topsoil will be stripped as part of the redevelopment for potential re-use and/or off-site disposal.

5.3. Made Ground

Made Ground was encountered from below hardstanding, topsoil or from surface at each exploratory hole location and comprised both granular horizons and cohesive horizons, both of variable consistency and density. The Made Ground deposits ranged up to 8.40m in thickness with an average thickness of approximately 3m. Locations where the Made Ground was recorded to be in excess of 4m, 5m and 6m are illustrated in Plate 10. As anticipated, boreholes with an increased thickness of Made Ground are predominantly located within the infilled river channel as well as in the east of the site where existing ground level is raised to the level of Altrincham Street. It is also noted that Made Deposits considered likely to be infilled river channel deposits were recorded in borehole WS2007A within the footprint of the Pariser building.

Plate 10: Locations of Made Ground >4m (White), >5m (Grey) and >6m (Black)



A total of 114 SPTs were undertaken within the granular Made Ground horizons where SPT N60 values ranged from 2 to >50 corresponding to 'very loose' to 'very dense' granular deposits¹⁴. It is noted that the frequent presence of cobbles within the Made Ground potentially influenced the SPT results in some locations, particularly where >50 values were recorded. A total of 30 SPTs were undertaken within the cohesive Made Ground horizons where SPT N60 values ranged typically from 4 to 40, correlating to a 'soft to very stiff clay'. Of note, an SPT was undertaken in borehole BH2007 at 6.0mbgl which recorded a value of >50; however this test was carried out on the upper surface of a buried brick obstruction and is therefore not considered to be representative of the Made Ground deposits. Similarly an SPT N60 value of >50 was recorded in borehole BH2006 at 1.20mbgl where the test was also undertaken on the upper surface of a buried brick and concrete structure. A summary of the SPT N60 values versus level are provided in Plate 11 (granular) and Plate 12 (cohesive).

Plate 11: SPT N60 versus Level (mOD) – Made Ground (Granular)

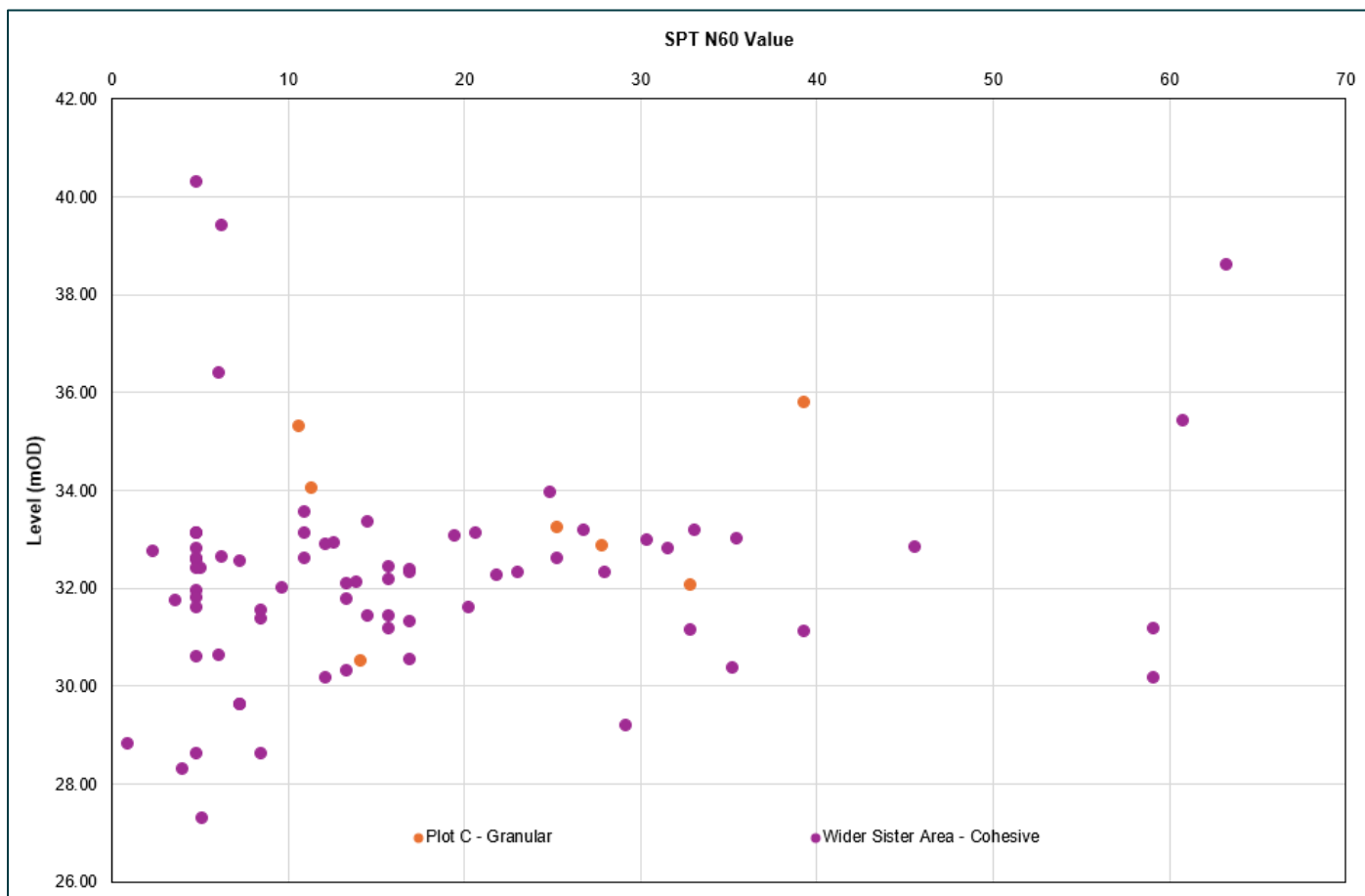
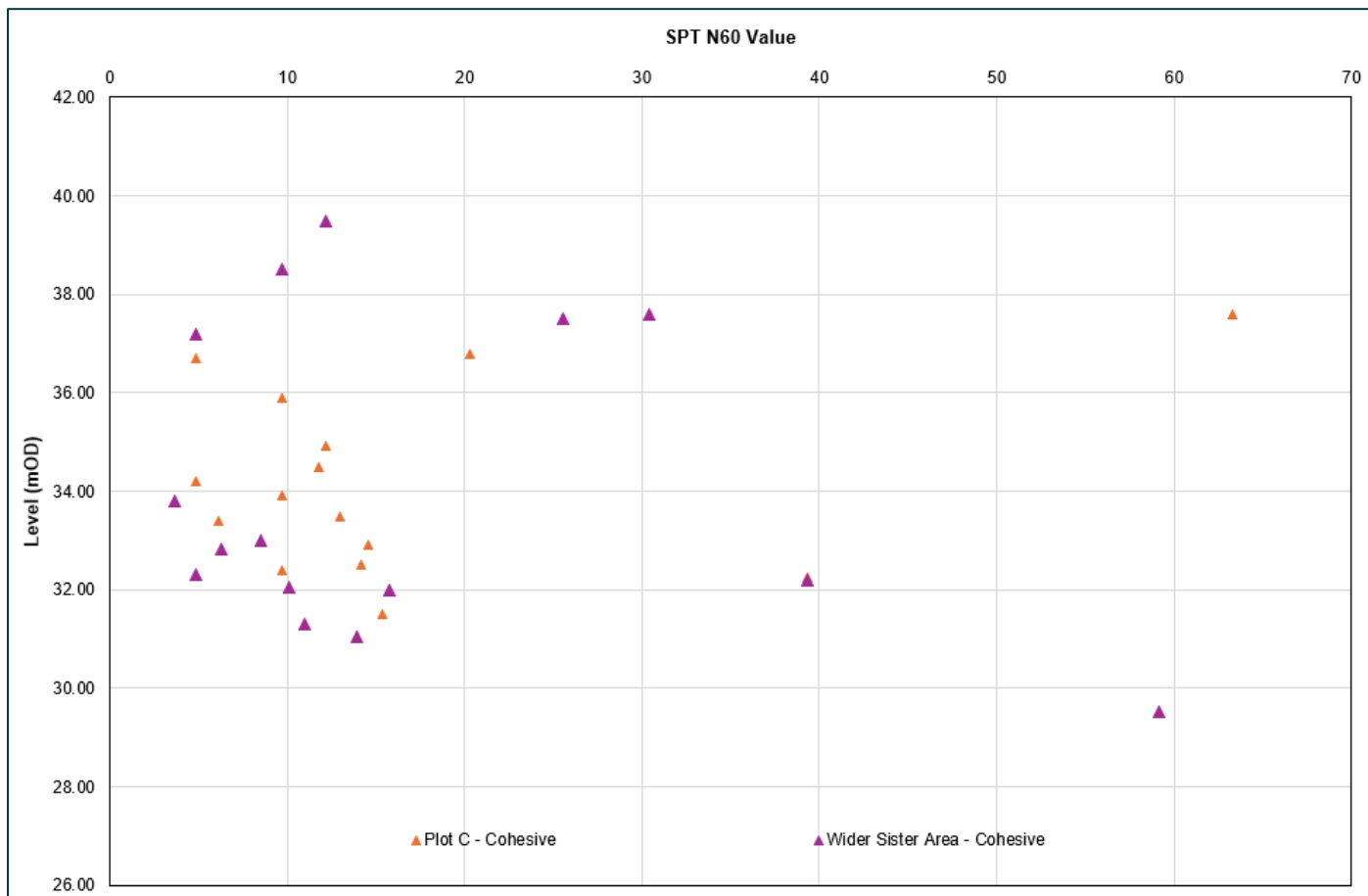


Plate 12: SPT N60 versus Level (mOD) – Made Ground (Cohesive)



A total of 18 HSV tests carried out in the cohesive Made Ground deposits recorded undrained shear strengths (c_u) between 43kPa and 215kPa, correlating to clay of 'medium to very high' strength¹⁴; however, it is noted that the granular inclusions in the Made Ground may have influenced the tests.

Sulphate and pH testing was undertaken on samples of the Made Ground retrieved during the ground investigation. The results are summarised in Table 7.

Table 7: Summary of pH and Sulphate Testing – Made Ground

Number of Tests	pH	Water Soluble SO ₄ * (mg/l)	Water Soluble Chloride* (mg/l)	Water Soluble Nitrate as N* (mg/l)
29	6.9 to 12.2	4.36 to 812	1.3 to 28	<2 to 7.4

*2:1 Leachate Equivalent

A single PSD test was undertaken on a selected sample from the Made Ground and the results are provided in Table 8.

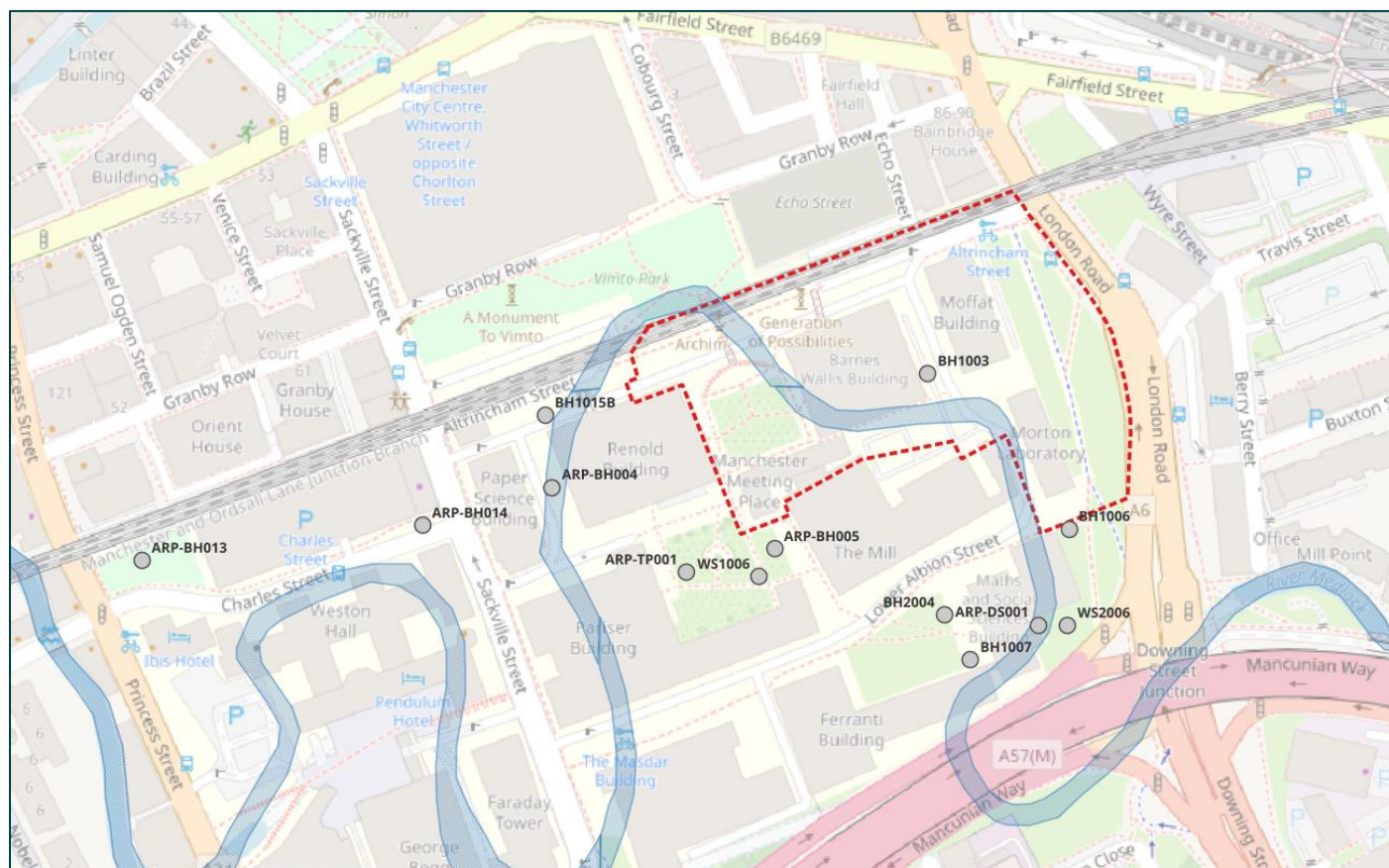
Table 8: Summary of PSD Testing – Made Ground

Number of Tests	Cobble Content (%)	Gravel Content (%)	Sand Content (%)	Silt Content (%)	Clay Content (%)
1	0.0	18.2	61.4	15.5	4.9

5.4. Alluvium

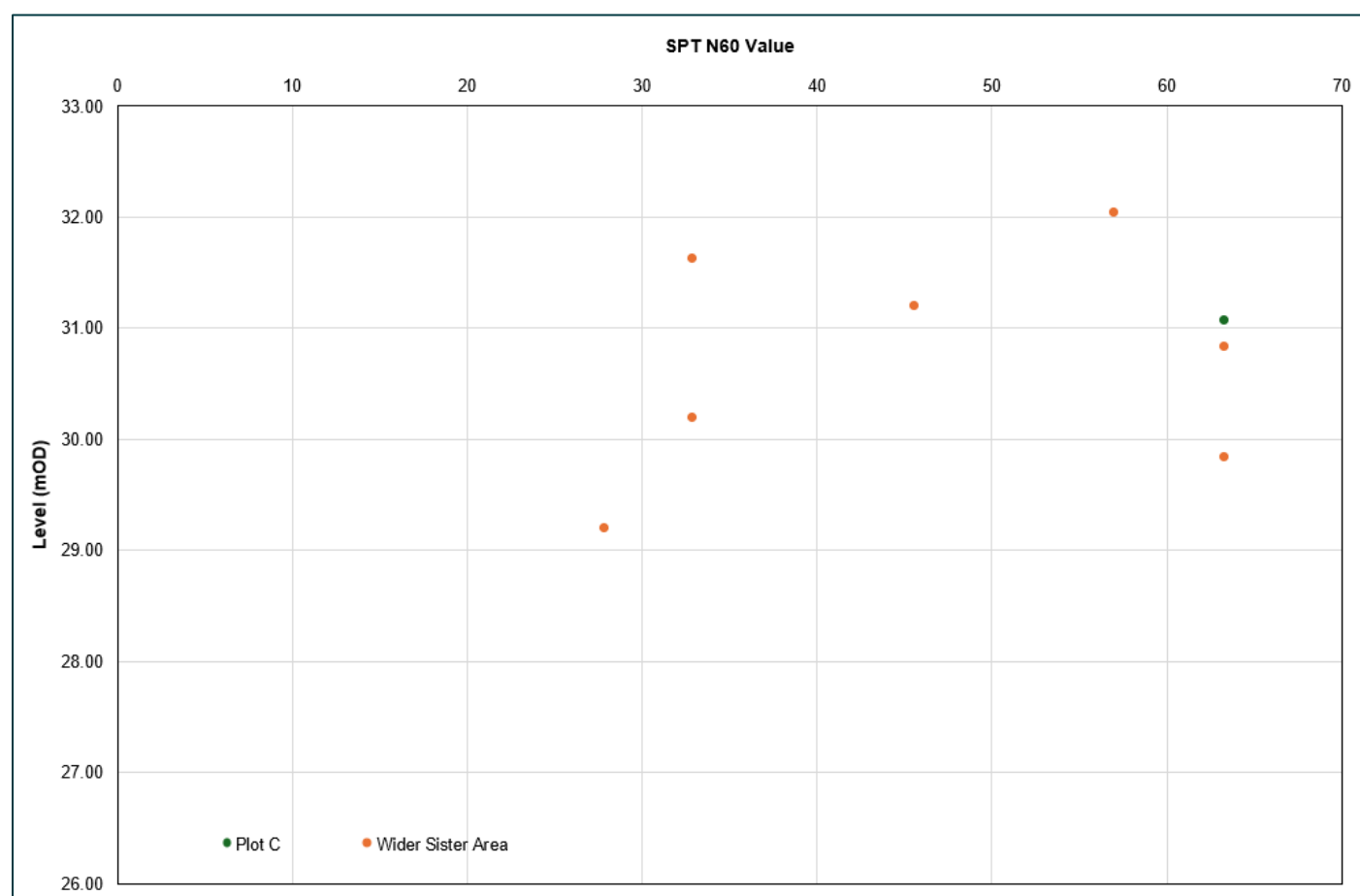
Superficial deposits of Alluvium were encountered in exploratory holes ARP-DS001, BH004, BH005, BH013, BH014, TP001, BH1003, BH1006, BH1007, BH1015B, BH2004, WS1006 and WS2006. The top of the superficial deposits was recorded between 32.54mOD and 27.22mOD and recorded to range between 0.30m and 4.50m in thickness. The distribution of the deposits of Alluvium are illustrated in Plate 13. The deposits were predominantly recorded in the southeast of the wider Sister area where published geological mapping has mapped the deposits; however, it is not unexpected that further deposits have been encountered along and within the historical route and floodplain of the River Medlock.

Plate 13: Distribution of Alluvium



A total of 7 SPTs were undertaken within the granular Alluvium horizons where SPT N60 values ranged from 28 to >50 corresponding to 'medium dense' to 'very dense' granular deposits¹⁴. A single SPT was undertaken within the cohesive Alluvium horizon which recorded an SPT N60 value of >50, correlating to 'very stiff' clay¹⁴. A summary of the SPT N60 values recorded within each area is provided in Plate 14.

Plate 14: SPT N60 versus Level (mOD) – Alluvium



The result of the triaxial test undertaken on an undisturbed sample of the Alluvium from borehole BH1015B returned an undrained shear strength of 36kPa, correlating to clay of low strength¹⁴.

PSDs tests were undertaken on selected granular samples from Alluvium and the results are provided in Table 9. The results of the testing indicate the material to comprise a slightly gravelly to gravelly, slightly clayey to clayey/silty sand.

Table 9: Summary of PSD Testing – Alluvium

Number of Tests	Cobble Content (%)	Gravel Content (%)	Sand Content (%)	Silt Content (%)	Clay Content (%)
3	0.0	6.1 to 21.7	62.1 to 71.5	14.3	5.4
				12.4 to 31.7	

A summary of the classification testing undertaken on a sample of the cohesive horizon of Alluvium is provided in Table 10. The results of the classification testing indicate the material to be clay of low plasticity¹⁴ with a negligible volume change potential¹⁸.

Table 10: Summary of Classification Testing – Alluvium

Number of Tests	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	% Passing (>450µm)	Modified Plasticity Index (%)
1	18.2	27	17	74	7.4

Sulphate and pH testing was undertaken on samples of Alluvium retrieved during the site investigation. The results are summarised in Table 11.

¹⁸ NHBC (2013) NHBC Standards. Chapter 4.2 Building near trees.

Table 11: Summary of pH and Sulphate Testing – Alluvium

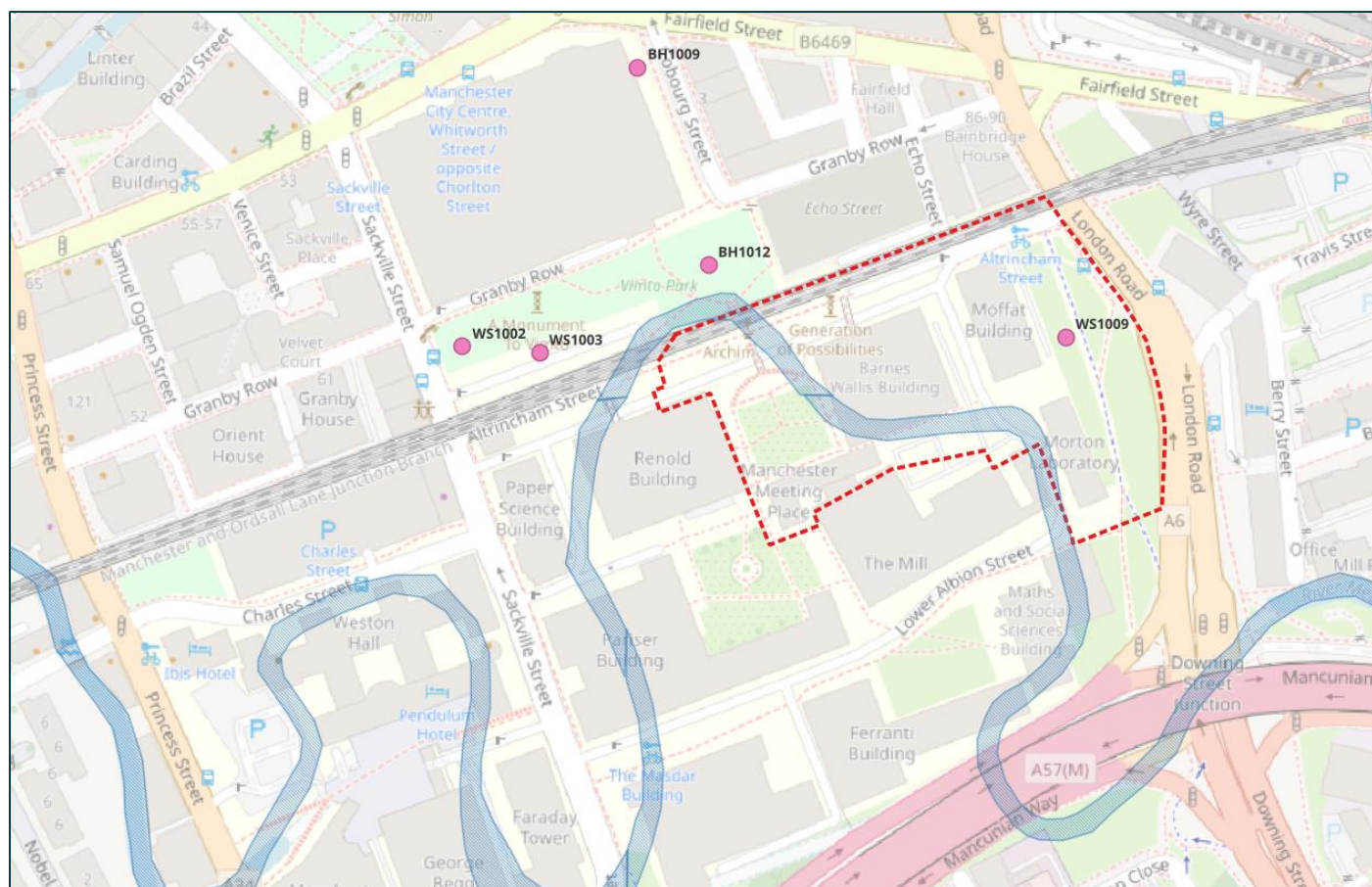
Number of Tests	pH	Water Soluble SO ₄ * (mg/l)	Water Soluble Chloride* (mg/l)	Water Soluble Nitrate as N* (mg/l)
4	7.8 to 8.4	5.2 to 1260	1.4 to 12	<2.0

*2:1 Leachate Equivalent

5.5. Glacial Till

Superficial deposits of Glacial Till were encountered in boreholes BH1009, BH1012, WS1002, WS1003 and WS1009, each located in the northern zone of the wider Sister area with the exception of borehole WS1009 which is located in the east of the site. The top of the superficial deposits was recorded between 39.96mOD and 34.80mOD and recorded to range between 0.40m and 5.25m in thickness. The distribution of the deposits of Glacial Till are illustrated in Plate 13 which correlate to higher historical (and current) ground elevations, suggesting that the River Medlock historically eroded down into and through the Glacial Till deposits.

Plate 15: Distribution of Glacial Till



A total of 10 SPT tests were undertaken in the Glacial Till which recorded SPT N60 values between 14 and >50, correlating to 'firm to very stiff' deposits¹⁴. Correlated c_u values ranged from 63kPa to 285kPa (assuming $f_1 = 4.5^{19}$), correlating to very low to very high strength material¹⁴. Triaxial testing was scheduled on undisturbed samples of the Glacial Till; however, the laboratory was unable to test the samples which broke into untestable pieces on extraction from the sample tubes. A summary of the SPT N60 values and undrained shear strengths versus level are provided in Plate 16 and Plate 17 respectively.

¹⁹ Stroud, M. A. (1974). The Standard Penetration Test in Insensitive Clays and Soft Rocks. Proceedings of the European Symposium on Penetration Testing, Stockholm, June 5-7, 1974 2(2): 367-375

Plate 16: SPT N60 versus Level (mOD) – Glacial Till

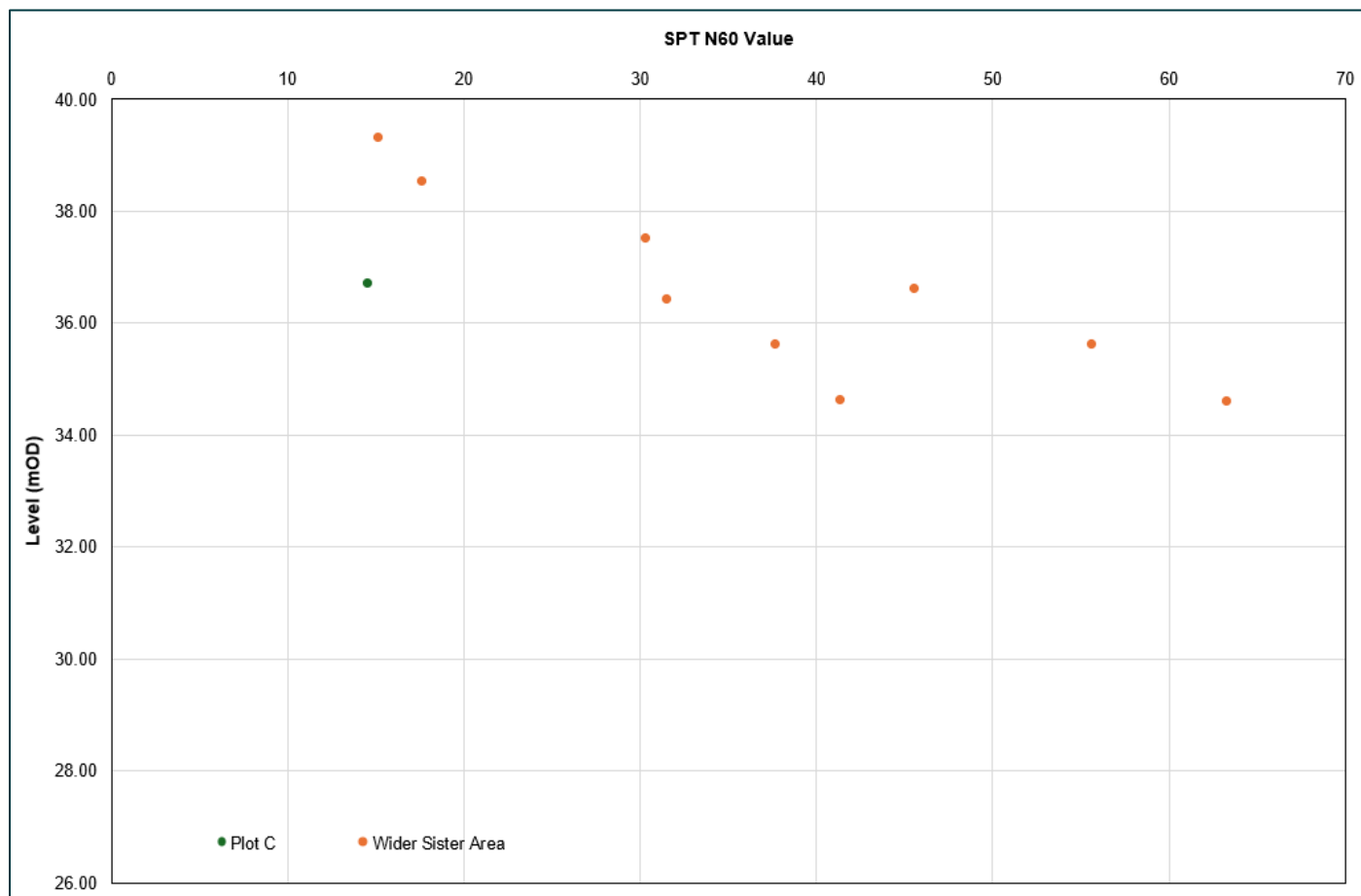
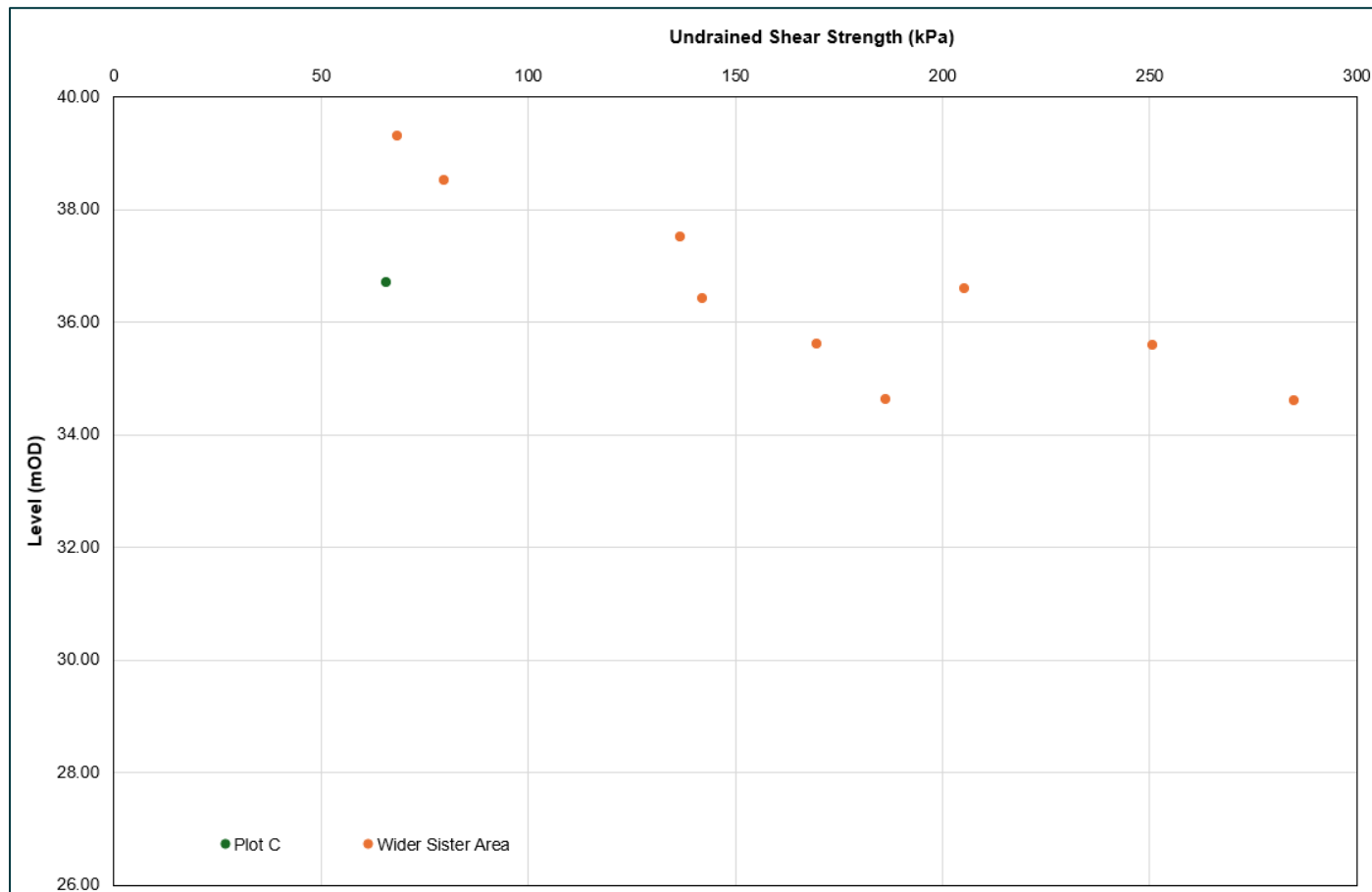


Plate 17: Undrained Shear Strength versus Level (mOD) – Glacial Till



A summary of the classification testing undertaken on samples of the Glacial Till is provided in Table 12.

Table 12: Summary of Classification Testing – Glacial Till

Number of Tests	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	% Passing (>450µm)	Modified Plasticity Index (%)
5	19.6 to 26.3	33 to 56	15 to 22	87 to 100	14.2 to 31.6

Sulphate and pH testing was undertaken on samples of Alluvium retrieved during the site investigation. The results are summarised in Table 13.

Table 13: Summary of pH and Sulphate Testing – Glacial Till

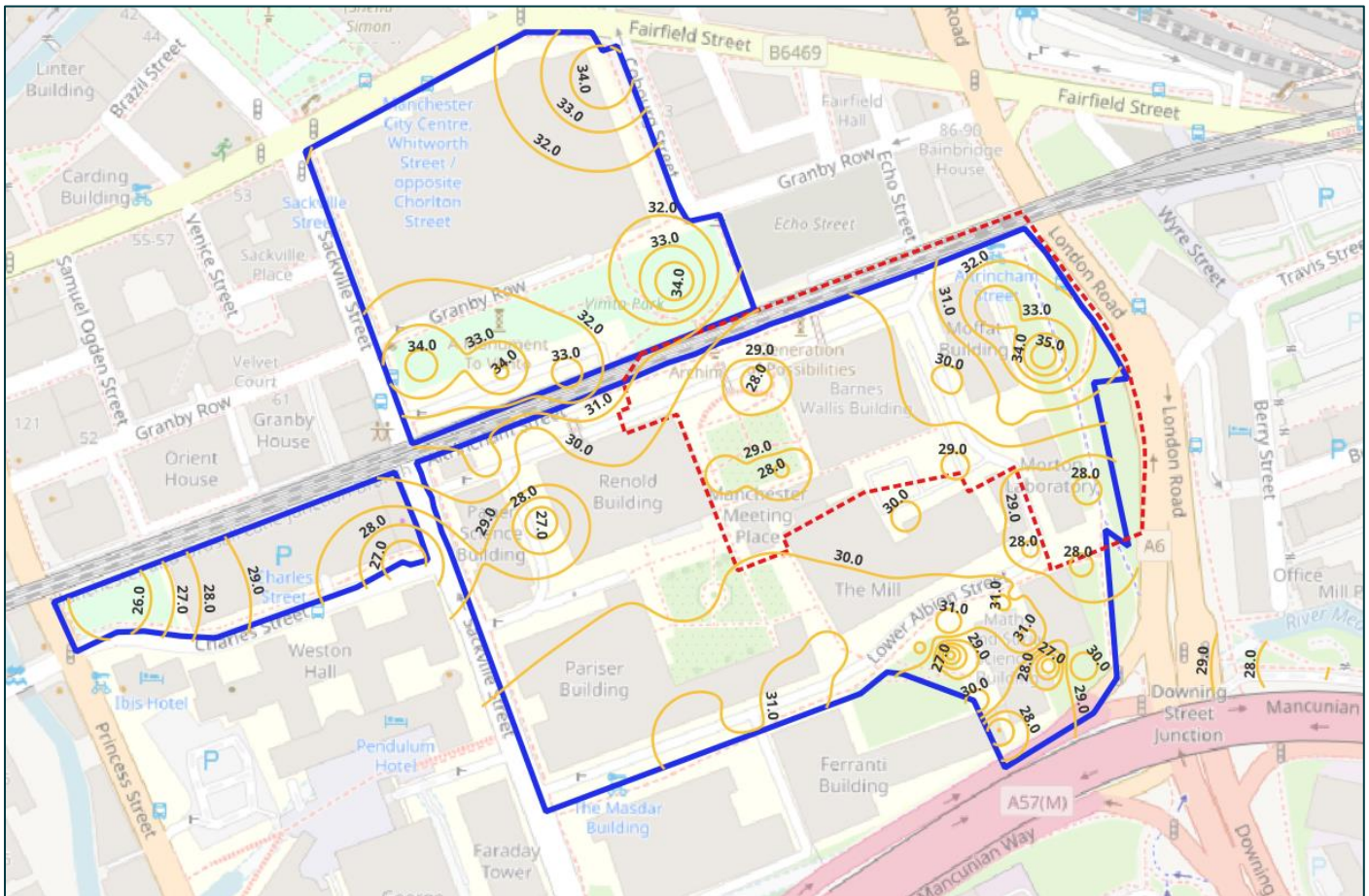
Number of Tests	pH	Water Soluble SO ₄ * (mg/l)	Water Soluble Chloride* (mg/l)	Water Soluble Nitrate as N* (mg/l)
3	8.0 to 8.5	22.6 to 67	1.4 to 8.2	<2.0

5.6. Chester Formation – Sandstone

The weathered Chester Formation, typically recovered as a dense to very dense sand with areas of weak cementation, was encountered between 35.80mOD and 25.08mOD and ranged between >0.10m and >20.10m in thickness. The upper surface of the more competent bedrock, typically recovered as an extremely weak to weak sandstone, was encountered between 31.81mOD and 22.58mOD and proven to the maximum borehole penetration depth of 25.00mbgl (9.06mOD).

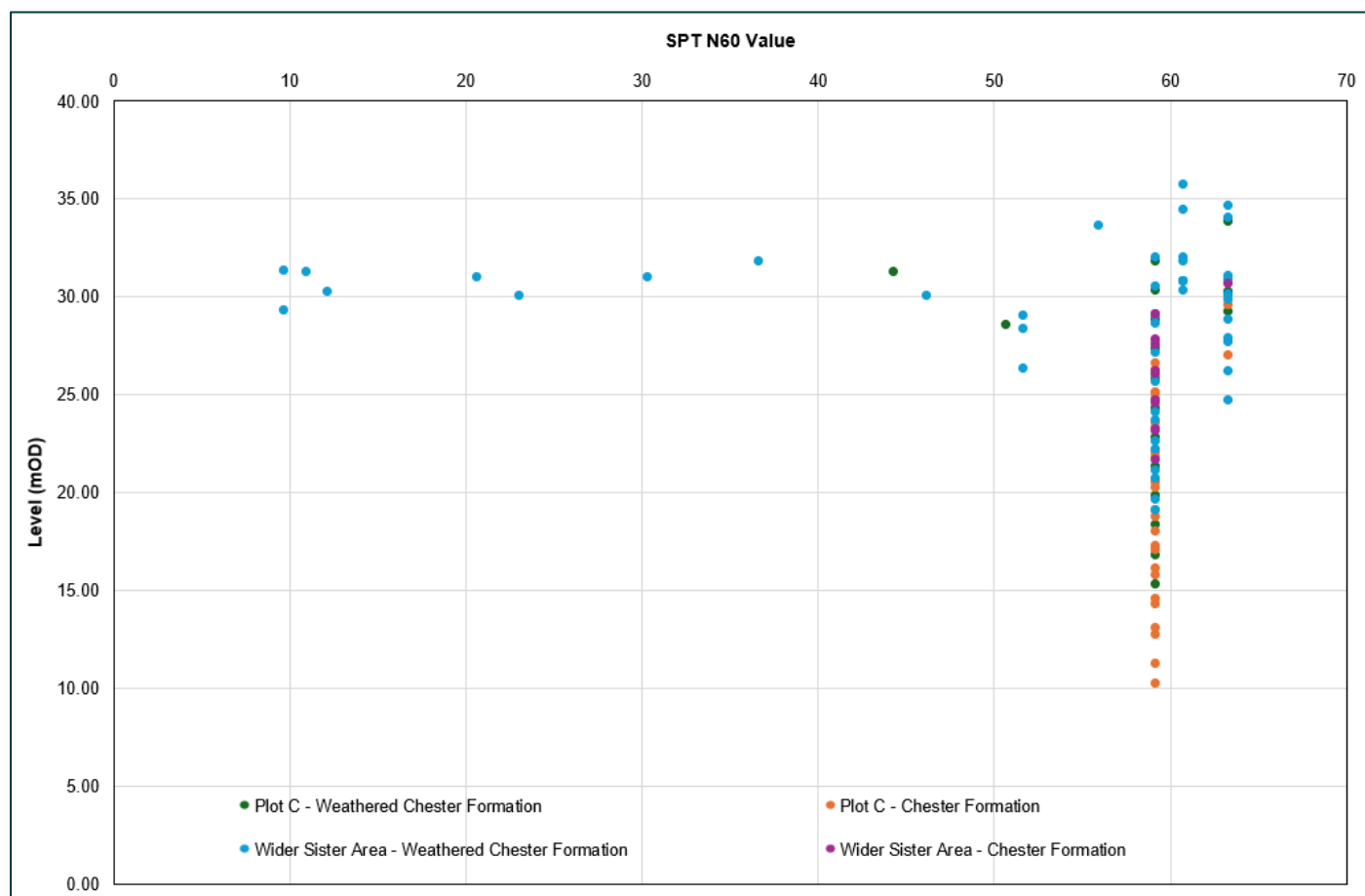
An indicative contour plot of the upper surface of the bedrock is illustrated in Plate 18. The contours have interpreted the upper surface of the sandstone based on the level recorded at the time of investigation at these specific points. Actual levels may vary depending on the actual ground conditions, noting that the top surface of the sandstone is likely to have been influenced by natural and man-made processes, which are likely to have resulted in rapid variation on the level between points. The contours were initially modelled using the exploratory holes where sandstone was encountered. The levels of the contours were then compared against the level of the base of exploratory holes that did not encounter sandstone. Where the base of the exploratory hole was below the level of the contour, the contours were re-modelled assuming that the sandstone was at least 250mm below the base of the exploratory hole. It is noted that the bedrock levels recorded in boreholes WS2007A, WS2008 and WS2009 have been excluded as these boreholes were undertaken from basement level where the construction of the Pariser building are likely to have influenced the top of sandstone level.

Plate 18: Indicative Contour Plot of Upper Surface Level (mOD) of Chester Formation



A total of 69 SPTs were carried out within the Weathered Chester Formation where SPT N60 values were typically recorded as >50 corresponding to 'very dense' granular deposits¹⁴. Ten SPT N60 values of 9 to 46 were recorded, corresponding to 'loose to dense' granular deposits¹⁴. A total of 42 SPTs were carried out in the competent Chester Formation, typically where the bedrock was recovered as sand as opposed to rock in the rotary cores. The SPT N60 values were recorded to be >50. A summary of the SPT N60 values versus level are provided in Plate 19.

Plate 19: SPT N60 versus Level (mOD) – Chester Formation



A summary of the PSD tests undertaken on selected samples from the Chester Formation is provided in Table 14. The results of the testing indicate the material to typically comprise slightly silty, clayey gravelly to very gravelly sands and slightly clayey, slightly gravelly silty sands.

Table 14: Summary of PSD Testing – Chester Formation

Number of Tests	Cobble Content (%)	Gravel Content (%)	Sand Content (%)	Silt Content (%)	Clay Content (%)
24	0.0	0.0 to 39.4	54.6 to 97.3	7.4 to 20.4	2.9 to 12.4
				1.8 to 34.1	

Sulphate and pH testing was undertaken on samples of the Chester Formation retrieved during the site investigation. The results are summarised in Table 15.

Table 15: Summary of pH and Sulphate Testing – Chester Formation

Number of Tests	pH	Water Soluble SO ₄ * (mg/l)	Water Soluble Chloride* (mg/l)	Water Soluble Nitrate as N* (mg/l)
13	8.2 to 9.3	3.73 to 63.4	1.3 to 5.8	<2.0

*2:1 Leachate Equivalent

Unconfined compressive strength (UCS) tests were carried out on core samples retrieved from boreholes BH1004, BH1005, BH1008, BH2002, BH2004, BH2006 and BH2007. The results of the 8 UCS tests recorded UCS values between 5.21MPa and 11.3MPa. The Young's Modulus was determined on three samples as 0.768GPa to 2.31GPa with the Poisson's Ratio determined as 0.03MPa to 0.47MPa.

A total of 16 Point Load Tests were carried out with the recorded Point Load Index typically ranging between 0.03MPa and 0.19MPa, with a higher result of 0.71MPa recorded in borehole BH1003 at 15.00mbgl. Applying the Broch and Franklin conversion of 24 to the point load test results, a corresponding UCS typically between 0.72MPa and 4.56MPa with an average of 2.3MPa is estimated. The Point Load Tests of 0.71MPa converts to an estimated UCS of 17.0MPa. The recorded and estimated UCS values typically correlate to an extremely weak to weak rock¹⁴ (moderately weak in borehole BH1003 at 15.00mbgl). The heavy fracturing / weathered zones interbedded with the more competent sandstone is likely to be influencing the strength of the sandstone.

It is noted that additional rock cores scheduled for UCS testing were stated to be unsuitable for testing by the laboratory following failure in the re-coring process to obtain a suitable sample for analysis.

5.7. Obstructions

A summary of the obstructions encountered during the site investigation is provided in Table 16.

Table 16: Summary of Obstructions encountered during Site Investigation

Location	Top Depth of Obstruction (mbgl)	Top Level of Obstruction (mOD)	Thickness of Obstruction (m)	Details of Obstruction Encountered
BH1013	0.40	33.00	Not Proven	Concrete obstruction encountered.
BH1013A	2.60	30.80	0.80	Possible brick wall.
BH1014	2.20	30.42	Not Proven	Concrete obstruction encountered.
BH1015	0.90	32.36	Not Proven	Concrete obstruction encountered.
BH1015A	1.00	32.00	Not Proven	Concrete obstruction encountered.
BH1016	1.10	32.93	Not Proven	Concrete obstruction encountered.
BH1016A	1.10	1.20	0.10	Concrete obstruction encountered.
BH1016A	3.60	3.70	0.10	Reinforced concrete obstruction encountered.
BH2001	4.00	30.04	Not Proven	Concrete obstruction encountered.
WS1004	0.70	32.18	Not Proven	Concrete obstruction encountered.
WS1004A	0.60	32.36	Not Proven	Brick obstruction encountered.
WS1010	0.10	33.66	Not Proven	Concrete obstruction encountered.
WS1015	3.45*	30.63	Not Proven	Possible positive UXO reading.
WS1022	0.70	33.33	Not Proven	Brick obstruction encountered.
WS1022A	0.90	33.13	Not Proven	Concrete obstruction encountered.
WS1022B	1.20	31.84	Not Proven	Concrete obstruction encountered.
WS1023	0.20	32.80	Not Proven	Concrete obstruction encountered.
WS2001	4.00	30.30	Not Proven	Concrete obstruction encountered.
FIP1001	0.21	34.03	Not Proven	Concrete obstruction encountered.
FIP1002	0.32	33.75	Not Proven	Concrete obstruction encountered.
FIP1004	0.48	33.58	Not Proven	Concrete obstruction encountered.
FIP1006	0.37	35.63	Not Proven	Concrete and brick obstructions encountered.
FIP1010	1.00	32.08	Not Proven	Suspected concrete obstruction encountered.

*Depth at which UXO Engineer advised drilling to cease due to elevated magnetometer signal.

5.8. Visual and Olfactory Potential Contamination

Olfactory and visual signs of potential hydrocarbon contamination (strong hydrocarbon odour and oily sheen in the borehole water flush) were noted within borehole BH1005 at 16.50mbgl within the sandstone bedrock. The borehole was terminated at 16.50mbgl on encountering the contamination. A hydrocarbon odour and sheen were observed on the groundwater during the groundwater sampling rounds at borehole BH1005. It is noted that no visual or olfactory evidence of hydrocarbon evidence was recorded in borehole BH1017 which is downgradient of borehole BH1005.

In addition, a potential hydrocarbon or organic sheen was observed on the groundwater extracted from borehole WS1002 during the second groundwater sampling round. Black staining was noted on the concrete recovered from borehole BH1016A between 3.60mbgl and 3.70mbgl.

Olfactory signs of potential hydrocarbon contamination were noted within borehole WS2003 with a slight hydrocarbon odour recorded between 0.40mbgl and 0.70mbgl. Occasional black staining was then observed between 0.70mbgl and 1.90mbg in the same borehole.

A high ash content / frequent ash was generally recorded within the Made Ground as well as fragments of clinker and slag. The fragments of clinker and slag were recorded in boreholes WS1001, WS1003, WS1005, WS1012, WS1022, WS1022A, WS1022B and WS1024. The presence of foreign materials such as bricks, concrete, coal, and ceramic was noted within the Made Ground.

Headspace PID analysis was carried out on samples of Made Ground during the site investigation with concentrations between 0.0ppm and 8.9ppm recorded.

5.9. Groundwater

Groundwater was encountered during the site investigation as detailed in Table 17.

Table 17: Summary of Groundwater Strikes during Site Investigation

Location	Stratum	Strike Depth (mbgl)	Strike Level (mOD)	Depth after 20 Mins (mbgl)	Level after 20 Mins (mOD)	Rise in Depth after 20 Mins (m)
BH1001	Chester Formation	10.50	24.74	10.50	24.74	0.00
BH1002	Chester Formation	14.40	24.39	14.50	24.29	-0.10
BH1003	Chester Formation	10.00	24.06	10.00	24.06	0.00
BH1004	Chester Formation	14.20	22.30	14.10	22.40	0.10
BH1005	Made Ground	3.60	29.91	3.50	30.01	0.10
BH1005	Chester Formation	15.60	17.91	15.60	17.91	0.00
BH1006	Alluvium	3.70	30.49	3.70	30.49	0.00
BH1006	Chester Formation	9.50	24.69	9.50	24.69	0.00
BH1007	Made Ground	3.00	31.10	3.00	31.10	0.00
BH1007	Chester Formation	10.30	23.80	10.30	23.80	0.00
BH1008	Chester Formation	9.80	23.80	9.80	23.80	0.00
BH1009	Chester Formation	13.00	27.51	13.00	27.51	0.00
BH1013A	Chester Formation	9.90	23.70	9.90	23.70	0.00
BH1015B	Chester Formation	5.10	28.73	5.10	28.73	0.00
BH1017	Chester Formation	12.65	20.65	12.50	20.80	0.15
BH2002	Chester Formation	10.50	23.31	10.50	23.31	0.00
BH2006	Chester Formation	8.70	22.04	8.70	22.04	0.00
BH2007	Chester Formation	7.80	27.36	7.30	27.36	0.50
WS1019	Made Ground	3.00	30.30	3.00	30.30	0.00

A total of 12 groundwater level monitoring rounds have been undertaken following completion of the site investigation and the results are summarised in Table 18.

Table 18: Summary of Groundwater Monitoring

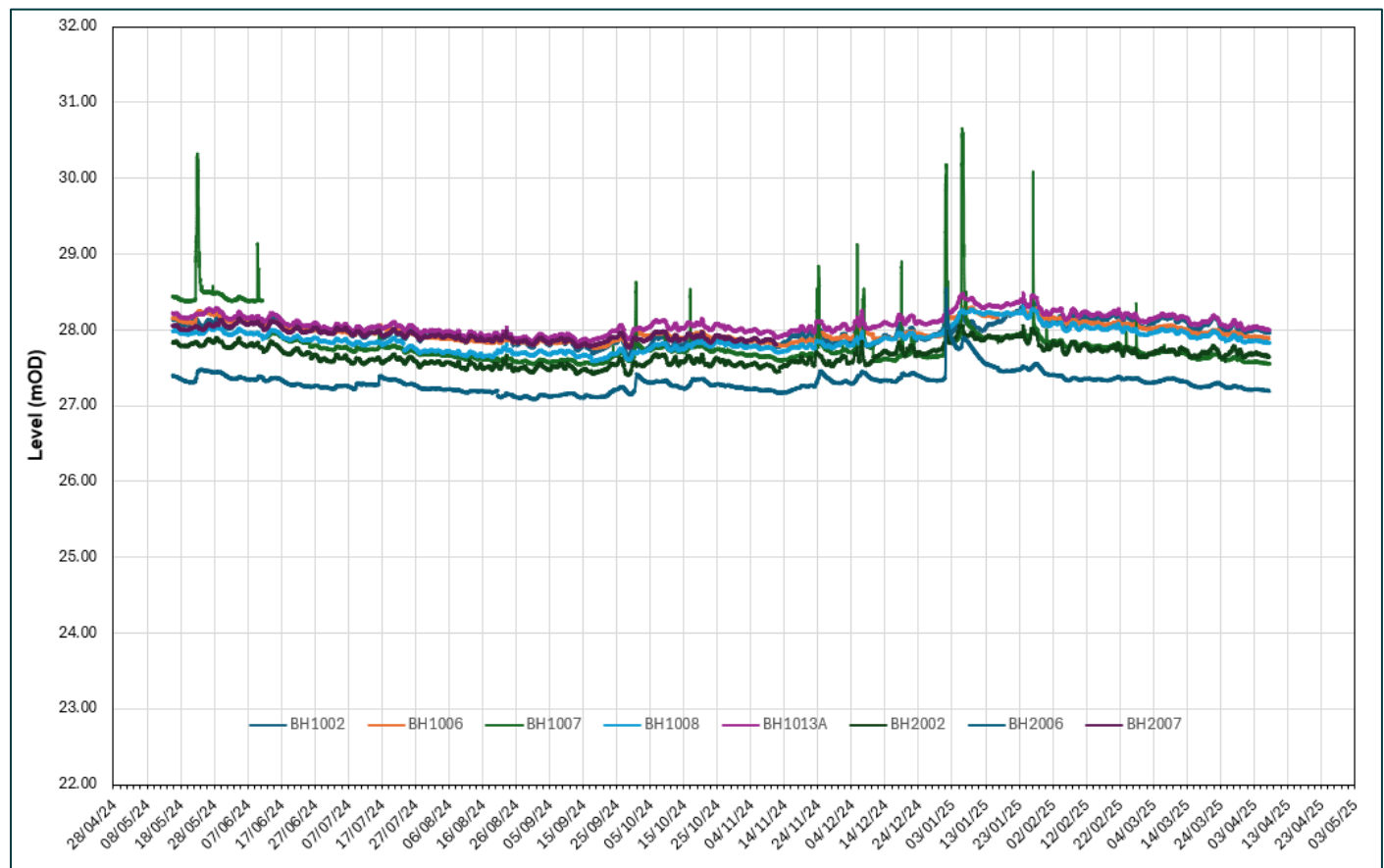
Location	Depth to Groundwater (mbgl / mOD)																							
	14/05/24		25/06/24		23/07/24		20/08/24		17/09/24		17/10/24		12/11/24		10/12/24		16/01/25		12/02/25		11/03/25		07/04/25	
Made Ground Response Zone																								
BH1014A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	Dry	Dry	NA	NA	NA	NA
WS1001	Damp	Damp	4.30	37.20	4.00	37.50	4.00	37.50	Dry	Dry	Dry	Dry	Dry	Dry	3.96	37.54	3.99	37.51	3.97	37.53	Dry	Dry	4.00	37.50
WS1006	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS1008	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	NA	NA	Dry	Dry	Dry	Dry	Dry	Dry
WS1012	4.10	33.81	4.11	33.80	3.46	34.45	4.80	33.11	4.20	33.71	Dry	Dry	4.35	33.56	3.14	34.77	3.72	34.19	4.05	33.86	3.48	34.43	Dry	Dry
WS1014	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS1016	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	4.10	30.07	Dry	Dry	Dry	Dry	Dry	Dry
WS1020	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Damp	Damp	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS1023A	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	Dry	Dry	NA	NA	Dry	Dry	Dry	Dry	Dry
WS1024	Damp	Damp	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	Dry	Dry	Dry	Dry
BH2005	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS2001	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS2002	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS2004	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS2006	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Alluvium Response Zone																								
BH1003	Damp	Damp	Damp	Damp	Damp	Damp	Damp	Damp	NA	NA	NA	NA	NA	NA	Damp	Damp	NA	NA	Dry	Dry	Dry	Dry	Dry	Dry
Glacial Till Response Zone																								
BH1009	Damp	Damp	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
BH1012	Damp	Damp	4.04	36.56	3.88	36.72	4.20	36.40	4.18	36.42	4.01	36.59	3.48	37.12	3.40	37.20	3.15	37.45	3.66	36.94	3.91	36.96	Dry	Dry
WS1002	3.57	34.83	3.54	34.86	3.60	34.80	3.60	34.80	3.70	34.70	3.75	34.65	3.80	34.60	3.62	34.78	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
WS1009	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	NA	NA	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA
Chester Formation Response Zone																								
BH1001	6.96	28.28	NA	NA	7.22	28.02	7.47	27.77	8.14	27.10	6.00	29.24	7.27	27.97	NA	NA	6.38	28.86	6.95	28.29	6.97	28.27	7.07	28.17
BH1002	10.61	28.16	10.60	28.19	10.88	27.91	11.40	27.39	11.60	27.19	10.60	28.19	10.96	27.83	10.90	27.89	10.61	28.18	10.75	28.04	10.52	28.27	10.76	28.03
BH1004*	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	Dry	Dry	NA	NA	Dry	Dry	Dry	Dry	Dry	Dry
BH1005	5.20	28.31	5.32	28.19	5.44	28.07	5.40	28.11	5.67	27.84	5.32	28.19	NA	NA	NA	NA	NA	NA	5.17	28.34	NA	NA	5.38	28.13

Location	Depth to Groundwater (mbgl / mOD)																							
	14/05/24		25/06/24		23/07/24		20/08/24		17/09/24		17/10/24		12/11/24		10/12/24		16/01/25		12/02/25		11/03/25		07/04/25	
BH1006	6.00	28.19	NA	NA	6.21	27.98	6.36	27.83	6.50	27.69	6.22	27.97	6.37	27.82	7.21	26.98	5.92	28.27	6.04	28.15	6.10	28.09	6.24	27.95
BH1007	5.65	28.45	5.86	28.24	5.81	28.29	NA	NA	6.13	27.97	5.82	28.28	5.99	28.11	5.83	28.27	5.50	28.60	5.57	28.53	5.73	28.37	5.89	28.21
BH1008	5.57	28.03	5.72	27.88	6.09	27.51	10.60	23.00	6.07	27.53	5.79	27.81	5.89	27.71	5.77	27.83	5.35	28.25	5.56	28.04	5.64	27.96	5.78	27.82
BH1013A	5.33	28.27	5.46	28.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.51	28.09	NA	NA	NA	NA	5.51 ^a	28.09 ^a	NA	NA
BH1015B	Damp	Damp	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Dry ^a	Dry ^a	NA	NA
BH1016A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.95 ^a	28.15 ^a	5.97 ^b	28.13 ^b
BH1017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.78 ^a	27.82 ^a	NA	NA
BH2002	5.92	27.89	6.03	27.78	6.16	27.65	6.35	27.46	6.30	27.51	6.10	27.71	10.58	23.23	6.11	27.70	5.83	27.98	5.94	27.87	5.98	27.83	6.10	27.71
BH2004	5.79	28.25	6.95	27.09	6.02	28.02	NA	NA	6.35	27.69	NA	NA	6.32	27.72	5.99	28.05	5.88	28.16	5.75	28.29	5.85	28.19	5.98	28.06
BH2006	3.33	27.41	3.43	27.31	NA	NA	NA	NA	NA	NA	NA	NA	3.54	27.20	NA	NA	3.20	27.54	3.25	27.49	3.36	27.38	3.48	27.26
BH2007	7.10	28.06	7.21	27.95	7.29	27.87	7.68	27.48	7.60	27.56	7.32	27.84	7.32	27.84	7.32	27.84	7.00	28.16	7.07	28.09	7.12	28.04	7.20	27.69
WS2005	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	NA	NA	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry

NA = Not accessible during monitoring visit; * = borehole standpipe blocked at approximately 2.9mbgl.

Groundwater drivers for continuous groundwater level monitoring were installed in boreholes BH1002, BH1006, BH1007, BH1008, BH1013A, BH2002, BH2006 and BH2007 during the first monitoring round in May 2024, and removed from the boreholes in April 2025. The data collected from the divers are illustrated in Plate 20. In addition, data recorded during the monitoring visits where the data logger was removed from the borehole to retrieve the data has been omitted. The data from the diver within borehole BH2007 from 12 November 2024 has also been omitted due to a fault with the diver. The diver was removed from the borehole and sent for repair.

Plate 20: Continuous Groundwater Level Data (May 2024 to April 2025)



The groundwater level results indicate the presence of perched water within the Made Ground and Glacial Till and there is considered to be the potential for further shallow perched water given the variable nature of the Made Ground material and superficial deposits.

The depth to groundwater in the Principal aquifer within the Chester Formation was recorded between 29.24mOD and 23.0mOD during the spot groundwater monitoring rounds, with the continuous groundwater monitoring indicating similar levels between approximately 28.5mOD and 27.0mOD with the exception of borehole BH1007. Groundwater level within borehole BH1007 was recorded at approximately 28.5mOD until 11 June 2024, after which the groundwater level was recorded to be at approximately 27.8mOD. Two 'spikes' in groundwater level were also recorded around 22 May to 24 May 2024 (groundwater level increasing to approximately 30.4mOD) and around 9 and 10 June 2024 (groundwater level increasing to approximately 29.1mOD); increases of approximately 0.5m to 1.0m. No external changes, such as above ground construction works within the borehole area which may have influenced the groundwater data logger, were noted in the vicinity of the borehole during the monitoring visits. A review of the monthly precipitation Met Office data for May and June indicates that there was "exceptionally wet weather" in Manchester from 21 May to 23 May²⁰, which may have resulted in the short term increases in groundwater level around borehole BH1007. Heavy rainfall was also recorded on 9 June 2024²¹. Similar 'spikes' in increased groundwater level were later recorded at the end of September, early October, late November, December and early January. It is considered likely that heavy rainfall as well as the basement structures of MSS and the boreholes proximity to the historical River Medlock channel may also be influencing the groundwater level and/or flow within the sandstone bedrock within this area.

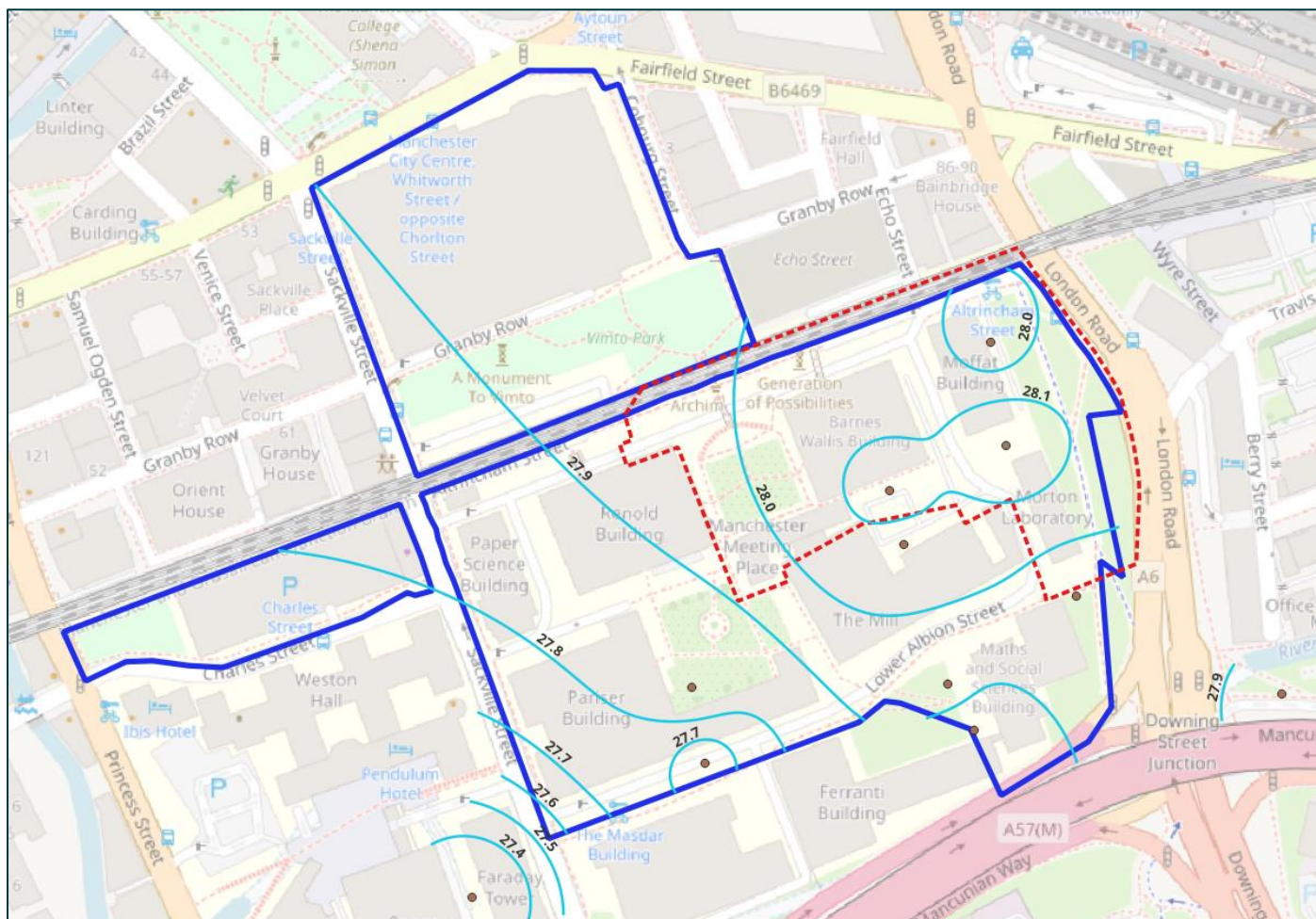
An indicative contour plot of the Principal aquifer groundwater level is illustrated in Plate 18. The contours have interpreted the groundwater level based on the average level recorded during the spot and continuous monitoring (where

²⁰ Met Office (2024) *Exceptionally Wet Weather, 21 to 23 May 2024*. Accessed online on 17 October 2024: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2024/2024_05_wet_weather.pdf

²¹ Met Office (2024) *June 2024 Monthly Weather Report*. Accessed online on 17 October 2024: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/summaries/mwr_2024_06_for_print.pdf

applicable) at the specific borehole points. Actual levels may vary depending on the actual groundwater conditions, noting that the groundwater flow is likely to be influenced by fractures within the sandstone bedrock, buried infrastructure across the wider Sister area (e.g. historical buried structures, existing basements and foundations) and the historical channel of the River Medlock.

Plate 21: Indicative Contour Plot of Principal Aquifer Level (mOD)



5.10. Infiltration Tests

Falling head tests were undertaken within the Made Ground (WS2001), the Alluvium (BH1003) and the Glacial Till (BH1009 and WS1002) during the groundwater monitoring round on 10 June 2024. A summary of each test is provided in Table 19.

Table 19: Summary of Infiltration Test Results

Borehole	Stratum	Base of Borehole (mbgl)	Initial Groundwater Level (mbgl)	Water Level – Start of Test (mbgl)	Water Level – End of Test (mbgl)	Infiltration Rate (m/s)
WS1002	Glacial Till	3.94	3.31	3.30	3.34	Fail
WS2002	Made Ground	2.90	1.90	1.90	1.90	Fail
BH1003	Alluvium	3.46	2.90	2.90	2.97	Fail
BH1009	Glacial Till	5.21	4.20	4.21	4.99	Fail

Negligible to very low change in water level was recorded during each of the tests and infiltration rates are therefore unable to be calculated. On the basis of these results, conventional soakaways are not likely to be effective within these deposits. It is also noted that given the conceptual site model, soakaway infiltration into/within the Made Ground is not recommended.

Whilst infiltration testing was not carried out within the sandstone, recharge of the water column during groundwater sampling was noted to be good with minimal change in the water level recorded after bailing of three times the water column. PSD analysis of the sandstone indicates the material to typically comprise slightly silty, clayey gravelly to very gravelly sands and slightly clayey, slightly gravelly silty sands, which correlates to estimated infiltration rates of low to

medium permeability (1×10^{-3} to 1×10^{-7} m/s)²². Infiltration testing would be required to confirm infiltration rates in the sandstone.

5.11. Ground Gas

Seven rounds of ground gas monitoring have been carried out between May and September 2024. The monitoring rounds were carried out in atmospheric pressures ranging between 999 to 1027mbar in falling, steady and rising pressure systems. A summary of the worst-case ground gas monitoring results is provided in Table 20. The worst-case scenario includes maximum steady flow, maximum steady carbon dioxide and maximum (peak) methane recorded at each borehole over the seven monitoring rounds.

Table 20: Summary of Ground Gas Conditions

Location	Stratum	Steady Flow Rate (l/hr)	Maximum Steady CO ₂ (% vol. in air)	Maximum CH ₄ (% vol. in air)	Maximum PID (ppm)
On-Site Ground Gas Monitoring Locations					
BH1003	Alluvium	0.0	5.3	0.0	0.3
WS1008	Made Ground	0.0	0.1	0.0	0.3
WS1012	Made Ground	0.0	1.2	0.0	0.2
WS1020	Made Ground	0.0	3.5	0.0	1.1
WS1023A	Made Ground	0.0	21.1	0.0	1.1
Wider Sister Area Ground Gas Monitoring Locations					
BH1014A	Made Ground	0.0	0.3	0.0	0.1
WS1001 ^A	Made Ground	0.0	1.8	0.0	0.0
WS1006	Made Ground	0.0	9.5	0.0	0.5
WS1014	Made Ground	0.0	0.5	0.0	0.1
WS1016	Made Ground	0.0	1.3	0.0	0.1
WS1024 ^C	Made Ground	0.0	0.1	0.0	0.0
WS2001 ^D	Made Ground	0.0	0.2	0.0	0.1
WS2002	Made Ground	0.0	0.3	0.0	1.5
WS2004	Made Ground	0.0	0.9	0.0	0.3
WS2006	Made Ground	0.0	4.9	0.0	0.1
WS2007A ^B	Made Ground	0.0	6.5	0.0	0.0
WS2009 ^B	Made Ground	0.0	0.1	0.0	0.0

Notes: Monitoring attempted at each borehole excluding WS2007A and WS2009 on six occasions, with monitoring of boreholes WS2007A and WS2009 only on Round 7. A = Unable to be monitored during first two rounds as borehole not accessible / gas tap open on opening cover. B = One monitoring round only as boreholes installed during third phase of site works. C = Unable to be monitored on 1st, 3rd, 4th and 5th rounds as borehole not accessible. D = Inaccessible on 2nd round.

5.12. Retaining Wall Investigation

Four horizontal core investigations were undertaken at the Altrincham Street retaining wall to investigate the thickness of the brick wall. Previous investigation by Arup included the extension of three cores 2m into the retaining wall and the construction of the retaining wall was found to comprise a “strong orange red brick with moderately strong, light grey mortar” which, as the core holes progressed into the wall, became poorly bonded mortar. Arup concluded that the full thickness of the wall was not proven; however, borehole ARP-BH012A which was located above core hole ARP-HC003 and 4.7m north of the retaining wall encountered Made Ground from ground level to a depth of 10.40mbgl which was considered to demonstrate that at that position, the Altrincham Street retaining wall is at least 2m in thickness, but less than 4.7m in thickness.

The Civic Earth core investigations (HC1001 to HC1004) proved the full thickness of the retaining wall at each of the four locations, with a thickness between 2.00m and 2.50m recorded. The composition of the wall varied between brick and concrete of good condition to poor condition (recovered as gravel).

A foundation inspection pit was excavated to a depth of 1.50mbgl against to the Altrincham Street Retaining Wall and the base of the foundation was not encountered. The brickwork of the retaining wall was set onto a concrete foundation which stepped out 450mm from the wall with the concrete extending to at least 1.50mbgl. It is recommended that additional investigation is undertaken to confirm the foundation details of the retaining wall, and it is noted that Civic

²² CIRIA (2016) Groundwater Control: Design and Practice. CIRIA C750.

Engineers are developing a scope of site investigation for Civic Earth to undertake to obtain the structural information that they require in this area for the detailed design of the service tunnel along the alignment of Altrincham Street.

A foundation inspection pit (FIP1004) was also carried out adjacent to the retaining wall to the east of the Wright Robinson building, which retains the soils below Service Road / Lower Albion Street. A concrete slab was encountered at 0.48mbgl which was proven to extend 1.10m west from the retaining wall. A concrete corbel was encountered at 0.02mbgl to 0.39mbgl above the concrete slab and the soils beneath the concrete corbel were probed which confirmed the retaining wall was still present at this depth.

5.13. Holloway Wall

Preliminary investigation was carried out in April and May 2024³ at the Holloway Wall which included the excavation of 4 foundation inspection pits to a maximum depth of 1.60mbgl to investigate the construction details of the Holloway Wall. The preliminary investigation concluded that the foundations of the wall are at a greater depth and supplementary investigation was therefore undertaken in October 2024 by Civic Earth. The findings of the supplementary investigation are reported under a separate cover to this report⁶.

5.14. Existing UOM Structures

A series of foundation inspection pits were undertaken adjacent to the existing UOM structures to obtain information on structures to be retained and/or deconstructed. A summary of the findings of the investigations is provided in Plate 30.

Table 21: Summary of Foundation Inspection Pits

UOM Structure	Locations	Summary of Investigation Findings
Barnes Wallis	FIP1001, FIP1002, FIP1005	A concrete slab was encountered between 0.21mbgl and 0.32mbgl within FIP1001 and FIP1002 in the foundation inspection pits which was proven to extend around the targeting columns. Removal of ventilation plate in wall to south of FIP1001 revealed a service tunnel and it is considered that the concrete corbel encountered is likely to be the top of the service tunnel. The tunnel measured 1.4m wide and 3.6m deep. A pilot hole investigation was undertaken internally with pilot holes drilled between 200mm and 2500mm from target the column. The concrete thickness was proven to be greater than 700mm at each probe location and the column did not appear to be set on a pad with thinner floor slab between columns.
Wright Robinson	FIP1003	The foundation was not encountered at maximum excavation depth of 1.57mbgl. A concrete pad of 230mm thickness was encountered at 0.18mbgl which extended 330mm out from building wall. The concrete wall then continued below concrete pad to trial pit termination depth.
Moffat	FIP1006, FIP1007	The foundation of the southern building wall was not encountered due to a concrete obstruction and brick wall of adjacent manhole, however, the underside of the concrete foundation on the east side of the building was encountered at 1.00mbgl.
Morton Laboratory	FIP1018 to FIP1021	A pilot hole investigation was undertaken internally with pilot holes drilled between 500mm and 2500mm away from wall (FIP1020). An initial layer of concrete was proven to 0.60mbgl followed by soil between 0.60mbgl and 1.10mbgl. A second layer of concrete was encountered between 1.10mbgl to maximum pilot hole depth of 1.60mbgl. A concrete core subsequently undertaken 1000mm away from wall to confirm soil material between 0.60mbgl and 1.10mbgl and the material proven to comprise granular Made Ground. No step out or corbel of foundation was encountered. The underside of a concrete foundation was recorded externally (FIP1021) at 0.65mbgl.
Manchester Meeting Place	FIP1010 to FIP1013	The building foundations were not encountered at the maximum excavation depth of 1.75mbgl. Concrete obstructions were encountered at 1.00mbgl (FIP1010) and 1.60mbgl (FIP1012).
Mill	FIP1014 to FIP1017	The undersides of the building foundations were encountered internally between 0.80mbgl and 1.60mbgl, with brick founded onto Made Ground (FIP1015) and the sandstone bedrock (FIP1014 and FIP1016). The building foundations were not encountered externally at FIP1017.
MSS Tower	FIP1022 to FIP1024	The underside of a foundation was encountered at 0.90mbgl (FIP1023). An internal concrete core hole investigation was undertaken within the basement with an upper layer of concrete recorded between 0.00mbgl and 0.45mbgl followed by granular Made Ground to 0.60mbgl. A second layer of concrete was proven between 0.60mbgl and 1.00mbgl. Made Ground was encountered below second concrete layer to 1.50mbgl. Probing was carried out beneath second concrete layer and soil was proven by 200mm; however, further probing towards the wall was unable to be carried out due to constraints of core hole size.

6. Ground Model Summary

The ground model for the site has been generated based on the historical site investigation by AEG/Arup and the Civic Earth site investigations across the areas as well as the wider Sister area. Geological cross sections based on the site investigations completed are included in [Appendix H](#).

The ground conditions were typically found to comprise a variable thickness of Made Ground (typically up to 3m to 4m in thickness), with areas of local deepening (up to 8.4m in thickness) along the route of the historically infilled River Medlock as well as in the east of the site where existing ground level is raised to the level of Altrincham Street. Obstructions were recorded within the Made Ground including brick and concrete slabs and suspected brick walls.

Superficial deposits of Alluvium were encountered below the Made Ground in borehole BH1003 within the site and within boreholes ARP-BH004, ARP-BH005, ARP-BH013, ARP-BH014, ARP-DS001, ARP-TP001, BH1006, BH1007, BH1015B, BH2004, WS1006 and WS2006 within the wider Sister area. The top of the Alluvium was recorded between 32.43mOD and 27.22mOD and recorded to range between 1.00m and 3.60m in thickness. The presence of Alluvium across the areas investigated is not unexpected despite published geological mapping showing the Alluvium limited to the south of the wider Sister area, as the River Medlock historically meandered across the wider Sister area.

Superficial deposits of Glacial Till were encountered below the Made Ground in boreholes BH1009, BH1012, WS1002, WS1003 and WS1009, each located in the northern part of the wider Sister area (Plot A) with the exception of borehole WS1009 which is located in the east of the site. The top of the Glacial Till was recorded between 39.96mOD and 34.80mOD and recorded to range between 0.40m and 5.25m in thickness. The distribution of the Glacial Till correlates to a higher historical (and current) ground elevations, suggesting that the River Medlock historically eroded down into and through the Glacial Till deposits. It is noted that Made Ground deposits were recorded to directly overlie the bedrock in the majority of boreholes, suggesting that the previous development of the wider Sister area has resulted in the removal of the superficial deposits above the bedrock.

The weathered bedrock of the Chester Formation was encountered either directly below the Made Ground or below the Alluvium or Glacial Till between 35.80mOD and 22.58mOD during the site investigations (between 35.80mOD and 27.80mOD within the site). The competent bedrock of the Chester Formation was encountered between 31.81mOD and 22.58mOD during the site investigations (between 29.56mOD and 23.00mOD the site). The more competent bedrock typically comprised extremely weak to weak thinly to medium bedded light reddish brown medium to coarse grained sandstone.

Perched water has been encountered in the Made Ground and Glacial Till which is variable in level and appears to be limited in nature, confined by surrounding cohesive deposits. The Principal aquifer within the Chester Formation was recorded between 29.24mOD and 23.0mOD during the spot groundwater monitoring rounds, with the continuous groundwater monitoring indicating similar levels between typically between approximately 28.5mOD and 27.0mOD. Groundwater flow direction is indicated to be towards the southwest, although it is noted that groundwater flow is likely to be influenced by fractures within the sandstone bedrock, buried infrastructure across the wider Sister area (e.g. historical buried structures, existing basements and foundations) and the historical channel of the River Medlock. Regional groundwater flow direction is considered to be towards the southwest.

7. Contamination Assessment

7.1. Introduction

The risks to the identified potential receptors at the site have been assessed with respect to the identified contamination. In addition, data from the wider Sister area has also been assessed for information, although it is noted that further investigation and assessment for the wider Sister area will be required as the development of the wider Sister area progresses.

The potential receptors have been identified with reference to the Part 2A Contaminated Land Guidance and associated DEFRA guidance²³ and have been considered if there is the potential for them to be adversely affected by exposure to contamination. Civic Earth's approach and rationale to the assessment criteria is provided in [Appendix I](#).

The current proposed development of the site includes the construction of two new high-rise commercial structures; however, at this stage, development proposals for enabling works area to the south of the two new commercial-led buildings have not been progressed. For the basis of this report, it is assumed that this enabling works area (which falls into Plot F as outlined in Plate 1) will possibly include a mixed commercial and residential development. On this basis, the chemical assessments have been undertaken with respect to Generic Assessment Criteria (GAC) a commercial end use and a residential (without home grown produce consumption) (herein referred to as "residential") end use.

7.2. Risks to Human Health from Soil Contaminants

7.2.1. On-Site

A total of 43 soil samples from within the site were submitted for chemical analysis; 36 samples from the Made Ground, 1 sample from the Glacial Till, 3 samples from the Weathered Chester Formation and 3 samples from the Chester Formation.

The assessment results for the Made Ground are summarised in Table A and Table B in [Appendix I](#) with respect to commercial and residential end uses respectively, and the assessment results for the natural soils in Table C and Table D in [Appendix I](#) with respect to commercial and residential end uses respectively. It is noted that the Solubility Saturation Limit (SSL) and Vapour Saturation Limit (VSL) criteria indicate the theoretical value at which free phase product is expected to be present. Potential evidence of free product was encountered in borehole BH1005 within the Chester Formation and as such, the SSL and VSL values have been considered where appropriate within the assessment.

Made Ground

Assessment of the Made Ground results against the commercial GAC indicate that the contaminant concentrations are below their respective assessment thresholds with the exception of the following contaminants:

- **Total Cyanide:** elevated concentration of 51mg/kg against a commercial GAC of 34mg/kg in borehole WS1022B at 0.60mbgl.
- **Benzo(a)pyrene:** elevated concentrations of 160mg/kg and 140mg/kg against a commercial GAC of 35mg/kg in borehole BH1002 at 0.40mbgl and 1.30mbgl respectively.
- **Benzo(b)fluoranthene:** elevated concentrations of 180mg/kg and 150mg/kg against a commercial GAC of 44mg/kg in borehole BH1002 at 0.40mbgl and 1.30mbgl respectively.
- **Dibenzo(a,h)anthracene:** elevated concentrations of 22mg/kg and 19mg/kg against a commercial GAC of 3.60mg/kg in borehole BH1002 at 0.40mbgl and 1.30mbgl respectively.

Statistical assessment of the above contaminants indicates that the concentrations recorded within borehole BH1002 are outliers within the data set and therefore are considered to represent a hotspot of contamination; removal of the two soil samples from the data set reduces the US₉₅ below their respective GAC. The elevated concentration of total cyanide in borehole WS1022B is also identified as an outlier, although it is noted that the US₉₅ is below the GAC inclusive of the outlier.

Assessment of the Made Ground results against the residential GAC indicate the following additional exceedances:

- **Arsenic:** elevated concentration of 260mg/kg in borehole BH1004 at 6.00mbgl, 66mg/kg in borehole WS1025 and 41mg/kg in borehole WS1022B against a residential GAC of 40mg/kg.
- **Beryllium:** elevated concentrations of 1.90mg/kg against a residential GAC of 1.70mg/kg in boreholes WS1012 at 0.60mbgl and WS1022B at 1.00mbgl.
- **Lead:** elevated concentrations of 950mg/kg in borehole BH1002 at 0.40mbgl, 340mg/kg in borehole WS1019 at 1.70mbgl and 320mg/kg in borehole WS1008 at 1.50mbgl against a residential GAC of 310mg/kg.
- **Benzo(a)anthracene:** elevated concentrations of 160mg/kg and 140mg/kg in borehole BH1002 at 0.40mbgl and 1.30mbgl respectively, and 22mg/kg in borehole WS1012 at 0.60mbgl against a residential GAC of

²³ DEFRA (2012) Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.

14mg/kg.

- **Benzo(a)pyrene:** elevated concentrations of 24mg/kg (borehole WS1012 at 0.60mbgl), 13mg/kg (borehole BH1005 at 0.60mbgl), 12mg/kg (borehole BH1004 at 0.70mbgl), 8.6mg/kg and 6.1mg/kg (borehole WS1022B at 0.60mbgl and 1.00mbgl respectively) and 7.3mg/kg (trial pit FIP1033 at 0.50mbgl) against a residential GAC of 3.20mg/kg.
- **Benzo(b)fluoranthene:** elevated concentrations of 24mg/kg in borehole WS1012 at 0.60mbgl, 14mg/kg in boreholes BH1004 at 0.70mbgl and BH1005 at 0.60mbgl, 9.80mg/kg and 6.40mg/kg in borehole WS1022B at 0.60mbgl and 1.00mbgl respectively, and 14mg/kg in trial pit FIP1033 at 0.50mbgl against a residential GAC of 4.0mg/kg.
- **Chrysene:** elevated concentrations of 180mg/kg and 150mg/kg against a residential GAC of 31mg/kg in borehole BH1002 at 0.40mbgl and 1.30mbgl respectively.
- **Dibenzo(a,h)anthracene:** elevated concentrations of 3.50mg/kg in borehole WS1012 at 0.60mbgl, 0.20mg/kg in borehole BH1004 at 0.70mbgl, 1.80mg/kg in borehole BH1005 at 0.70mbgl, 1.10mg/kg in borehole WS1022B at 0.60mbgl, 1.0mg/kg in trial pit FIP1033 at 0.50mbgl, 0.47mg/kg in trial pit FIP1020 at 0.70mbgl, and 0.35mg/kg in borehole WS1005 at 1.00mbgl.
- **Indeno(1,2,3-cd-pyrene):** elevated concentrations of 83mg/kg and 68mg/kg against a residential GAC of 46mg/kg in borehole BH1002 at 0.40mbgl and 1.30mbgl respectively.
- **Naphthalene:** elevated concentrations of 110mg/kg and 87mg/kg against a residential GAC of 5.6mg/kg in borehole BH1002 at 0.40mbgl and 1.30mbgl respectively, and 7.80mg/kg in borehole BH1005 at 7.80mbgl.

As noted above, statistical assessment indicates that the concentrations recorded within borehole BH1002 are outliers within the data set and therefore are considered to represent a hotspot of contamination. In addition, statistical assessment indicates that the elevated concentrations of heavy metals identified are outliers within the wider data set and removal of these outliers reduces the US₉₅ below the residential GAC.

In consideration of a residential end use, elevated concentrations of benzo(a)pyrene, benzo(b)fluoranthene and dibenzo(a,h)anthracene are considered to be widespread across the site as removal of the identified outliers does not reduce the US₉₅ below their respective GAC. With respect to the potential vapour risk from naphthalene, it is noted that the concentrations at borehole BH1002 are outliers within the dataset, and removal of these two samples reduces the US₉₅ below the GAC. Notwithstanding this, the borehole is located within the area of the proposed service tunnel within the commercial Plot C and it is understood that the Made Ground material at this location will be removed. It is noted that the elevated concentration of naphthalene recorded in borehole BH1005 at 7.80mbgl is marginal against the GAC and the borehole is located within the commercial Plot C. Therefore the potential risk from vapour ingress into the commercial Plot C buildings is considered to be low. Should the layout of the proposed development be amended and residential use proposed at the identified borehole locations, the incorporation of vapour protection should be considered.

In addition to the total soils analysis, each of the 36 Made Ground samples was screened for the presence of asbestos; asbestos containing material (ACM) was detected in 7 of the 36 soil samples at the following locations:

- **BH1016A at 1.00mbgl:** loose fibres of chrysotile at 0.002% by weight.
- **WS1005 at 1.00mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.
- **WS1008 at 0.50mbgl:** loose fibres of amosite and chrysotile asbestos at 0.001% by weight.
- **WS1009 at 0.50mbgl:** loose fibres of amosite asbestos at <0.001% by weight.
- **WS1012 at 0.60mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.
- **WS1022B at 1.00mbgl:** loose fibrous debris of chrysotile asbestos at 0.003% by weight.
- **WS1023A at 0.80mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.

Four soils samples from boreholes BH1005, WS1022B and WS1023A, which are located in proximity to the retort house identified on the historical mapping, were analysed for ammoniacal nitrogen. Concentrations of <0.50mg/kg and 1.20mg/kg were recorded at 0.60mbgl and 16.50mbgl in borehole BH1005, with concentration of <0.5mg/kg in boreholes WS1022B and WS1023A. Three soil samples from borehole BH1016A, located within the footprint of the retort house, recorded concentrations of <0.50mg/kg at depths of 1.00mbgl, 3.70mbgl and 4.60mbgl.

VOC and SVOC analysis undertaken on selected Made Ground samples indicated concentrations below the laboratory LOD with the exception of the following:

- **BH1002 at 1.30mbgl:** 1,3,5-trimethylbenzene (0.05mg/kg), 1,2,4-trimethylbenzene (0.11mg/kg), 2-methylnaphthalene (53mg/kg), dibenzofuran (59mg/kg), carbazole (42mg/kg) and anthraquinone (14mg/kg).
- **BH1004 at 0.70mbgl:** 2-methylnaphthalene (0.30mg/kg), dibenzofuran (0.80mg/kg) and carbazole (0.90mg/kg).

- **BH1016A at 4.60mbgl:** trichloroethene (TCE) (0.081mg/kg).
- **WS1023A at 0.50mbgl:** 2-methylnaphthalene (0.2mg/kg), dibenzofuran (0.2mg/kg) and anthraquinone (0.3mg/kg).
- **WS1008 at 1.50mbgl:** 2-methylnaphthalene (0.2mg/kg).

The concentrations recorded above the LOD in boreholes BH1004, BH1016A, WS1023A and WS1008 are noted to be marginally above the LOD and within an order of magnitude of the LOD; however, the concentrations recorded in borehole BH1002 are generally higher than an order of magnitude of the LOD.

It is noted that human health GAC for the above VOCs and SVOCs identified in boreholes BH1002, BH1004, WS1023A and WS1008 are not readily available with the exception of 1,2,4-trimethylbenzene where a commercial GAC of 99mg/kg and residential (without homegrown produce consumption) GAC of 0.99mg/kg have been derived by CL:AIRE et al.²⁴ for a 2.5% SOM; the concentrations recorded not exceed these values. In addition, it is noted that the recorded concentrations of 2-methylnaphthalene are below the GAC for naphthalene (460mg/kg / 5.6mg/kg for a commercial and residential end use respectively) and the recorded concentrations of anthraquinone are below the GAC for anthracene (540,000mg/kg / 35,000mg/kg respectively).

The concentration of TCE in borehole BH1016A is noted to be below the GAC for a commercial end use (2.6mg/kg); however, the concentration is recorded to marginally exceed the residential GAC (0.036mg/kg). The concentration recorded is noted to be within an order of magnitude of the residential GAC and in addition, is located within the area of Plot C which has a proposed commercial end use; the borehole is not located in proximity to the area subject to future potential residential development (i.e. falls within Plot F).

Re-assessment of the Arup chemical analysis data obtained from boreholes within the site against residential GACs has been carried out, as the original Arup assessment assumed a commercial end use. The Arup data has been assessed based on a 2.5% SOM based on the average total organic carbon (TOC) content of the soil samples. The results of the assessment are summarised in Table E of [Appendix I](#) and indicate that the majority of contaminant concentrations are below their respective GAC with the exception of the following:

- **Lead:** elevated concentration of 530mg/kg at trial pit ARP-TP002 (1.00mbgl) against a GAC of 310mg/kg.
- **Benzo(a)pyrene:** elevated concentrations of 12.0mg/kg at borehole ARP-BH007 (1.00mbgl) against a GAC of 3.2mg/kg.
- **Benzo(b)fluoranthene:** elevated concentrations of 12.0mg/kg at borehole ARP-BH007 (1.00mbgl) against a GAC of 4.0mg/kg.
- **Dibenzo(a,h)anthracene:** elevated concentrations of 1.0mg/kg at borehole ARP-BH007 (1.00mbgl) against a GAC of 0.32mg/kg.

It is noted that asbestos was also detected in the Made Ground during the Arup historical investigation at the following locations:

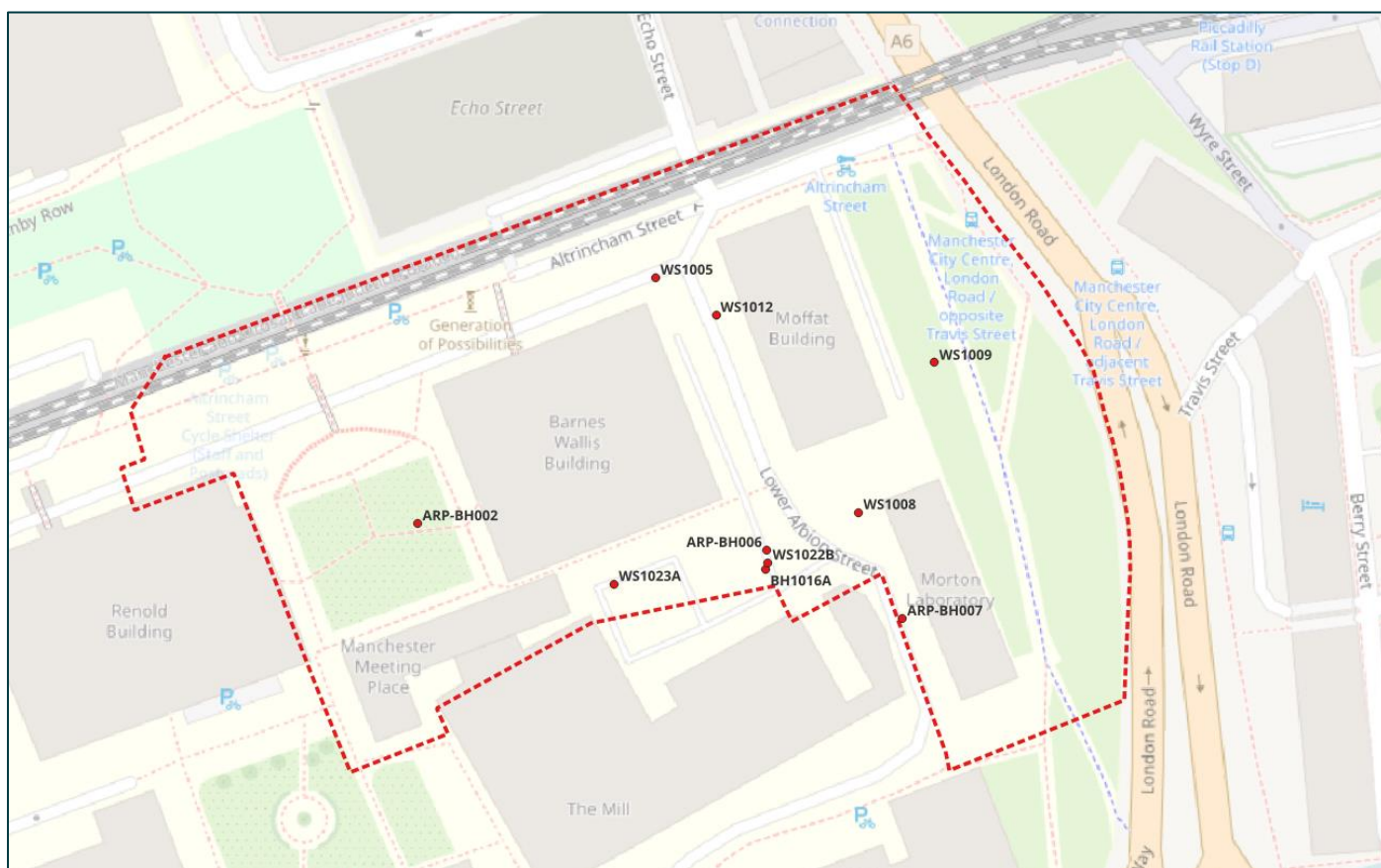
- **ARP-BH002 at 1.00mbgl:** “small bundle” of amosite at <0.001% by weight.
- **ARP-BH006 at 1.20mbgl:** “small bundle” of amosite asbestos at <0.001% by weight.
- **ARP-BH007 at 3.30mbgl:** chrysotile asbestos at 0.192% by weight.

Based on the Made Ground soil assessments, there is considered to be a low to moderate risk from Made Ground soils at the site to human health. A summary of the soil contamination identified in the Made Ground during the Civic Earth and historical Arup site investigations within Plot C is illustrated in Plate 22 with respect to a commercial end use and in Plate 23 with respect to a residential end use. Locations where asbestos has been identified in Plate 24.

²⁴ CL:AIRE et al. (2010) Soil Generic Assessment Criteria for Human Health Risk Assessment. January 2010.

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Plate 24: Summary of Asbestos Detected in Made Ground Soils within Site



Natural Soils

The results of the assessment of the natural soils indicate that the contaminant concentrations recorded are below their respective commercial GAC. The results of the assessment of natural soils indicates that the contaminant concentrations recorded are also below their respective residential GAC with the exception of a marginally elevated concentration of benzo(a)pyrene (3.80mg/kg against a GAC of 3.20mg/kg) and di-benzo(a,h)anthracene (0.60mg/kg against a GAC of 0.31mg/kg) in borehole BH1016A at 6.70mbgl. It is noted that borehole BH1016A is located within the area of Plot C which has a proposed commercial end use; the borehole is not located in proximity to the area subject to future development (i.e. falls within Plot F).

7.2.2. Wider Sister Area

In addition to the 40 soil samples obtained from within the site, a further 79 samples from across the rest of the Enabling Works area were submitted for chemical analysis; 3 samples of topsoil, 58 samples from the Made Ground, 4 samples from the Alluvium, 4 samples from the Glacial Till, 7 samples from the Weathered Chester Formation and 3 samples from the Chester Formation.

The assessment results are summarised in the following tables in [Appendix I](#):

- Table F – Topsoil (Commercial End Use)
- Table G – Topsoil (Residential End Use)
- Table H – Made Ground (Commercial End Use)
- Table I – Made Ground (Residential End Use)
- Table J – Made Ground (Historical Arup Investigation Data)
- Table K – Natural Soils (Commercial End Use)
- Table L – Natural Soils (Residential End Use)

As no potential evidence of free product was encountered during the site investigation across the rest of the Enabling Works area, the SSL and VSL have not been considered within the assessment.

Topsoil

Assessment of the topsoil results indicate that the contaminant concentrations are below their respective assessment commercial GAC. The following contaminants have been identified to exceed their respective residential GAC:

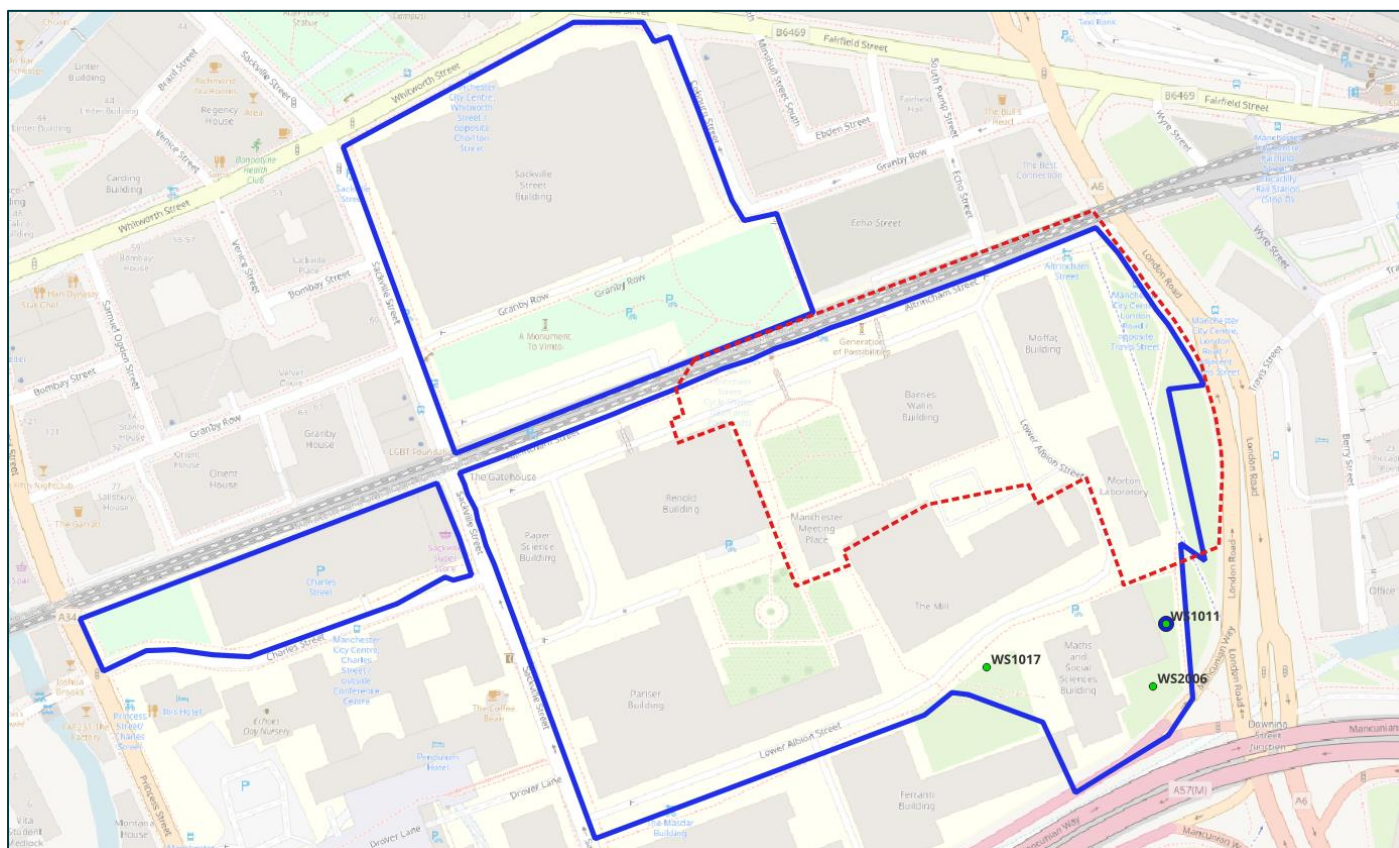
- **Lead:** elevated concentrations of 370mg/kg against a GAC of 310mg/kg in boreholes WS1011 and WS2006 at

0.20mbgl.

- **Benzo(a)anthracene:** elevated concentration of 29mg/kg against a GAC of 14mg/kg in borehole WS1017 at 0.20mbgl.
- **Benzo(a)pyrene:** elevated concentrations of 30mg/kg and 4mg/kg against a GAC of 3.2mg/kg in borehole WS1017 and WS2006 at 0.20mbgl.
- **Benzo(b)fluoranthene:** elevated concentrations of 34mg/kg and 4.8mg/kg against a GAC of 4.0mg/kg in borehole WS1017 and WS2006 at 0.20mbgl.
- **Dibenzo(a,h)anthracene:** elevated concentrations of 0.39mg/kg, 2.60mg/kg and 0.52mg/kg against a GAC of 0.32mg/kg in boreholes WS1011, WS1017 and WS2006 at 0.20mbgl respectively.

It is noted that asbestos was not detected in topsoil samples analysed. A summary of the soil contamination identified in the Topsoil during the Civic Earth and historical Arup site investigations within the wider Sister area is illustrated in Plate 25.

Plate 25: Summary of Contaminant Exceedances in Topsoil within Wider Sister Area



Notes: Blue = Lead; Green = PAHs

Made Ground

Assessment of the Made Ground results against the commercial GAC indicate that contaminant concentrations are generally below their respective assessment thresholds with the exception of the following contaminants:

- **Total Cyanide:** elevated concentration of total cyanide against GAC of 34mg/kg recorded in borehole WS1014 at 2.00mbgl (44mg/kg).
- **Benzo(a)anthracene:** elevated concentrations against a GAC of 170mg/kg at borehole WS1014 at 2.00mbgl (210mg/kg).
- **Benzo(a)pyrene:** elevated concentrations against a GAC of 35mg/kg at:
 - WS1014 at 0.50mbgl (170mg/kg) and 2.00mbgl (200mg/kg)
 - BH1015B at 0.20mbgl (72mg/kg), 0.80mbgl (80mg/kg) and 1.00mbgl (51mg/kg)
 - WS2003 at 0.50mbgl (39mg/kg)
- **Benzo(b)fluoranthene:** elevated concentrations against a GAC of 44mg/kg at:
 - WS1014 at 0.50mbgl (180mg/kg) and 2.00mbgl (240mg/kg)
 - BH1015B at 0.20mbgl (80mg/kg), 0.80mbgl (91mg/kg) and 1.00mbgl (50mg/kg)

- **Dibenzo(a,h)anthracene:** elevated concentrations against a GAC of 3.6mg/kg at:
 - WS1014 at 0.50mbgl (23mg/kg) and 2.00mbgl (25mg/kg)
 - BH1015B at 0.20mbgl (6.3mg/kg), 0.80mbgl (9.1mg/kg) and 1.00mbgl (5.0mg/kg)
 - WS2003 at 0.50mbgl (5.4mg/kg)

Statistical assessment indicates that elevated concentrations of the above identified PAHs are widespread across the wider Sister area with calculated US₉₅ concentrations exceeding their respective GAC. It is noted that whilst elevated PAH concentrations have been identified across the rest of the wider Sister area, higher concentrations of PAH have been identified at borehole WS1014. The elevated concentration of total cyanide identified at borehole WS1014 is indicated to be a hotspot of contamination.

Assessment of the Made Ground results against the residential GAC indicate the following exceedances:

- **Arsenic:** elevated concentrations against a GAC of 40mg/kg in:
 - WS1003 at 0.35mbgl (41mg/kg)
 - WS1013 at 0.50mbgl (91mg/kg)
 - WS1014 at 2.00mbgl (110mg/kg)
 - WS1015 at 0.50mbgl (54mg/kg)
 - WS1024 at 0.40mbgl (66mg/kg)
 - WS1026 at 0.50mbgl (59mg/kg)
 - BH1008 at 0.80mbgl (42mg/kg)
- **Beryllium:** elevated concentrations against a GAC of 1.7mg/kg in:
 - WS1001 at 0.50mbgl (2.40mg/kg)
 - WS1014 at 2.00mbgl (2.30mg/kg)
 - WS1016 at 2.50mbgl (3.20mg/kg)
 - WS1021 at 1.00mbgl (1.90mg/kg)
 - WS1024 at 0.40mbgl (7.70mg/kg)
 - WS2006 at 2.0mbgl (4.40mg/kg)
- **Lead:** elevated concentrations against a GAC of 310mg/kg in:
 - BH2005 at 0.20mbgl and 0.50mbgl (400mg/kg and 370mg/kg respectively)
 - BH2006 at 0.90mbgl (370mg/kg)
 - WS1011 at 1.00mbgl (330mg/kg)
 - WS1013 at 0.50mbgl and 33.00mbgl (380mg/kg and 330mg/kg)
 - WS1014 at 0.50mbgl and 2.00mbgl (780mg/kg and 650mg/kg)
 - WS1015 at 0.50mbgl (600mg/kg)
 - WS1016 at 2.50mbgl (1,700mg/kg)
 - WS2004 at 1.00mbgl (830mg/kg)
- **Total Cyanide:** elevated concentration of total cyanide against GAC of 34mg/kg recorded in borehole WS1014 at 2.00mbgl (44mg/kg).
- **TPH Aromatic >EC21-EC35:** elevated concentration of 2,200mg/kg recorded in borehole WS1014 at 2.00mbgl.
- **Benzo(a)anthracene:** elevated concentrations against a GAC of 14mg/kg in borehole WS1014 at 0.50mbgl and 2.00mbgl (160mg/kg and 210mg/kg), BH1015B at 0.20mbgl, 0.80mbgl and 1.00mbgl (77mg/kg, 78mg/kg and 53mg/kg) and WS2003 at 0.50mbgl (46mg/kg).
- **Benzo(a)pyrene:** elevated concentrations against a GAC of 3.2mg/kg in:
 - BH1012 at 0.20mbgl and 1.00mbgl (5.0mg/kg and 4.1mg/kg)
 - BH1013A at 0.50mbgl (3.7mg/kg)
 - BH1015B at 0.20mbgl, 0.80mbgl and 1.00mbgl (72mg/kg, 80mg/kg and 51mg/kg)
 - BH2006 at 0.90mbgl (5.1mg/kg)

- WS1006 at 0.90mbgl (4.2mg/kg)
- WS1013 at 0.50mbgl and 3.00mbgl (6.8mg/kg and 5.8mg/kg)
- WS1014 at 0.50mbgl and 2.00mbgl (170mg/kg and 200mg/kg)
- WS1015 at 0.50mbgl (5.0mg/kg)
- WS2001 at 0.20mbgl (4.0mg/kg)
- WS2003 at 0.50mbgl (39mg/kg)
- **Benzo(b)fluoranthene:** elevated concentrations against a GAC of 4.0mg/kg in:
 - BH1012 at 0.20mbgl and 1.00mbgl (4.8mg/kg and 4.4mg/kg)
 - BH1015B at 0.20mbgl, 0.80mbgl and 1.00mbgl (80mg/kg, 91mg/kg and 50mg/kg)
 - BH2006 at 0.90mbgl (5.5mg/kg)
 - WS1006 at 0.90mbgl (4.6mg/kg)
 - WS1013 at 0.50mbgl and 33.00mbgl (8.0mg/kg and 6.5mg/kg)
 - WS1014 at 0.50mbgl and 2.00mbgl (180mg/kg and 240mg/kg)
 - WS2003 at 0.50mbgl (41mg/kg)
- **Chrysene:** elevated concentrations of 180mg/kg and 200mg/kg (borehole WS1014 at 0.50mbgl and 5.00mbgl respectively), 72mg/kg, 78mg/kg and 51mg/kg (borehole BH1015B at 0.20mbgl, 0.80mbgl and 1.00mbgl respectively) and 44mg/kg (borehole WS2003 at 0.50mbgl) against a GAC of 31mg/kg.
- **Dibenzo(a,h)anthracene:** elevated concentrations against a GAC of 0.32mg/kg at:
 - WS1003 at 0.35mbgl (0.35mg/kg)
 - WS1006 at 0.90mbgl (0.40mg/kg)
 - WS1011 at 1.00mbgl (0.46mg/kg)
 - WS1013 at 0.50mbgl and 3.00mbgl (0.90mg/kg and 0.47mg/kg)
 - WS1014 at 0.50mbgl (23mg/kg) and 2.00mbgl (25mg/kg)
 - WS1015 at 0.50mbgl (0.60mg/kg)
 - BH1007 at 1.50mbgl (0.53mg/kg)
 - BH1012 at 1.00mbgl (5.4mg/kg)
 - BH1013A at 0.50mbgl (0.37mg/kg)
 - BH1015B at 0.20mbgl (6.3mg/kg), 0.80mbgl (9.1mg/kg) and 1.00mbgl (5.0mg/kg)
 - BH2001 at 0.20mbgl (0.38mg/kg)
 - BH2005 at 0.50mbgl (0.33mg/kg)
 - BH2006 at 0.90mbgl (0.50mg/kg)
 - WS2001 at 0.20mbgl (0.40mg/kg)
 - WS2003 at 0.50mbgl (5.4mg/kg)
- **Indeno(1,2,3-cd)pyrene:** elevated concentrations of 94mg/kg and 84mg/kg in borehole WS1014 at 2.00mbgl and 0.50mbgl respectively against a GAC of 46mg/kg.
- **Naphthalene:** elevated concentrations of 13mg/kg and 32mg/kg (borehole WS1014 at 0.50mbgl and 5.00mbgl respectively) and 7.9mg/kg and 12mg/kg (borehole BH1015B at 0.20mbgl and 0.80mbgl respectively) against a GAC of 5.6mg/kg.

Statistical assessment indicates that elevated concentrations of arsenic, beryllium, lead and PAHs are widespread across the wider Sister area with respect to the residential GAC. Hotspots of total cyanide and TPH aromatic EC>21-35 have been identified at boreholes WS1014. It is also noted that whilst elevated lead concentrations have been identified across the wider Sister area, a higher lead concentration (1,700mg/kg) has been identified at borehole WS1016 at 2.50mbgl, in proximity to the elevated concentration (2,400mg/kg) of lead previously identified by Arup in borehole ARP-DS002 at 0.80mbgl. With respect to the potential vapour risk from naphthalene, the incorporation of vapour protection measures may be required depending on the final proposed end uses of the wider Sister area.

Four soil samples were scheduled for tributyltin analysis from boreholes WS1015, WS1016, BH1007 and BH2005 which

are located in proximity to the location of the historical tin solution houses identified on the historical mapping in the south of the wider Sister area. The results of the analysis recorded concentrations of <15µg/l in each of the four soil samples.

Six soil samples were scheduled for PCB analysis from exploratory holes WS1003 and WS2003 (located in proximity to electricity and gas plant rooms), and FIP1015, FIP1017 and FIP1024 which are located within a former plant room within the Mill, adjacent to an electrical room for the Mill, and within a former plant room within MSS. The results of the analysis recorded total PCBs concentrations of <0.012mg/kg.

One soil sample was scheduled for ammoniacal nitrogen analysis from borehole BH1013A which is located in proximity to a historical retort house identified on the historical mapping within the south of the site. The results of the analysis recorded an ammoniacal nitrogen concentration of <0.5mg/kg.

VOC and SVOC analysis undertaken on selected Made Ground samples indicated concentrations below the laboratory LOD with the exception of the following:

- **BH1007 at 0.80mbgl:** dibenzofuran (0.2mg/kg) and anthraquinone (0.4mg/kg).
- **BH1012 at 1.00mbgl:** 2-methylnaphthalene (0.8mg/kg), dibenzofuran (0.6mg/kg), carbazole (0.4mg/kg) and anthraquinone (0.6mg/kg).
- **BH1015B at 0.80mbgl:** 2-methylnaphthalene (9.7mg/kg), dibenzofuran (17mg/kg), carbazole (9.4mg/kg) and anthraquinone (8.0mg/kg).
- **WS1003 at 0.35mbgl:** 2-methylnaphthalene (0.2mg/kg), dibenzofuran (0.4mg/kg), carbazole (0.5mg/kg) and anthraquinone (0.9mg/kg).
- **WS1014 at 0.50mbgl:** 2-methylnaphthalene (60mg/kg), dibenzofuran (63mg/kg), carbazole (39mg/kg) and anthraquinone (36mg/kg).
- **WS1016 at 2.50mbgl:** 2-methylnaphthalene (0.1mg/kg).
- **BH2005 at 0.50mbgl:** 2-methylnaphthalene (0.5mg/kg), dibenzofuran (0.7mg/kg) and carbazole (0.6mg/kg).
- **WS2003 at 0.50mbgl:** 2-methylnaphthalene (7.2mg/kg), dibenzofuran (27mg/kg), carbazole (21mg/kg) and anthraquinone (24mg/kg).

The majority of the concentrations recorded are noted to be only marginally above the LOD. It is noted that human health GAC for the above SVOCs are not readily available; however, it is noted that the recorded concentrations of 2-methylnaphthalene are below the GAC for naphthalene (460mg/kg / 5.6mg/kg for a commercial and residential end use respectively) and the recorded concentrations of anthraquinone are below the GAC for anthracene (460mg/kg / 5.6mg/kg for a commercial and residential end use respectively).

The concentrations recorded in boreholes BH1015B, WS1014 and WS2003 are higher than an order of magnitude of the LOD. It is noted that the recorded concentrations of 2-methylnaphthalene are below the commercial GAC for naphthalene and the recorded concentrations of anthraquinone are below the commercial GAC for anthracene; however, the concentrations exceed the residential GAC for naphthalene and anthracene.

In addition to the above, each of the Made Ground samples were screened for the presence of asbestos; asbestos containing material (ACM) was detected in 13 of the 58 soil samples at the following locations:

- **FIP1017 at 0.80mbgl:** loose fibrous debris of chrysotile asbestos at 0.005% by weight.
- **BH2005 at 0.20mbgl:** loose fibres and sheeting/board debris of amosite asbestos at 0.003% by weight.
- **BH2005 at 0.50mbgl:** loose fibres and sheeting/board of amosite and chrysotile asbestos at 0.004% by weight.
- **WS2006 at 2.00mbgl:** loose fibres of amosite and chrysotile asbestos at 0.001% by weight.
- **BH1008 at 0.80mbgl:** loose fibrous debris of amosite asbestos at 0.010% by weight.
- **BH1012 at 1.00mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.
- **BH1015B at 0.80mbgl:** loose fibres of amosite asbestos at <0.001% by weight.
- **BH2001 at 0.80mbgl:** loose fibrous debris of chrysotile asbestos at 0.003% by weight.
- **BH2007 at 3.00mbgl:** loose fibres and asbestos cement of chrysotile asbestos at 0.002% by weight.
- **WS1014 at 2.00mbgl:** loose fibrous debris and loose fibres of amosite, crocidolite and chrysotile asbestos at 0.003% by weight.
- **WS1021 at 1.00mbgl:** loose fibres of amosite asbestos at <0.001% by weight.
- **WS1026 at 0.50mbgl:** loose fibres of amosite and chrysotile asbestos at <0.001% by weight.
- **WS2003 at 0.50mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.

Re-assessment of the Arup chemical analysis data obtained from boreholes within the wider Sister area against residential without home grown produce update GACs has been carried out, as the original Arup assessment assumed a commercial end use. The Arup data has been assessed based on a 2.5% SOM based on the average total organic carbon (TOC) content of the soil samples. The results of the assessment are summarised in Table J of [Appendix I](#) and indicate that the majority of contaminant concentrations are below their respective GAC with the exception of the following:

The results of the assessment indicate that the majority of contaminant concentrations are below their respective GAC with the exception of the following:

- **Arsenic:** elevated concentration of 56mg/kg at borehole ARP-DS002 at 0.80mbgl and 87mg/kg at ARP-TP001 against a GAC of 40mg/kg.
- **Lead:** elevated concentrations of 330mg/kg and 2,400mg/kg at boreholes ARP-DS001 and ARP-DS002 at 0.60mbgl and 0.80mbgl respectively, and 400mg/kg at borehole ARP-BH004 at 2.30mbgl, against a GAC of 310mg/kg.
- **Benzo(a)pyrene:** elevated concentrations of 6.3mg/kg and 6.7mg/kg at borehole ARP-BH008 (5.20mbgl and 2.20mbgl respectively) against a GAC of 3.2mg/kg.
- **Benzo(b)fluoranthene:** elevated concentrations of 6.7mg/kg and 6.4mg/kg at borehole ARP-BH008 (5.20mbgl and 2.20mbgl respectively) against a GAC of 4.0mg/kg.
- **Dibenzo(a,h)anthracene:** elevated concentrations of 0.4mg/kg and 0.5mg/kg at borehole ARP-BH008 (5.20mbgl and 2.20mbgl respectively) against a GAC of 0.32mg/kg.
- **Naphthalene:** elevated concentration of 5.7mg/kg at borehole ARP-BH008 at 2.20mbgl against a GAC of 5.6mg/kg.

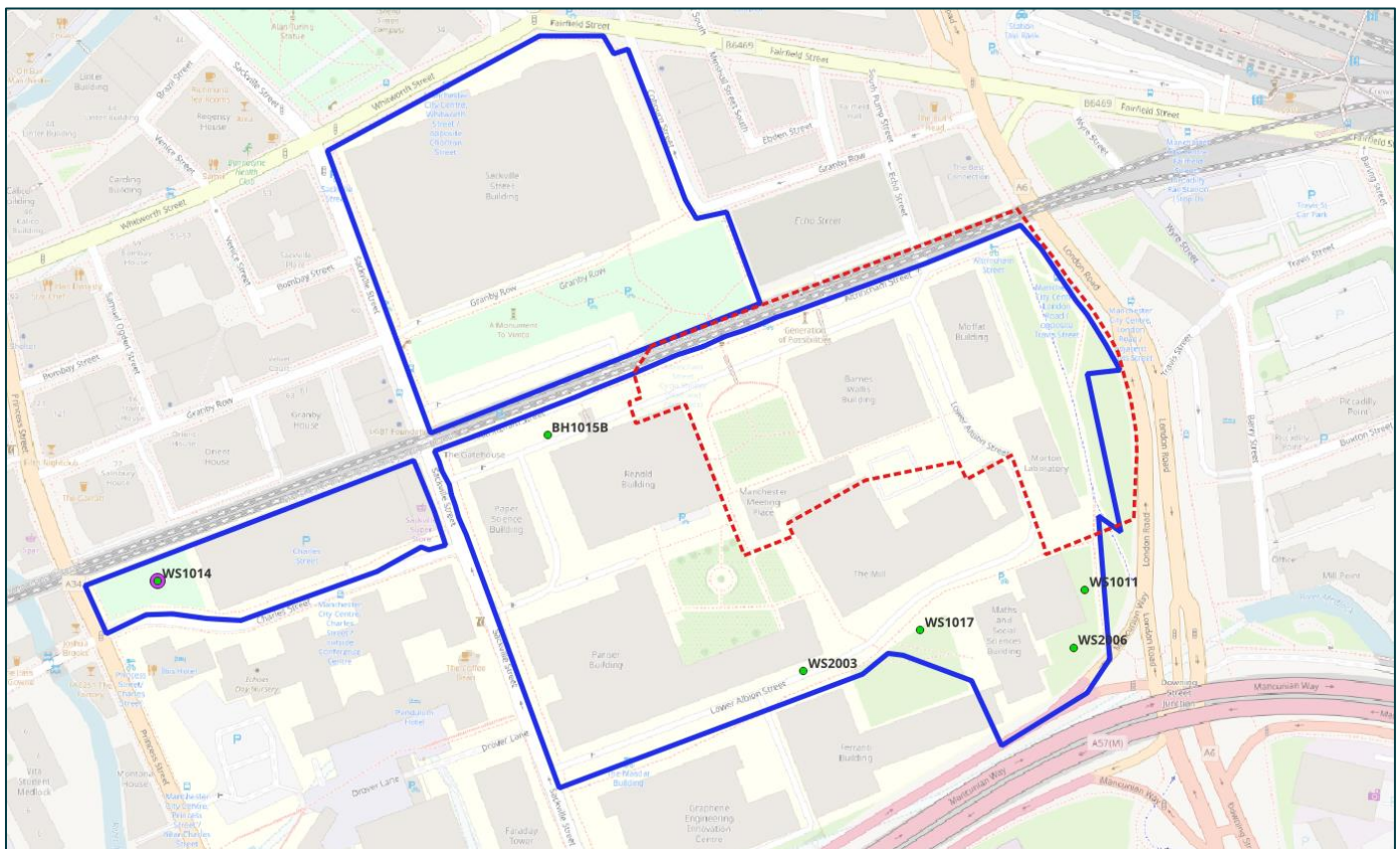
Statistical assessment of the above contaminants indicates that the elevated concentrations identified are likely hotspots of contamination and not indicative of widespread contamination within the dataset. With respect to the potential vapour risk from naphthalene in borehole ARP-BH008, it is noted that the recorded concentration is only marginally above the GAC and the US₉₅ including this concentration is below the GAC. Therefore the potential risk of vapour ingress into buildings is considered to be low. It is noted that widespread elevated concentrations of arsenic, lead and PAHs has been identified during the Civic Earth site investigation.

Asbestos was also detected at the following locations during the historical Arup investigation:

- **ARP-DS001 at 0.60mbgl:** “bundle” of amosite asbestos at 0.001% by weight.

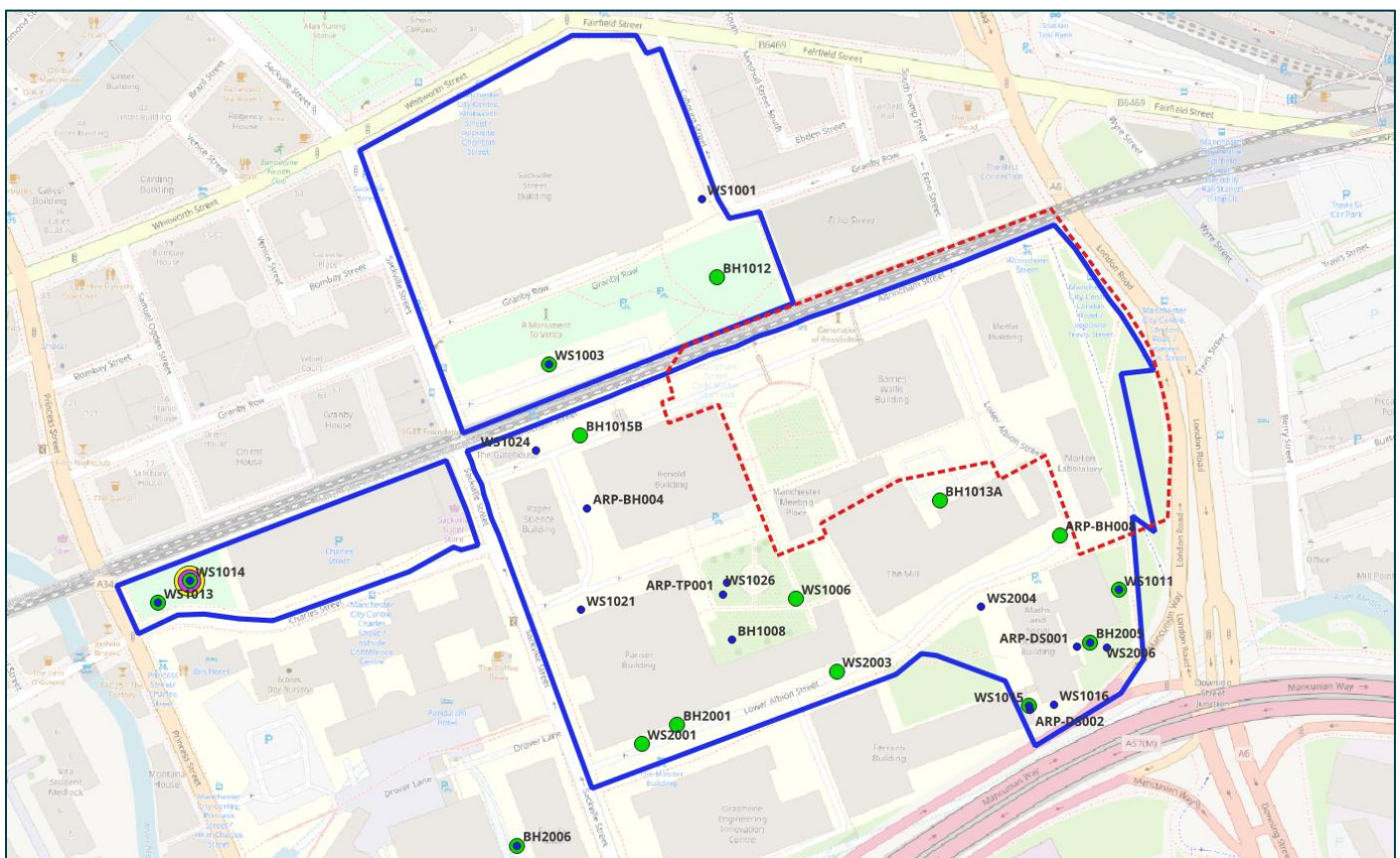
A summary of the soil contamination identified in the Made Ground during the Civic Earth and historical Arup site investigations within the wider Sister area illustrated in Plate 26 with respect to a commercial end use and Plate 27 with respect to a residential end use. Locations where asbestos has been identified in Plate 28.

Plate 26: Summary of Contaminant Exceedances in Made Ground Soils within Wider Sister Area (Commercial End Use)



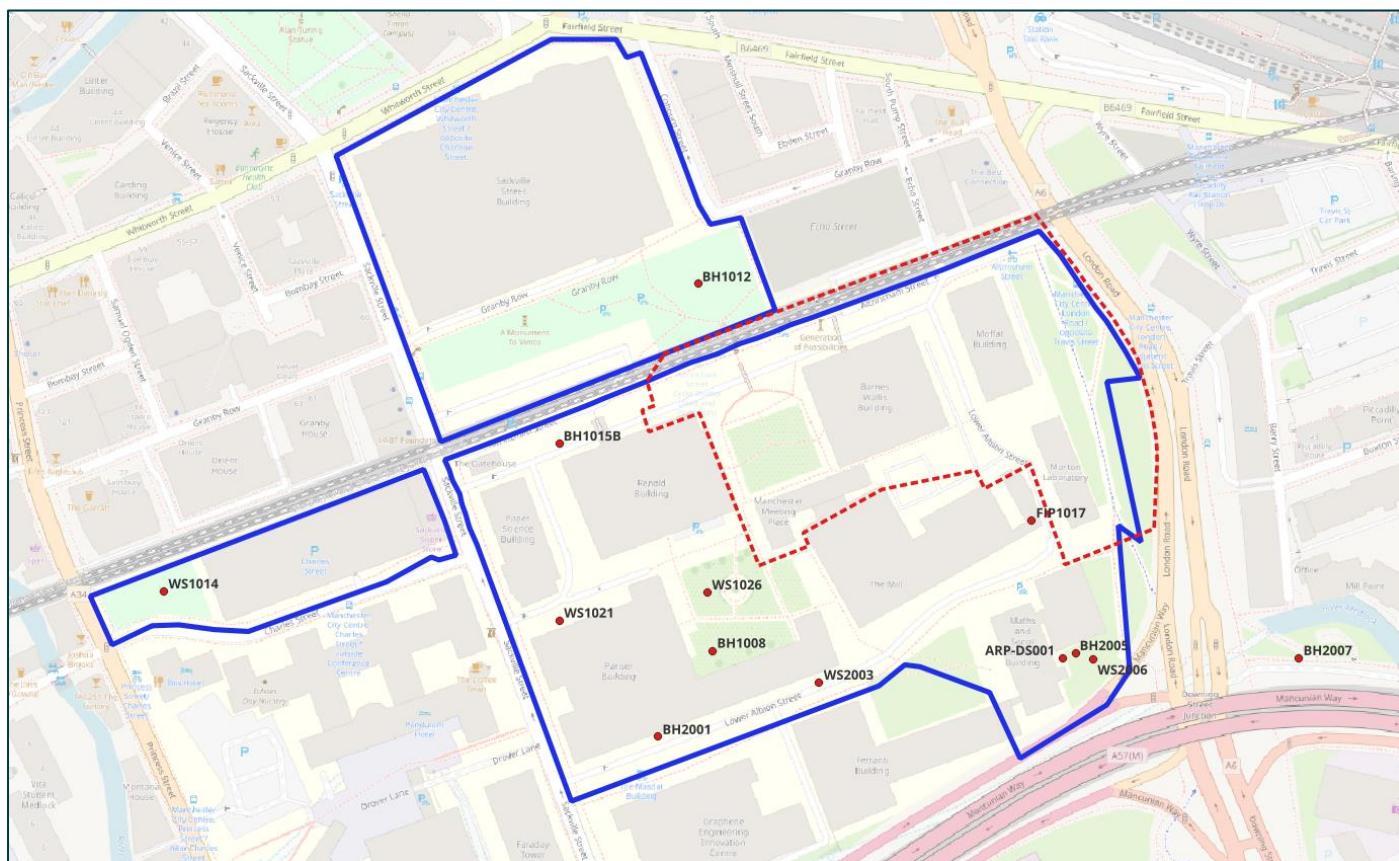
Notes: Green = PAH; Pink = Total Cyanide

Plate 27: Summary of Contaminant Exceedances in Made Ground Soils within Wider Sister Area (Residential End Use)



Notes: Green = PAHs, Pink = Total Cyanide, Blue = Heavy Metals; Yellow = TPH

Plate 28: Summary of Asbestos Detected in Made Ground Soils within Wider Sister Area



Natural Soils

The results of the assessment of the natural soils indicate that the contaminant concentrations recorded are below their respective commercial GAC.

The results of the assessment of natural soils indicates that the contaminant concentrations recorded are also below their respective residential GAC with the exception of arsenic (concentration of 130mg/kg) and beryllium (concentration of 2.0mg/kg) in BH2002 at 2.00mbgl.

7.2.3. Summary of Risks to Human Health from Soil Contaminants

The results of the commercial soil assessments indicate that a localised hotspot of PAHs is present at borehole BH1002 as well as a localised hotspot of total cyanide at borehole WS1022B, in proximity to the historical retort house. The results of the residential assessments indicate that elevated concentrations of PAH and Made Ground are widespread across the site.

Assessment of the topsoil within the wider Sister area to the south of the site indicated elevated concentrations of lead and PAHs at boreholes WS1011, WS1017 and WS2006. Elevated concentrations of heavy metals and PAHs are indicated across the wider Sister area, with localised hotspots of TPH and total cyanide recorded.

Asbestos impacted Made Ground soils are widespread across the site and the wider Sister area.

The locations where elevated heavy metal, PAH and total cyanide concentrations have been recorded across the site and wider Sister area with respect to a commercial end use are illustrated in Plate 29, Plate 30 and Plate 31 respectively.

The locations where elevated heavy metal, PAH and total cyanide concentrations have been recorded across the site and wider Sister area with respect to a residential end use are illustrated in Plate 32, Plate 33 and Plate 34 respectively.

The locations where asbestos has been positively identified across the wider Sister area are illustrated in Plate 35.

Plate 29: Summary of Elevated Heavy Metal Concentrations in Made Ground Soils (Commercial End Use)

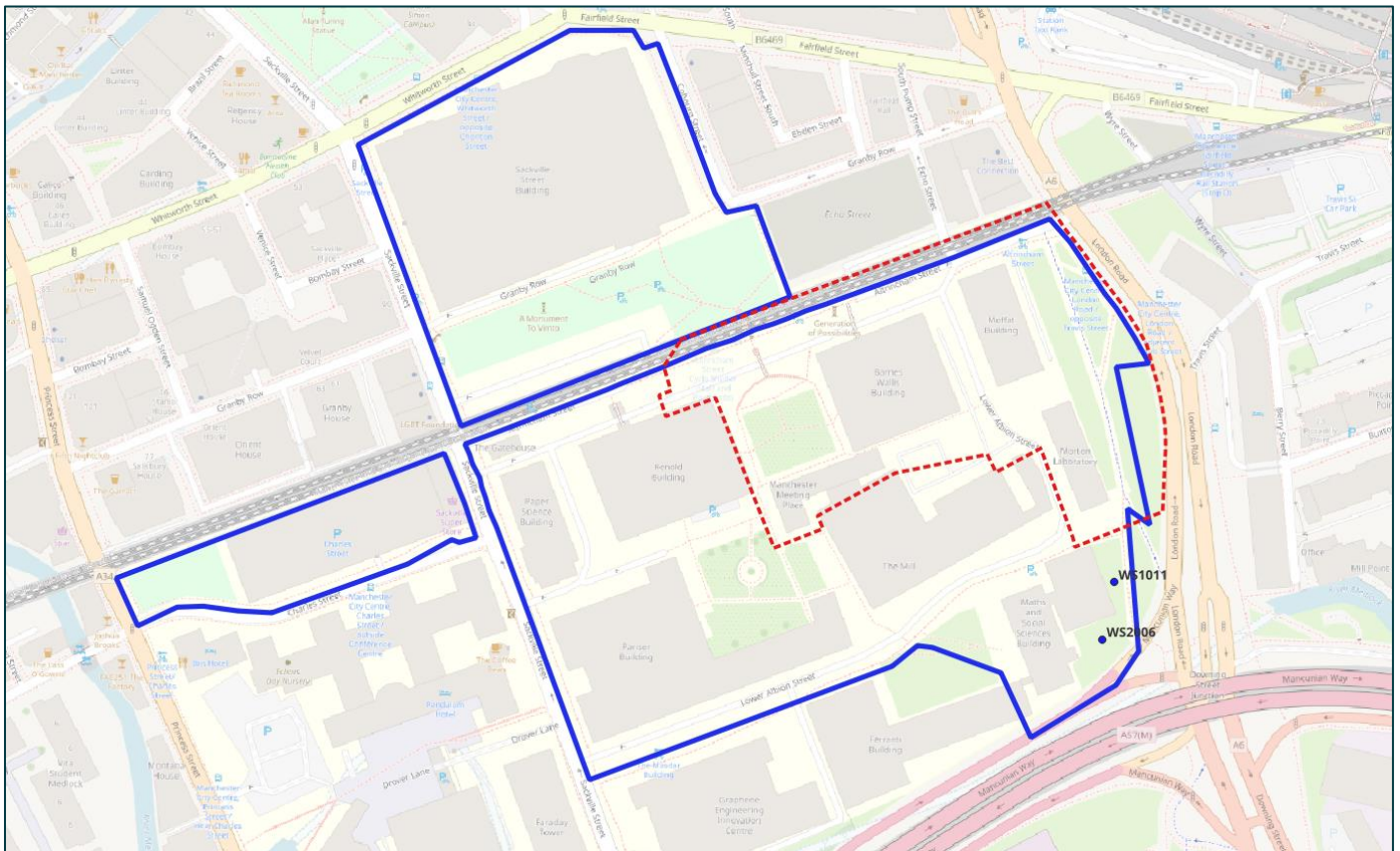


Plate 30: Summary of Elevated PAH Concentrations in Made Ground Soils (Commercial End Use)

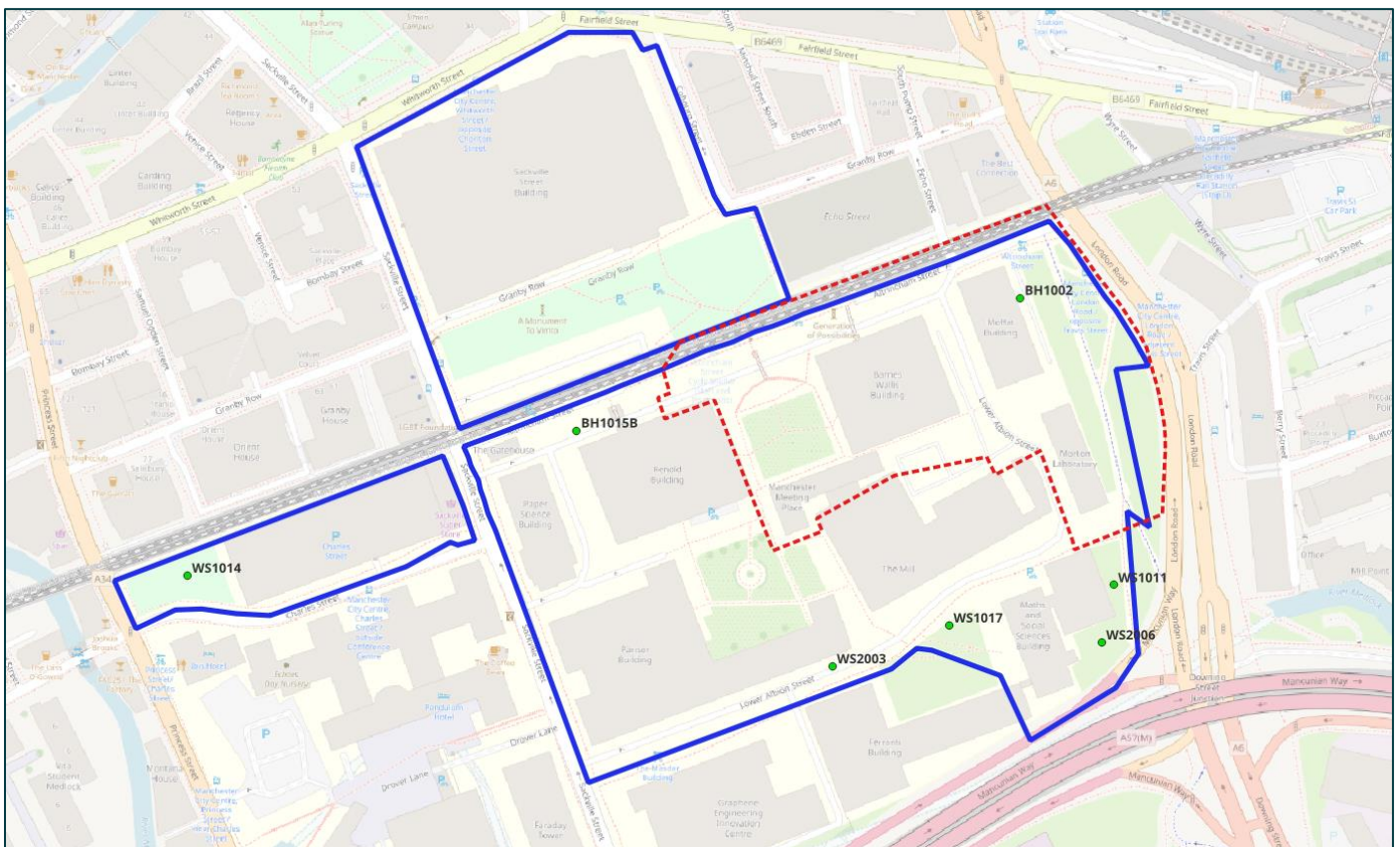


Plate 31: Summary of Elevated Total Cyanide Concentrations in Made Ground Soils (Commercial End Use)

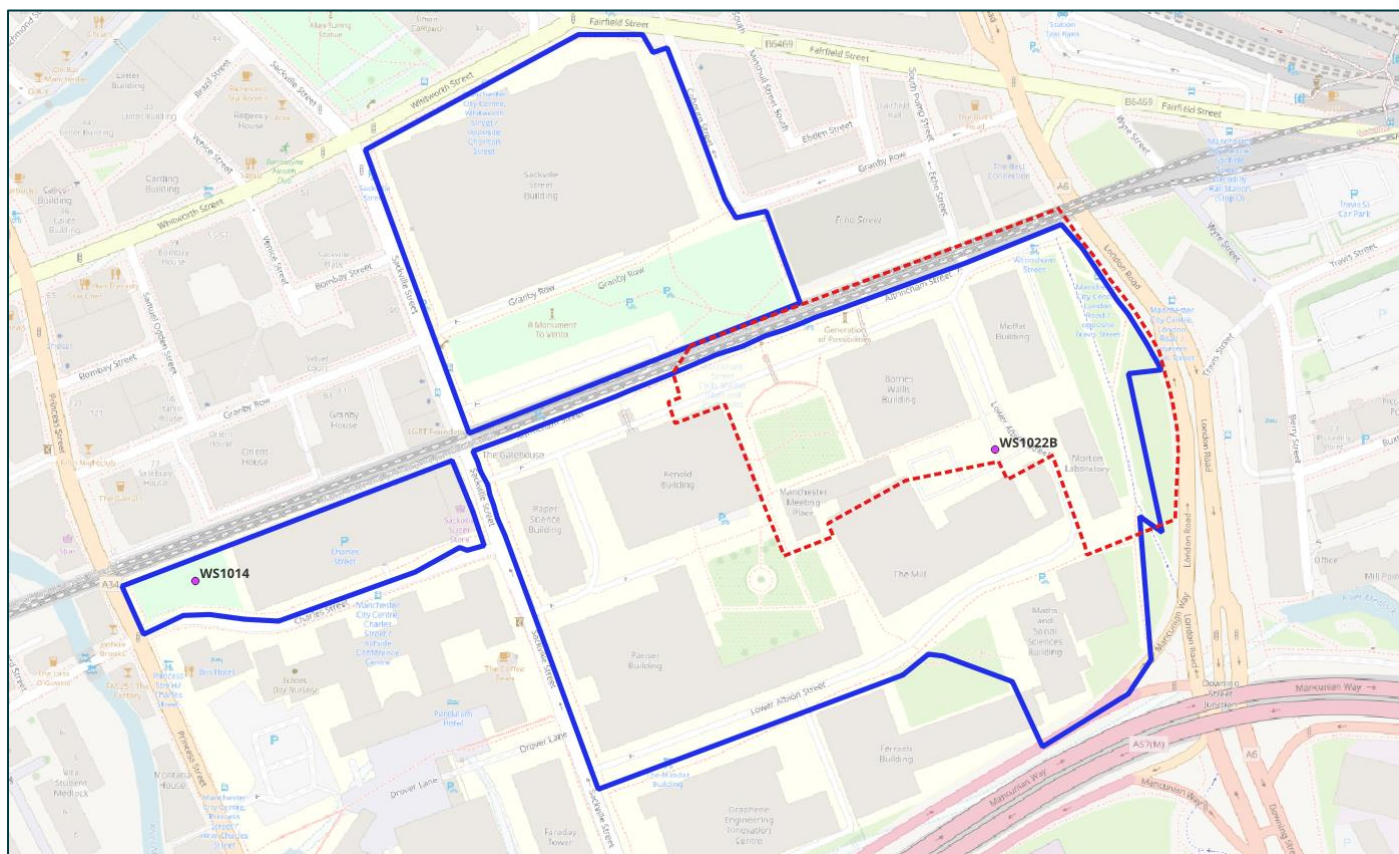
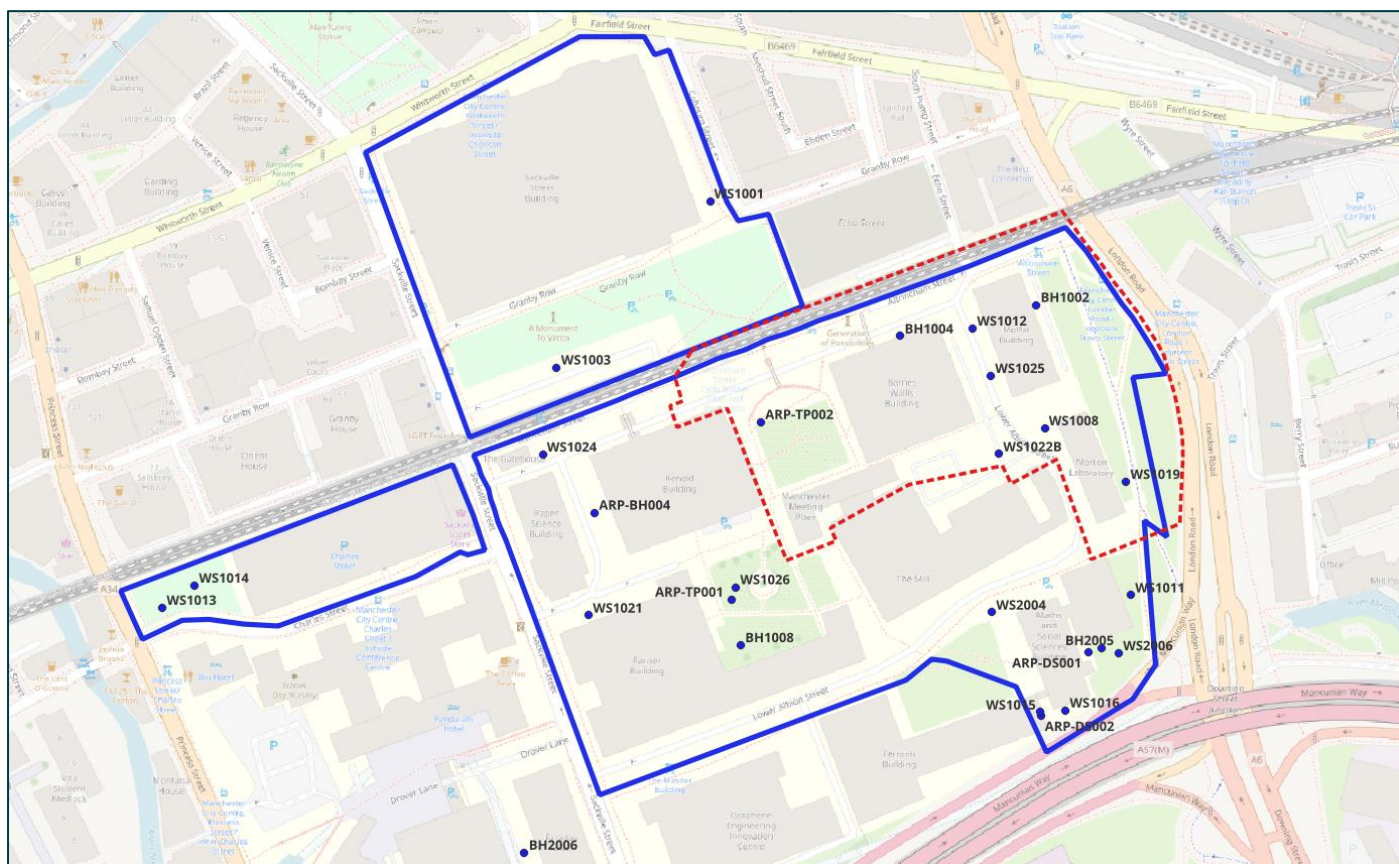


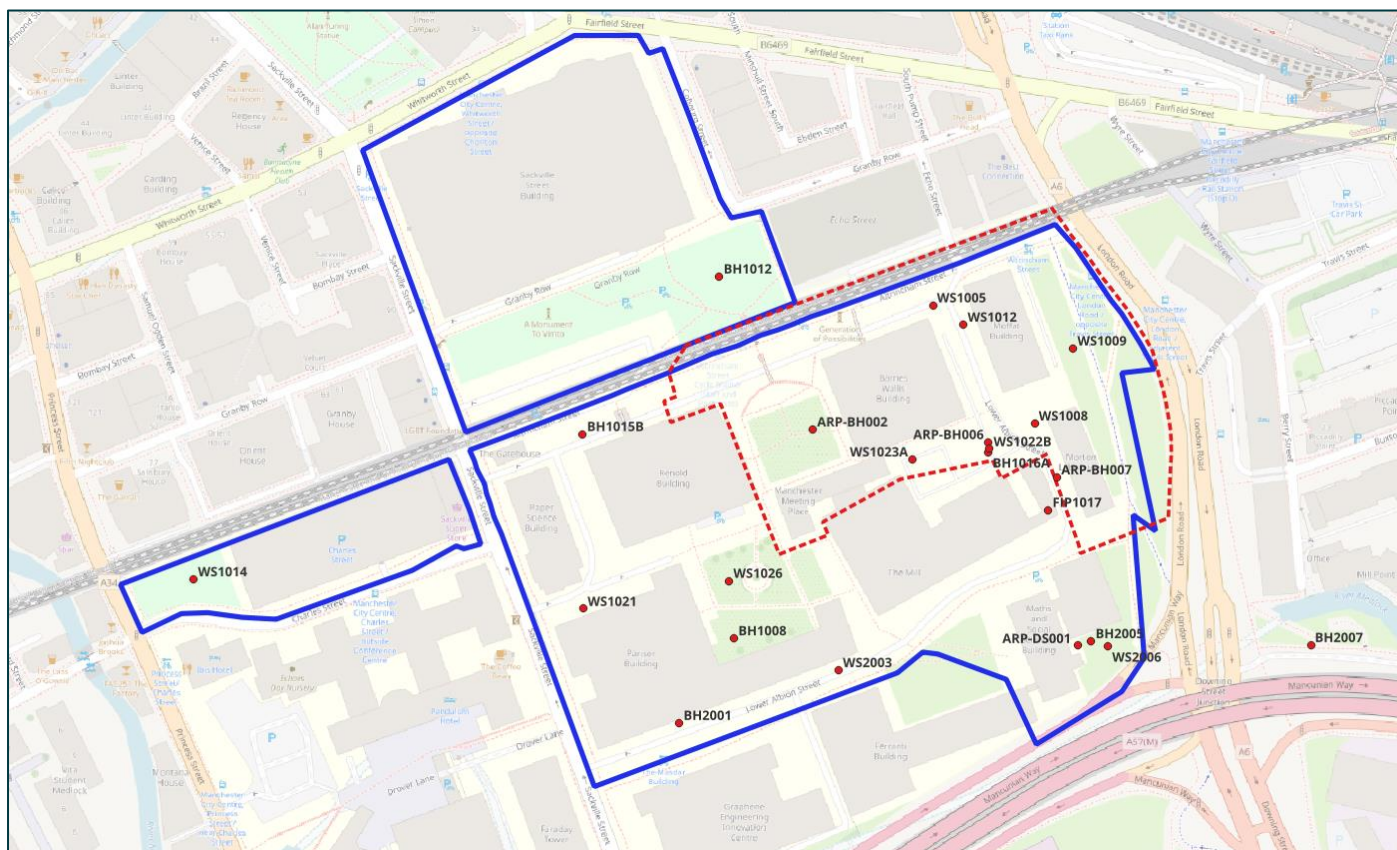
Plate 32: Summary of Elevated Heavy Metal Concentrations in Made Ground Soils (Residential End Use)



[illegible]

The map shows the University of Birmingham campus with various buildings, streets, and green spaces. A blue line outlines a large area, and a red dashed line outlines a smaller area. Two specific locations are marked with purple dots and labeled: WS1014 and WS1022B.

Plate 35: Summary of Asbestos Detected in Made Ground Soils



Based on the above assessments, the risks to human health within the site from recorded concentrations of contaminants in soil are considered to be low to moderate, with a moderate risk associated with the Made Ground soils at borehole BH1002 in the east of the site. It is understood that this area of Plot C will be excavated as part of the development works to facilitate the construction of a service tunnel that will run beneath the new Plot C structures; it is recommended that the hotspot of contamination is delineated and selectively excavated, mitigating the risks to future site users. In addition, asbestos has been detected in the Made Ground soils across the site, which presents a moderate risk to future users and therefore capping layers are recommended in areas of soft landscaping to mitigate the risks to future site users where Made Ground remains at formation level. It is recommended that capping layers are installed in areas of soft landscaping within the site to mitigate the risks to future site users where Made Ground remains at formation level.

7.3. Risks to Human Health from Dissolved Contaminants

A total of 4 perched water samples from the Made Ground, 1 sample from the Secondary Undifferentiated aquifer of the Glacial Till and 36 samples from the Principal aquifer of the Chester Formation have been analysed as part of the site investigation. The groundwater chemical analysis results have been compared to assessment criteria commercial and residential end uses. The results of the assessments are summarised in the following tables in [Appendix I](#):

- Site: Perched Water – Table M (2 samples)
- Site: Principal Aquifer – Table N (15 samples)
- Wider Sister Area: Perched Water – Table O (2 samples)
- Wider Sister Area: Secondary Undifferentiated Aquifer – Table P (1 sample)
- Wider Sister Area: Principal Aquifer – Table Q (21 samples)

The results of the assessment for the indicate that the contaminants are predominantly below their respective thresholds and therefore the potential risks to future site users from vapours from groundwater are considered to be low. A marginally elevated concentration of TPH aliphatic EC>10-12 was recorded in the perched water in borehole WS1001 (45µg/l against a GAC of 37µg/l) during the first sampling round; however, concentrations less than the laboratory LOD were recorded on the second round. On this basis and in consideration that the water in the Made Ground is considered to be perched, limited in nature and non-laterally pervasive, the risk from vapours from groundwater are considered to be low. Further investigation and assessment will be required as the development of the wider Sister area progresses.

7.4. Risks to Human Health and Buildings/Structures from Ground Gas

Gas Screening Values (GSVs) have been calculated in accordance with CIRIA 665²⁵ using the maximum flow rate and maximum carbon dioxide/methane concentration for each individual well during the seven monitoring rounds completed at the site to date. The results of the assessment are summarised in Table 22.

Table 22: Summary of Ground Gas Risk Assessment

Location	Stratum	Steady Flow Rate (l/hr)	Maximum Steady CO ₂ (% vol. in air)	Maximum CH ₄ (% vol. in air)	Maximum GSV*	Characteristic Situation
Plot C Ground Gas Monitoring Locations						
BH1003	Alluvium	0.0	5.3	0.0	<0.0053	CS2*
WS1012	Made Ground	0.0	1.2	0.0	<0.0012	CS1
WS1020	Made Ground	0.0	3.5	0.0	<0.0035	CS1
WS1008	Made Ground	0.0	0.1	0.0	<0.0001	CS1
WS1023A	Made Ground	0.0	21.1	0.0	<0.0211	CS2*
Wider Sister Area Ground Gas Monitoring Locations						
BH1014A	Made Ground	0.0	0.3	0.0	<0.0003	CS1
WS1001 ^A	Made Ground	0.0	1.8	0.0	<0.0018	CS1
WS1006	Made Ground	0.0	9.5	0.0	<0.0095	CS2*
WS1014	Made Ground	0.0	0.5	0.0	<0.0005	CS1
WS1016	Made Ground	0.0	1.3	0.0	<0.0013	CS1
WS1024 ^C	Made Ground	0.0	0.1	0.0	<0.0001	CS1
WS2001 ^D	Made Ground	0.0	0.2	0.0	<0.0002	CS1
WS2002	Made Ground	0.0	0.3	0.0	<0.0003	CS1
WS2004	Made Ground	0.0	0.9	0.0	<0.0009	CS1
WS2006	Made Ground	0.0	4.9	0.0	<0.0049	CS1
WS2007A ^B	Made Ground	0.0	6.5	0.0	<0.0065	CS2*
WS2009 ^B	Made Ground	0.0	0.1	0.0	<0.0001	CS1

Notes: Where flow rate has been recorded as 0.0l/hr, a rate of <0.01 has been used in the GSV calculation (monitoring equipment limit of detection). * CS2 considered as carbon dioxide concentration is greater than 5%v/v.

Based on the ground gas assessment outlined above, the calculated GSVs correlate to a Characteristic Situation (CS) 1 ground gas regime. It is noted however that guidance recommends a CS2 regime is considered where carbon dioxide concentrations above 5%v/v and/or methane concentrations above 1%v/v are recorded. Elevated carbon dioxide concentrations above 5%v/v were recorded in boreholes BH1003 and WS1023A within the site and WS1006 and WS2007 within the wider Sister area.

Review of the Total Organic Carbon (TOC) content of the Made Ground soils analysed generally indicates TOC contents between 0.1% and 7.0% (average of 1.5%). With reference to RB17²⁶, based on the assumption that the Made Ground has been in place for greater than 20 years and an average thickness of 3m, the ground gas generation potential of the Made Ground is considered to be generally representative of CS1 and CS2, with a limited number of Made Ground samples with a TOC representative of CS3.

In consideration of the conceptual site model which includes a historically infilled river channel, contaminative historical industries, up to approximately 7m of Made Ground and the results of the ground gas monitoring completed, the site is considered to be representative of a CS2 regime and ground gas protection measures are recommended. It is noted that further detailed ground gas risk assessment could be undertaken once the detailed design has progressed where proposed formation levels, ventilated basement / service vehicle access routes, waterproofing and ground slab thickness details can be considered, which may allow the ground gas protection level to be reduced.

It is noted that further investigation, monitoring and assessment will be required for the wider Sister area as the development of the wider Sister area progresses.

²⁵ CIRIA (2007) Assessing risks posed by hazardous ground gases to buildings. CIRIA Report C665, London.

²⁶ CL:AIRE (2012) A Pragmatic Approach to Ground Gas Risk Assessment. Research Bulletin RB17. November 2012.

7.5. Risks to Controlled Waters

The potential risks to controlled waters have been assessed based on chemical leachate and groundwater analysis, and are discussed in the following sections. The following controlled water receptors are considered:

- **Culverted River Medlock** – surface water body located approximately 150m south of the site and approximately 60m of the wider Sister area at the closest point.
- **Culverted Charles Street Watercourse** – surface water body located approximately 50m northwest of the site and located within the wider Sister area.
- **Proposed Open River Medlock Channel** – surface water body located approximately 75m south of the site and within the south of the wider Sister area.
- **Glacial Till and Alluvium** – Secondary Undifferentiated aquifers located beneath the site and wider Sister area.
- **Chester Formation** – Principal aquifer located beneath the site and wider Sister area.

7.5.1. Assessment of Leachate Analysis

A total of 28 soil samples from the Made Ground were scheduled for leachate analysis and the results of the assessment are summarised in Table R in [Appendix I](#) where the soil leachate concentrations have been compared to the EQS for freshwater, and in Table S in [Appendix I](#) where the soil leachate results have been compared to the UK Drinking Water Values (DWVs). A summary of the leachate eluate concentration exceedances against the EQS are summarised in Table 23.

Table 23: Summary of Made Ground Leachate Exceedances against EQS

Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Concentration (µg/l)
Arsenic	WS1016	Wider	50	*	78
Chromium (III)	WS1013	Wider	4.7	32	6.7
	FIP1024	Wider			12
	BH1001	On-Site			8.9
	BH1006	Wider			6.6
	WS1008	On-Site			11
Chromium (VI)	WS1013	Wider	3.4	*	9
	FIP1024	Wider			21
	BH1006	Wider			13
	WS1005	On-Site			23
	WS1016	Wider			34
Copper	FIP1024	Wider	1.0	*	2.37
	BH2006	Wider			1.34
	WS2007	Wider			2.13
Lead	WS1013	Wider	1.2	14	1.24
	WS1007	On-Site			1.49
	BH1007	Wider			1.67
Mercury	WS1005	On-Site	*	0.07	0.0945
	BH1009	Wider			0.0735
	WS1016	Wider			0.1889
	FIP1033	On-Site			0.1427
Nickel	WS2007	Wider	4	34	4.84
Zinc	WS2007	Wider	12.3	*	17.81

Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Concentration (µg/l)
	WS1001	Wider			37.15
	BH1009	Wider			58.55
Total Cyanide	FIP1024	Wider	1 ^A	5	2.0
	BH1001	On-Site			1.3
	BH1006	Wider			3.9
	WS1012	On-Site			590
	WS1023A	On-Site			1.3
	WS1005	On-Site			150
	BH1008	Wider			52
	BH1016A	On-Site			12
	BH1009	Wider			1.4
	WS1016	Wider			1.8
	BH2006	Wider			5.2
Total TPH	BH1005	On-Site	*	10	62
	BH1015B	Wider			100
Anthracene	BH1005	On-Site	0.1	0.1	0.19
Fluoranthene	BH1005	On-Site	0.0063	0.12	0.15
pH	FIP1024	Wider	*	6.0 to 9.0	12
	BH1001	On-Site			9.3
	BH1006	Wider			11.4
	WS1005	On-Site			10.7
	WS1016	Wider			9.3
	WS2007	Wider			5.6

Exceedances against the Annual Average only are highlighted orange with exceedances against the Annual Average and Maximum Allowable are highlighted blue. A = EQS for free cyanide stated.

A summary of the leachate eluate concentration exceedances against the DWVs is provided in Table 24.

Table 24: Summary of Made Ground Leachate Exceedances against DWV

Contaminant	Location	Area	DWV (µg/l)	Concentration (µg/l)
Arsenic	WS1023A	On-Site	10	13
	WS1008	On-Site		15
	WS1005	On-Site		30
	WS1016	Wider		78
	FIP1033	On-Site		12
Total Phenols	FIP1024	Wider	0.5	1.7
	WS1007	On-Site		2.4
	BH1016A	On-Site		2.4
	BH1007	Wider		1.8

Contaminant	Location	Area	DWV (µg/l)	Concentration (µg/l)
	BH1005	On-Site		1.3
	BH1006	Wider		1.5
	WS1008	On-Site		1.3
	BH1015B	Wider		1.8
	WS1016	Wider		1.1
	WS2005	Wider		1.5
	BH2002	Wider		1.1
Total Cyanide	WS1012	On-Site	50	590
	WS1005	On-Site		150
	BH1008	Wider		52
Total TPH	BH1005	On-Site	10	62
	BH1015B	Wider		100
pH	WS2007	Wider	6.5 to 9.5	5.6
	FIP1024	Wider		12.0
	BH1006	Wider		11.4
	WS1005	On-Site		10.7
Total Sulphate	WS1023A	On-Site	250	817

7.5.2. Assessment of Analysis of Groundwater Samples

A total of 4 perched water samples from the Made Ground, 1 sample from the Secondary Undifferentiated aquifer of the Glacial Till and 36 samples from the Principal aquifer of the Chester Formation have been analysed as part of the site investigation, and the potential risks to controlled waters assessed against the EQS and DWVs. The results of the groundwater assessments are summarised in the following tables in [Appendix I](#).

- Perched Water EQS Assessment – Table T
- Secondary Undifferentiated EQS Assessment – Table U
- Principal Aquifer EQS Assessment – Table V
- Perched Water DWV Assessment – Table W
- Secondary Undifferentiated DWV Assessment – Table X
- Principal Aquifer DWV Assessment – Table Y

Perched Water

Assessment of the perched water results indicate that the contaminant concentrations are below their respective assessment thresholds with the exception of the following contaminants outlined in Table 25. Two sampling rounds were carried out at each location.

Exceedances against the EQS Annual Average only are highlighted orange. Exceedances against the EQS Annual Average and Maximum Allowable (but not exceeding the DWV) are highlighted blue. Exceedances against the DWV only are highlighted red. Exceedances against the Annual Average EQS and DWV are highlighted yellow. If two sampling rounds have been carried out, first or second round is denoted by (1) and/or (2) in the location reference.

Table 25: Summary of Perched Water Exceedances against EQS and DWV

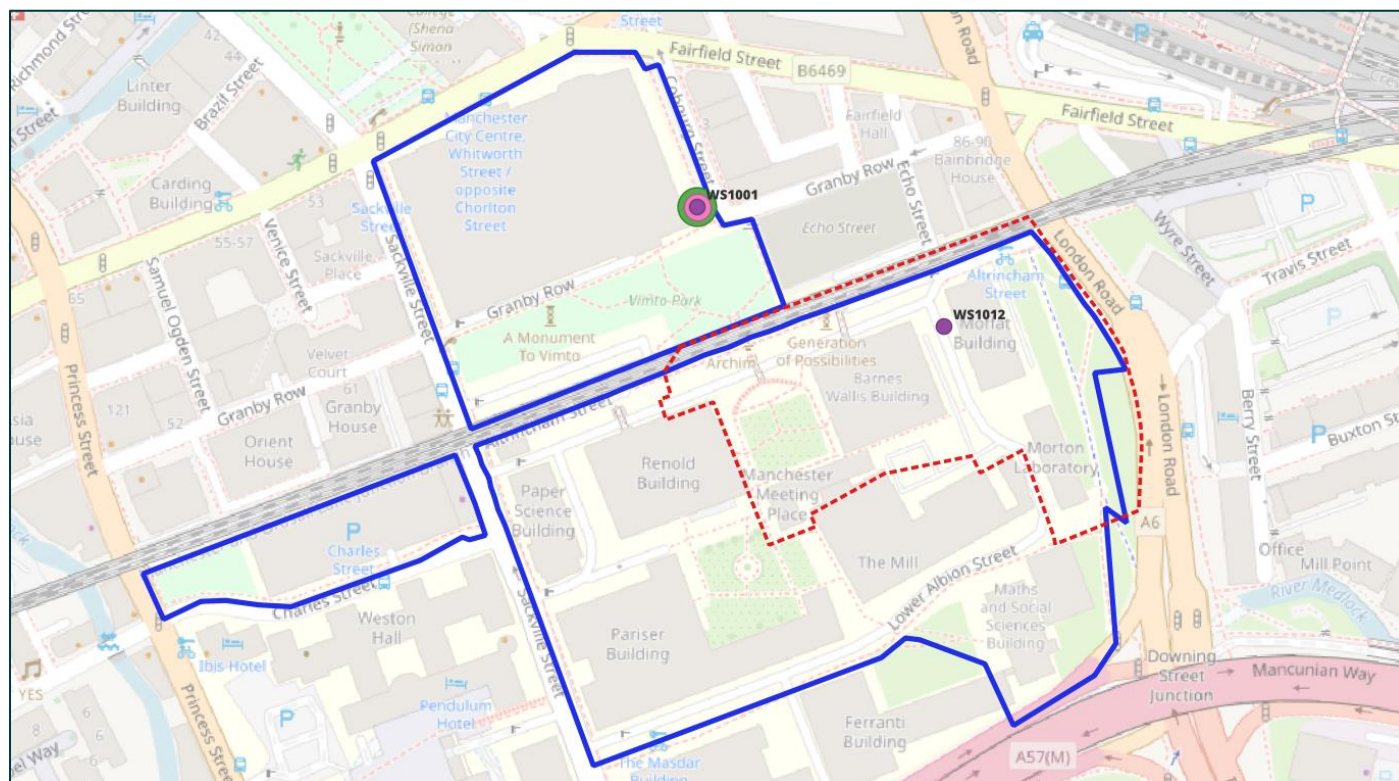
Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	DWV (µg/l)	Concentration (µg/l)
Arsenic	WS1001 ¹	Wider	50	*	10	18.3
Total Phenols	WS1001 ²	Wider	7.7	46	0.5	1.9

Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	DWV (µg/l)	Concentration (µg/l)
Total Cyanide	WS1001 ¹	Wider	1	5	50	6.4
	WS1001 ²	Wider				3.5
	WS1012 ¹	On-Site				97
	WS1012 ²	On-Site				120
Total TPH	WS1001 ¹	Wider	*	10	10	1,100
Fluoranthene	WS1001 ¹	Wider	0.0063	0.12	*	0.09
Ammoniacal N	WS1001 ¹	Wider	*	750	500	1,100
	WS1001 ²	Wider				630
	WS1012 ¹	On-Site				4,400
	WS1012 ²	On-Site				4,000

It is noted that VOC and SVOC analysis was undertaken on each of the four perched water samples with concentrations recorded below the laboratory detection (3.0µg/l or 0.01µg/l) with the exception of 4-Methylphenol (1.18µg/l) and 3+4-Methylphenol (1.2µg/l) during the first sampling round. The concentrations were recorded as <0.01µg/l during the second sampling round.

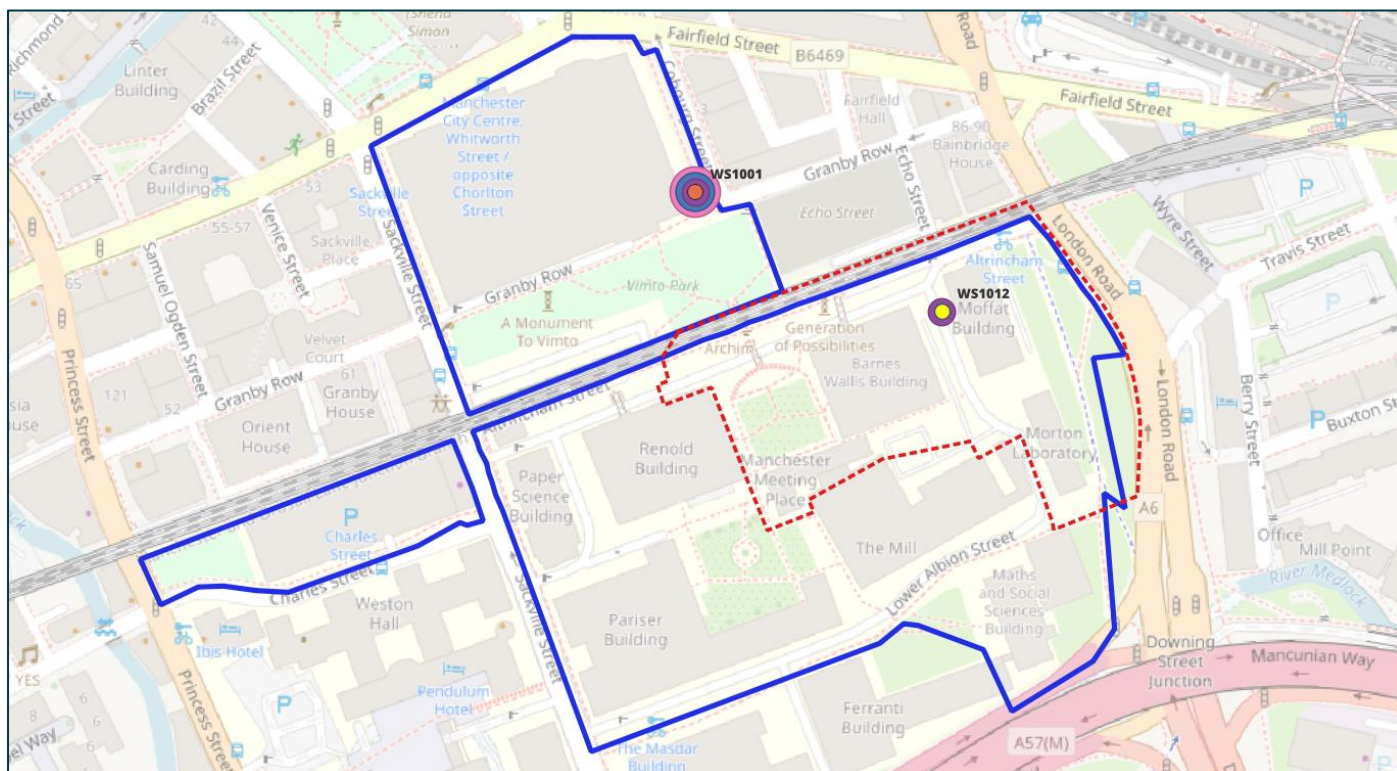
A summary of the elevated contaminant concentrations against the EQS in the perched water are illustrated in Plate 36 and against the DWV in Plate 37. It is noted that elevated concentrations of total cyanide have not been included on Plate 36 as the EQS for total cyanide is based on the EQS for free cyanide, where concentrations below the laboratory limit of detection (<1µg/l to <10µg/l) have been recorded.

Plate 36: Summary of Elevated Contaminants against EQS in Perched Water



Notes: Purple = Ammoniacal Nitrogen; Total TPH = Pink; PAH = Green

Plate 37: Summary of Elevated Contaminants against DWV in Perched Water



Notes: Purple = Ammoniacal Nitrogen; Total TPH = Pink; Total Cyanide = Yellow; Arsenic = Blue; Total Phenols = Orange

Shallow Secondary Undifferentiated Aquifer

Assessment of the results of testing of the sample from the shallow aquifer indicate that the contaminant concentrations are below their respective assessment thresholds with the exception of the following contaminants outlined in Table 26. As per Table 25, exceedances against the EQS Annual Average only are highlighted orange. Exceedances against the EQS Annual Average and Maximum Allowable (but not exceeding the DWV) are highlighted blue. Exceedances against the DWV only are highlighted red. Exceedances against the Annual Average EQS and DWV are highlighted yellow.

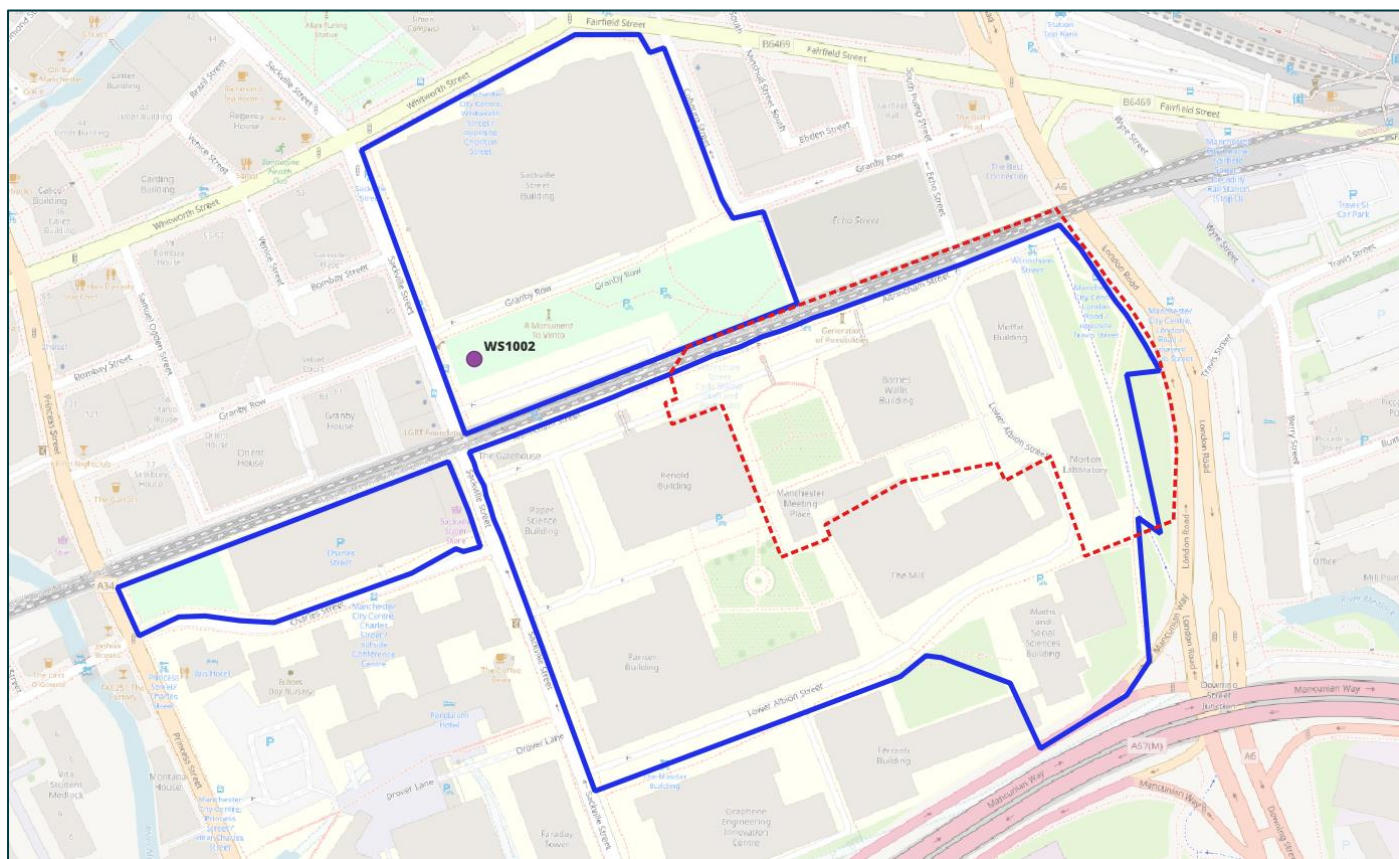
Table 26: Summary of Secondary Aquifer Exceedances against EQS and DWV

Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	DWV (µg/l)	Concentration (µg/l)
Ammoniacal N	WS1002	Wider	*	750	500	4,800
Sulphate as SO ₄	WS1002	Wider	*	*	250	1,320

It is noted that VOC and SVOC analysis was undertaken on the water sample with concentrations recorded below the laboratory detection (3.0µg/l or 0.01µg/l).

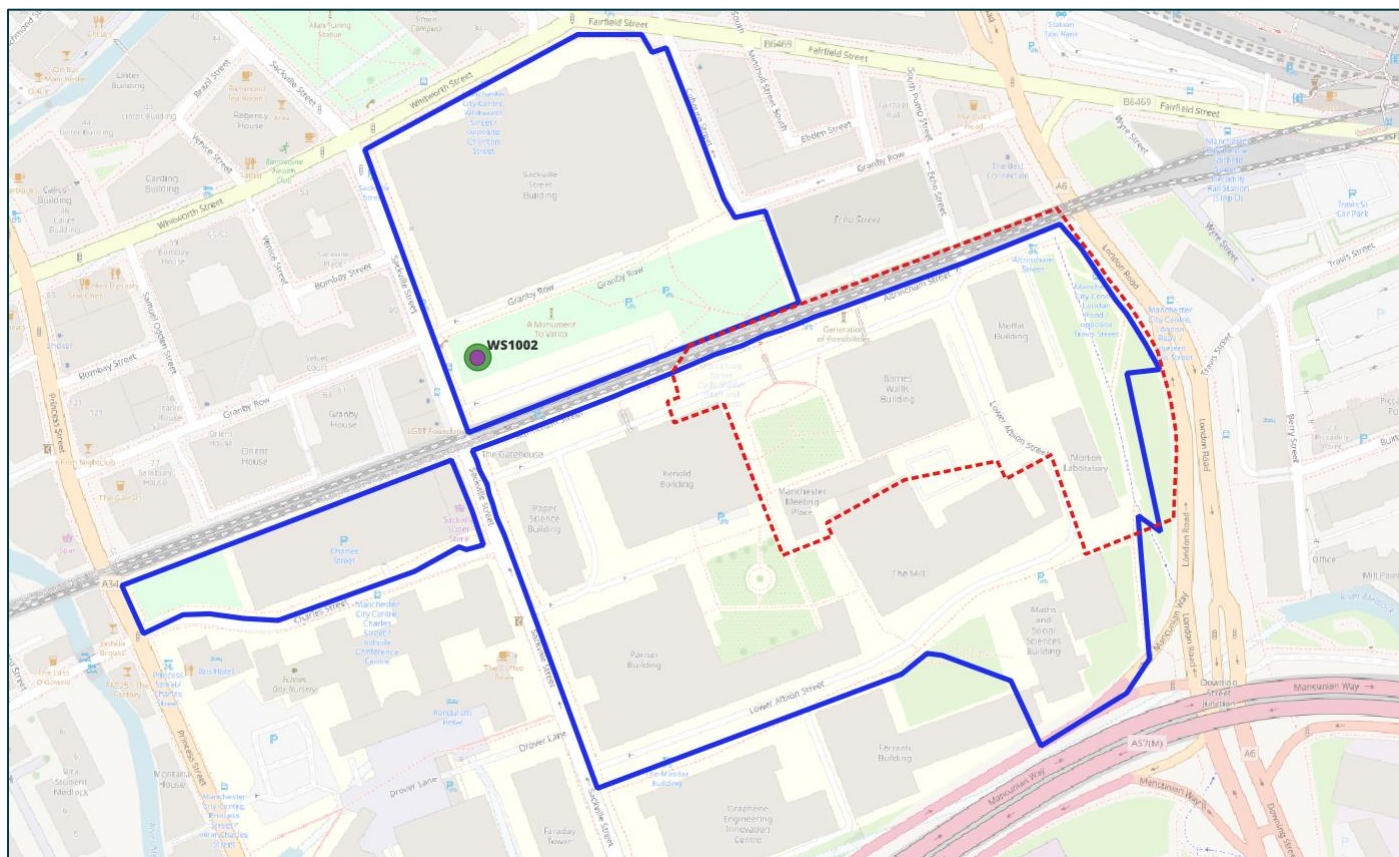
A summary of the elevated contaminant concentrations against the EQS in the shallow aquifer water are illustrated in Plate 38 and against the DWV in Plate 39.

Plate 38: Summary of Elevated Contaminants against EQS in Shallow Aquifer



Notes: Purple = Ammoniacal Nitrogen

Plate 39: Summary of Elevated Contaminants against DWV in Shallow Aquifer



Notes: Purple = Ammoniacal Nitrogen; Green = Total Sulphate

Principal Aquifer

Assessment of the Principal results indicate that the contaminant concentrations are below their respective assessment thresholds with the exception of the following contaminants outlined in Table 27. Exceedances against the EQS Annual Average only are highlighted orange. Exceedances against the EQS Annual Average and Maximum Allowable (but not exceeding the DWV) are highlighted blue. Exceedances against the DWV only are highlighted red. Exceedances against the Annual Average EQS and DWV are highlighted yellow. The sampling round is denoted by (1), (2) and/or (3) in the location reference.

Table 27: Summary of Principal Aquifer Exceedances against EQS and DWV

Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	DWV (µg/l)	Concentration (µg/l)
Cadmium	BH1007 ²	Wider	0.25	1.5	5	0.98
	BH1007 ³	Wider				1.90
Chromium III	BH2007 ¹	Wider	4.7	32	*	5.1
	BH2007 ²	Wider				25
	BH2007 ³	Wider				48
Chromium VI	BH2007 ¹	Wider	3.4	*	*	6.9
	BH2007 ²	Wider				9.9
Lead	BH1007 ²	Wider	1.2	14	10	43.56
	BH1007 ³	Wider				8.39
Mercury	BH2006 ¹	Wider	*	0.07	1	0.08
	BH1017 ¹	On-Site				0.11
Nickel	BH1005 ¹	On-Site	4	34	20	5.52
Selenium	BH2007 ¹	Wider	*	*	10	18
	BH2007 ²	Wider				13
	BH2007 ³	Wider				21
Zinc	BH1007 ²	Wider	12.3	*	5,000	18.67
	BH1007 ³	Wider				73.22
	BH1005 ³	On-Site				14.83
Total Phenols	BH1002 ¹	On-Site	7.7	46	0.5	1.2
	BH1017 ¹	On-Site				1.4
	BH1007 ³	Wider				1.9
	BH2002 ³	Wider				1.4
	BH1008 ³	Wider				1.6
	BH2006 ³	Wider				1.5
	BH1006 ³	Wider				1.0
	BH1002 ³	On-Site				1.5
	BH1001 ³	On-Site				1.4
	BH1013A ³	Wider				1.5
	BH1016A ¹	On-Site				1.4
	BH1017 ³	On-Site				1.6
	BH1016A ²	On-Site				1.6

Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	DWV (µg/l)	Concentration (µg/l)
	BH1005 ³	On-Site				1.5
Total Cyanide	BH1001 ¹	On-Site	1	5	50	2.7
	BH1001 ²	On-Site				1.5
	BH1002 ¹	On-Site				2.5
	BH1002 ²	On-Site				3.5
	BH1002 ³	On-Site				3.4
	BH1005 ¹	On-Site				24
	BH1005 ¹	On-Site				20
	BH1005 ²	On-Site				13
	BH1005 ³	On-Site				12
	BH1006 ¹	Wider				2.3
	BH1006 ²	Wider				3.9
	BH1006 ³	Wider				3.7
	BH1007 ²	Wider				41
	BH1007 ³	Wider				26
	BH1008 ³	Wider				2.2
	BH1013A ¹	Wider				4.4
	BH1013A ²	Wider				6.8
	BH1013A ³	Wider				7.4
	BH1016A ¹	On-Site				28
	BH1016A ²	On-Site				24
	BH2002 ³	Wider				1.4
	BH2006 ²	Wider				2.2
	BH2006 ³	Wider				2.4
	BH2007 ¹	Wider				5.3
	BH2007 ²	Wider				6.1
Free Cyanide	BH1016A ¹	On-Site	1	5	*	1.5
	BH1016A ²	On-Site				1.2
Total TPH	BH1005 ¹	On-Site	*	10	10	69
	BH1005 ¹	On-Site				77
	BH1005 ²	On-Site				39
	BH1007 ¹	Wider				55
	BH1017 ¹	On-Site				26
Benzo(a)pyrene	BH1002 ²	On-Site	0.00017	0.27	0.01	0.10
	BH1007 ¹	Wider				0.38
Benzo(b)fluoranthene	BH1002 ²	On-Site	*	0.017	*	0.13

Contaminant	Location	Area	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	DWV (µg/l)	Concentration (µg/l)
	BH1007 ¹	Wider				0.45
Benzo(k)fluoranthene	BH1002 ²	On-Site	*	0.017	*	0.04
	BH1007 ¹	Wider				0.18
Benzo(ghi)fluoranthene	BH1007 ¹	Wider	*	0.0082	*	0.23
Fluoranthene	BH1001 ¹	On-Site	0.0063	0.12	*	0.11
	BH1002 ²	On-Site				0.31
	BH1002 ³	On-Site				0.06
	BH1005 ¹	On-Site				0.08
	BH1005 ¹	On-Site				0.18
	BH1006 ³	Wider				0.02
	BH1007 ¹	Wider				0.63
	BH1013A ³	Wider				0.03
	BH1016A ¹	On-Site				0.09
	BH2006 ³	Wider				0.01
	BH2007 ³	Wider				0.13
PAH	BH1007 ¹	Wider	*	*	0.1	0.82
Ammoniacal N	BH1005 ¹	On-Site	*	750	500	1,200
	BH1005 ¹	On-Site				1,100
	BH1005 ²	On-Site				1,200
	BH1005 ³	On-Site				830
	BH1006 ²	Wider				1,100
	BH1006 ³	Wider				770
	BH1007 ¹	Wider				4,300
	BH1007 ³	Wider				770
	BH2006 ¹	Wider				1,000
	BH2006 ²	Wider				540
	BH2006 ³	Wider				560

As outlined in Section 5.7, suspected hydrocarbon contamination was encountered within the Principal aquifer at 16.50mbgl within borehole BH1005 where water extracted from the borehole during the drilling process had an oily sheen with strong hydrocarbon odour. The borehole was terminated at this depth to avoid creating new potential pathways into the underlying sandstone via the drilling process. A groundwater monitoring well was installed within the borehole to facilitate groundwater sampling although it is noted that the base of the monitoring well had silted up to approximately 14.90m for the subsequent groundwater monitoring rounds and as such it was not possible to lower the interface probe to the base of the well to investigate the presence (or absence) of free product. Two groundwater samples were obtained from borehole BH1005 on the first monitoring round in May 2024 (one sample after bailing 1 times the well volume and one sample after bailing 3 times the well volume) and two further samples in June 2024 and March 2025. As outlined in Table 27, whilst elevated concentrations of total TPH were recorded, they were below 100 µg/l (between 39µg/l and 77µg/l, typically aromatic >EC10-35). A hydrocarbon sheen with slight hydrocarbon odour was observed on the groundwater during the first sampling round; however, no recordable thickness of free product was recorded. A hydrocarbon odour was recorded during the second sampling round; however, no visible sheen was observed. This potential hydrocarbon hotspot of contamination is further discussed in Section 7.5.3.

VOC and SVOC analysis undertaken on each of the Principal aquifer samples recorded concentrations below the

laboratory detection (3.0µg/l or 0.01µg/l) with the exception of chloroform in borehole BH1017 where concentrations of 17.5µg/l and 10.1µg/l recorded on the first and second sampling rounds, respectively. The concentrations recorded are noted to exceed the EQS for chloroform (trichloromethane) of 2.5µg/l; however, the concentrations are below the DWV of 100µg/l (DWV for total trihalomethanes which includes chloroform, bromoform, dibromochloromethane and bromodichloromethane).

In addition, tributyltin analysis was undertaken on four samples from BH1006 and BH1007 which recorded concentrations below the laboratory detection (<0.01µg/l). Analysis for dissolved tin was also scheduled on three of the four samples (as insufficient sample available for the first sampling round at borehole BH1007) with concentrations of <0.2µg/l recorded in borehole BH1006. A concentration of 0.71µg/l was recorded in borehole BH1007 which is below the Annual Average EQS of 25µg/l.

A summary of the elevated contaminant concentrations against the EQS in the Principal aquifer are illustrated in Plate 40 and against the DWV in Plate 41. The historical Arup exploratory hole locations where elevated concentrations against the EQS and DWV have been identified have also been included in Plate 40 and Plate 41 for completeness.

It is noted that elevated concentrations of total cyanide have not been included on Plate 40 as the EQS for total cyanide is based on the EQS for free cyanide, where concentrations below the laboratory limit of detection (<1µg/l to <10µg/l) have been recorded with the exception of borehole BH1016A where marginal exceedances of the EQS were recorded. Similarly, the inorganic compounds identified by Arup to be within background concentrations of the aquifer (arsenic, cadmium, chromium, copper, manganese, nickel and zinc) where concentrations were recorded above the GWGAC have not been included in Plate 40 or Plate 41 as the concentrations were deemed to be within baseline ranges and considered to be naturally occurring, and therefore not considered further within their assessment. Review of the concentrations of cadmium, chromium, nickel and zinc recorded as part of the Civic Earth site investigation against the background groundwater concentrations of the aquifer²⁷ indicate the concentrations recorded by Civic Earth are also within the baseline ranges and/or Arup's historical concentration ranges, and therefore have not been illustrated in Plate 40 or Plate 41.

A summary of the concentrations of heavy metals recorded within the Principal aquifer during the Arup and Civic Earth site investigations and baseline concentrations of the aquifer is provided in Table 28.

Table 28: Summary of Aquifer Heavy Metal Baseline Concentrations and Site Investigation Recorded Concentrations

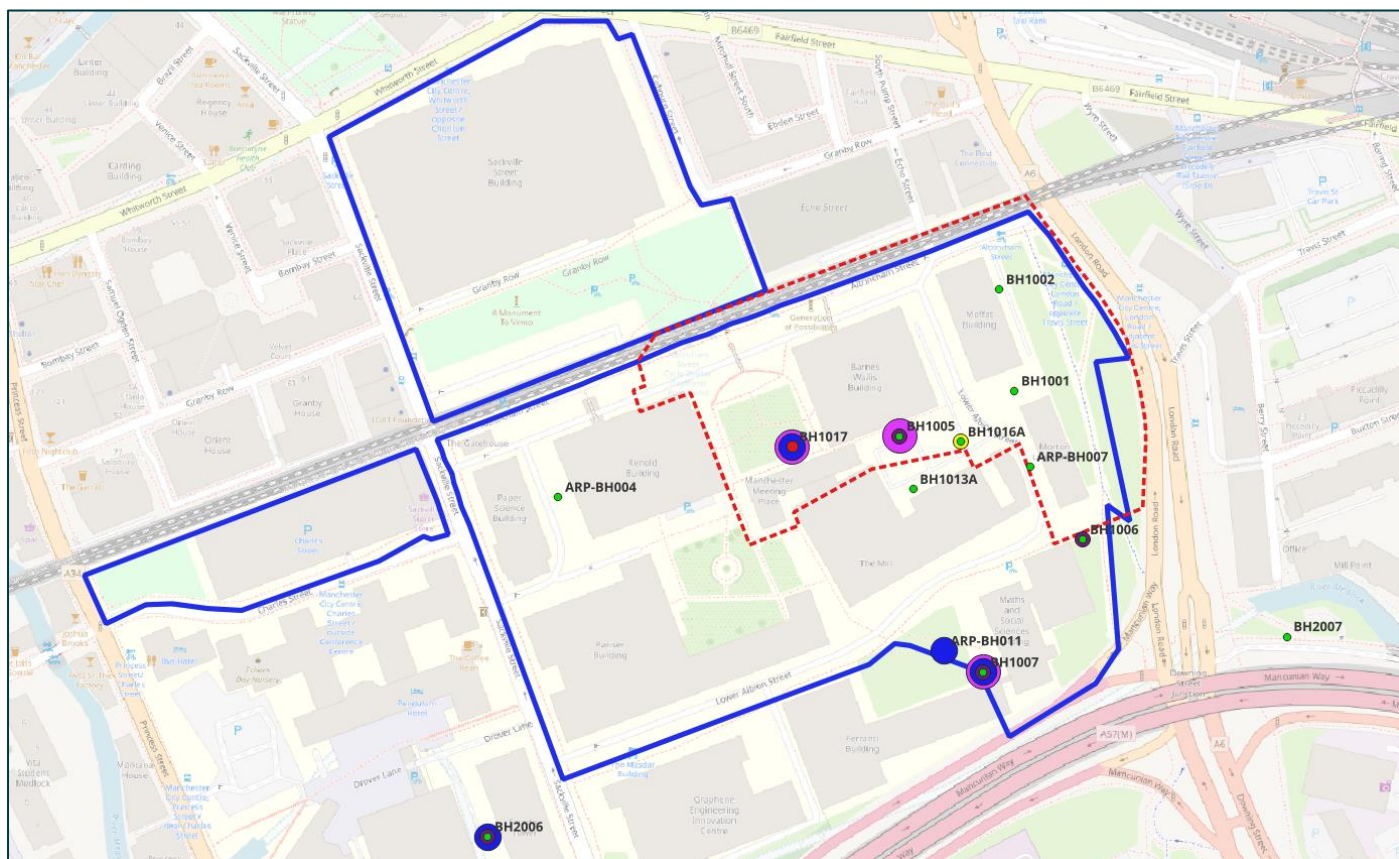
Contaminant	EQS Annual Average [Max. Allowable] (µg/l)	DWV (µg/l)	Aquifer Baseline Concentration Range ²⁷ (µg/l) [Mean Concentration]	Arup Recorded Concentration Range (µg/l)	Civic Earth Recorded Concentration Range (µg/l)
Arsenic	50 [*]	10	<0.05 to 215 [11.5]	0.57	<0.15 to 4.41
Cadmium	0.25 [1.5]	5	<0.05 to 42 [1.9]	0.38	<0.02 to 1.9
Chromium ^A	3.4 [*]	50	<0.5 to 25 [3.4]	1.10	<5.0 to 25
Copper ^B	1.0 [*]	2,000	<0.5 to 420 [16.2]	0.5	0.09 to 0.97
Manganese	123 [*]	50	1.0 to 1,790 [292]	210	-
Nickel ^B	4 [34]	20	<0.2 to 59 [9.1]	3.7	0.15 to 5.52
Zinc ^B	12.3 [*]	5,000	3.4 to 177.4 [26.5]	45	0.28 to 73.22

^A Concentration for Chromium VI stated for EQS and Civic Earth concentrations. ^B Bioavailable concentrations stated for Civic Earth concentrations.

* Not available.

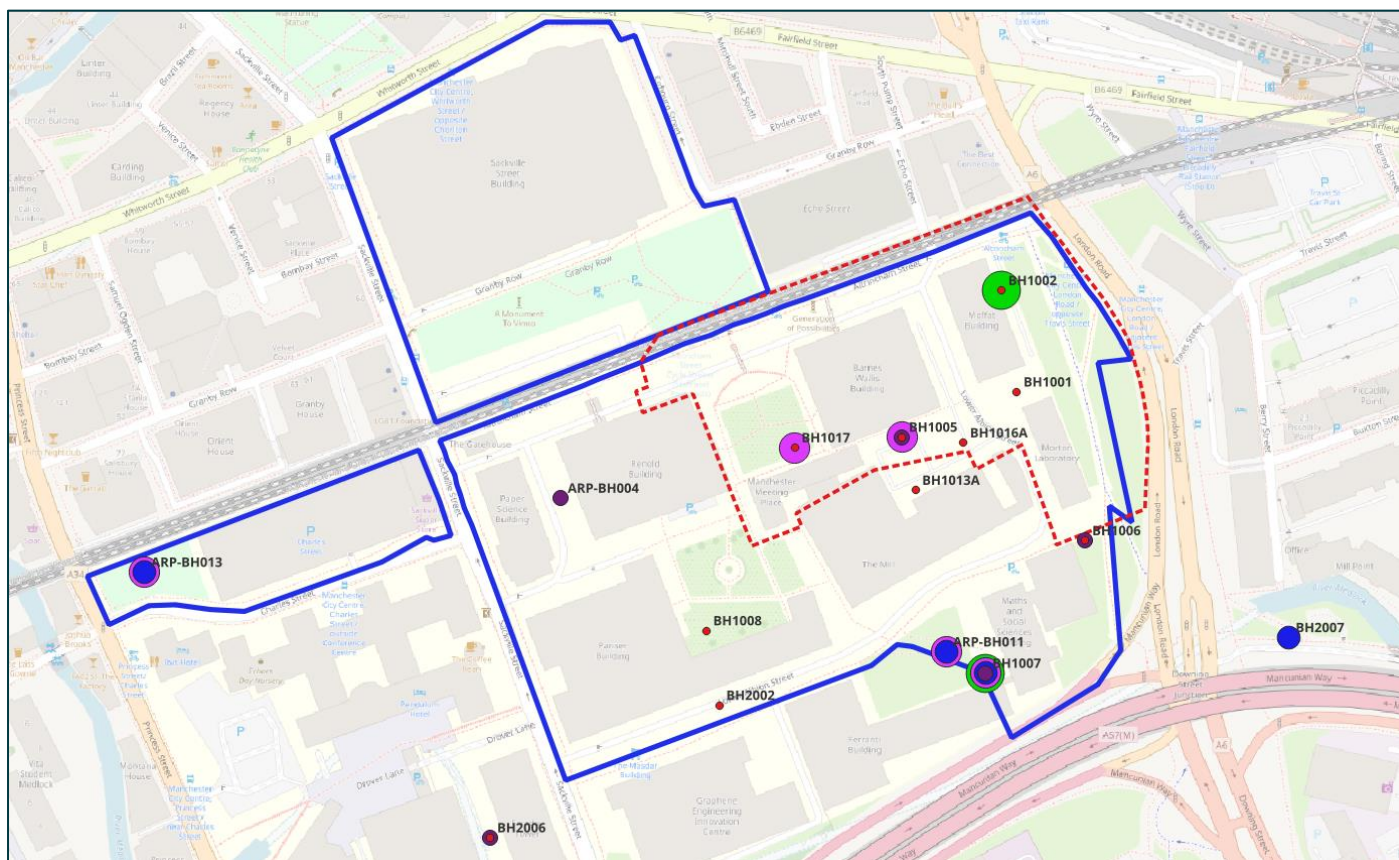
²⁷ BGS and EA (2003) Baseline Report Series: 8. The Permo-Triassic Sandstones of Manchester and East Cheshire. EA Technical Report Reference NC/99/74/8.

Plate 40: Summary of Elevated Contaminants against EQS in Principal Aquifer



Notes: Ammoniacal Nitrogen = Purple; Total TPH = Pink; PAH = Green; Selenium/Lead = Blue; Total TPH = Red; Free Cyanide = Yellow

Plate 41: Summary of Elevated Contaminants against DWV in Principal Aquifer



Notes: Ammoniacal Nitrogen = Purple; Total TPH = Pink; PAH = Green; Selenium/Lead = Blue; Total Phenols = Red

7.5.3. Summary of Controlled Waters Assessment

The results of the Made Ground EQS leachate assessment indicate that concentrations of heavy metals (chromium III, chromium VI, copper, lead, mercury, nickel and zinc), total cyanide, total TPH, anthracene, fluoranthene, total sulphate and pH have the potential to leach at elevated concentrations which may present a potential risk to controlled waters. The results of the Made Ground perched water assessment recorded elevated concentrations of total cyanide, total TPH, fluoranthene and ammoniacal nitrogen against the EQS. Concentrations of free cyanide were recorded below the laboratory limits of detection. It is noted that elevated dissolved phase concentrations of the majority of the heavy metals, pH and total sulphate identified in the leachate assessment were not reflected in the perched water and that generally low concentrations of the contaminants were recorded in the Made Ground total soil assessment at boreholes WS1001 and WS1012.

The results of the Secondary Undifferentiated aquifer EQS assessment did not record elevated contaminant concentrations with the exception of ammoniacal nitrogen. The results of the Principal aquifer EQS assessment recorded elevated concentrations of heavy metals (cadmium, chromium III, chromium VI, lead, mercury, nickel and zinc), total cyanide, total TPH, PAHs, chloroform and ammoniacal nitrogen. Concentrations of free cyanide were recorded below the laboratory limits of detection with the exception of borehole BH1016A where marginal exceedances of the EQS were recorded on each of the two sampling rounds.

The results of the Made Ground DWV leachate assessment indicate that concentrations of arsenic, total phenols, total cyanide, total TPH, pH and total sulphate have the potential to leach at elevated concentrations which may present a risk to controlled waters. The results of the perched water assessment recorded elevated concentrations of arsenic, total phenols, total cyanide, total TPH and ammoniacal nitrogen against the DWV. The results of the Secondary Undifferentiated aquifer DWV assessment did not record elevated contaminant concentrations with the exception of total sulphate. The results of the Principal aquifer DWV assessment indicate that concentrations of lead, selenium, total TPH, PAH and ammoniacal nitrogen exceed the DWV thresholds.

Whilst the leachate assessment indicated some elevated concentrations which theoretically may present a risk to controlled waters and some elevated concentrations have been recorded within the water bodies encountered, the risks to controlled waters from the Made Ground, perched water and shallow Secondary Undifferentiated aquifer within the site are generally considered to be low on the basis of the following:

- The discontinuous nature of the perched water and shallow Secondary undifferentiated aquifer and presence of cohesive Glacial Till deposits beneath areas of the wider Sister area, including the site, will mitigate lateral and vertical contaminant migration.
- Elevated concentrations of total cyanide have been recorded against the EQS; however, concentrations of free cyanide have been recorded below the laboratory limits of detection (1µg/l and 10µg/l) with the exception of borehole BH1016A where very marginal exceedances of the EQS have been detected (1.5µg/l and 1.2µg/l) have been recorded.
- The concentrations of heavy metals (arsenic, cadmium, chromium, nickel and zinc) recorded are within the concentration ranges recorded during the historical Arup investigation and within the background concentrations of the aquifer²⁷. The exceedances are generally low level. It is noted that the very marginal exceedances of mercury were recorded off-site at borehole BH2007 (up hydraulic gradient the site) and at borehole BH1017 during the first sampling round; however, the exceedance was noted to be marginal (0.11µg/l against an EQS of 0.08µg/l) and concentrations were below the EQS on the second sampling round).
- The elevated concentrations of ammoniacal nitrogen in the Principal aquifer have been recorded in proximity to the historical route of the River Medlock which is not unexpected given the likely brackish / organic rich nature of natural deposits associated with the historical river route. Elevated concentrations of ammoniacal nitrogen have not been recorded in the boreholes within the Principal aquifer which are located away from the historical river route, suggesting that the discontinuous nature of the perched water and shallow Secondary undifferentiated aquifer and presence of cohesive Glacial Till deposits beneath areas of the wider Sister area mitigate lateral and vertical migration of ammoniacal nitrogen.
- The elevated concentrations of chloroform in the Principal aquifer are noted to be within an order of magnitude of the EQS, were recorded to reduce in concentration between the two sampling rounds and are not reflected in the downgradient groundwater samples and therefore considered to pose a low risk to surface water bodies. The concentrations recorded are below the DWV threshold and therefore considered to pose a low risk to drinking water supplies. It is possible that the source of chloroform is the historical laboratory use of the UOM buildings where the chloroform may have accumulated within the building's drains, and therefore an on-going source is not considered to be present.
- Large areas of the site are currently, and will continue to be, covered in hardstanding and buildings, which will continue to limit infiltration and the potential for contaminant leaching / migration.
- The proposed enabling works and construction works will include the excavation of a proportion of the Made Ground which will result in the removal of potential contamination in these areas.
- The DWVs are considered to be a conservative assessment as the perched water and shallow Secondary

undifferentiated aquifer are unlikely to be used as a drinking water source.

- It is assumed that the culverted Charles Street Watercourse, which is understood to pass below Granby Row and beneath Plot H in the west of the wider Sister area, is brick or concrete lined which will mitigate lateral and vertical contaminant migration into the watercourse.
- The culverted River Medlock to the south of the wider Sister area is concrete lined which will mitigate lateral and vertical contaminant migration into the watercourse.
- Currently the design of the proposed new river channel at the site is unknown; however, as the channel will need to be designed to hold water it is assumed that the channel will be lined either with an impermeable membrane or clay liner and therefore not in hydraulic continuity with groundwater.

However, a potential risk to controlled waters is considered to be present at borehole BH1005 where hydrocarbon impacted groundwater was encountered at a depth of 16.50mbgl. Review of the available Principal aquifer groundwater strike information, groundwater monitoring data and groundwater analysis data within the surrounding boreholes (BH1002 to the north, boreholes BH1001, BH1002 and BH1003 to the northeast/east, borehole BH1016A to the southeast within the footprint of the historical retort house), borehole BH1015B to the south and borehole BH1017 to the west) suggests that the hydrocarbon contamination is localised around borehole BH1005 with no visual or olfactory signs of hydrocarbon contamination during drilling of the boreholes noted, nor elevated dissolved phase hydrocarbon concentrations recorded in boreholes BH1001, BH1002 or BH1015B. Marginally elevated concentrations of TPH were recorded in the Principal aquifer in borehole BH1017 on the first sampling round; however, concentrations were less than the laboratory limit of detection on the second and third sampling rounds. It is recommended that further investigation and assessment at borehole BH1005 is carried out. Further details are provided in Section 8.

Notwithstanding the above, hotspots of gross hydrocarbon contamination within the Made Ground have been identified within the site which are considered to present a potential risk to controlled waters. A summary of the hotspots and corresponding contaminant and recorded concentrations is presented in Table 29. The elevated concentrations are highlighted. It is recommended that the hotspots of contamination are delineated and excavated / remediated to mitigate the potential risks to controlled waters; further details are provided in Section 8.

Table 29: Summary of Made Ground considered to present a potential risk to controlled waters within the site

Location	Contaminant	Sample Depth (mbgl)	Concentration (mg/kg)
BH1002	Total PAHs	0.40	2,820
		1.30	2,410
		3.10*	17
	Lead	0.40	950
		1.30*	290
BH1004	Arsenic	6.00	260
ARP-BH002	Chromium	2.50	210
ARP-BH007	Total PAHs	1.00	110
		3.30	7.6

*Made Ground soil sample analysed at greater depth than identified 'gross' contamination and concentrations are not considered to pose a potential risk to controlled waters.

In addition to the above identified hotspots, hydrocarbon concentrations which may present a potential risk to controlled waters have been identified within the wider Sister area (ARP-BH008, BH1013A, BH1015B, WS1014, WS1016, WS1017 and WS2003). In addition, elevated concentrations which may present a potential risk to controlled waters have been identified at boreholes WS1014 (arsenic, lead and total PAHs), WS1016 (lead and copper), WS1024 (copper), ARP-004 (zinc), ARP-BH011 (copper), ARP-DS002 (lead), ARP-TP001 (arsenic) and ARP-TP002 (zinc). It is recommended that these hotspots are addressed as the wider Sister area development is progressed.

The risks to controlled waters from foundation activities i.e. piling are considered to be low assuming appropriate piling techniques are adopted. It is recommended that a Piling Works Risk Assessment including a groundwater reassurance monitoring plan is completed to demonstrate that the selected piling methodology will not lead to the creation of new pathways for contaminant migration.

7.6. Risks to Plants and Vegetation

The risk to vegetation and plants from phytotoxic contaminants is summarised in Table Z in [Appendix I](#). The results indicate that the concentrations of phytotoxic contaminants within the Made Ground (and topsoil recorded within the wider Sister area) present a potential risk to proposed plants and vegetation due to elevated concentrations of copper,

nickel and zinc. The natural soils generally present a very low risk to proposed plants and vegetation; however, an elevated concentrations of copper and zinc was recorded within the natural soils at borehole BH2002 at 2.00mbgl which are considered to present a risk to proposed plant and vegetation growth. Importation of suitable soils may therefore be required in areas of proposed soft landscaping. In addition, the Made Ground is unlikely to be a suitable growth medium with high proportions of brick and concrete gravel and cobbles observed during the site investigation.

7.7. Risks to Buried Water Supply Pipes

Based on the historical contaminative industries that have been identified at the site and the rest of the wider Sister area, and elevated hydrocarbon concentrations and acidic / alkaline pH levels recorded in the shallow soils and perched water, it is considered that barrier pipes will be required for new buried water supply pipes.

7.8. Preliminary Waste Characterisation

A preliminary waste characterisation assessment in line with WM3 technical guidance has been carried out on the soil samples submitted for the broader suite of chemical analysis which indicates whether the material is hazardous or non-hazardous. If the material is classified as non-hazardous, there is the option of sending the material to a non-hazardous waste facility or an inert waste facility (subject to the material meeting the inert waste acceptance levels based on Waste Characterisation Acceptance (WAC) analysis). If the material is classified as hazardous, WAC analysis will be required to demonstrate that the concentrations meet the levels for a hazardous waste facility or stable non-reactive hazardous (SNRH) waste facility without a requirement for prior treatment.

The preliminary waste assessment has been carried out using the HazWaste Online Toolkit and the waste classification reports are included in [Appendix J](#). The results of the assessment indicate that the material tested would predominantly be characterised as non-hazardous material and therefore considered to be acceptable to an inert waste facility (subject to WAC testing) or a non-hazardous waste facility. However, it is noted that the following Made Ground samples have been characterised as hazardous material:

On-Site

- BH1002 at 0.40m due to total TPH concentrations (3,410mg/kg)
- BH1002 at 1.30m due to total TPH concentrations (2,790mg/kg)

Wider Sister Area

- BH1013A at 0.50m due to total TPH concentrations (1,490mg/kg)
- WS1017 at 0.20m due to total TPH concentrations (1,420mg/kg)
- BH1015B at 0.20m due to total TPH concentrations (2,200mg/kg)
- BH1015B at 0.80m due to total TPH concentrations (3,100mg/kg)
- WS1014 at 0.50m due to total TPH concentrations (2,590mg/kg)
- WS1014 at 2.00m due to total TPH concentrations (4,700mg/kg)
- WS2003 at 0.50m due to total TPH concentrations (1,080mg/kg)

It is noted that where asbestos has been detected in the Made Ground, this material would require disposal to a non-hazardous waste facility that accepts asbestos material (where concentrations are <0.1% by weight) or a hazardous waste facility that accepts asbestos material (where visible asbestos containing material fragments are present or concentrations are >0.1% by weight in the soil matrix):

On-Site

- **WS1005 at 1.00mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.
- **WS1008 at 0.50mbgl:** loose fibres of amosite and chrysotile asbestos at 0.001% by weight.
- **WS1009 at 0.50mbgl:** loose fibres of amosite asbestos at <0.001% by weight.
- **WS1012 at 0.60mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.
- **WS1022B at 1.00mbgl:** loose fibrous debris of chrysotile asbestos at 0.003% by weight.
- **WS1023A at 0.80mbgl:** loose fibres of chrysotile asbestos at <0.001% by weight.
- **ARP-BH002 at 1.00mbgl:** “small bundle” of amosite asbestos at <0.001% by weight.
- **ARP-BH006 at 1.20mbgl:** “small bundle” of amosite asbestos at <0.001% by weight.
- **ARP-BH007 at 3.30mbgl:** chrysotile asbestos at 0.192% by weight.

Wider Sister Area

- **FIP1017 at 0.80mbgl:** loose fibrous debris of chrysotile asbestos at 0.005% by weight.

- **BH1008 at 0.80mbgl**: loose fibrous debris of amosite asbestos at 0.010% by weight.
- **BH1012 at 1.00mbgl**: loose fibres of chrysotile asbestos at <0.001% by weight.
- **BH1015B at 0.80mbgl**: loose fibres of amosite asbestos at <0.001% by weight.
- **WS1014 at 2.00mbgl**: loose fibrous debris and loose fibres of amosite, crocidolite and chrysotile asbestos at 0.003% by weight.
- **WS1021 at 1.00mbgl**: loose fibres of amosite asbestos at <0.001% by weight.
- **WS1026 at 0.50mbgl**: loose fibres of amosite and chrysotile asbestos at <0.001% by weight.
- **BH2001 at 0.80mbgl**: loose fibrous debris of chrysotile asbestos at 0.003% by weight.
- **BH2005 at 0.20mbgl**: loose fibres and sheeting/board debris of amosite asbestos at 0.003% by weight.
- **BH2005 at 0.50mbgl**: loose fibres and sheeting/board of amosite and chrysotile asbestos at 0.004% by weight.
- **BH2007 at 3.00mbgl**: loose fibres and asbestos cement of chrysotile asbestos at 0.002% by weight.
- **WS2003 at 0.50mbgl**: loose fibres of chrysotile asbestos at <0.001% by weight.
- **WS2006 at 2.00mbgl**: loose fibres of amosite and chrysotile asbestos at 0.001% by weight.
- **ARP-DS001 at 0.60mbgl**: “bundle” of amosite asbestos at 0.001% by weight.

A total of 21 single stage full WAC tests were carried out as part of the site investigation which indicated that the material tested would be acceptable for disposal at an inert waste facility with the exception of the following:

On-Site

- **FIP1020 at 0.70mbgl** – acceptable to a non-hazardous waste facility due to elevated sulphate.
- **WS1019 at 1.70mbgl** – acceptable to a non-hazardous waste facility due to elevated sulphate and TDS.
- **WS1020 at 3.80mbgl** – acceptable to a non-hazardous waste facility due to elevated sulphate.

Wider Sister Area

- **BH1006 at 2.20mbgl** – acceptable to a non-hazardous waste facility due to elevated sulphate and total dissolved solids (TDS).
- **FIP1015 at 1.00mbgl** – acceptable to a non-hazardous waste facility due to elevated sulphate.

Hazardous WAC testing was undertaken on 7 of the 9 samples identified as hazardous material during the preliminary risk assessment.

The Contractor should be responsible for the material management and waste classification and the “waste hierarchy” should be used to rank waste management options according to what is best for the environment. Potential for re-use of materials excavated from outside of the identified hotspot areas should be considered as part of the cut and fill strategy for Plot C and the Enabling Works area; however, it is anticipated that some material will require segregation and off-site disposal. Further information is provided in Section 8.10.

7.9. Revised Qualitative Risk Assessment

Revised risk assessments have been carried out based on the findings of Civic Earth site investigations and updated conceptual site model, and the potential contaminant linkages that may exist at the site in accordance with the LCRM²⁸. The revised risk assessment is outlined in Table 30 and an illustrative conceptual site model is presented in Plate 42. The findings of the investigation of the wider Sister area should be used to update the conceptual model along with supplementary investigation as the scheme progresses.

²⁸ Environment Agency (2020). Land Contamination Risk Management (LCRM).

Table 30: Plot C and Enabling Works Area Revised Qualitative Risk Assessment

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
Explosive/ asphyxiating gases/vapours from underlying soils (Made Ground and Alluvium) and potential on and off-site sources (including historical retort house, tanks, nitrate of soda works, nut and bolt works, university lab use including mercury and solvents, chemical works)	Migration of gases and vapours through the surface via permeable soils and drainage & services	Internal building spaces & future occupiers	Medium	Low likelihood	Moderate/Low	Conceptual site model includes a historically infilled river channel, contaminative historical industries and variable thicknesses of Made Ground recorded during site investigations (up to approximately 8m). Ground gas monitoring recorded elevated concentrations of carbon dioxide (above 5%v/v). Site considered to be representative of CS2 and <i>ground gas protection measures considered to be required. It is noted that further detailed ground gas risk assessment could be undertaken once the detailed design has progressed where proposed formation levels, ventilated basement / service vehicle access routes, waterproofing and ground slab thickness details can be considered, which may allow the ground gas protection level to be reduced.</i>
Organic/ inorganic contaminants within underlying soils and perched groundwater within the Made Ground from historical on and off-site sources (including historical retort house, tanks, nut and bolt works, university lab uses including mercury and solvents, chemical works, nitrate of soda works)	Direct/indirect ingestion of soil and dust, inhalation of particle vapours and asbestos fibres and dermal contact	Construction workers	Medium	Likely	Moderate	Shallow soils and perched water are impacted with elevated contaminant concentrations and asbestos detected within the Made Ground soils across the site. <i>Risk would be mitigated by incorporation of appropriate site practices including the use of appropriate PPE.</i>
		Future site users	Medium	Likely	Moderate	Shallow soils and perched water are impacted with elevated contaminant concentrations and asbestos detected within the Made Ground soils across the site. Hardstanding and/or buildings are proposed across large areas which will act as a barrier between receptor and contamination in the underlying soils. <i>Capping layer will be required to mitigate the risks to future site users in areas of soft landscaping.</i>
		Off-site residents	Medium	Low Likelihood	Moderate/Low	Shallow soils are impacted with elevated contaminant concentrations and asbestos detected within the Made Ground soils across the site. <i>Appropriate practices will be required to be adopted to prevent dust generation during construction e.g., dampening down and covering stockpiles etc.</i>
	Inhalation of vapours	Future site users	Medium	Unlikely	Low	A continuous perched water body was not recorded within the Made Ground during the site investigations. It is also noted that concentrations below the commercial assessment criteria were recorded within the perched water samples.
	Direct contact with underground structures and services	Buildings and structures, buried services	Mild	Likely	Moderate/Low	<i>Buried concrete to be designed as appropriate for ground and groundwater conditions. Barrier pipes considered to be required due to elevated hydrocarbon</i>

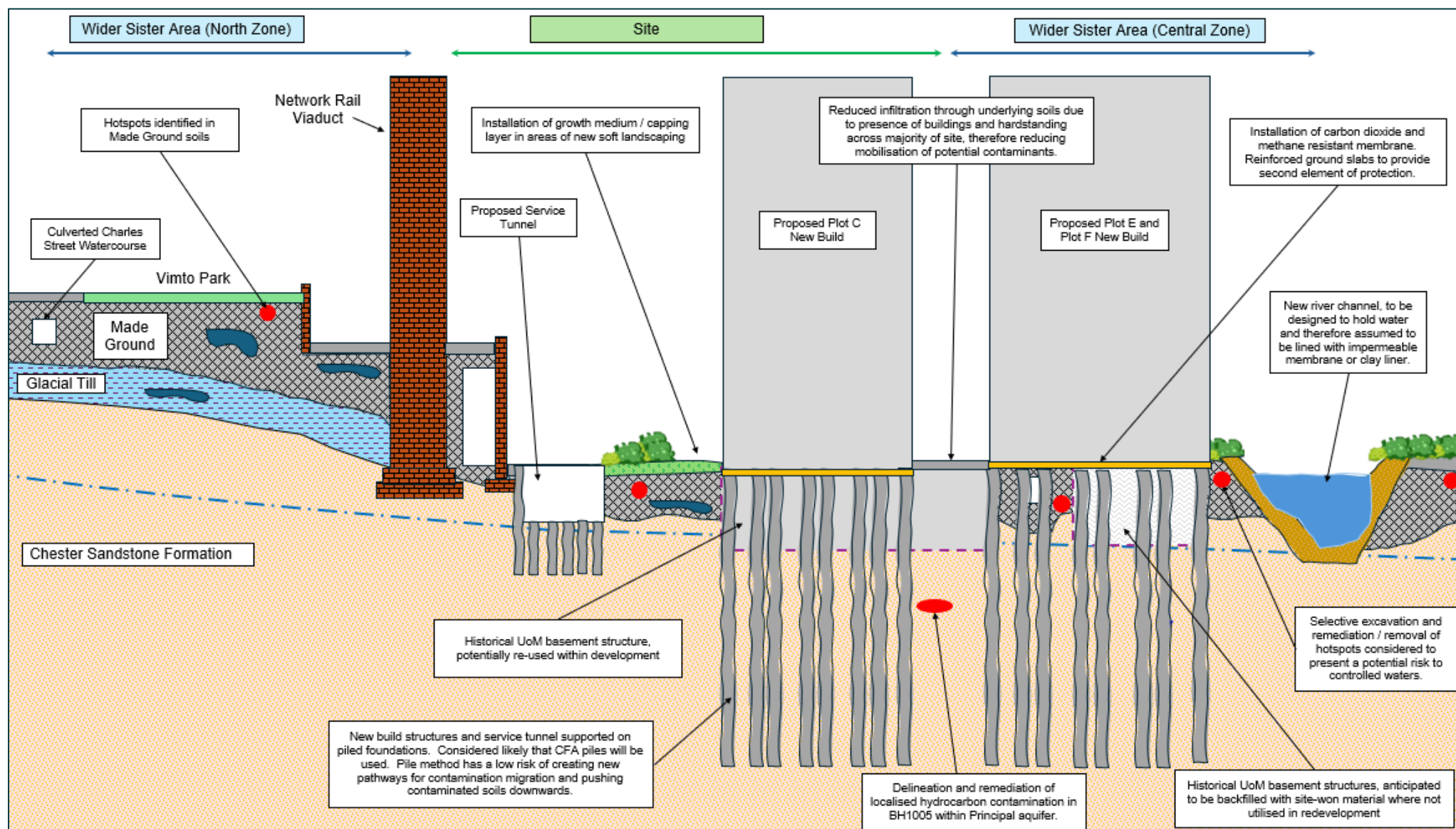
Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
						<i>concentrations recorded within the Made Ground.</i>
	Root uptake	Plants and vegetation	Minor	Likely	Low	Elevated concentrations of phytotoxic contaminants recorded within Made Ground. In addition, it is considered unlikely that the Made Ground at the site will provide a suitable growth medium for new plants and vegetation. <i>A growth medium will likely be required for areas of proposed new soft landscaping.</i>
	Vertical and lateral migration, pathways created during construction activities	Shallow Secondary Undifferentiated aquifer (Glacial Till / Alluvium)	Medium	Unlikely	Low	<p>Elevated soil leachate concentrations have been recorded against the EQS and the DWV, and elevated concentrations of total phenols, total cyanide, total TPH, fluoranthene, ammoniacal nitrogen in the perched water of the Made Ground have been recorded against the EQS and DWV. Concentrations of free cyanide are recorded as less than the laboratory limit of detection and PAH concentrations are less than 1µg/l. Elevated TPH and ammoniacal nitrogen are noted to be inconsistent.</p> <p>A continuous groundwater table was not observed within the Made Ground or superficial deposits. The cohesive horizons of the Made Ground and Glacial Till (where present) are considered to limit lateral and vertical migration of potential contaminants. Where proposed, buildings and hardstanding will also limit infiltration and leaching potential. In addition, the DWVs are considered to be a conservative assessment as the shallow Secondary undifferentiated aquifer is unlikely to be used as a drinking water source.</p>
		Principal aquifer (Chester Formation)	Medium	Low Likelihood	Moderate / Low	<p>Elevated contaminant concentrations recorded in the perched water against the EQS and DWV. Concentrations of free cyanide are recorded as less than the laboratory limit of detection and PAH concentrations are less than 1µg/l. Elevated concentrations are noted to be inconsistent.</p> <p>A continuous groundwater table was not observed within the Made Ground or superficial deposits and the cohesive horizons of the Made Ground and Glacial Till (where present) are considered to limit lateral and vertical migration of potential contaminants. Where proposed, buildings and hardstanding will also limit infiltration and leaching potential.</p> <p>Notwithstanding the above, hotspots of gross heavy metal and hydrocarbon contamination has been identified within the Made Ground which may pose a potential risk to the Principal aquifer. <i>It is recommended that the hotspots of contamination are delineated and excavated / remediated to mitigate the potential risks to</i></p>

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
						<i>controlled waters.</i>
		Local surface water bodies (Existing Culverted Charles Street Watercourse and Culverted River Medlock)	Mild	Unlikely	Very Low	Elevated contaminant concentrations recorded against the EQS in the perched water; however, it is understood that the existing culverts are brick/ concrete lined which would mitigate migration of potential contaminants into the culvert. A continuous groundwater table was not observed within the Made Ground or superficial deposits. In addition, buildings and hardstanding across large areas of the site will limit leaching potential and cohesive horizons within Made Ground and superficial deposits will mitigate migration of contaminants.
		Local surface water bodies (New River Medlock Open Channel)	Mild	Unlikely	Very Low	Elevated contaminant concentrations recorded against the EQS in the perched water. It is assumed that the channel will be designed to hold water and therefore be lined either with an impermeable membrane or clay liner, and therefore not in hydraulic continuity with groundwater.
Organic / inorganic contaminants within shallow groundwater aquifers (Alluvium / Glacial Till) from historical on and off-site sources (including historical retort house, tanks, nut and bolt works, university lab uses including mercury and solvents, chemical works, nitrate of soda works)	Direct contact and ingestion of contaminated groundwater	Future site users	Medium	Unlikely	Low	A continuous shallow aquifer within the superficial deposits was not encountered during the site investigations. <i>Should localised shallow groundwater be encountered by construction workers, use of appropriate PPE will mitigate risks to receptors.</i> Future site users and off-site residents are unlikely to come into contact with groundwater due to formal landscaping and buildings/hardstanding across the site.
		Construction workers	Medium	Unlikely	Low	
		Off-site residents	Medium	Unlikely	Low	
	Inhalation of vapours	Future site users	Medium	Unlikely	Low	A continuous shallow aquifer within the superficial deposits was not encountered during the site investigations. It is also noted that concentrations below the assessment criteria were recorded within the Glacial Till groundwater sample.
	Lateral migration	Local surface water bodies (Existing Culverted Charles Street Watercourse and Culverted River Medlock)	Mild	Unlikely	Very Low	Groundwater analysis of the water sampled from within the Glacial Till recorded elevated concentrations of ammoniacal nitrogen; however, a continuous shallow aquifer within the superficial deposits was not encountered during the site investigations
		Local surface water bodies (New River Medlock Open Channel)	Mild	Unlikely	Very Low	It is understood that the existing culverts are brick and/or concrete lined which would mitigate migration of potential contaminants into the culverts. It is assumed that the channel will be designed to hold water and therefore be lined either with an impermeable membrane or clay liner, and therefore not in hydraulic continuity with groundwater. It is considered that the presence of cohesive Glacial Till deposits and the discontinuous nature of the shallow Secondary

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
						undifferentiated aquifer will limit contaminant migration. In addition, buildings and hardstanding across large areas will limit leaching potential.
	Vertical migration, pathways created during construction activities	Principal aquifer (<i>Chester Formation</i>)	Medium	Unlikely	Low	<p>Elevated ammoniacal nitrogen and sulphate concentrations recorded in the Secondary A aquifer against the EQS and DWV. Concentrations of free cyanide are recorded as less than the laboratory limit of detection. Elevated concentrations of heavy metals, total TPH, pH and total sulphate have been recorded in the Principal aquifer. The heavy metal exceedances are generally low level exceedances and within background concentrations of the aquifer.</p> <p>The discontinuous nature of the perched water and shallow Secondary undifferentiated aquifer and presence of cohesive Glacial Till deposits beneath areas of the wider Sister area, including the site, will mitigate lateral and vertical contaminant migration. In addition, large areas of the site are currently, and will continue to be, covered in hardstanding and buildings, which will continue to limit infiltration and the potential for contaminant leaching / migration. The proposed enabling works and construction works will also include the excavation of Made Ground which will result in the removal of potential contamination in these areas.</p>
	Direct contact with underground services	Buildings and structures	Mild	Low likelihood	Low	A continuous shallow aquifer within the superficial deposits was not encountered during the site investigations. Buried concrete to be designed as appropriate for ground conditions.
Localised hydrocarbon contamination within Principal aquifer at BH1005	Direct contact and ingestion of contaminated groundwater	Future site users	Medium	Unlikely	Low	<p>Localised hydrocarbon contamination was encountered at depth within the Principal aquifer at BH1005. <i>Should groundwater be encountered by construction workers during piling works, adoption of appropriate site practices including the use of appropriate PPE will mitigate risks to receptors.</i> Future site users and off-site residents are unlikely to come into contact with groundwater.</p>
		Construction workers	Medium	Unlikely	Low	
		Off-site residents	Medium	Unlikely	Low	
	Inhalation of vapours	Future site users	Medium	Unlikely	Low	Localised hydrocarbon contamination was encountered at depth (16.5mbgl). Recorded dissolved phase hydrocarbon concentrations were below the commercial assessment criteria.
	Direct contact with underground structures	Buildings and structures (piled foundations)	Mild	Likely	Moderate/Low	<i>Buried concrete (piled foundations) to be designed as appropriate for ground conditions.</i>
	Lateral migration	Local surface water bodies (<i>Existing Culverted</i>	Mild	Unlikely	Very Low	Localised hydrocarbon contamination encountered at depth (16.5mbgl), below the level of the culverted River

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
		<i>Charles Street Watercourse and Culverted River Medlock)</i>				Medlock, Charles Street Watercourse and proposed new river channel. In addition, gross hydrocarbon contamination has not been encountered in surrounding (upgradient and downgradient) boreholes indicating that the contamination is localised to BH1005.
		Local surface water bodies (<i>New River Medlock Open Channel</i>)	Mild	Unlikely	Very Low	
	Lateral and vertical migration, pathways created during construction activities	Principal aquifer (<i>Chester Formation</i>)	Medium	Likely	Moderate	Gross contamination has not been encountered in surrounding (upgradient and downgradient) boreholes indicating that the contamination is localised to BH1005. <i>Further investigation of BH1005 to confirm vertical extent of gross hydrocarbon contamination. Localised remediation of hydrocarbon contamination likely to be required.</i>

Plate 42: Illustrative Conceptual Site Model (Not to Scale)



8. Plot C and Enabling Works Area Geoenvironmental Recommendations

8.1. Introduction

Geoenvironmental recommendations for the proposed redevelopment of the site are outlined in the following sections based on the information obtained during the site investigation and revised qualitative risk assessment. Based on the contamination assessments undertaken on the available data, the following additional investigation and remedial measures are recommended.

It is noted that the above assessments and following recommendations assume that the new channel proposed within the south of the wider Sister area will be lined either with an impermeable membrane or clay liner and therefore not in hydraulic continuity with groundwater. Should the design of the channel be amended from this assumption then the risk assessments and recommendations outlined within this report will require review and revision, where appropriate.

A remediation strategy and verification plan will be produced by Civic Earth under a separate cover to outline the remediation requirements in consideration of the recommendations outlined in the following sections and how they will be verified. Following completion of the remediation works by the Remediation / Earthworks Contractor, a verification report should be produced to confirm that the remediation works have been completed in accordance with the remediation strategy.

It is recommended that the reports are submitted to the Local Authority to support the planning application made in relation to the site.

8.2. BH1005 Gross Hydrocarbon Hotspot Additional Investigation and Delineation

It is recommended that further investigation and delineation of the gross hydrocarbon contamination at borehole BH1005 is carried out to confirm the vertical extent of the gross contamination. It is recommended that the works are undertaken by a specialist remediation contractor who have the ability to manage/remediate contamination encountered during the works. The remediation contractor should provide a method statement for the proposed investigation which should be approved by the EA prior to commencement of the investigation works. Following completion of the additional investigation / delineation works, it is anticipated that localised remediation of the groundwater may be required. A remediation options appraisal should be undertaken to develop a remediation strategy to mitigate identified potential risks to controlled waters, which could comprise belt skimming to remove free phase hydrocarbons (if present) or localised treatment of groundwater such as oxygen release compound (ORC) injection. The proposed remedial works should be agreed with the EA prior to commencement of remediation.

8.3. Made Ground Hotspot Removal

Hotspots of heavy metal and hydrocarbon contamination has been identified within the Made Ground which may pose a potential risk to the Principal aquifer:

On-Site

- **BH1002** – elevated concentrations of total PAHs and lead at 0.40mbgl and 1.30mbgl
- **BH1004** – elevated concentration of arsenic at 6.00mbgl
- **ARP-BH002** – elevated concentration of chromium at 2.50mbgl
- **ARP-BH007** – elevated concentrations of total PAHs at 1.00mbgl

It is recommended that the impacted Made Ground soils be delineated, removed and treated for re-use and/or off-site disposal to mitigate potential further on-going movement of contaminants into the underlying Principal aquifer. A material reuse and remediation options appraisal should be undertaken in conjunction with the cut and fill design for the enabling works.

It is noted that hotspots of gross contamination have also been identified within the wider Sister area and it is recommended that these are addressed as the wider Sister area development is progressed.

8.4. Historical Drainage Runs

Removal and grubbing out of historical runs followed by verification sampling and chemical analysis of soils from the sides and base of the drainage runs is recommended given the historical uses of the UOM buildings across the site. Should impacted soils be identified, it is recommended that the impacted soils be delineated, removed and treated for re-use and/or off-site disposal.

8.5. Watching Brief and Discovery Strategy

It is recommended that a watching brief is carried out by the Contractor during the enabling works, earthworks and construction works. Should areas of unexpected contamination, including asbestos, be encountered or suspected, a qualified geoenvironmental engineer should be informed, and the risk associated with the contamination assessed.

An appropriate remediation strategy should be devised and implemented for the unexpected contamination where necessary, and the regulators should be informed of additional areas of contamination identified. The regulators should be provided with the risk assessment and proposed remediation methodology for agreement before undertaking the

remedial works. The methodology should include appropriate verification works to be completed. Details for the watching brief will be included in the remediation strategy being produced by Civic Earth under a separate cover.

8.6. Borehole Decommissioning

It is recommended that the existing monitoring wells are decommissioned prior to commencement of significant groundworks in accordance with EA good practice guidance²⁹, including the historical AEG boreholes. It is recommended that the existing borehole installations are protected until they are ready to be decommissioned, following potential use for groundwater reassurance monitoring (see Section 8.12). It is noted that the wells required for groundwater reassurance monitoring will need to be retained and protected until completion of groundworks (earthworks, remediation works and piling / foundation works).

8.7. Ground Gas Protection Measures

The ground gas risk assessment concluded that the site is considered to be representative of CS2 based on the conceptual site model and monitoring data obtained. Ground gas protection measures are therefore considered to be required.

Following progression of the detailed design for the construction phase works, the detailed ground gas protective measures should be designed, reviewed by a suitably qualified geoenvironmental engineer and agreed with the Local Authority. The ground gas protection measures should be designed in accordance with BS 8485³⁰ and BRE 414³¹ and should outline the required gas score to be achieved and the selected Building Type (including justification) in accordance with BS 8485. In accordance with current guidance, a combination of at least two elements will be required to achieve the required gas score, for example a barrier element (i.e. reinforced floor slab) with either a membrane or a ventilation/dilution element. The elements work independently and collaboratively, and a single element solution will not be used because there would be no redundancy to allow for defects in the component.

The installation of the membrane will require independent inspection and verification by a suitably qualified contractor or geoenvironmental engineer in accordance with the principles of CIRIA C735³². If a membrane is included in the ground gas protection solution, a verification plan for the installation of the membrane will be part of the detailed design.

It is noted that elevated concentrations of naphthalene have been recorded within the Made Ground soils across the wider Sister area and the incorporation of vapour protection measures may need to be required depending on the final proposed end uses of the wider Sister area.

It is noted that further investigation, monitoring and assessment will be required for the wider Sister area as the development of the wider Sister area progresses to confirm the ground gas regime in those areas.

8.8. Radon Protection Measures

Requirements with respect to radon measures are set out in Building Regulations Approved Document C. Probability bandings (based on the proportion of properties in a given area that exceed the Action Level; currently 200 Bq.m³) are used to determine whether a property requires no, basic or full measures. At present, Approved Document C advocates basic measures for the probability banding 3% to 10% (full measures if >10%). However, Public Health England would like to see all new builds include basic measures.

The environmental disclosure report obtained as part of the Civic Earth desk study¹ has identified that Plot C and the Enabling Works area does not lie within a Radon Affected Area as less than 1% of properties are estimated to have a radon level at or above the action level. No radon protective measures are therefore considered necessary. It is noted however that if new basements are proposed which shall be occupied or part occupied, current guidance requires monitoring for radon, irrespective of the initial risk assessment.

8.9. Capping Layers

Due to the presence of elevated contaminant concentrations and asbestos within the Made Ground, capping layers will be required in soft landscaped areas to mitigate the potential risks to human health and plants and vegetation. In areas of communal landscaping, to comply with BRE 465³³ the capping layers will need to comprise a minimum of 450mm of imported soil, including a minimum of 150mm topsoil (including 50mm turf/sod) over a geotextile separator. Alternatively, the capping layers can comprise a minimum of 600mm of imported soil, including a minimum of 150mm topsoil (including 50mm turf/sod).

The material imported to form the capping layers should be clean imported soil from a known and reputable source and meet chemical criteria for human health with respect to the relevant end-use criteria. Imported topsoil should also meet

²⁹ Environment Agency (2012) Good practice for decommissioning redundant boreholes and wells.

³⁰ British Standard (2019) *Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings*. BS 8485:2015+A1:2019.

³¹ BRE (2001). *Protective measures for housing on gas-contaminated land*. BRE 414.

³² CIRIA (2014) *Good practice on the testing and verification of protection systems for buildings against hazardous ground gases*. C735.

³³ BRE (2004) *Cover systems for land regeneration - thickness design of cover systems for contaminated land*. BRE 465

the requirements of BS 388234 and subsoil the requirements for BS 860135. The material should be free from propagules of aggressive weeds, free from obvious signs of contamination e.g. staining, free phase hydrocarbon, coal, non-odorous such that it could be considered a statutory nuisance and free from unsuitable material/foreign bodies e.g. brick, glass, pipework.

8.10. Material Management

The Contractor should be responsible for the material management and waste classification and the “waste hierarchy” should be used to rank waste management options according to what is best for the environment. Top priority should be given to preventing waste in the first place, for example, during the pre-construction and planning stages of a new development. However, if waste is created, priority should be given to preparing it for re-use, then recycling, then recovery, and last of all, disposal.

In order to minimise the volumes of soils being disposed to landfill facilities, it is prudent to consider material management options prior to waste disposal. Based on the results Civic Earth assessments, it is considered that the Made Ground material excavated outside of the identified hotspot areas could be re-used within the site, subject to final finish levels under the CL:AIRE³⁶ protocol and regulatory agreement of re-use criteria. The CL:AIRE protocol would require a Material Management Plan (MMP) to be produced which details where materials will arise from and how they will be used within the limits of the Code of Practice. The process would require sign off by a Qualified Person in advance of works commencing and a final validation report to be produced. It is noted that the CL:AIRE protocol is not applicable to soils that pose harm to human health or the environment.

Potential for re-use of materials should be considered as part of the cut and fill strategy for the site, and where feasible, in consideration of the wider Sister area. A material re-use strategy will be produced by Civic Earth under a separate cover which will consider potential re-use options for the soils encountered at the site and relevant re-use criteria. This will include whether remediation could be undertaken of material within the identified hotspot areas to enable it to be reused within the site or retained in its current location.

It is however anticipated that some material will require segregation and off-site disposal. The Contractor will be responsible for the appropriate classification of the waste.

Uncontaminated clean, naturally occurring arisings may be re-used within the site under the CL:AIRE protocol or re-used off-site under direct transfer under the CL:AIRE protocol. Additionally, screening of uncontaminated (inert) granular soils may permit the re-use of this material or off-site under the WRAP protocol³⁷, where the protocol sets out end waste criteria for the production and use of aggregates from inert waste; where the criteria are met, the aggregates would typically be regarded as having been fully recovered and ceased to be waste.

It is noted that in May/June 2012, HMRC issued Briefs 15/12 and 18/12 clarifying how construction spoil and excess soils will be assessed for landfill tax purposes, and detailed accurate descriptions of waste are required for all wastes to support the landfill tax assessment. Uncontaminated naturally occurring soils will remain inert by default and eligible for the lower rate of landfill tax and similarly, ‘reworked soils’ and demolition ‘stone’ comprising only materials listed in the Schedule of the Landfill Tax (Qualifying Material) Order 2011 (SI 2011/1017) would also be eligible for the lower rate of landfill tax. Made Ground containing soil and foreign objects such as timber, plastic, rubber, metal, paper, plasterboard, asbestos, etc., regardless of the results of chemical analysis for waste classification purposes, will be eligible for the standard (higher) rate of landfill tax. Therefore, to maximise eligibility for lower rate landfill tax on waste construction spoil/ reworked ground, careful waste segregation and controls are recommended necessary.

All material intended for off-site disposal should be transported and disposed in accordance with the Environmental Protection (Duty of Care) Regulations 1991 and the Landfill (England and Wales) Regulations 2002 (as amended). Waste legislation stipulates that hazardous and non-hazardous waste should be pre-treated prior to disposal and pre-treatment can be undertaken either at the site of origin or may be carried out at a licensed off-site facility and can include selective segregation of soils conducted on site.

8.10.1. Asbestos

Asbestos was detected in Made Ground soils samples analysed as part of the site investigations and there is the potential that further asbestos may be present in the Made Ground. Site operatives should be briefed on the potential for asbestos to be encountered during earthworks and the works should be carried out in accordance with the Control of Asbestos Regulations³⁸.

³⁴ British Standards (2015) *Specification for Topsoil and Requirements for Use*. BS3882:2015

³⁵ British Standards Institute (2013) *Specification for Subsoil and Requirements for Use*.

³⁶ CL: AIRE (2011). *The Definition of Waste: Development Industry Code of Practice*. Version 2

³⁷ WRAP & EA (2023), *Quality Protocol: Aggregates from Inert Waste*. Accessed online (<https://www.gov.uk/government/publications/quality-protocol-production-of-aggregates-from-inert-waste>). Published October 2013.

³⁸ HSE (2012) *Managing and Working with Asbestos*. Control of Asbestos Regulations 2012.

8.11. Mitigation of Risks to Controlled Waters during Construction Works

It is recommended that measures are undertaken to mitigate the potential impact to controlled waters during enabling and construction works where contaminants in the underlying soils may be mobilised to a greater extent than naturally occurs. The construction works should be undertaken in line with CIRIA 811³⁹.

Excavated soil should be appropriately stored with preventative measures against surface water infiltration/leaching or nuisance odours to protect the environment and human health during temporary storage on site. This could take the form of a lined and covered storage bund using an appropriate material (e.g. polyethylene), positioned away from sensitive locations. Handling and storage protocols for potentially contaminated soils should be documented by the Contractor. Appropriate storage of all hazardous liquids, chemicals and materials where materials are to be stored in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations.

8.12. Piling Works Risk Assessment

The risks to controlled waters from foundation activities i.e. piling are considered to be low assuming appropriate piling techniques are adopted. It is recommended that a Piling Works Risk Assessment (PWRA) is completed to demonstrate that the proposed piling methodology / methodologies will not lead to the creation of new pathways for contaminant migration once the detailed design of the development has progressed.

It is recommended that the PWRA sets out a groundwater reassurance monitoring programme for the Principal aquifer, to include groundwater monitoring prior to, during and following soil / groundwater remediation and significant groundworks (e.g. cut and fill works and piling works), to demonstrate that the works do not result in deterioration of the groundwater quality of the Principal aquifer. It is recommended that once the remediation and development programme is confirmed, a monitoring specification document is produced to outline the programme of monitoring, including the borehole wells to be sampled and chemical analysis requirements. If still serviceable, it is recommended that the monitoring is carried out in the Civic Earth boreholes installed as part of the site investigations. Two groundwater sampling rounds have been completed as part of the Civic Earth investigations and it is recommended that at least one further round of monitoring is undertaken prior to commencement of groundworks works to obtain recent baseline data, and then continue initially on a monthly basis during remediation and significant groundworks and for at least six months post-completion of piling works.

8.13. Buried Water Supply Pipes

Due to the recorded concentrations of contaminants at the site, it is anticipated that barrier pipes will be required for new buried water supply pipes. Completion of a United Utilities Risk Assessment including sampling of soils at depth and location of proposed water supply pipes will be required.

8.14. Health, Safety and Environmental Controls

It is recommended that precautions are taken to minimise exposure of workers and the general public to potentially harmful substances, including asbestos, during earthworks. The risks to contractors should be controlled through the implementation of site safety procedures and the use of suitable personal protective equipment (PPE). Attention should also be paid to restricting possible off-site nuisance such as dust and odour emissions. All site works should be undertaken in accordance with the guidelines prepared by the Health and Safety Executive and all work should also be carried out in accordance with the Contractor's Construction Health and Safety Plan.

Due to the UOM buildings' former uses as laboratories, it is recommended that sinks, drains and associated apparatus are cleaned out to minimise exposure to workers and the ground and groundwater under controlled conditions appropriate for the previous use of the area.

Excavations should be planned and inspected regularly by a competent person and no operatives should be permitted to enter un-shored or otherwise protected excavations identified as unstable by a competent person, however shallow they may be. The stockpiled material and excavations should be dampened during all earthworks excavation and earth moving activities and vehicles should be washed before leaving site, with washings contained on site and suitably disposed.

³⁹ CIRIA (2023) *Environmental Good Practice on Site Guide*. 5th Edition. CIRIA C811.

9. Plot C and Enabling Works Area Geotechnical Recommendations

9.1. Introduction

Geotechnical recommendations for the proposed redevelopment of the site are outlined in the following sections based on the information obtained during the site investigation and the redevelopment design proposals.

It is noted that three additional boreholes (BH1010, BH1011 and BH2003) are yet to be completed as permission from British Telecom (BT) is required as the boreholes are proposed in proximity to the BT Tunnel which crosses the wider Sister area at depth. Liaison with BT is currently on-going. In addition, investigation is scheduled to be undertaken to investigate the construction and foundations of Network Rail assets. Liaison with Network Rail is currently on-going to obtain permission for these works. The geotechnical recommendations will be updated following completion of the outstanding site investigation.

9.2. Geotechnical Design Parameters

Geotechnical design parameters are outlined in Table 21. The parameters provided are moderately conservative, serviceability limit state (SLS) and considered appropriate for shallow foundation, retaining walls (gravity/embedded), earthworks (settlement/consolidation) and infrastructure (roads/aprons) design.

Table 31: Geotechnical Design Parameters

Stratum	Bulk Unit Weight γ_b (kN/m ³)	Undrained Shear Strength c_u (kPa) [c']	Friction Angle ϕ (°)	Young's Modulus, E_u (MPa) [E']
Made Ground (Granular)	18	-	28 ^a	[10]
Made Ground (Cohesive)	17	20 [0]	22 ^b	10 ^c [8] ^d
Alluvium (Granular)	18	-	36 ^a	[20]
Glacial Till (Cohesive)	20	60 [0]	22 ^b	30 ^c [24] ^d
Weathered Chester Formation	19	-	34 ^a	[250]
Chester Formation	19	-	40 ^a	[300]

Notes:

- Peck, R.B., Hanson, W.E., and Thornburn, T.H., Foundation Engineering, 2nd Edition, John Wiley, New York, 1967, p.310
- BS 8002:2015 Code of Practice for Earth Retaining Structures, British Standards Institution
- Based on 500Cu – Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building Response to Tunnelling, case Studies from Construction of the Jubilee Line Extension London, Ciria Special Publication 200.
- Based on 0.8Eu – Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building Response to Tunnelling, case Studies from Construction of the Jubilee Line Extension London, Ciria Special Publication 200.

9.3. Shallow Foundations

Depending on final formation levels following the cut and fill exercise at the site, formation level is likely to be within the Made Ground, Glacial Till, Alluvium (only encountered at borehole BH1003) or the bedrock of the Chester Formation. Given the variability of the Made Ground and superficial deposits, it is recommended that shallow foundations are not constructed within the Made Ground or superficial deposits due to the variable bearing capacity and potential for differential settlement of these deposits. If feasible, shallow foundations could be constructed within the Chester Formation, subject to proposed finish levels and the level of the sandstone bedrock.

The physical properties of the sandstone bedrock, as recorded on the exploratory hole records from the Civic Earth site investigations, are considered to be more representative of a very dense sand as opposed to competent intact bedrock. At depth, the sandstone was recorded to vary between extremely weak and very weak sandstone or a very dense sand based on laboratory testing and field descriptions. It is therefore considered that an allowable bearing capacity representative of a very dense sand (500kPa) could be adopted at a minimum embedment of 0.3m into the top of the bedrock.

Depending on the proposed formation levels of the Plot C structures, it is noted that a raft or piled raft as a foundation solution could be adopted which may be more economical. The feasibility of these solutions would be governed by total and differential settlement rather than allowable bearing pressure. A raft settlement analysis would be required to confirm the feasibility of this foundation solution.

If shallow foundations are to be utilised, the formation level within the top of the sandstone bedrock should be inspected by a suitably qualified engineer to confirm competent sandstone at formation level.

It is noted that if existing foundations are to be reused, it is recommended that foundation inspection pits or similar are

carried out to obtain details on the foundation dimensions and founding stratum to confirm the load capacity and condition of the foundations such that reuse of the foundations can be incorporated into the proposed foundation solution for the scheme.

9.4. Piled Foundations

If a piled foundation is utilised, it is anticipated that piles will be socketed approximately 5m into the sandstone bedrock. Early consultation with an appropriate piling contractor is essential to the design of the piles.

Preliminary pile safe working load calculations have been undertaken for Plot C which assume the following.

- Partial factors on geotechnical capacity have been selected based on Eurocode 7 (EC7) Design Approach 1 Combination 2 (GEO) factoring assuming (A) no preliminary pile testing [model factor of 1.4, base capacity factor of 2 and skin friction factor of 1.6] and (B) working / prelim pile testing [model factor of 1.2, base capacity factor of 1.7 and skin friction factor of 1.4].
- Pile cut off level and pile platform level of 35.0mOD and groundwater level of 28.0mOD. Made Ground (cohesive) is assumed from pile cut off level with a 4m thickness. Top of Alluvium is assumed as 31.0mOD, top of weathered Chester Formation at 30.5mOD and top of Chester Formation at 25.0mOD.
- The contribution from the Made Ground should be discounted.
- Limiting base stress within the Alluvium, weathered Chester Formation and Chester Formation of 50,000 kPa. This is to limit stresses and potential settlement risk.

Plots of preliminary pile safe working load against pile toe level for a range of pile diameters (600mm, 750mm and 900mm) is presented in Plate 43 (no prelim pile tests) and Plate 44. When assessing pile lengths from these plots, pile structural load in accordance with the relevant factoring for EC7 DA1-C2 must be used.

Based on the ground conditions, environmental considerations including noise/vibration levels, continuous flight auger (CFA) piles are considered to be an appropriate technique. Driven piles are not recommended at this stage on the basis that obstructions within the Made Ground may adversely affect the constructability, and the vibrations and noise created by pile driving will be nuisance to nearby residents and studios. Additionally, a further pollutant linkage will be created between the Made Ground and underlying Principal aquifer within the sandstone bedrock when material is driven down during piling.

Pile design should be undertaken by, and remain the sole responsibility of, a specialist piling contractor who will determine the most appropriate and cost-effective pile type based on their own interpretation of the site investigation data, their own installation techniques, and experience of piling in similar ground conditions. For all piling operations the design, construction, and maintenance of a working platform in accordance with guidance presented in BRE 470 "Working platforms for tracked plant" (2004) will be required.

It is recommended that pile testing is undertaken. It is considered that as a minimum this should comprise one sacrificial test pile per structure and serviceability testing on more than 1% of constructed piles to loads not less than 1.5 times the representative load for which they are designed. Integrity testing should be undertaken on all piles. A piling specification should be completed prior to piling works commencing.

Plate 43: Preliminary Pile Safe Working Loads (Assumes No Prelim Pile Tests)

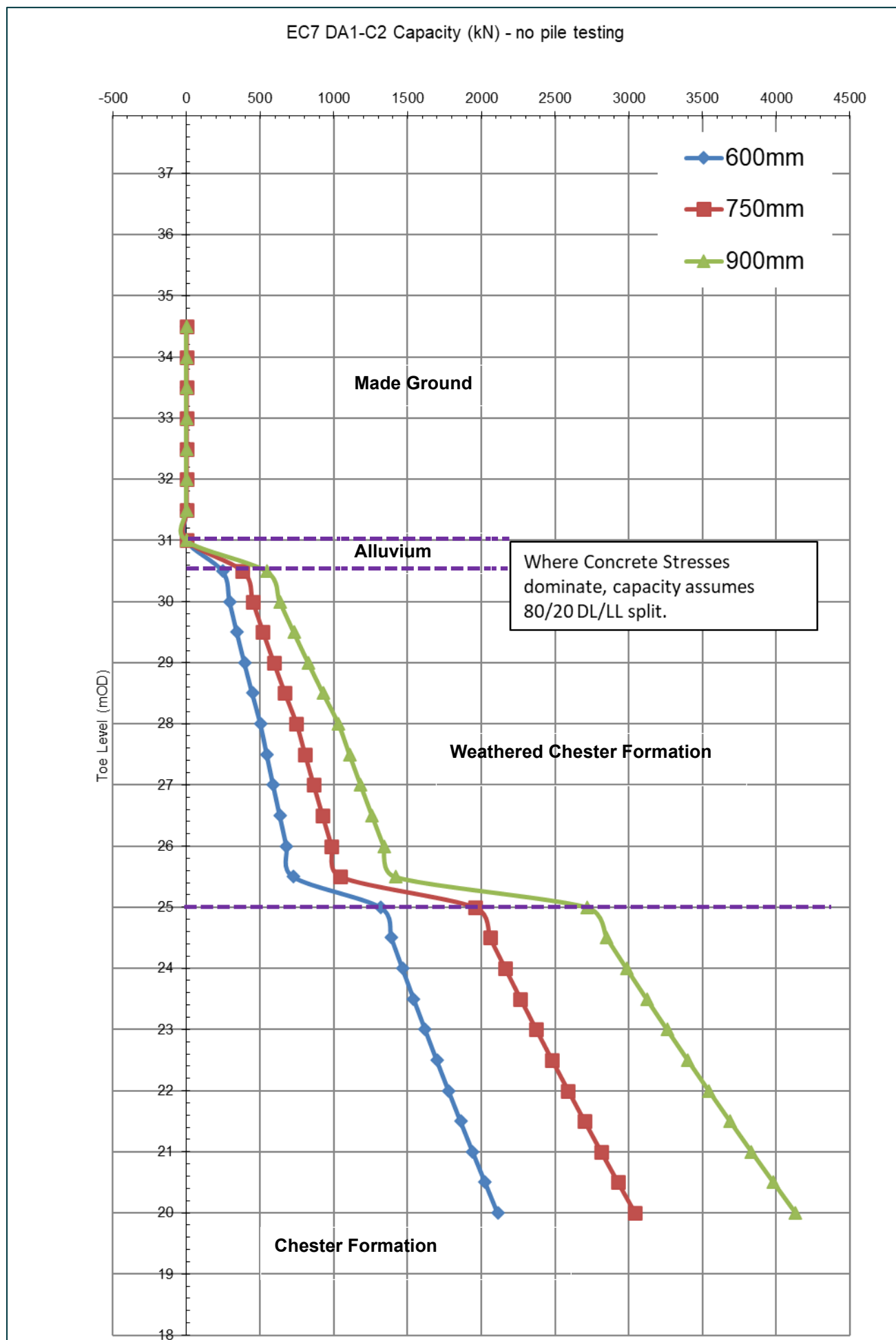
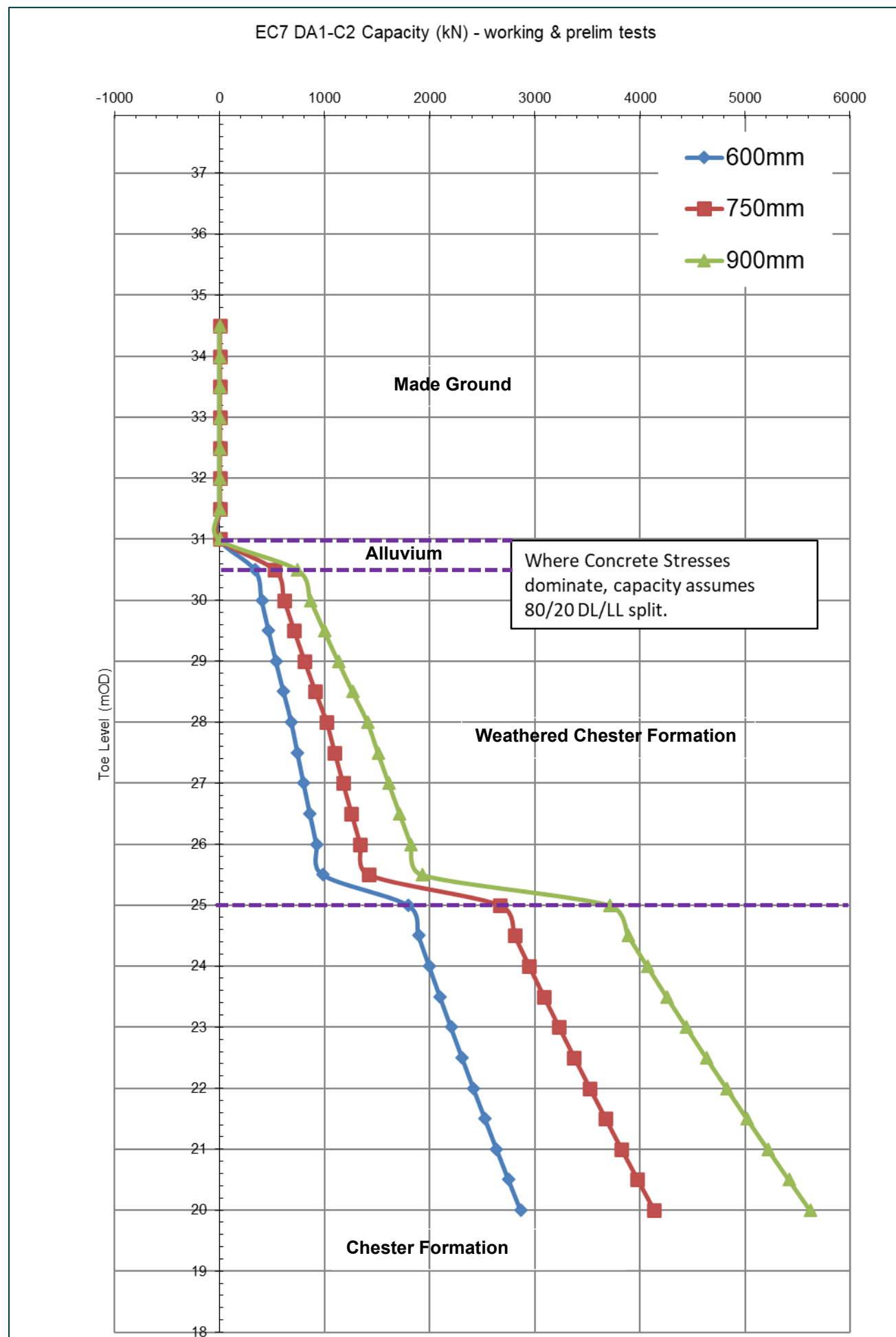


Plate 44: Preliminary Pile Safe Working Loads (Assumes Working / Prelim Pile Tests)



9.5. Ground Improvement

Due to variable composition, thickness and strength of the Made Ground soils present within the site, ground surface settlement is likely to occur under ground bearing slabs and areas of landraise / fill, and differential settlements more onerous than desired may occur. As final cut/fill levels and acceptable settlement/ differential limits are not known at this stage, it is recommended that ground improvement options be considered to limit the potential for ground movements post-construction.

If ground bearing slabs are required, structural loads from the slabs may be transferred to competent strata below the Made Ground by piles, thereby reducing the potential for ground movements within the Made Ground to impact the slabs. The number of piles required to support each slab/bay would depend on the ability of the slab to spread the load between pile centres, structural punching load limitation on the slab thickness, and pile load/length geotechnical restrictions.

Vibro Concrete Columns (VCCs) are an alternative ground improvement technique where VCCs are typically designed and implemented to reduce / control settlement by improving the ground stiffness and transferring an element of the total structural load to a competent stratum at depth.

Should project timescales allow, soils can be preloaded early during the construction programme to their design loads by additional fill / landraise to mimic the final maximum structural loading scenario. Alternatively, if preload settlement times are considered excessive for the construction programme, preloading with additional surcharging (increased height of embankment) could be used. Once an appropriate magnitude of consolidation settlement is complete based on monitoring data, the preload can be stripped down and slabs may be constructed with minimal post-construction ground movements anticipated.

Lime or cement stabilisation of soils may be appropriate in order to create a stiff or dense upper layer with improved performance as a development / design platform. Stabilisation would involve a specialist contractor mixing lime and/or cement into the formation soils either by rotavator or specialist mixing plant, and then compaction using conventional earthworks plant. It is noted however that the addition of lime or cement to the soils with respect to the risks to controlled waters will need to be considered, and stabilisation trials would be required to confirm both the geotechnical and geoenvironmental suitability of the ground improvement technique.

9.6. Infilled River Medlock

Deposits of locally deeper Made Ground have been recorded along the route of the historical River Medlock, where the route has been inferred from historical mapping. There is therefore considered to be some uncertainty as to the full extent of the possible deeper Made Ground deposits which should be considered during foundation design.

9.7. BT Tunnel

The BT Tunnel (also referred to as the BT “Guardian” Tunnel) is understood to pass in proximity to the site and the exact route, depth and construction details are currently unknown. It is recommended that confirmation is sought from the asset owners / managing agent for details on the design and location of the buried infrastructure, and detailed surveys carried out on the infrastructure if not already available. It is noted that dialogue between Civic Earth and BT on behalf of the Client is currently on-going with respect to the tunnel and it is understood that BT will require the Client to carry out a survey of the tunnel to confirm its exact position before any site investigation works in proximity to the tunnel are permitted to proceed.

It is noted that the previous Arup report¹¹ outlines the following recommendations with respect to the BT tunnel, which should be confirmed as part of the on-going dialogue with BT:

- The minimum clearance to the BT tunnel is advised to be 2m;
- New works and structures are not to cause a variation in loading of more than 10%;
- Piling and construction works cannot exceed vibrations of 20mm/second;
- Tunnel condition surveys are to be carried out before and after the works are carried out; and
- Piles proposed within 3m of the tunnel require detailed surveying of pile locations, and those within 2m additionally require continuous monitoring of the tunnel during piling.

9.8. Network Rail Viaduct and Altrincham Street Arches/Vaults

An operational Network Rail viaduct is located in the north of the site with arches/vaults located beneath Altrincham Street, to the south of the viaduct. The foundation depths and construction details of the viaduct and arches/vaults are currently unknown. It is anticipated that Network Rail will require an asset impact assessment in consideration of the proposed development works in proximity to the viaduct, and site investigation is recommended to investigate foundation depth, construction and founding strata to inform potential ground movement analysis and proposed service tunnel design. It is noted that Civic Engineers are developing a scope of site investigation for Civic Earth to undertake to obtain the structural information that they require for the detailed design of the service tunnel and structures in proximity to the Network Rail assets and Altrincham Street Arches/Vaults.

9.9. Holloway Wall

The Grade II Listed Holloway Wall is located in the east of the site and the proposed development includes interventions to the Holloway Wall, incorporating it into the new proposed commercial development. A new service tunnel will be constructed adjacent to the west side of the Holloway Wall where proposed formation level of the service tunnel is approximately 7m below existing ground level. Preliminary investigation was carried out in April and May 2024³ at the Holloway Wall which included the excavation of 4 foundation inspection pits to a maximum depth of 1.60mbgl to ascertain whether the Holloway Wall foundations were shallow (<1.50mbgl) or whether further supplementary investigation would be required to investigate the presence of foundations at depth. The preliminary investigation concluded that the foundations of the wall are at a greater depth and supplementary investigation was therefore undertaken in October 2024 by Civic Earth. The findings of the supplementary investigation are reported under a separate cover to this report⁶. It is noted that a ground movement impact assessment / asset impact assessment may be required for the Holloway Wall in consideration of the proposed below ground excavation adjacent to the wall.

9.10. Unexploded Ordnance

The majority of the site is located within a low risk area from UXO; however, the southeastern area of the site is located within an area of moderate risk¹⁰. On-site mitigation measures will be required during earthworks and construction works in this area.

In addition, it is noted that a strong ferrous signal was detected by the supervising UXO engineer during the drilling of borehole WS1015 at 3.45mbgl. The borehole was terminated and backfilled at the recommendation of the UXO engineer. It is recommended that investigation by a UXO specialist is carried out at and in proximity to borehole WS1015 to confirm the source of the ferrous signal (e.g. UXO or general ferrous material in the Made Ground).

9.11. Floor Slabs and Pavement Design

It is assumed that roads and pavements will be founded likely onto Made Ground, Glacial Till, Alluvium or the sandstone bedrock depending on formation levels following the cut and fill exercise, and it is recommended that pavements and roadways founded on the Made Ground or superficial deposits be designed to a conservative California Bearing Ratio (CBR) value of 2.5%. It is recommended that pavements and roadways founded on the sandstone bedrock are designed for a conservative CBR of 5%. These values could potentially increase following in-situ testing of formation level soils. It is recommended that the formation level should be compacted and soft spots (<2.5% CBR) removed.

All pavements should be designed and compacted and verified in accordance with MCHW Series 600⁴⁰. A specialist testing and construction contractor should be engaged for any lime/cement stabilisation works, and it is anticipated that a stabilisation trial would be undertaken prior to implementation. If areas of land raise are proposed, the build-up of capping/blinding layers beneath pavements/slabs will be dependent on the fill used in the land raise.

Floor slab design will need to take account of the potential variability in ground conditions at the formation level, and suspended slabs will need to be utilised where there is insufficient bearing capacity or potential for an unacceptable level of differential settlement. Ground bearing slabs onto Made Ground are not recommended without suitable ground improvement carried out (see Section 9.5). It is noted that a suspended slab would contribute to ground gas protective measures required at the site.

9.12. Excavation Works

Based on the ground conditions encountered, excavations required during the development should not pose difficulties for conventional excavators or earth moving equipment for the identified strata including some excavation in the upper sandstone horizons based materials encountered during the site investigation. Excavations have the potential to become unstable if water is introduced into the excavation. Water control, if required, may be achieved within shallow excavations by adopting a sump pumping system around the perimeter of the excavation as well as appropriate temporary supports such as trench boxes/trench sheets assuming excavations do not extend below the level of the Principal aquifer within the sandstone. This should be confirmed by the contractor and temporary works designer on initial excavation.

Historical structures and foundations will need to be grubbed out and hard material could potentially be processed and reused as engineered fill in line with the recommendations outlined in Section 8.10 and a site-specific earthworks specification. Depending on formation levels, voids will need to be backfilled with engineered fill. Further investigation of the construction details of retaining walls, existing structures to be retained, and presence / absence of historical structures may be required depending on scope of final proposed development plans.

Excavations should be suitably shored or otherwise supported or battered and should be inspected regularly by a competent person. No operatives should enter un-shored or otherwise unprotected excavations identified as unstable by a competent person, however shallow they are, in accordance with the guidelines presented in CIRIA Report 97⁴¹. Dewatering will likely be required when excavation works are in close proximity to perched groundwater level.

⁴⁰ Highways England (2016) Manual of Contract Documents for Highway Works, Series 600 (Earthworks), MCHW Series 600

⁴¹ CIRIA (1992). Trenching Practice (Second Edition). Construction Industry Research and Information Association Report 97.

9.13. Buried Concrete Design

Design Sulphate (DS) and Aggressive Chemical Environmental for Concrete (ACEC) classes for the Made Ground, Glacial Till, Alluvium and Chester Formation are summarised in Table 32 based on the results of the chemical sulphate and pH testing⁴². Consideration should be given to the potential for flash setting due to high TPH concentrations recorded within the Made Ground (and groundwater at borehole BH1005), and should be taken into account for the concrete design⁴³.

Table 32: Summary of DS and ACEC Classes

Stratum	WSS DS Class	WSS ACEC Class
Made Ground	DS-2	AC-2
Alluvium	DS-2	AC-1s
Glacial Till	DS-1	AC-1s
Chester Formation	DS-1	AC-1

9.14. Infiltration

Negligible to very low change in water level was recorded within the Made Ground, Alluvium and Glacial Till during the falling head tests and infiltration rates were unable to be calculated. On the basis of these results and in consideration of the stratum composition with high clay/silt content, conventional soakaways are not likely to be effective within these deposits. It is also noted that given the conceptual site model, soakaway infiltration into/within the Made Ground is not recommended.

Whilst infiltration into was not carried out within the sandstone, based on the recharge of water levels during groundwater sampling and the PSD analysis results, infiltration rates of low to medium permeability are estimated. Infiltration testing would be required to confirm infiltration rates in the sandstone. However, consideration should be given to the environmental sensitivity of the aquifer in the design of any soakaways into the aquifer and agreement may be required from the Contaminated Land Officer and Environment Agency. In addition, regard should be made to seasonal groundwater level fluctuations. The Environment Agency has advised that deep borehole soakaways will need to be in line with position statement G9 of the Environment Agency's approach to groundwater protection and, unless relevant exemption(s) apply, an environmental permit granted by the Environment Agency's permitting service would need to be secured. In addition, regard should be made to seasonal groundwater level fluctuations.

9.15. Buried Infrastructure

Consideration must be given to existing buried infrastructure within the site including the UOM services tunnel which is understood to be constructed from concrete. If the services tunnel is to be retained, it is recommended that a ground movement analysis and impact assessment is undertaken. Consideration must also be given to the potential for differential settlement where new services are to be located within areas of cut and fill and pass between Made Ground and natural soils. This could include measures such as designing services to greater falls, including flexible joints and piling of manholes.

9.16. Buried Obstructions and Voids

There is potential for encountering buried obstructions at the site due to the development history. Obstructions may include former basements, foundations, walls, utilities and Made Ground containing demolition rubble and large boulder sized obstructions of concrete and brick. Various buried concrete / brick slabs and suspected walls were encountered during the Arup and Civic Earth site investigations (see Section 5.7).

Whilst no evidence of voids was encountered during the site investigations, there is potential for voids to be present within the ground, for example small voids associated with uncontrolled / un-engineered backfill of historical basements or the River Medlock, or larger voids associated with uncontrolled / un-engineered backfill of old bridge structures. Voids may present a risk to shallow foundations and a watching brief for these features is recommended during earthworks and construction works.

9.17. Retaining Structures

Some existing retaining walls are proposed to be demolished as part of the works and sequencing of the works is recommended such that these works are undertaken safely. Any change to ground levels in front of existing retaining structures (for example in front of the Altrincham Street retaining wall) will require careful review to assess the impact on wall stability and requirement for stabilisation measures such as underpinning. It is noted that Civic Engineers are developing a scope of site investigation for Civic Earth to undertake to obtain the structural information that they require

⁴² BRE (2005) Concrete in Aggressive Ground. BRE Special Digest 1:2005.

⁴³ Wilson S.A., Langdon N.J. & Walden P.J., (2001). The effects of hydrocarbon contamination on concrete strength. Geotechnical Engineering, Vol 149, Issue 3, pages 189-193.

for the detailed design of the service tunnel and structures in proximity to the Network Rail assets and Altrincham Street Arches/Vaults.

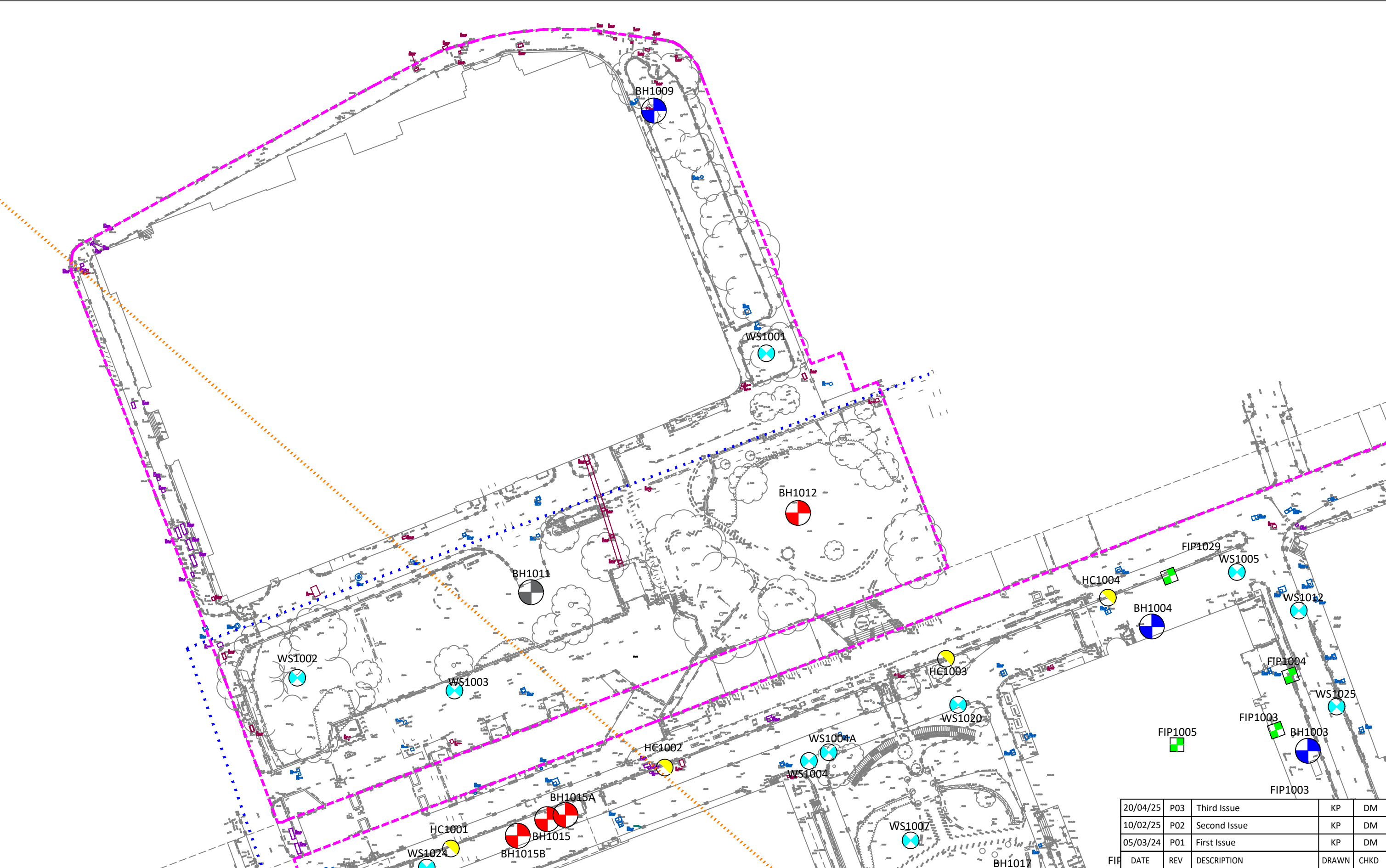
9.18. Earthworks

An extensive cut and fill exercise is anticipated to be carried out and an Earthworks Specification should be produced in accordance with the Specification for Highway Works⁴⁴. An MMP will be required to set out the on-site movement of soils for earthworks operations.

⁴⁴ Manual of Contract Document for Highway Works (MCHW) Specification for Highway Works. Amendment November 2006.

Appendix A

Exploratory Hole Location Plans



Indicative IDM Wider Masterplan Area

Indicative Enabling Works Area

Indicative Plot C Development Area

Indicative Alignment of BT Tunnel

Indicative Alignment of Charles Street Culverted Watercourse

Cable Percussion/Rotary Borehole

Cable Percussion Borehole

Window Sample Borehole

Horizontal Core

Foundation Inspection Trial Pit

Proposed Cable Percussion/Rotary Borehole

Notes

Proposed Exploratory hole positions are subject to locations of buried utilities and access restrictions and may be subject to change.

Positions of investigation locations along Network Rail viaduct / assets not indicated on exploratory hole plan - locations TBC.

CIVICEARTH

PROJECT

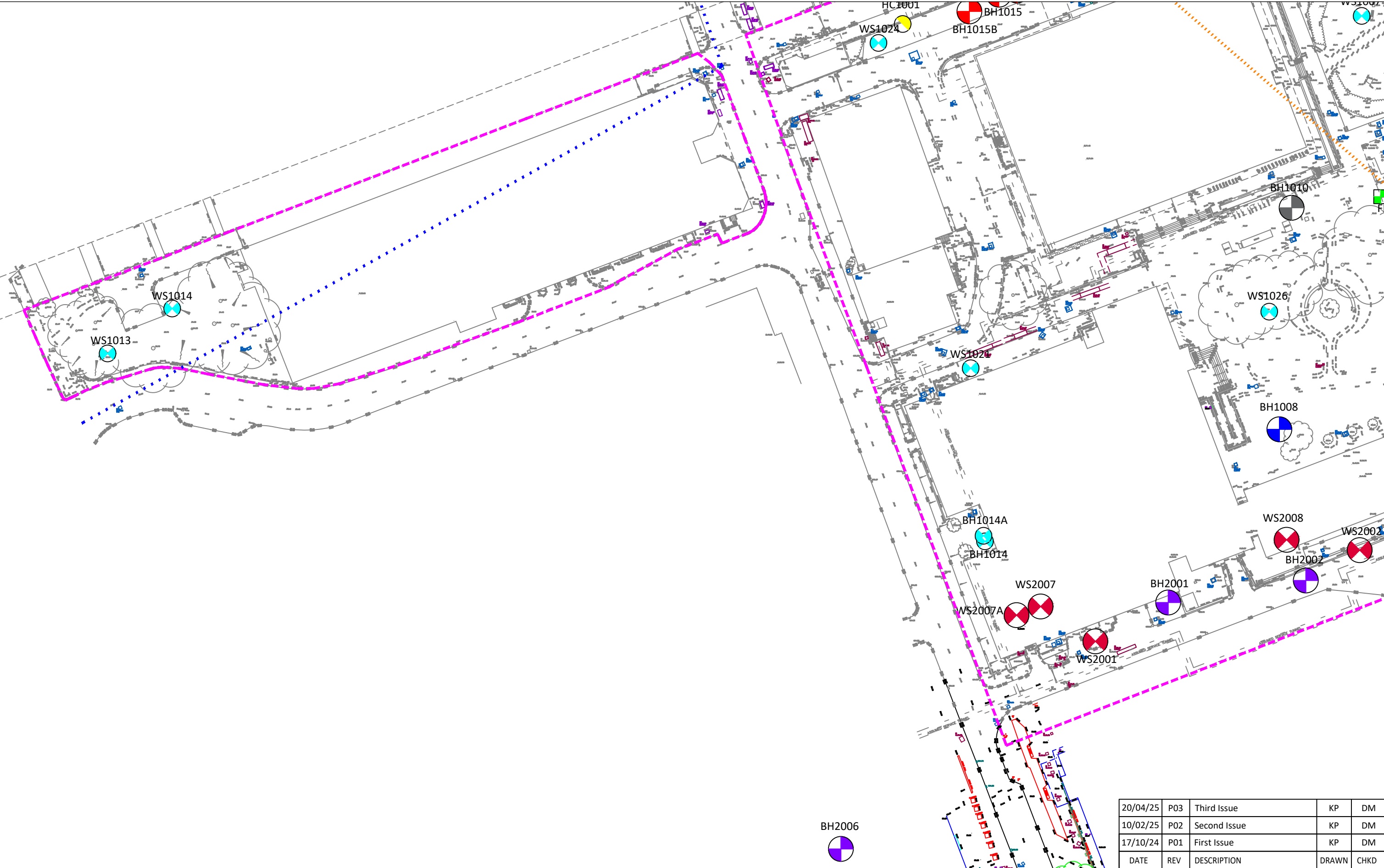
Sister, Manchester

TITLE

Exploratory Hole Location Plan: Sheet 1

20/04/25		P03	Third Issue	KP	DM
10/02/25		P02	Second Issue	KP	DM
05/03/24		P01	First Issue	KP	DM
DATE	REV	DESCRIPTION		DRAWN	CHKD
DRAWING STATUS				STATUS CODE	
FOR INFORMATION				-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED	
51019/02	NTS	05/06/24	KP	DM	
DRAWING No.				REV	
51019-CE-02-XX-D-G-0005				P03	

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Indicative IDM Wider Masterplan Area

Indicative Enabling Works Area

Indicative Plot C Development Area

Indicative Alignment of BT Tunnel

Indicative Alignment of Charles Street Culverted Watercourse

Cable Percussion/Rotary Borehole

Cable Percussion Borehole

Window Sample Borehole

Horizontal Core

Foundation Inspection Trial Pit

Proposed Cable Percussion/Rotary Borehole

Notes

Proposed Exploratory hole positions are subject to locations of buried utilities and access restrictions and may be subject to change.

Positions of investigation locations along Network Rail viaduct / assets not indicated on exploratory hole plan - locations TBC.

CIVICEARTH

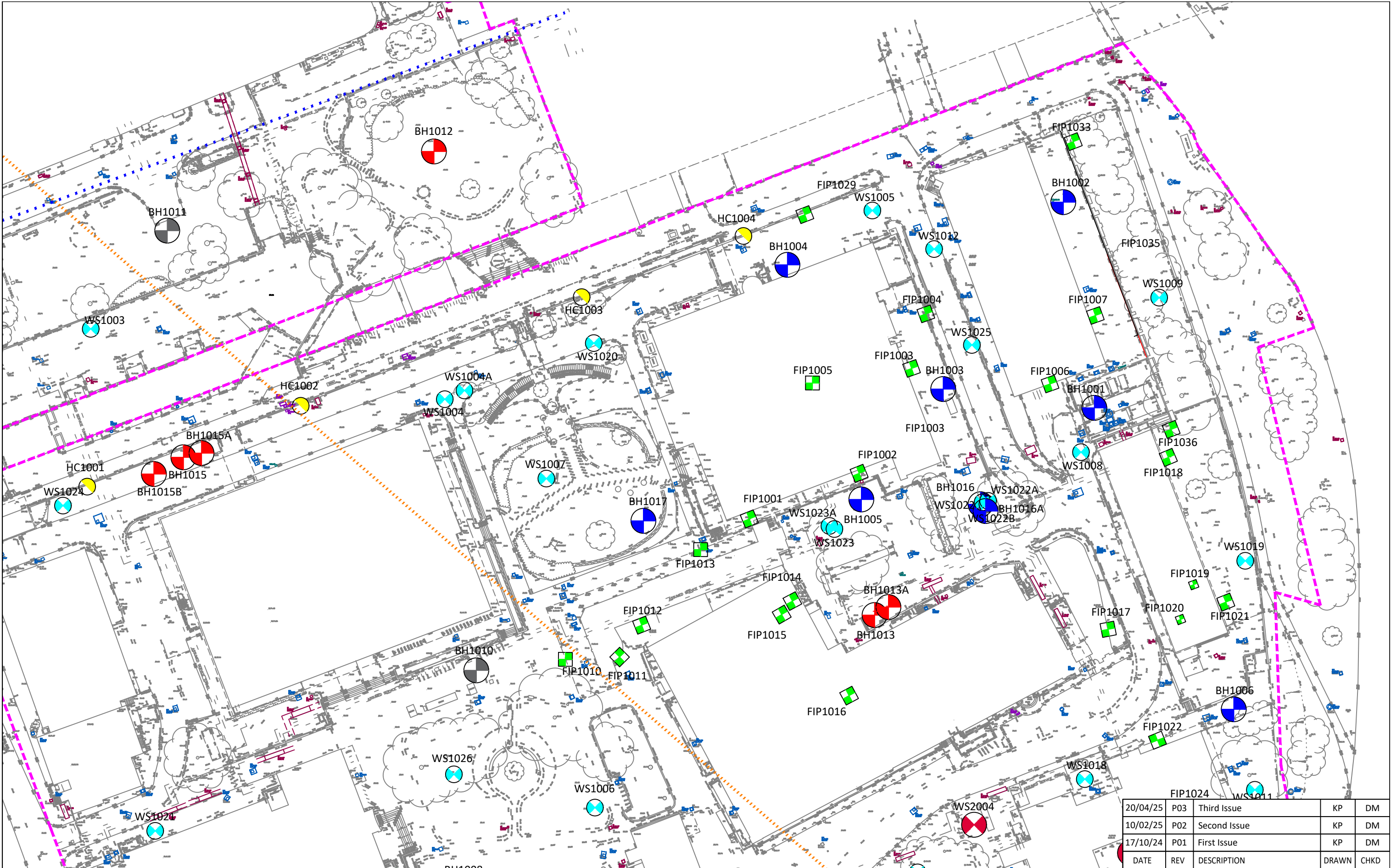
PROJECT

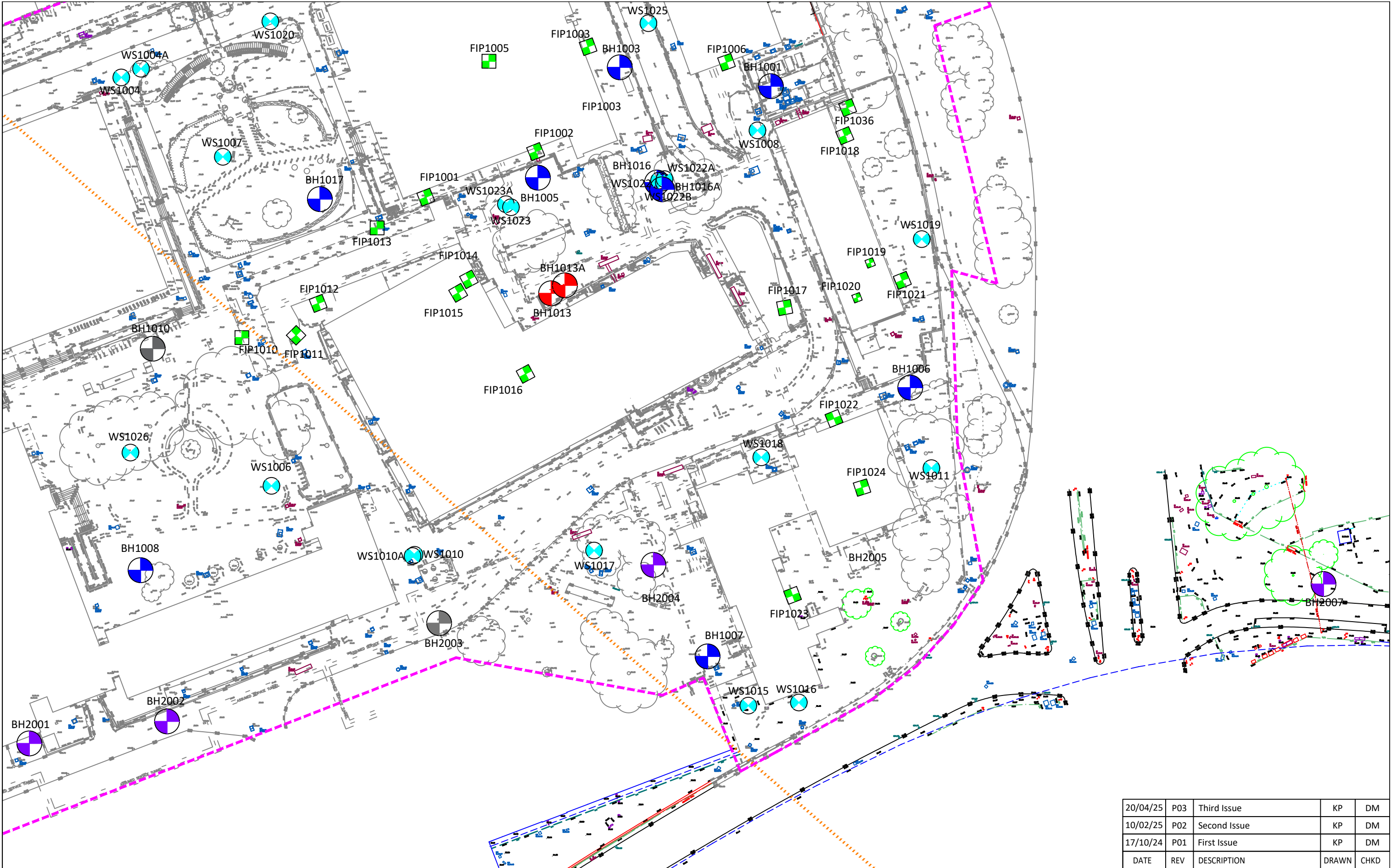
Sister Manchester

TITLE

Exploratory Hole Location Plan: Sheet 2

20/04/25	P03	Third Issue	KP	DM
10/02/25	P02	Second Issue	KP	DM
17/10/24	P01	First Issue	KP	DM
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019/02	NTS	17/10/24	KP	DM
DRAWING No.				REV
51019-CE-02-XX-D-G-0006				P03





Indicative IDM Wider Masterplan Area

Indicative Enabling Works Area

Indicative Plot C Development Area

Indicative Alignment of BT Tunnel

Indicative Alignment of Charles Street Culverted Watercourse

Cable Percussion/Rotary Borehole

Cable Percussion Borehole

Window Sample Borehole

Horizontal Core

Foundation Inspection Trial Pit

Proposed Cable Percussion/Rotary Borehole

Notes

Proposed Exploratory hole positions are subject to locations of buried utilities and access restrictions and may be subject to change.

Positions of investigation locations along Network Rail viaduct / assets not indicated on exploratory hole plan - locations TBC.

CIVIC

EARTH

PROJECT

Sister Manchester

TITLE

Exploratory Hole Location Plan: Sheet 4

20/04/25	P03	Third Issue	KP	DM
10/02/25	P02	Second Issue	KP	DM
17/10/24	P01	First Issue	KP	DM
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019/02	NTS	17/10/24	KP	DM
DRAWING No.				REV
51019-CE-02-XX-D-G-0008				P03

Appendix B

Exploratory Hole Borehole and Window Sample Records

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: AP+FM Checked By: KP		Method and Plant Used		Groundwater						
Location ID: BH1001		Location Type: Cable Percussion to Rotary Coring				0.00 1.20 6.00	1.20 6.00 25.00	IP CP RC	Hand Tools Dando 2000 Beretta GT15	1.20 10.50	- 20	- 10.50		
		Coords: 384758.23E/397629.85N		Level: 35.24mOD										
Status: FINAL		Scale: 1:50		Final Depth: 25.00										
		Date Start: 17/04/2024		Date End: 18/04/2024										
Sheet 1 of 3														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)	
						35.16	0.08		Bituminous material. [MADE GROUND]					
	0.40 0.40 - 0.60	ES 1 B 1				34.74	0.50		Dark grey mottled red and black sandy gravel. Gravel is subangular to angular fine to medium of macadam, brick, limestone and concrete. Rare angular cobbles of red brick noted.					
	1.0	B 2	SPT(S) 1.20m N=9 (1,1/1,2,3,3)						[MADE GROUND] Loose to medium dense grey mottled red sandy gravel. Gravel is subangular to angular fine to coarse of brick and concrete. Rare angular cobbles of red brick noted. [MADE GROUND]					
	2.0	ES 2 B 3	SPT(S) 2.00m N=20 (2,4/4,5,5,6)											
	3.0	B 4 ES 3	SPT(S) 3.00m N=31 (3,5/7,7,8,9)			32.24	3.00		Soft greyish brown mottled red slightly sandy gravelly clay. Gravel is subangular to angular fine to coarse of concrete and red brick. Rare angular cobbles of brick noted. [MADE GROUND]					
	4.0	B 5	SPT(S) 4.00m N=35 (6,6/7,9,9,10)			31.24	4.00							
	5.0	ES 4 D 1 B 6	SPT(S) 5.00m 50 (14,11/50 for 174mm)			30.24	5.00							
	6.0	ES 5 B 7	SPT(S) 6.00m 50 (20,5/50 for 92mm)											
	6.50 6.50	B 8 D 2				28.74	6.50							
	7.0	EW ES1							Extremely weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, weakly cemented in places. Frequent subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly clean, some infilled with fine to medium sand. [CHESTER FORMATION - SANDSTONE]	6.00 7.50	100	0	0	
7.50 - 9.00 7.50 - 9.00	C C 1	SPT(S) 7.50m 50 (25 for 0mm/50 for 0mm)												
8.0	EW ES1									7.50 9.00	41	27	20	30 NI 230
9.0	B 9	SPT(S) 9.00m 50 (25 for 0mm/50 for 0mm)												
10.0	EW W1									9.00 10.50	100	0	0	
Stratum continues onto next page														
Notes: 1. Groundwater seepage encountered at 1.20mbgl and groundwater strike at 10.50mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-5.00m plain 50mm pipe with bentonite seal; 5.00-25.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter		Casing		Hammer Information				
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.		
						4.50	25			71 76%		BBL02 RD3		
						4.50	146			Install Response Zones				
										Ref	From (m)	To (m)		
										Pipe1	5.00	25.00		

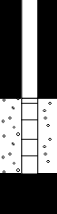
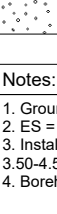
Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: AP+FM Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	1.20	-	-
				1.20	6.00	CP	Dando 2000	10.50	20	10.50
Coords: 384758.23E/397629.85N		Level: 35.24mOD		6.00	25.00	RC	Beretta GT15			
Scale: 1:50		Final Depth: 25.00								
Date Start: 17/04/2024		Date End: 18/04/2024								

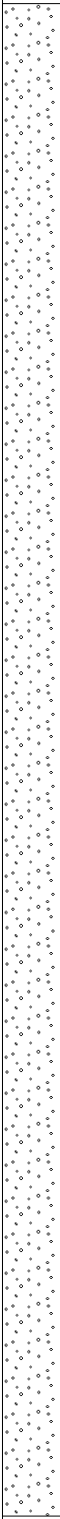
<div><div>CIVIC</div><div>EARTH</div></div>		Project Title:		Plot C, Sister		Client:		ID Manchester Limited						
		Project Number: 51019/02		Logged By: AP+FM Checked By: KP		Method and Plant Used			Groundwater					
Location ID: BH1001		Location Type: Cable Percussion to Rotary Coring		0.00	1.20	IP	Hand Tools	1.20	-	-				
		Coords: 384758.23E/397629.85N Level: 35.24mOD		1.20	6.00	CP	Dando 2000	10.50	20	10.50				
Status: FINAL		Scale: 1:50 Final Depth: 25.00		6.00	25.00	RC	Beretta GT15							
		Date Start: 17/04/2024 Date End: 18/04/2024												
Sheet 3 of 3														
Inst/ Backfill	Depth (m)	Samples & Tests		Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring			Fract (mm) min avg max		
		Sample Depth (m)	Type/Ref						Tests/Results	Core Run	TGR (%)		SCR (%)	RDD (%)
	21.0	21.00 - 22.50	B 15	SPT(S) 21.00m 50 (25 for 0mm/50 for 0mm)				Extremely weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, weakly cemented in places. Frequent subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly clean, some infilled with fine to medium sand. [CHESTER FORMATION - SANDSTONE]	19.50 21.00	100	0	0		
	22.0								21.00 22.50	100	0	0		
	23.0									22.50 24.00	100	0	0	
	24.0									24.00 25.00	100	0	0	
	25.0	24.00 - 25.00	B 17	SPT(S) 24.00m 50 (25 for 0mm/50 for 0mm)		10.24 25.00		EOH at 25.00m - Achieved target depth						
	26.0													
	27.0													
	28.0													
	29.0													
	30.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. Groundwater seepage encountered at 1.20mbgl and groundwater strike at 10.50mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-5.00m plain 50mm pipe with bentonite seal; 5.00-25.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									4.50	25			71	BBL02
									4.50	146			76%	RD3
									Install Response Zones					
									Ref	From (m)	To (m)			

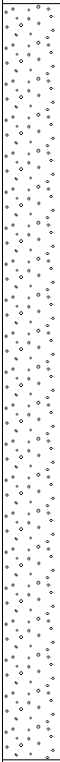
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited														
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater											
Location ID: BH1002		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	14.40	20	14.50								
		Coords: 384751.39E/397675.12N		Level: 38.79mOD		1.20	5.50	CP	Dando 2000											
Status: FINAL		Scale: 1:50		Final Depth: 25.00		5.50	25.00	RC	Beretta GT15											
		Date Start: 26/04/2024		Date End: 07/05/2024																
Sheet 1 of 3																				
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max						
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)							
	0.30 - 0.80	B 1	SPT(S) 1.20m N=50 (4,21/50 for 225mm)		38.69	0.10		Bituminous macadam. [MADE GROUND]												
	0.40	ES 1			38.49	0.30		Concrete. [MADE GROUND]												
	1.20 - 1.65	D 1			37.59	1.20		Firm blackish brown slightly sandy slightly gravelly cobbly clay. Cobbles are angular of concrete. Gravel is angular fine to coarse of concrete and brick. Sand is fine to coarse. High ash content noted. [MADE GROUND]												
	1.20 - 1.70	B 2						Firm blackish brown slightly sandy slightly gravelly clay. Gravel is angular fine to coarse of concrete and brick. Sand is fine to coarse. [MADE GROUND]												
	1.20 - 1.70	ES 2																		
	2.00	ES 3			35.99	2.80		Dense red brown sand. Sand is fine to coarse. [MADE GROUND]												
	2.00 - 2.45	D 2			35.29	3.50		Very dense red brown slightly sandy cobbly gravel. Gravel is angular of brick. Cobbles are angular of brick. Sand is fine to coarse. [MADE GROUND]												
	2.00 - 2.50	B 3			34.29	4.50		Firm blackish brown slightly sandy slightly gravelly clay. Gravel is angular fine to coarse of concrete and brick. Sand is fine to coarse. [MADE GROUND]												
	3.00 - 3.45	D 3			33.89	4.90		Very dense red brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular fine to coarse of sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE]												
	3.00 - 3.50	B 4			33.29	5.50		Very dense reddish brown SAND. Sand is fine to coarse with areas of weak cementation. [WEATHERED CHESTER FORMATION - SANDSTONE]												
	3.00 - 3.50	ES 4																		
4.00	ES 5	SPT(S) 2.00m N=16 (2,3/3,4,4,5)																		
4.00 - 4.45	D 4																			
4.00 - 4.50	B 5																			
5.00	ES 6																			
5.00 - 5.45	D 5																			
5.00 - 5.50	B 6																			
5.50 - 7.00	B 7																			
7.00 - 8.50	B 8																			
8.50 - 10.00	B 9																			
10.00 - 11.50	B 10																			
Stratum continues onto next page																				
Notes: 1. Groundwater strike encountered at 4.40mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-5.50m plain 50mm pipe with bentonite seal; 5.50-25.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter		Casing		Hammer Information										
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.								
						5.50	150	5.50	150	71 76%		BBL02 RD3								
						25.00	146	25.00	146	Install Response Zones										
										Ref	From (m)	To (m)								
										Pipe1	5.50	25.00								

Project Title: Plot C, Sister				Client: ID Manchester Limited					
Project Number: 51019/02	Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
			From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
	Location Type: Cable Percussion to Rotary Coring		0.00	1.20	IP	Hand Tools	14.40	20	14.50
	Coords: 384751.39E/397675.12N		1.20	5.50	CP	Dando 2000			
	Level: 38.79mOD		5.50	25.00	RC	Beretta GT15			
Scale: 1:50		Final Depth: 25.00							
Date Start: 26/04/2024		Date End: 07/05/2024							

Project Title: Plot C, Sister				Client: ID Manchester Limited					
Project Number: 51019/02	Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
			From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
	Location Type: Cable Percussion to Rotary Coring		0.00	1.20	IP	Hand Tools	14.40	20	14.50
	Coords: 384751.39E/397675.12N		1.20	5.50	CP	Dando 2000			
	Level: 38.79mOD		5.50	25.00	RC	Beretta GT15			
Scale: 1:50		Final Depth: 25.00							
Date Start: 26/04/2024		Date End: 07/05/2024							

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited																	
		Project Number: 51019/02		Logged By: KP+FM Checked By: KP		Method and Plant Used		Groundwater															
Location ID: BH1003		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	Strike (m)	Time (min)	Rose To											
		Coords: 384724.98E/397634.00N		Level: 34.06mOD		1.20	6.00	CP	Dando 2000														
Status: FINAL		Scale: 1:50				Final Depth: 25.00		6.00	25.00	RC	Beretta GT15												
		Date Start: 16/04/2024		Date End: 17/04/2024																			
Sheet 1 of 3																							
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max									
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)										
	0.30 - 0.60	B 1				33.96	0.10		Bituminous tarmacadam. [MADE GROUND]														
						33.46	0.60		Light yellow grey brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to medium of sandstone, brick and concrete. Occasional fine fragments of coal. [MADE GROUND]														
	1.00 1.00 - 1.50 1.20 - 1.65	ES 1 B 2 D 1		SPT(S) 1.20m N=22 (3,4/5,5,6,6)					Medium dense dark grey brown slightly gravelly clayey sand. Sand is fine to medium. Gravel is angular to subangular fine to coarse of brick, sandstone and concrete. Occasionally mottled dark grey. [MADE GROUND]														
																							
	2.00 2.00 - 2.45 2.00 - 2.50 2.10	D 2 B 3 ES 2		SPT(S) 2.00m N=26 (4,5/6,6,7,7)																			
																							
	2.70 2.70	ES 3 ES ES2				31.56	2.50		Soft dark brown grey slightly gravelly to gravelly silty sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to medium of brick and sandstone. Occasional subangular cobble of brick noted. [MADE GROUND]														
						31.06	3.00		Very dense light brown grey sandy GRAVEL. Gravel is subrounded fine to coarse of quartzite and sandstone. [ALLUVIUM]														
	3.00 3.00 - 3.45 3.00 - 3.50 3.00 - 4.50	ES 4 D 3 B 4 C 1		SPT(S) 3.00m 36 (17,8/36 for 89mm)					Very dense light orange red slightly gravelly SAND. Sand is fine to coarse. Gravel is rounded fine of sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE]														
						30.46	3.60																
	4.00 4.00 - 4.45 4.00 - 4.50	D 4 B 5		SPT(S) 4.00m 50 (21,4/50 for 85mm)																			
						29.56	4.50		Extremely weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, weakly cemented in places. Frequent subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly clean, some infilled with fine to medium sand. [CHESTER FORMATION - SANDSTONE]														
	4.50 - 4.95 4.50 - 6.00	D 5 C 2		SPT(S) 4.50m 50 (25 for 75mm/50 for 92mm)																			
																							
	5.00	B 6																					
																							
	6.00 - 7.50 6.00 - 7.50	B 7 C 3																					
																							
	7.50 - 9.00 7.50 - 9.00	B 8 C 4		SPT(S) 7.50m 50 (25 for 0mm/50 for 0mm)																			
																							
	7.50 - 9.00																						
																							
	9.00 - 10.50 9.00 - 10.50	B 9 C 5		SPT(S) 9.00m 50 (25 for 5mm/50 for 5mm)																			
																							
																							
Stratum continues onto next page																							
Notes: 1. Groundwater strike encountered at 10.00mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-3.00m plain 50mm pipe with bentonite seal; 3.00-3.50m slotted 50mm pipe with gravel filter and geosock; 3.50-4.50m bentonite seal; 4.50-25.00 gravel backfill. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.							Hole Diameter		Casing		Hammer Information												
							Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.										
							25.00	107	25.00	107	71 76%		BBL02 RD3										
							Install Response Zones																
							Ref	From (m)		To (m)													
							Pipe1	4.50		3.50													

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited									
		Project Number: 51019/02		Logged By: KP+FM Checked By: KP		Method and Plant Used		Groundwater							
Location ID: BH1003		Location Type: Cable Percussion to Rotary Coring				From (m) 0.00 1.20 6.00	To (m) 1.20 6.00 25.00	Type IP CP RC	Plant Used Hand Tools Dando 2000 Beretta GT15	Strike (m) 10.00	Time (min) 20	Rose To 10.00			
		Coords: 384724.98E/397634.00N		Level: 34.06mOD											
Status: FINAL		Scale: 1:50		Final Depth: 25.00											
Sheet 2 of 3		Date Start: 16/04/2024		Date End: 17/04/2024											
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max	
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)		
	10.50 - 12.00	B 10	SPT(S) 10.50m 50 (25 for 5mm/50 for 10mm)						Extremely weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, weakly cemented in places. Frequent subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly clean, some infilled with fine to medium sand. [CHESTER FORMATION - SANDSTONE]	10.50 12.00	100	0	0		
	12.00 - 13.50	B 11	SPT(S) 12.00m 50 (25 for 5mm/50 for 10mm)							12.00 13.50	100	0	0		
	13.50 - 15.00	ES 5 B 12	SPT(S) 13.50m 50 (25 for 0mm/50 for 0mm)							13.50 15.00	100	0	0		
	15.00 - 16.50	C C 1	SPT(S) 15.00m 50 (25 for 0mm/50 for 0mm)							15.00 16.50	27	15	0	NI NI 50	
	16.50 - 18.00	B 13								16.50 18.00	100	0	0		
	18.00 - 19.50	B 14	SPT(S) 18.00m 50 (25 for 0mm/50 for 0mm)							18.00 19.50	100	0	0		
	19.50 - 21.00	B 15	SPT(S) 19.50m 50 (25 for 5mm/50 for 5mm)												
	20.0														
	Stratum continues onto next page														
	Notes: 1. Groundwater strike encountered at 10.00mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-3.00m plain 50mm pipe with bentonite seal; 3.00-3.50m slotted 50mm pipe with gravel filter and geosock; 3.50-4.50m bentonite seal; 4.50-25.00 gravel backfill. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter			Casing		Hammer Information			
Depth (m) 25.00							Dia (mm) 107	Depth (m) 25.00	Dia (mm) 107	Energy Ratio		Serial No.			
										71 76%		BBL02 RD3			
										Install Response Zones					
										Ref	From (m)	To (m)			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited													
		Project Number: 51019/02		Logged By: KP+FM Checked By: KP		Method and Plant Used			Groundwater										
Location ID: BH1003		Location Type: Cable Percussion to Rotary Coring				From (m) 0.00 1.20 6.00	To (m) 1.20 6.00 25.00	Type IP CP RC	Plant Used Hand Tools Dando 2000 Beretta GT15	Strike (m) 10.00	Time (min) 20	Rose To 10.00							
		Coords: 384724.98E/397634.00N		Level: 34.06mOD															
Status: FINAL		Scale: 1:50		Final Depth: 25.00															
Sheet 3 of 3		Date Start: 16/04/2024		Date End: 17/04/2024															
<div>Inst/ Backfill</div> <div></div>	<div>Depth (m)</div> <div>21.0</div> <div>22.0</div> <div>23.0</div> <div>24.0</div> <div>25.0</div> <div>26.0</div> <div>27.0</div> <div>28.0</div> <div>29.0</div> <div>30.0</div>	Samples & Tests		<div>Water Level (m)</div>	<div>Level (mOD)</div> <div>9.06</div>	<div>Strata Depth (m)</div> <div>25.00</div>	<div>Legend / Cover</div> <div></div>	<div>Strata Description</div> <div>Extremely weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, weakly cemented in places. Frequent subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly clean, some infilled with fine to medium sand. [CHESTER FORMATION - SANDSTONE]</div>				Rotary Coring				<div>Fract (mm) min avg max NI NI 180</div>			
		<div>Sample Depth (m)</div> <div>21.00 - 22.50 21.00 - 22.50</div> <div>22.50 - 24.00 22.50 - 24.00</div> <div>24.00 - 25.00 24.00 - 25.00</div>	<div>Type/Ref</div> <div>C C 2</div> <div>C C 3</div> <div>C C 4</div>									<div>Tests/Results</div> <div>SPT(S) 21.00m 50 (25 for 5mm/50 for 10mm)</div>	<div>Core Run</div> <div>19.50 21.00</div> <div>21.00 22.50</div> <div>22.50 24.00</div> <div>24.00 25.00</div>	<div>TCR (%)</div> <div>100</div> <div>50</div> <div>43</div> <div>19</div>	<div>SCR (%)</div> <div>0</div> <div>47</div> <div>27</div> <div>15</div>		<div>ROD (%)</div> <div>0</div> <div>15</div> <div>9</div> <div>9</div>		
Notes:												Hole Diameter		Casing		Hammer Information			
1. Groundwater strike encountered at 10.00mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-3.00m plain 50mm pipe with bentonite seal; 3.00-3.50m slotted 50mm pipe with gravel filter and geosock; 3.50-4.50m bentonite seal; 4.50-25.00 gravel backfill. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.												Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.	
												25.00	107	25.00	107	71 76%		BBL02 RD3	
																Install Response Zones			
																Ref	From (m)	To (m)	

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited												
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater									
Location ID: BH1004		Location Type: Rotary cored				0.00 1.20	1.20 20.00	IP RC	Hand Tools Beretta GT15	Strike (m) 14.20	Time (min) 20	Rose To 14.10						
		Coords: 384690.68E/397661.33N		Level: 36.50mOD														
Status: FINAL		Scale: 1:50		Final Depth: 19.50														
		Date Start: 19/04/2024		Date End: 22/04/2023														
Sheet 1 of 2																		
<div>Inst/ Backfill</div> <div></div>	<div>Depth (m)</div> <div>0.00 0.35 0.70 1.00 1.20 - 1.65 1.20 - 1.65 2.00 2.00 - 2.45 2.00 - 2.45 3.00 3.00 - 3.45 3.00 - 3.45 4.00 4.00 - 4.45 4.00 - 4.45 5.00 5.00 - 5.45 5.00 - 5.45 6.00 6.00 - 6.45 6.00 - 6.45 7.00 7.50 7.50 - 9.00 8.00 9.00 9.00 - 10.50 10.00</div>	Samples & Tests				<div>Water Level (m)</div> <div>36.40 35.95 34.55 30.70 29.60</div>	<div>Strata Depth (m)</div> <div>0.10 0.55 1.95 5.80 6.90</div>	<div>Legend / Cover</div> <div></div>	<div>Strata Description</div> <div>Bituminous macadam [MADE GROUND] Yellow brown sandy gravel. Gravel is angular to subangular fine to coarse of dolomite. Sand is fine to coarse. [MADE GROUND] Medium dense dark blackish brown very gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. High ash content noted. [MADE GROUND] Firm to stiff brown slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Sand is fine to coarse. [MADE GROUND] Medium dense light brown gravelly cobbly sand. Sand is fine to coarse. Cobbles are angular of brick. Gravel is angular of brick. [MADE GROUND] Very dense red brown SAND with areas of weak cementation. Sand is fine to coarse. [WEATHERED CHESTER FORMATION - SANDSTONE]</div>				Rotary Coring				<div>Fract (mm) min avg max</div>	
		Sample Depth (m)	Type/Ref	Tests/Results	Core Run								TCR (%)	SCR (%)	ROD (%)			
		0.35	B 1															
		0.70 0.70	B 2 ES 1	PID 0.70m 0.2 ppm														
		1.20 - 1.65 1.20 - 1.65	B 3 D 1	SPT(S) 1.20m N=9 (2,3/2,2,3)														
		2.00 - 2.45 2.00 - 2.45	B 4 D 2	SPT(S) 2.00m N=10 (1,2/2,2,3,3) HSV 2.00m (p)= 132 kPa (r)= 98 kPa														
		3.00 3.00 - 3.45 3.00 - 3.45	ES 2 B 5 D 3	SPT(S) 3.00m N=11 (1,2/3,3,2,3)														
		4.00 - 4.45 4.00 - 4.45	B 6 D 4	SPT(S) 4.00m N=12 (2,2/2,4,3,3) HSV 4.00m (p)= 151 kPa (r)= 120 kPa														
		5.00 - 5.45 5.00 - 5.45	B 7 D 5	SPT(S) 5.00m N=13 (2,1/2,3,4,4)														
		6.00 6.00 - 6.45 6.00 - 6.45	ES 3 B 8 D 6	SPT(S) 6.00m N=12 (2,2/2,2,3,5) PID 6.00m 0.2 ppm														
7.50 7.50 - 9.00	ES 4 B 9	PID 7.50m 0.1 ppm																
9.00 9.00 - 10.50	ES 5 B 10																	
Stratum continues onto next page																		
Notes: 1. Groundwater strike encountered at 14.20mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-7.00m plain 50mm pipe with bentonite seal; 7.00-20.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed.						Hole Diameter		Casing		Hammer Information								
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.						
						20.00	146	20.00	146	71%		BBL02						
						Install Response Zones												
						Ref	From (m)		To (m)									
						Pipe1	7.00		19.50									

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater						
Location ID: BH1004		Location Type: Rotary cored				0.00 1.20	1.20 20.00	IP RC	Hand Tools Beretta GT15	Strike (m) 14.20	Time (min) 20	Rose To 14.10		
		Coords: 384690.68E/397661.33N		Level: 36.50mOD										
Status: FINAL		Scale: 1:50		Final Depth: 19.50										
		Date Start: 19/04/2024		Date End: 22/04/2023										
Sheet 2 of 2														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)	
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited																						
		Project Number: 51019/02		Logged By: KP+FM Checked By: KP		Method and Plant Used			Groundwater																			
Location ID: BH1005		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	3.60	20	3.50																
		Coords: 384706.96E/397609.71N		Level: 33.51mOD		1.20	6.50	CP	Dando 2000	15.60	20	15.60																
Status: FINAL		Scale: 1:50		Final Depth: 16.50																								
		Date Start: 15/04/2024		Date End: 15/04/2024																								
Sheet 1 of 2																												
<div>Inst/ Backfill</div> <div></div>	<div>Depth (m)</div> <div>0.00 0.40 - 0.60 0.60 1.00 1.00 - 1.50 1.20 - 1.65 2.00 2.00 - 2.45 2.00 - 2.50 3.00 - 3.45 3.00 - 3.50 4.00 - 4.45 4.00 - 4.45 4.10 5.00 - 5.45 5.00 - 5.50 5.10 6.00 6.00 6.00 - 6.45 6.00 - 6.50 6.50 6.50 - 7.50 7.50 - 8.50 8.50 - 10.00 8.50 - 10.00 9.50 10.00 - 11.50</div>	Samples & Tests			<div>Water Level (m)</div> <div>33.41 33.11 31.81 31.51 29.91 29.01 27.01</div>	<div>Level (mOD)</div> <div>0.10 0.40 1.70 2.00 3.60 4.50 6.50</div>	<div>Strata Depth (m)</div> <div>0.10 0.40 1.70 2.00 3.60 4.50 6.50</div>	<div>Legend / Cover</div> <div></div>	<div>Strata Description</div> <div>Bituminous tarmacadam. [MADE GROUND] Light red orange speckled black slightly gravelly sand. Sand is fine to medium. Gravel is rounded to subangular fine to medium of sandstone and concrete. [MADE GROUND] Medium dense dark grey brown gravelly sand. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, sandstone and concrete. Occasional fragments of granite setts. [MADE GROUND] Soft dark grey brown slightly gravelly clay. Gravel is angular to subangular fine to medium of concrete and brick. Sand is fine to coarse. [MADE GROUND] Medium dense light brown grey to grey clayey gravelly sand. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick, concrete and sandstone. Occasional cobbles of subangular concrete. [MADE GROUND] Medium dense dark grey black silty sand. Sand is fine. Occasional subrounded fine gravel of sandstone. [MADE GROUND] Dense dark red brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular to subangular fine to medium of sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE] Extremely weak thinly to medium bedded light red brown medium to coarse grained SANDSTONE, weakly cemented in places. Frequent subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly clean, some infilled with fine to medium sand. [CHESTER FORMATION - SANDSTONE]</div>	Rotary Coring			<div>Fract (mm)</div> <div>min avg max</div> <div>30 NI 110</div>															
		<div>Sample Depth (m)</div> <div>B 1 ES 1 ES 2 B 2 D 1 ES 3 D 2 B 3 D 3 B 4 B 5 D 4 ES 4 D 5 B 6 ES 5 ES 6 EW W2 D 6 B 7 EW W1 B 8 B 9 C C 1 EW ES1 B 10</div>	<div>Type/Ref</div>	<div>Tests/Results</div> <div>SPT(S) 1.20m N=21 (4,6/6,5,5,5) SPT(S) 2.00m N=14 (2,3/3,3,4,4) SPT(S) 3.00m N=20 (3,3/4,5,5,6) SPT(S) 4.00m N=29 (4,5/6,7,7,9) SPT(S) 5.00m N=40 (5,6/7,9,12,12) SPT(S) 6.50m 60 (17,8/60 for 167mm) SPT(S) 7.50m 50 (25 for 5mm/50 for 10mm) SPT(S) 8.50m 50 (25 for 5mm/50 for 10mm)</div>						<div>Core Run</div> <div>6.50 7.50 8.50 10.00</div>	<div>TCR (%)</div> <div>100</div>	<div>SCR (%)</div> <div>0</div>		<div>RQD (%)</div> <div>0</div>														
															Stratum continues onto next page													
															Notes:						Hole Diameter		Casing		Hammer Information			
															<div>1. Groundwater strikes recorded at 3.60mbgl and 15.60mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-7.00m plain 50mm pipe with bentonite seal; 7.00-16.50m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features. 5. Borehole terminated at 16.50mbgl due to presence of gross suspected hydrocarbon contamination in groundwater.</div>						<div>Depth (m)</div> <div>16.50</div>	<div>Dia (mm)</div> <div>107</div>	<div>Depth (m)</div> <div>16.50</div>	<div>Dia (mm)</div> <div>107</div>	Energy Ratio		Serial No.	
																									76 71%		RD3 BBL02	
																									Install Response Zones			
																									Ref	From (m)	To (m)	
																									Pipe1	7.00	16.50	

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: KP+FM Checked By: KP		Method and Plant Used		Groundwater						
Location ID: BH1005		Location Type: Cable Percussion to Rotary Coring				From (m) 0.00 1.20 6.50	To (m) 1.20 6.50 16.50	Type IP CP RC	Plant Used Hand Tools Dando 2000 Beretta GT15	Strike (m) 3.60 15.60	Time (min) 20 20	Rose To 3.50 15.60		
		Coords: 384706.96E/397609.71N		Level: 33.51mOD										
Status: FINAL		Scale: 1:50		Final Depth: 16.50										
		Date Start: 15/04/2024		Date End: 15/04/2024										
Sheet 2 of 2														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	ROD (%)	
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: FM+AP Checked By: KP		Method and Plant Used			Groundwater			
Location ID: BH1006		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	3.70	20	3.70
		Coords: 384788.91E/397563.53N		Level: 34.19mOD		1.20	6.50	CP	Dando 2000	20		
Status: FINAL		Scale: 1:50		Final Depth: 15.00		9.50	15.00	RC	Beretta GT15	9.50		9.50
		Date Start: 24/04/2024		Date End: 25/04/2024								
Sheet 1 of 2												

Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max	
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)		
						34.14	0.05		Paving slab. [MADE GROUND]						
						34.09	0.10		Pale yellow sand. Sand is fine to medium. [MADE GROUND]						
	0.50 - 0.70	B 1							Medium dense dark grey mottled red gravelly sand. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of brick, concrete, mortar and tile. [MADE GROUND]						
	1.0														
	1.20 - 1.45	D 1	SPT(S) 1.20m N=28 (5,7/7,6,7,8)												
	1.20 - 1.50	B 2													
	1.30	ES 1													
	2.0						32.19	2.00		Firm to stiff dark grey mottled gravelly very sandy clay. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium of brick, concrete and coal. [MADE GROUND]					
	2.00	ES 2	SPT(S) 2.00m N=31 (4,6/6,7,9,9)												
	2.00 - 2.45	B 3													
2.00 - 2.45	D 2														
2.20	ES 3														
2.20	ES ES2														
3.0						31.19	3.00		Medium dense to dense red brown gravelly SAND. Sand is fine to medium. Gravel is subrounded fine to medium of mixed lithologies including sandstone. [ALLUVIUM]						
3.00 - 3.45	D 3	SPT(S) 3.00m N=36 (7,9/10,9,9,8)													
3.00 - 3.50	B 4														
3.40	ES 4														
4.0															
															
4.50	B 5	SPT(S) 4.00m N=26 (5,5/6,6,7,7)													
5.0															
5.00 - 5.50	B 6	SPT(S) 5.00m N=22 (4,4/4,6,6,6)													
6.0															
6.00	ES 5														
6.00 - 6.45	D 4														
6.10	EW ES1														
6.50	B 7	SPT(S) 6.50m 50 (7,10/50 for 164mm)				27.69	6.50		Very dense red SAND. Sand is fine to coarse. [WEATHERED CHESTER FORMATION - SANDSTONE]						
7.0															
7.00	EW ES1														
7.00	EW W1														
8.0															
8.00	B 8	SPT(S) 8.00m 50 (10,13/50 for 171mm)				26.19	8.00		Very dense slightly gravelly SAND. Sand is fine to coarse. Gravel is subrounded of lithorelicts including sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE]						
9.0															
9.50 - 10.50	B 9	SPT(S) 9.50m 50 (25 for 10mm/50 for 90mm)				24.69	9.50		Red brown SAND. Sand is fine to coarse with areas of weak cementation. [WEATHERED CHESTER FORMATION - SANDSTONE]						
10.0															

Stratum continues onto next page

<div>Notes:</div> <div>1. Groundwater strikes recorded at 3.70mbgl and 9.50mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-7.00m plain 50mm pipe with bentonite seal; 7.00-15.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed.</div>						Hole Diameter		Casing		Hammer Information			
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.	
						15.00	146	15.00	146	71 76%		BBL02 RD3	
						Install Response Zones							
						Ref	From (m)	To (m)					
Pipe1	7.00	15.00											

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: FM+AP Checked By: KP		Method and Plant Used		Groundwater						
Location ID: BH1006		Location Type: Cable Percussion to Rotary Coring				0.00 1.20 9.50	1.20 6.50 15.00	IP CP RC	Hand Tools Dando 2000 Beretta GT15	3.70 9.50	20 20	3.70 9.50		
		Coords: 384788.91E/397563.53N		Level: 34.19mOD										
Status: FINAL		Scale: 1:50		Final Depth: 15.00										
Sheet 2 of 2		Date Start: 24/04/2024		Date End: 25/04/2024										
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)	
	10.50 - 12.00	B 10	SPT(S) 10.50m 50 (25 for 0mm/50 for 0mm)						Red brown SAND. Sand is fine to coarse with areas of weak cementation. [WEATHERED CHESTER FORMATION - SANDSTONE]	9.50 10.50	100	0	0	
	11.0									10.50 12.00	100	0	0	
	12.00 - 13.50	B 11	SPT(S) 12.00m 50 (25 for 5mm/50 for 5mm)							12.00 13.50	100	0	0	
	13.0										13.50 15.00	100	0	0
	13.50 - 15.00	B 12	SPT(S) 13.50m 50 (25 for 0mm/50 for 0mm)											
	14.0													
	15.0					19.19	15.00		EOH at 15.00m - Achieved target depth					
	16.0													
	17.0													
	18.0													
	19.0													
	20.0													

Notes:

1. Groundwater strikes recorded at 3.70mbgl and 9.50mbgl.
2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample.
3. Installation Details: 0.00-7.00m plain 50mm pipe with bentonite seal; 7.00-15.00m slotted 50mm pipe with gravel filter and geosock.
Gas tap, bung and flush cover installed.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
15.00	146	15.00	146	71 76%	BBL02 RD3
Install Response Zones					
Ref	From (m)	To (m)			

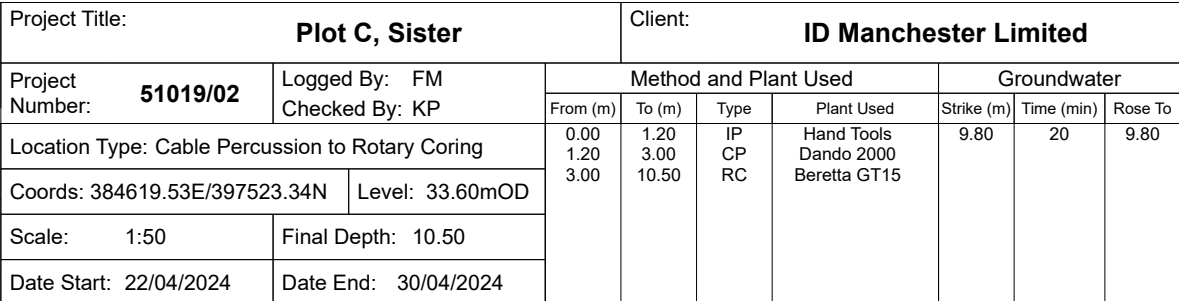
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited							
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater				
Location ID: BH1007		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	3.00	20	3.00	
		Coords: 384744.31E/397504.37N		Level: 34.10mOD		1.20	4.50	CP	Dando 2000	10.30	20	10.30	
Status: FINAL		Scale: 1:50		Final Depth: 15.00		4.50	15.00	RC	Beretta GT15				
		Date Start: 18/04/2024		Date End: 26/04/2024									
Sheet 1 of 2													

Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	ROD (%)	
	0.30 - 0.50	B 1			34.00	0.10		Concrete. [MADE GROUND]						
	0.70 - 0.90 0.80	B 2 ES 1	PID 0.80m 0.2 ppm					Medium dense blackish grey clayey gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete. High ash content noted. [MADE GROUND]						
	1.20 - 1.65 1.20 - 1.65	B 3 D 1	SPT(S) 1.20m N=10 (3,3/3,3,2,2)											
	1.50	ES 2	PID 1.50m 0.1 ppm											
	2.00 - 2.45 2.00 - 2.45	B 4 D 2	SPT(S) 2.00m N=11 (2,2/2,3,3,3)											
	3.00 - 3.45 3.00 - 3.45	B 5 D 3	SPT(S) 3.00m N=31 (3,4/4,5,10,12)		30.90	3.20								
	3.30	ES 3	PID 3.30m 0 ppm		30.60	3.50		Dense light brown slightly sandy GRAVEL. Gravel is subangular to rounded fine to coarse of sandstone, mudstone, flint and limestone. Sand is fine to coarse. [ALLUVIUM]						
	4.00 - 4.45 4.00 - 5.50	D 4 B 6	SPT(S) 4.00m 50 (25,/50 for 99mm)		30.10	4.00		Red brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular fine to coarse of sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE]						
	4.50 - 5.50	B 7						Very dense red brown SAND. Sand is fine to coarse with areas of weak cementation. [WEATHERED CHESTER FORMATION - SANDSTONE]						
	5.50 - 7.00	B 8	SPT(S) 5.50m 50 (25 for 5mm/50 for 10mm)						4.50 5.50	100	0	0		
	5.82 6.00	EW ES1 EW W1							5.50 7.00	100	0	0		
7.00 7.00 - 8.50	EW ES1 B 9	SPT(S) 7.00m 50 (25 for 5mm/50 for 10mm)												
8.50 - 10.00	B 10	SPT(S) 8.50m 50 (25 for 5mm/50 for 10mm)												
10.00 - 11.50	B 11	SPT(S) 10.00m 50 (25 for 5mm/50 for 10mm)												

Stratum continues onto next page

<div>Notes:</div> <div>1. Groundwater strikes recorded at 3.00mbgl and 10.30mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-4.00m plain 50mm pipe with bentonite seal; 4.00-15.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.</div>						Hole Diameter		Casing		Hammer Information			
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.	
						4.00	150	4.00	150	76 71%		RD3 BBL02	
						15.00	146	15.00	146	Install Response Zones			
										Ref	From (m)	To (m)	
										Pipe1	4.00	15.00	

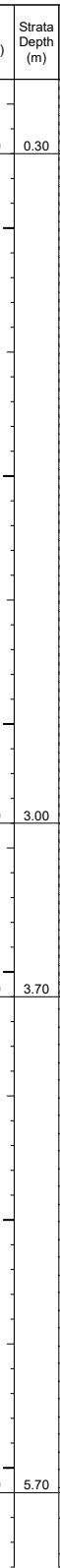
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater						
Location ID: BH1007		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	3.00	20	3.00		
		Coords: 384744.31E/397504.37N		Level: 34.10mOD		1.20	4.50	CP	Dando 2000	10.30	20	10.30		
Status: FINAL		Scale: 1:50		Final Depth: 15.00										
		Date Start: 18/04/2024		Date End: 26/04/2024										
Sheet 2 of 2														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)	
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><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Project Title: Plot C, Sister				Client: ID Manchester Limited					
Project Number: 51019/02	Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
			From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
	Location Type: Cable Percussion to Rotary Coring		0.00 1.20 3.00	1.20 3.00 10.50	IP CP RC	Hand Tools Dando 2000 Beretta GT15	9.80	20	9.80
	Coords: 384619.53E/397523.34N		Level: 33.60mOD						
	Scale: 1:50		Final Depth: 10.50						
Date Start: 22/04/2024		Date End: 30/04/2024							

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited											
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater								
Location ID: BH1009		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	13.00	20	13.00					
		Coords: 384581.20E/397774.73N		Level: 40.51mOD		1.20	6.50	CP	Dando 2000								
Status: FINAL		Scale: 1:50		Final Depth: 15.00		6.50	15.00	RC	Beretta GT15								
		Date Start: 24/04/2024		Date End: 02/05/2024													
Sheet 1 of 2																	
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max			
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	ROD (%)				
	0.20	ES 1	PID 0.20m 0.1 ppm			40.21	0.30		Firm dark brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine of concrete and brick. Sand is fine to coarse. [MADE GROUND]								
	0.30	ES 2				40.06	0.45										
	0.30 - 0.50	B 1				39.96	0.55										
	0.70 - 1.00	B 2	PID 0.80m 0 ppm						Blackish brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular of brick and concrete. High ash content noted. [MADE GROUND]								
	0.80	ES 3															
	0.80	ES ES2															
	1.20 - 1.65	D 1	SPT(S) 1.20m N=12 (2,2/2,3,3,4)						Orange brown sand. Sand is fine to coarse. [MADE GROUND]								
	1.20 - 1.70	B 3															
	2.00	ES 4	SPT(S) 2.00m N=14 (2,3/3,3,4,4)						Stiff brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of sandstone, mudstone and coal. Sand is fine to coarse. [GLACIAL TILL]								
	2.00 - 2.45	D 2															
	2.00 - 2.50	B 4															
	3.00 - 3.45	U 1	SPT(S) 3.00m N=24 (4,5/5,6,6,7)														
	3.50	D 3				37.01	3.50		Medium dense slightly gravelly SAND. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and mudstone. [GLACIAL TILL]								
	4.00	ES 5															
	4.00 - 4.45	D 4															
	4.00 - 4.50	B 5															
	5.00 - 5.45	U 2							Stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse sandstone, mudstone and coal. Sand is fine to coarse. [GLACIAL TILL]								
	5.50	D 5	PID 5.50m 0 ppm														
	5.50	ES 6															
	6.00	ES 7	PID 6.00m 0 ppm						Very dense red brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular fine to coarse of sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE]								
	6.00	ES 8															
	6.00 - 6.45	D 6															
	6.00 - 7.00	B 6	SPT(S) 6.50m 50 (6,10/50 for 187mm)			34.01	6.50		Very dense reddish brown SAND. Sand is fine to coarse with areas of weak cementation. [WEATHERED CHESTER FORMATION - SANDSTONE]								
	7.00	ES 9															
	7.00 - 8.50	B 7															
	8.50 - 10.00	B 8	SPT(S) 8.50m 50 (25 for 0mm/50 for 0mm)														
	10.00 - 11.50	B 9	SPT(S) 10.00m 50 (25 for 5mm/50 for 10mm)														
Stratum continues onto next page																	
Notes: 1. Groundwater strike recorded at 13.00mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-1.00m plain 50mm pipe with bentonite seal; 1.00-5.00m slotted 50mm pipe with gravel filter and geosock; 5.00-6.00m bentonite seal; 6.00-15.00 gravel backfill. Bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.										Hole Diameter		Casing		Hammer Information			
										Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.	
														71 76%	BBL02 RD3		
																Install Response Zones	
																Ref	From (m)
Pipe1	6.00	15.00															

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	13.00	20	13.00
				1.20	6.50	CP	Dando 2000			
Coords: 384581.20E/397774.73N Level: 40.51mOD				6.50	15.00	RC	Beretta GT15			
Scale: 1:50		Final Depth: 15.00								
Date Start: 24/04/2024		Date End: 02/05/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater				
Location ID: BH1012		Location Type: Cable percussion (shell and auger)				0.00 1.20	1.20 6.50	IP CP	Hand Tools Dando 2000			
		Coords: 384612.91E/397686.28N		Level: 40.60mOD								
Status: FINAL		Scale: 1:30		Final Depth: 6.50 m								
		Date Start: 23/04/2024		Date End: 23/04/2024								
Sheet 1 of 2												
<div>Inst/ Backfill</div> 	<div>Depth (m)</div> 	Samples & Tests			<div>Water Level (m)</div> 	<div>Level (mOD)</div> 	<div>Strata Depth (m)</div> 	<div>Legend / Cover</div> 	Strata Description			
		Sample Depth (m)	Type/Ref	Tests/Results								
		0.20 0.20	ES 1 ES ES1	PID 0.20m 0.2 ppm								
		0.40 - 0.70	B 1									
		0.90 - 1.10	B 2									
		1.00	ES 2	PID 1.00m 0.2 ppm								
		1.20 1.20 - 1.65 1.20 - 1.70	ES 3 D 1 B 3	SPT(S) 1.20m N=5 (1,1/1,2,1,1)								
		2.00 - 2.45 2.00 - 2.50	D 2 B 4	SPT(S) 2.00m N=50 (6,9/10,12,12,16)								
		3.00 - 3.45 3.00 - 3.50	D 3 B 5	SPT(S) 3.00m N=24 (3,4/5,6,6,7)								
		4.00 4.00 - 4.45 4.00 - 4.50	ES 4 D 4 B 6	SPT(S) 4.00m N=36 (4,5/7,9,10,10) HSV 4.00m (p)= 134 kPa (r)= 105 kPa PID 4.00m 0 ppm								
		5.00 5.00 - 5.45 5.00 - 5.50	ES 5 D 5 B 7	SPT(S) 5.00m N=44 (7,8/9,11,11,13) HSV 5.00m (p)= 140 kPa (r)= 99 kPa								
		6.00 6.00 - 6.45	ES 6 D 6	SPT(S) 6.00m 50 (12,13/50 for 44mm)								

Notes:

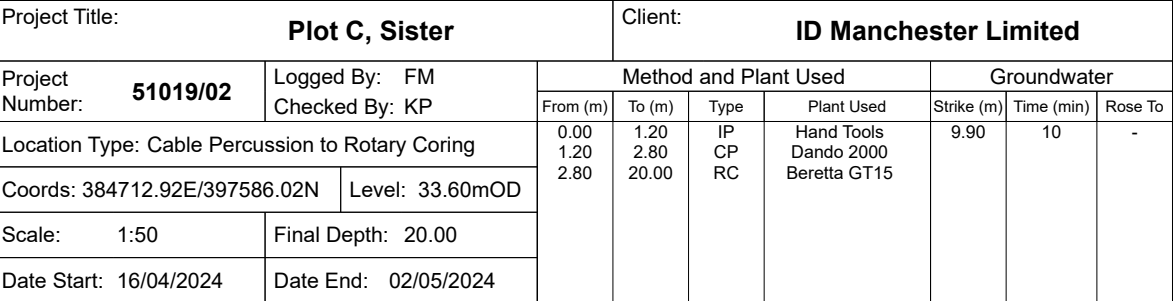
1. No groundwater encountered.
2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample.
3. Installation Details: 0.00-4.00m plain 50mm pipe with bentonite seal; 4.00-5.50m slotted 50mm pipe with gravel filter and geosock; 5.50-6.50m backfilled with arisings. Gas tap, bung and flush cover installed.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
6.50	150	3.00	150	76%	RD3
Install Response Zones					
Ref	From (m)	To (m)			
Pipe1	4.00	5.50			

Notes:	Hole Diameter		Casing		Hammer Information		
	Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.	
	6.50	150	3.00	150	76%	RD3	
	Install Response Zones						
					Ref	From (m)	To (m)
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-4.00m plain 50mm pipe with bentonite seal; 4.00-5.50m slotted 50mm pipe with gravel filter and geosock; 5.50-6.50m backfilled with arisings. Gas tap, bung and flush cover installed.							

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Cable percussion (shell and auger)				0.00	0.40	IP	Hand Tools			
Coords: 384709.87E/397584.26N		Level: 33.40mOD								
Scale: 1:30		Final Depth: 0.40 m								
Date Start: 16/04/2024		Date End: 16/04/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited													
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater										
Location ID: BH1013A		Location Type: Cable Percussion to Rotary Coring				0.00 1.20 2.80	1.20 2.80 20.00	IP CP RC	Hand Tools Dando 2000 Beretta GT15	9.90	10	-							
		Coords: 384712.92E/397586.02N		Level: 33.60mOD															
Status: FINAL		Scale: 1:50		Final Depth: 20.00															
Sheet 1 of 2		Date Start: 16/04/2024		Date End: 02/05/2024															
<div>Inst/ Backfill</div> <div></div>	<div>Depth (m)</div> <div>0.00 0.20 - 0.40 0.50 0.60 0.60 - 0.80 0.80 1.00 1.00 1.20 - 1.65 2.00 2.00 - 2.45 2.70 - 2.80 2.80 2.80 - 4.50 3.50 4.50 - 6.00 5.51 6.00 - 7.50 6.50 7.50 - 9.00 9.00 - 10.50 10.0</div>	Samples & Tests			<div>Water Level (m)</div> <div></div>	<div>Level (mOD)</div> <div>33.40 32.70 31.00 30.20</div>	<div>Strata Depth (m)</div> <div>0.20 0.90 2.60 3.40</div>	<div>Legend / Cover</div> <div></div>	<div>Strata Description</div> <div>Concrete. [MADE GROUND] Yellow brown slightly sandy gravel. Gravel is angular to subangular fine to coarse of dolomite. Sand is fine to coarse. [MADE GROUND] Medium dense to very dense dark brown gravelly clayey sand. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick, sandstone, mudstone, concrete and coal. [MADE GROUND] Possible brick wall. [MADE GROUND] Weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, moderately cemented. Rare subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly infilled with fine to medium sand, some clean. [CHESTER FORMATION - SANDSTONE]</div>	Rotary Coring				<div>Fract (mm) min avg max</div> <div></div>					
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	ROD (%)						
		0.20 0.20 - 0.40	ES 1 B 1	PID 0.20m 0.2 ppm															
		0.50 0.60 0.60 - 0.80 0.80	ES 2 ES 3 B 2 ES 4	PID 0.50m 0 ppm PID 0.80m 0.1 ppm															
		1.00 1.00 1.20 - 1.65	ES 5 EW W1 D 1	PID 1.00m 0 ppm SPT(S) 1.20m N=29 (12 for 0mm/29 for 0mm)															
		2.00 2.00 - 2.45	ES 6 D 2	SPT(S) 2.00m 50 (25 for 31mm/50 for 91mm) PID 2.00m 0 ppm															
		2.70 - 2.80 2.80 2.80 - 4.50	B 3 D 3 C 1	SPT(S) 3.00m 50 (25 for 25mm/50 for 25mm)															
		3.50	ES 7	PID 3.50m 0 ppm															
		4.50 - 6.00	C 2	SPT(S) 4.50m 50 (25 for 15mm/50 for 30mm)															
		5.51	EW ES1																
		6.00 - 7.50	C 3																
		6.50	EW ES1																
		7.50 - 9.00	C 4																
		9.00 - 10.50	B 4																
		Stratum continues onto next page																	
		Notes: 1. Groundwater strike recorded at 9.90mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-5.00m plain 50mm pipe with bentonite seal; 5.00-19.50m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.								Hole Diameter		Casing			Hammer Information				
Depth (m)	Dia (mm)							Depth (m)	Dia (mm)	Energy Ratio		Serial No.							
										76 71%		RD3 BBL02							
										Install Response Zones									
										Ref	From (m)	To (m)							
Pipe1	5.00	20.00																	



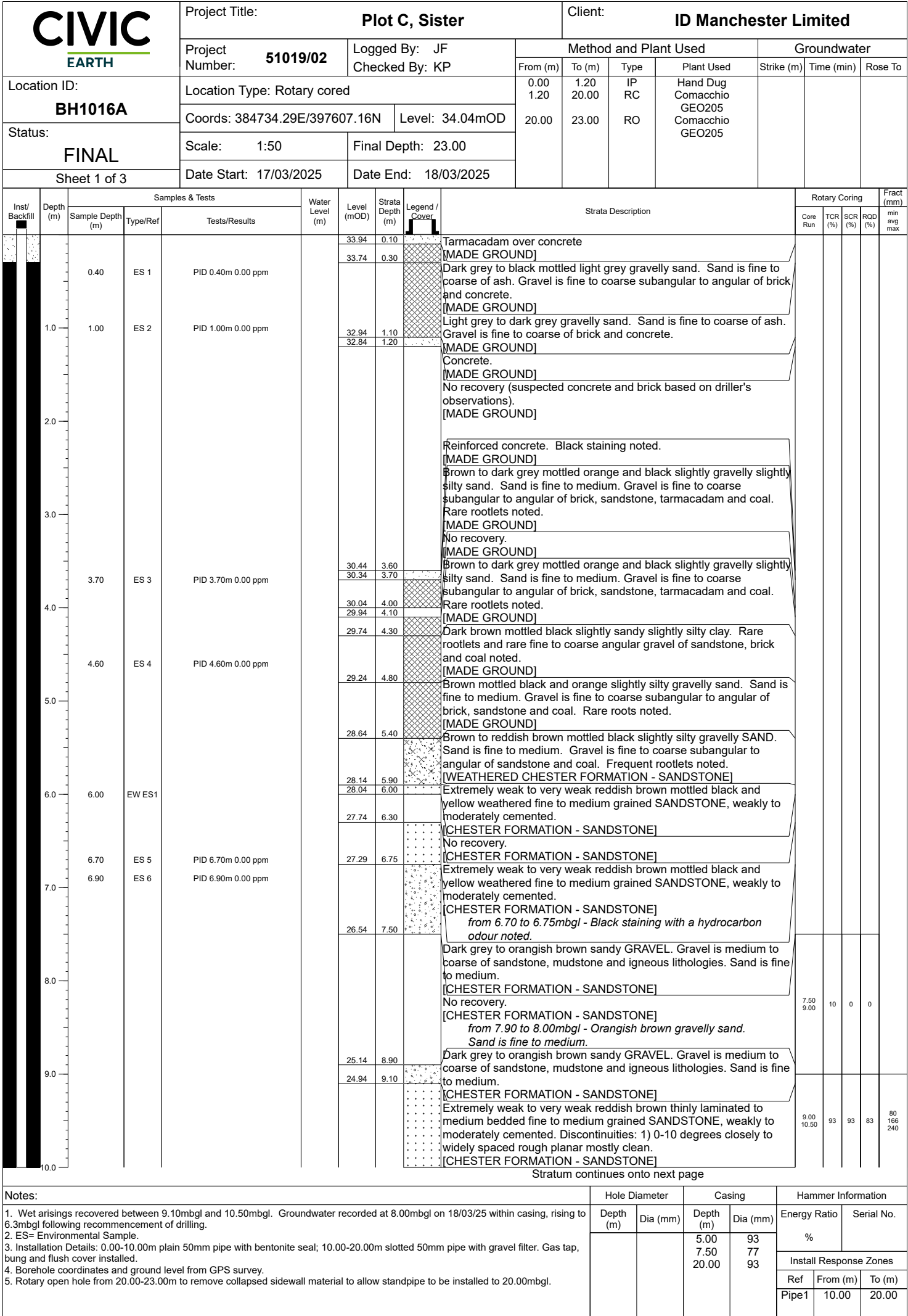
Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00	1.20	IP	Hand Tools			
Coords: 384554.73E/397498.68N		Level: 32.62mOD		1.20	2.20	WS	Terrier Rig			
Scale: 1:30		Final Depth: 2.20 m								
Date Start: 18/04/2024		Date End: 18/04/2024								

<div>CIVICEARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited												
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater										
		From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To										
Location ID: BH1015		Location Type: Cable percussion (shell and auger)				0.00	0.90	IP	Hand Tools									
Status: FINAL		Coords: 384557.77E/397618.98N		Level: 33.26mOD														
		Scale: 1:30		Final Depth: 0.90 m														
Sheet 1 of 1		Date Start: 11/04/2024		Date End: 11/04/2024														
Inst/ Backfill	Depth (m)	Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description									
						33.16	0.10		Tarmacadam. [MADE GROUND]									
						33.06	0.20		Yellow brown slightly sandy gravel. Gravel is angular fine to medium of limestone. Sand is fine to medium. [MADE GROUND]									
									Red brown clayey sandy gravel. Gravel is angular to subrounded fine to coarse of sandstone and brick. [MADE GROUND]									
						32.36	0.90		EOH at 0.90m - Terminated due to obstruction									
<div>Notes:</div> <div>1. No groundwater encountered. 2. Borehole backfilled with arisings and reinstated with cold-lay tarmac at surface. 3. Borehole terminated at 0.90mbgl due to obstruction. Borehole re-attempted as BH1015A.</div>													Hole Diameter		Casing		Hammer Information	
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.							
										%								
						Install Response Zones												
						Ref	From (m)	To (m)										

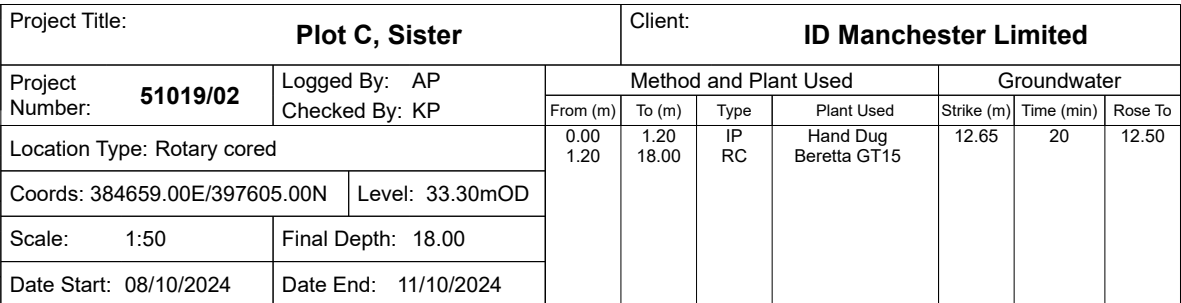
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater			
						From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location ID: BH1015A		Location Type: Cable percussion (shell and auger)				0.00	1.00	IP	Hand Tools			
		Coords: 384561.77E/397619.90N		Level: 33.00mOD								
Status: FINAL		Scale: 1:30		Final Depth: 1.00 m								
Sheet 1 of 1		Date Start: 11/04/2024		Date End: 11/04/2024								
Inst/ Backfill	Depth (m)	Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description			
						32.90	0.10		Tarmacadam. [MADE GROUND]			
						32.80	0.20		Pale grey very weak concrete. [MADE GROUND]			
									Grey brown mottled red and black cobbly clayey very sandy gravel. Gravel is fine to coarse of brick, concrete and macadam. Sand is fine to coarse. Cobbles are angular of red brick. [MADE GROUND]			
	1.0					32.00	1.00		EOH at 1.00m - Terminated due to obstruction			
	2.0											
	3.0											
	4.0											
	5.0											
	6.0											
Notes:						Hole Diameter		Casing		Hammer Information		
1. No groundwater encountered. 2. Borehole backfilled with arisings and reinstated with cold-lay tarmac at surface. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features. 4. Borehole terminated at 1.00mbgl due to obstruction. Borehole re-attempted as BH1015B.						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.	
										%		
						Install Response Zones						
						Ref	From (m)	To (m)				

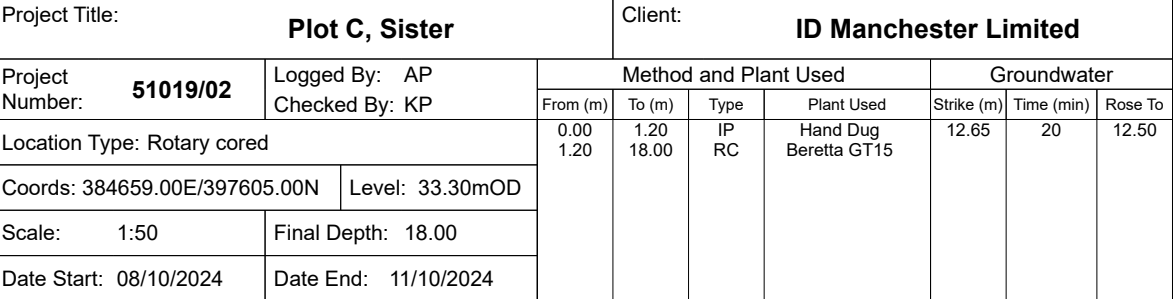
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited							
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater				
Location ID: BH1015B		Location Type: Cable percussion (shell and auger)				From (m) 0.00 1.20	To (m) 1.20 6.00	Type IP CP	Plant Used Hand Tools Dando 2000	Strike (m) 5.10	Time (min) 20	Rose To 5.10	
		Coords: 384551.29E/397615.31N		Level: 33.83mOD									
Status: FINAL		Scale: 1:30		Final Depth: 6.00 m									
Sheet 1 of 1		Date Start: 11/04/2024		Date End: 15/04/2024									
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description				
		Sample Depth (m)	Type/Ref	Tests/Results									
	0.20 0.20 0.30 - 0.50	ES 1 ES ES1 B 1	PID 0.20m 0.2 ppm		33.68 33.58	0.15 0.25		Bituminous macadam. [MADE GROUND]					
	0.50	ES 2	PID 0.50m 0.2 ppm					Yellow brown slightly sandy gravel. Gravel is angular to subangular fine to coarse of dolomite. Sand is fine to coarse. [MADE GROUND]					
	0.70 - 0.80 0.80	B 2 ES 3	PID 0.80m 0.2 ppm					Loose dark brown slightly clayey sandy gravel. Gravel is angular to subangular fine to coarse of sandstone, mudstone, limestone, brick and concrete. Sand is fine to coarse. [MADE GROUND]					
	1.00	ES 4	PID 1.00m 0.2 ppm										
	1.20 1.20 - 1.65 1.20 - 1.65	ES 5 B 3 D 1	SPT(S) 1.20m N=5 (1,1/1,1,1,2) HSV 1.40m (p)= 86 kPa (r)= 62 kPa		32.43	1.40		Firm dark greyish brown slightly sandy silty CLAY. Sand is fine to coarse. Rare gravel of angular to subrounded fine to coarse sandstone, mudstone and coal noted. [ALLUVIUM]					
	2.00 2.00 - 2.45	ES 6 U 2	PID 2.00m 0.2 ppm					Very dense light brown slightly sandy GRAVEL. Gravel is subangular to rounded fine to coarse of sandstone, mudstone, flint and limestone. Sand is fine to coarse. [ALLUVIUM]					
	3.00 3.00 - 3.45 3.00 - 3.50	D 3 B 4	SPT(S) 3.00m N=50 (6,10/50 for 245mm) HSV 3.00m (p)= 92 kPa (r)= 71 kPa		30.23	3.60		Very dense reddish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular fine to coarse of sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE]					
	4.00 4.00 - 4.45 4.00 - 4.45	B 5 D 4	SPT(S) 4.00m 50 (8,12/50 for 181mm)		29.33	4.50							
	5.00 5.00 - 5.45 5.00 - 5.45	B 6 D 5	SPT(S) 5.00m 50 (13,12/50 for 162mm)										
	6.00 6.00	B 7 D 6	SPT(S) 6.00m 50 (17,8/50 for 84mm)		27.83	6.00							
	EOH at 6.00m - Achieved target depth												
	Notes: 1. Groundwater strike recorded at 5.10mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample; U = U100 Sample. 3. Installation Details: 0.00-4.50m plain 50mm pipe with bentonite seal; 4.50-6.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter		Casing		Hammer Information		
							Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.	
							6.00	150	5.80	150	76%	RD3	
							Install Response Zones						
							Ref	From (m)	To (m)				
							Pipe1	4.50	6.00				

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater					
		From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To						
Location ID: BH1016		Location Type: Rotary cored				0.00	1.10	IP	Hand Tools					
Status: FINAL		Coords: 384733.63E/397609.09N		Level: 34.03mOD										
		Scale: 1:50		Final Depth: 1.10										
		Date Start: 01/05/2024		Date End: 01/05/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)	
						33.83	0.20		Bituminous macadam. [MADE GROUND]					
									Medium dense light grey cobbly sandy gravel. Gravel is angular to subangular fine to coarse of brick and concrete. Sand is fine to coarse. Cobbles are angular of brick and concrete.					
						33.33	0.70		[MADE GROUND]					
	1.0					32.93	1.10		Firm dark brown slightly cobbly gravelly clay. Gravel is angular of brick and concrete. Cobbles are angular of brick. [MADE GROUND]					
									EOH at 1.10m - Terminated due to obstruction					
	2.0													
	3.0													
	4.0													
	5.0													
	6.0													
	7.0													
	8.0													
	9.0													
	10.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. Borehole backfilled with arisings and reinstated with cold-lay tarmac at surface. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									1.10	146	1.10	146	%	
									Install Response Zones					
									Ref	From (m)	To (m)			



<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited											
		Project Number: 51019/02		Logged By: JF Checked By: KP		Method and Plant Used		Groundwater									
Location ID: BH1016A		Location Type: Rotary cored				0.00 1.20	1.20 20.00	IP RC	Hand Dug Comacchio GEO205								
		Coords: 384734.29E/397607.16N		Level: 34.04mOD		20.00	23.00	RO	Comacchio GEO205								
Status: FINAL		Scale: 1:50		Final Depth: 23.00													
		Date Start: 17/03/2025		Date End: 18/03/2025													
Sheet 2 of 3																	
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max			
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)				
						23.54	10.50		Extremely weak to very weak reddish brown thinly laminated to medium bedded fine to medium grained SANDSTONE, weakly to moderately cemented. Discontinuities: 1) 0-10 degrees closely to widely spaced rough planar mostly clean. [CHESTER FORMATION - SANDSTONE] No recovery.								
	11.0								[CHESTER FORMATION - SANDSTONE] Extremely weak to very weak orangish brown fine to medium grained SANDSTONE, weakly to moderately cemented with frequent medium to coarse subrounded to rounded clasts of mudstone sandstone and siliceous clasts. [CHESTER FORMATION - SANDSTONE] from 12.70 to 13.35mbgl - Non intact. Recovered as slightly sandy gravel. Gravel is subrounded to rounded fine to coarse of sandstone.	10.50 12.00	0	0	0				
	12.0					21.34	12.70		Extremely weak to very weak orangish brown thinly laminated to thinly bedded fine to medium grained SANDSTONE, weakly to moderately cemented. Discontinuities: 1) 5-15 degrees closely to medium spaced rough planar mostly clean. [CHESTER FORMATION - SANDSTONE] No recovery (assumed sandstone based on driller's observations and colour of water return).	12.00 13.50	53	10	10				
	13.0					20.69	13.35		[CHESTER FORMATION - SANDSTONE] Extremely weak to very weak orangish brown thinly laminated to thinly bedded fine to medium grained SANDSTONE, weakly to moderately cemented. Discontinuities: 1) 5-15 degrees closely to medium spaced rough planar mostly clean.								
	14.0					20.54	13.50		[CHESTER FORMATION - SANDSTONE] Extremely weak to very weak orangish brown thinly laminated to thinly bedded fine to medium grained SANDSTONE, weakly to moderately cemented. Discontinuities: 1) 5-15 degrees closely to medium spaced rough planar mostly clean. [CHESTER FORMATION - SANDSTONE] from 14.80 to 14.85mbgl - Non intact. Recovered as orangish brown slightly sandy gravel. Gravel is subangular to angular medium to coarse of sandstone.	13.50 15.00	40	23	10	10 21 40			
	15.0					19.64	14.40		No recovery (assumed sandstone based on driller's observations and colour of water return).								
						19.04	15.00		[CHESTER FORMATION - SANDSTONE] Fine to coarse sub-rounded to angular GRAVEL of mudstone sandstone and siliceous clasts (possible conglomeratic and mudstone bands).								
	16.0					18.54	15.50		[CHESTER FORMATION - SANDSTONE] Extremely weak to very weak orangish brown thinly laminated to medium bedded medium to coarse grained SANDSTONE weakly to moderately cemented with occasional fine to coarse subrounded to rounded clasts of mudstone and siliceous clasts. Discontinuities: 1) 5-15 degrees closely to widely spaced rough planar generally clean.	15.00 16.50	67	46	18				
	17.0					18.34	15.70		2) 70-80 degrees widely spaced rough planar generally clean. [CHESTER FORMATION - SANDSTONE] from 15.93 to 15.97mbgl - Non intact. Recovered as orangish brown slightly sandy gravel. Gravel is subangular to angular medium to coarse of sandstone. from 16.00 to 16.04mbgl - Non intact. Recovered as orangish brown slightly sandy gravel. Gravel is subangular to angular medium to coarse of sandstone. from 16.25 to 16.30mbgl - Non intact. Recovered as orangish brown slightly sandy gravel. Gravel is subangular to angular medium to coarse of sandstone.								
	18.0					17.54	16.50		No recovery (assumed sandstone based on driller's observations and colour of water return).	16.50 18.00	40	17	8				
						16.64	17.40		[CHESTER FORMATION - SANDSTONE] Extremely weak to very weak orangish brown thinly laminated to medium bedded medium to coarse grained SANDSTONE weakly to moderately cemented with occasional fine to coarse subrounded to rounded clasts of mudstone and siliceous clasts. Discontinuities: 1) 5-15 degrees closely to widely spaced rough planar generally clean.								
	19.0					16.04	18.00		2) 70-80 degrees widely spaced rough planar generally clean. [CHESTER FORMATION - SANDSTONE] from 17.55 to 17.75mbgl - Non intact. Recovered as orangish brown slightly sandy gravel. Gravel is subangular to angular medium to coarse of sandstone.	18.00 19.50	33	8	0				
						15.04	19.00		No recovery (assumed sandstone based on driller's observations and colour of water return).	19.50 20.00	0	0	0				
	20.0					14.54	19.50		[CHESTER FORMATION - SANDSTONE]								
Stratum continues onto next page																	
Notes:										Hole Diameter		Casing		Hammer Information			
1. Wet arisings recovered between 9.10mbgl and 10.50mbgl. Groundwater recorded at 8.00mbgl on 18/03/25 within casing, rising to 6.3mbgl following recommencement of drilling. 2. ES= Environmental Sample. 3. Installation Details: 0.00-10.00m plain 50mm pipe with bentonite seal; 10.00-20.00m slotted 50mm pipe with gravel filter. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level from GPS survey. 5. Rotary open hole from 20.00-23.00m to remove collapsed sidewall material to allow standpipe to be installed to 20.00mbgl.										Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.	
												5.00 7.50 20.00	93 77 93	%			
										Install Response Zones							
										Ref	From (m)	To (m)					





<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater				
Location ID: BH2001		Location Type: Cable percussion (shell and auger)				From (m) 0.00 1.20	To (m) 1.20 4.00	Type IP CP	Plant Used Hand Tools Dando 2000	Strike (m)	Time (min)	Rose To
		Coords: 384595.06E/397485.22N		Level: 34.04mOD								
Status: FINAL		Scale: 1:30		Final Depth: 4.00 m								
Sheet 1 of 1		Date Start: 19/04/2024		Date End: 19/04/2024								
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description			
		Sample Depth (m)	Type/Ref	Tests/Results								
<div></div>		0.20	ES 1	PID 0.20m 0 ppm		33.74	0.30	<div></div>	Firm dark brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine of concrete. Sand is fine to coarse. [MADE GROUND]			
		0.40 - 0.60	B			33.44	0.60	<div></div>	Red brown sandy gravel. Gravel is angular of brick. Sand is fine to coarse. High ash content noted. [MADE GROUND]			
		0.70 - 0.90	B					<div></div>	Soft to firm dark brown slightly sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse of coal, sandstone, concrete and brick. Sand is fine to coarse. [MADE GROUND]			
		0.80	ES 2	PID 0.80m 0.1 ppm			<div></div>					
		1.20 - 1.50	B				<div></div>					
		1.20 - 1.65	D	SPT(S) 1.20m N=5 (1,1/1,1,1,2)			<div></div>					
							<div></div>					
							<div></div>					
							<div></div>					
							<div></div>					
	2.00 - 2.45	D	SPT(S) 2.00m N=8 (1,1/2,2,2,2)			<div></div>						
	2.00 - 2.50	B					<div></div>					
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<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: AP+FM Checked By: KP		Method and Plant Used			Groundwater					
Location ID: BH2002		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	10.50	20	10.50		
		Coords: 384625.35E/397490.07N		Level: 33.81mOD		1.20	4.50	CP	Dando 2000					
Status: FINAL		Scale: 1:50		Final Depth: 15.00		4.50	15.00	RC	Beretta GT15					
		Date Start: 30/03/2024		Date End: 30/04/2024										
Sheet 1 of 2														
<div>Inst/ Backfill</div>	<div>Depth (m)</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div>	<div>Strata Depth (m)</div>	<div>Legend / Cover</div>	<div>Strata Description</div>	Rotary Coring				<div>Fract (mm) min avg max</div>
		<div>Sample Depth (m)</div>	<div>Type/Ref</div>	<div>Tests/Results</div>						<div>Core Run</div>	<div>TCR (%)</div>	<div>SCR (%)</div>	<div>RQD (%)</div>	
						33.71	0.10		Macadam. [MADE GROUND] White grey sandy gravel. Gravel is angular to subangular fine to coarse of quartzite. Sand is fine to coarse. [MADE GROUND]					
		0.40 - 0.70 0.50	B ES 2											
		0.90 - 1.10 1.00	B ES 4			32.91	0.90		Brown grey mottled red and black sandy clayey gravel. Gravel is angular to subangular fine to coarse of brick, concrete, macadam, quartzite and limestone. Sand is fine to coarse. [MADE GROUND]					
	1.0	1.20 - 1.50 1.20 - 1.65	B D	SPT(S) 1.20m N=20 (1,1/1,5,7,7)		32.61	1.20		Medium dense red brown mottled grey and black very clayey sandy gravel. Gravel is subangular fine to medium of brick, limestone, macadam and quartzite. Sand is fine to coarse.					
		2.00 2.00 - 2.45 2.00 - 2.50	ES 5 D B	SPT(S) 2.00m N=29 (4,5/6,7,8,8)		31.81	2.00		[MADE GROUND] Medium dense red brown slightly clayey slightly gravelly SAND. Sand is fine to coarse. Gravel is subrounded fine to medium of mixed lithologies including quartz and sandstone lithorelicts. [WEATHERED CHESTER FORMATION - SANDSTONE]					
		3.00 - 3.45 3.00 - 3.50	D B	SPT(S) 3.00m 50 (6,10/50 for 177mm)		30.81	3.00		Very dense red brown SAND. Sand is fine to coarse with areas of weak cementation. [WEATHERED CHESTER FORMATION - SANDSTONE]					
		4.00 - 4.45 4.00 - 4.50	D B	SPT(S) 4.00m 50 (25 for 75mm/50 for 92mm)										
	4.0	4.50 - 6.00	B											
		6.00 - 7.50 6.06	C EW ES1	SPT(S) 6.00m 50 (25 for 10mm/50 for 20mm)		27.81	6.00		Weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, moderately cemented. Rare subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly infilled with fine to medium sand, some clean. [CHESTER FORMATION - SANDSTONE]	6.00 7.50	59	34	13	
		6.50 6.50	EW 1 EW W1											
	7.0	7.50 - 9.00	C											
		9.00 - 10.50	C							7.50 9.00	50	24	0	
	9.0									9.00 10.50	90	80	73	
	10.0													
Stratum continues onto next page														
Notes: 1. Groundwater strike recorded at 10.50mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-3.00m plain 50mm pipe with bentonite seal; 3.00-15.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed.						Hole Diameter		Casing		Hammer Information				
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.		
						15.00	146	15.00	146	76 71%		RD3 BBL02		
						Install Response Zones								
						Ref	From (m)	To (m)						
						Pipe1	3.00	15.00						

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: AP+FM Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	10.50	20	10.50
				1.20	4.50	CP	Dando 2000			
Coords: 384625.35E/397490.07N		Level: 33.81mOD		4.50	15.00	RC	Beretta GT15			
Scale: 1:50		Final Depth: 15.00								
Date Start: 30/03/2024		Date End: 30/04/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited												
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater										
Location ID: BH2004		Location Type: Cable Percussion to Rotary Coring				0.00	1.20	IP	Hand Tools	11.60	-	-						
		Coords: 384732.38E/397524.50N		Level: 34.04mOD		1.20	3.50	CP	Dando 2000									
Status: FINAL		Scale: 1:50		Final Depth: 15.50		3.50	15.50	RC	Beretta GT15									
		Date Start: 17/04/2024		Date End: 29/04/2024														
Sheet 1 of 2																		
<div>Inst/ Backfill</div>	<div>Depth (m)</div> <div>0.30 - 0.60</div> <div>0.70 - 1.10</div> <div>1.20</div> <div>1.20 - 1.50</div> <div>1.20 - 1.65</div> <div>2.00</div> <div>2.00 - 2.45</div> <div>2.00 - 2.50</div> <div>2.10</div> <div>3.00</div> <div>3.00 - 3.45</div> <div>3.00 - 3.50</div> <div>3.10</div> <div>3.50 - 5.00</div> <div>4.00</div> <div>5.00 - 6.50</div> <div>6.00</div> <div>6.50 - 8.00</div> <div>7.00</div> <div>8.00 - 9.50</div> <div>9.00</div> <div>9.50 - 11.00</div> <div>10.00</div>	Samples & Tests				<div>Water Level (m)</div>	<div>Level (mOD)</div> <div>33.79</div> <div>32.54</div> <div>31.64</div> <div>30.54</div> <div>27.54</div>	<div>Strata Depth (m)</div> <div>0.25</div> <div>1.50</div> <div>2.40</div> <div>3.50</div> <div>6.50</div>	<div>Legend / Cover</div>	<div>Strata Description</div> <div>Soft dark brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine of concrete. Sand is fine to coarse. [MADE GROUND]</div> <div>Medium dense to dense dark brown sandy cobbly gravel. Gravel is angular fine to coarse of sandstone, mudstone, brick and concrete. Cobbles are angular of brick and sandstone. Sand is fine to coarse. [MADE GROUND]</div> <div>Dense light brown slightly sandy GRAVEL. Gravel is subangular to rounded fine to coarse of sandstone, mudstone, flint and limestone. Sand is fine to coarse. [ALLUVIUM]</div> <div>Very dense red brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular fine to coarse of sandstone. [WEATHERED CHESTER FORMATION - SANDSTONE]</div> <div>Very dense reddish brown SAND. Sand is fine to coarse with areas of weak cementation. [WEATHERED CHESTER FORMATION - SANDSTONE]</div> <div>5.00mbgl - Becoming very dense.</div> <div>Weak thinly to medium bedded light reddish brown medium to coarse grained SANDSTONE, moderately cemented. Rare subrounded siliceous clasts and fragments of mudstone. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough planar, mostly infilled with fine to medium sand, some clean. [CHESTER FORMATION - SANDSTONE]</div>				Rotary Coring				<div>Fract (mm)</div> <div>min</div> <div>avg</div> <div>max</div>
		Core Run												TCR (%)	SCR (%)	RQD (%)		
Stratum continues onto next page																		
Notes: 1. Groundwater strike recorded at 11.60mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-3.00m plain 50mm pipe with bentonite seal; 3.00-15.00m slotted 50mm pipe with gravel filter and geosock; 15.00-15.45m bentonite seal. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter		Casing		Hammer Information								
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.						
						3.50	150	3.00	150	76		RD3						
						15.50	146	15.50	146	71%		BBL02						
						Install Response Zones												
						Ref	From (m)	To (m)										
Pipe1	3.00	15.00																

Project Title: Plot C, Sister				Client: ID Manchester Limited					
Project Number: 51019/02	Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
			From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
	Location Type: Cable Percussion to Rotary Coring		0.00	1.20	IP	Hand Tools	11.60	-	-
	Coords: 384732.38E/397524.50N		1.20	3.50	CP	Dando 2000			
	Level: 34.04mOD		3.50	15.50	RC	Beretta GT15			
Scale: 1:50		Final Depth: 15.50							
Date Start: 17/04/2024		Date End: 29/04/2024							

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater				
Location ID: BH2005		Location Type: Window Sampler				0.00	1.20	IP WS	Hand Tools Terrier Rig	2.50	-	-
		Coords: 384780.66E/397522.27N		Level: 34.36mOD		From (m) 1.20	To (m) 5.45					
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m								
Sheet 1 of 1		Date Start: 15/04/2024		Date End: 16/04/2024								
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)
	0.20	ES 1	PID 0.20m 0 ppm		34.06	0.30		Vegetation overlying firm dark brown slightly sandy slightly gravelly silt. Gravel is angular to subangular fine to medium of brick. Occasional metal fragments noted. [MADE GROUND] Medium dense dark brown and red brown slightly cobbly gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, concrete and sandstone. Cobbles are subangular of concrete, brick and grey and yellow brown siltstone. [MADE GROUND]				
	0.50 0.50 - 1.20	ES 2 B 1	PID 0.50m 0 ppm									
	1.00	ES 3	PID 1.00m 0.1 ppm									
	1.20	D 1	SPT(S) 1.20m N=22 (2,3/2,9,7,4)									
	2.00	D 2 ES 4	SPT(S) 2.00m N=14 (2,2/3,3,4,4) PID 2.00m 0.8 ppm		32.36	2.00		Loose to medium dense brown and orange brown clayey gravelly sand. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick, sandstone, siltstone and coal. [MADE GROUND]				
	2.00											
	3.00	D 3 ES 5	SPT(S) 3.00m N=7 (1,1/1,2,2,2) PID 3.00m 0 ppm									
	4.00	D 4	SPT(S) 4.00m N=29 (7,15/5,5,9,10)									
	5.00	D 5	SPT(S) 5.00m 50 (25 for 10mm/50 for 15mm)					from 4.50 to 5.00mbgl - Becoming cobbly. Cobbles are subangular of brick and sandstone.				
	5.00											
	6.00				28.91	5.45		EOH at 5.45m - Achieved target depth				

Notes:

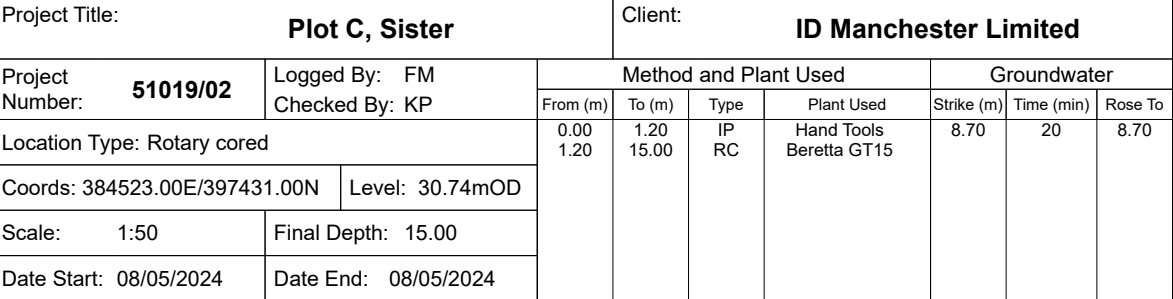
1. Groundwater seepage recorded at 2.50mbgl.

2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample.

3. Installation Details: 0.00-1.00m plain 50mm plain pipe with bentonite seal; 1.00-4.00m slotted 50mm pipe with gravel filter and geosock; 4.00-5.45m bentonite seal. Bung, gas tap and flush cover installed.

4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
2.00	101			73%	110-121
3.00	97			Install Response Zones	
4.00	76			Ref	From (m)
5.00	68			Pipe1	To (m)
					1.00
					4.00



Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Rotary cored				0.00 1.20	1.20 15.00	IP RC	Hand Tools Beretta GT15	8.70	20	8.70
Coords: 384523.00E/397431.00N		Level: 30.74mOD								
Scale: 1:50		Final Depth: 15.00								
Date Start: 08/05/2024		Date End: 08/05/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited													
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater											
Location ID: BH2007		Location Type: Rotary cored				0.00 1.20	1.20 15.00	IP RC	Hand Tools Beretta GT15	Strike (m) 7.80	Time (min) 20	Rose To 7.30							
		Coords: 384879.83E/397520.29N		Level: 35.16mOD															
Status: FINAL		Scale: 1:50		Final Depth: 15.00															
Sheet 1 of 2		Date Start: 23/04/2024		Date End: 23/04/2024															
<div>Inst/ Backfill</div> <div></div>	<div>Depth (m)</div> <div>0.00 0.20 0.70 1.00 1.20 - 1.65 1.20 - 1.65 2.00 2.00 - 2.45 2.00 - 2.45 3.00 3.00 - 3.45 3.00 - 3.45 4.00 4.00 - 4.45 4.00 - 4.45 5.00 5.00 - 5.45 5.00 - 5.45 6.00 6.00 - 6.45 6.00 - 6.45 7.00 7.20 7.50 7.50 - 7.95 7.50 - 7.95 8.00 8.50 9.00 9.00 9.00 - 10.50 10.00</div>	Samples & Tests			<div>Water Level (m)</div> <div></div>	<div>Level (mOD)</div> <div>34.96 29.16 28.96 27.36</div>	<div>Strata Depth (m)</div> <div>0.20 6.00 6.20 7.80</div>	<div>Legend / Cover</div> <div></div>	<div>Strata Description</div> <div>Firm dark brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine of concrete and brick. Sand is fine to coarse. [MADE GROUND] Medium dense to very dense red brown sandy cobbly gravel. Gravel is angular to subangular fine to coarse of brick. Cobbles are angular of brick. Sand is fine to coarse. [MADE GROUND] Brick. [MADE GROUND] Very dense red brown sandy cobbly gravel. Gravel is angular to subangular fine to coarse of brick. Cobbles are angular of brick. Sand is fine to coarse. [MADE GROUND] Very dense red brown SAND. Sand is fine to coarse with areas of weak cementation. Occasionally weak thinly to medium bedded medium to coarse grained SANDSTONE, moderately cemented. Unable to distinguish discontinuities. [CHESTER FORMATION - SANDSTONE]</div>				Rotary Coring				<div>Fract (mm) min avg max</div> <div></div>		
		Sample Depth (m)	Type/Ref	Tests/Results									Core Run	TCR (%)	SCR (%)	ROD (%)			
		0.20	B																
		0.70	B																
		1.20 - 1.65 1.20 - 1.65	B D	SPT(S) 1.20m N=21 (2,3/6,6,5,4)									1.20 2.00	100					
		2.00 - 2.45 2.00 - 2.45	B D	SPT(S) 2.00m N=28 (2,6/7,7,7,7)									2.00 3.00	100					
		3.00 3.00 - 3.45 3.00 - 3.45	ES 1 B D	SPT(S) 3.00m 50 (4,10/50 for 180mm) PID 3.00m 0 ppm									3.00 4.00	100					
		4.00 - 4.45 4.00 - 4.45	B D	SPT(S) 4.00m N=50 (3,7/50 for 230mm)									4.00 5.00	100					
		5.00 - 5.45 5.00 - 5.45	B D	SPT(S) 5.00m N=50 (3,4/50 for 225mm)									5.00 6.00	100					
		6.00 - 6.45 6.00 - 6.45	B D	SPT(S) 6.00m 50 (25 for 10mm/50 for 15mm)									6.00 7.50	100					
		7.20	EW ES1																
		7.50 7.50 - 7.95 7.50 - 7.95	ES 2 B D	SPT(S) 7.50m N=13 (5 for 5mm/13 for 10mm) PID 7.50m 0 ppm															
		8.50	EW W1										7.50 9.00	100					
		9.00 9.00 9.00 - 10.50	ES 3 EW 1 C	SPT(S) 9.00m 50 (25 for 0mm/50 for 0mm) PID 9.00m 0 ppm									9.00 10.50	15	15	7			
Stratum continues onto next page																			
Notes: 1. Groundwater recorded at 7.80mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-8.00m plain 50mm pipe with bentonite seal; 8.00-15.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter		Casing		Hammer Information									
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.								
										15.00	146	15.00	146	71%	BBL02				
										Install Response Zones									
Ref	From (m)	To (m)																	
Pipe1	8.00	15.00																	

<div>CIVICEARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited										
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater							
Location ID: BH2007		Location Type: Rotary cored				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To				
		Coords: 384879.83E/397520.29N		Level: 35.16mOD		0.00 1.20	1.20 15.00	IP RC	Hand Tools Beretta GT15	7.80	20	7.30				
Status: FINAL		Scale: 1:50		Final Depth: 15.00												
		Date Start: 23/04/2024		Date End: 23/04/2024												
Sheet 2 of 2																
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring				Fract (mm) min avg max		
		Sample Depth (m)	Type/Ref	Tests/Results						Core Run	TCR (%)	SCR (%)	RQD (%)			
	10.50 - 12.00	C	SPT(S) 10.50m 50 (25 for 5mm/50 for 5mm)					Very dense red brown SAND. Sand is fine to coarse with areas of weak cementation. Occasionally weak thinly to medium bedded medium to coarse grained SANDSTONE, moderately cemented. Unable to distinguish discontinuities. [CHESTER FORMATION - SANDSTONE]					20 NI 130			
	11.0															
	12.00 - 13.50	C	SPT(S) 12.00m 50 (25 for 5mm/50 for 10mm)							10.50 12.00	17	17		0		
	13.0															
	13.50 - 15.00	C	SPT(S) 13.50m 50 (25 for 5mm/50 for 10mm)													
	14.0															
	15.0				20.16	15.00			EOH at 15.00m - Achieved target depth							
	16.0															
	17.0															
	18.0															
	19.0															
	20.0															
Notes:									Hole Diameter		Casing		Hammer Information			
1. Groundwater recorded at 7.80mbgl. 2. ES = Environmental Sample; D = Disturbed Sample; B = Bulk Sample; C = Core Sample. 3. Installation Details: 0.00-8.00m plain 50mm pipe with bentonite seal; 8.00-15.00m slotted 50mm pipe with gravel filter and geosock. Gas tap, bung and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.	
									15.00	146	15.00	146	71%		BBL02	
									Install Response Zones							
									Ref	From (m)		To (m)				

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater			
Location ID: WS1001		Location Type: Window Sampler				0.00 1.20	1.20 5.45	IP WS	Hand Tools Terrier Rig			
		Coords: 384605.94E/397721.38N		Level: 41.50mOD								
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m								
		Date Start: 24/04/2024		Date End: 24/04/2024								
Sheet 1 of 1												
<div>Inst/ Backfill</div>	<div>Depth (m)</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div>	<div>Strata Depth (m)</div>	<div>Legend / Cover</div>	<div>Strata Description</div>	Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)
		0.10	ES 1	PID 0.10m 0 ppm								
		0.50	ES 2	PID 0.50m 0 ppm								
		1.20	D 1	SPT(S) 1.20m N=4 (1,1/1,1,1,1)						1.20 2.00	101	100
		2.00	D 2	SPT(S) 2.00m N=10 (1,1/2,2,3,3) HSV 2.50m (p)= 89 kPa						2.00 3.00	97	90
		3.00	D 3	SPT(S) 3.00m N=8 (1,1/1,1,3,3) HSV 3.50m (p)= 74 kPa						3.00 4.00	76	90
		4.00	D 4 EW ES1	SPT(S) 4.00m N=21 (5,4/3,5,5,8)								
		4.30	EW W2	HSV 4.50m (p)= 214 kPa						4.00 5.00	68	100
		5.00	D 5 ES 3	SPT(S) 5.00m N=122 (5,5/7,7,8,100)								
		EOH at 5.45m - Achieved target depth										

Notes:

1. No groundwater encountered.

2. ES = Environmental Sample; D = Disturbed Sample.

3. Installation: 0.00-1.00m plain 50mm standpipe with concrete and bentonite; 1.00-5.00m slotted standpipe with gravel filter; 5.00-5.45m bentonite seal. Gas tap and flush cover installed.

4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.

Hole Diameter		Casing		Hammer Information		
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.	
2.00	101			73%	110-121	
3.00	97			Install Response Zones		
4.00	76			Ref	From (m)	To (m)
5.00	68			Pipe1	1.00	5.00

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater			
Location ID: WS1002		Location Type: Window Sampler				0.00 1.20	1.20 4.45	IP WS	Hand Tools Terrier Rig			
		Coords: 384502.81E/397650.05N		Level: 38.40mOD								
Status: FINAL		Scale: 1:30		Final Depth: 4.45 m								
		Date Start: 24/04/2024		Date End: 24/04/2024								
Sheet 1 of 1												
<div>Inst/ Backfill</div>	<div>Depth (m)</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div>	<div>Strata Depth (m)</div>	<div>Legend / Cover</div>	<div>Strata Description</div>	Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)
		0.10	ES 1	PID 0.10m 0 ppm								
		0.50	ES 2	PID 0.50m 0.1 ppm								
		1.00	ES 3	PID 1.00m 0 ppm								
		1.20	D 1	SPT(S) 1.20m N=4 (1,1/1,1,1,1)								
		2.00	D 2	SPT(S) 2.00m N=5 (1,1/1,1,2,1) HSV 2.50m (p)= 74 kPa								
		3.00	D 3	SPT(S) 3.00m N=50 (5,7/9,9,15,17)								
		3.20	ES 4	PID 3.20m 0 ppm								
		3.50	EW ES1									
		3.80	D 4	HSV 3.80m (p)= 222 kPa								
		4.00	D 5	SPT(S) 4.00m 50 (9,11/50 for 155mm)								

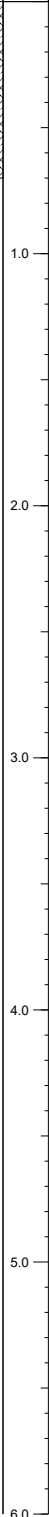
Notes: 1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Installation: 0.00-3.60m plain 50mm standpipe with concrete and bentonite; 3.60-4.00m slotted standpipe with gravel filter; 4.00-4.45m bentonite seal. Gas tap and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter		Casing		Hammer Information	
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
										73%	110-121
										Install Response Zones	
										Ref	From (m)
				Pipe1	3.60	4.00					

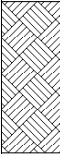
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister			Client: ID Manchester Limited							
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater				
Location ID: WS1003		Location Type: Window Sampler			0.00	1.20	IP WS	Plant Used Hand Tools Terrier Rig	Strike (m)	Time (min)	Rose To	
		Coords: 384537.38E/397647.24N		Level: 37.62mOD								
Status: FINAL		Scale: 1:30		Final Depth: 4.45 m								
Sheet 1 of 1		Date Start: 24/04/2024		Date End: 24/04/2024								
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)
						37.52	0.10		Bituminous macadam. [MADE GROUND]			
		0.35	ES 1	PID 0.35m 0.1 ppm		37.27 37.22	0.35 0.40		Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]			
		0.60	ES 2	PID 0.60m 0.1 ppm					Black ashy gravelly sand. Sand is fine to coarse. Gravel is angular and subangular fine to coarse of brick, wood, coal and clinker. [MADE GROUND]			
	1.0								Stiff dark brown slightly sandy slightly gravelly clay. Sand is fine. Gravel is angular to subrounded fine to medium of brick, coal and siltstone. [MADE GROUND]			
				SPT(S) 1.20m N=26 (6,6/6,7,6,7) PID 1.30m 0 ppm		36.42	1.20		Stiff to very stiff dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of coal, sandstone and siltstone. [GLACIAL TILL]	1.20 2.00	101	70
	1.50		ES 3									
	2.0			SPT(S) 2.00m N=31 (5,5/5,8,8,10) HSV 2.00m (p)= 192 kPa						2.00 3.00	97	100
												
	2.50		D 1									
	3.0			SPT(S) 3.00m N=34 (3,5/8,9,9,8)								
						34.12	3.50		Orange brown SAND. Sand is fine to medium. [WEATHERED CHESTER FORMATION - SANDSTONE]	3.00 4.00	76	90
	4.0			SPT(S) 4.00m N=46 (7,10/9,11,12,14)		33.82	3.80		Very dense red brown SAND. Sand is fine to medium. [WEATHERED CHESTER FORMATION - SANDSTONE]			
					33.17	4.45		EOH at 4.45m - Terminated due to refusal on bedrock				
	5.0											
	6.0											

Notes:

1. No groundwater encountered.
2. ES = Environmental Sample; D = Disturbed Sample.
3. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
2.00	101			73%	110-121
3.00	97			Install Response Zones	
4.00	76			Ref	From (m) To (m)

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited									
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater							
		From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To							
Location ID: WS1004		Location Type: Window Sampler				0.00	0.70	IP	Hand Tools						
Status: FINAL		Coords: 384615.30E/397631.77N		Level: 32.88mOD											
		Scale: 1:30		Final Depth: 0.70 m											
Sheet 1 of 1		Date Start: 19/04/2024		Date End: 19/04/2024											
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling					
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)			
						32.78	0.10		Bituminous macadam. [MADE GROUND]						
									Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]						
						32.38	0.50								
						32.18	0.70		Red brick fill. [MADE GROUND]						
									EOH at 0.70m - Terminated due to concrete obstruction						
<div>Notes:</div> <div>1. Terminated at 0.70mbgl due to concrete obstruction. Borehole re-attempted at WS1004A. 2. No groundwater encountered. 3. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac.</div>										Hole Diameter		Casing		Hammer Information	
Depth (m)		Dia (mm)		Depth (m)		Dia (mm)		Energy Ratio %		Serial No.					
										Install Response Zones					
Ref		From (m)		To (m)											

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater					
		From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To						
Location ID: WS1004A		Location Type: Window Sampler				0.00	0.60	IP	Hand Tools					
Status: FINAL		Coords: 384619.63E/397633.68N		Level: 32.96mOD										
Sheet 1 of 1		Scale: 1:30		Final Depth: 0.60 m										
		Date Start: 22/04/2024		Date End: 22/04/2024										
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						32.86	0.10		Bituminous macadam. [MADE GROUND]					
									Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]					
						32.51	0.45							
						32.36	0.60		Red masonry structure. [MADE GROUND]					
									EOH at 0.60m - Terminated due to masonry obstruction					
	1.0													
	2.0													
	3.0													
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. Terminated at 0.60mbgl due to masonry obstruction. 2. No groundwater encountered. 3. Borehole backfilled with arisings and reinstated with cold-lay tarmac. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
													%	
									Install Response Zones					
									Ref	From (m)	To (m)			

<div>CIVIC</div> <div>EARTH</div>	Project Title: Plot C, Sister				Client: ID Manchester Limited										
	Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater							
					From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To				
Location ID: WS1005		Location Type: Window Sampler				0.00 1.20	1.20 4.45	IP WS	Hand Tools Terrier Rig						
Status: FINAL		Coords: 384709.37E/397673.30N		Level: 38.62mOD											
Sheet 1 of 1		Scale: 1:30		Final Depth: 4.45 m											
		Date Start: 23/04/2024		Date End: 23/04/2024											
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling					
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)			
						38.52	0.10		Bituminous macadam. [MADE GROUND]						
									Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]						
						38.12	0.50		Dark brown and black gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete and clinker. Frequent ash noted. [MADE GROUND]						
						37.82	0.80		Loose to medium dense red brown sandy cobbly gravel. Gravel is angular fine to coarse of brick, clinker and concrete. Cobbles are angular of brick and concrete. Sand is fine to coarse. [MADE GROUND]						
	0.70	ES 1	PID 0.70m 0 ppm							1.20 2.00	101	100			
	1.00	ES 2	PID 1.00m 0 ppm							2.00 3.00	97	50			
	1.20	D 1	SPT(S) 1.20m N=8 (2,2/2,2,2)							3.00 4.00	76	80			
	2.00	D 2	SPT(S) 2.00m N=11 (3,3/3,3,2,3)												
	3.00	D 3	SPT(S) 3.00m N=15 (4,4/3,3,4,5)												
	4.00	D 4	SPT(S) 4.00m N=15 (4,4/4,3,4,4)												
						34.17	4.45		EOH at 4.45m - Terminated due to sides collapsing						
	5.0														
	6.0														
Notes:									Hole Diameter		Casing		Hammer Information		
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.	
									2.00	101			73%	110-121	
									3.00	97			Install Response Zones		
									4.00	76			Ref	From (m)	To (m)

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00	1.20	IP	Hand Tools			
Coords: 384648.33E/397541.90N		Level: 33.62mOD	1.20	2.50	WS	Terrier Rig				
Scale: 1:30		Final Depth: 2.50 m								
Date Start: 19/04/2024		Date End: 19/04/2024								

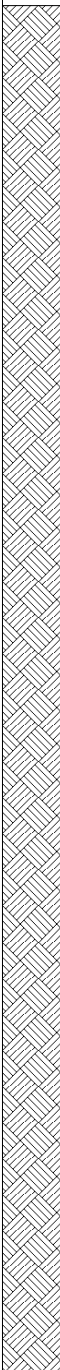
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater					
Location ID: WS1007		Location Type: Window Sampler				From (m) 0.00 1.20	To (m) 1.20 3.45	Type IP WS	Plant Used Hand Tools Terrier Rig	Strike (m)	Time (min)	Rose To		
		Coords: 384637.64E/397614.30N		Level: 33.20mOD										
Status: FINAL		Scale: 1:30		Final Depth: 3.45 m										
Sheet 1 of 1		Date Start: 18/04/2024		Date End: 18/04/2024										
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
		0.20	ES 1	PID 0.20m 0.1 ppm										
		0.50	ES 2	PID 0.50m 0.1 ppm										
		0.80	ES 3	PID 0.80m 0.2 ppm										
		1.00	ES 4	PID 1.00m 0 ppm SPT(S) 1.20m N=43 (25 for 90mm/10,11,11,11)										
		2.00	ES 5	SPT(S) 2.00m N=8 (2,2/2,2,2,2) PID 2.00m 0 ppm										
		3.00		SPT(S) 3.00m 50 (25 for 5mm/50 for 10mm)										
		4.00												
5.00														
6.00														
EOH at 3.45m - Terminated due to refusal														
Notes: 1. No groundwater encountered. 2. ES = Environmental Sample. 3. Borehole backfilled with arisings on completion.									Hole Diameter		Casing		Hammer Information	
									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									3.00	97			Install Response Zones	
													Ref	From (m)

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00	1.20	IP	Hand Tools			
				1.20	2.45	WS	Terrier Rig			
Coords: 384755.28E/397620.11N		Level: 35.00mOD								
Scale: 1:30		Final Depth: 2.45 m								
Date Start: 23/04/2024		Date End: 23/04/2024								

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00 1.20	1.20 3.40	IP WS	Hand Tools Terrier Rig			
Coords: 384772.49E/397654.11N		Level: 38.70mOD								
Scale: 1:30		Final Depth: 3.40 m								
Date Start: 26/04/2024		Date End: 26/04/2024								

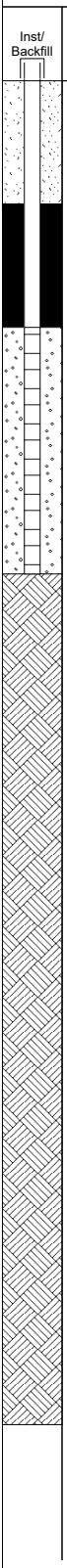
<div><div>CIVIC</div><div>EARTH</div></div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater						
Location ID: WS1010		Location Type: Window Sampler				From (m) 0.00	To (m)	Type IP	Plant Used Hand Tools	Strike (m)	Time (min)	Rose To		
		Coords: 384679.82E/397526.73N		Level: 33.76mOD										
Status: FINAL		Scale: 1:30		Final Depth: 0.10 m										
		Date Start: 17/04/2024		Date End: 17/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						33.66	0.10		Bituminous macadam. [MADE GROUND] EOH at 0.10m - Terminated due to refusal on concrete.					
	1.0													
	2.0													
	3.0													
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features. 4. Borehole terminated at 0.10mbgl due to concrete obstruction. Borehole re-attempted as WS1010A.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
													%	
									Install Response Zones					
									Ref	From (m)	To (m)			

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00 1.20	1.20 3.45	IP WS	Hand Tools Terrier Rig			
Coords: 384679.39E/397526.46N		Level: 33.76mOD								
Scale: 1:30		Final Depth: 3.45 m								
Date Start: 17/04/2024		Date End: 17/04/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited									
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater							
Location ID: WS1011		Location Type: Window Sampler				0.00 1.20	1.20 4.45	IP WS	Hand Tools Terrier Rig						
		Coords: 384793.55E/397545.80N		Level: 34.53mOD											
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m											
Sheet 1 of 1		Date Start: 15/04/2024		Date End: 15/04/2024											
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling					
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)			
		0.20	ES 1	PID 0.20m 0 ppm		34.23	0.30		Vegetation overlying soft dark brown slightly sandy SILT. Sand is fine to medium. [TOPSOIL]						
		0.50 0.50	D 1 ES 2	PID 0.50m 0 ppm					Medium dense dark brown and black slightly cobbly silty gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, concrete, metal, polystyrene and sandstone. Cobbles are subangular of concrete. [MADE GROUND]						
	1.0	1.00	ES 3	PID 1.00m 0 ppm SPT(S) 1.20m N=12 (1,2/3,3,3,3)											
		1.50 1.50 - 5.00	ES 4 B 1	PID 1.50m 0 ppm SPT(S) 2.00m N=6 (5,3/2,2,1,1)		33.03	1.50		Loose to medium dense orange brown slightly gravelly clayey sand. Gravel is angular fine of coal. Sand is fine to medium. [MADE GROUND]	1.20 2.00	101	30			
	2.0			SPT(S) 3.00m N=7 (2,2/1,1,2,3)											
				SPT(S) 4.00m N=14 (2,2/3,3,4,4)											
	3.0														
															
	4.0														
															
	5.0														
															
	6.0														
EOH at 5.45m - Achieved target depth															
Notes:									Hole Diameter		Casing		Hammer Information		
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.	
									2.00	101			73%	110-121	
									3.00	97			Install Response Zones		
									4.00	76			Ref	From (m)	To (m)
									5.00	68					

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00	1.20	IP	Hand Tools			
				1.20	5.45	WS	Terrier Rig			
Coords: 384722.98E/397664.81N		Level: 37.91mOD								
Scale: 1:30		Final Depth: 5.45 m								
Date Start: 22/04/2024		Date End: 22/04/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater						
Location ID: WS1013		Location Type: Window Sampler				0.00 1.20	1.20 5.45	IP WS	Hand Tools Terrier Rig					
		Coords: 384361.58E/397540.02N		Level: 33.60mOD										
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m										
Sheet 1 of 1		Date Start: 25/04/2024		Date End: 25/04/2024										
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						33.50	0.10		Vegetation overlying soft dark brown slightly sandy silt. Sand is fine to medium. [TOPSOIL]					
		0.50	ES 1	PID 0.50m 0.1 ppm					Very loose dark brown slightly cobbly silty gravelly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick, coal, concrete and slate. Cobbles are angular of brick and limestone. [MADE GROUND]					
	1.0													
				SPT(S) 1.20m N=4 (1,1/1,1,1,1)		32.40	1.20							
	2.0								No recovery. [MADE GROUND]	1.20 2.00	101	0		
				SPT(S) 2.00m N=4 (1,1/1,1,1,1)										
														
														
														
														
	3.0	3.00 3.00	D 1 ES 2	SPT(S) 3.00m N=4 (1,1/1,1,1,1) PID 3.00m 0 ppm		30.60	3.00							
									Very loose to loose black and dark brown clayey gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse brick and sandstone. [MADE GROUND]	3.00 4.00	76	70		
4.0	4.00		D 2	SPT(S) 4.00m N=6 (2,2/2,2,1,1)										
														
														
														
														
														
														
														
	5.0	5.00	D 3	SPT(S) 5.00m N=4 (2,2/1,1,1,1)										
														
														
														
														
	6.0					28.15	5.45		EOH at 5.45m - Achieved target depth					
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Borehole collapsed to 3.5mbgl twice following re-drilling. 4. Borehole backfilled with arisings on completion. 5. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									3.00	97			Install Response Zones	
									4.00	76			Ref	From (m)
									5.00	68			To (m)	

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater						
Location ID: WS1014		Location Type: Window Sampler				0.00	1.20	IP WS	Hand Tools Terrier Rig					
		Coords: 384375.79E/397549.91N		Level: 34.30mOD		1.20	5.45							
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m										
Sheet 1 of 1		Date Start: 25/04/2024		Date End: 25/04/2024										
<div>Inst/ Backfill</div> 	<div>Depth (m)</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div>	<div>Strata Depth (m)</div>	<div>Legend / Cover</div> 	<div>Strata Description</div>	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
		0.50	ES 1	PID 0.50m 0.8 ppm										
		1.20	D 1	SPT(S) 1.20m N=4 (1,1/1,1,1,1)										
		2.00 2.00 2.00	D 2 ES 2 ES ES2	SPT(S) 2.00m N=14 (2,2/3,3,4,4) PID 2.00m 0.8 ppm										
		3.00 3.00	D 3 ES 3	SPT(S) 3.00m N=14 (2,2/2,4,5,3) PID 3.00m 0.4 ppm										
		4.00	D 4	SPT(S) 4.00m N=11 (5,5/4,2,2,3)										
		5.00		SPT(S) 5.00m 50 (25 for 15mm/50 for 25mm)										
		28.85	5.45	EOH at 5.45m - Achieved target depth										
		Notes:									Hole Diameter		Casing	
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Installation: 0.00-1.00m plain 50mm standpipe with concrete and bentonite; 1.00-2.00m slotted standpipe with gravel filter; 2.00-5.45m collapsed. Gas tap and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									3.00	97			Install Response Zones	
									4.00	76			Ref	From (m)
									5.00	68			Pipe1	To (m)
													1.00	2.00

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater						
Location ID: WS1015		Location Type: Window Sampler				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To		
		Coords: 384753.27E/397493.54N		Level: 34.08mOD		0.00 1.20	1.20 3.45	IP WS	Hand Tools Terrier Rig					
Status: FINAL		Scale: 1:30		Final Depth: 3.45 m										
		Date Start: 16/04/2024		Date End: 16/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
	0.20	ES 1	PID 0.20m 0 ppm		33.78	0.30		Vegetation overlying dark brown slightly sandy slightly gravelly silt. Gravel is subangular to subrounded fine to medium of brick and sandstone. Sand is fine. [MADE GROUND]						
	0.50	ES 2	PID 0.50m 0 ppm					Medium dense to very dense dark brown slightly cobbly gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, concrete and sandstone. [MADE GROUND]						
	1.20	D 1	SPT(S) 1.20m N=10 (2,2/4,2,2)						1.20 2.00	101	0			
	2.00	D 2	SPT(S) 2.00m N=11 (1,2/2,4,4,1)						2.00 3.00	97	30			
	3.00	ES 3	SPT(S) 3.00m 50 (25 for 15mm/50 for 25mm) PID 3.00m 0 ppm		30.63	3.45		EOH at 3.45m - Terminated under instruction from UXO engineer						
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. No recovery 1.20mbgl to 2.00mbgl. 4. Borehole terminated under instruction of UXO Engineer due to ferrous material detected during down-hole magnetometer testing. 5. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									3.00	97			Install Response Zones	
									Ref	From (m)	To (m)			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited													
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater										
Location ID: WS1016		Location Type: Window Sampler				0.00 1.20	1.20 5.45	IP WS	Hand Tools Terrier Rig										
		Coords: 384764.39E/397494.23N		Level: 34.17mOD															
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m															
		Date Start: 16/04/2024		Date End: 16/04/2024															
Sheet 1 of 1																			
<div>Inst/ Backfill</div>	<div>Depth (m)</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div>	<div>Strata Depth (m)</div>	<div>Legend / Cover</div>	<div>Strata Description</div>	Window Sampling									
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)							
		0.20	ES 1	PID 0.20m 0 ppm															
		0.40	ES 2	PID 0.40m 0 ppm															
		0.60	ES 3	PID 0.60m 0 ppm															
		1.20 1.20	D 1 ES 4	SPT(S) 1.20m N=25 (2,3/10,11,2,2) PID 1.20m 0 ppm						1.20 2.00	101	100							
		2.00	D 2	SPT(S) 2.00m N=13 (4,4/3,3,4,3)															
		2.50	ES 5	PID 2.50m 0 ppm						2.00 3.00	97	90							
		3.00	D 3	SPT(S) 3.00m N=13 (1,2/2,3,4,4)															
		3.20	ES 6	PID 3.20m 0 ppm						3.00 4.00	76	90							
		3.50	ES 7	HSV 3.50m (p)= 52 kPa PID 3.50m 0 ppm															
		4.00 4.00	D 4 ES 8	SPT(S) 4.00m N=10 (3,4/3,2,2,3) PID 4.00m 0 ppm															
		5.00	D 5	SPT(S) 5.00m N=24 (2,2/2,5,6,11)						4.00 5.00	68	60							
		6.00																	
		EOH at 5.45m - Achieved target depth																	

Notes:

1. No groundwater encountered.
2. ES = Environmental Sample; D = Disturbed Sample.
3. Installation: 0.00-1.00m plain 50mm standpipe with concrete and bentonite; 1.00-5.00m slotted standpipe with gravel filter;
5.00-5.45m bentonsite seal. Gas tap and flush cover installed.
4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.

Hole Diameter

Depth (m)

Dia (mm)

2.00
3.00
4.00
5.00

101
97
76
68

Casing

Depth (m)

Dia (mm)

Hammer Information

Energy Ratio

Serial No.

73%

110-121

Install Response Zones

Ref

From (m)

To (m)

Pipe1

1.00

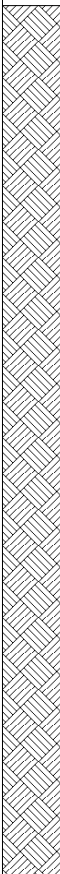
5.00

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater			
Location ID: WS1017		Location Type: Window Sampler				0.00 1.20	1.20 4.45	IP WS	Hand Tools Terrier Rig			
		Coords: 384719.33E/397527.66N		Level: 34.00mOD								
Status: FINAL		Scale: 1:30		Final Depth: 3.70 m								
		Date Start: 17/04/2024		Date End: 17/04/2024								
Sheet 1 of 1												
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)
		0.20	ES 1	PID 0.20m 0 ppm		33.75	0.25		Vegetation overlying dark brown slightly sandy silt. Sand is fine. Roots up to 10mm diameter noted. [TOPSOIL]			
		0.50	ES 2	PID 0.50m 0 ppm					Loose to medium dense dark brown slightly cobbly gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, clinker and sandstone. Cobbles are angular of brick and sandstone. [MADE GROUND]			
	1.0	1.00	ES 3	PID 1.00m 0 ppm					from 1.90 to 2.00mbgl - Becoming clayey.			
		1.20	D 1	SPT(S) 1.20m N=4 (1,1/1,1,1,1)								
	2.0	2.00 2.00	D 2 ES 4	SPT(S) 2.00m N=8 (4,2/2,2,2,2) PID 2.00m 0 ppm		31.70	2.30			2.00 3.00	97	90
		2.60	ES 5	PID 2.60m 0 ppm		31.20	2.80		Orange brown slightly gravelly clayey sand. Sand is fine to medium. Gravel is subangular fine to medium of brick. Locally becoming sandy clay. [MADE GROUND]			
	3.0	3.00 3.00	D 3 ES 6	SPT(S) 3.00m N=25 (4,4/4,6,7,8) PID 3.00m 0 ppm		31.00	3.00		Orange brown clayey SAND. Sand is fine to medium. Occasional pockets of soft red brown clay noted. [WEATHERED CHESTER FORMATION - SANDSTONE]			
									Very dense red brown SAND. Sand is fine to medium. [WEATHERED CHESTER FORMATION - SANDSTONE]	3.00 3.60	76	100
	3.70		D 4			30.30	3.70		EOH at 3.70m - Terminated due to refusal on bedrock			
	4.0			SPT(S) 4.00m N=38 (11,9/7,7,5,19)								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater				
Location ID: WS1018		Location Type: Window Sampler				0.00	1.20	IP WS	Plant Used Hand Tools Terrier Rig	Strike (m)	Time (min)	Rose To
		Coords: 384756.12E/397548.17N		Level: 34.30mOD								
Status: FINAL		Scale: 1:30		Final Depth: 4.45 m								
Sheet 1 of 1		Date Start: 19/04/2024		Date End: 19/04/2024								
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)
		0.50	ES 1	PID 0.50m 0 ppm								
		1.0	ES 2	PID 1.00m 0 ppm								
		1.20	D 1	SPT(S) 1.20m N=17 (4,4/3,4,5,5)								
		2.0	D 2 ES 3	SPT(S) 2.00m N=19 (3,3/4,4,5,6) PID 2.00m 0 ppm								
		3.0	D 3 ES 4	SPT(S) 3.00m N=8 (1,1/1,2,2,3) PID 3.00m 0 ppm								
		4.0	D 4	SPT(S) 4.00m 50 (3,9/50 for 160mm)								
		5.0										
6.0												
									EOH at 4.45m - Terminated due to refusal on bedrock			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater					
Location ID: WS1019		Location Type: Window Sampler				0.00 1.20	1.20 5.45	IP WS	Hand Tools Terrier Rig	Strike (m) 3.00	Time (min) 20	Rose To 3.00		
		Coords: 384791.42E/397596.20N		Level: 33.30mOD										
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m										
Sheet 1 of 1		Date Start: 26/04/2024		Date End: 26/04/2024										
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
									Decorative angular gravel overlying loose black and dark brown cobbly clayey gravelly sand. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick, coal and clinker. Cobbles are angular of brick. Local pockets of clay noted. [MADE GROUND]					
	0.50	ES 1	PID 0.50m 0 ppm											
	1.0													
	1.20	D 1	SPT(S) 1.20m N=7 (2,2/2,2,1,2)											
						31.80	1.50							
	1.70 1.70	ES 2 ES ES2	PID 1.70m 0 ppm						Medium dense light red orange brown slightly gravelly silty sand. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of sandstone, coal and brick. Locally becoming sandy silt. [MADE GROUND]	1.20 2.00	101	70		
	2.0	D 2	SPT(S) 2.00m N=11 (4,4/4,3,2,2)											
										2.00 3.00	97	50		
	3.0	D 3	SPT(S) 3.00m N=4 (1,1/1,1,1,1)			30.50	2.80		Soft slightly sandy slightly gravelly clayey silt. Gravel is subrounded fine to medium of sandstone and brick. Sand is fine. Becoming sandy to very sandy with depth. Locally very soft deposits noted. [MADE GROUND]					
										3.00 4.00	76	100		
4.0	D 4	SPT(S) 4.00m N=4 (1,1/1,1,1,1)												
										4.00 5.00	68	100		
5.0	D 5	SPT(S) 5.00m 50 (25 for 10mm/50 for 20mm)												
						27.85	5.45		EOH at 5.45m - Achieved target depth					
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. Groundwater seepage recorded at 2.50mbgl. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Borehole backfilled with arisings on completion. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									3.00	97			Install Response Zones	
									4.00	76			Ref	From (m)
									5.00	68			To (m)	

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited												
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater									
Location ID: WS1020		Location Type: Window Sampler				0.00 1.20	1.20 5.45	IP WS	Hand Tools Terrier Rig									
		Coords: 384648.08E/397644.10N		Level: 32.88mOD														
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m														
		Date Start: 19/04/2024		Date End: 19/04/2024														
Sheet 1 of 1																		
<div>Inst/ Backfill</div> <div></div>	<div>Depth (m)</div> <div>0.00 0.50 1.00 1.20 2.00 3.00 3.80 4.00 5.00 6.00</div>	Samples & Tests		<div>Water Level (m)</div>	<div>Level (mOD)</div> <div>32.78 32.58 29.38 27.43</div>	<div>Strata Depth (m)</div> <div>0.10 0.30 3.50 5.45</div>	<div>Legend / Cover</div> <div></div>	Strata Description				Window Sampling						
		Sample Depth (m)	Type/Ref					Tests/Results		WS Run	Dia (mm)	Recovery (%)						
		0.50	ES 1					PID 0.50m 0 ppm										
		1.20	D 1					SPT(S) 1.20m N=14 (2,2/3,3,4,4)			1.20 2.00	101	100					
		2.00	D 2					SPT(S) 2.00m N=19 (4,4/4,5,5,5)			2.00 3.00	97	100					
		3.00	D 3					SPT(S) 3.00m N=26 (5,5/6,6,7,7)			3.00 4.00	76	90					
		3.80 3.80	ES 2 ES ES2					PID 3.80m 0 ppm										
		4.00 4.00	D 4 ES 3					SPT(S) 4.00m N=28 (5,5/8,7,6,7) PID 4.00m 0.2 ppm			4.00 5.00	68	50					
		5.00	D 5					SPT(S) 5.00m N=22 (4,4/5,5,6,6)										
		EOH at 5.45m - Achieved target depth																
		<div>Notes:</div> <div>1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Installation: 0.00-1.00m plain 50mm standpipe with concrete and bentonite; 1.00-4.00m slotted standpipe with gravel filter; 4.00-5.45m collapsed with arisings. Gas tap and flush cover installed.</div>																
								Hole Diameter		Casing		Hammer Information						
				Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio		Serial No.								
				2.00	101			73%	110-121									
				3.00	97			Install Response Zones										
				4.00	76			Ref	From (m)	To (m)								
				5.00	68			Pipe1	1.00	4.00								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited									
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater						
Location ID: WS1021		Location Type: Window Sampler				0.00 1.20	1.20 3.45	IP WS	Hand Tools Terrier Rig						
		Coords: 384551.57E/397536.77N		Level: 34.30mOD											
Status: FINAL		Scale: 1:30		Final Depth: 3.45 m											
Sheet 1 of 1		Date Start: 18/04/2024		Date End: 18/04/2024											
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling					
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)			
		0.20	ES 1	PID 0.20m 0 ppm		34.05	0.25		Firm dark brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine of concrete. Sand is fine to coarse. [MADE GROUND]						
		0.50	ES 2	PID 0.50m 0.2 ppm					Loose to very dense dark brown and cream slightly sandy cobbly gravel. Gravel is angular fine to coarse of limestone and sandstone. Cobbles are angular of limestone and concrete. Sand is fine to coarse. [MADE GROUND]						
		0.80	ES 3	PID 0.80m 0 ppm											
	1.00	1.00	ES 4	PID 1.00m 0 ppm SPT(S) 1.20m N=9 (2,2/2,2,3)						1.20 2.00	101	70			
	2.00	2.00	ES 5	SPT(S) 2.00m N=23 (4,4/5,5,6,7) PID 2.00m 0.2 ppm						2.00 3.00	97	80			
	3.00			SPT(S) 3.00m 50 (25 for 5mm/50 for 10mm)											
						30.85	3.45		EOH at 3.45m - Terminated due to refusal						
	4.00														
	5.00														
	6.00														
Notes:									Hole Diameter		Casing		Hammer Information		
1. No groundwater encountered. 2. Borehole backfilled with arisings on completion. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.	
									2.00	101			73%	110-121	
									3.00	97			Install Response Zones		
													Ref	From (m)	To (m)

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater						
		From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To						
Location ID: WS1022		Location Type: Window Sampler				0.00	0.70	IP	Hand Tools					
Status: FINAL		Coords: 384733.63E/397609.09N		Level: 34.03mOD										
		Scale: 1:30		Final Depth: 0.70 m										
Sheet 1 of 1		Date Start: 23/04/2024		Date End: 23/04/2024										
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						33.98	0.05		Bituminous macadam. [MADE GROUND]					
						33.78	0.25		Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]					
									Black gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, concrete, coal and clinker. Frequent ash noted.					
						33.33	0.70		[MADE GROUND] EOH at 0.70m - Terminated due to brick obstruction					
	1.0													
	2.0													
	3.0													
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features. 4. Borehole terminated at 0.70mbgl due to brick obstruction. Borehole re-attempted as WS1022A.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
													%	
									Install Response Zones					
									Ref	From (m)	To (m)			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater						
Location ID: WS1022A		Location Type: Window Sampler				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To		
		Coords: 384734.84E/397609.39N		Level: 34.03mOD		0.00 0.00	0.90 1.20	IP IP	Hand Tools Hand Tools					
Status: FINAL		Scale: 1:30		Final Depth: 0.90 m										
		Date Start: 25/04/2024		Date End: 25/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						33.83	0.20		Bituminous macadam. [MADE GROUND]					
						33.53	0.50		Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]					
						33.13	0.90		Dark brown and black gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick, slag and clinker. Frequent ash noted. [MADE GROUND]					
									EOH at 0.90m - Terminated due to concrete obstruction					
	1.0													
	2.0													
	3.0													
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features. 4. Borehole terminated at 0.70mbgl due to concrete obstruction. Borehole re-attempted as WS1022B.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
													%	
									Install Response Zones					
									Ref	From (m)	To (m)			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By:		Method and Plant Used			Groundwater					
		Checked By: KP		From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To				
Location ID: WS1022B		Location Type: Window Sampler												
Status: FINAL		Coords: 384734.68E/397608.72N		Level: 34.03mOD										
		Scale: 1:30		Final Depth: 1.20 m										
		Date Start: 25/04/2024		Date End: 25/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						33.83	0.20		Bituminous macadam. [MADE GROUND]					
						33.53	0.50		Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]					
	0.60	ES 1	PID 0.60m 0.1 ppm			33.13	0.90		Dark brown and black gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick, slag and clinker. Frequent ash noted. [MADE GROUND]					
	1.00	ES 2	PID 1.00m 0 ppm			32.83	1.20		Black dark brown clayey gravelly sand. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of brick, concrete, sandstone, coal and wood. [MADE GROUND]					
				SPT(S) 1.20m 50 (25 for 0mm/50 for 0mm)					EOH at 1.20m - Terminated due to concrete obstruction					
	2.0													
	3.0													
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. ES = Environmental Sample. 3. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
													73%	110-121
									Install Response Zones					
									Ref	From (m)	To (m)			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater						
						From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To		
Location ID: WS1023		Location Type: Window Sampler				0.00	1.20	IP	Hand Tools					
		Coords: 384701.03E/397603.20N		Level: 33.00mOD										
Status: FINAL		Scale: 1:30		Final Depth: 0.20 m										
		Date Start: 23/04/2024		Date End: 23/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						32.90	0.10		Bituminous macadam. [MADE GROUND]					
						32.70	0.30		Dark grey gravelly sand. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone and concrete. [MADE GROUND] EOH at 0.20m - Terminated due to concrete obstruction					
	1.0													
	2.0													
	3.0													
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. Borehole backfilled with arisings on completion and reinstated with cold-lay tarmac. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features. 4. Borehole terminated at 0.20mbgl due to concrete obstruction. Borehole re-attempted as WS1023A.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
													%	
									Install Response Zones					
									Ref	From (m)	To (m)			

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00	1.20	IP	Hand Tools			
				1.20	3.45	WS	Terrier Rig			
Coords: 384699.93E/397603.88N		Level: 33.00mOD								
Scale: 1:30		Final Depth: 3.45 m								
Date Start: 23/04/2024		Date End: 23/04/2024								

Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
Location Type: Window Sampler				0.00 1.20	1.20 5.45	IP WS	Hand Tools Terrier Rig			
Coords: 384531.28E/397608.36N		Level: 35.00mOD								
Scale: 1:30		Final Depth: 5.45 m								
Date Start: 24/04/2024		Date End: 24/04/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater				
Location ID: WS1025		Location Type: Window Sampler				0.00	1.20	IP	Hand Tools			
		Coords: 384731.28E/397643.70N		Level: 35.41mOD		1.20	5.45	WS	Terrier Rig			
Status: FINAL		Scale: 1:30		Final Depth: 5.45 m								
Sheet 1 of 1		Date Start: 22/04/2024		Date End: 22/04/2024								
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)
						35.31	0.10		Bituminous macadam. [MADE GROUND]			
									Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]			
	0.50	ES 1	PID 0.50m 0 ppm		35.01	0.40		Black slightly gravelly sand. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of limestone. Frequent ash noted. [MADE GROUND]				
								Soft brown mottled grey slightly sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse of coal, sandstone and brick. [MADE GROUND]				
	1.0	1.00	ES 2	HSV 1.00m (p)= 59 kPa PID 1.00m 0 ppm						1.20 2.00	101	100
		1.20	D 1	SPT(S) 1.20m N=4 (1,1/1,1,1,1)								
	2.0	2.00	D 2	SPT(S) 2.00m N=5 (1,1/1,1,1,2) HSV 2.00m (p)= 52 kPa						2.00 3.00	97	100
	3.0	3.00	D 3	SPT(S) 3.00m N=8 (2,2/2,2,2,2) HSV 3.00m (p)= 74 kPa						3.00 4.00	76	100
4.0	4.00 4.00	D 4 ES 3	SPT(S) 4.00m N=10 (2,2/3,2,2,3) PID 4.00m 0 ppm		31.71	3.70		Medium dense to very dense light orangish brown clayey silty sand. Sand is fine to medium. Rare flecks of coal noted. [MADE GROUND]	4.00 5.00	68	100	
5.0	5.00	D 5	SPT(S) 5.00m 50 (25 for 10mm/50 for 20mm)									

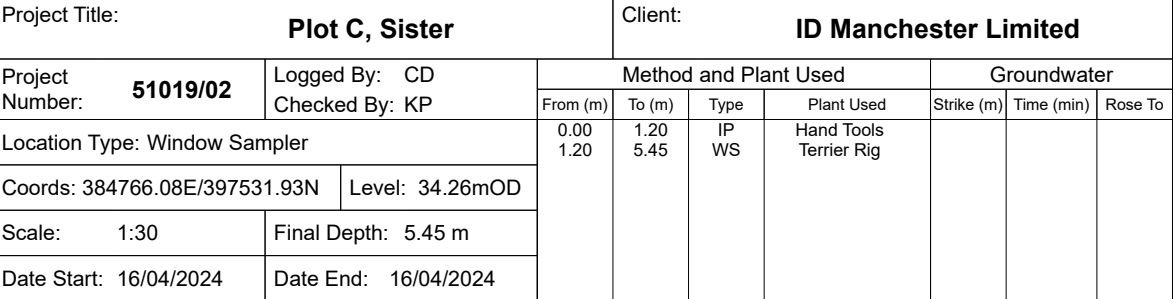
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater						
Location ID: WS1026		Location Type: Window Sampler				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To		
		Coords: 384617.30E/397549.21N		Level: 33.14mOD		0.00 1.20	1.20 3.45	IP WS	Hand Tools Terrier Rig					
Status: FINAL		Scale: 1:30		Final Depth: 3.45 m										
		Date Start: 18/04/2024		Date End: 18/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
		0.20	ES 1	PID 0.20m 0 ppm		32.74	0.40		Dark brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine of concrete. Sand is fine to coarse. [MADE GROUND]					
		0.50	ES 2	PID 0.50m 0 ppm					Red brown sandy gravel. Gravel is angular to subangular fine to coarse of brick. Sand is fine to coarse. [MADE GROUND]					
		0.80	ES 3	PID 0.80m 0.2 ppm		32.24	0.90		Very loose light red brown very clayey sand. Sand is fine to coarse. [MADE GROUND]					
	1.0	1.00	ES 4	PID 1.00m 0 ppm SPT(S) 1.20m N=4 (1,1/1,1,1,1)						1.20 2.00	101	100		
						31.34	1.80							
	2.0	2.00	ES 5	SPT(S) 2.00m N=27 (2,2/3,8,8,8) PID 2.00m 0 ppm		31.14	2.00		Light brown slightly sandy clay. Rare angular fine gravel of coal, brick and concrete noted. [MADE GROUND]					
								Medium dense to very dense light grey slightly gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. [MADE GROUND]	2.00 3.00	97	80			
	3.0	3.00	ES 6	SPT(S) 3.00m 50 (25 for 10mm/50 for 20mm) PID 3.00m 0 ppm										
						29.69	3.45		EOH at 3.45m - Terminated due to refusal					
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Borehole backfilled with arisings on completion. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									3.00	97			Install Response Zones	
									Ref	From (m)	To (m)			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited									
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used			Groundwater						
Location ID: WS2001		Location Type: Window Sampler				0.00 1.20	1.20 4.00	IP WS	Hand Tools Terrier Rig						
		Coords: 384579.03E/397476.67N		Level: 34.30mOD											
Status: FINAL		Scale: 1:30		Final Depth: 4.00 m											
		Date Start: 18/04/2024		Date End: 18/04/2024											
Sheet 1 of 1															
<div>Inst/ Backfill</div>	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	<div>Legend / Cover</div>	Strata Description	Window Sampling					
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)			
		0.20	ES 1	PID 0.20m 0 ppm						34.15	0.15	Cobblestones. [MADE GROUND] Light grey slightly gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of limestone. [MADE GROUND] Red brown sandy gravel. Gravel is angular to subangular fine to coarse of brick. Sand is fine to coarse. [MADE GROUND]			
		0.50	ES 2	PID 0.50m 0 ppm											
		0.80	ES 3	PID 0.80m 0.2 ppm											
		1.00	ES 4	PID 1.00m 0 ppm											
				SPT(S) 1.20m N=4 (1,1/1,1,1,1)						33.05	1.25	Soft to firm dark brown slightly sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse of coal, sandstone, concrete and brick. Sand is fine to coarse. [MADE GROUND]	1.20 2.00	101	50
				HSV 1.50m (p)= 46 kPa (r)= 34 kPa											
		2.00	ES 5	SPT(S) 2.00m N=4 (1,1/1,1,1,1) PID 2.00m 0 ppm											
				HSV 2.50m (p)= 43 kPa (r)= 27 kPa									2.00 3.00	97	50
		SPT(S) 3.00m N=9 (1,3/3,2,2,2) PID 3.00m 0 ppm													
3.00	ES 6														
		HSV 3.50m (p)= 47 kPa (r)= 28 kPa					3.00 4.00	76	70						
4.00															
			30.30	4.00	EOH at 4.00m - Terminated due to obstruction										
Notes: 1. No groundwater encountered. 2. ES = Environmental Sample. 3. Installation: 0.00-1.00m plain 50mm standpipe with concrete and bentonite; 1.00-4.00m slotted standpipe with gravel filter. Gas tap and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.						Hole Diameter		Casing		Hammer Information					
						Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.				
						2.00	101			73%	110-121				
						3.00	97								
						4.00	76								
						Install Response Zones									
						Ref	From (m)	To (m)							
						Pipe1	1.00	4.00							

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: FM Checked By: KP		Method and Plant Used		Groundwater						
Location ID: WS2002		Location Type: Window Sampler				0.00	1.20	IP WS	Plant Used Hand Tools Terrier Rig	Strike (m)	Time (min)	Rose To		
		Coords: 384637.21E/397496.75N		Level: 33.80mOD		1.20	3.00							
Status: FINAL		Scale: 1:30		Final Depth: 3.45 m										
Sheet 1 of 1		Date Start: 18/04/2024		Date End: 18/04/2024										
<div>Inst/ Backfill</div>	<div>Depth (m)</div> <div>0.00</div> <div>0.20</div> <div>0.50</div> <div>0.80</div> <div>1.00</div> <div>2.00</div> <div>3.00</div> <div>4.00</div> <div>5.00</div> <div>6.00</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div> <div>33.75</div> <div>33.55</div> <div>33.30</div> <div>32.70</div> <div>32.40</div> <div>30.80</div> <div>30.35</div>	<div>Strata Depth (m)</div> <div>0.05</div> <div>0.25</div> <div>0.50</div> <div>1.10</div> <div>1.40</div> <div>3.00</div> <div>3.45</div>	<div>Legend / Cover</div>	Strata Description			Window Sampling		
		Sample Depth (m)	Type/Ref	Tests/Results					WS Run	Dia (mm)	Recovery (%)			
		0.20	ES 1	PID 0.20m 0 ppm										
		0.50	ES 2	PID 0.50m 0.1 ppm										
		0.80	ES 3	PID 0.80m 0.2 ppm										
		1.00	ES 4	PID 1.00m 0 ppm										
				SPT(S) 1.20m N=4 (1,1/1,1,1,1)										
		2.00	ES 5	SPT(S) 2.00m N=4 (1,1/1,1,1,1) PID 2.00m 0 ppm					1.20 2.00	101	100			
				SPT(S) 3.00m 50 (25 for 15mm/50 for 25mm)					2.00 3.00	97	60			

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater					
Location ID: WS2003		Location Type: Window Sampler				From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To		
		Coords: 384666.70E/397509.22N		Level: 33.81mOD		0.00 1.20	1.20 2.45	IP WS	Hand Tools Terrier Rig					
Status: FINAL		Scale: 1:30		Final Depth: 2.45 m										
		Date Start: 17/04/2024		Date End: 17/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
						33.76	0.05		Bituminous macadam. [MADE GROUND]					
									Grey sandy gravel. Gravel is angular coarse of limestone (Type 1). Sand is fine to coarse. [MADE GROUND]					
	0.50	ES 1	PID 0.50m 0.2 ppm			33.41	0.40		Greyish brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and limestone. Slight hydrocarbon odour noted. [MADE GROUND]					
	1.00	ES 2	PID 1.00m 0 ppm			33.11	0.70		Loose light brown slightly gravelly sand. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of sandstone, limestone, siltstone and possible coal. Occasional black staining noted. [MADE GROUND]					
	1.20	D 1	SPT(S) 1.20m N=9 (1,2/2,2,3)							1.20 2.00	101	100		
	2.00	D 2	SPT(S) 2.00m N=50 (5,8/50 for 225mm)			31.91	1.90		from 1.80 to 1.90mbgl - Horizon of angular fine to medium coal noted. Very dense red brown SAND. Sand is fine and medium. [WEATHERED CHESTER FORMATION - SANDSTONE]					
						31.36	2.45		EOH at 2.45m - Terminated due to refusal on bedrock					
	3.0													
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Borehole backfilled with arisings on completion.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									Install Response Zones					
									Ref	From (m)	To (m)			

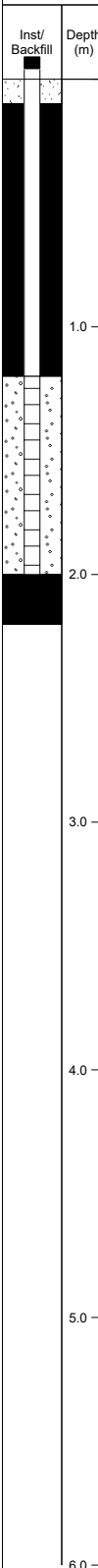
<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used		Groundwater				
Location ID: WS2004		Location Type: Window Sampler				0.00 1.20	1.20 2.45	IP WS	Plant Used Hand Tools Terrier	Strike (m)	Time (min)	Rose To
		Coords: 384731.76E/397538.11N		Level: 34.00mOD								
Status: FINAL		Scale: 1:30		Final Depth: 2.45 m								
		Date Start: 17/04/2024		Date End: 17/04/2024								
Sheet 1 of 1												
<div>Inst/ Backfill</div>	<div>Depth (m)</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div>	<div>Strata Depth (m)</div>	<div>Legend / Cover</div>	<div>Strata Description</div>	Window Sampling		
		<div>Sample Depth (m)</div>	<div>Type/Ref</div>	<div>Tests/Results</div>						<div>WS Run</div>	<div>Dia (mm)</div>	<div>Recovery (%)</div>
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CIVIC EARTH		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: CD Checked By: KP		Method and Plant Used			Groundwater					
Location ID: WS2006		Location Type: Window Sampler				From (m) 0.00 1.20	To (m) 1.20 4.20	Type IP WS	Plant Used Hand Tools Terrier Rig	Strike (m) 3.50	Time (min) -	Rose To -		
		Coords: 384788.39E/397519.74N		Level: 34.74mOD										
Status: FINAL		Scale: 1:30		Final Depth: 4.45 m										
		Date Start: 15/04/2024		Date End: 15/04/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
	0.20	0.20	ES 1	PID 0.20m 0 ppm		34.44	0.30		Vegetation overlying soft dark brown slightly sandy SILT. Sand is fine to medium. [TOPSOIL]					
	0.50	0.50	ES 2	PID 0.50m 0 ppm					Very loose to loose dark brown and black slightly cobbly silty gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, sandstone and concrete. Cobbles are subangular of brick and concrete. [MADE GROUND]					
	1.00	1.00 1.00	D 1 ES 3	PID 1.00m 0 ppm SPT(S) 1.20m N=9 (1,1/2,2,2,3)					from 1.60 to 1.70mbgl - Angular concrete cobble noted.	1.20 2.00	101	60		
	2.00	2.00	ES 4	SPT(S) 2.00m N=2 (2,1/1,1,0,0) PID 2.00m 0 ppm						2.00 3.00	97	50		
	3.00	3.00 3.00	D 2 ES 5	SPT(S) 3.00m N=3 (1,1/1,1,1,0) PID 3.00m 0 ppm					Light brown gravelly SAND. Sand is fine to medium. Gravel is subangular to rounded fine to coarse of siltstone and sandstone. [ALLUVIUM]	3.00 4.00	76	80		
	3.50	3.50	ES 6	PID 3.50m 0 ppm		31.24	3.50							
	4.00	4.00	D 3	SPT(S) 4.00m 50 (13,12/50 for 40mm)		30.74	4.00		Very dense red brown SAND. Sand is fine and medium. [WEATHERED CHESTER FORMATION - SANDSTONE]					
						30.29	4.45		EOH at 4.45m - Terminated due to refusal on bedrock					
	6.00													
Notes:									Hole Diameter		Casing		Hammer Information	
1. Groundwater seepage encountered at 3.50mbgl. 2. ES = Environmental Sample; D = Disturbed Sample. 3. Installation: 0.00-0.70m plain 50mm standpipe with concrete and bentonite; 0.70-1.70m slotted standpipe with gravel filter; 1.70-4.45m bentonite seal. Gas tap and flush cover installed. 4. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
									2.00	101			73%	110-121
									3.00	97				
									4.00	76			Install Response Zones	
													Ref	From (m)
				Pipe1	0.70	1.70								

<div>CIVICEARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited								
		Project Number: 51019/02		Logged By: AP Checked By: KP		Method and Plant Used			Groundwater					
Location ID: WS2007		Location Type: Window Sampler				From (m) 0.00	To (m) 0.45	Type IP	Plant Used Hand Tools	Strike (m)	Time (min)	Rose To		
		Coords: 384567.00E/397484.00N		Level: 30.30mOD										
Status: FINAL		Scale: 1:30		Final Depth: 0.45 m										
		Date Start: 10/09/2024		Date End: 10/09/2024										
Sheet 1 of 1														
Inst/ Backfill	Depth (m)	Samples & Tests			Water Level (m)	Level (mOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling				
		Sample Depth (m)	Type/Ref	Tests/Results						WS Run	Dia (mm)	Recovery (%)		
									Pale grey concrete. [MADE GROUND]					
						29.85	0.45		EOH at 0.45m - Terminated due to possible services					
	1.0													
	2.0													
	3.0	2.80	ES ES3											
	4.0													
	5.0													
	6.0													
Notes:									Hole Diameter		Casing		Hammer Information	
1. No groundwater encountered. 2. Borehole terminated due to suspected service at 0.45mbgl. Concrete core left in-situ and sealed with concrete at top of basement slab. 3. Borehole coordinates and ground level estimated from topographical survey. Borehole position measured from on-site features.									Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
													%	
									Install Response Zones					
									Ref	From (m)	To (m)			

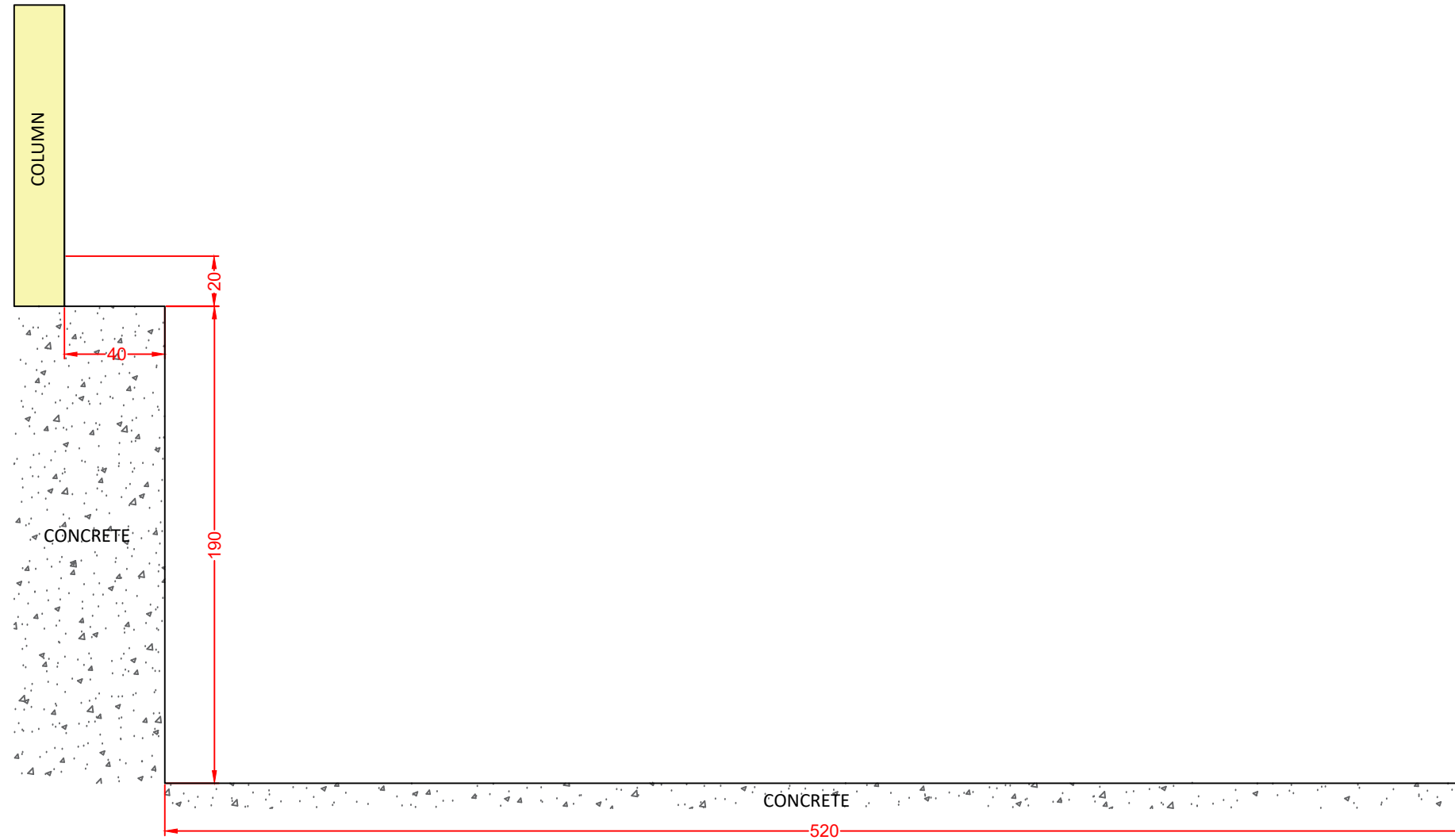
Project Title: Plot C, Sister				Client: ID Manchester Limited						
Project Number: 51019/02		Logged By: AP Checked By: KP		Method and Plant Used				Groundwater		
				From (m)	To (m)	Type	Plant Used		Strike (m)	Time (min)
Location Type: Window Sampler				0.00	1.20	IP	Hand Tools			
Coords: 384561.00E/397482.00N		Level: 30.30mOD		1.20	4.10	WS	Window Sampler			
Scale: 1:30		Final Depth: 4.10 m								
Date Start: 10/09/2024		Date End: 10/09/2024								

<div>CIVIC</div> <div>EARTH</div>		Project Title: Plot C, Sister				Client: ID Manchester Limited						
		Project Number: 51019/02		Logged By: AP Checked By: KP		Method and Plant Used		Groundwater				
Location ID: WS2009		Location Type: Window Sampler				0.00 1.20	1.20 2.20	IP WS	Hand Tools Window Sampler			
		Coords: 384662.00E/397514.00N		Level: 30.30mOD								
Status: FINAL		Scale: 1:30		Final Depth: 2.20 m								
		Date Start: 09/09/2024		Date End: 10/09/2024								
Sheet 1 of 1												
<div>Inst/ Backfill</div> 	<div>Depth (m)</div> <div>0.00</div> <div>1.0</div> <div>2.0</div> <div>3.0</div> <div>4.0</div> <div>5.0</div> <div>6.0</div>	Samples & Tests			<div>Water Level (m)</div>	<div>Level (mOD)</div>	<div>Strata Depth (m)</div>	<div>Legend / Cover</div> 	<div>Strata Description</div>	Window Sampling		
		<div>Sample Depth (m)</div>	<div>Type/Ref</div>	<div>Tests/Results</div>						<div>WS Run</div>	<div>Dia (mm)</div>	<div>Recovery (%)</div>

Appendix C

Foundation Inspection Pit Records

A



A'

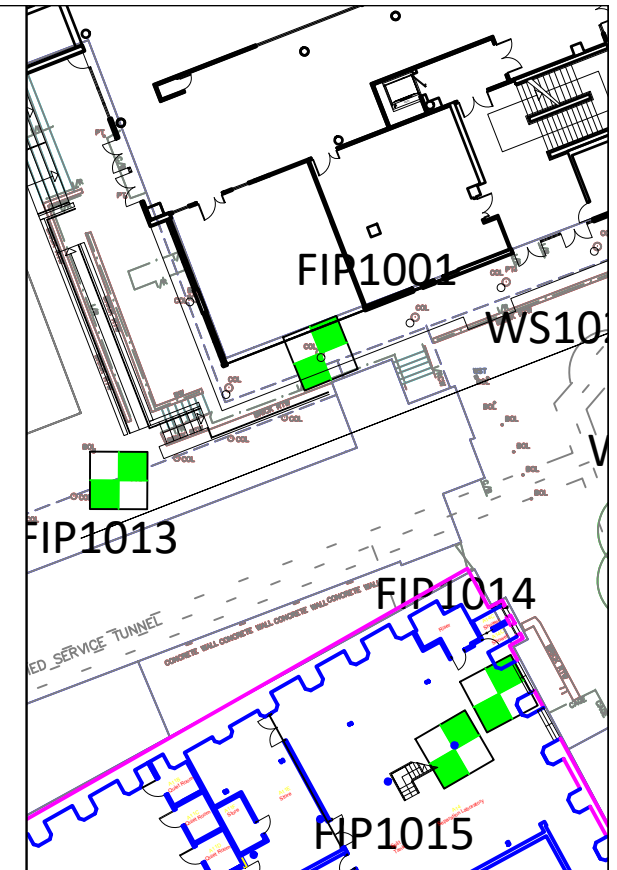
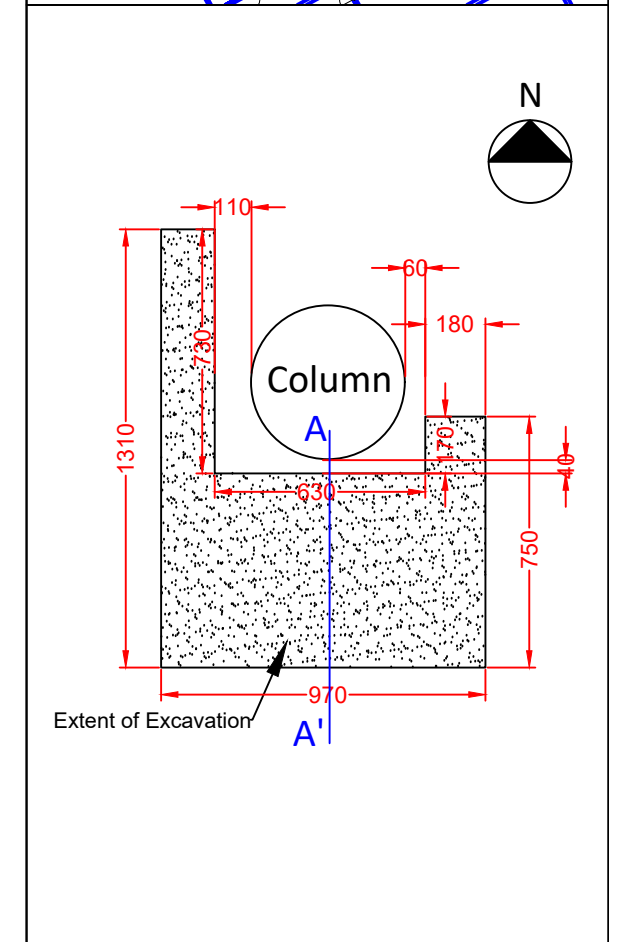
0.00 MBGL

0.08 MBGL

0.21 MBGL

0.00 - 0.08 MBGL: Tarmac.

0.08 - 0.21 MBGL: MADE GROUND - Loose dark grey brown gravelly sand. Sand is fine. Gravel is angular to subangular fine to coarse of brick, concrete and sandstone.



1. MBGL = metres below ground level
 2. Trial pit terminated at 0.21mbgl
 3. Perched water encountered at 0.20mbgl
 4. Trial pit backfilled with arisings and reinstated with tarmac
 5. Dimensions of structures / foundations provided in mm unless otherwise stated
- © CIVIC EARTH LIMITED

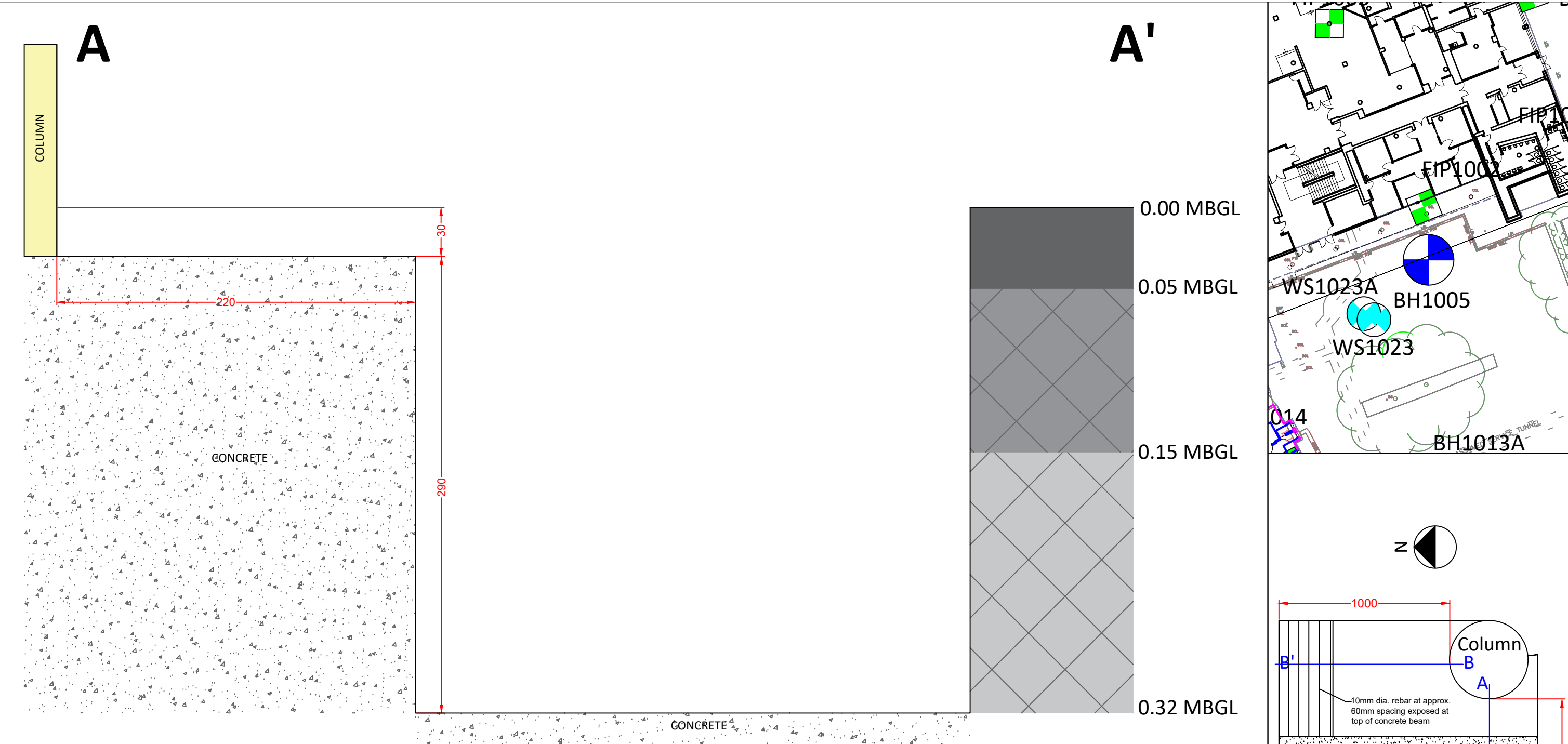
6. Removal of ventilation grill at lower level on south edge of trial pit revealed a service tunnel below the trial pit position. Tunnel recorded to be 3.6m deep and 1.4m wide, indicating column foundation is located inside basement structure.
7. Densities based on Engineer's observations

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PROJECT
ID Manchester
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TITLE
Foundation Inspection Pit
FIP1001

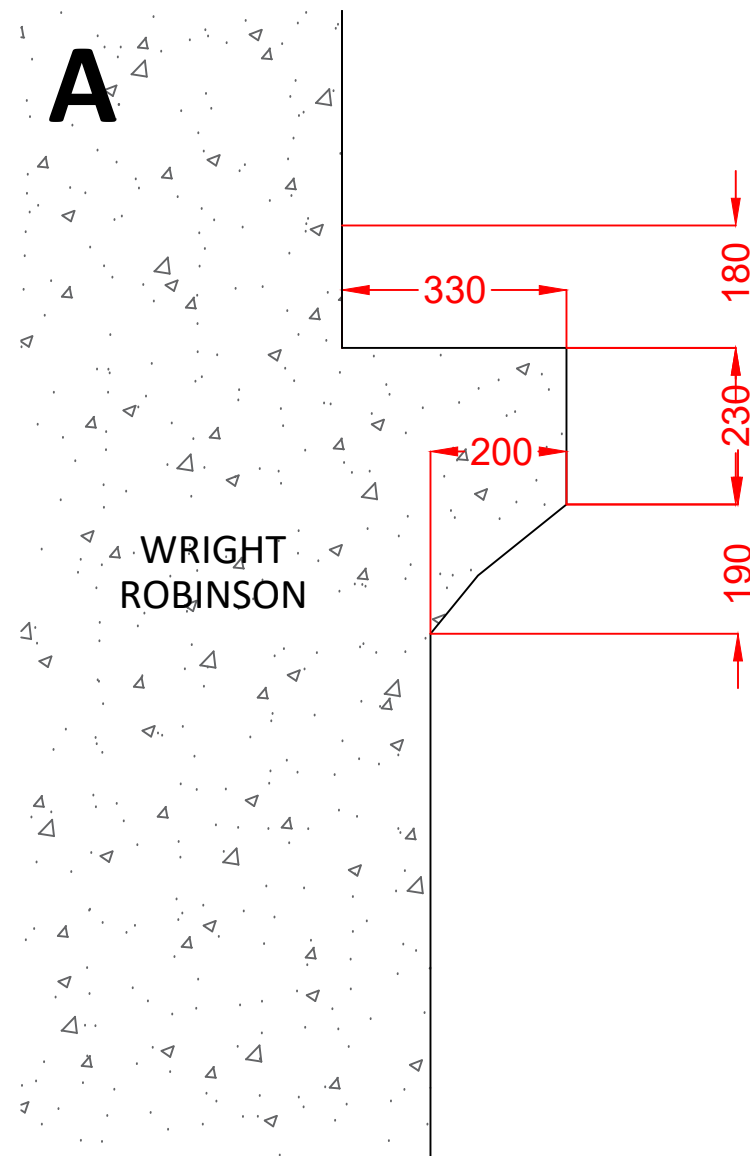
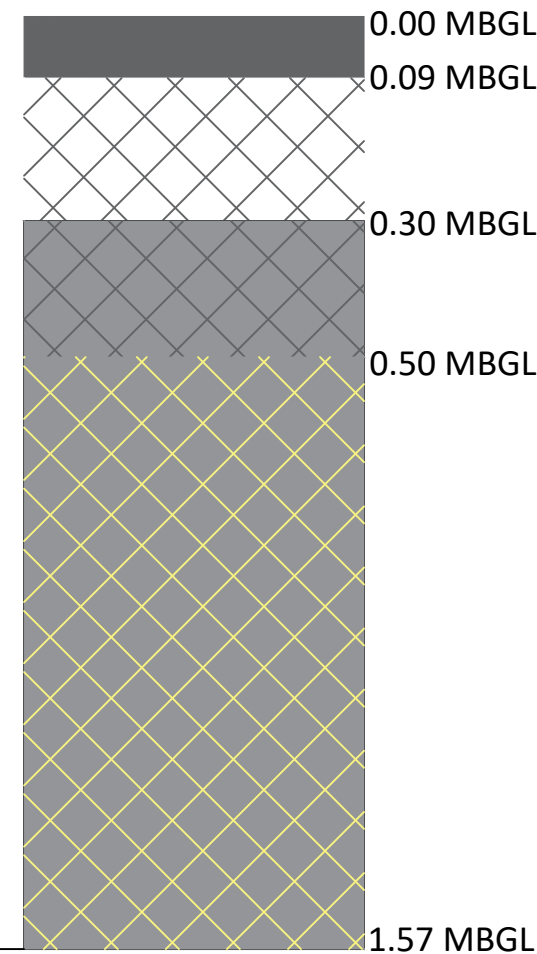
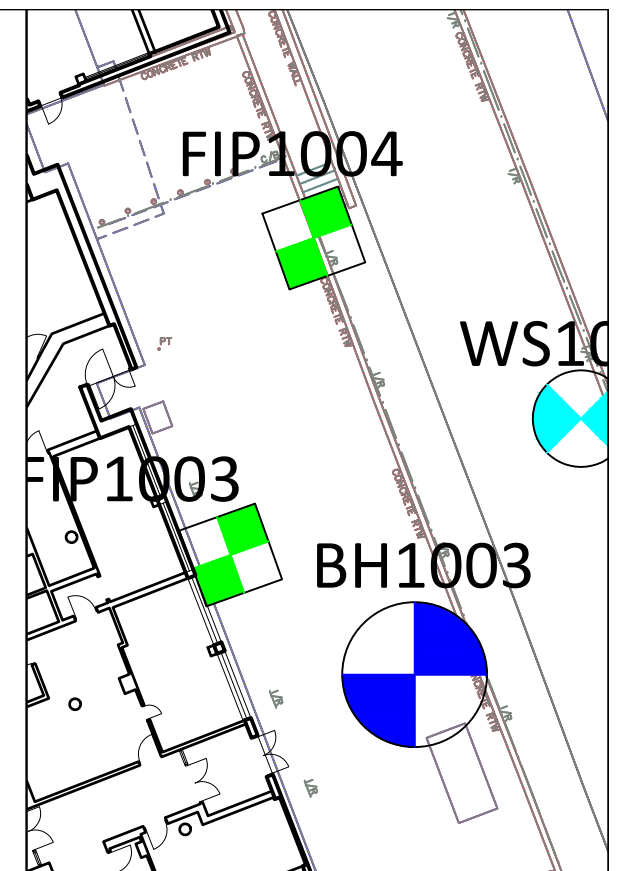
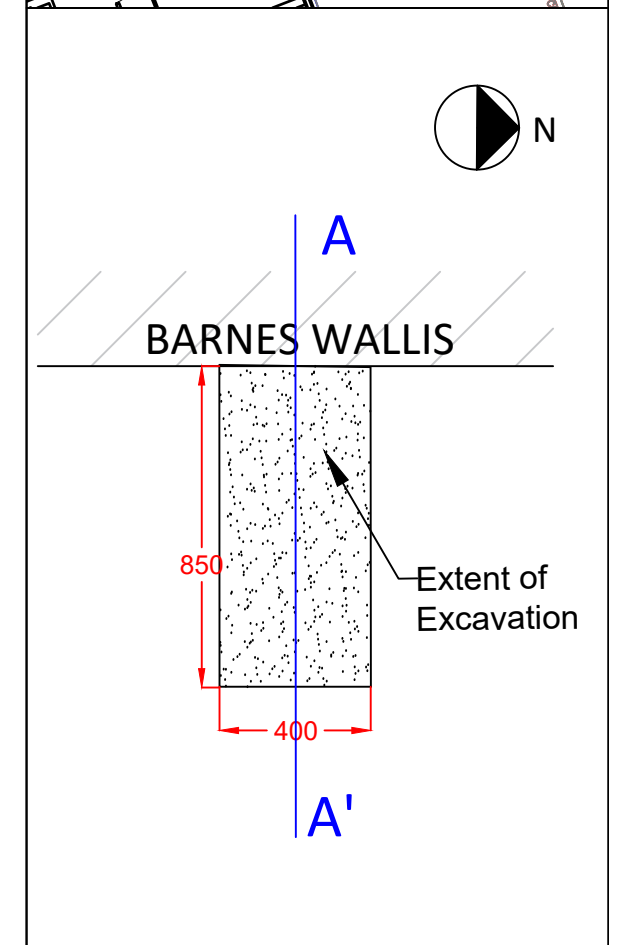
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FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	22/04/24	KP	HG
DRAWING No.				REV
51019-CE-02-XX-D-G-2001				P01



0.00 - 0.05 MBGL: Tarmac.

0.05 - 0.15 MBGL: MADE GROUND - Loose dark grey black sandy gravel. Gravel is subangular fine to medium of asphalt.

0.15 - 0.32 MBGL: MADE GROUND - Medium dense dark grey to yellow brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to medium of sandstone, asphalt, concrete and brick.



0.00 - 0.09 MBGL: MADE GROUND - Tarmac.

0.09 - 0.30 MBGL: MADE GROUND - Medium dense light grey slightly sandy gravel. Gravel is angular to subangular fine to coarse of concrete, dolomite and sandstone.

0.30 - 0.50 MBGL: MADE GROUND - Loose dark grey black slightly gravelly sand. Sand is fine to coarse. Gravel is angular of concrete and brick.

0.50 - 1.57 MBGL: MADE GROUND - Medium dense yellow brown to grey gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, dolomite, brick, quartzite and coal. Occasional fragments of metal and wire noted. Frequent $\frac{1}{2}$ bricks and subangular cobbles of concrete noted.

1. MBGL = metres below ground level
2. Trial pit terminated at 1.57mbgl
3. Trial pit backfilled with arisings and reinstated with tarmac
4. Dimensions of structures / foundations provided in mm unless otherwise stated

5. Densities based on Engineer's observations

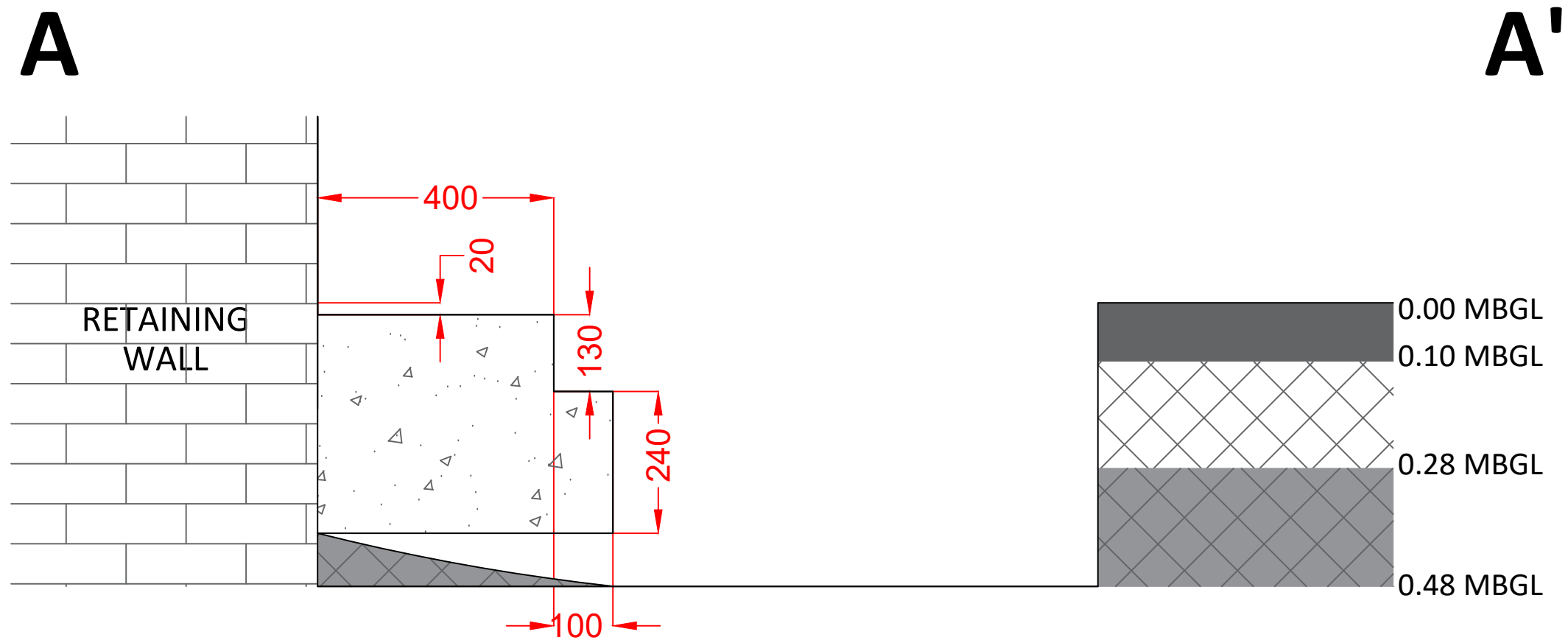
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PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1003

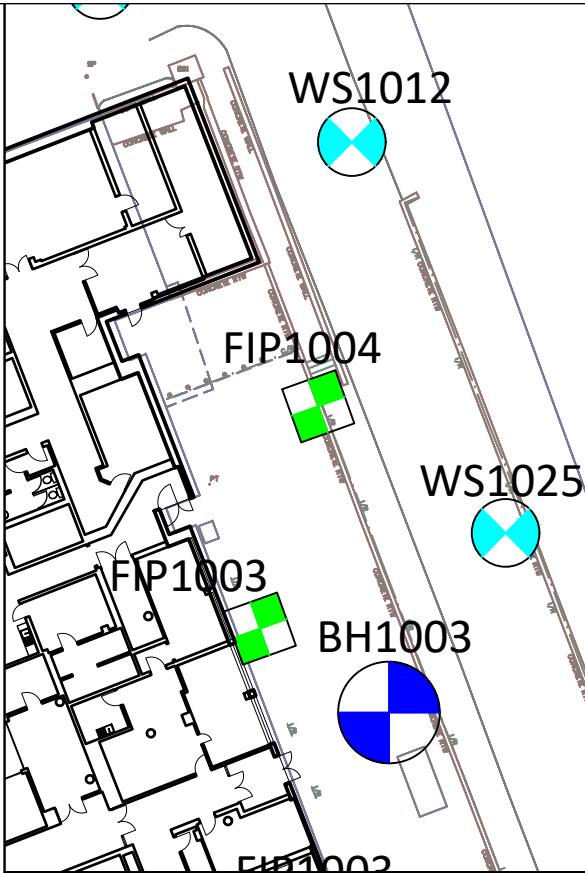
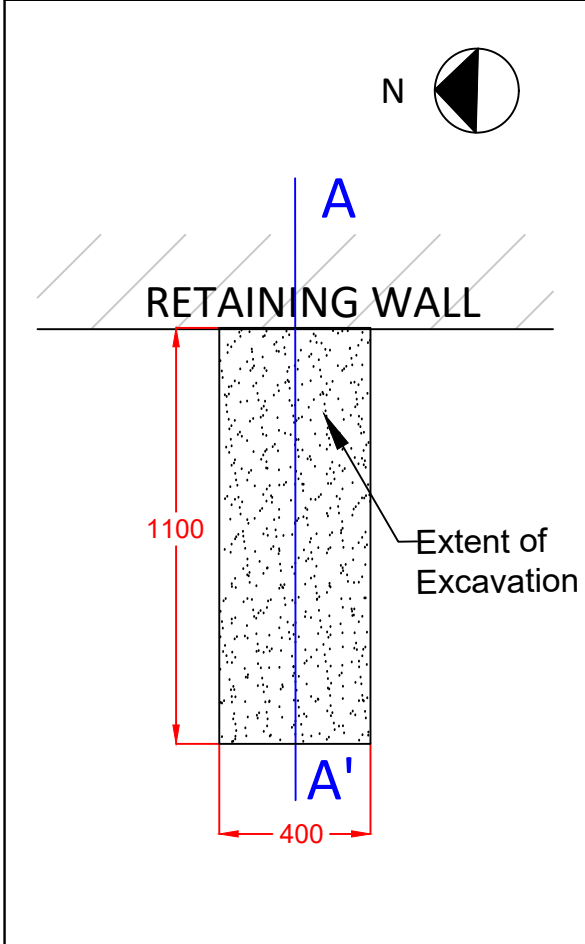
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CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	24/04/24	KP	HG
DRAWING No.			REV	
51019-CE-02-XX-D-G-2003			P01	



0.00 - 0.10 MBGL: MADE GROUND - Tarmac.

0.10 - 0.28 MBGL: MADE GROUND - Medium dense light grey slightly sandy gravel. Gravel is angular to subangular fine to coarse of concrete, dolomite and sandstone.

0.28 - 0.48 MBGL: MADE GROUND - Loose dark grey black slightly gravelly sand. Sand is fine to coarse. Gravel is angular of concrete and brick.



1. MBGL = metres below ground level

2. Trial pit terminated at 0.48mbgl on concrete obstruction.

3. No groundwater encountered

4. Trial pit backfilled with arisings and reinstated with tarmac

5. Dimensions of structures / foundations provided in mm unless otherwise stated

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6. Densities based on Engineer's observations

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FIP1004

DRAWING STATUS

FOR INFORMATION

CE PROJECT No.

51019-02

SCALE @ A3

NTS

DATE CREATED

24/04/24

DRAWN

KP

CHECKED

HG

DRAWING No.

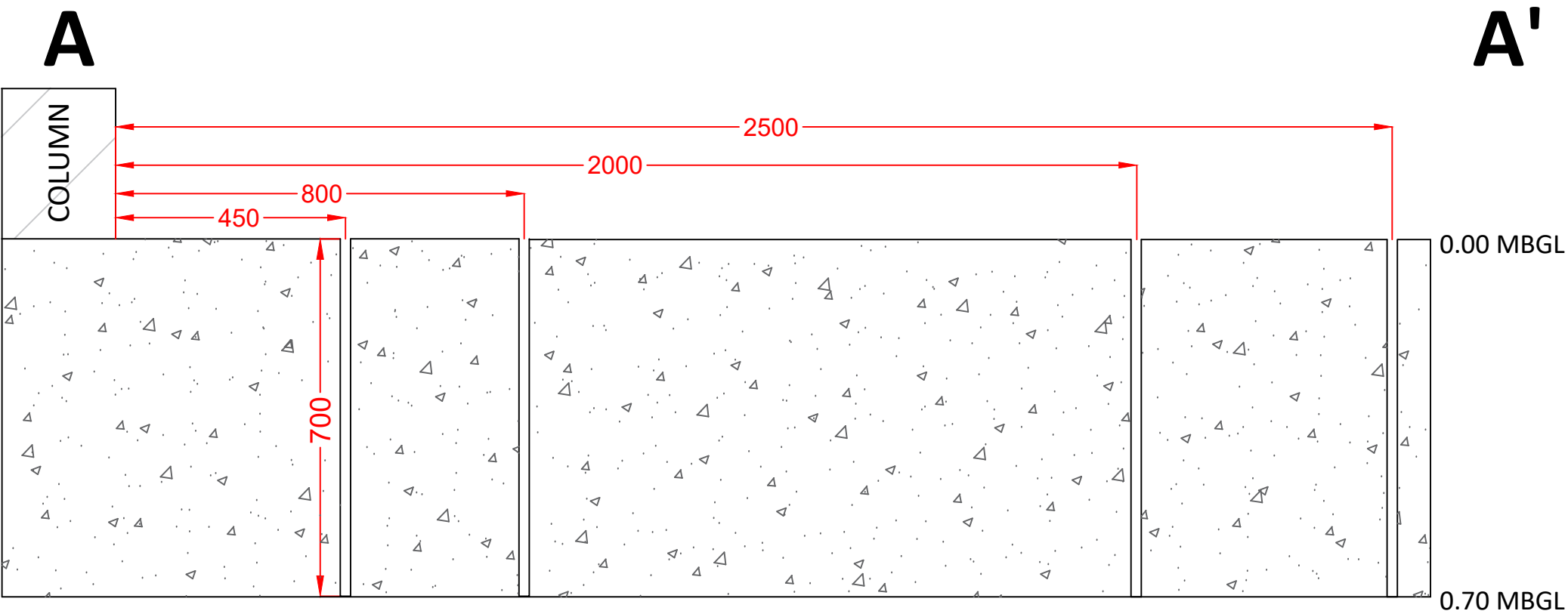
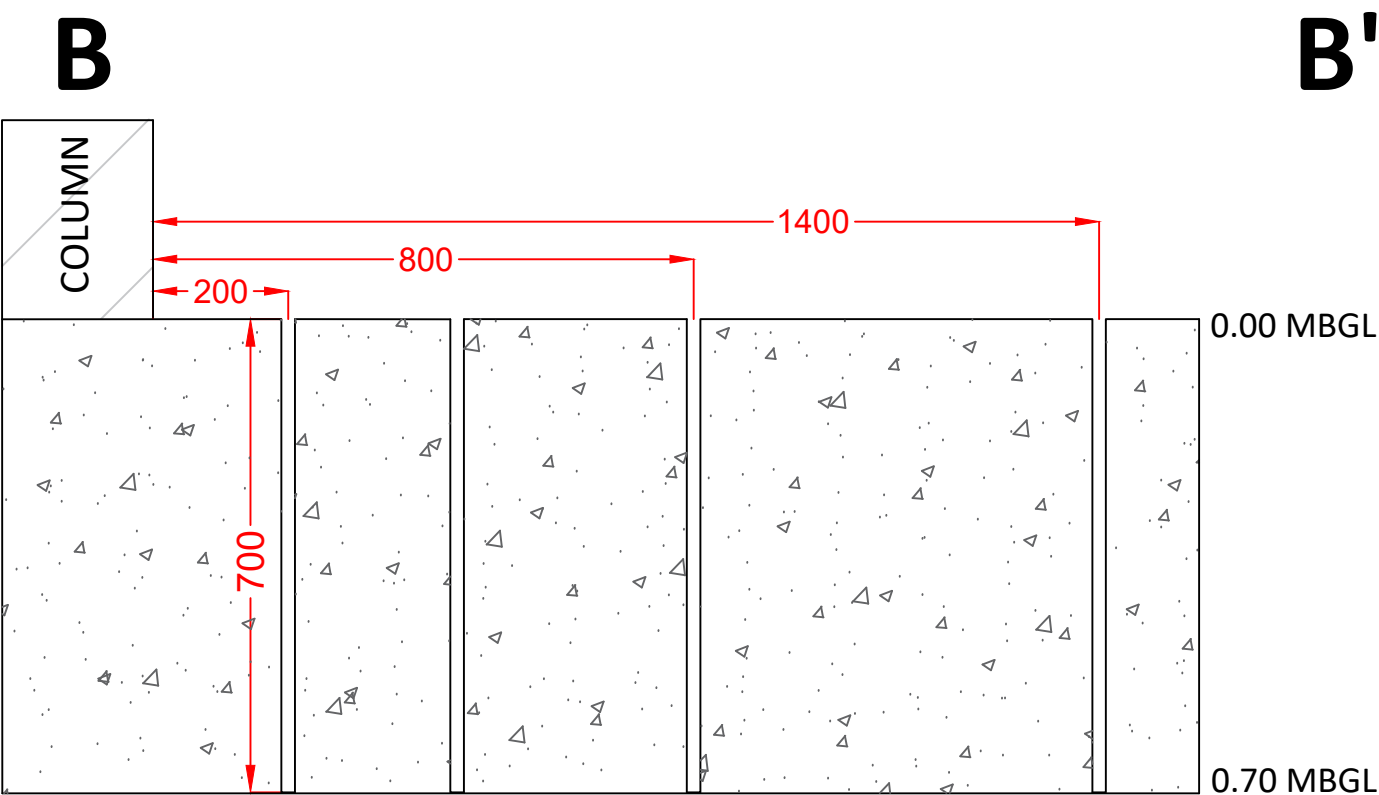
51019-CE-02-XX-D-G-2004

REV

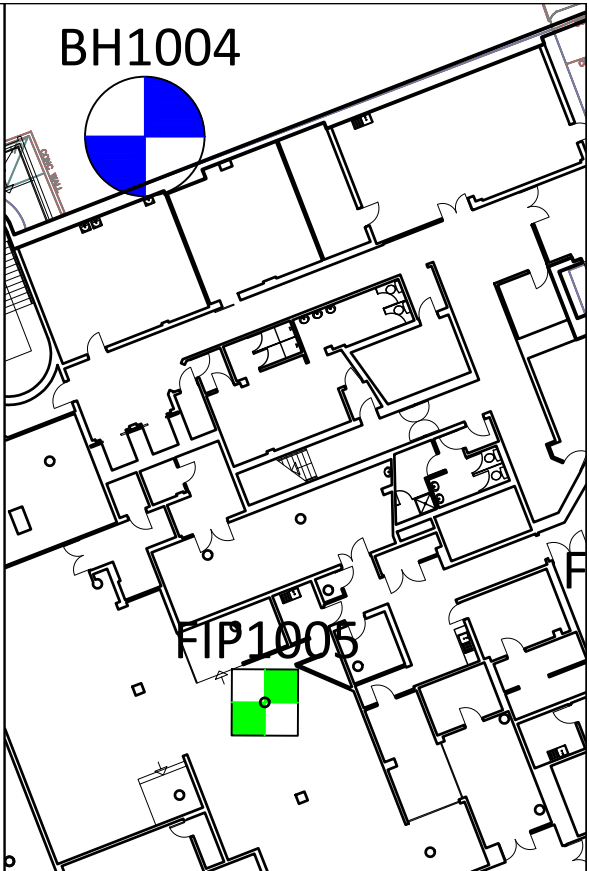
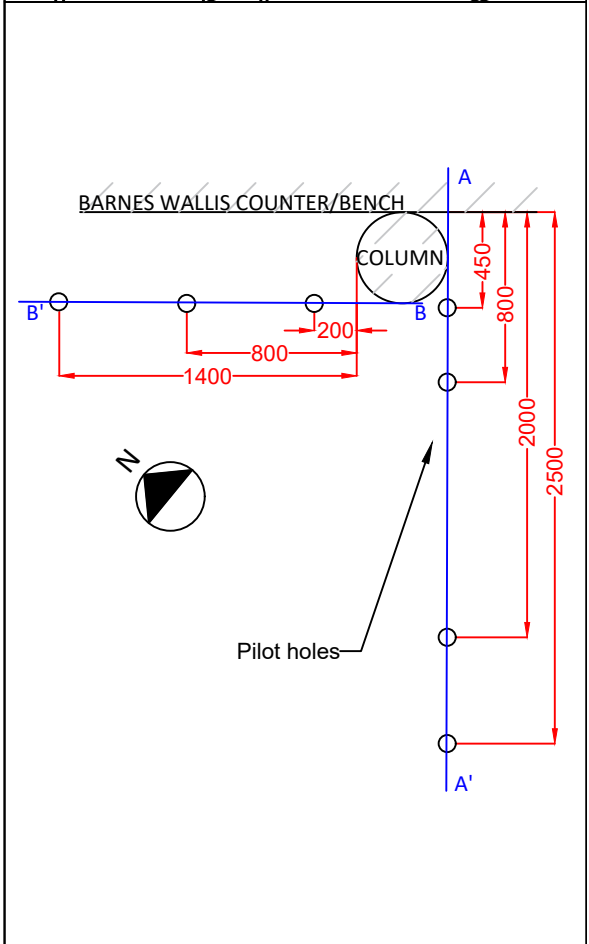
P01

STATUS CODE

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0.00 - 0.7 MBGL: MADE GROUND - Concrete.



1. MBGL = metres below ground level
2. Trial pit terminated at 0.70mbgl at the maximum pilot hole depth
3. Pilot holes reinstated with concrete
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
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DRAWING No.			REV	
51019-CE-02-XX-D-G-2005			P01	

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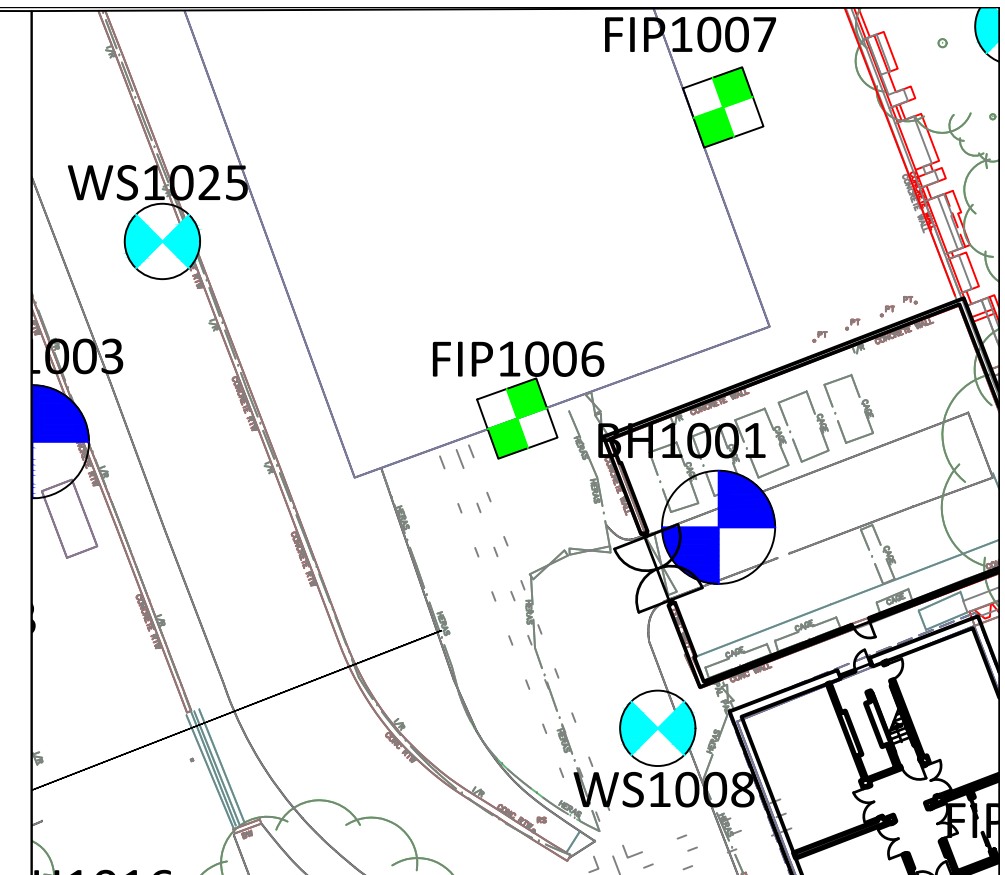
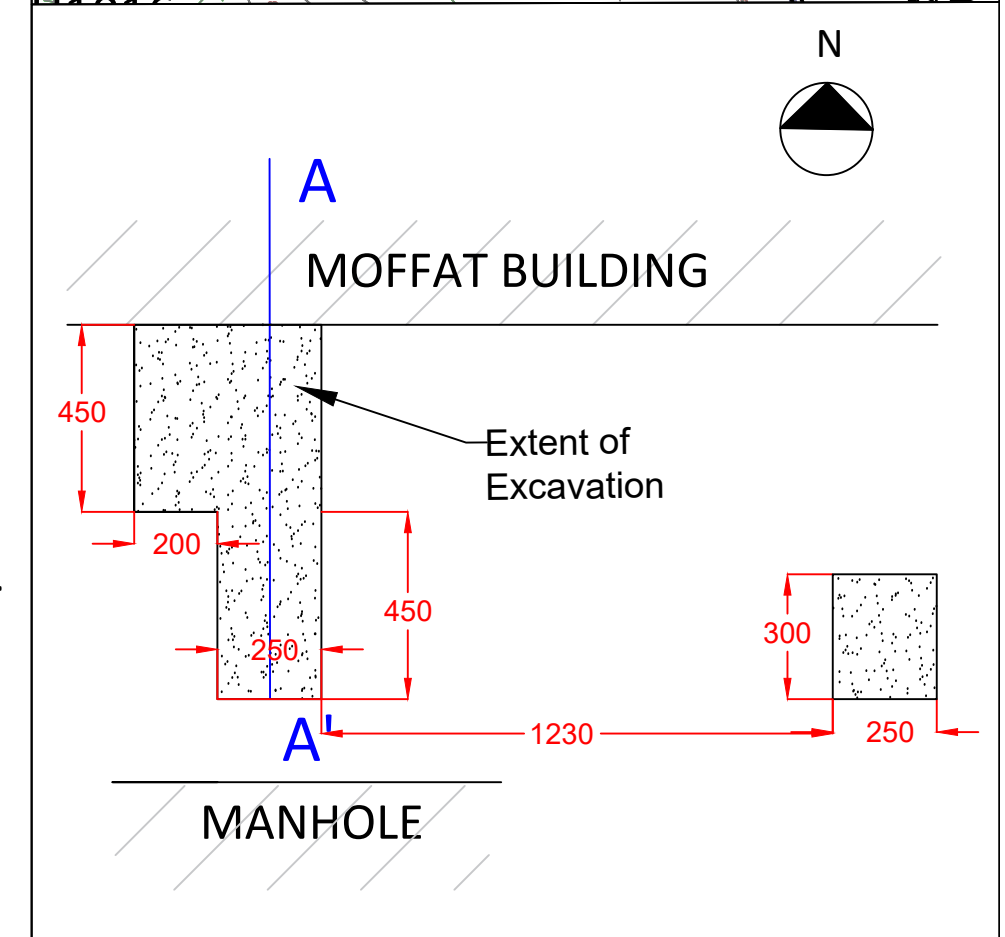
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0.00 - 0.06 MBGL: MADE GROUND - Tarmac.

0.06 - 0.20 MBGL: MADE GROUND - Medium dense light grey brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick, coal, limestone and sandstone. Occasional half bricks and subangular cobbles of concrete noted.

0.20 - 0.37 MBGL: MADE GROUND - Medium dense dark grey brown slightly clayey gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick, coal, limestone and sandstone. Occasional cobbles of subangular to angular of brick and concrete. Rare pieces of wire noted.



1. MBGL = metres below ground level
2. Trial pit terminated at 0.37mbgl on brick obstruction, assumed to be associated with nearby manhole chamber. Smaller excavation 1.23m to east proved continuation of brick wall / obstruction.
3. Trial pit backfilled with arisings and reinstated with tarmac
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4. Dimensions of structures / foundations provided in mm unless otherwise stated
5. Densities based on Engineer's observations

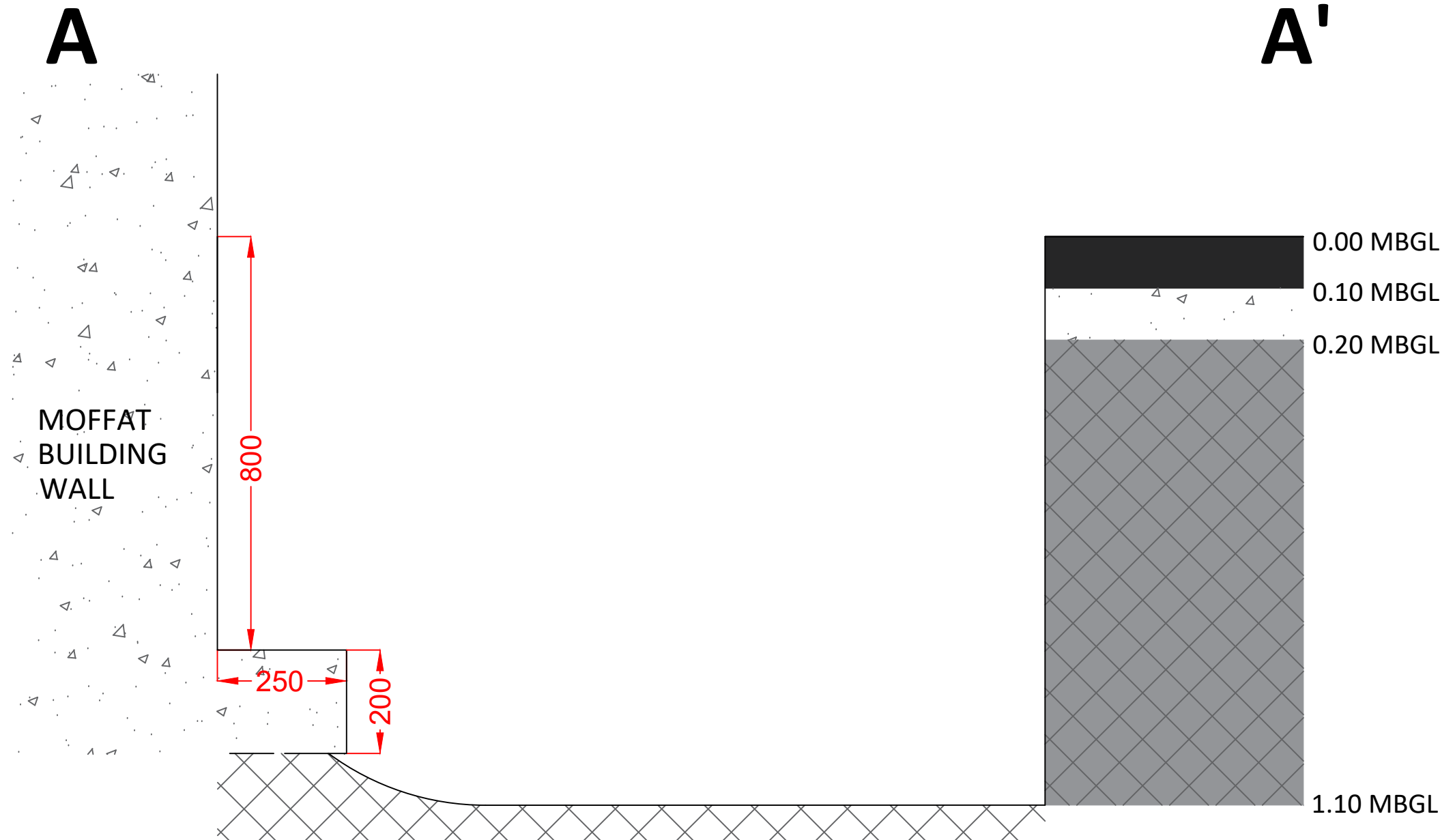
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PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1006

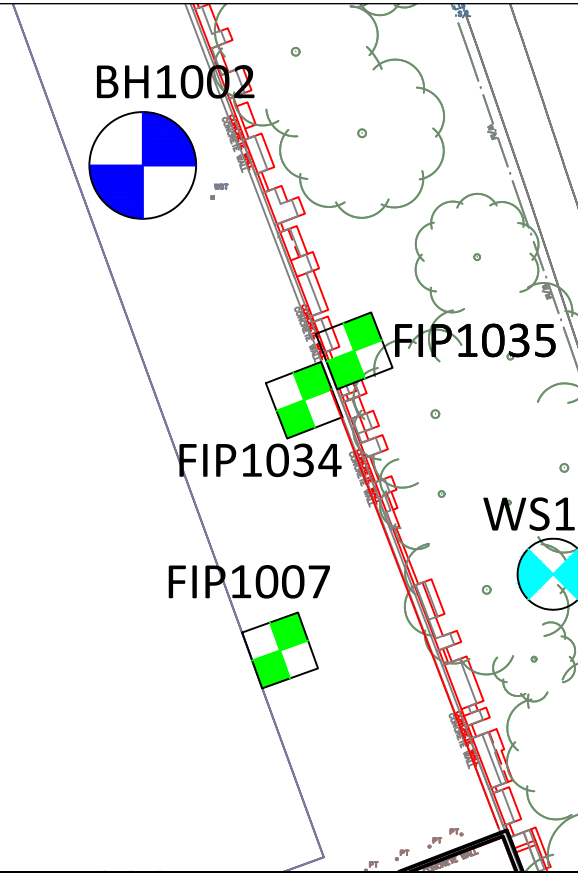
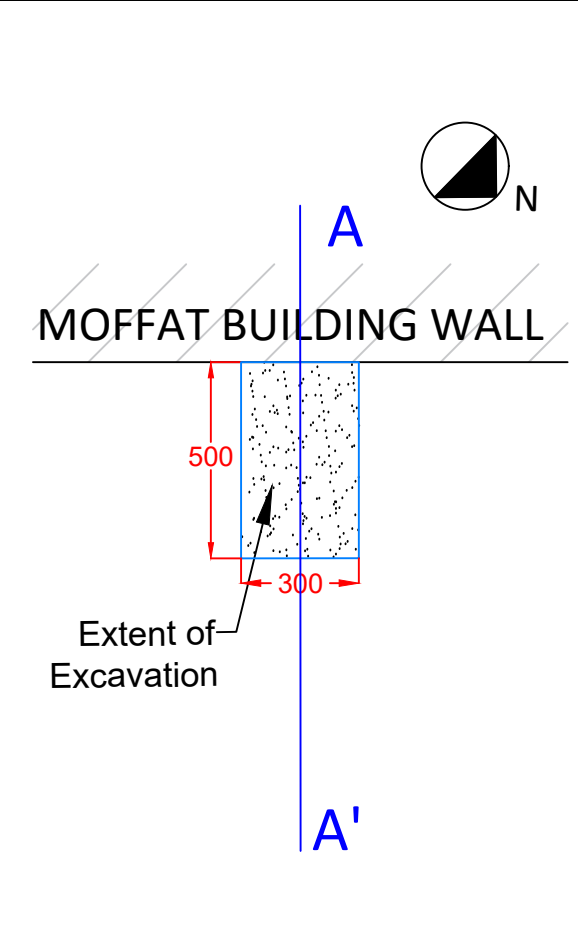
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FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	15/07/24	KP	HG
DRAWING No.			REV	
51019-CE-02-XX-D-G-2006			P01	



0.00 - 0.10 MBGL: MADE GROUND - Black macadam (80% fine to medium angular gravel, 15% bitumen, 5% voids).

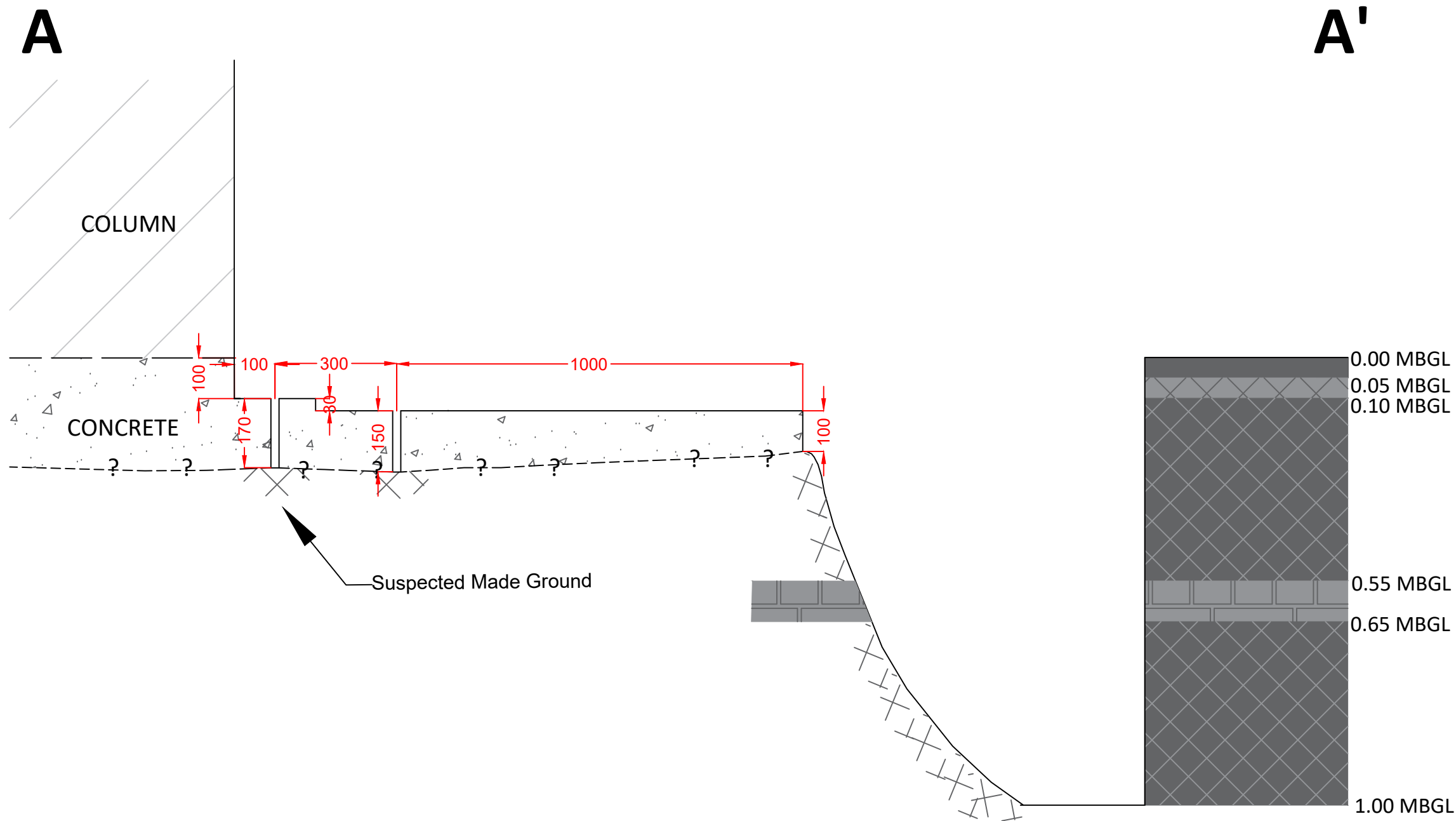
0.10 - 0.20 MBGL: MADE GROUND - Pale very weak concrete (75% fine to medium angular gravel, 24% cement, 1% voids).

0.20 - 1.10 MBGL: MADE GROUND - Grey brown mottled red and black slightly cobbly clayey very sandy gravel. Gravel is angular fine to coarse of brick, concrete and bituminous material. Cobbles are angular of red brick.



- 1. MBGL = metres below ground level
- 2. Trial pit terminated at 1.10mbgl at base of foundation
- 3. Trial pit backfilled with arisings and reinstated with tarmac
- 4. Dimensions of structures / foundations provided in mm unless otherwise stated

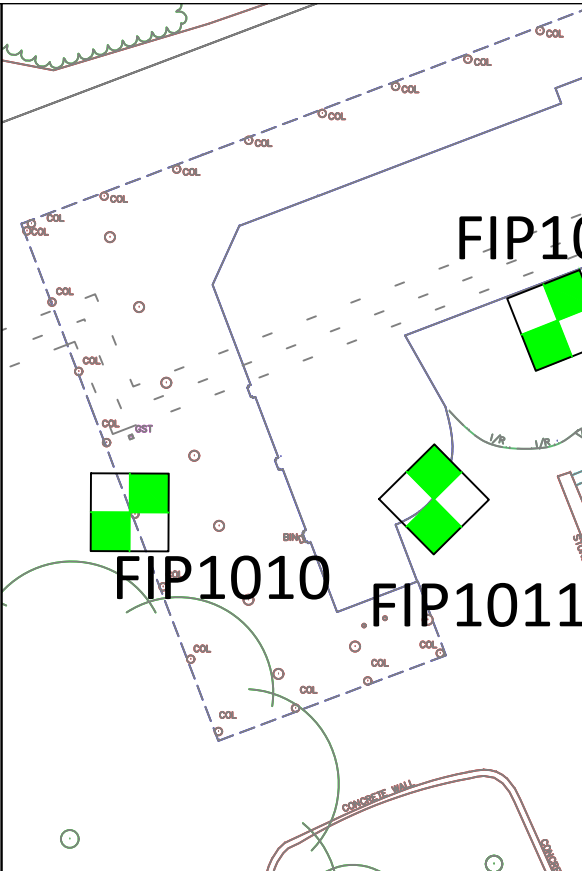
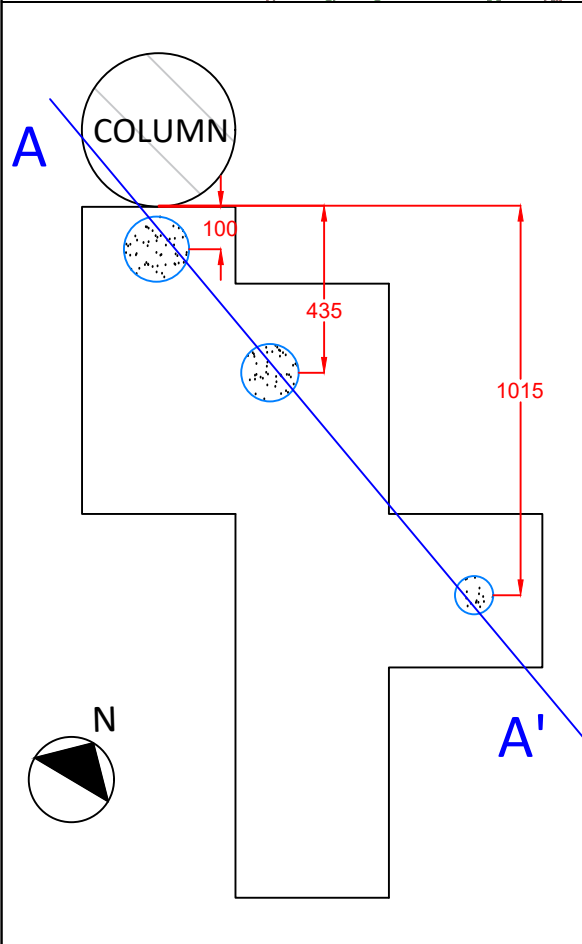
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DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	08/07/24	KIA	KP
DRAWING No.			REV	
51019-CE-02-XX-D-G-2007			P01	



0.00 - 0.05 MBGL: MADE GROUND - Paving slab.

0.05 - 0.10 MBGL: MADE GROUND - Yellow brown sandy gravel. Gravel is angular to subangular fine to coarse of dolomite. Sand is fine to coarse.

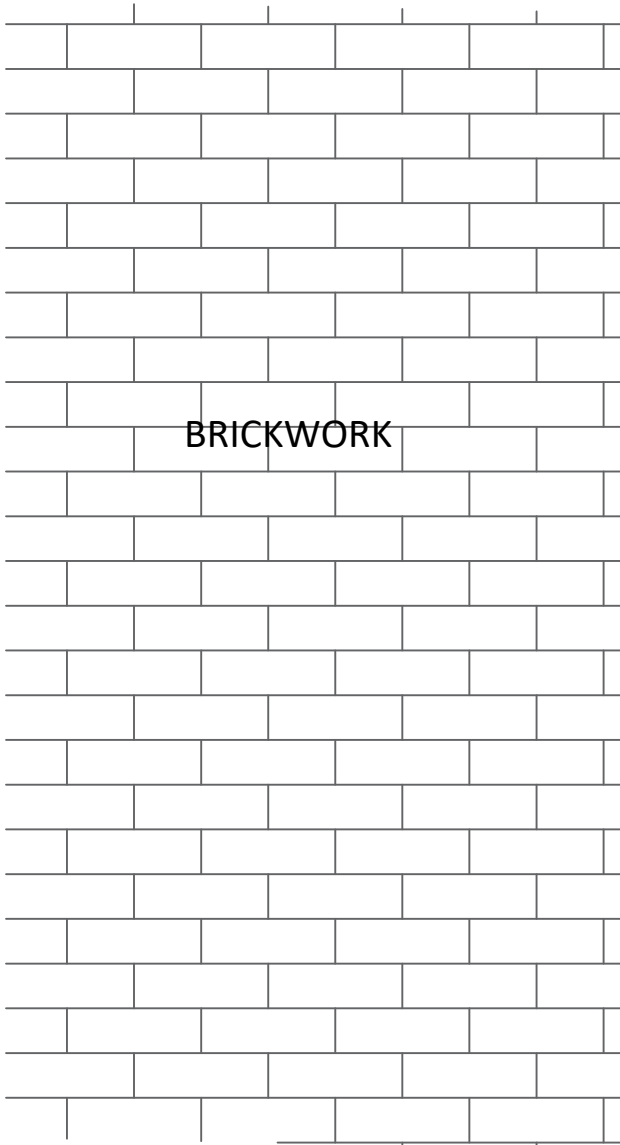
0.10 - 1.00 MBGL: MADE GROUND - Light brown slightly gravelly clayey sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, concrete and brick. Cobblestone fragments noted between 0.55mbgl and 0.65mbgl.



- 1. MBGL = metres below ground level
- 2. Trial pit terminated at 1.00mbgl due to obstruction
- 3. Trial pit backfilled with arisings and reinstated with tarmac
- 4. Dimensions of structures / foundations provided in mm unless otherwise stated

-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
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51019-CE-02-XX-D-G-2008			P01	

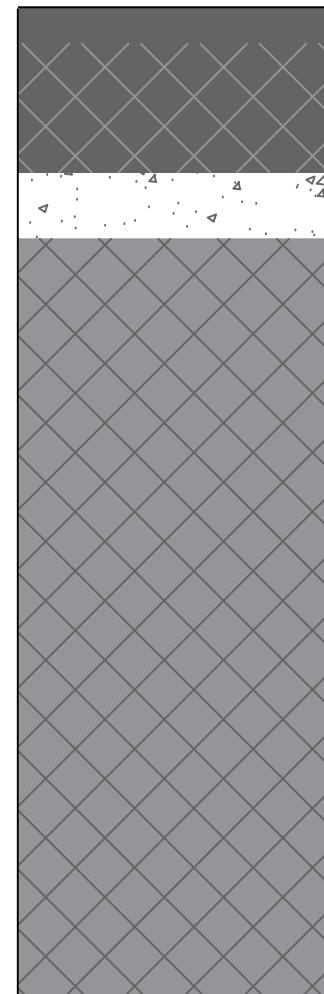
A



1500

MADE GROUND?

A'



0.00 MBGL

0.05 MBGL

0.25 MBGL

0.35 MBGL

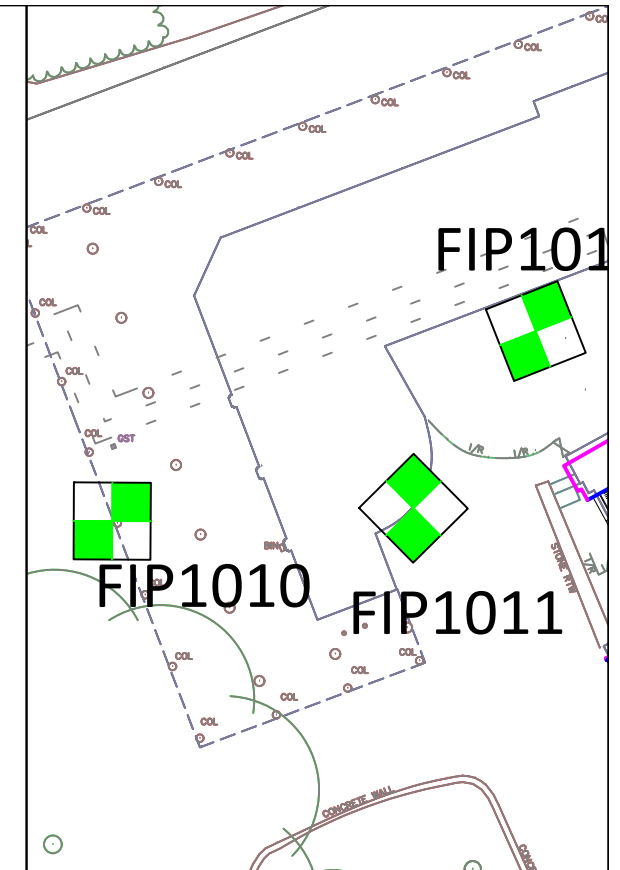
1.50 MBGL

0.00 - 0.05 MBGL: MADE GROUND - Paving slab.

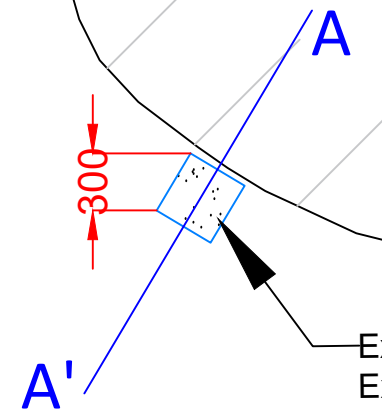
0.05 - 0.25 MBGL: MADE GROUND - Reddish brown sand. Sand is fine to coarse.

0.25 - 0.35 MBGL: MADE GROUND - Concrete.

0.35 - 1.5 MBGL: MADE GROUND - Dark brown slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of brick and concrete. Sand is fine to coarse.



MMP WALL



1. MBGL = metres below ground level
2. Trial pit terminated at 1.50mbgl at maximum excavation depth
3. Trial pit backfilled with arisings and reinstated with tarmac
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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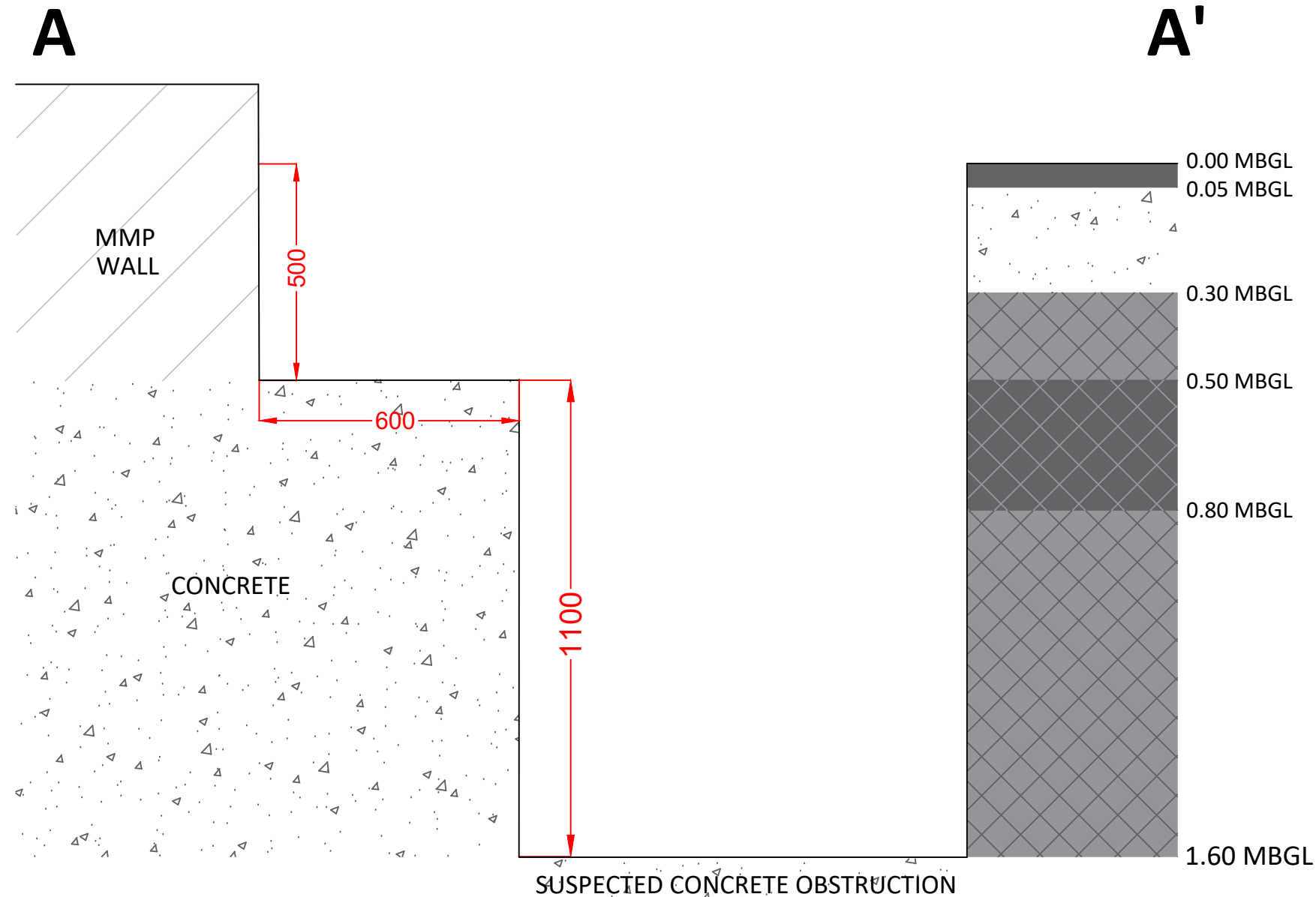
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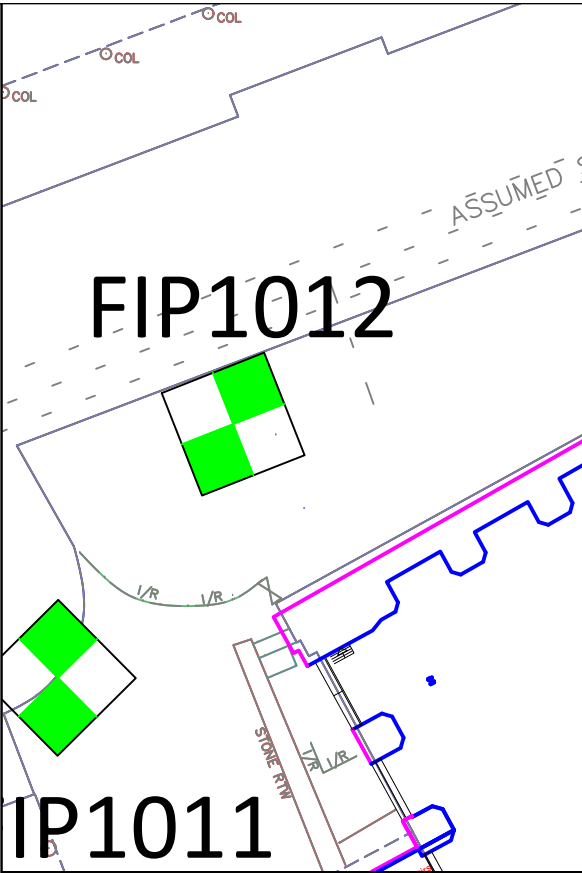
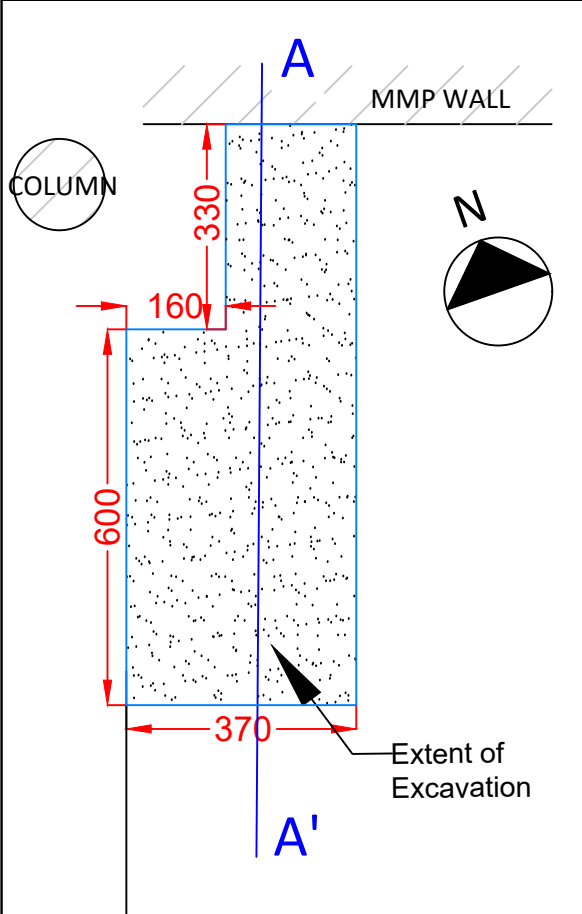
PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1011

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FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	05/07/24	KIA	KP
DRAWING No.				REV
51019-CE-02-XX-D-G-2009				P01

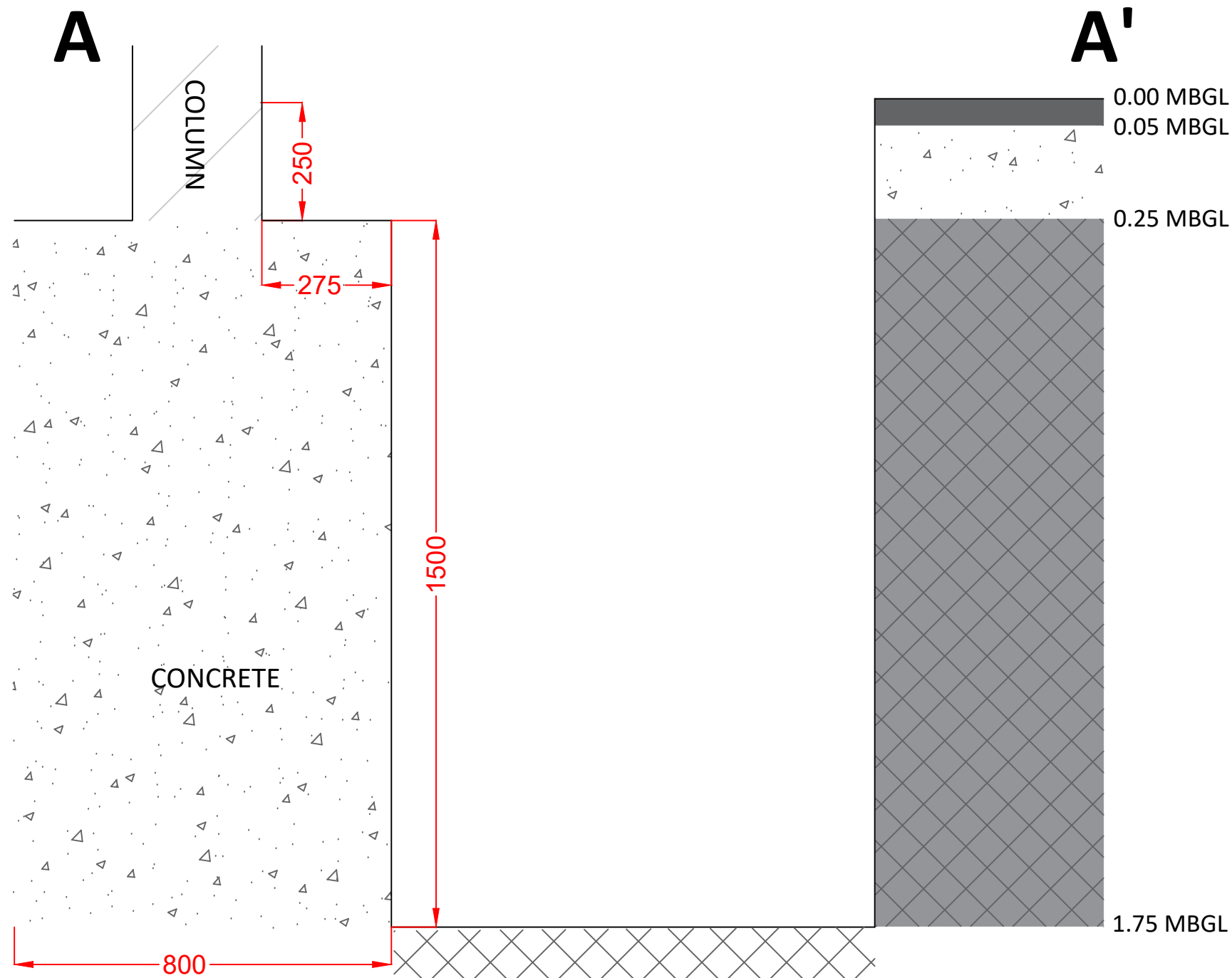


- 0.00 - 0.05 MBGL: MADE GROUND** - Paving slab.
- 0.05 - 0.30 MBGL: MADE GROUND** - Concrete.
- 0.30 - 0.50 MBGL: MADE GROUND** - Reddish brown slightly sandy cobbly gravel. Gravel is angular of brick. Cobbles are angular of brick. Sand is fine to coarse.
- 0.50 - 0.80 MBGL: MADE GROUND** - Reddish brown slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of brick. Sand is fine to coarse.
- 0.80 - 1.60 MBGL: MADE GROUND** - Reddish brown sand. Sand is fine to coarse.



1. MBGL = metres below ground level
2. Trial pit terminated at 1.60mbgl at maximum excavation depth
3. Trial pit backfilled with arisings and reinstated with tarmac
4. Dimensions of structures / foundations provided in mm unless otherwise stated

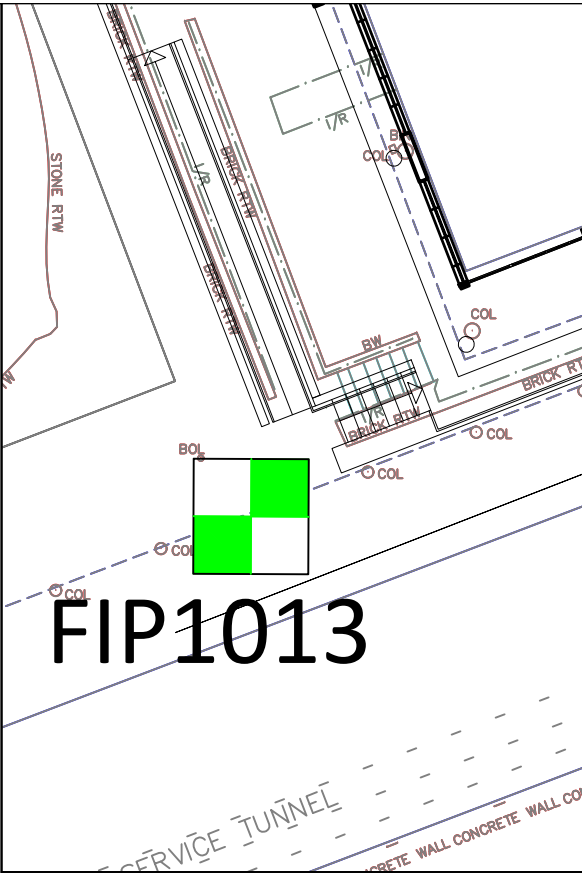
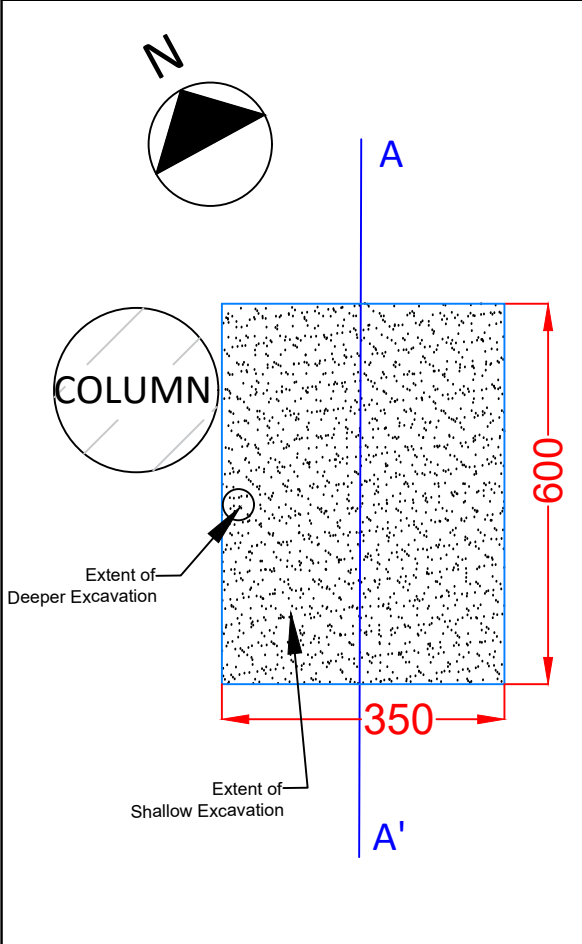
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FOR INFORMATION			-	
CE PROJECT NO.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	04/07/24	KIA	KP
DRAWING No.				REV
51019-CE-02-XX-D-G-2010				P01



0.00 - 0.05 MBGL: MADE GROUND - Paving slab/Tarmac.

0.05 - 0.25 MBGL: MADE GROUND - Concrete.

0.25 - 1.75 MBGL: MADE GROUND - Dark brown slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of brick and concrete. Sand is fine to coarse.



1. MBGL = metres below ground level

2. Trial pit terminated at 1.75mbgl at maximum excavation depth

3. Trial pit backfilled with arisings and reinstated with tarmac

4. Dimensions of structures / foundations provided in mm unless otherwise stated

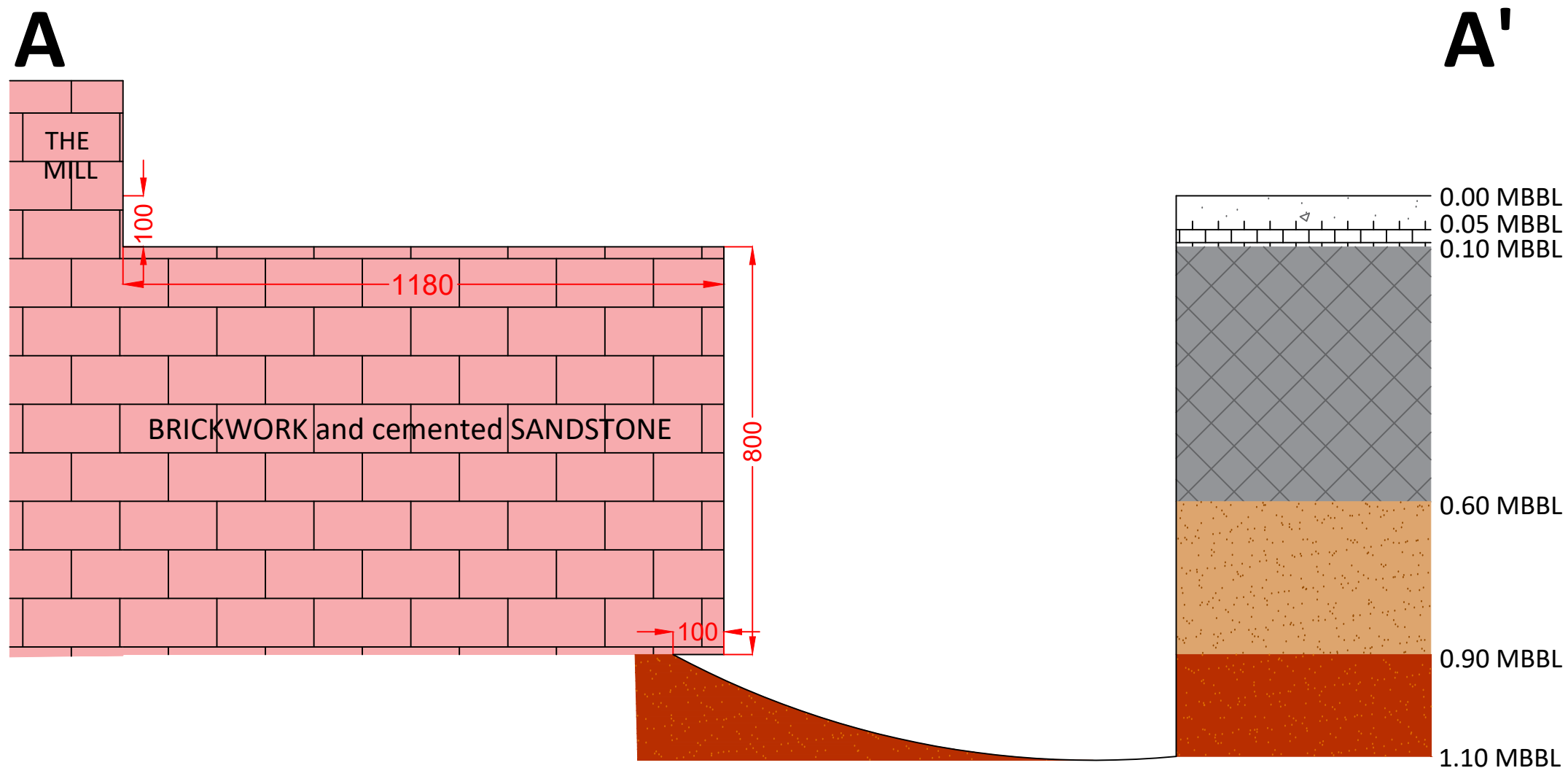
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PROJECT ID Manchester Masterplan Area	DRAWING STATUS				STATUS CODE
	FOR INFORMATION				
	CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
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TITLE Foundation Inspection Pit FIP1013	DRAWING No. 51019-CE-02-XX-D-G-2011				REV P01



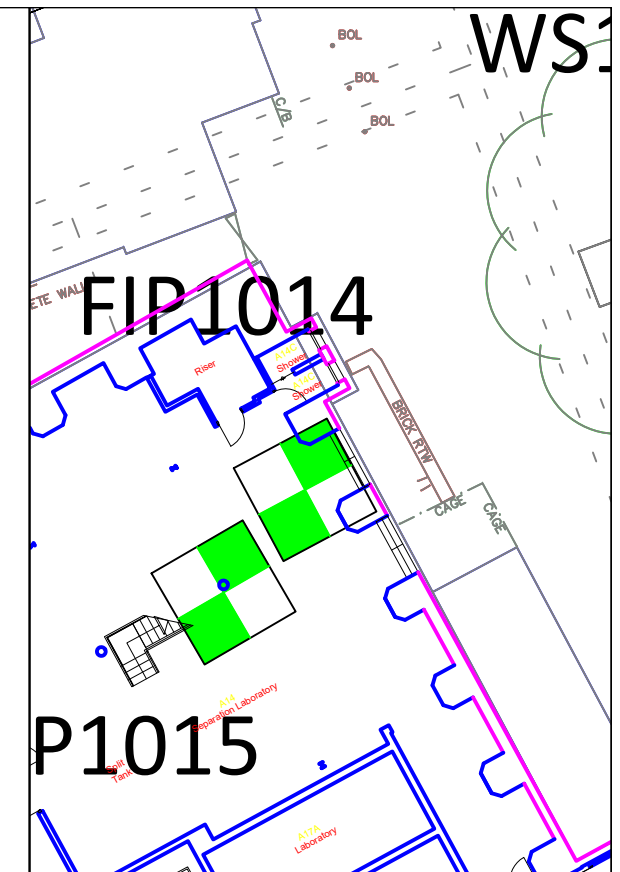
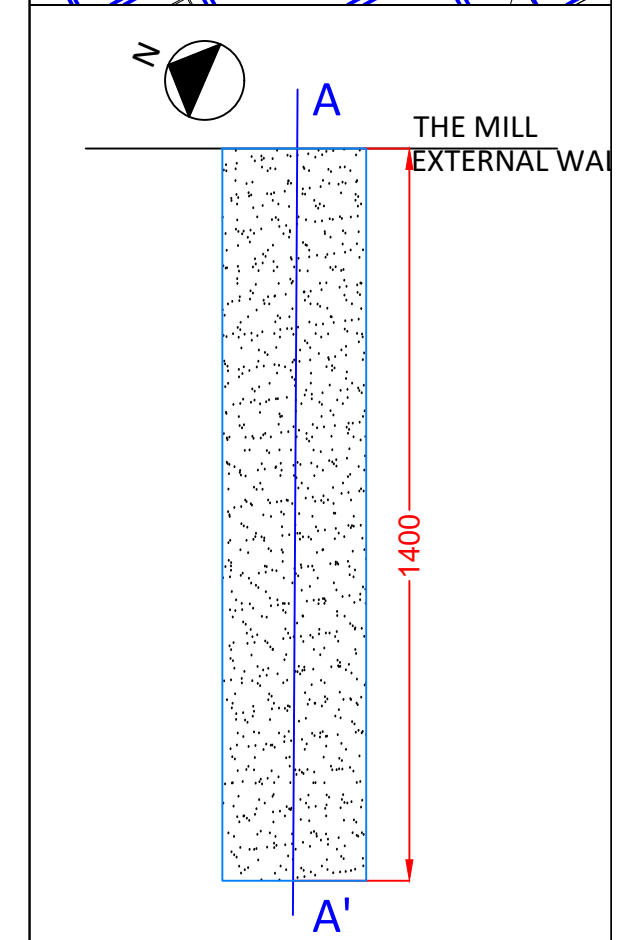
0.00 - 0.05 MBGL: MADE GROUND - Concrete.

0.05- 0.10 MBGL: MADE GROUND - Brickwork.

0.10 - 0.60 MBGL: MADE GROUND - Dark brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick and stone.

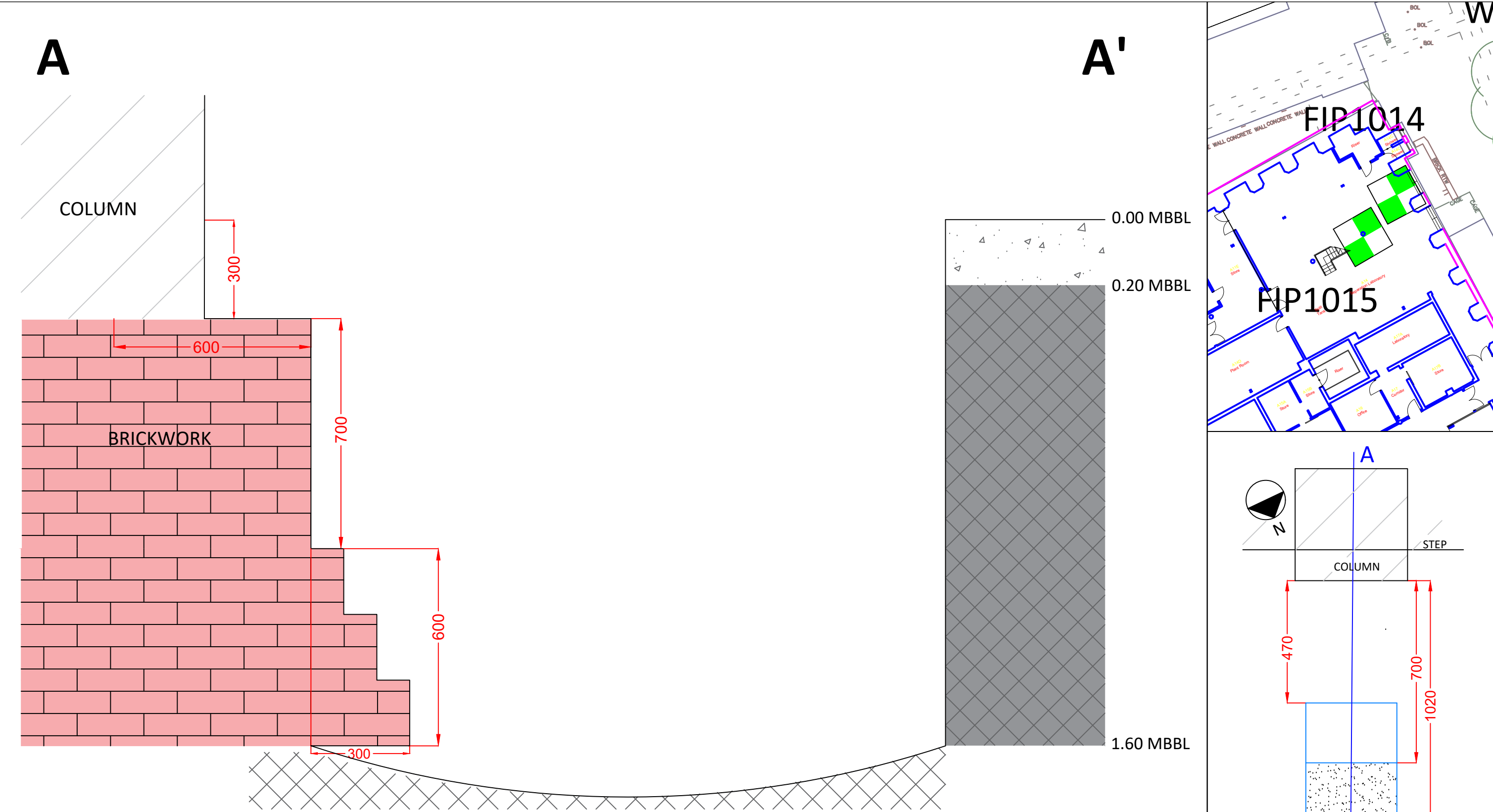
0.60 - 0.90 MBGL: ALLUVIUM - Light brown gravelly SAND. Sand is fine to coarse. Gravel is coarse of sandstone and siltstone.

0.90 - 1.10 MBGL: WEATHERED CHESTER FORMATION - Reddish brown gravelly SAND. Sand is fine to coarse. Gravel is angular fine to coarse of sandstone.



1. MBBL = metres below basement level
2. Trial pit terminated at 1.1mbgl following exposure of base of foundation
3. Trial pit backfilled with arisings and reinstated with tarmac
4. Dimensions of structures / foundations provided in mm unless otherwise stated

-	-	-	-	-
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FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
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DRAWING No.				REV
51019-CE-02-XX-D-G-2012				P01



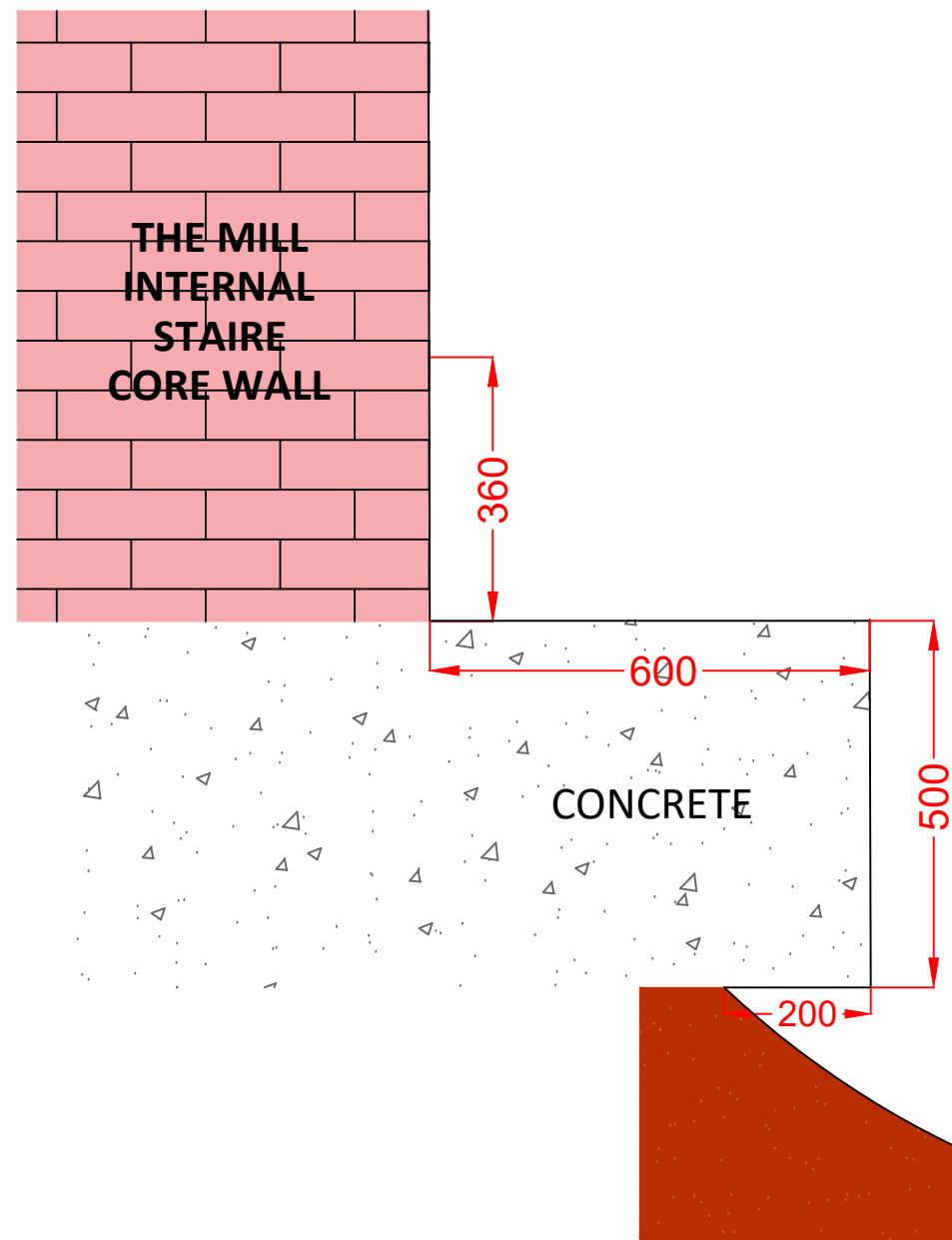
0.00 - 0.20 MBBL: MADE GROUND - Concrete.

0.20 - 1.60 MBBL: MADE GROUND - Dark brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick and sandstone.

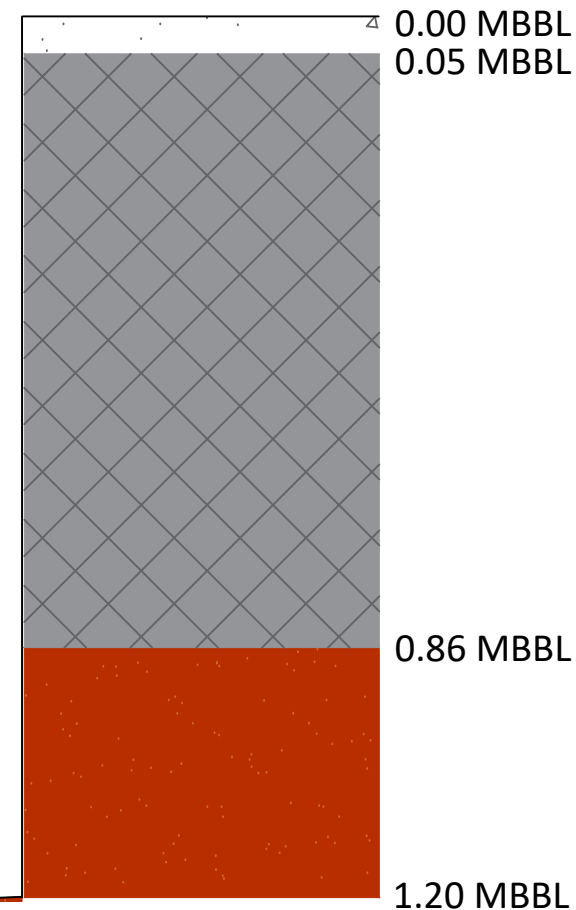
- 1. MBBL = metres below basement level
- 2. Trial pit terminated at 1.60mbgl at maximum excavation depth
- 3. Trial pit backfilled with arisings
- 4. Dimensions of structures / foundations provided in mm unless otherwise stated

-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
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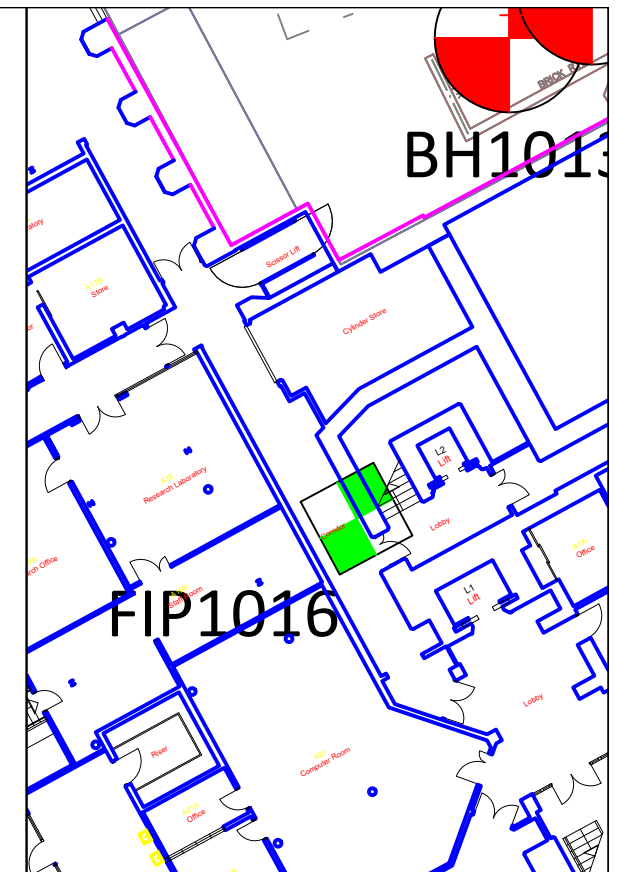
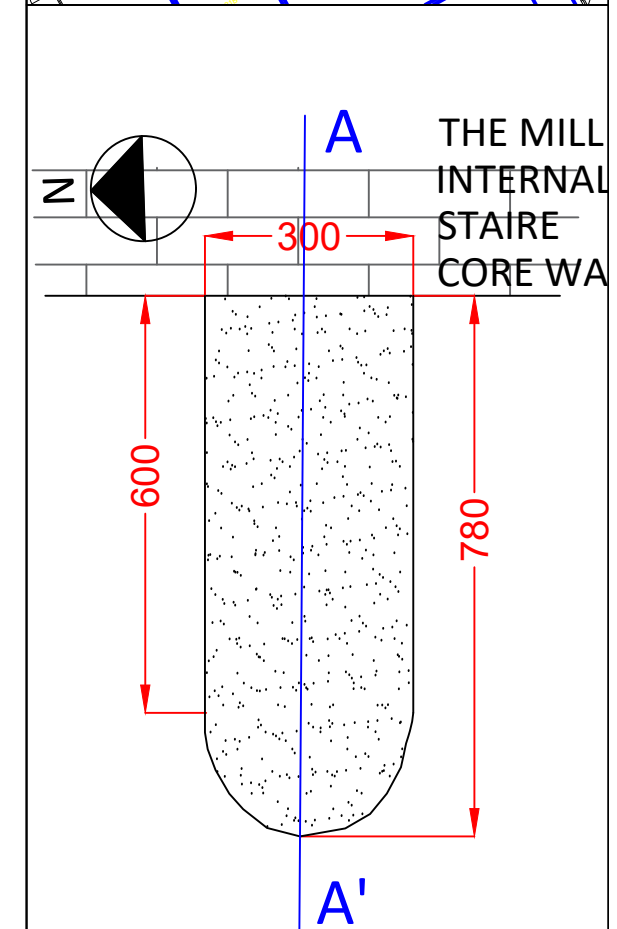
A'



0.00 - 0.05 MBBL: MADE GROUND - Concrete.

0.05 - 0.86 MBBL: MADE GROUND - Reddish brown cobbly sandy gravel. Gravel is angular fine to coarse of brick and concrete. Sand is fine to coarse. Cobbles are angular of brick and concrete.

0.86 - 1.20 MBBL: WEATHERED CHESTER FORMATION - Reddish brown slightly gravelly SAND. Sand is fine to coarse. Gravel is angular fine to coarse of sandstone.



1. MBBL = metres below basement level
2. Trial pit terminated at 1.20mbgl following exposure of base of foundation
3. Trial pit backfilled with arisings
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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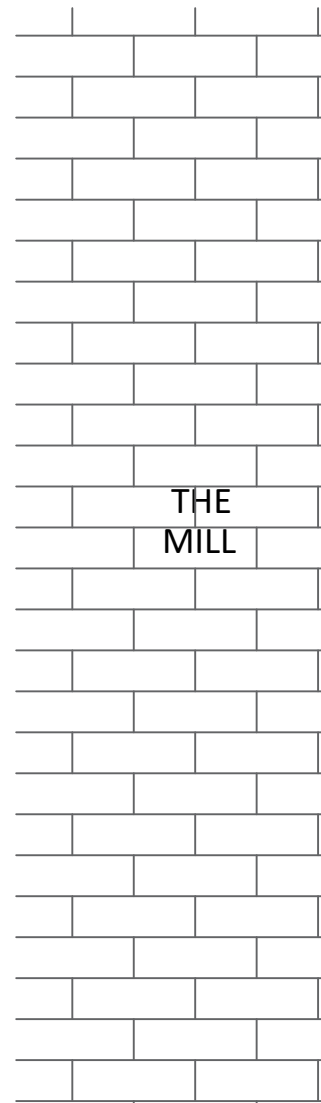
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ID Manchester
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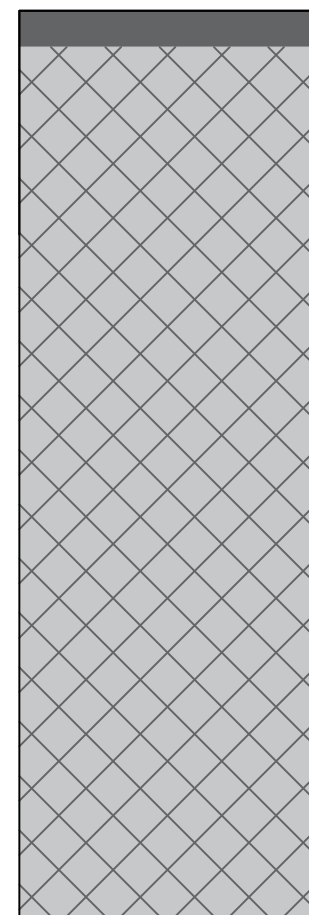
TITLE
Foundation Inspection Pit
FIP1016

DATE	REV	DESCRIPTION	DRAWN	CHKD
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DRAWING STATUS FOR INFORMATION				STATUS CODE -
CE PROJECT No. 51019-02	SCALE @ A3 NTS	DATE CREATED 03/07/24	DRAWN KIA	CHECKED KP
DRAWING No. 51019-CE-02-XX-D-G-2014				REV P01

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A'

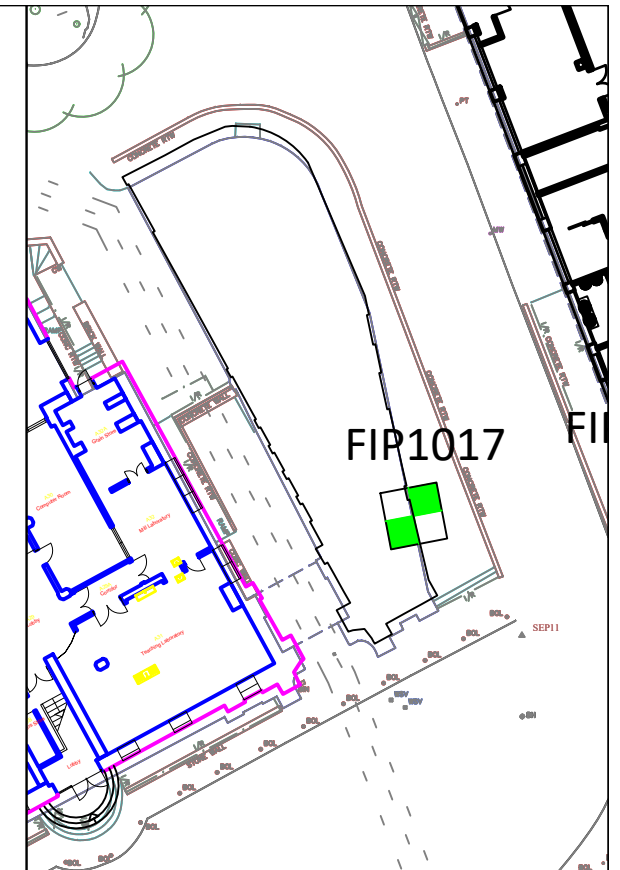
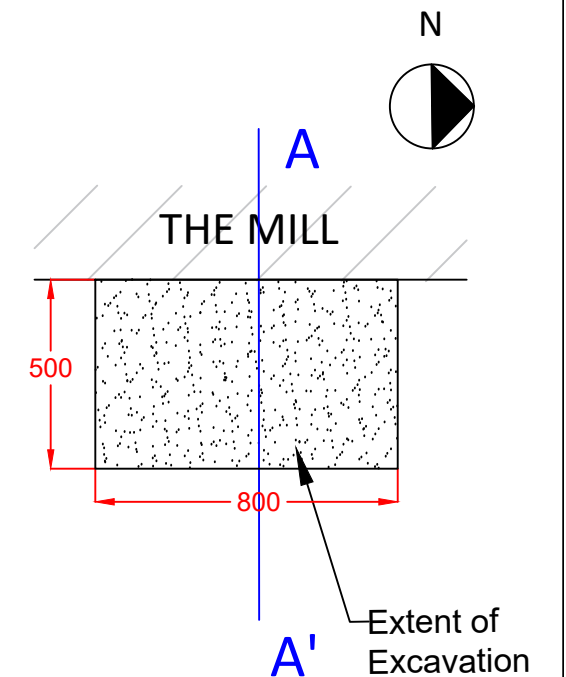


0.00 MBGL
0.06 MBGL

1.50 MBGL

0.00 - 0.06 MBGL: MADE GROUND - Tarmac.

0.06 - 1.50 MBGL: MADE GROUND - Medium dense dark grey black gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick, limestone, concrete and asphalt. Rare fragments of degraded plastic noted. Occasional subangular cobbles of brick and limestone. Becoming very cobbly on south face of pit from 0.70mbgl. 20mm diameter pipe noted at 0.65mbgl.



1. MBGL = metres below ground level
 2. Trial pit terminated at 1.50mbgl at maximum excavation depth
 3. No groundwater encountered
 4. Trial pit backfilled with arisings and reinstated with tarmac
 5. Dimensions of structures / foundations provided in mm unless otherwise stated
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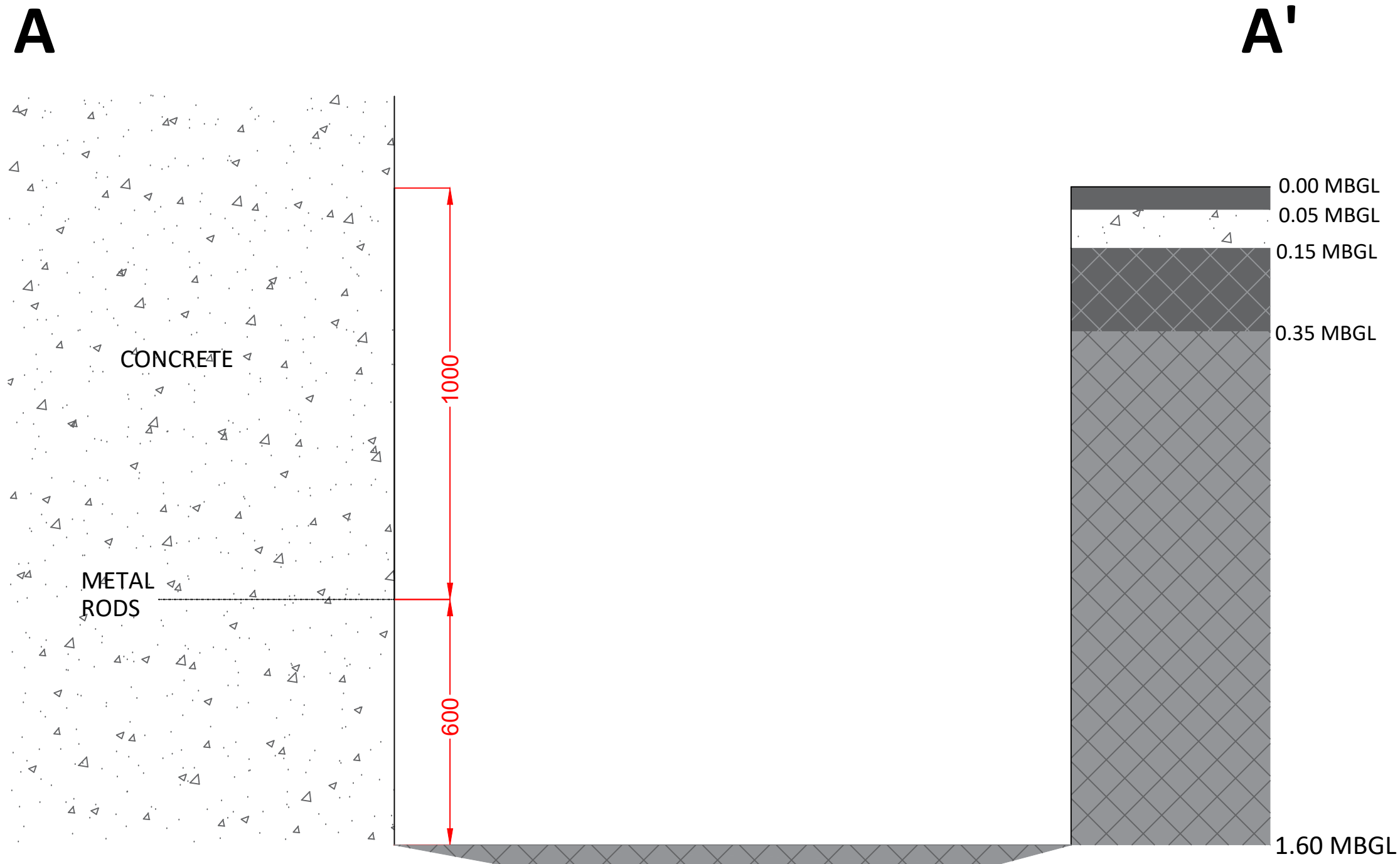
6. Densities based on Engineer's observations

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TITLE
Foundation Inspection Pit
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-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	24/04/24	KP	HG
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51019-CE-02-XX-D-G-2015				P01

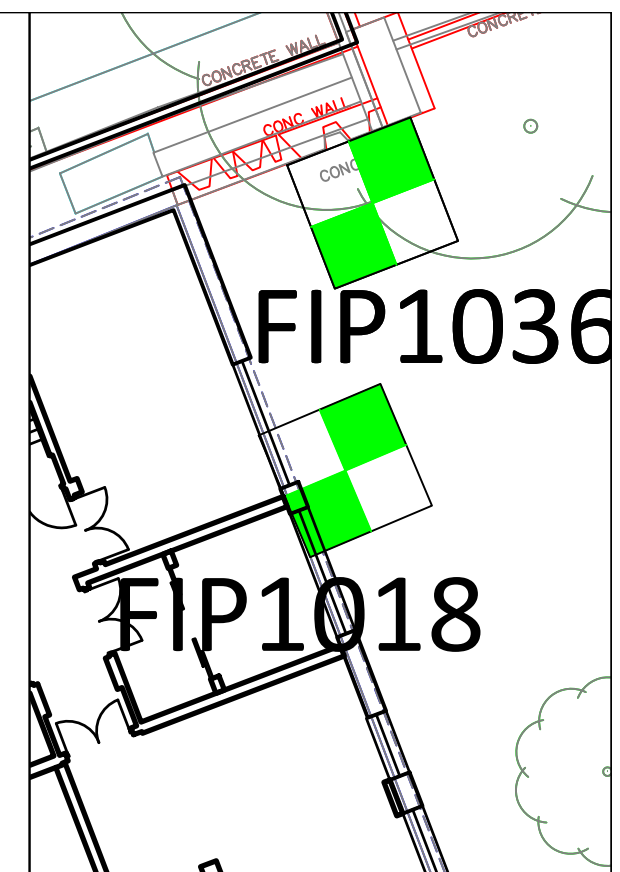
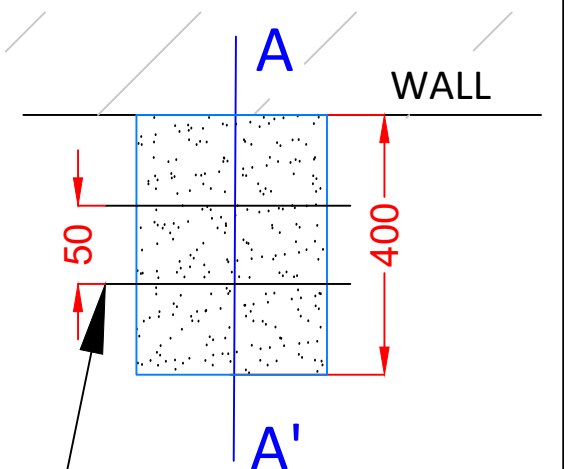


0.00 - 0.05 MBGL: MADE GROUND - Concrete paving slab.

0.05 - 0.15 MBGL: MADE GROUND - Pale very weak cement. 75% fine to medium sand.

0.15 - 0.35 MBGL: MADE GROUND - Brownish yellow sandy gravel. Gravel is subangular to angular medium of limestone.

0.35 - 1.60 MBGL: MADE GROUND - Brown slightly cobbly sandy gravelly clay. Gravel is fine to coarse subangular to angular of concrete and brick. Sand is fine to coarse. Cobbles are angular of red brick.



Metal rods at 1mbgl

1. MBGL = metres below ground level
2. Trial pit terminated at 1.60mbgl at maximum excavation depth
3. Trial pit backfilled with arisings
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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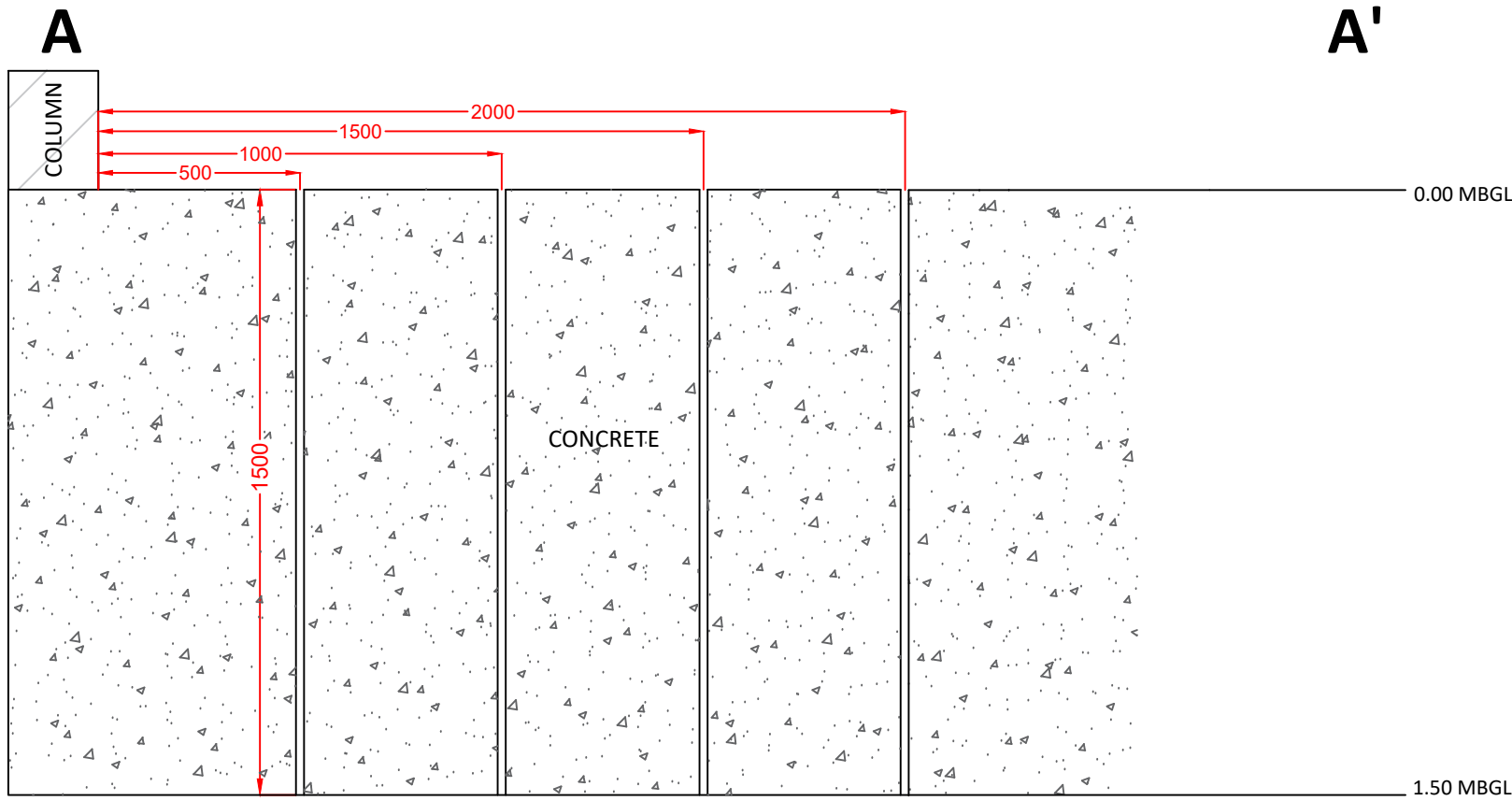
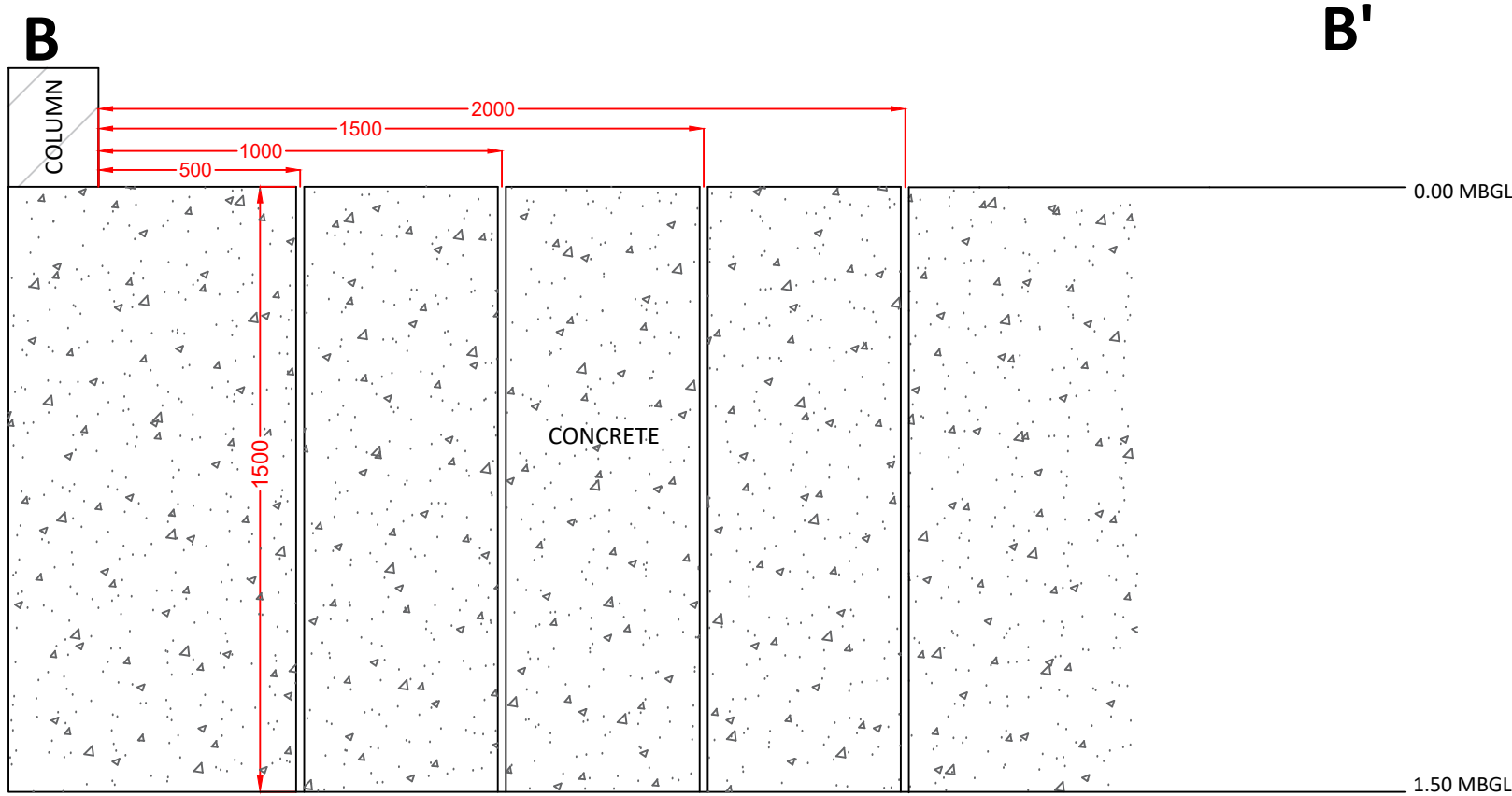
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PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1018

-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	15/07/24	KIA	KP
DRAWING No.			REV	
51019-CE-02-XX-D-G-2016			P01	



0.00 - 1.50 MBGL: MADE GROUND - Concrete.

1. MBGL = metres below ground level
2. Trial pit terminated at 1.50mbgl at the maximum pilot hole depth
3. Pilot holes reinstated with concrete
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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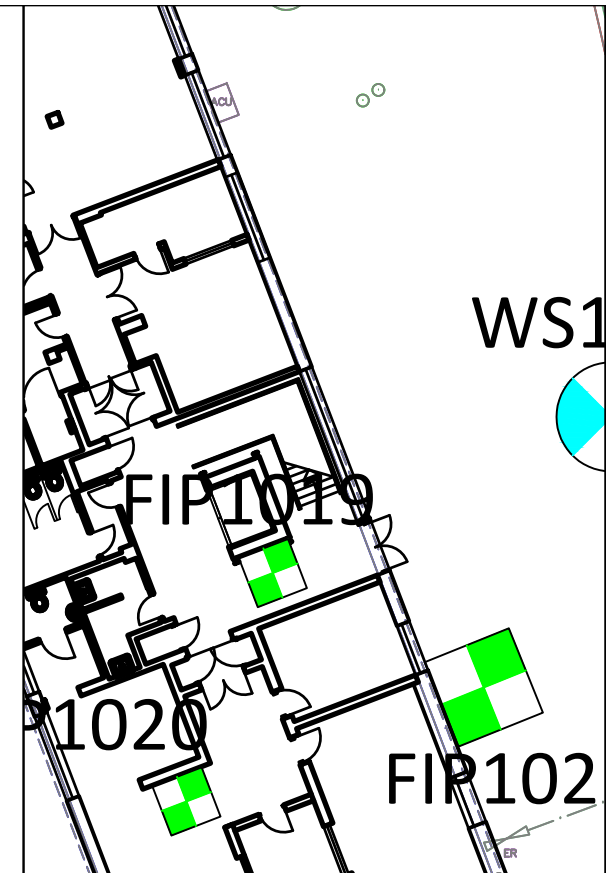
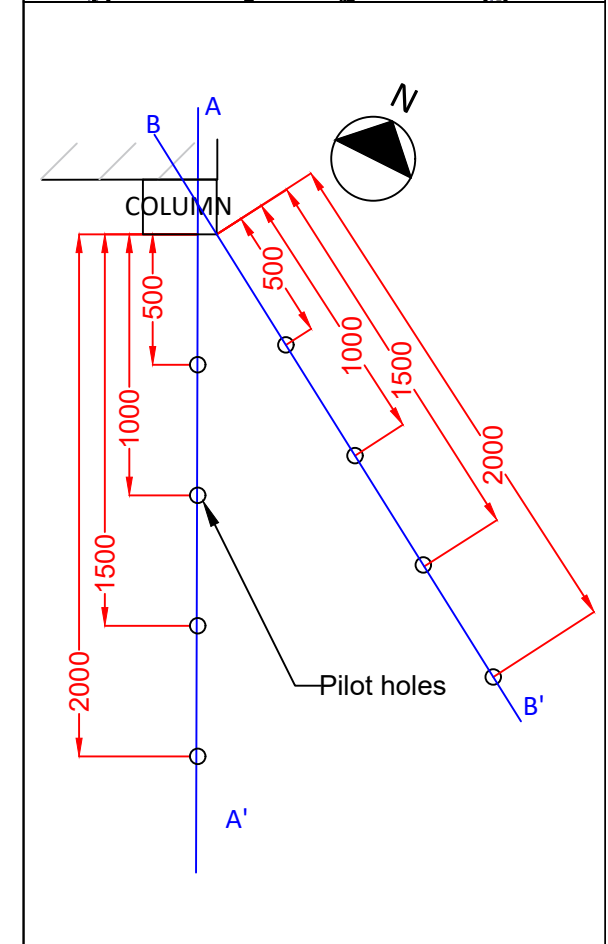
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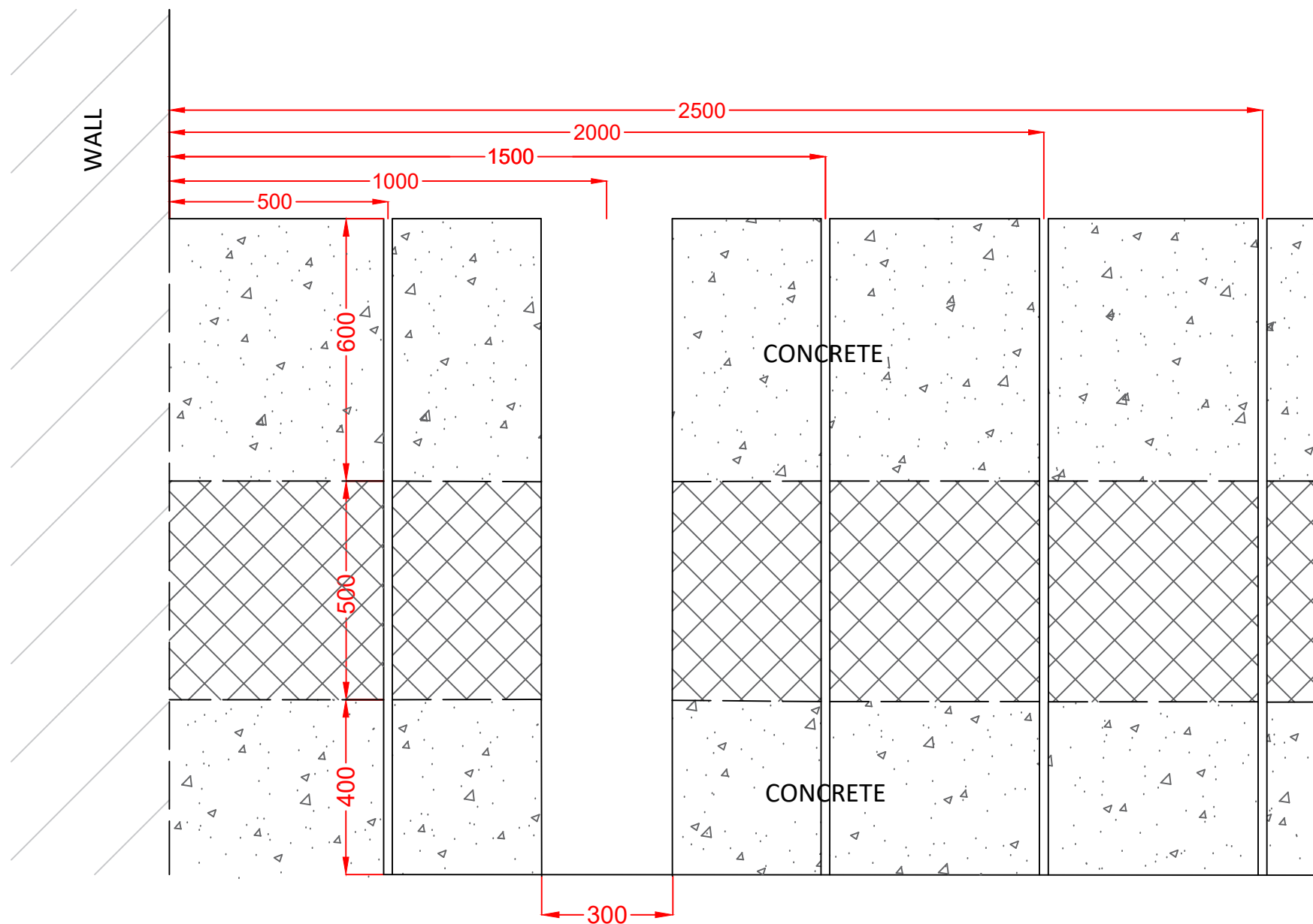
PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1019

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FOR INFORMATION			-	
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51019-02	NTS	15/07/24	KIA	KP
DRAWING No.				REV
51019-CE-02-XX-D-G-2017				P01



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0.00 - 0.60 MBGL: MADE GROUND - Concrete.

0.60 - 0.90 MBGL: MADE GROUND - Dark brown slightly sandy gravelly clay. Gravel is angular to subangular fine to coarse of brick and concrete. Sand is fine to coarse.

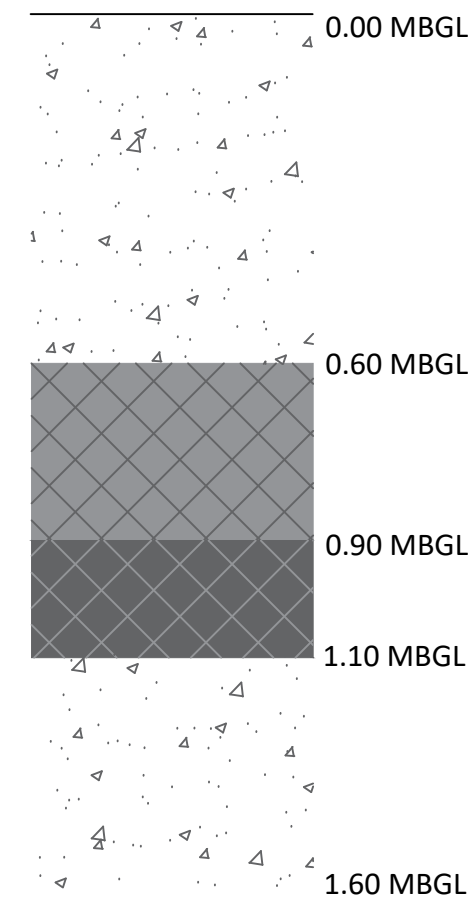
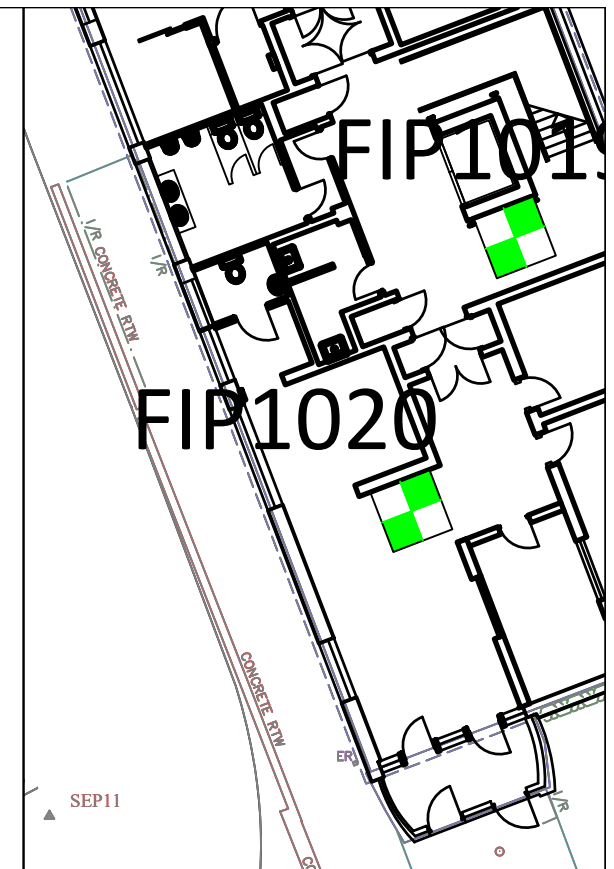
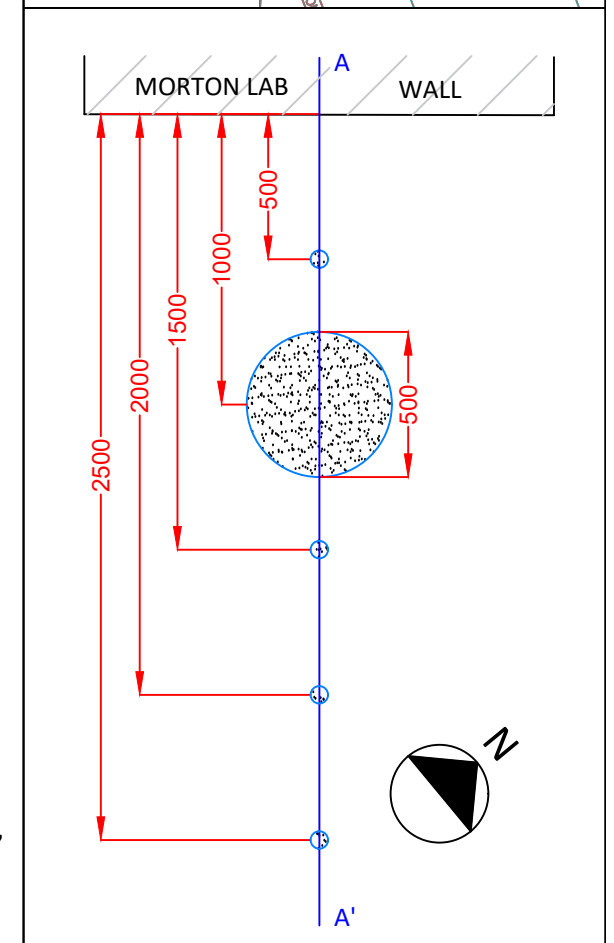
0.90- 1.10 MBGL: MADE GROUND - Dark brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick, and sandstone.

1.10- 1.60 MBGL: MADE GROUND - Concrete

1. MBGL = metres below ground level
2. Trial pit terminated at 1.60mbgl at maximum excavation depth
3. Trial pit backfilled with arisings
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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A'



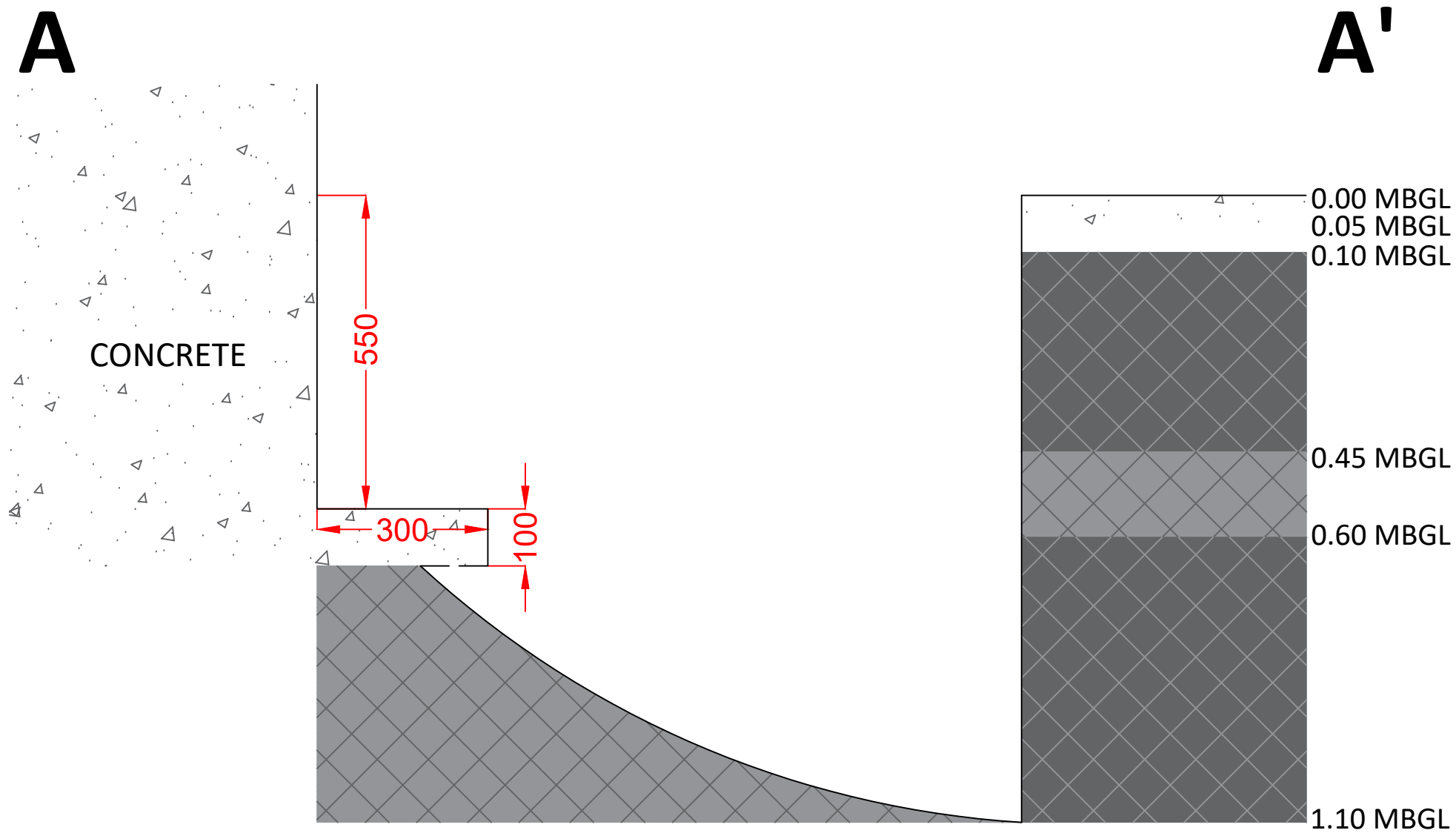
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51019-02	NTS	03/07/24	KIA	KP
DRAWING No.			REV	
51019-CE-02-XX-D-G-2018			P01	

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TITLE
Foundation Inspection Pit
FIP1020



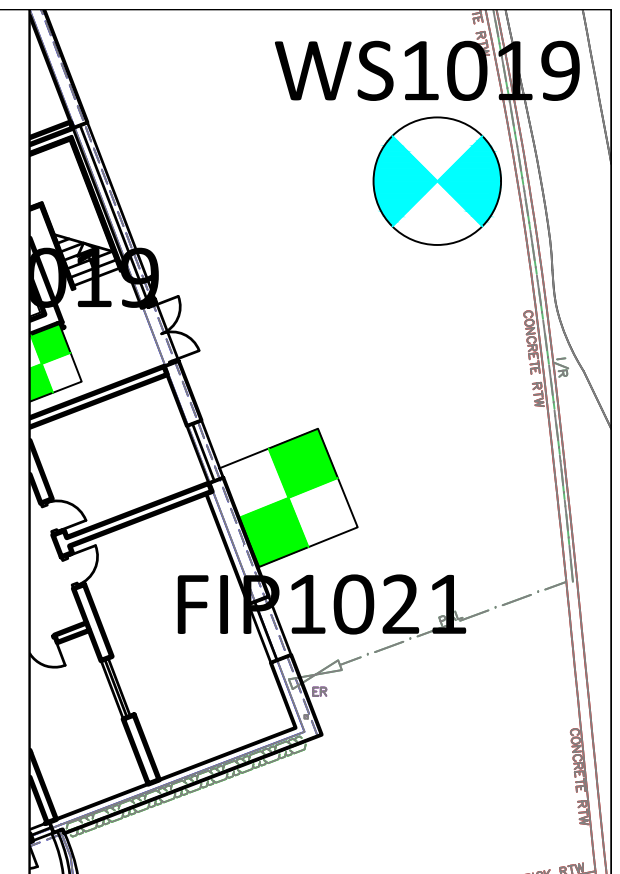
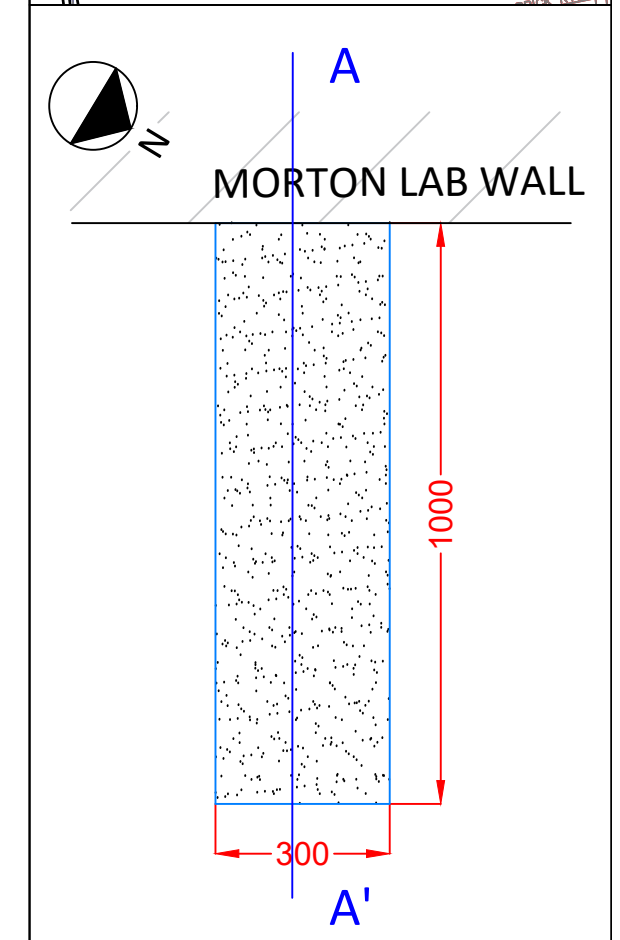
0.00 - 0.05 MBGL: MADE GROUND - Concrete paving slab.

0.05 - 0.10 MBGL: MADE GROUND - Pale very weak cement (75% fine to medium sand).

0.10 - 0.45 MBGL: MADE GROUND - Brown yellow slightly sandy gravel. Gravel is angular medium to coarse of limestone.

0.45 - 0.60 MBGL: MADE GROUND - Dark grey mottled red clayey gravelly sand. Sand is fine to coarse. Gravel is fine to coarse angular of concrete and brick.

0.60 - 1.10 MBGL: MADE GROUND - Brown very sandy clay with occasional red house bricks. Sand is fine to coarse.



1. MBGL = metres below ground level
2. Trial pit terminated at 1.10mbgl following exposure of base of foundation
3. Trial pit backfilled with arisings and reinstated with tarmac
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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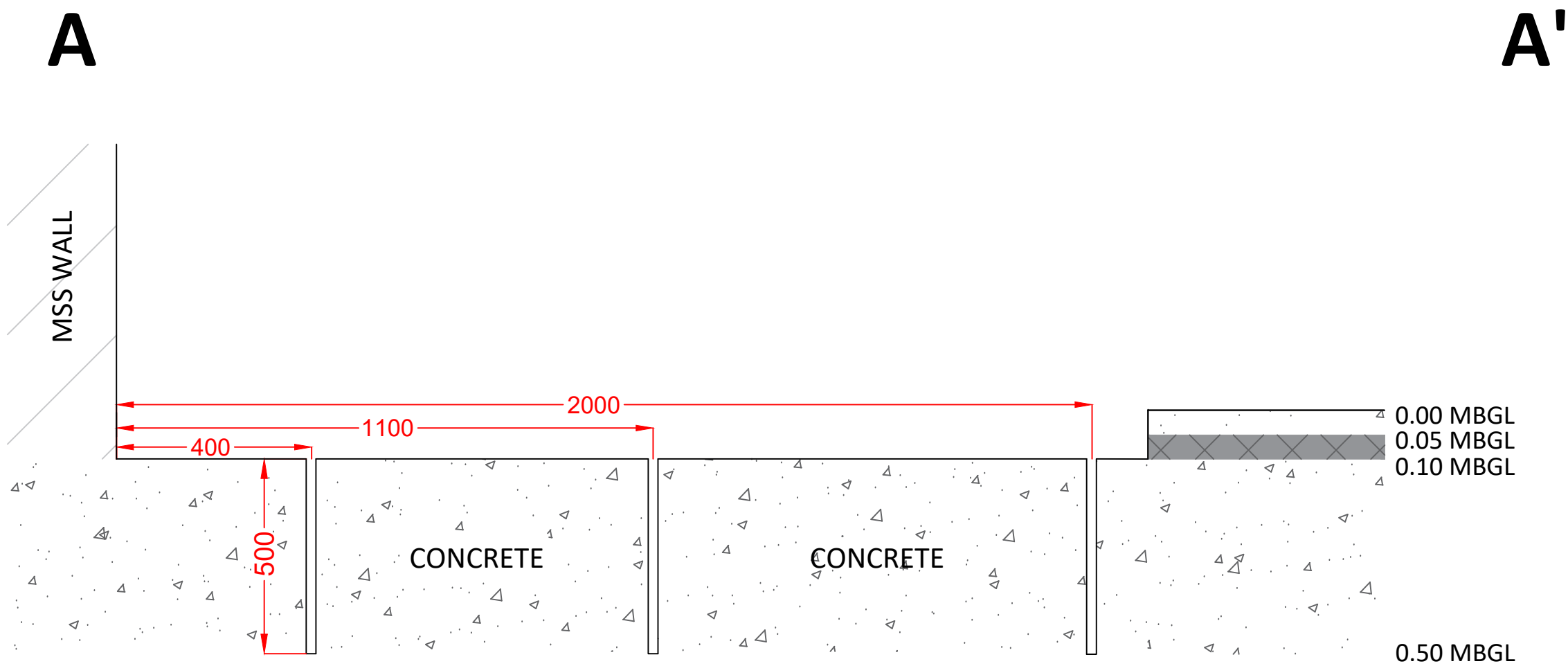
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PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1021

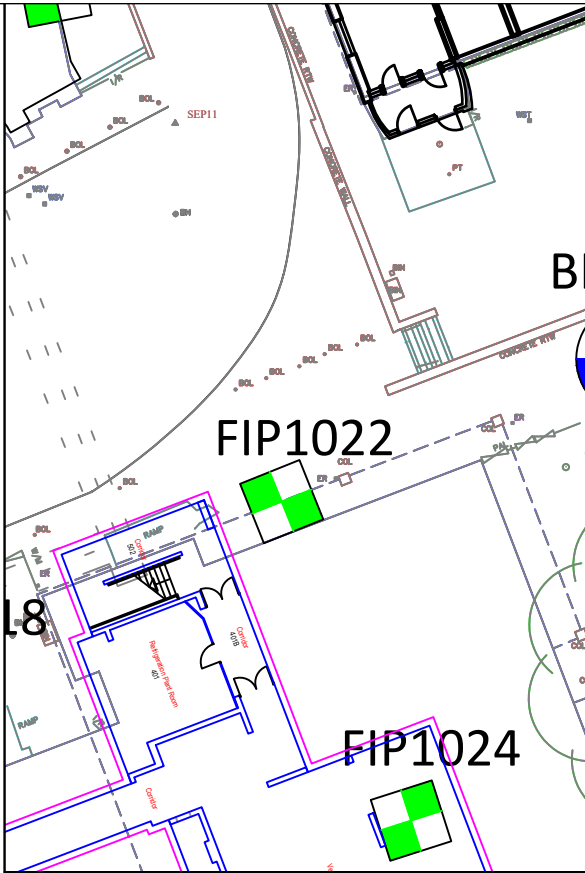
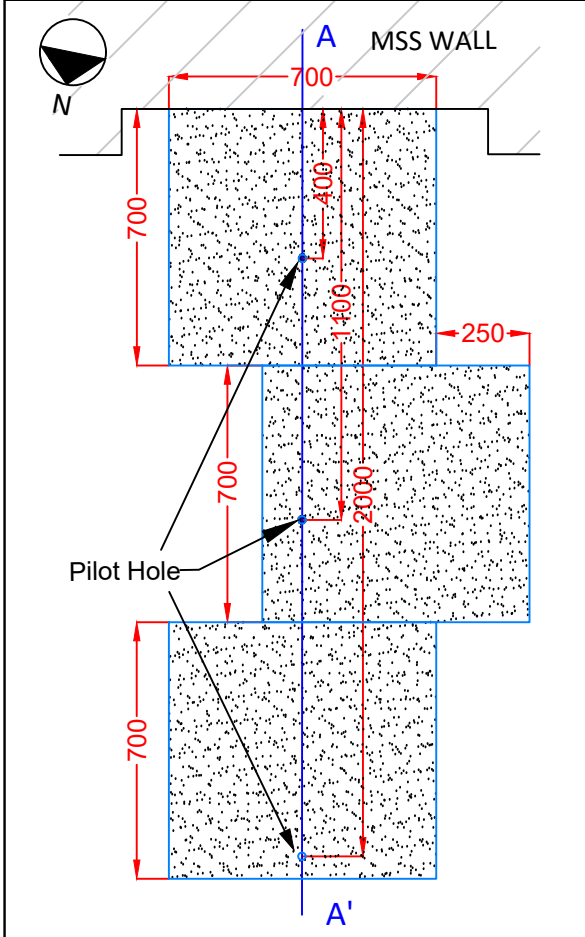
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51019-02	NTS	05/07/24	KIA	KP
DRAWING No.				REV
51019-CE-02-XX-D-G-2019				P01



0.00 - 0.05 MBGL: MADE GROUND - Paving slab.

0.05 - 0.10 MBGL: MADE GROUND - Reddish brown sand. Sand is fine to coarse.

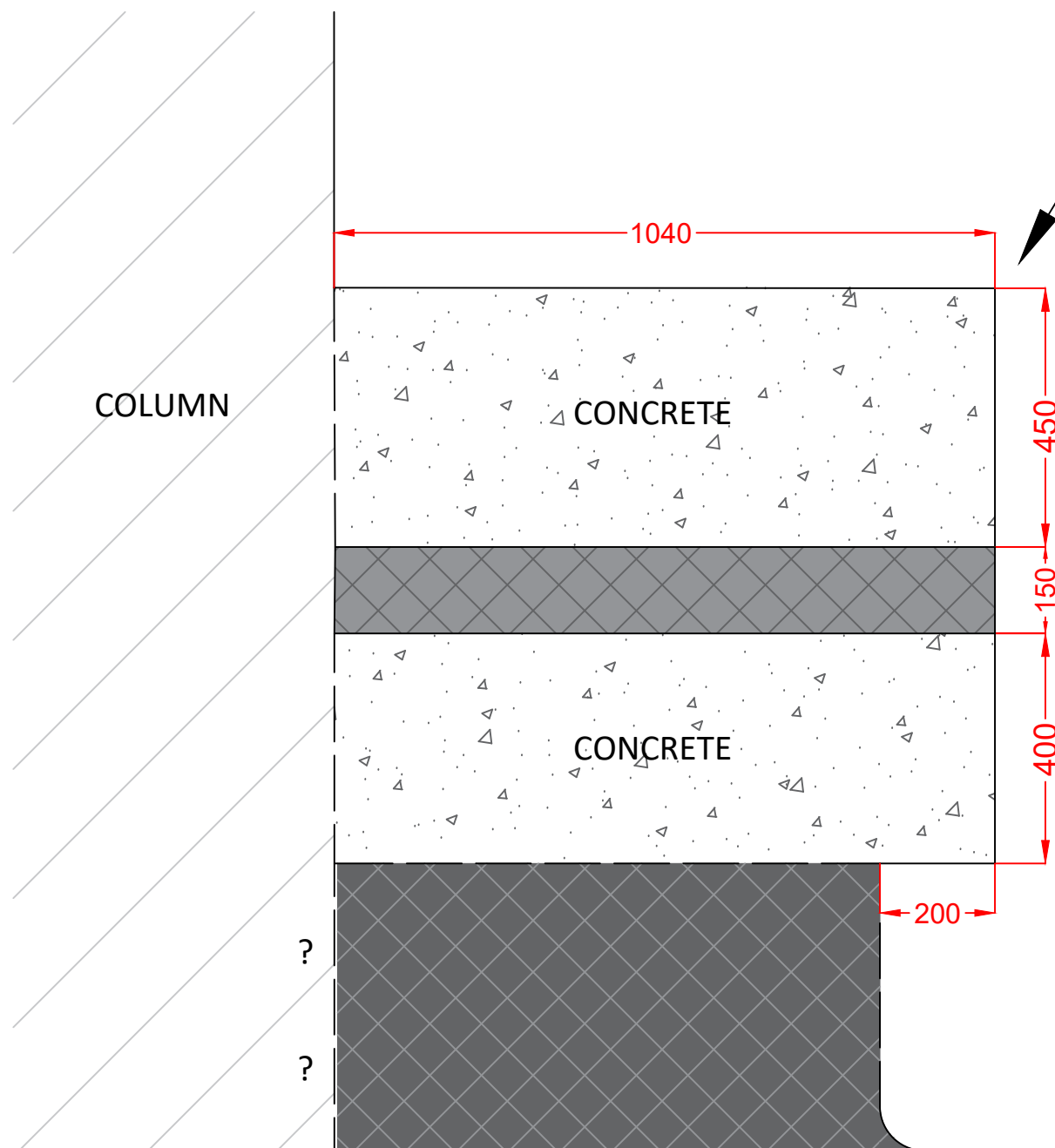
0.10- 0.50 MBGL: MADE GROUND - Concrete.



- 1. MBGL = metres below ground level
- 2. Trial pit terminated at 0.5mbgl. Unable to progress to deeper depth due to strength of concrete and dust generation within pilot hole
- 3. Pilot holes reinstated with concrete
- 4. Dimensions of structures / foundations provided in mm unless otherwise stated

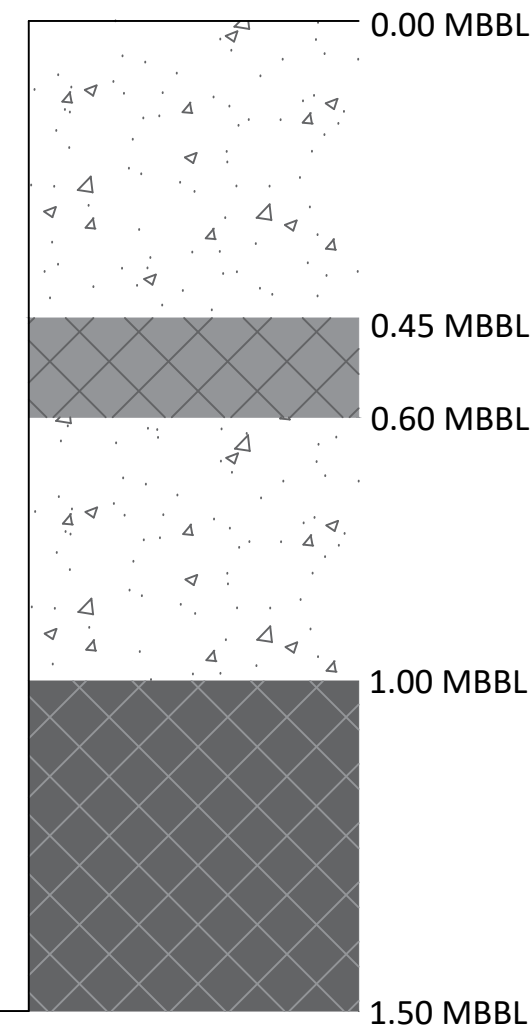
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51019-02	NTS	03/07/24	KIA	KP
DRAWING No.			REV	
51019-CE-02-XX-D-G-2020			P01	

A



0.1mbgl rebar of
6mm x 3mm noted

A'



0.00 - 0.45 MBL: MADE GROUND - Concrete.

0.45 - 0.60 MBL: MADE GROUND - Light brown cobbly gravelly sand. Sand is fine to coarse. Gravel is angular of limestone, brick and concrete. Cobbles are angular of concrete.

0.60 - 1.00MBL: MADE GROUND - Concrete.

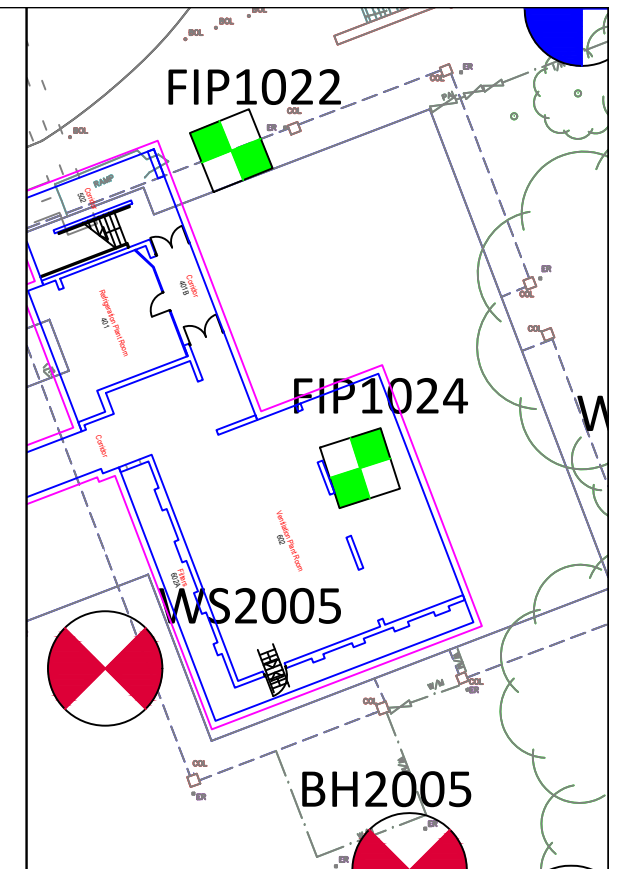
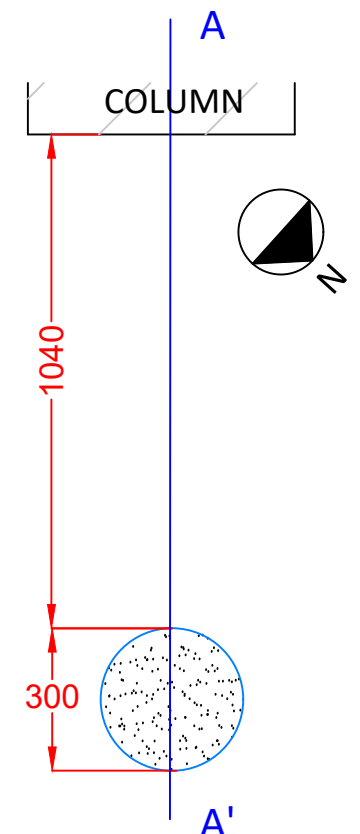
1.00 - 1.50 MBL: MADE GROUND - Light brown slightly gravelly sand. Sand is fine to coarse. Gravel is angular of concrete, brick and sandstone.

1. MBL = metres below basement level
 2. Trial pit terminated at 1.5mbgl at maximum excavation depth
 3. Trial pit backfilled with arisings and reinstated with concrete
 4. Pilot holes drilled between wall and concrete core hole which recorded same ground conditions as core hole.
 5. Dimensions of structures / foundations provided in mm unless otherwise stated
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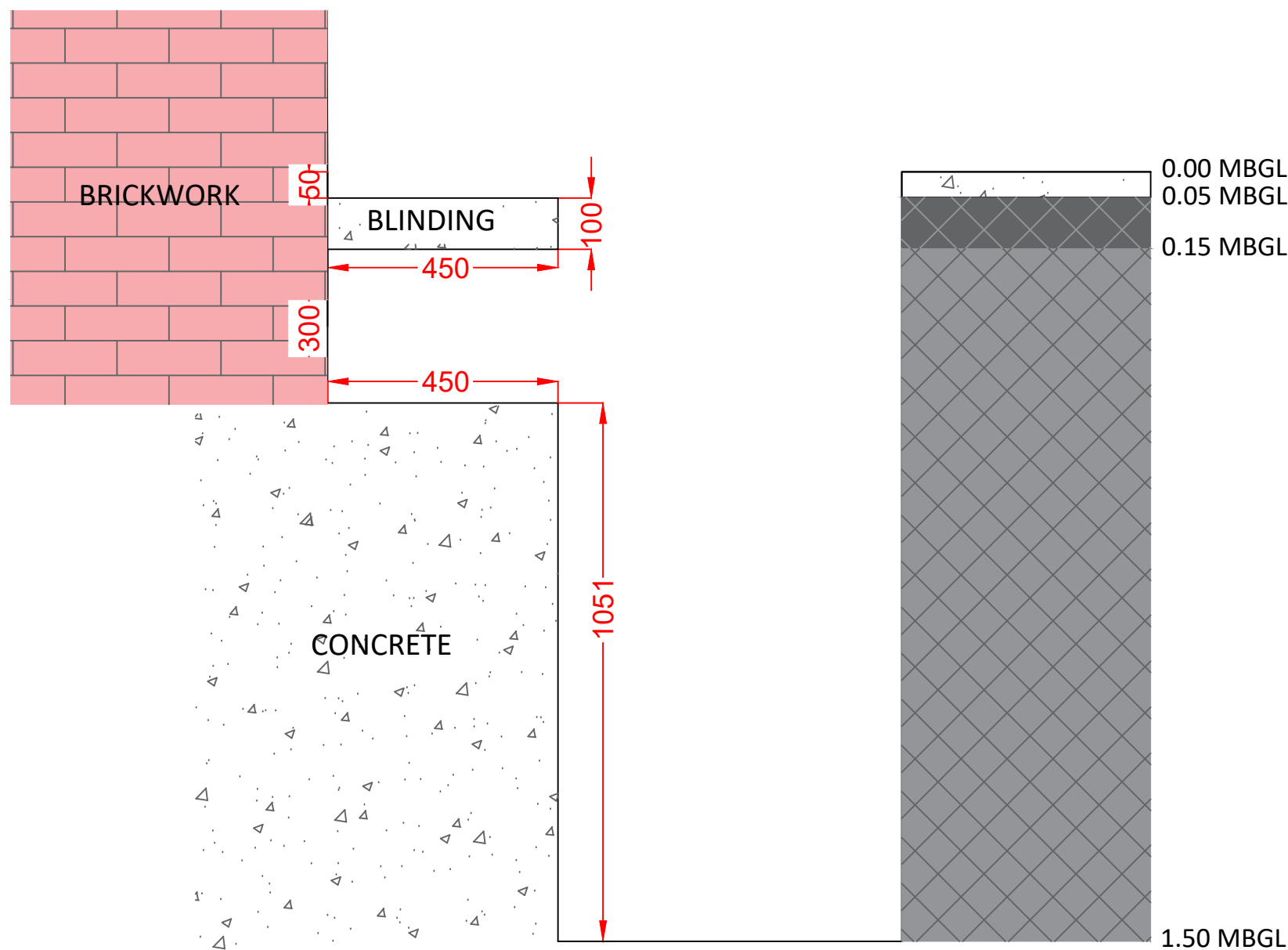
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PROJECT
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TITLE
Foundation Inspection Pit
FIP1024



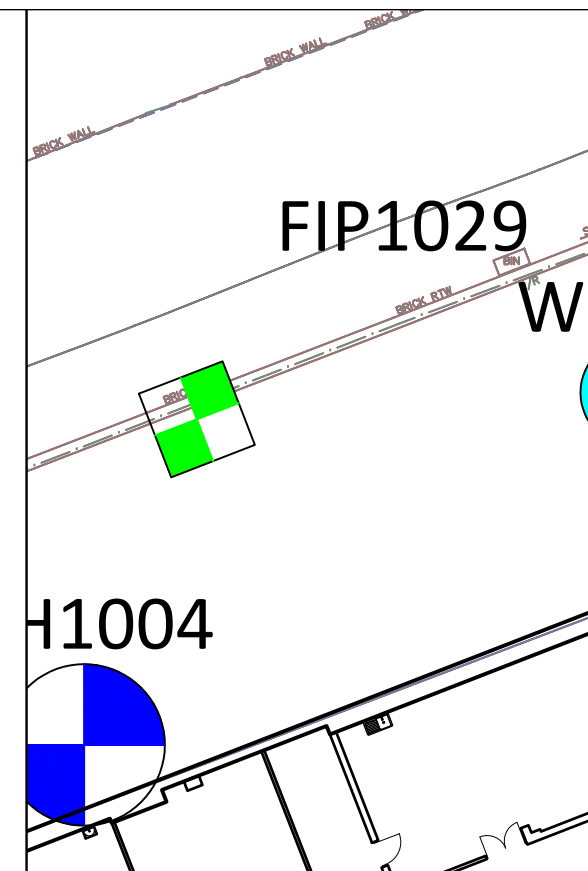
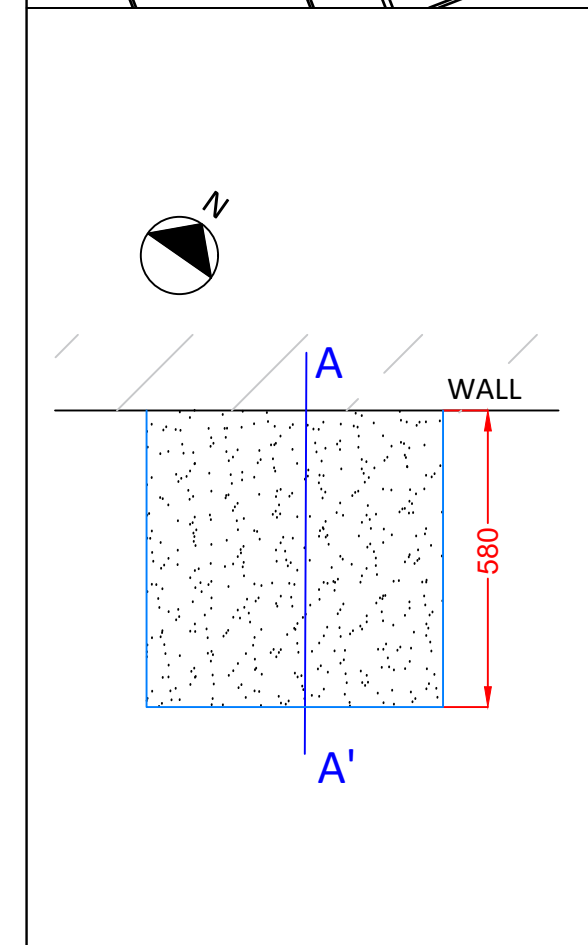
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51019-02	NTS	05/07/24	KIA	KP
DRAWING No.			REV	
51019-CE-02-XX-D-G-2022			P01	



0.00 - 0.05 MBGL: MADE GROUND - Bituminous macadam.

0.05 - 0.15 MBGL: MADE GROUND - Yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite (SUB-BASE).

0.15 - 1.50 MBGL: MADE GROUND - Dark reddish brown cobbly sandy gravel. Gravel is angular fine to coarse of brick, concrete, sandstone. Sand is fine. Rare cobbles of brick noted.



1. MBBL = metres below ground level
2. Trial pit terminated at 1.5mbgl at maximum excavation depth
3. Trial pit backfilled with arisings and reinstated with concrete
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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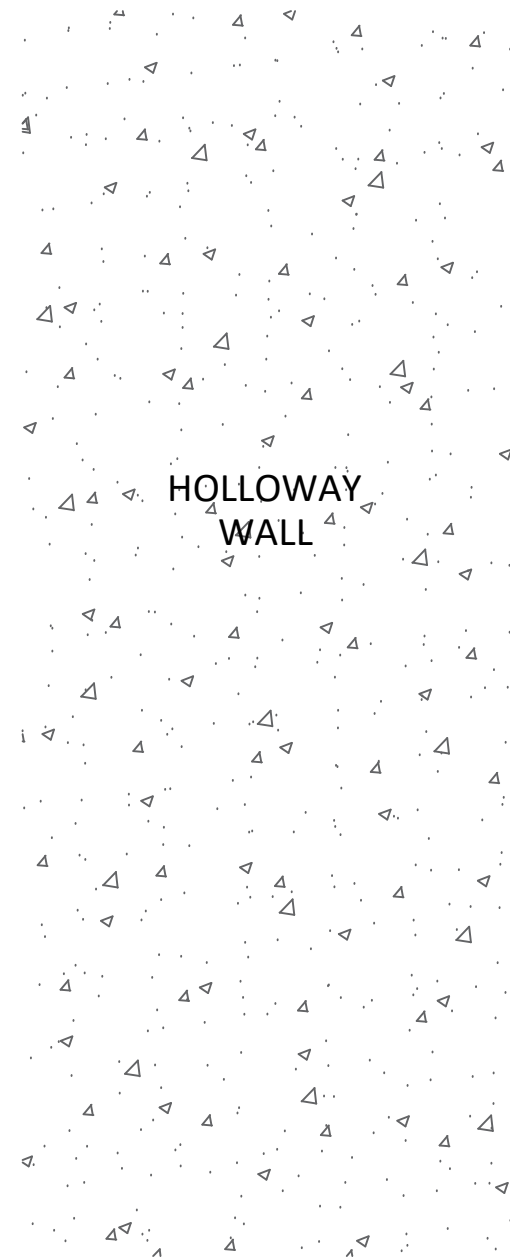
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PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1029

-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS FOR INFORMATION			STATUS CODE -	
CE PROJECT No. 51019-02	SCALE @ A3 NTS	DATE CREATED 26/07/24	DRAWN KIA	CHECKED KP
DRAWING No. 51019-CE-02-XX-D-G-2023				REV P01

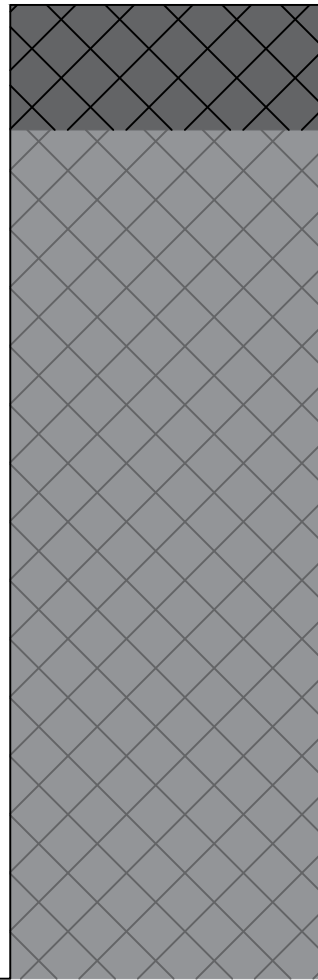
A



HOLLOWAY
WALL

1500

A'



0.00 MBGL

0.20 MBGL

1.50 MBGL

0.00 - 0.20 MBGL: MADE GROUND - Dark brown slightly sandy slightly gravelly clay. Gravel is angular to subangular fine of concrete. Sand is fine to coarse.

0.20 - 1.50 MBGL: MADE GROUND - Dark brown cobbly gravelly sand. Sand is fine to coarse. Gravel is angular fine to coarse of limestone, concrete and brick. Cobbles are angular of concrete and brick. Rare fragments of metal and glass noted.

1. MBGL = metres below ground level
2. Trial pit terminated at 1.50mbgl at maximum excavation depth.
3. Trial pit backfilled with arisings
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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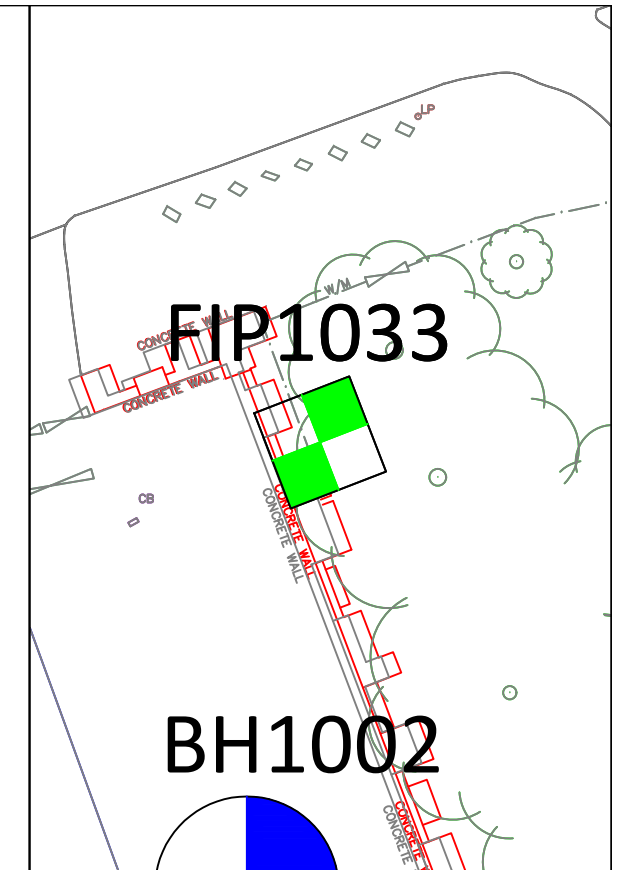
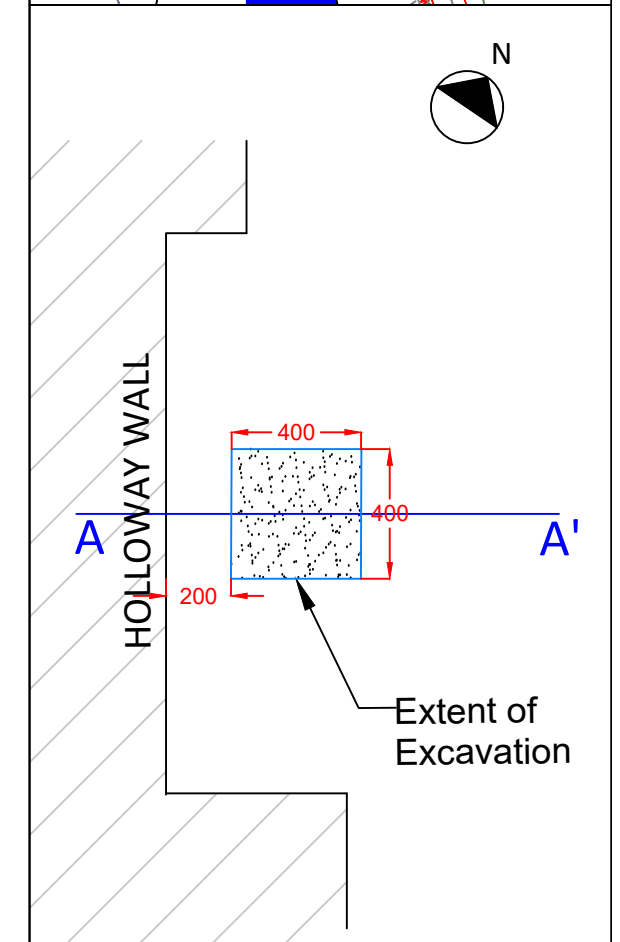
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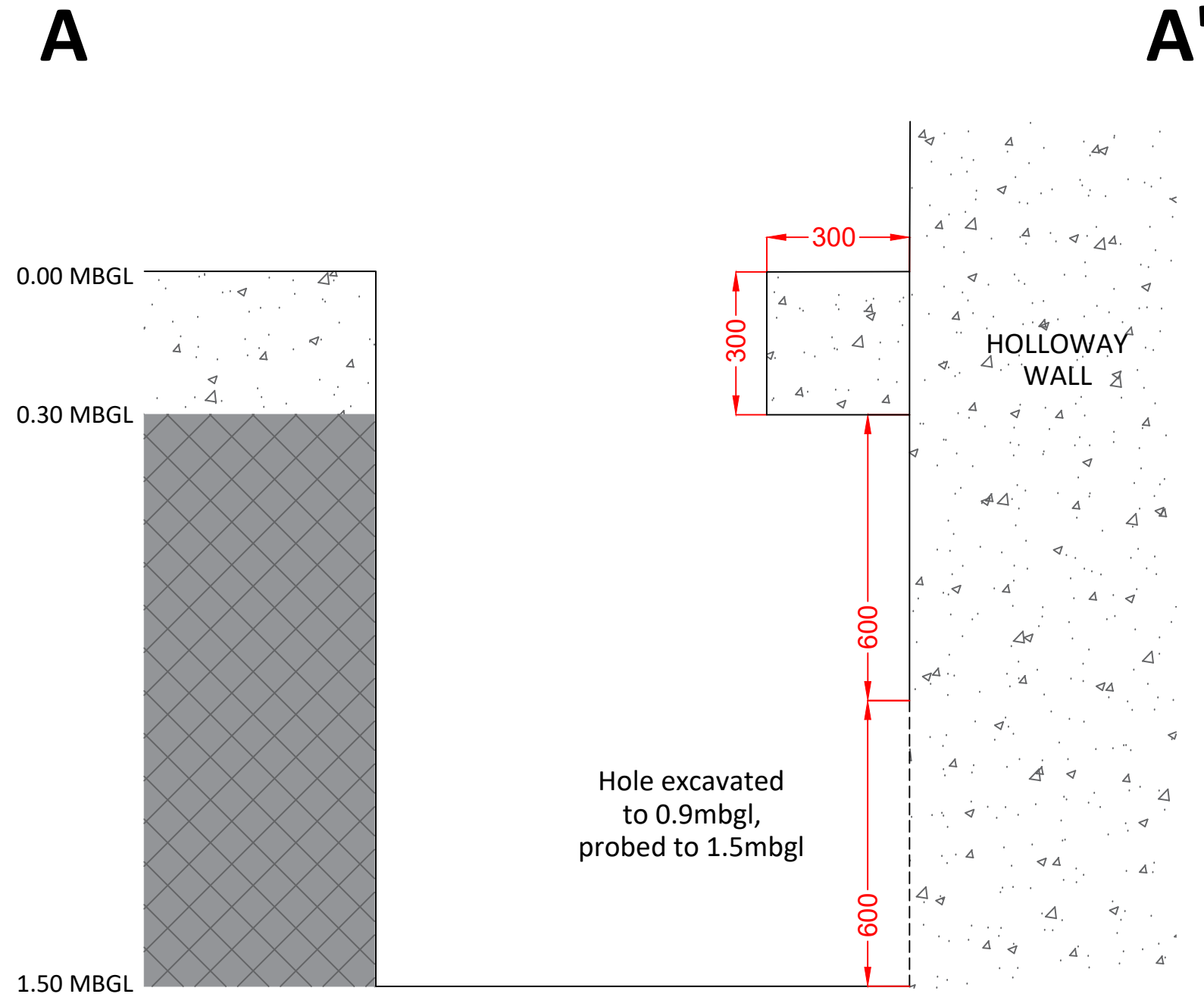
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PROJECT
ID Manchester
Masterplan Area

TITLE
Foundation Inspection Pit
FIP1033

-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	04/07/24	KIA	KP
DRAWING No.				REV
51019-CE-02-XX-D-G-2024				P01

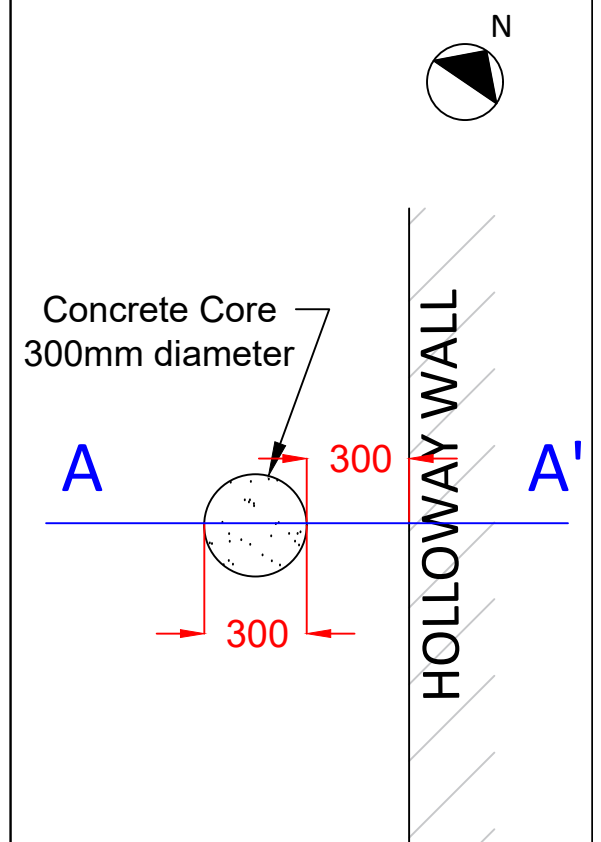




0.00 - 0.30 MBGL: MADE GROUND - Concrete.

0.30 - 1.50 MBGL: MADE GROUND - Light brown cobbly sandy gravel. Gravel is angular fine to coarse of dolomite. Sand is fine to coarse. Cobbles are angular of concrete and brick.

FIP1034



1. MBGL = metres below ground level
2. Trial pit terminated at 1.50mbgl at maximum excavation depth
3. Trial pit backfilled with arisings and reinstated with concrete
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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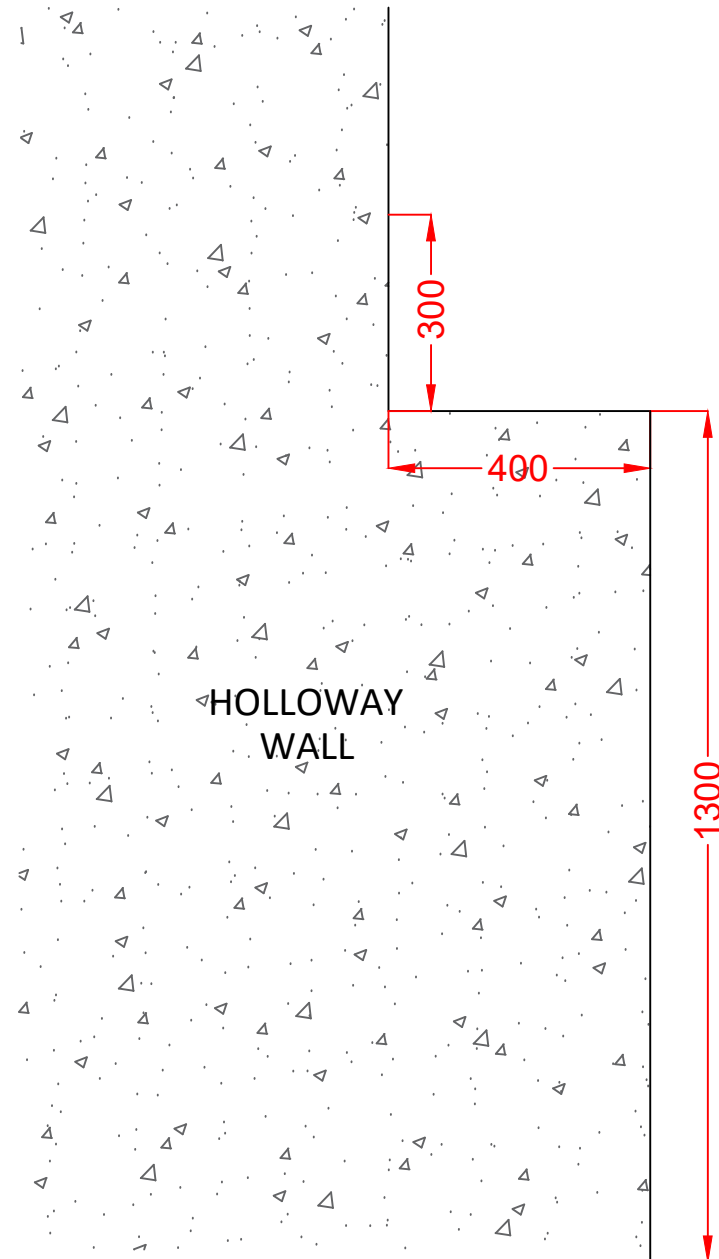
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PROJECT
ID Manchester
Masterplan Area

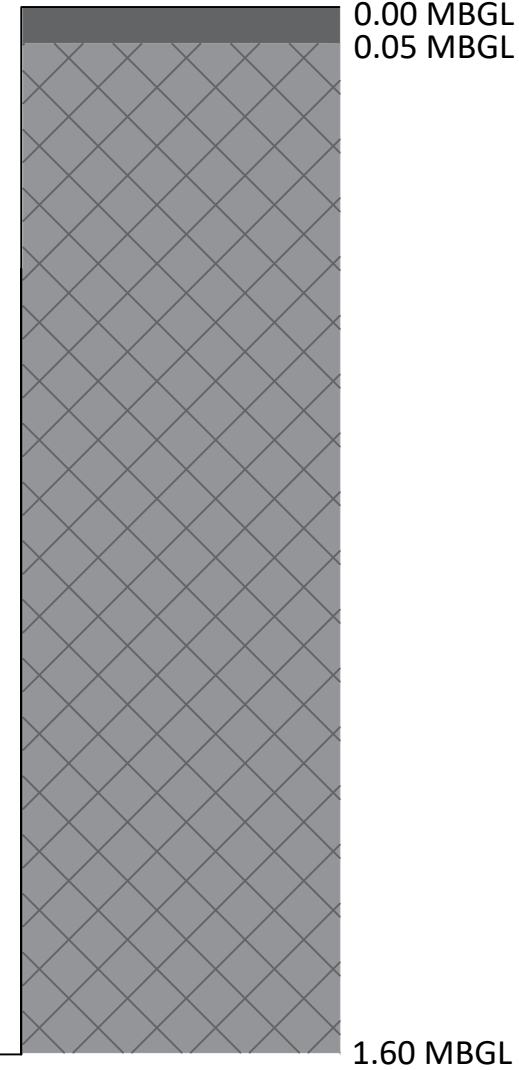
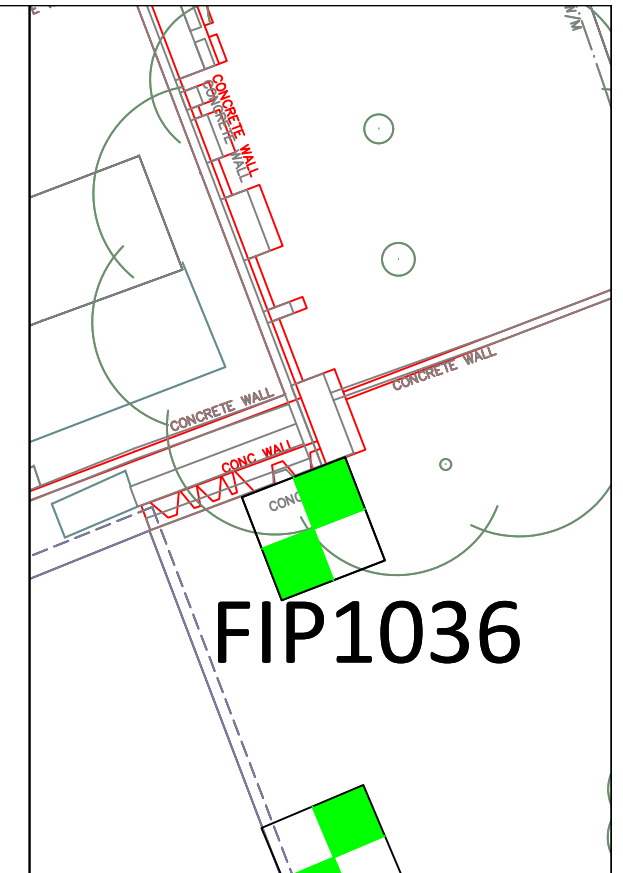
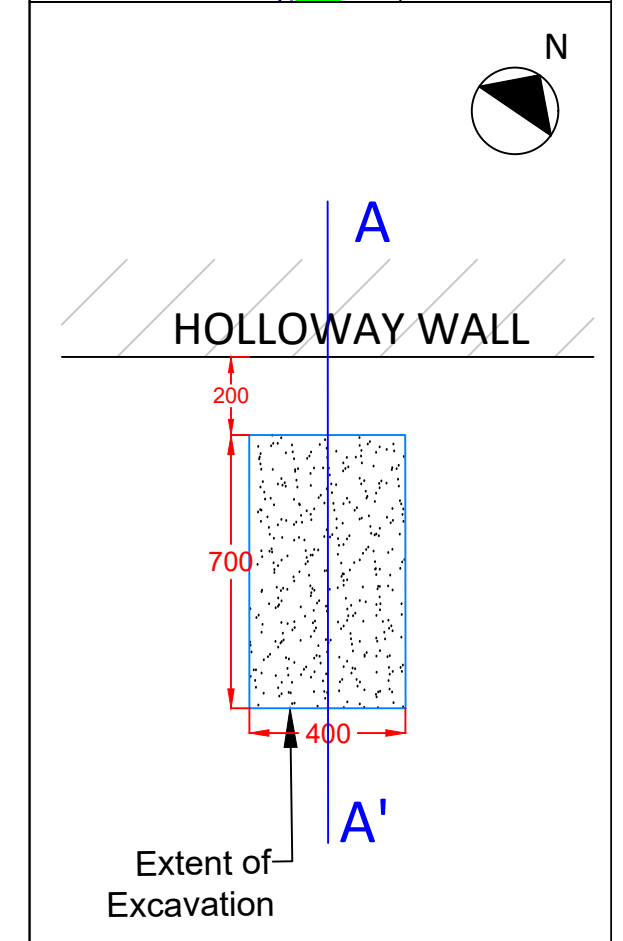
TITLE
Foundation Inspection Pit
FIP1034

-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	04/07/24	KIA	KP
DRAWING No.				REV
51019-CE-02-XX-D-G-2025				P01

A



A'



0.00 - 0.05 MBGL: MADE GROUND - Paving slab.

0.05 - 1.60 MBGL: MADE GROUND - Dark brown cobbly gravelly sand. Gravel is angular fine to coarse of limestone, concrete and brick. Sand is fine to coarse. Cobbles are angular of concrete and brick. Rare fragments of metal and glass noted.

1. MBGL = metres below ground level
2. Trial pit terminated at 1.60mbgl due to maximum excavation depth
3. Trial pit backfilled with arisings
4. Dimensions of structures / foundations provided in mm unless otherwise stated

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PROJECT
ID Manchester
Masterplan Area
TITLE
Foundation Inspection Pit
FIP1036

-	-	-	-	-
DATE	REV	DESCRIPTION	DRAWN	CHKD
DRAWING STATUS			STATUS CODE	
FOR INFORMATION			-	
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51019-02	NTS	03/07/24	KIA	KP
DRAWING No.			REV	
51019-CE-02-XX-D-G-2027			P01	

Appendix D

Ground Gas and Groundwater Monitoring Records

Borehole Falling Head Test

Project Name:	ID Manchester
Project Ref.:	51019/02

Date:	10/06/2024
Engineer:	AP & KIA

Test Location:	BH1003
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Test Number:	1
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Water Level During Test

Time (Minutes)	Depth (mbgl)	Head, H (m)	Head Ratio H/Ho
0.0	2.90	0.56	1.00
0.5	2.92	0.54	0.96
1.0	2.93	0.53	0.95
1.5	2.93	0.53	0.95
3.0	2.95	0.51	0.91
4.0	2.95	0.51	0.91
5.0	2.95	0.51	0.91
6.5	2.96	0.50	0.89
8.5	2.96	0.50	0.89
10.0	2.97	0.49	0.88
12.5	2.97	0.49	0.88
15.0	2.97	0.49	0.88
17.5	2.97	0.49	0.88
20.0	2.97	0.49	0.88

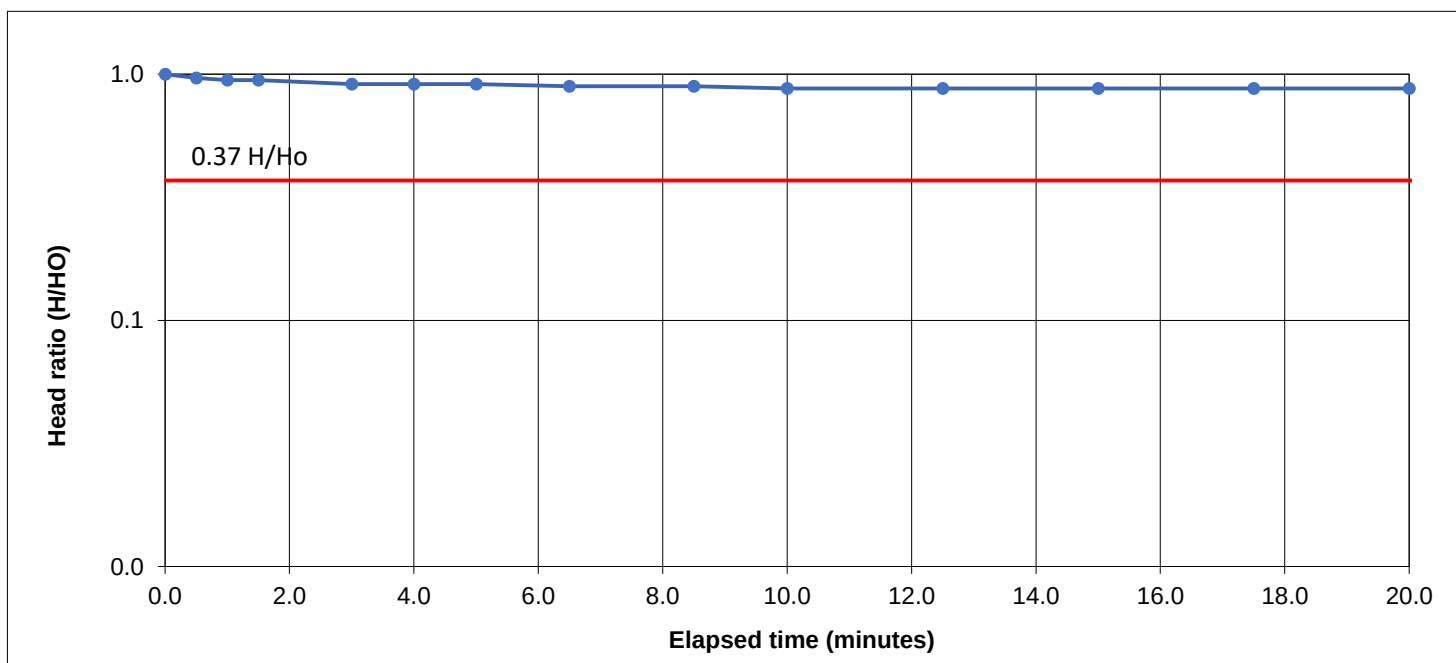
Monitoring Details

Initial Groundwater Depth	2.90 mbgl
Depth to Base of Well	3.46 mbgl
Diameter of Well	0.05 m
Water Column Length	0.56 m

$$k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2}$$

F = Intake factor	1.13
H ₁ = Variable head measured at t ₁	1.00 m
H ₂ = Variable head measured at t ₂	N/A m
t ₁ = Time at commencement of test	0.00 minutes
t ₂ = Time at end of test	N/A minutes
A = Cross section area	0.002 m ²

Permeability (k)	FAIL	m/s
	FAIL	m/day



Notes: Hvorslev. (1951). Time lag and soil permeability in ground water observations

Borehole Falling Head Test

Project Name: ID Manchester
Project Ref.: 51019/02

Date: 10/06/2024
Engineer: AP & KIA

Test Location: BH1009

Test Number: 1

Water Level During Test

Time (Minutes)	Depth (mbgl)	Head, H (m)	Head Ratio H/Ho
0.0	4.21	1.24	1.00
0.5	5.01	1.04	0.84
1.0	5.04	1.03	0.84
1.5	5.04	1.03	0.84
3.0	4.99	1.04	0.84
4.0	4.99	1.04	0.84
5.0	4.99	1.04	0.84
6.5	4.99	1.04	0.84
8.5	4.99	1.04	0.84
10.0	4.99	1.04	0.84
12.5	4.99	1.04	0.84
15.0	4.99	1.04	0.84
17.5	4.99	1.04	0.84
20.0	4.99	1.04	0.84
22.5	4.99	1.04	0.84
25.0	4.99	1.04	0.84
27.5	4.99	1.04	0.84
30.0	4.99	1.04	0.84
31.5	4.99	1.04	0.84
35.0	4.99	1.04	0.84

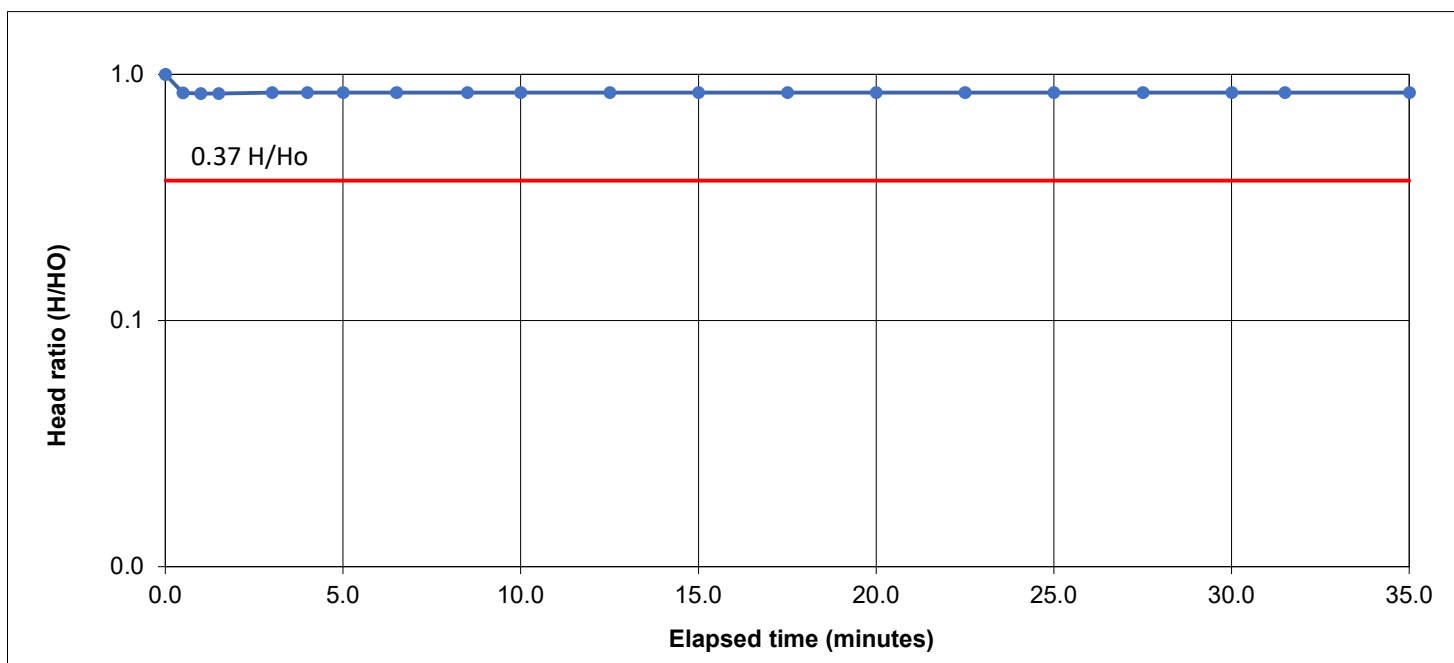
Monitoring Details

Initial Groundwater Depth	4.20 mbgl
Depth to Base of Well	5.21 mbgl
Diameter of Well	0.05 m
Water Column Length	1.01 m

$$k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2}$$

F = Intake factor	1.72
H ₁ = Variable head measured at t ₁	1.00 m
H ₂ = Variable head measured at t ₂	N/A m
t ₁ = Time at commencement of test	0.00 minutes
t ₂ = Time at end of test	N/A minutes
A = Cross section area	0.002 m ²

Permeability (k)	FAIL	m/s
	FAIL	m/day



Notes: Hvorslev. (1951). Time lag and soil permeability in ground water observations

Borehole Falling Head Test

Project Name:	ID Manchester
Project Ref.:	51019/02

Date:	10/06/2024
Engineer:	AP & KIA

Test Location:	WS1002
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Test Number:	1
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Water Level During Test

Time (Minutes)	Depth (mbgl)	Head, H (m)	Head Ratio H/Ho
0.0	3.30	0.64	1.00
0.5	3.30	0.64	1.00
1.0	3.32	0.62	0.97
1.5	3.32	0.62	0.97
3.0	3.32	0.62	0.97
4.0	3.32	0.62	0.97
5.0	3.32	0.62	0.97
6.5	3.33	0.61	0.95
8.5	3.33	0.61	0.95
10.0	3.33	0.61	0.95
12.5	3.33	0.61	0.95
15.0	3.33	0.61	0.95
17.5	3.33	0.61	0.95
20.0	3.33	0.61	0.95
22.5	3.33	0.61	0.95
25.0	3.34	0.60	0.94
27.5	3.34	0.60	0.94
30.0	3.34	0.60	0.94
31.5	3.34	0.60	0.94
35.0	3.34	0.60	0.94

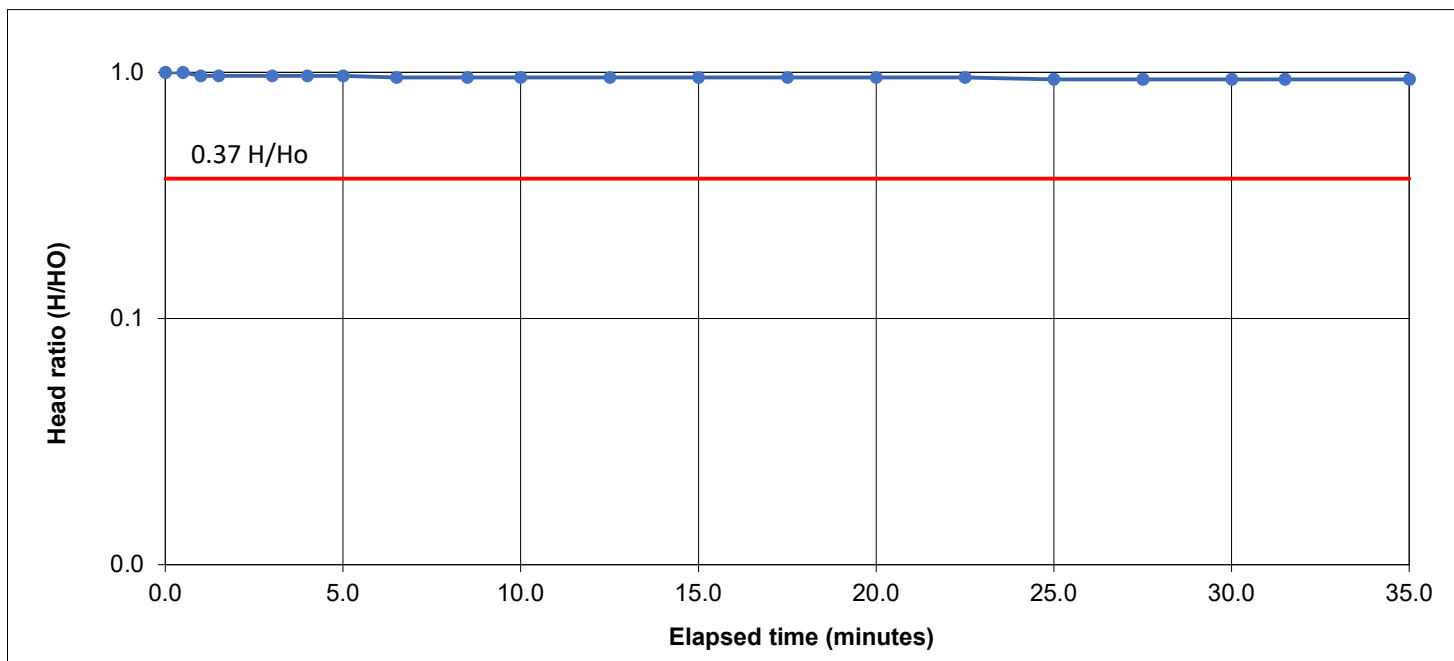
Monitoring Details

Initial Groundwater Depth	3.31 mbgl
Depth to Base of Well	3.94 mbgl
Diameter of Well	0.05 m
Water Column Length	0.63 m

$$k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2}$$

F = Intake factor	1.23
H ₁ = Variable head measured at t ₁	1.00 m
H ₂ = Variable head measured at t ₂	N/A m
t ₁ = Time at commencement of test	0.00 minutes
t ₂ = Time at end of test	N/A minutes
A = Cross section area	0.002 m ²

Permeability (k)	FAIL	m/s
	FAIL	m/day



Notes: Hvorslev. (1951). Time lag and soil permeability in ground water observations

Borehole Falling Head Test

Project Name:	ID Manchester
Project Ref.:	51019/03

Date:	10/06/2024
Engineer:	AP & KIA

Test Location:	WS2002
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Test Number:	1
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Water Level During Test

[illegible]

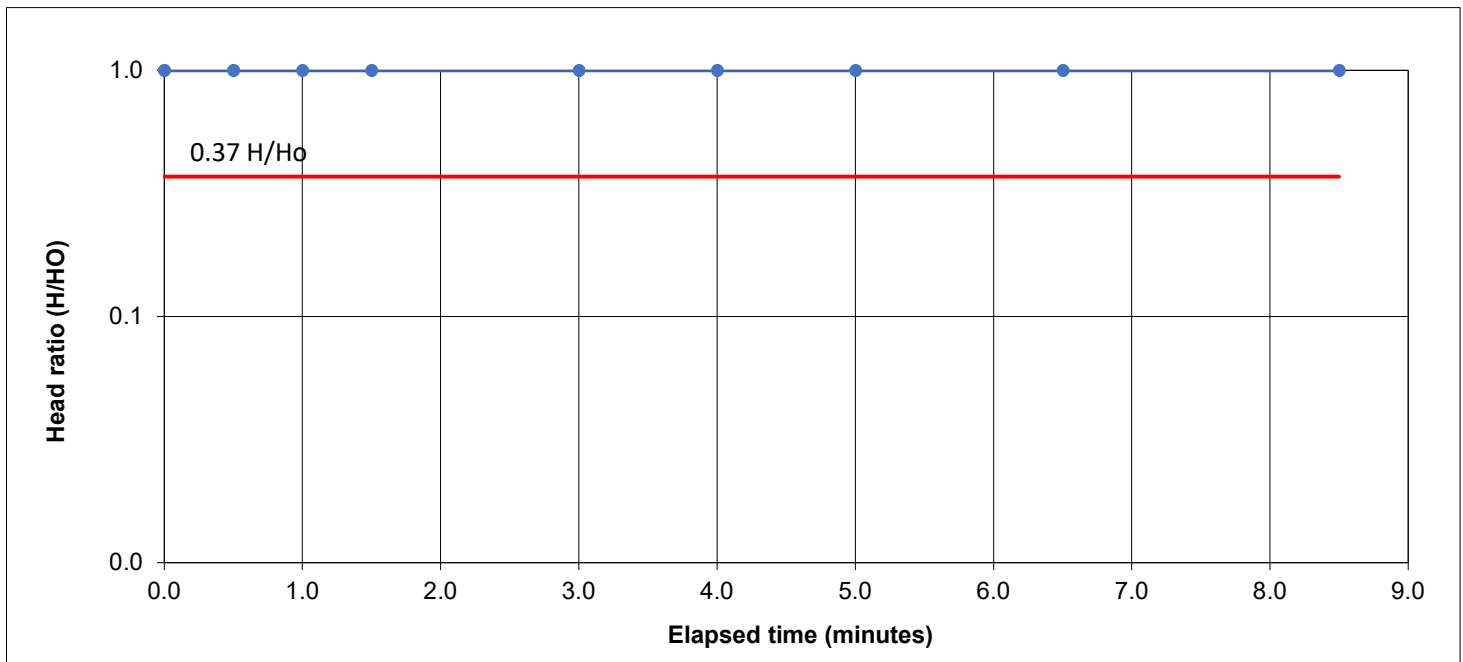
Monitoring Details

Initial Groundwater Depth	1.90 mbgl
Depth to Base of Well	2.90 mbgl
Diameter of Well	0.05 m
Water Column Length	1.00 m

$$k = \frac{A}{F(t_2 - t_1)} \log_e \frac{H_1}{H_2}$$

F = Intake factor	1.70
H₁ = Variable head measured at t₁	1.00 m
H₂ = Variable head measured at t₂	N/A m
t₁ = Time at commencement of test	0.00 minutes
t₂ = Time at end of test	N/A minutes
A = Cross section area	0.002 m ²

Permeability (k)	FAIL	m/s
	FAIL	m/day



Notes: Hvorslev. (1951). Time lag and soil permeability in ground water observations

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	29 May 2024	Time of Visit:	8:30 to 5:00

Atm. Pressure:	999 to 1000 mbar	Local Pressure System*:	Steady
Air Temperature:	13 to 15 °C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry Damp Wet ☒ Saturated

Wind Strength: Calm Light Moderate ☒ Strong

Cloud Cover: Clear Slight Cloudy Overcast ☒

Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	Atm. Pressure	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH1003	999	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	3.42
		15	0.0	0.0	18.1	0.5	0.0	0.3		
		30	0.0	0.0	18.5	0.5	0.0	0.0		
		45	0.0	0.0	19.2	0.4	0.0	0.0		
		60	0.0	0.0	19.6	0.4	0.0	0.0		
		90	0.0	0.0	19.9	0.3	0.0	0.0		
		120	0.0	0.0	20.1	0.2	0.0	0.0		
		150	0.0	0.0	20.3	0.2	0.0	0.0		
		180	0.0	0.0	20.4	0.2	0.0	0.0		
		240	0.0	0.0	20.5	0.2	0.0	0.0		
		300	0.0	0.0	20.6	0.1	0.0	0.0		
BH1014A	999	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	3.81
		15	0.0	0.0	21.0	0.2	0.0	0.1		
		30	0.0	0.0	20.9	0.2	0.0	0.0		
		45	0.0	0.0	20.8	0.2	0.0	0.0		
		60	0.0	0.0	20.8	0.1	0.0	0.0		
		90	0.0	0.0	20.8	0.1	0.0	0.0		
		120	0.0	0.0	20.8	0.1	0.0	0.0		
		150	0.0	0.0	20.8	0.1	0.0	0.0		
		180	0.0	0.0	20.8	0.1	0.0	0.0		
		240	0.0	0.0	20.8	0.1	0.0	0.0		
		300	0.0	0.0	20.8	0.1	0.0	0.0		
WS1006	999	0	0.9	0.0	0.0	0.0	0.0	0.0	DRY	2.57
		15	0.0	0.0	12.2	5.5	0.0	0.2		
		30	0.0	0.0	10.5	7.4	0.0	0.0		
		45	0.0	0.0	10.2	7.5	0.0	0.0		
		60	0.0	0.0	10.2	7.6	0.0	0.0		
		90	0.0	0.0	9.9	7.6	0.0	0.0		
		120	0.0	0.0	9.9	7.6	0.0	0.0		
		150	0.0	0.0	9.8	7.6	0.0	0.0		
		180	0.0	0.0	9.8	7.6	0.0	0.0		
		240	0.0	0.0	9.7	7.6	0.0	0.0		
		300	0.0	0.0	9.6	7.6	0.0	0.0		
WS1008	999	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	1.93
		15	0.0	0.0	21.0	0.0	0.0	0.3		
		30	0.0	0.0	20.9	0.0	0.0	0.0		
		45	0.0	0.0	20.8	0.0	0.0	0.0		
		60	0.0	0.0	20.8	0.0	0.0	0.0		
		90	0.0	0.0	20.9	0.0	0.0	0.0		
		120	0.0	0.0	20.9	0.1	0.0	0.0		
		150	0.0	0.0	20.9	0.0	0.0	0.0		
		180	0.0	0.0	20.9	0.1	0.0	0.0		
		240	0.0	0.0	20.9	0.1	0.0	0.0		
		300	0.0	0.0	20.9	0.1	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

*WS1001 and WS1024 unable to be accessed.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	29 May 2024	Time of Visit:	8:30 to 5:00

Atm. Pressure:	999 to 1000 mbar	Local Pressure System*:	Steady
Air Temperature:	13 to 15 °C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:
 Dry
 Damp
 Wet ☒
 Saturated

Wind Strength:
 Calm
 Light
 Moderate ☒
 Strong

Cloud Cover:
 Clear
 Slight
 Cloudy
 Overcast ☒

Precipitation Level:
 None
 Slight ☒
 Moderate
 Heavy

Borehole Reference	Atm. Pressure	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1012	999	0	0.2	0.0	0.0	0.0	0.0	0.0	3.04	4.92
		15	0.0	0.0	20.2	0.7	0.0	0.2		
		30	0.0	0.0	20.0	0.7	0.0	0.0		
		45	0.0	0.0	19.9	0.7	0.0	0.0		
		60	0.0	0.0	19.8	0.7	0.0	0.0		
		90	0.0	0.0	19.8	0.8	0.0	0.0		
		120	0.0	0.0	19.8	0.8	0.0	0.0		
		150	0.0	0.0	19.8	0.8	0.0	0.0		
		180	0.0	0.0	19.8	0.7	0.0	0.0		
		240	0.0	0.0	19.8	0.8	0.0	0.0		
		300	0.0	0.0	19.2	0.8	0.0	0.0		
WS1014	999	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	2.94
		15	0.0	0.0	21.4	0.1	0.0	0.1		
		30	0.0	0.0	21.3	0.0	0.0	0.0		
		45	0.0	0.0	21.3	0.0	0.0	0.0		
		60	0.0	0.0	21.3	0.0	0.0	0.0		
		90	0.0	0.0	21.2	0.0	0.0	0.0		
		120	0.0	0.0	21.2	0.0	0.0	0.0		
		150	0.0	0.0	21.2	0.0	0.0	0.0		
		180	0.0	0.0	21.2	0.0	0.0	0.0		
		240	0.0	0.0	21.2	0.0	0.0	0.0		
		300	0.0	0.0	21.2	0.0	0.0	0.0		
WS1016	999	0	0.0	0.0	0.0	0.0	0.0	0.0	5.20	5.26
		15	0.0	0.0	18.7	0.9	0.0	0.1		
		30	0.0	0.0	19.3	0.8	0.0	0.0		
		45	0.0	0.0	19.3	0.8	0.0	0.0		
		60	0.0	0.0	19.4	0.8	0.0	0.0		
		90	0.0	0.0	19.4	0.8	0.0	0.0		
		120	0.0	0.0	19.4	0.8	0.0	0.0		
		150	0.0	0.0	19.4	0.8	0.0	0.0		
		180	0.0	0.0	19.5	0.8	0.0	0.0		
		240	0.0	0.0	19.5	0.8	0.0	0.0		
		300	0.0	0.0	19.5	0.8	0.0	0.0		
WS1020	999	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	4.44
		15	0.0	0.0	1.0	2.2	0.0	1.1		
		30	0.0	0.0	1.0	2.2	0.0	0.0		
		45	0.0	0.0	0.7	2.2	0.0	0.0		
		60	0.0	0.0	0.6	2.2	0.0	0.0		
		90	0.0	0.0	0.5	2.2	0.0	0.0		
		120	0.0	0.0	0.4	2.3	0.0	0.0		
		150	0.0	0.0	0.3	2.3	0.0	0.0		
		180	0.0	0.0	0.3	2.3	0.0	0.0		
		240	0.0	0.0	0.2	2.3	0.0	0.0		
		300	0.0	0.0	0.2	2.3	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	29 May 2024	Time of Visit:	8:30 to 5:00

Atm. Pressure:	999 to 1000 mbar	Local Pressure System*:	Steady
Air Temperature:	13 to 15 °C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry☐ Damp☐ Wet☒ Saturated☐

Wind Strength: Calm☐ Light☐ Moderate☒ Strong☐

Cloud Cover: Clear☐ Slight☐ Cloudy☐ Overcast☒

Precipitation Level: None☐ Slight☒ Moderate☐ Heavy☐

Borehole Reference	Atm. Pressure	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1023A	1000	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	1.43
		15	0.0	0.0	0.0	21.1	0.0	1.1		
		30	0.0	0.0	0.0	21.1	0.0	0.0		
		45	0.0	0.0	0.0	21.1	0.0	0.0		
		60	0.0	0.0	0.0	21.1	0.0	0.0		
		90	0.0	0.0	0.0	21.1	0.0	0.0		
		120	0.0	0.0	0.0	21.1	0.0	0.0		
		150	0.0	0.0	0.0	21.1	0.0	0.0		
		180	0.0	0.0	0.1	21.1	0.0	0.0		
		240	0.0	0.0	0.1	20.9	0.0	0.0		
		300	0.0	0.0	0.2	20.8	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	Kiera l'Anson
Date of Visit:	29 May 2024	Time of Visit:	8:30 to 5:00

Atm. Pressure:	999 to 1000 mbar	Local Pressure System*:	Steady
Air Temperature:	13 to 15 °C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:
 Dry
 Damp
 Wet ☒
 Saturated

Wind Strength:
 Calm
 Light
 Moderate ☒
 Strong

Cloud Cover:
 Clear
 Slight
 Cloudy
 Overcast ☒

Precipitation Level:
 None
 Slight ☒
 Moderate
 Heavy

Borehole Reference	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS2001	1000	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	3.88
		15	0.0	0.0	20.8	0.1	0.0	0.1		
		30	0.0	0.0	20.9	0.1	0.0	0.0		
		45	0.0	0.0	20.9	0.1	0.0	0.0		
		60	0.0	0.0	20.9	0.1	0.0	0.0		
		90	0.0	0.0	20.9	0.1	0.0	0.0		
		120	0.0	0.0	20.9	0.1	0.0	0.0		
		150	0.0	0.0	20.9	0.1	0.0	0.0		
		180	0.0	0.0	20.9	0.1	0.0	0.0		
		240	0.0	0.0	20.9	0.1	0.0	0.0		
WS2002	1000	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	2.91
		15	1.5	0.0	19.7	0.4	0.0	0.2		
		30	0.0	0.0	20.5	0.1	0.0	0.0		
		45	0.0	0.0	20.6	0.1	0.0	0.0		
		60	0.0	0.0	20.8	0.1	0.0	0.0		
		90	0.0	0.0	20.8	0.1	0.0	0.0		
		120	0.0	0.0	20.9	0.1	0.0	0.0		
		150	0.0	0.0	20.9	0.1	0.0	0.0		
		180	0.0	0.0	20.9	0.1	0.0	0.0		
		240	0.0	0.0	20.9	0.0	0.0	0.0		
WS2004	999	0	0.0	-11.0	21.2	0.0	0.0	0.0	DRY	1.83
		15	-0.6	-11.0	20.6	0.6	0.0	0.2		
		30	-0.1	NR	20.5	0.6	0.0	0.1		
		45	-0.1		20.4	0.6	0.0	0.1		
		60	0.0		20.4	0.6	0.0	0.1		
		90	0.0		20.4	0.6	0.0	0.1		
		120	0.0		20.3	0.6	0.0	0.1		
		150	0.0		20.3	0.6	0.0	0.1		
		180	0.0		20.3	0.6	0.0	0.1		
		240	0.0		20.3	0.7	0.0	0.1		
WS2006	1000	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	1.52
		15	0.4	0.0	15.0	4.3	0.0	0.1		
		30	0.0	0.0	14.4	4.4	0.0	0.0		
		45	0.0	0.0	14.3	4.4	0.0	0.0		
		60	0.0	0.0	14.3	4.4	0.0	0.0		
		90	0.0	0.0	14.2	4.5	0.0	0.0		
		120	0.0	0.0	14.1	4.5	0.0	0.0		
		150	0.0	0.0	14.1	4.6	0.0	0.0		
		180	0.0	0.0	14.0	4.7	0.0	0.0		
		240	0.0	0.0	14.0	4.9	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

NR = Not recorded due to equipment fault.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	Kiera I'Anson
Date of Visit:	29 May 2024	Time of Visit:	8:30 to 5:00

Atm. Pressure:	999 to 1000 mbar	Local Pressure System*:	Steady
Air Temperature:	13 to 15 °c	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry Damp Wet☒ Saturated

Wind Strength: Calm Light Moderate☒ Strong

Cloud Cover: Clear Slight Cloudy Overcast☒

Precipitation Level: None Slight☒ Moderate Heavy

Borehole Reference	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH2005	999	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	2.21
		15	0.0	0.0	19.6	1.1	0.0	0.2		
		30	0.0	0.0	17.6	1.9	0.0	0.0		
		45	0.0	0.0	6.8	2.0	0.0	0.0		
		60	0.0	0.0	16.6	2.1	0.0	0.0		
		90	0.0	0.0	16.4	2.2	0.0	0.0		
		120	0.0	0.0	16.4	2.3	0.0	0.0		
		150	0.0	0.0	16.4	2.3	0.0	0.0		
		180	0.0	0.0	16.2	2.4	0.0	0.0		
		240	0.0	0.0	16.2	2.5	0.0	0.0		
		300	0.0	0.0	16.0	2.8	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA & AP
Date of Visit:	10 June 2024	Time of Visit:	8:30 - 18:00

Atm. Pressure:	1006 to 1008 mbar	Local Pressure System*:	Rising
Air Temperature:	11°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☐
 Cloudy ☒
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH1003 (14:17)	1008	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	3.46
		15	0.0	0.0	20.7	2.2	0.0	0.1		
		30	0.0	0.0	20.7	1.5	0.0	0.0		
		45	0.0	0.0	20.6	1.1	0.0	0.0		
		60	0.0	0.0	20.6	0.9	0.0	0.0		
		90	0.0	0.0	20.6	0.8	0.0	0.0		
		120	0.0	0.0	20.6	0.7	0.0	0.0		
		150	0.0	0.0	20.6	0.6	0.0	0.0		
		180	0.0	0.0	20.6	0.6	0.0	0.0		
		240	0.0	0.0	20.6	0.6	0.0	0.0		
		300	0.0	0.0	20.6	0.6	0.0	0.0		
WS1008 (12:40)	1007	0	0.0	0.0	0.0	0.7	0.0	0.0	DRY	1.98
		15	0.0	0.0	20.8	0.1	0.0	0.0		
		30	0.0	0.0	20.5	0.0	0.0	0.0		
		45	0.0	0.0	20.5	0.0	0.0	0.0		
		60	0.0	0.0	20.5	0.0	0.0	0.0		
		90	0.0	0.0	20.5	0.0	0.0	0.0		
		120	0.0	0.0	20.5	0.0	0.0	0.0		
		150	0.0	0.0	20.5	0.0	0.0	0.0		
		180	0.0	0.0	20.5	0.0	0.0	0.0		
		240	0.0	0.0	20.5	0.0	0.0	0.0		
		300	0.0	0.0	20.5	0.0	0.0	0.0		
WS1012 (12:15)	1006	0	0.0	0.0	0.0	3.2	0.0	0.0	2.87	4.92
		15	0.0	0.0	16.8	0.9	0.0	0.1		
		30	0.0	0.0	18.7	0.8	0.0	0.0		
		45	0.0	0.0	18.8	0.8	0.0	0.0		
		60	0.0	0.0	19.1	0.8	0.0	0.0		
		90	0.0	0.0	19.2	0.8	0.0	0.0		
		120	0.0	0.0	19.2	0.8	0.0	0.0		
		150	0.0	0.0	19.2	0.8	0.0	0.0		
		180	0.0	0.0	19.1	0.8	0.0	0.0		
		240	0.0	0.0	19.1	0.8	0.0	0.0		
		300	0.0	0.0	19.1	0.8	0.0	0.0		
WS1014 (10:05)	1007	0	0.7	0.0	0.0	0.0	0.0	0.0	DRY	1.96
		15	0.0	0.0	20.4	0.1	0.0	0.0		
		30	0.0	0.0	20.3	0.4	0.0	0.0		
		45	0.0	0.0	20.2	0.4	0.0	0.0		
		60	0.0	0.0	20.2	0.4	0.0	0.0		
		90	0.0	0.0	20.2	0.4	0.0	0.0		
		120	0.0	0.0	20.2	0.5	0.0	0.0		
		150	0.0	0.0	20.2	0.5	0.0	0.0		
		180	0.0	0.0	20.2	0.5	0.0	0.0		
		240	0.0	0.0	20.2	0.5	0.0	0.0		
		300	0.0	0.0	20.2	0.5	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

*WS1001 gas tap open - closed for future monitoring visits.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA & AP
Date of Visit:	10 June 2024	Time of Visit:	8:30 - 18:00

Atm. Pressure:	1006 to 1008 mbar	Local Pressure System*:	Rising
Air Temperature:	11°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☐ Cloudy ☒ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1020 (11:40)	1006	0	0.0	0.0	0.0	0.0	0.0	0.1	DRY	4.45
		15	0.0	0.0	1.3	3.0	0.0	0.7		
		30	0.0	0.0	0.8	3.4	0.0	0.8		
		45	0.0	0.0	0.6	3.4	0.0	0.6		
		60	0.0	0.0	0.4	3.4	0.0	0.6		
		90	0.0	0.0	0.4	3.4	0.0	0.4		
		120	0.0	0.0	0.4	3.4	0.0	0.3		
		150	0.0	0.0	0.3	3.4	0.0	0.4		
		180	0.0	0.0	0.3	3.4	0.0	0.3		
		240	0.0	0.0	0.2	3.4	0.0	0.2		
		300	0.0	0.0	0.2	3.4	0.0	0.3		
WS1023A (15:00)	1007	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	1.43
		15	0.0	0.0	20.7	0.2	0.0	0.0		
		30	0.0	0.0	20.7	0.2	0.0	0.0		
		45	0.0	0.0	20.6	0.2	0.0	0.0		
		60	0.0	0.0	20.6	0.2	0.0	0.0		
		90	0.0	0.0	20.6	0.2	0.0	0.0		
		120	0.0	0.0	20.6	0.2	0.0	0.0		
		150	0.0	0.0	20.6	0.2	0.0	0.0		
		180	0.0	0.0	20.6	0.3	0.0	0.0		
		240	0.0	0.0	20.6	0.3	0.0	0.0		
		300	0.0	0.0	20.6	0.3	0.0	0.0		
WS1024 (11:10)	1006	0	1.2	0.0	0.0	0.0	0.0	0.0	DRY	3.54
		15	0.0	0.0	20.9	0.1	0.0	0.0		
		30	0.0	0.0	20.8	0.1	0.0	0.0		
		45	0.0	0.0	20.7	0.1	0.0	0.0		
		60	0.0	0.0	20.7	0.0	0.0	0.0		
		90	0.0	0.0	20.7	0.0	0.0	0.0		
		120	0.0	0.0	20.7	0.0	0.0	0.0		
		150	0.0	0.0	20.6	0.1	0.0	0.0		
		180	0.0	0.0	20.6	0.1	0.0	0.0		
		240	0.0	0.0	20.6	0.1	0.0	0.0		
		300	0.0	0.0	20.6	0.1	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	11 June 2024	Time of Visit:	8:30 - 18:00

Atm. Pressure:	1011 to 1013 mbar	Local Pressure System*:	Rising
Air Temperature:	12°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry Damp☒ Wet Saturated

Wind Strength: Calm Light☒ Moderate Strong

Cloud Cover: Clear Slight☒ Cloudy☒ Overcast

Precipitation Level: None☒ Slight Moderate Heavy

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH1014A (13:00)	1011	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	3.82
		15	0.0	0.0	21.0	0.1	0.0	0.0		
		30	0.0	0.0	20.9	0.1	0.0	0.0		
		45	0.0	0.0	20.9	0.1	0.0	0.0		
		60	0.0	0.0	20.8	0.1	0.0	0.0		
		90	0.0	0.0	20.8	0.1	0.0	0.0		
		120	0.0	0.0	20.8	0.1	0.0	0.0		
		150	0.0	0.0	20.8	0.1	0.0	0.0		
		180	0.0	0.0	20.8	0.1	0.0	0.0		
		240	0.0	0.0	20.8	0.0	0.0	0.0		
WS1006 (10:27)	1011	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	2.57
		15	0.0	0.0	11.7	0.2	0.0	0.2		
		30	0.0	0.0	10.6	0.2	0.0	0.1		
		45	0.0	0.0	10.3	0.2	0.0	0.0		
		60	0.0	0.0	10.3	0.2	0.0	0.2		
		90	0.0	0.0	10.2	0.2	0.0	0.1		
		120	0.0	0.0	10.2	0.2	0.0	0.2		
		150	0.0	0.0	10.1	0.2	0.0	0.0		
		180	0.0	0.0	10.1	0.3	0.0	0.1		
		240	0.0	0.0	10.0	0.3	0.0	0.0		
WS1016 (18:30)	1013	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	5.20
		15	0.0	0.0	19.3	0.8	0.0	0.0		
		30	0.0	0.0	19.4	0.8	0.0	0.0		
		45	0.0	0.0	19.4	0.8	0.0	0.0		
		60	0.0	0.0	19.4	0.8	0.0	0.0		
		90	0.0	0.0	19.4	0.8	0.0	0.0		
		120	0.0	0.0	19.4	0.8	0.0	0.0		
		150	0.0	0.0	19.4	0.8	0.0	0.0		
		180	0.0	0.0	19.4	0.8	0.0	0.0		
		240	0.0	0.0	19.3	0.8	0.0	0.0		
		0								
		15								
		30								
		45								
		60								
		90								
		120								
		150								
		180								
		240								
		0								
		15								
		30								
		45								
		60								
		90								
		120								
		150								
		180								
		240								

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	11 June 2024	Time of Visit:	8:30 to 5:45

Atm. Pressure:	1010 to 1012 mbar	Local Pressure System*:	Rising
Air Temperature:	12 °C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:

Dry

Damp

Wet

Saturated

Wind Strength:

Calm

Light

Moderate

Strong

Cloud Cover:

Clear

Slight

Cloudy

Overcast

Precipitation Level:

None

Slight

Moderate

Heavy

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS2002 (11:13)	1010	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	2.92
		15	0.0	0.0	20.9	0.1	0.0	0.1		
		30	0.0	0.0	20.8	0.1	0.0	0.0		
		45	0.0	0.0	20.8	0.1	0.0	0.0		
		60	0.0	0.0	20.8	0.1	0.0	0.0		
		90	0.0	0.0	20.8	0.1	0.0	0.0		
		120	0.0	0.0	20.8	0.1	0.0	0.0		
		150	0.0	0.0	20.7	0.1	0.0	0.0		
		180	0.0	0.0	20.7	0.1	0.0	0.0		
		240	0.0	0.0	20.7	0.1	0.0	0.0		
		300	0.0	0.0	20.7	0.1	0.0	0.0		
WS2004 (10:28)	1010	0	1.2	0.0	0.0	0.0	0.0	0.0	DRY	1.83
		15	0.0	0.0	20.6	0.5	0.0	0.3		
		30	0.0	0.0	20.5	0.5	0.0	0.3		
		45	0.0	0.0	20.3	0.5	0.0	0.1		
		60	0.0	0.0	20.4	0.6	0.0	0.2		
		90	0.0	0.0	20.4	0.6	0.0	0.0		
		120	0.0	0.0	20.3	0.6	0.0	0.0		
		150	0.0	0.0	20.3	0.7	0.0	0.0		
		180	0.0	0.0	20.3	0.7	0.0	0.0		
		240	0.0	0.0	20.3	0.7	0.0	0.0		
		300	0.0	0.0	20.3	0.7	0.0	0.0		
WS2006 (14:20)	1012	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	1.52
		15	0.0	0.0	17.0	3.4	0.0	0.0		
		30	0.0	0.0	15.8	4.1	0.0	0.0		
		45	0.0	0.0	15.6	4.2	0.0	0.0		
		60	0.0	0.0	15.6	4.2	0.0	0.0		
		90	0.0	0.0	15.5	4.2	0.0	0.0		
		120	0.0	0.0	15.5	4.3	0.0	0.0		
		150	0.0	0.0	15.4	4.3	0.0	0.0		
		180	0.0	0.0	15.3	4.3	0.0	0.0		
		240	0.0	0.0	15.1	4.6	0.0	0.0		
		300	0.0	0.0	15.0	4.7	0.0	0.0		
BH2005 (14:40)	1012	0	0.0	0.0	0.0	0.0	0.0	0.0	DRY	2.21
		15	0.0	0.0	15.3	2.9	0.0	0.0		
		30	0.0	0.0	14.8	2.9	0.0	0.0		
		45	0.0	0.0	14.6	2.9	0.0	0.0		
		60	0.0	0.0	14.6	3.0	0.0	0.0		
		90	0.0	0.0	14.6	3.2	0.0	0.0		
		120	0.0	0.0	14.6	3.3	0.0	0.0		
		150	0.0	0.0	14.6	3.5	0.0	0.0		
		180	0.0	0.0	14.6	3.6	0.0	0.0		
		240	0.0	0.0	14.9	3.7	0.0	0.0		
		300	0.0	0.0	14.7	4.1	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

*WS2001 unable to be monitored due to construction plant located over borehole position.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

Atm. Pressure:	1007 to 1010	Local Pressure System*:	Falling
Air Temperature:	22°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH1003 (10:56)	1009	0	0.0	0.0	17.0	0.7	0.0	0.1	DRY	3.46
		15	0.0	0.0	18.8	0.3	0.0	0.1		
		30	0.0	0.0	19.9	0.2	0.0	0.0		
		45	0.0	0.0	20.3	0.1	0.0	0.0		
		60	0.0	0.0	20.4	0.1	0.0	0.0		
		90	0.0	0.0	20.5	0.1	0.0	0.0		
		120	0.0	0.0	20.6	0.1	0.0	0.0		
		150	0.0	0.0	20.6	0.1	0.0	0.0		
		180	0.0	0.0	20.6	0.0	0.0	0.0		
		240	0.0	0.0	20.6	0.0	0.0	0.0		
		300	0.0	0.0	20.6	0.0	0.0	0.0		
BH1014A (17:04)	1007	0	0.0	0.0	20.3	0.2	0.0	0.0	DRY	3.82
		15	0.0	0.0	20.7	0.0	0.0	0.0		
		30	0.0	0.0	20.9	0.0	0.0	0.0		
		45	0.0	0.0	20.9	0.0	0.0	0.0		
		60	0.0	0.0	20.9	0.0	0.0	0.0		
		90	0.0	0.0	20.9	0.0	0.0	0.0		
		120	0.0	0.0	20.9	0.0	0.0	0.0		
		150	0.0	0.0	20.9	0.0	0.0	0.0		
		180	0.0	0.0	20.9	0.0	0.0	0.0		
		240	0.0	0.0	20.9	0.0	0.0	0.0		
		300	0.0	0.0	20.9	0.0	0.0	0.0		
WS1001 (14:36)	1007	0	0.0	0.0	20.1	0.1	0.0	0.0	4.30	4.91
		15	0.0	0.0	20.2	1.2	0.0	0.0		
		30	0.0	0.0	20.0	1.3	0.0	0.0		
		45	0.0	0.0	19.9	1.3	0.0	0.0		
		60	0.0	0.0	19.9	1.3	0.0	0.0		
		90	0.0	0.0	19.8	1.3	0.0	0.0		
		120	0.0	0.0	19.8	1.3	0.0	0.0		
		150	0.0	0.0	19.8	1.4	0.0	0.0		
		180	0.0	0.0	19.8	1.4	0.0	0.0		
		240	0.0	0.0	19.7	1.5	0.0	0.0		
		300	0.0	0.0	19.7	1.5	0.0	0.0		
WS1006 (15:45)	1008	0	-0.6	-0.1	17.8	4.4	0.0	0.1	DRY	2.56
		15	0.0	0.0	16.2	7.3	0.0	0.3		
		30	0.0	0.0	15.8	9.4	0.0	0.1		
		45	0.0	0.0	15.5	9.5	0.0	0.2		
		60	0.0	0.0	15.3	9.6	0.0	0.0		
		90	0.0	0.0	15.2	9.6	0.0	0.0		
		120	0.0	0.0	15.2	9.5	0.0	0.0		
		150	0.0	0.0	15.2	9.6	0.0	0.1		
		180	0.0	0.0	15.2	9.5	0.0	0.3		
		240	0.0	0.0	15.1	9.5	0.0	0.5		
		300	0.0	0.0	15.2	9.5	0.0	0.1		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

Atm. Pressure:	1007 to 1010	Local Pressure System*:	Falling
Air Temperature:	22°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☒
 Slight ☒
 Cloudy ☐
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1008 (11:25)	1009	0	0.0	0.0	19.8	0.3	0.0	0.0	DRY	1.98
		15	0.0	0.0	20.5	0.0	0.0	0.0		
		30	0.0	0.0	20.6	0.0	0.0	0.0		
		45	0.0	0.0	20.7	0.0	0.0	0.0		
		60	0.0	0.0	20.7	0.0	0.0	0.0		
		90	0.0	0.0	20.8	0.0	0.0	0.0		
		120	0.0	0.0	20.7	0.0	0.0	0.0		
		150	0.0	0.0	20.7	0.0	0.0	0.0		
		180	0.0	0.0	20.7	0.0	0.0	0.0		
		240	0.0	0.0	20.7	0.0	0.0	0.0		
		300	0.0	0.0	20.7	0.0	0.0	0.0		
WS1012 (9:44)	1010	0	0.0	0.0	9.8	3.2	0.0	0.1	4.11	4.91
		15	0.0	0.0	14.2	0.5	0.0	0.3		
		30	0.0	0.0	18.0	0.5	0.0	0.2		
		45	0.0	0.0	19.3	0.5	0.0	0.0		
		60	0.0	0.0	19.7	0.5	0.0	0.0		
		90	0.0	0.0	19.9	0.5	0.0	0.0		
		120	0.0	0.0	20.0	0.6	0.0	0.0		
		150	0.0	0.0	20.0	0.6	0.0	0.0		
		180	0.0	0.0	20.1	0.6	0.0	0.0		
		240	0.0	0.0	20.0	0.7	0.0	0.0		
		300	0.0	0.0	19.9	0.7	0.0	0.0		
WS1014 (15:10)	1008	0	0.0	0.0	20.1	0.4	0.0	0.0	DRY	1.96
		15	0.0	0.0	20.5	0.4	0.0	0.0		
		30	0.0	0.0	20.5	0.4	0.0	0.0		
		45	0.0	0.0	20.5	0.4	0.0	0.0		
		60	0.0	0.0	20.5	0.4	0.0	0.0		
		90	0.0	0.0	20.5	0.4	0.0	0.0		
		120	0.0	0.0	20.5	0.4	0.0	0.0		
		150	0.0	0.0	20.5	0.4	0.0	0.0		
		180	0.0	0.0	20.5	0.4	0.0	0.0		
		240	0.0	0.0	20.5	0.4	0.0	0.0		
		300	0.0	0.0	20.5	0.4	0.0	0.0		
WS1016 (12:06)	1009	0	0.0	0.0	20.3	0.0	0.0	0.0	DRY	5.28
		15	0.0	0.0	19.8	0.9	0.0	0.0		
		30	0.0	0.0	19.5	0.9	0.0	0.0		
		45	0.0	0.0	19.4	0.9	0.0	0.0		
		60	0.0	0.0	19.3	0.9	0.0	0.0		
		90	0.0	0.0	19.3	0.9	0.0	0.0		
		120	0.0	0.0	19.3	0.9	0.0	0.0		
		150	0.0	0.0	19.3	0.9	0.0	0.0		
		180	0.0	0.0	19.3	0.9	0.0	0.0		
		240	0.0	0.0	19.3	0.9	0.0	0.0		
		300	0.0	0.0	19.3	0.9	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

WS1016 - Bottom of the well was very sludgy.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

Atm. Pressure:	1007 to 1010	Local Pressure System*:	Falling
Air Temperature:	22°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry☒ Damp☐ Wet☐ Saturated☐

Wind Strength: Calm☐ Light☒ Moderate☐ Strong☐

Cloud Cover: Clear☒ Slight☒ Cloudy☐ Overcast☐

Precipitation Level: None☒ Slight☐ Moderate☐ Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1020 (9:06)	1010	0	0.0	0.0	0.0	0.0	0.0	0.5	DRY	4.45
		15	0.0	0.0	2.7	11.6	0.0	0.3		
		30	0.0	0.0	3.4	3.4	0.0	0.2		
		45	0.0	0.0	1.2	3.5	0.0	0.3		
		60	0.0	0.0	0.8	3.6	0.0	0.4		
		90	0.0	0.0	0.5	3.5	0.0	0.4		
		120	0.0	0.0	0.4	3.5	0.0	0.3		
		150	0.0	0.0	0.4	3.5	0.0	0.3		
		180	0.0	0.0	0.4	3.5	0.0	0.1		
		240	0.0	0.0	0.3	3.5	0.0	0.1		
WS1023A (10:56)	1010	0	0.0	0.0	19.2	0.1	0.0	0.0	DRY	1.42
		15	0.0	0.0	20.0	0.3	0.0	0.0		
		30	0.0	0.0	20.3	0.3	0.0	0.0		
		45	0.0	0.0	20.4	0.3	0.0	0.0		
		60	0.0	0.0	20.4	0.3	0.0	0.0		
		90	0.0	0.0	20.4	0.3	0.0	0.0		
		120	0.0	0.0	20.4	0.3	0.0	0.0		
		150	0.0	0.0	20.4	0.3	0.0	0.0		
		180	0.0	0.0	20.4	0.3	0.0	0.0		
		240	0.0	0.0	20.4	0.3	0.0	0.0		
		0								
		15								
		30								
		45								
		60								
		90								
		120								
		150								
		180								
		240								
		0								
		15								
		30								
		45								
		60								
		90								
		120								
		150								
		180								
		240								

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

Atm. Pressure:	1001 to 1008mbar	Local Pressure System*:	Falling
Air Temperature:	22°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☒
 Slight ☒
 Cloudy ☐
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS2001 (16:48)	1008	0	0.0	0.0	19.8	0.5	0.0	0.1	DRY	3.88
		15	0.0	0.0	20.4	0.2	0.0	0.0		
		30	0.0	0.0	20.6	0.1	0.0	0.0		
		45	0.0	0.0	20.7	0.1	0.0	0.0		
		60	0.0	0.0	20.7	0.1	0.0	0.0		
		90	0.0	0.0	20.7	0.1	0.0	0.0		
		120	0.0	0.0	20.7	0.1	0.0	0.0		
		150	0.0	0.0	20.7	0.1	0.0	0.0		
		180	0.0	0.0	20.7	0.1	0.0	0.0		
		240	0.0	0.0	20.7	0.1	0.0	0.0		
		300	0.0	0.0	20.7	0.1	0.0	0.0		
WS2002 (16:12)	1007	0	-2.2	-1.0	18.3	0.1	0.0	0.6	DRY	2.92
		15	0.0	0.0	19.3	0.5	0.0	1.5		
		30	0.0	0.0	20.4	0.2	0.0	0.1		
		45	0.0	0.0	20.4	0.2	0.0	0.0		
		60	0.0	0.0	20.4	0.2	0.0	0.0		
		90	0.0	0.0	20.4	0.2	0.0	0.0		
		120	0.0	0.0	20.4	0.2	0.0	0.0		
		150	0.0	0.0	20.4	0.2	0.0	0.0		
		180	0.0	0.0	20.4	0.2	0.0	0.0		
		240	0.0	0.0	20.4	0.2	0.0	0.0		
		300	0.0	0.0	20.4	0.2	0.0	0.0		
WS2004 (13:05)	1008	0	0.0	0.0	18.2	2.9	0.0	0.0	DRY	1.84
		15	0.0	0.0	19.3	0.7	0.0	0.0		
		30	0.0	0.0	19.9	0.7	0.0	0.0		
		45	0.0	0.0	20.1	0.7	0.0	0.0		
		60	0.0	0.0	20.1	0.7	0.0	0.0		
		90	0.0	0.0	20.2	0.7	0.0	0.0		
		120	0.0	0.0	20.2	0.7	0.0	0.0		
		150	0.0	0.0	20.2	0.7	0.0	0.0		
		180	0.0	0.0	20.2	0.7	0.0	0.0		
		240	0.0	0.0	20.2	0.7	0.0	0.0		
		300	0.0	0.0	20.3	0.7	0.0	0.0		
WS2006 (12:46)	1008	0	0.0	0.0	16.7	4.2	0.0	0.0	DRY	1.52
		15	0.0	0.0	17.6	2.1	0.0	0.0		
		30	0.0	0.0	18.5	2.1	0.0	0.0		
		45	0.0	0.0	18.6	2.1	0.0	0.0		
		60	0.0	0.0	18.9	2.1	0.0	0.0		
		90	0.0	0.0	18.9	2.1	0.0	0.0		
		120	0.0	0.0	18.9	2.1	0.0	0.0		
		150	0.0	0.0	18.8	2.1	0.0	0.0		
		180	0.0	0.0	18.6	2.3	0.0	0.0		
		240	0.0	0.0	18.0	2.7	0.0	0.0		
		300	0.0	0.0	17.6	3.0	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

Atm. Pressure:	1001 to 1008mbar	Local Pressure System*:	Falling
Air Temperature:	22°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:

Dry☒

Damp☐

Wet☐

Saturated☐

Wind Strength:

Calm☐

Light☒

Moderate☐

Strong☐

Cloud Cover:

Clear☒

Slight☒

Cloudy☐

Overcast☐

Precipitation Level:

None☒

Slight☐

Moderate☐

Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH2005 (12:23)	1001	0	0.0	0.0	19.5	0.9	0.0	0.1	DRY	2.20
		15	0.0	0.0	17.6	3.4	0.0	0.0		
		30	0.0	0.0	16.1	3.6	0.0	0.0		
		45	0.0	0.0	15.6	3.6	0.0	0.0		
		60	0.0	0.0	15.5	3.7	0.0	0.0		
		90	0.0	0.0	15.4	3.8	0.0	0.0		
		120	0.0	0.0	15.3	3.9	0.0	0.0		
		150	0.0	0.0	15.2	3.9	0.0	0.0		
		180	0.0	0.0	15.1	4.0	0.0	0.0		
		240	0.0	0.0	15.1	4.2	0.0	0.0		
		300	0.0	0.0	14.9	4.4	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	09 July 2024	Time of Visit:	9:00 - 14:00

Atm. Pressure:	1008 mbar	Local Pressure System*:	Falling
Air Temperature:	14°C - 20°C	Gas Monitor Model:	GFM 436

State of Ground: Dry ☐ Damp ☐ Wet ☒ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☐ Cloudy ☐ Overcast ☒

Precipitation Level: None ☐ Slight ☐ Moderate ☒ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH1003 (10:15)	1000	0	0.0	0.0	19.9	0.0	0.0	-	DRY	3.44
		15	0.0	0.0	20.6	0.2	0.0	-		
		30	0.0	0.0	20.6	0.2	0.0	-		
		45	0.0	0.0	20.6	0.2	0.0	-		
		60	0.0	0.0	20.6	0.2	0.0	-		
		90	0.0	0.0	20.6	0.2	0.0	-		
		120	0.0	0.0	20.5	0.2	0.0	-		
		150	0.0	0.0	20.6	0.1	0.0	-		
		180	0.0	0.0	20.6	0.1	0.0	-		
		240	0.0	0.0	20.6	0.1	0.0	-		
		300	0.0	0.0	20.6	0.1	0.0	-		
BH1014A (12:00)	1000	0	0.0	0.0	20.2	0.1	0.0	-	DRY	3.81
		15	0.0	0.0	20.8	0.1	0.0	-		
		30	0.0	0.0	20.6	0.0	0.0	-		
		45	0.0	0.0	20.6	0.0	0.0	-		
		60	0.0	0.0	20.6	0.0	0.0	-		
		90	0.0	0.0	20.6	0.0	0.0	-		
		120	0.0	0.0	20.6	0.0	0.0	-		
		150	0.0	0.0	20.6	0.0	0.0	-		
		180	0.0	0.0	20.6	0.0	0.0	-		
		240	0.0	0.0	20.6	0.0	0.0	-		
		300	0.0	0.0	20.6	0.0	0.0	-		
WS1001 (13:15)	1001	0	0.0	0.0	20.0	0.2	0.0	-	4.27	4.90
		15	0.0	0.0	20.1	1.1	0.0	-		
		30	0.0	0.0	19.8	1.1	0.0	-		
		45	0.0	0.0	19.7	1.1	0.0	-		
		60	0.0	0.0	19.7	1.2	0.0	-		
		90	0.0	0.0	19.6	1.2	0.0	-		
		120	0.0	0.0	19.6	1.2	0.0	-		
		150	0.0	0.0	19.6	1.2	0.0	-		
		180	0.0	0.0	19.6	1.2	0.0	-		
		240	0.0	0.0	19.6	1.2	0.0	-		
		300	0.0	0.0	19.6	1.2	0.0	-		
WS1006 (11:47)	1001	0	0.0	0.0	19.6	0.8	0.0	-	DRY	2.57
		15	0.0	0.0	17.8	4.5	0.0	-		
		30	0.0	0.0	17.0	4.7	0.0	-		
		45	0.0	0.0	16.9	4.7	0.0	-		
		60	0.0	0.0	16.9	4.7	0.0	-		
		90	0.0	0.0	16.9	4.7	0.0	-		
		120	0.0	0.0	16.9	4.7	0.0	-		
		150	0.0	0.0	16.8	4.7	0.0	-		
		180	0.0	0.0	16.8	4.7	0.0	-		
		240	0.0	0.0	16.8	4.7	0.0	-		
		300	0.0	0.0	16.8	4.7	0.0	-		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Mini Raelite not functioning correctly.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	09 July 2024	Time of Visit:	9:00 - 14:00

Atm. Pressure:	1008 mbar	Local Pressure System*:	Falling
Air Temperature:	14°C - 20°C	Gas Monitor Model:	GFM 436

State of Ground: Dry ☐ Damp ☐ Wet ☒ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☐ Cloudy ☐ Overcast ☒

Precipitation Level: None ☐ Slight ☐ Moderate ☒ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1008 (10:00)	1000	0	0.0	0.0	17.2	1.1	0.0	-	DRY	1.98
		15	0.0	0.0	21.2	0.0	0.0	-		
		30	0.0	0.0	20.4	0.0	0.0	-		
		45	0.0	0.0	20.5	0.0	0.0	-		
		60	0.0	0.0	20.5	0.0	0.0	-		
		90	0.0	0.0	20.5	0.0	0.0	-		
		120	0.0	0.0	20.5	0.0	0.0	-		
		150	0.0	0.0	20.5	0.0	0.0	-		
		180	0.0	0.0	20.5	0.0	0.0	-		
		240	0.0	0.0	20.5	0.0	0.0	-		
		300	0.0	0.0	20.5	0.0	0.0	-		
WS1012 (9:44)	1000	0	0.0	0.0	7.5	2.5	0.0	-	3.21	4.91
		15	0.0	0.0	17.8	1.3	0.0	-		
		30	0.0	0.0	18.5	1.2	0.0	-		
		45	0.0	0.0	18.9	1.2	0.0	-		
		60	0.0	0.0	19.0	1.2	0.0	-		
		90	0.0	0.0	19.1	1.2	0.0	-		
		120	0.0	0.0	19.1	1.2	0.0	-		
		150	0.0	0.0	19.1	1.2	0.0	-		
		180	0.0	0.0	19.1	1.2	0.0	-		
		240	0.0	0.0	19.1	1.2	0.0	-		
		300	0.0	0.0	19.1	1.1	0.0	-		
WS1014 (13:47)	1001	0	0.0	0.0	20.0	0.0	0.0	-	DRY	1.96
		15	0.0	0.0	20.5	0.4	0.0	-		
		30	0.0	0.0	20.3	0.4	0.0	-		
		45	0.0	0.0	20.3	0.4	0.0	-		
		60	0.0	0.0	20.3	0.4	0.0	-		
		90	0.0	0.0	20.2	0.4	0.0	-		
		120	0.0	0.0	20.2	0.4	0.0	-		
		150	0.0	0.0	20.2	0.4	0.0	-		
		180	0.0	0.0	20.2	0.4	0.0	-		
		240	0.0	0.0	20.2	0.5	0.0	-		
		300	0.0	0.0	20.2	0.5	0.0	-		
WS1016 (11:04)	1000	0	1.0	0.0	17.5	3.2	0.0	-	DRY	5.26
		15	0.6	0.0	18.9	0.8	0.0	-		
		30	0.0	0.0	19.0	0.8	0.0	-		
		45	0.0	0.0	19.0	0.7	0.0	-		
		60	0.0	0.0	19.0	0.7	0.0	-		
		90	0.0	0.0	19.0	0.7	0.0	-		
		120	0.0	0.0	19.0	0.8	0.0	-		
		150	0.0	0.0	18.9	0.8	0.0	-		
		180	0.0	0.0	18.9	0.8	0.0	-		
		240	0.0	0.0	18.9	0.8	0.0	-		
		300	0.0	0.0	18.9	0.8	0.0	-		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Mini Raelite not functioning correctly.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	09 July 2024	Time of Visit:	9:00 - 14:00

Atm. Pressure:	1008 mbar	Local Pressure System*:	Falling
Air Temperature:	14°C - 20°C	Gas Monitor Model:	GFM 436

State of Ground: Dry☐ Damp☐ Wet☒ Saturated☐

Wind Strength: Calm☐ Light☒ Moderate☐ Strong☐

Cloud Cover: Clear☐ Slight☐ Cloudy☐ Overcast☒

Precipitation Level: None☐ Slight☐ Moderate☒ Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1020 (9:22)	1001	0	0.0	0.0	16.2	0.1	0.0	-	DRY	4.44
		15	0.0	0.0	4.1	2.5	0.0	-		
		30	0.0	0.0	0.9	2.9	0.0	-		
		45	0.0	0.0	0.4	2.9	0.0	-		
		60	0.0	0.0	0.3	2.9	0.0	-		
		90	0.0	0.0	0.1	2.9	0.0	-		
		120	0.0	0.0	0.1	2.9	0.0	-		
		150	0.0	0.0	0.0	2.9	0.0	-		
		180	0.0	0.0	0.0	2.8	0.0	-		
		240	0.0	0.0	0.0	2.8	0.0	-		
		300	0.0	0.0	0.0	2.7	0.0	-		
WS1023A (10:26)	1000	0	0.0	0.0	19.2	0.1	0.0	-	DRY	1.43
		15	0.0	0.0	20.6	0.2	0.0	-		
		30	0.0	0.0	20.4	0.2	0.0	-		
		45	0.0	0.0	20.3	0.2	0.0	-		
		60	0.0	0.0	20.3	0.2	0.0	-		
		90	0.0	0.0	20.3	0.2	0.0	-		
		120	0.0	0.0	20.3	0.3	0.0	-		
		150	0.0	0.0	20.2	0.3	0.0	-		
		180	0.0	0.0	20.2	0.3	0.0	-		
		240	0.0	0.0	20.1	0.3	0.0	-		
		300	0.0	0.0	20.1	0.4	0.0	-		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Mini Raelite not functioning correctly.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	09 July 2024	Time of Visit:	9:00 - 14:00

Atm. Pressure:	1000 to 1001 mbar	Local Pressure System*:	Rising
Air Temperature:	14°C - 20°C	Gas Monitor Model:	GFM 436

State of Ground:
 Dry ☐
 Damp ☐
 Wet ☒
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☐
 Cloudy ☐
 Overcast ☒

Precipitation Level:
 None ☐
 Slight ☐
 Moderate ☒
 Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS2001 (12:20)	1001	0	0.0	0.0	19.9	0.3	0.0	-	DRY	3.88
		15	0.0	0.0	20.7	0.1	0.0	-		
		30	0.0	0.0	20.6	0.1	0.0	-		
		45	0.0	0.0	20.6	0.1	0.0	-		
		60	0.0	0.0	20.6	0.1	0.0	-		
		90	0.0	0.0	20.5	0.1	0.0	-		
		120	0.0	0.0	20.5	0.1	0.0	-		
		150	0.0	0.0	20.5	0.1	0.0	-		
		180	0.0	0.0	20.5	0.1	0.0	-		
		240	0.0	0.0	20.5	0.1	0.0	-		
		300	0.0	0.0	20.5	0.1	0.0	-		
WS2002 (12:05)	1001	0	0.0	0.0	17.6	4.6	0.0	-	DRY	2.92
		15	0.0	0.0	20.0	0.5	0.0	-		
		30	0.0	0.0	20.3	0.3	0.0	-		
		45	0.0	0.0	20.3	0.3	0.0	-		
		60	0.0	0.0	20.3	0.3	0.0	-		
		90	0.0	0.0	20.3	0.3	0.0	-		
		120	0.0	0.0	20.3	0.3	0.0	-		
		150	0.0	0.0	20.3	0.3	0.0	-		
		180	0.0	0.0	20.3	0.3	0.0	-		
		240	0.0	0.0	20.3	0.3	0.0	-		
		300	0.0	0.0	20.3	0.3	0.0	-		
WS2004 (11:34)	1000	0	0.0	0.0	18.9	0.8	0.0	-	DRY	1.83
		15	0.0	0.0	19.9	0.8	0.0	-		
		30	0.0	0.0	20.0	0.8	0.0	-		
		45	0.0	0.0	20.0	0.8	0.0	-		
		60	0.0	0.0	20.0	0.8	0.0	-		
		90	0.0	0.0	19.9	0.8	0.0	-		
		120	0.0	0.0	20.0	0.8	0.0	-		
		150	0.0	0.0	19.9	0.8	0.0	-		
		180	0.0	0.0	19.9	0.8	0.0	-		
		240	0.0	0.0	19.9	0.8	0.0	-		
		300	0.0	0.0	19.9	0.8	0.0	-		
WS2006 (10:43)	1000	0	0.0	0.0	19.5	0.4	0.0	-	DRY	1.51
		15	0.0	0.0	18.7	1.0	0.0	-		
		30	0.0	0.0	18.1	1.9	0.0	-		
		45	0.0	0.0	18.0	2.0	0.0	-		
		60	0.0	0.0	18.0	2.0	0.0	-		
		90	0.0	0.0	17.9	2.0	0.0	-		
		120	0.0	0.0	17.8	2.1	0.0	-		
		150	0.0	0.0	17.7	2.1	0.0	-		
		180	0.0	0.0	17.6	2.2	0.0	-		
		240	0.0	0.0	16.9	2.7	0.0	-		
		300	0.0	0.0	16.6	3.1	0.0	-		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	09 July 2024	Time of Visit:	9:00 - 14:00

Atm. Pressure:	1000 to 1001 mbar	Local Pressure System*:	Rising
Air Temperature:	14°C - 20°C	Gas Monitor Model:	GFM 436

State of Ground: Dry☐ Damp☐ Wet☒ Saturated☐

Wind Strength: Calm☐ Light☒ Moderate☐ Strong☐

Cloud Cover: Clear☐ Slight☐ Cloudy☐ Overcast☒

Precipitation Level: None☐ Slight☐ Moderate☒ Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH2005 (10:56)	1000	0	0.0	0.0	17.6	3.1	0.0	-	DRY	2.21
		15	0.0	0.0	17.9	2.5	0.0	-		
		30	0.0	0.0	17.9	2.5	0.0	-		
		45	0.0	0.0	17.8	2.6	0.0	-		
		60	0.0	0.0	17.8	2.6	0.0	-		
		90	0.0	0.0	17.8	2.7	0.0	-		
		120	0.0	0.0	17.7	2.8	0.0	-		
		150	0.0	0.0	17.6	2.8	0.0	-		
		180	0.0	0.0	17.6	2.9	0.0	-		
		240	0.0	0.0	17.3	3.1	0.0	-		
		300	0.0	0.0	17.1	3.2	0.0	-		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

Atm. Pressure:	1009 - 1014 mbar	Local Pressure System*:	Rising
Air Temperature:	19°C - 23°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH1003 (09:44)	1009	0	0.0	0.0	17.5	0.9	0.0	0.0	DRY	3.46
		15	0.0	0.0	20.0	0.2	0.0	0.0		
		30	0.0	0.0	20.7	0.1	0.0	0.0		
		45	0.0	0.0	20.8	0.1	0.0	0.0		
		60	0.0	0.0	20.8	0.1	0.0	0.0		
		90	0.0	0.0	20.8	0.1	0.0	0.0		
		120	0.0	0.0	20.8	0.1	0.0	0.0		
		150	0.0	0.0	20.8	0.1	0.0	0.0		
		180	0.0	0.0	20.8	0.1	0.0	0.0		
		240	0.0	0.0	20.8	0.1	0.0	0.0		
		300	0.0	0.0	20.8	0.1	0.0	0.0		
BH1014A (15:15)	1014	0	0.0	0.0	20.2	0.2	0.0	0.0	DRY	3.83
		15	0.0	0.0	21.2	0.2	0.0	0.0		
		30	0.0	0.0	21.2	0.2	0.0	0.0		
		45	0.0	0.0	21.1	0.3	0.0	0.0		
		60	0.0	0.0	21.0	0.3	0.0	0.0		
		90	0.0	0.0	21.0	0.3	0.0	0.0		
		120	0.0	0.0	21.0	0.3	0.0	0.0		
		150	0.0	0.0	21.0	0.3	0.0	0.0		
		180	0.0	0.0	21.0	0.3	0.0	0.0		
		240	0.0	0.0	21.1	0.3	0.0	0.0		
		300	0.0	0.0	21.0	0.3	0.0	0.0		
WS1001 (12:59)	1013	0	0.0	0.0	19.5	0.9	0.0	0.0	4.00	4.91
		15	0.0	0.0	20.0	1.7	0.0	0.0		
		30	0.0	0.0	19.8	1.7	0.0	0.0		
		45	0.0	0.0	19.8	1.8	0.0	0.0		
		60	0.0	0.0	19.8	1.8	0.0	0.0		
		90	0.0	0.0	19.7	1.8	0.0	0.0		
		120	0.0	0.0	19.7	1.8	0.0	0.0		
		150	0.0	0.0	19.7	1.8	0.0	0.0		
		180	0.0	0.0	19.7	1.8	0.0	0.0		
		240	0.0	0.0	19.7	1.8	0.0	0.0		
		300	0.0	0.0	19.8	1.8	0.0	0.0		
WS1006 (14:01)	1013	0	0.0	0.0	20.3	0.1	0.0	0.1	DRY	2.56
		15	0.0	0.0	13.7	5.1	0.0	0.0		
		30	0.0	0.0	11.2	8.2	0.0	0.1		
		45	0.0	0.0	10.8	8.4	0.0	0.0		
		60	0.0	0.0	10.6	8.5	0.0	0.1		
		90	0.0	0.0	10.5	8.5	0.0	0.1		
		120	0.0	0.0	10.5	8.5	0.0	0.1		
		150	0.0	0.0	10.5	8.5	0.0	0.0		
		180	0.0	0.0	10.5	8.5	0.0	0.0		
		240	0.0	0.0	10.5	8.5	0.0	0.0		
		300	0.0	0.0	10.6	8.5	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

BH1003 & WS1006 - Sludgy at base.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

Atm. Pressure:	1009 - 1014 mbar	Local Pressure System*:	Rising
Air Temperature:	19°C - 23°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1008 (10:15)	1010	0	0.0	0.0	19.9	0.4	0.0	0.0	DRY	1.97
		15	0.0	0.0	20.8	0.1	0.0	0.0		
		30	0.0	0.0	20.9	0.1	0.0	0.0		
		45	0.0	0.0	20.8	0.1	0.0	0.0		
		60	0.0	0.0	20.8	0.1	0.0	0.0		
		90	0.0	0.0	20.8	0.1	0.0	0.0		
		120	0.0	0.0	20.8	0.1	0.0	0.0		
		150	0.0	0.0	20.8	0.1	0.0	0.0		
		180	0.0	0.0	20.8	0.1	0.0	0.0		
		240	0.0	0.0	20.8	0.1	0.0	0.0		
WS1012 (9:22)	1010	0	0.0	0.0	10.1	2.5	0.0	0.0	3.46	4.92
		15	0.0	0.0	15.9	1.0	0.0	0.0		
		30	0.0	0.0	19.0	0.9	0.0	0.0		
		45	0.0	0.0	19.6	0.9	0.0	0.0		
		60	0.0	0.0	19.8	0.9	0.0	0.0		
		90	0.0	0.0	19.9	0.9	0.0	0.0		
		120	0.0	0.0	20.0	0.9	0.0	0.0		
		150	0.0	0.0	20.0	0.9	0.0	0.0		
		180	0.0	0.0	20.0	0.9	0.0	0.0		
		240	0.0	0.0	20.0	0.9	0.0	0.0		
WS1014 (16:10)	1014	0	0.0	0.0	20.4	0.5	0.0	0.0	DRY	1.98
		15	0.0	0.0	21.1	0.5	0.0	0.0		
		30	0.0	0.0	20.9	0.5	0.0	0.0		
		45	0.0	0.0	20.9	0.5	0.0	0.0		
		60	0.0	0.0	20.9	0.5	0.0	0.0		
		90	0.0	0.0	20.9	0.5	0.0	0.0		
		120	0.0	0.0	20.9	0.5	0.0	0.0		
		150	0.0	0.0	20.9	0.5	0.0	0.0		
		180	0.0	0.0	20.9	0.5	0.0	0.0		
		240	0.0	0.0	20.9	0.5	0.0	0.0		
WS1016 (10:56)	1012	0	0.0	0.0	20.1	0.2	0.0	0.0	DRY	5.24
		15	0.0	0.0	19.8	1.2	0.0	0.0		
		30	0.0	0.0	19.3	1.3	0.0	0.0		
		45	0.0	0.0	19.2	1.3	0.0	0.0		
		60	0.0	0.0	19.2	1.3	0.0	0.0		
		90	0.0	0.0	19.2	1.3	0.0	0.0		
		120	0.0	0.0	19.1	1.3	0.0	0.0		
		150	0.0	0.0	19.1	1.3	0.0	0.0		
		180	0.0	0.0	19.1	1.3	0.0	0.0		
		240	0.0	0.0	19.1	1.2	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

WS1016 - Sludgy at base.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

Atm. Pressure:	1009 - 1014 mbar	Local Pressure System*:	Rising
Air Temperature:	19°C - 23°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry☒ Damp☐ Wet☐ Saturated☐

Wind Strength: Calm☒ Light☐ Moderate☐ Strong☐

Cloud Cover: Clear☐ Slight☒ Cloudy☐ Overcast☐

Precipitation Level: None☒ Slight☐ Moderate☐ Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1020 (8:57)	1011	0	0.0	0.0	20.1	0.2	0.0	0.1	DRY	4.46
		15	0.0	0.0	3.7	2.5	0.0	0.4		
		30	0.0	0.0	2.0	2.8	0.0	0.5		
		45	0.0	0.0	1.2	2.8	0.0	0.3		
		60	0.0	0.0	1.0	2.8	0.0	0.3		
		90	0.0	0.0	0.8	2.8	0.0	0.1		
		120	0.0	0.0	0.8	2.8	0.0	0.1		
		150	0.0	0.0	0.7	2.8	0.0	0.2		
		180	0.0	0.0	0.7	2.8	0.0	0.1		
		240	0.0	0.0	0.7	2.8	0.0	0.0		
		300	0.0	0.0	0.7	2.8	0.0	0.0		
WS1023A (10:00)	1010	0	0.0	0.0	19.4	0.1	0.0	0.0	DRY	1.43
		15	0.0	0.0	20.6	0.2	0.0	0.0		
		30	0.0	0.0	20.7	0.2	0.0	0.0		
		45	0.0	0.0	20.7	0.2	0.0	0.0		
		60	0.0	0.0	20.7	0.2	0.0	0.0		
		90	0.0	0.0	20.7	0.2	0.0	0.0		
		120	0.0	0.0	20.6	0.2	0.0	0.0		
		150	0.0	0.0	20.5	0.3	0.0	0.0		
		180	0.0	0.0	20.6	0.3	0.0	0.0		
		240	0.0	0.0	20.5	0.3	0.0	0.0		
		300	0.0	0.0	20.4	0.4	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

WS1020 - The NAPL light on the dip meter when being used in the well.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

Atm. Pressure:	1012 to 1014 mbar	Local Pressure System*:	Rising
Air Temperature:	19°C - 23°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS2001 (14:55)	1014	0	0.0	0.0	19.2	0.6	0.0	0.0	DRY	3.87
		15	0.0	0.0	20.8	0.2	0.0	0.0		
		30	0.0	0.0	21.0	0.2	0.0	0.0		
		45	0.0	0.0	21.1	0.2	0.0	0.0		
		60	0.0	0.0	21.1	0.2	0.0	0.0		
		90	0.0	0.0	21.1	0.2	0.0	0.0		
		120	0.0	0.0	21.1	0.2	0.0	0.0		
		150	0.0	0.0	21.1	0.2	0.0	0.0		
		180	0.0	0.0	21.1	0.2	0.0	0.0		
		240	0.0	0.0	21.1	0.2	0.0	0.0		
WS2002 (14:32)	1014	0	0.0	0.0	15.7	7.8	0.0	0.0	DRY	2.91
		15	0.0	0.0	19.0	0.6	0.0	0.0		
		30	0.0	0.0	20.5	0.4	0.0	0.0		
		45	0.0	0.0	20.7	0.3	0.0	0.0		
		60	0.0	0.0	20.7	0.3	0.0	0.0		
		90	0.0	0.0	20.8	0.3	0.0	0.0		
		120	0.0	0.0	20.8	0.3	0.0	0.0		
		150	0.0	0.0	20.8	0.3	0.0	0.0		
		180	0.0	0.0	20.8	0.3	0.0	0.0		
		240	0.0	0.0	20.7	0.3	0.0	0.0		
WS2004 (11:50~)	1012	0	0.0	0.0	19.3	3.0	0.0	0.0	DRY	1.82
		15	0.0	0.0	19.9	0.9	0.0	0.0		
		30	0.0	0.0	20.1	0.9	0.0	0.0		
		45	0.0	0.0	20.1	0.9	0.0	0.0		
		60	0.0	0.0	20.2	0.9	0.0	0.0		
		90	0.0	0.0	20.2	0.9	0.0	0.0		
		120	0.0	0.0	20.2	0.9	0.0	0.0		
		150	0.0	0.0	20.2	0.9	0.0	0.0		
		180	0.0	0.0	20.2	0.9	0.0	0.0		
		240	0.0	0.0	20.2	0.9	0.0	0.0		
WS2006 (11:13)	1012	0	0.0	0.0	19.5	1.1	0.0	0.0	DRY	1.52
		15	0.0	0.0	18.7	3.5	0.0	0.0		
		30	0.0	0.0	17.5	3.6	0.0	0.0		
		45	0.0	0.0	17.3	3.6	0.0	0.0		
		60	0.0	0.0	17.3	3.7	0.0	0.0		
		90	0.0	0.0	17.2	3.7	0.0	0.0		
		120	0.0	0.0	17.2	3.7	0.0	0.0		
		150	0.0	0.0	17.2	3.7	0.0	0.0		
		180	0.0	0.0	17.1	3.7	0.0	0.0		
		240	0.0	0.0	16.7	4.0	0.0	0.0		
WS2006 (11:13)	1012	0	0.0	0.0	16.3	4.3	0.0	0.0	DRY	1.52
		15	0.0	0.0	16.3	4.3	0.0	0.0		
		30	0.0	0.0	16.3	4.3	0.0	0.0		
		45	0.0	0.0	16.3	4.3	0.0	0.0		
		60	0.0	0.0	16.3	4.3	0.0	0.0		
		90	0.0	0.0	16.3	4.3	0.0	0.0		
		120	0.0	0.0	16.3	4.3	0.0	0.0		
		150	0.0	0.0	16.3	4.3	0.0	0.0		
		180	0.0	0.0	16.3	4.3	0.0	0.0		
		240	0.0	0.0	16.3	4.3	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

~Approximate Time

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

Atm. Pressure:	1012 to 1014 mbar	Local Pressure System*:	Rising
Air Temperature:	19°C - 23°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry☒ Damp☐ Wet☐ Saturated☐

Wind Strength: Calm☒ Light☐ Moderate☐ Strong☐

Cloud Cover: Clear☐ Slight☒ Cloudy☐ Overcast☐

Precipitation Level: None☒ Slight☐ Moderate☐ Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH2005 (11:32)	1013	0	0.0	0.0	17.8	4.1	0.0	0.0	DRY	2.20
		15	0.0	0.0	15.9	4.1	0.0	0.0		
		30	0.0	0.0	15.1	4.2	0.0	0.0		
		45	0.0	0.0	15.0	4.2	0.0	0.0		
		60	0.0	0.0	14.9	4.2	0.0	0.0		
		90	0.0	0.0	14.9	4.2	0.0	0.0		
		120	0.0	0.0	14.9	4.2	0.0	0.0		
		150	0.0	0.0	14.9	4.2	0.0	0.0		
		180	0.0	0.0	14.9	4.2	0.0	0.0		
		240	0.0	0.0	14.9	4.2	0.0	0.0		
		300	0.0	0.0	14.9	4.2	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	07 August 2024	Time of Visit:	8:30 - 14:00

Atm. Pressure:	1004 to 1006 mbar	Local Pressure System*:	Rising
Air Temperature:	12°C - 18°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☐
 Moderate ☒
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☐
 Cloudy ☒
 Overcast ☐

Precipitation Level:
 None ☐
 Slight ☒
 Moderate ☐
 Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH1003 (09:22)	1004	0	0.0	0.0	18.0	0.2	0.0	0.1	DRY	3.46
		15	0.0	0.0	11.1	4.8	0.0	0.1		
		30	0.0	0.0	8.8	5.1	0.0	0.0		
		45	0.0	0.0	8.6	5.1	0.0	0.0		
		60	0.0	0.0	8.4	5.2	0.0	0.0		
		90	0.0	0.0	8.3	5.2	0.0	0.0		
		120	0.0	0.0	8.2	5.2	0.0	0.0		
		150	0.0	0.0	8.2	5.2	0.0	0.0		
		180	0.0	0.0	8.2	5.3	0.0	0.0		
		240	0.0	0.0	8.1	5.3	0.0	0.0		
		300	0.0	0.0	8.1	5.3	0.0	0.0		
BH1014A (12:20)	1004	0	0.0	0.0	20.3	0.0	0.0	0.0	DRY	3.82
		15	0.0	0.0	21.3	0.0	0.0	0.0		
		30	0.0	0.0	20.9	0.0	0.0	0.0		
		45	0.0	0.0	20.6	0.0	0.0	0.0		
		60	0.0	0.0	20.8	0.0	0.0	0.0		
		90	0.0	0.0	20.7	0.0	0.0	0.0		
		120	0.0	0.0	20.7	0.0	0.0	0.0		
		150	0.0	0.0	20.7	0.0	0.0	0.0		
		180	0.0	0.0	20.7	0.0	0.0	0.0		
		240	0.0	0.0	20.7	0.0	0.0	0.0		
		300	0.0	0.0	20.7	0.0	0.0	0.0		
WS1001 (13:35)	1005	0	0.0	0.0	20.1	0.3	0.0	0.0	4.12	4.90
		15	0.0	0.0	20.2	1.0	0.0	0.0		
		30	0.0	0.0	19.9	1.0	0.0	0.0		
		45	0.0	0.0	19.8	1.0	0.0	0.0		
		60	0.0	0.0	19.8	1.0	0.0	0.0		
		90	0.0	0.0	19.7	1.1	0.0	0.0		
		120	0.0	0.0	19.7	1.1	0.0	0.0		
		150	0.0	0.0	19.7	1.2	0.0	0.0		
		180	0.0	0.0	19.6	1.2	0.0	0.0		
		240	0.0	0.0	19.4	1.5	0.0	0.0		
		300	0.0	0.0	19.3	1.6	0.0	0.0		
WS1006 (11:30)	1006	0	0.0	0.0	19.7	0.8	0.0	0.0	DRY	2.55
		15	0.0	0.0	19.4	3.0	0.0	0.0		
		30	0.0	0.0	18.9	3.1	0.0	0.0		
		45	0.0	0.0	18.9	3.2	0.0	0.0		
		60	0.0	0.0	18.9	3.2	0.0	0.0		
		90	0.0	0.0	18.8	3.2	0.0	0.0		
		120	0.0	0.0	18.8	3.1	0.0	0.0		
		150	0.0	0.0	18.8	3.1	0.0	0.0		
		180	0.0	0.0	18.8	3.1	0.0	0.0		
		240	0.0	0.0	18.9	3.0	0.0	0.0		
		300	0.0	0.0	18.9	2.9	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

BH1003 & WS1006 - silty at base.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	07 August 2024	Time of Visit:	8:30 - 14:00

Atm. Pressure:	1004 to 1006 mbar	Local Pressure System*:	Rising
Air Temperature:	12°C - 18°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:

Dry

X

Damp

Wet

Saturated

Wind Strength:

Calm

Light

Moderate

X

Strong

Cloud Cover:

Clear

Slight

Cloudy

X

Overcast

Precipitation Level:

None

Slight

X

Moderate

Heavy

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1008 (9:49)	1004	0	0.0	0.0	19.1	0.3	0.0	0.0	DRY	1.98
		15	0.0	0.0	20.9	0.0	0.0	0.0		
		30	0.0	0.0	20.8	0.0	0.0	0.0		
		45	0.0	0.0	20.8	0.0	0.0	0.0		
		60	0.0	0.0	20.8	0.0	0.0	0.0		
		90	0.0	0.0	20.8	0.0	0.0	0.0		
		120	0.0	0.0	20.7	0.0	0.0	0.0		
		150	0.0	0.0	20.7	0.0	0.0	0.0		
		180	0.0	0.0	20.7	0.0	0.0	0.0		
		240	0.0	0.0	20.7	0.0	0.0	0.0		
		300	0.0	0.0	20.8	0.0	0.0	0.0		
WS1012 (8:57)	1003	0	0.0	0.0	10.0	2.2	0.0	0.0	4.12	4.91
		15	0.0	0.0	17.3	0.3	0.0	0.0		
		30	0.0	0.0	20.1	0.3	0.0	0.0		
		45	0.0	0.0	20.4	0.3	0.0	0.0		
		60	0.0	0.0	20.5	0.3	0.0	0.0		
		90	0.0	0.0	20.5	0.2	0.0	0.0		
		120	0.0	0.0	20.6	0.2	0.0	0.0		
		150	0.0	0.0	20.6	0.2	0.0	0.0		
		180	0.0	0.0	20.6	0.2	0.0	0.0		
		240	0.0	0.0	20.6	0.2	0.0	0.0		
		300	0.0	0.0	20.6	0.2	0.0	0.0		
WS1014 (12:38)	1005	0	0.0	0.0	20.4	0.0	0.0	0.0	DRY	1.95
		15	0.0	0.0	20.7	0.3	0.0	0.0		
		30	0.0	0.0	20.5	0.3	0.0	0.0		
		45	0.0	0.0	20.4	0.3	0.0	0.0		
		60	0.0	0.0	20.4	0.3	0.0	0.0		
		90	0.0	0.0	20.3	0.3	0.0	0.0		
		120	0.0	0.0	20.3	0.3	0.0	0.0		
		150	0.0	0.0	20.3	0.3	0.0	0.0		
		180	0.0	0.0	20.2	0.3	0.0	0.0		
		240	0.0	0.0	20.2	0.4	0.0	0.0		
		300	0.0	0.0	20.2	0.4	0.0	0.0		
WS1016 (10:18)	1006	0	0.0	0.0	19.4	0.0	0.0	0.0	DRY	5.27
		15	0.0	0.0	20.5	0.8	0.0	0.0		
		30	0.0	0.0	20.2	0.8	0.0	0.0		
		45	0.0	0.0	20.1	0.8	0.0	0.0		
		60	0.0	0.0	20.0	0.8	0.0	0.0		
		90	0.0	0.0	20.0	0.8	0.0	0.0		
		120	0.0	0.0	20.0	0.9	0.0	0.0		
		150	0.0	0.0	19.9	0.9	0.0	0.0		
		180	0.0	0.0	19.9	0.9	0.0	0.0		
		240	0.0	0.0	19.8	0.9	0.0	0.0		
		300	0.0	0.0	19.8	1.0	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

WS1016 - silty at base.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	07 August 2024	Time of Visit:	8:30 - 14:00

Atm. Pressure:	1004 to 1006 mbar	Local Pressure System*:	Rising
Air Temperature:	12°C - 18°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry☒ Damp☐ Wet☐ Saturated☐

Wind Strength: Calm☐ Light☐ Moderate☒ Strong☐

Cloud Cover: Clear☐ Slight☐ Cloudy☒ Overcast☐

Precipitation Level: None☐ Slight☒ Moderate☐ Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS1020 (8:36)	1005	0	0.0	0.0	20.1	0.0	0.0	0.0	DRY	4.45
		15	0.0	0.0	4.5	2.2	0.0	0.4		
		30	0.0	0.0	2.0	2.3	0.0	0.2		
		45	0.0	0.0	1.5	2.3	0.0	0.1		
		60	0.0	0.0	1.4	2.3	0.0	0.1		
		90	0.0	0.0	1.2	2.3	0.0	0.1		
		120	0.0	0.0	1.2	2.3	0.0	0.0		
		150	0.0	0.0	1.2	2.3	0.0	0.0		
		180	0.0	0.0	1.2	2.3	0.0	0.1		
		240	0.0	0.0	1.1	2.3	0.0	0.0		
		300	0.0	0.0	1.1	2.3	0.0	0.0		
WS1023A (9:40)	1005	0	0.0	0.0	20.0	0.1	0.0	0.0	DRY	1.43
		15	0.0	0.0	20.2	0.1	0.0	0.0		
		30	0.0	0.0	20.6	0.1	0.0	0.0		
		45	0.0	0.0	20.6	0.1	0.0	0.0		
		60	0.0	0.0	20.5	0.1	0.0	0.0		
		90	0.0	0.0	20.5	0.1	0.0	0.0		
		120	0.0	0.0	20.4	0.1	0.0	0.0		
		150	0.0	0.0	20.4	0.1	0.0	0.0		
		180	0.0	0.0	20.4	0.2	0.0	0.0		
		240	0.0	0.0	20.3	0.2	0.0	0.0		
		300	0.0	0.0	20.3	0.3	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

WS1020 - Damp at base.

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	07 August 2024	Time of Visit:	8:30 - 14:00

Atm. Pressure:	1004 to 1006mbar	Local Pressure System*:	Rising
Air Temperature:	12°C - 18°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☐
 Moderate ☒
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☐
 Cloudy ☒
 Overcast ☐

Precipitation Level:
 None ☐
 Slight ☒
 Moderate ☐
 Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS2001 (12:08)	1005	0	0.0	0.0	21.5	0.1	0.0	0.0	DRY	3.88
		15	0.0	0.0	21.4	0.0	0.0	0.0		
		30	0.0	0.0	20.7	0.0	0.0	0.0		
		45	0.0	0.0	20.7	0.0	0.0	0.0		
		60	0.0	0.0	20.7	0.0	0.0	0.0		
		90	0.0	0.0	20.7	0.0	0.0	0.0		
		120	0.0	0.0	20.7	0.0	0.0	0.0		
		150	0.0	0.0	20.7	0.0	0.0	0.0		
		180	0.0	0.0	20.7	0.0	0.0	0.0		
		240	0.0	0.0	20.9	0.0	0.0	0.0		
		300	0.0	0.0	20.7	0.0	0.0	0.0		
WS2002 (11:45)	1005	0	0.0	0.0	19.3	2.7	0.0	0.0	DRY	2.92
		15	0.0	0.0	20.7	0.2	0.0	0.0		
		30	0.0	0.0	20.7	0.1	0.0	0.0		
		45	0.0	0.0	20.6	0.1	0.0	0.0		
		60	0.0	0.0	20.6	0.1	0.0	0.0		
		90	0.0	0.0	20.6	0.1	0.0	0.0		
		120	0.0	0.0	20.6	0.1	0.0	0.0		
		150	0.0	0.0	20.6	0.1	0.0	0.0		
		180	0.0	0.0	20.6	0.1	0.0	0.0		
		240	0.0	0.0	20.6	0.1	0.0	0.0		
		300	0.0	0.0	20.6	0.1	0.0	0.0		
WS2004 (11:11)	1006	0	0.0	0.0	19.6	0.7	0.0	0.0	DRY	1.83
		15	0.0	0.0	20.3	0.8	0.0	0.0		
		30	0.0	0.0	19.9	0.8	0.0	0.0		
		45	0.0	0.0	19.9	0.8	0.0	0.0		
		60	0.0	0.0	19.8	0.8	0.0	0.0		
		90	0.0	0.0	19.8	0.8	0.0	0.0		
		120	0.0	0.0	19.8	0.8	0.0	0.0		
		150	0.0	0.0	19.8	0.8	0.0	0.0		
		180	0.0	0.0	19.8	0.8	0.0	0.0		
		240	0.0	0.0	19.8	0.8	0.0	0.0		
		300	0.0	0.0	19.8	0.8	0.0	0.0		
WS2006 (10:50)	1006	0	0.0	0.0	18.3	2.6	0.0	0.0	DRY	1.52
		15	0.0	0.0	20.0	0.8	0.0	0.0		
		30	0.0	0.0	20.2	0.7	0.0	0.0		
		45	0.0	0.0	20.2	0.7	0.0	0.0		
		60	0.0	0.0	20.2	0.7	0.0	0.0		
		90	0.0	0.0	20.2	0.7	0.0	0.0		
		120	0.0	0.0	20.2	0.7	0.0	0.0		
		150	0.0	0.0	20.1	0.7	0.0	0.0		
		180	0.0	0.0	20.1	0.7	0.0	0.0		
		240	0.0	0.0	20.1	0.7	0.0	0.0		
		300	0.0	0.0	20.1	0.7	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

~ Approximate Time

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	07 August 2024	Time of Visit:	8:30 - 14:00

Atm. Pressure:	1004 to 1006mbar	Local Pressure System*:	Rising
Air Temperature:	12°C - 18°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry☒ Damp☐ Wet☐ Saturated☐

Wind Strength: Calm☐ Light☐ Moderate☒ Strong☐

Cloud Cover: Clear☐ Slight☐ Cloudy☒ Overcast☐

Precipitation Level: None☐ Slight☒ Moderate☐ Heavy☐

Borehole Reference (Time Monitored)	Atm. Pressure (mbar)	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
BH2005 (10:35)	1004	0	0.0	0.0	19.8	0.9	0.0	0.0	DRY	2.21
		15	0.0	0.0	18.0	2.7	0.0	0.0		
		30	0.0	0.0	17.5	2.8	0.0	0.0		
		45	0.0	0.0	17.4	2.8	0.0	0.0		
		60	0.0	0.0	17.4	2.8	0.0	0.0		
		90	0.0	0.0	17.4	2.8	0.0	0.0		
		120	0.0	0.0	17.4	2.8	0.0	0.0		
		150	0.0	0.0	17.4	2.8	0.0	0.0		
		180	0.0	0.0	17.5	2.8	0.0	0.0		
		240	0.0	0.0	17.6	2.7	0.0	0.0		
		300	0.0	0.0	17.7	2.7	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Ground Gas Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	Kiera l'Anson
Date of Visit:	17 September 2024	Time of Visit:	8:00 to 4:30

Atm. Pressure:	1022 to 1027mbar	Local Pressure System*:	Falling
Air Temperature:	14°C to 21°C	Gas Monitor Model:	GFM 436 and MiniRAE Lite

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference (Time Monitored)	Atm. Pressure	Time (secs)	Flow (l/hr)	Diff. Pressure (mb)	O ₂ (%v/v)	CO ₂ (%v/v)	CH ₄ (%v/v)	PID (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
WS2007 (12:22)	1027	0	0.0	0.0	20.2	0.3	0.0	0.0	DAMP	3.54
		15	0.0	0.0	12.2	4.5	0.0	0.0		
		30	0.0	0.0	10.3	5.4	0.0	0.0		
		45	0.0	0.0	10.0	5.5	0.0	0.0		
		60	0.0	0.0	9.8	5.6	0.0	0.0		
		90	0.0	0.0	9.6	5.8	0.0	0.0		
		120	0.0	0.0	9.4	6.1	0.0	0.0		
		150	0.0	0.0	9.3	6.3	0.0	0.0		
		180	0.0	0.0	8.7	6.5	0.0	0.0		
		240	0.0	0.0	8.7	6.5	0.0	0.0		
		300	0.0	0.0	8.8	6.3	0.0	0.0		
WS2009 (13:22)	1022	0	0.0	0.0	18.8	0.5	0.0	0.0	DRY	2.08
		15	0.0	0.0	19.6	0.2	0.0	0.0		
		30	0.0	0.0	20.1	0.2	0.0	0.0		
		45	0.0	0.0	20.2	0.2	0.0	0.0		
		60	0.0	0.0	20.3	0.2	0.0	0.0		
		90	0.0	0.0	20.3	0.1	0.0	0.0		
		120	0.0	0.0	20.3	0.1	0.0	0.0		
		150	0.0	0.0	20.3	0.1	0.0	0.0		
		180	0.0	0.0	20.3	0.1	0.0	0.0		
		240	0.0	0.0	20.3	0.1	0.0	0.0		
		300	0.0	0.0	20.3	0.1	0.0	0.0		

Notes:

*With reference to the Weather Underground rolling weather archive station.

*Atm. = Atmospheric

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KP
Date of Visit:	14 May 2024	Time of Visit:	12:30 to 20:00

State of Ground: Dry Damp ☒ Wet ☒ Saturated

Wind Strength: Calm Light ☒ Moderate ☒ Strong

Cloud Cover: Clear Slight Cloudy ☒ Overcast

Precipitation Level: None ☒ Slight ☒ Moderate Heavy

Borehole Reference	BH1002	BH1003	BH1006	BH1007	BH1008	BH1009	BH1012	BH1013A
Target Stratum	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Glacial Till	Glacial Till	Sandstone
Ground Level (mOD)	38.79	34.06	34.19	34.10	33.60	40.51	40.60	33.60
Groundwater Depth (mbgl)	10.63	Damp	6.00	5.65	5.57	Damp	Damp	5.33
Groundwater Level (mOD)	28.16	Damp	28.19	28.45	28.03	Damp	Damp	28.27
Base of Well (mbgl)	20.31	3.49	15.10	9.63	10.66	5.30	5.40	16.44
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.50	4.50	7.00	4.00	3.00	6.00	4.00	5.00
Base of Response Zone (mbgl)	25.00	25.00	15.00	15.00	10.50	15.00	5.50	20.00
Top of Response Zone (mOD)	33.29	29.56	27.19	30.10	30.60	34.51	36.60	28.60
Base of Response Zone (mOD)	13.79	9.06	19.19	19.10	23.10	25.51	35.10	13.60
Hydrocarbon Sheen Observed?	No	No	No	No	No	No	No	No
Thickness of Free Product (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Groundwater Sampling Details	BH1002	BH1003	BH1006	BH1007	BH1008	BH1009	BH1012	BH1013A
Purge Method	Bail	-	Bail	Bail	Bail	-	-	Bail
Purged Volume	52	-	52	24	30.00	-	-	64
Recharge (Good / Poor)	Good	-	Good	Good	Good	-	-	Good
Sampling Method	Bailer	-	Bailer	Bailer	Bailer	-	-	Bailer
Volume of Water Sampled (ltrs)	1B + 1V	-	1B + 1V	1B + 1V	1B + 1V	-	-	1B + 1V
Volume of Free Product Sampled (ltrs)	0.00	-	0.00	0.00	0.00	-	-	0.00
Colour / Odours Noted	Light brown, silty, no odour	-	Light brown, silty, no odour	Light orange, silty, no odour	Light orange, silty, no odour	-	-	Clear, no odour
In-situ pH	7.30	-	6.86	6.69	6.91	-	-	6.94
In-situ Temperature (°C)	13.5	-	13.3	13.5	14.7	-	-	15.9
In-situ Dissolved Oxygen (%)	15.3	-	7.7	8.4	8.2	-	-	9.8
In-situ Electrical Conductivity (mS/cm)	0.89	-	1.05	0.88	1.37	-	-	0.64
In-situ Total Dissolved Solids (ppt)	0.45	-	0.51	0.48	0.38	-	-	0.31

Notes:

WS1012 - poor recharge, sample taken from purged water.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KP
Date of Visit:	14 May 2024	Time of Visit:	12:30 to 20:00

State of Ground:

Dry

Damp

Wet

Saturated

Wind Strength:

Calm

Light

Moderate

Strong

Cloud Cover:

Clear

Slight

Cloudy

Overcast

Precipitation Level:

None

Slight

Moderate

Heavy

Borehole Reference	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1012	WS1016	WS1020
Target Stratum	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	32.62	41.50	38.40	33.62	35.00	37.91	34.17	32.88
Groundwater Depth (mbgl)	Dry	Damp	3.57	Dry	Dry	4.10	Dry	Dry
Groundwater Level (mOD)	Dry	Damp	34.83	Dry	Dry	33.81	Dry	Dry
Base of Well (mbgl)	3.83	4.95	3.97	2.57	1.99	4.91	5.28	4.46
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	1.00	1.00	3.60	1.00	0.50	1.00	1.00	1.00
Base of Response Zone (mbgl)	4.00	5.00	4.00	1.50	2.00	4.00	5.00	4.00
Top of Response Zone (mOD)	31.62	40.50	34.80	32.62	34.50	36.91	33.17	31.88
Base of Response Zone (mOD)	28.62	36.50	34.40	32.12	33.00	33.91	29.17	28.88
Hydrocarbon Sheen Observed?	No	No	No	No	No	No	No	No
Thickness of Free Product (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Groundwater Sampling Details	BH1014	WS1001	WS1002	WS1006	WS1008	WS1012	WS1016	WS1020
Purge Method	-	-	-	-	-	Bail	-	-
Purged Volume	-	-	-	-	-	2.5	-	-
Recharge (Good / Poor)	-	-	-	-	-	Poor	-	-
Sampling Method	-	-	-	-	-	Bailer	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	1B + 1V	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	0.00	-	-
Colour / Odours Noted	-	-	-	-	-	Dark grey, silty, no odour	-	-
In-situ pH	-	-	-	-	-	7.15	-	-
In-situ Temperature (°C)	-	-	-	-	-	12.5	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	7.1	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	2.16	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	0.87	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KP
Date of Visit:	14 May 2024	Time of Visit:	12:30 to 20:00

State of Ground:

Dry

Damp

Wet

Saturated

Wind Strength:

Calm

Light

Moderate

Strong

Cloud Cover:

Clear

Slight

Cloudy

Overcast

Precipitation Level:

None

Slight

Moderate

Heavy

Borehole Reference	WS1023A	WS1024						
Target Stratum	Made Ground	Made Ground						
Ground Level (mOD)	33	35						
Groundwater Depth (mbgl)	Dry	Damp						
Groundwater Level (mOD)	Dry	Damp						
Base of Well (mbgl)	1.45	3.57						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	1.00	1.00						
Base of Response Zone (mbgl)	1.45	3.70						
Top of Response Zone (mOD)	32.00	34.00						
Base of Response Zone (mOD)	31.55	31.30						
Hydrocarbon Sheen Observed?	No	No						
Thickness of Free Product (m)	0.00	0.00						

Groundwater Sampling Details	WS1023A	WS1024						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KP
Date of Visit:	15 May 2024	Time of Visit:	07:30 to 18:30

State of Ground: Dry ☐ Damp ☒ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☐ Cloudy ☒ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1001	BH1004	BH1005	BH1015B	WS1009	WS1014		
Target Stratum	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till	Made Ground		
Ground Level (mOD)	35.24	36.50	33.51	33.83	38.70	34.30		
Groundwater Depth (mbgl)	6.96	Dry	5.20	Damp	Dry	Dry		
Groundwater Level (mOD)	28.28	Dry	28.31	Damp	Dry	Dry		
Base of Well (mbgl)	22.00	3.00	14.92	5.99	2.74	1.96		
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05		
Condition of Well	Good	Good	Good	Good	Good	Good		
Top of Response Zone (mbgl)	5.00	7.00	7.00	4.50	1.90	1.00		
Base of Response Zone (mbgl)	25.00	19.50	16.50	6.00	2.60	2.00		
Top of Response Zone (mOD)	30.24	29.50	26.51	29.33	36.80	33.30		
Base of Response Zone (mOD)	10.24	17.00	17.01	27.83	36.10	32.30		
Hydrocarbon Sheen Observed?	No	No	Yes	No	No	No		
Thickness of Free Product (m)	0.00	0.00	0.00	0.00	0.00	0.00		

Groundwater Sampling Details	BH1001	BH1004	BH1005	BH1015B	WS1009	WS1014		
Purge Method	Bail	-	Bail	-	-	-		
Purged Volume	88	-	53	-	-	-		
Recharge (Good / Poor)	Good	-	Good	-	-	-		
Sampling Method	Bailer	-	Bailer	-	-	-		
Volume of Water Sampled (ltrs)	1B + 1V	-	2B + 2V	-	-	-		
Volume of Free Product Sampled (ltrs)	0.00	-	0.00	-	-	-		
Colour / Odours Noted	Light brown, silty, no odour	-	Dark grey brown, silty, no odour	-	-	-		
In-situ pH	7.43	-	-	-	-	-		
In-situ Temperature (°C)	14.4	-	-	-	-	-		
In-situ Dissolved Oxygen (%)	12.3	-	-	-	-	-		
In-situ Electrical Conductivity (mS/cm)	0.68	-	-	-	-	-		
In-situ Total Dissolved Solids (ppt)	0.27	-	-	-	-	-		

Notes:

BH1004 - blocked at 3.00m below ground level with Made Ground material retrieved on end of interface meter.

BH1005 - hydrocarbon sheen and slight to moderate hydrocarbon odour noted after approximately 20 litres bailed from well. Groundwater samples taken after bailing 1 x water column volume (W1 @ 6.50m) and after bailing 3 x water column volume (W2 @ 6.00m). In-situ testing not undertaken due to hydrocarbon contamination.

Groundwater Diver Installation Details:

BH1002 - installed 15mbgl at 16:50, groundwater at 10.65mbgl.

BH1006 - installed 10mbgl at 16:15, groundwater at 6.03mbgl.

BH1007 - installed at 7.5mbgl at 16:20, groundwater at 5.66mbgl.

BH1008 - installed at 7mbgl at 16:40, groundwater at 5.62mbgl.

BH1013A - installed at 10m at 16:00, groundwater at 5.38mbgl. Baro installed within headworks.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KP
Date of Visit:	14 May 2024	Time of Visit:	12:30 to 20:00

State of Ground: Dry Damp ☒ Wet ☒ Saturated

Wind Strength: Calm Light ☒ Moderate ☒ Strong

Cloud Cover: Clear Slight Cloudy ☒ Overcast

Precipitation Level: None ☒ Slight ☒ Moderate Heavy

Borehole Reference	BH2002	BH2004	BH2005	WS2001	WS2002	WS2004	WS2005	WS2006
Target Stratum	Sandstone	Sandstone	Made Ground	Made Ground	Made Ground	Made Ground	Sandstone	Made Ground
Ground Level (mOD)	33.81	34.04	34.36	34.30	33.80	34.00	34.26	34.74
Groundwater Depth (mbgl)	5.92	5.79	Dry	Dry	Dry	Dry	Dry	Dry
Groundwater Level (mOD)	27.89	28.25	Dry	Dry	Dry	Dry	Dry	Dry
Base of Well (mbgl)	12.92	13.91	2.23	3.94	2.95	1.80	4.90	1.54
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	1.00	1.00	0.50	3.00	0.70
Base of Response Zone (mbgl)	15.00	15.00	4.00	4.00	3.00	1.50	5.00	1.70
Top of Response Zone (mOD)	30.81	31.04	33.36	33.30	32.80	33.50	31.26	34.04
Base of Response Zone (mOD)	18.81	19.04	30.36	30.30	30.80	32.50	29.26	33.04
Hydrocarbon Sheen Observed?	No	No	No	No	No	No	No	No
Thickness of Free Product (m)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Groundwater Sampling Details	BH2002	BH2004	BH2005	WS2001	WS2002	WS2004	WS2005	WS2006
Purge Method	Bail	-	-	-	-	-	-	-
Purged Volume	39	-	-	-	-	-	-	-
Recharge (Good / Poor)	Good	-	-	-	-	-	-	-
Sampling Method	Bailer	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	1B + 1V	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	0.00	-	-	-	-	-	-	-
Colour / Odours Noted	Light orange, silty, no odour	-	-	-	-	-	-	-
In-situ pH	7.46	-	-	-	-	-	-	-
In-situ Temperature (°C)	14.8	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	5.9	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	0.81	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	0.52	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KP
Date of Visit:	15 May 2024	Time of Visit:	07:30 to 18:30

State of Ground: Dry ☐ Damp ☒ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☐ Cloudy ☒ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH2006	BH2007						
Target Stratum	Sandstone	Sandstone						
Ground Level (mOD)	30.74	35.16						
Groundwater Depth (mbgl)	3.33	7.10						
Groundwater Level (mOD)	27.41	28.06						
Base of Well (mbgl)	11.00	10.16						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	6.00	8.00						
Base of Response Zone (mbgl)	15.00	15.00						
Top of Response Zone (mOD)	24.74	27.16						
Base of Response Zone (mOD)	15.74	20.16						
Hydrocarbon Sheen Observed?	No	No						
Thickness of Free Product (m)	0.00	0.00						

Groundwater Sampling Details	BH2006	BH2007						
Purge Method	Bail	Bail						
Purged Volume	45	17						
Recharge (Good / Poor)	Good	Good						
Sampling Method	Bailer	Bailer						
Volume of Water Sampled (ltrs)	2B + 2V	2B + 2V						
Volume of Free Product Sampled (ltrs)	0.00	0.00						
Colour / Odours Noted	Clear, no odour	Light orange, silty, no odour						
In-situ pH	8.20	7.54						
In-situ Temperature (°C)	15.4	12.9						
In-situ Dissolved Oxygen (%)	6.7	12.0						
In-situ Electrical Conductivity (mS/cm)	0.90	0.99						
In-situ Total Dissolved Solids (ppt)	0.44	0.53						

Notes:

Groundwater Diver Installation Details:

BH2002 - installed 7mbgl at 16:35, groundwater at 5.97mbgl.

BH2006 - installed 7mbgl at 15:20, groundwater at 3.36mbgl.

BH2007 - installed at 8.5mbgl at 14:15, groundwater at 7.11mbgl.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1002	BH1003	BH1004	BH1005	BH1007	BH1008	BH1009	BH1012
Target Stratum	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till	Glacial Till
Ground Level (mOD)	38.79	34.06	36.50	33.51	34.10	33.60	40.51	40.60
Groundwater Depth (mbgl)	10.60	Damp	Dry	5.32	5.86	5.72	Dry	4.04
Groundwater Level (mOD)	28.19	Damp	Dry	28.19	28.24	27.88	Dry	36.56
Base of Well (mbgl)	25.55	3.46	2.93	14.35	8.65	10.48	5.21	5.37
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.50	4.50	7.00	7.00	4.00	3.00	6.00	4.00
Base of Response Zone (mbgl)	25.00	25.00	19.50	16.50	15.00	10.50	15.00	5.50
Top of Response Zone (mOD)	33.29	29.56	29.50	26.51	30.10	30.60	34.51	36.60
Base of Response Zone (mOD)	13.79	9.06	17.00	17.01	19.10	23.10	25.51	35.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1002	BH1003	BH1004	BH1005	BH1007	BH1008	BH1008	BH1008
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1001 - Not accessible due to locked gate and security could not provide keys.
BH1006 - Not accessible due to utility works occurring next to borehole.
BH1015B - Car parked over borehole position.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1013A	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Target Stratum	Sandstone	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground
Ground Level (mOD)	33.60	32.62	41.50	38.40	33.62	35.00	38.70	37.91
Groundwater Depth (mbgl)	5.46	Dry	4.30	3.54	Dry	Dry	Dry	4.11
Groundwater Level (mOD)	28.14	Dry	37.20	34.86	Dry	Dry	Dry	33.80
Base of Well (mbgl)	16.58	3.82	4.90	3.94	2.56	1.98	2.70	4.91
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	1.00	1.00	3.60	1.00	0.50	1.90	1.00
Base of Response Zone (mbgl)	20.00	4.00	5.00	4.00	1.50	2.00	2.60	4.00
Top of Response Zone (mOD)	28.60	31.62	40.50	34.80	32.62	34.50	36.80	36.91
Base of Response Zone (mOD)	13.60	28.62	36.50	34.40	32.12	33.00	36.10	33.91
Hydrocarbon Sheen Observed?	-	-	No	-	-	-	-	No
Thickness of Free Product (m)	-	-	0.00	-	-	-	-	0.00

Groundwater Sampling Details	BH1014	BH1014	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Purge Method	-	-	Bail	-	-	-	-	Bail
Purged Volume	-	-	1.8	-	-	-	-	1.6
Recharge (Good / Poor)	-	-	Poor	-	-	-	-	Poor
Sampling Method	-	-	Bailer	-	-	-	-	Bailer
Volume of Water Sampled (ltrs)	-	-	2B + 2V	-	-	-	-	1B + 1V
Volume of Free Product Sampled (ltrs)	-	-	0.00	-	-	-	-	0.00
Colour / Odours Noted	-	-	Dark Brown, silty, no odour	-	-	-	-	Dark brown, very silty, no odour
In-situ pH	-	-	7.19	-	-	-	-	7.36
In-situ Temperature (°C)	-	-	18.5	-	-	-	-	21.1
In-situ Dissolved Oxygen (%)	-	-	5.3	-	-	-	-	3.0
In-situ Electrical Conductivity (mS/cm)	-	-	1.25	-	-	-	-	1.60
In-situ Total Dissolved Solids (ppt)	-	-	0.63	-	-	-	-	0.80

Notes:

WS1001 and WS1012 - poor recharge, sample taken from purged water.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☒
 Slight ☒
 Cloudy ☐
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference	WS1014	WS1016	WS1020	WS1023A				
Target Stratium	Made Ground	Made Ground	Made Ground	Made Ground				
Ground Level (mOD)	34.30	34.17	32.88	33				
Groundwater Depth (mbgl)	Dry	Dry	Dry	Dry				
Groundwater Level (mOD)	Dry	Dry	Dry	Dry				
Base of Well (mbgl)	1.96	5.28	4.45	1.42				
Diameter of Well (m)	0.05	0.05	0.05	0.05				
Condition of Well	Good	Good	Good	Good				
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00				
Base of Response Zone (mbgl)	2.00	5.00	4.00	1.45				
Top of Response Zone (mOD)	33.30	33.17	31.88	32.00				
Base of Response Zone (mOD)	32.30	29.17	28.88	31.55				
Hydrocarbon Sheen Observed?	-	-	-	-				
Thickness of Free Product (m)	-	-	-	-				

Groundwater Sampling Details	WS1014	WS1016	WS1020	WS1023A				
Purge Method	-	-	-	-				
Purged Volume	-	-	-	-				
Recharge (Good / Poor)	-	-	-	-				
Sampling Method	-	-	-	-				
Volume of Water Sampled (ltrs)	-	-	-	-				
Volume of Free Product Sampled (ltrs)	-	-	-	-				
Colour / Odours Noted	-	-	-	-				
In-situ pH	-	-	-	-				
In-situ Temperature (°C)	-	-	-	-				
In-situ Dissolved Oxygen (%)	-	-	-	-				
In-situ Electrical Conductivity (mS/cm)	-	-	-	-				
In-situ Total Dissolved Solids (ppt)	-	-	-	-				

Notes:

WS1016 - very sludgy at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

State of Ground:

Dry

X

Damp

Wet

Saturated

Wind Strength:

Calm

Light

X

Moderate

Strong

Cloud Cover:

Clear

X

Slight

X

Cloudy

Overcast

Precipitation Level:

None

X

Slight

Moderate

Heavy

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81	34.04	34.36	30.74	35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	6.03	6.95	Dry	3.43	7.21	Dry	Dry	Dry
Groundwater Level (mOD)	27.78	27.09	Dry	27.31	27.95	Dry	Dry	Dry
Base of Well (mbgl)	12.27	13.74	2.20	10.76	10.20	3.88	2.92	1.84
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	6.00	8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81	31.04	33.36	24.74	27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81	19.04	30.36	15.74	20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	25 June 2024	Time of Visit:	9:00 - 19:00

State of Ground:

Dry
☒

Damp
☐

Wet
☐

Saturated
☐

Wind Strength:

Calm
☐

Light
☒

Moderate
☐

Strong
☐

Cloud Cover:

Clear
☒

Slight
☒

Cloudy
☐

Overcast
☐

Precipitation Level:

None
☒

Slight
☐

Moderate
☐

Heavy
☐

Borehole Reference	WS2005	WS2006						
Target Stratum	Sandstone	Made Ground						
Ground Level (mOD)	34.26	34.74						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.88	1.52						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	3.00	0.70						
Base of Response Zone (mbgl)	5.00	1.70						
Top of Response Zone (mOD)	31.26	34.04						
Base of Response Zone (mOD)	29.26	33.04						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS2001	WS2002						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☒
 Light ☐
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☒
 Cloudy ☐
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference	BH1001	BH1002	BH1003	BH1004	BH1005	BH1006	BH1007	BH1008
Target Stratum	Sandstone	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Ground Level (mOD)	35.24	38.79	34.06	36.50	33.51	34.19	34.10	33.60
Groundwater Depth (mbgl)	7.22	10.88	Damp	Dry	5.44	6.21	5.81	6.09
Groundwater Level (mOD)	28.02	27.91	Damp	Dry	28.07	27.98	28.29	27.51
Base of Well (mbgl)	21.83	25.77	3.46	1.92	15.20	15.10	6.87	10.54
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	4.50	7.00	7.00	7.00	4.00	3.00
Base of Response Zone (mbgl)	25.00	25.00	25.00	19.50	16.50	15.00	15.00	10.50
Top of Response Zone (mOD)	30.24	33.29	29.56	29.50	26.51	27.19	30.10	30.60
Base of Response Zone (mOD)	10.24	13.79	9.06	17.00	17.01	19.19	19.10	23.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1003	BH1004	BH1005	BH1007	BH1007	BH1008
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1007 - Borehole extremely silty.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

State of Ground:	Dry	☒	Damp	☐	Wet	☐	Saturated	☐
Wind Strength:	Calm	☒	Light	☐	Moderate	☐	Strong	☐
Cloud Cover:	Clear	☐	Slight	☒	Cloudy	☐	Overcast	☐
Precipitation Level:	None	☒	Slight	☐	Moderate	☐	Heavy	☐

Borehole Reference	BH1009	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009
Target Stratum	Glacial Till	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till
Ground Level (mOD)	40.51	40.60	32.62	41.50	38.40	33.62	35.00	38.70
Groundwater Depth (mbgl)	Dry	3.88	Dry	4.00	3.60	Dry	Dry	Dry
Groundwater Level (mOD)	Dry	36.72	Dry	37.50	34.80	Dry	Dry	Dry
Base of Well (mbgl)	5.20	5.37	3.83	4.91	3.90	2.56	1.97	2.70
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	6.00	4.00	1.00	1.00	3.60	1.00	0.50	1.90
Base of Response Zone (mbgl)	15.00	5.50	4.00	5.00	4.00	1.50	2.00	2.60
Top of Response Zone (mOD)	34.51	36.60	31.62	40.50	34.80	32.62	34.50	36.80
Base of Response Zone (mOD)	25.51	35.10	28.62	36.50	34.40	32.12	33.00	36.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1009	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	WS1012	WS1014	WS1016	WS1020	WS1023A			
Target Stratum	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground			
Ground Level (mOD)	37.91	34.30	34.17	32.88	33			
Groundwater Depth (mbgl)	3.46	Dry	Dry	Dry	Dry			
Groundwater Level (mOD)	34.45	Dry	Dry	Dry	Dry			
Base of Well (mbgl)	4.92	1.98	5.24	4.46	1.43			
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05			
Condition of Well	Good	Good	Good	Good	Good			
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00	1.00			
Base of Response Zone (mbgl)	4.00	2.00	5.00	4.00	1.45			
Top of Response Zone (mOD)	36.91	33.30	33.17	31.88	32.00			
Base of Response Zone (mOD)	33.91	32.30	29.17	28.88	31.55			
Hydrocarbon Sheen Observed?	-	-	-	-	-			
Thickness of Free Product (m)	-	-	-	-	-			

Groundwater Sampling Details	WS1012	WS1014	WS1016	WS1020	WS1023A			
Purge Method	-	-	-	-	-			
Purged Volume	-	-	-	-	-			
Recharge (Good / Poor)	-	-	-	-	-			
Sampling Method	-	-	-	-	-			
Volume of Water Sampled (ltrs)	-	-	-	-	-			
Volume of Free Product Sampled (ltrs)	-	-	-	-	-			
Colour / Odours Noted	-	-	-	-	-			
In-situ pH	-	-	-	-	-			
In-situ Temperature (°C)	-	-	-	-	-			
In-situ Dissolved Oxygen (%)	-	-	-	-	-			
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-			
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-			

Notes:

WS1016 - very sludgy at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH2002	BH2004	BH2005	BH2007	WS2001	WS2002	WS2004	WS2005
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Made Ground	Made Ground	Made Ground	Sandstone
Ground Level (mOD)	33.81	34.04	34.36	35.16	34.30	33.80	34.00	34.26
Groundwater Depth (mbgl)	6.16	6.02	Dry	7.29	Dry	Dry	Dry	Dry
Groundwater Level (mOD)	27.65	28.02	Dry	27.87	Dry	Dry	Dry	Dry
Base of Well (mbgl)	12.20	13.80	2.20	10.03	3.87	2.91	1.82	4.88
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	8.00	1.00	1.00	0.50	3.00
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	4.00	3.00	1.50	5.00
Top of Response Zone (mOD)	30.81	31.04	33.36	27.16	33.30	32.80	33.50	31.26
Base of Response Zone (mOD)	18.81	19.04	30.36	20.16	30.30	30.80	32.50	29.26
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005	BH2007	WS2001	WS2002	WS2004	WS2005
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH2006 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	23 July 2024	Time of Visit:	8:45 - 16:45

State of Ground:

Dry

X

Damp

Wet

Saturated

Wind Strength:

Calm

X

Light

Moderate

Strong

Cloud Cover:

Clear

Slight

X

Cloudy

Overcast

Precipitation Level:

None

X

Slight

Moderate

Heavy

Borehole Reference	WS2006							
Target Stratum	Made Ground							
Ground Level (mOD)	34.74							
Groundwater Depth (mbgl)	Dry							
Groundwater Level (mOD)	Dry							
Base of Well (mbgl)	1.52							
Diameter of Well (m)	0.05							
Condition of Well	Good							
Top of Response Zone (mbgl)	0.70							
Base of Response Zone (mbgl)	1.70							
Top of Response Zone (mOD)	34.04							
Base of Response Zone (mOD)	33.04							
Hydrocarbon Sheen Observed?	-							
Thickness of Free Product (m)	-							

Groundwater Sampling Details	WS2006							
Purge Method	-							
Purged Volume	-							
Recharge (Good / Poor)	-							
Sampling Method	-							
Volume of Water Sampled (ltrs)	-							
Volume of Free Product Sampled (ltrs)	-							
Colour / Odours Noted	-							
In-situ pH	-							
In-situ Temperature (°C)	-							
In-situ Dissolved Oxygen (%)	-							
In-situ Electrical Conductivity (mS/cm)	-							
In-situ Total Dissolved Solids (ppt)	-							

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	20 August 2024	Time of Visit:	8:30 - 14:30

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☒
 Cloudy ☐
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference	BH1001	BH1002	BH1003	BH1004	BH1005	BH1006	BH1008	BH1009
Target Stratum	Sandstone	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till
Ground Level (mOD)	35.24	38.79	34.06	36.50	33.51	34.19	33.60	40.51
Groundwater Depth (mbgl)	7.47	11.40	Damp	Dry	5.40	6.36	10.60	Dry
Groundwater Level (mOD)	27.77	27.39	Damp	Dry	28.11	27.83	23.00	Dry
Base of Well (mbgl)	21.84	25.50	3.47	2.92	15.20	15.12	11.06	5.19
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	4.50	7.00	7.00	7.00	3.00	6.00
Base of Response Zone (mbgl)	25.00	25.00	25.00	19.50	16.50	15.00	10.50	15.00
Top of Response Zone (mOD)	30.24	33.29	29.56	29.50	26.51	27.19	30.60	34.51
Base of Response Zone (mOD)	10.24	13.79	9.06	17.00	17.01	19.19	23.10	25.51
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1003	BH1004	BH1005	BH1007	BH1008	
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1007 - No access due to construction faciltiles for other contractor.

WS1006 - Silty at base.

BH1013A - No access due to refuse pile over location.

BH1015B - No access.

WS1024 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	20 August 2024	Time of Visit:	8:30 - 14:30

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☒
 Cloudy ☐
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Target Stratum	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground
Ground Level (mOD)	40.60	32.62	41.50	38.40	33.62	35.00	38.70	37.91
Groundwater Depth (mbgl)	4.20	Dry	4.00	3.60	Dry	Dry	Dry	4.80
Groundwater Level (mOD)	36.40	Dry	37.50	34.80	Dry	Dry	Dry	33.11
Base of Well (mbgl)	5.40	3.83	4.90	3.94	2.53	1.98	2.70	4.91
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	4.00	1.00	1.00	3.60	1.00	0.50	1.90	1.00
Base of Response Zone (mbgl)	5.50	4.00	5.00	4.00	1.50	2.00	2.60	4.00
Top of Response Zone (mOD)	36.60	31.62	40.50	34.80	32.62	34.50	36.80	36.91
Base of Response Zone (mOD)	35.10	28.62	36.50	34.40	32.12	33.00	36.10	33.91
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	20 August 2024	Time of Visit:	8:30 - 14:30

State of Ground:
 Dry ☒
 Damp ☐
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☐
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☒
 Cloudy ☐
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference	WS1014	WS1016	WS1020	WS1023A				
Target Stratium	Made Ground	Made Ground	Made Ground	Made Ground				
Ground Level (mOD)	34.30	34.17	32.88	33				
Groundwater Depth (mbgl)	Dry	Dry	Dry	Dry				
Groundwater Level (mOD)	Dry	Dry	Dry	Dry				
Base of Well (mbgl)	1.97	5.27	4.46	1.44				
Diameter of Well (m)	0.05	0.05	0.05	0.05				
Condition of Well	Good	Good	Good	Good				
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00				
Base of Response Zone (mbgl)	2.00	5.00	4.00	1.45				
Top of Response Zone (mOD)	33.30	33.17	31.88	32.00				
Base of Response Zone (mOD)	32.30	29.17	28.88	31.55				
Hydrocarbon Sheen Observed?	-	-	-	-				
Thickness of Free Product (m)	-	-	-	-				

Groundwater Sampling Details	WS1014	WS1016	WS1020	WS1023A				
Purge Method	-	-	-	-				
Purged Volume	-	-	-	-				
Recharge (Good / Poor)	-	-	-	-				
Sampling Method	-	-	-	-				
Volume of Water Sampled (ltrs)	-	-	-	-				
Volume of Free Product Sampled (ltrs)	-	-	-	-				
Colour / Odours Noted	-	-	-	-				
In-situ pH	-	-	-	-				
In-situ Temperature (°C)	-	-	-	-				
In-situ Dissolved Oxygen (%)	-	-	-	-				
In-situ Electrical Conductivity (mS/cm)	-	-	-	-				
In-situ Total Dissolved Solids (ppt)	-	-	-	-				

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	20 August 2024	Time of Visit:	8:30 - 14:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH2002	BH2005	BH2006	BH2007	WS2002	WS2004	WS2005	WS2006
Target Stratum	Sandstone	Made Ground	Sandstone	Sandstone	Made Ground	Made Ground	Sandstone	Made Ground
Ground Level (mOD)	33.81	34.36	30.74	35.16	33.80	34.00	34.26	34.00
Groundwater Depth (mbgl)	6.35	Dry	3.70	7.68	Dry	Dry	Dry	Dry
Groundwater Level (mOD)	27.46	Dry	27.04	27.48	Dry	Dry	Dry	Dry
Base of Well (mbgl)	12.20	3.47	10.76	10.02	2.92	1.54	4.84	1.54
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	1.00	6.00	8.00	1.00	0.50	3.00	0.50
Base of Response Zone (mbgl)	15.00	4.00	15.00	15.00	3.00	1.50	5.00	1.50
Top of Response Zone (mOD)	30.81	33.36	24.74	27.16	32.80	33.50	31.26	33.50
Base of Response Zone (mOD)	18.81	30.36	15.74	20.16	30.80	32.50	29.26	32.50
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2005	BH2006	BH2007	WS2002	WS2004	WS2005	WS2006
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH2004 - No access.
BH2006 - No access.
WS2001 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	17 September 2024	Time of Visit:	8:00 - 16:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1001	BH1002	BH1004	BH1005	BH1006	BH1007	BH1008	BH1009
Target Stratum	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till
Ground Level (mOD)	35.24	38.79	36.50	33.51	34.19	34.10	33.60	40.51
Groundwater Depth (mbgl)	8.14	11.60	Dry	5.67	6.50	6.13	6.07	Dry
Groundwater Level (mOD)	27.10	27.19	Dry	27.84	27.69	27.97	27.53	Dry
Base of Well (mbgl)	21.74	25.86	2.69	14.99	14.90	6.82	10.50	5.20
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	7.00	7.00	7.00	4.00	3.00	6.00
Base of Response Zone (mbgl)	25.00	25.00	19.50	16.50	15.00	15.00	10.50	15.00
Top of Response Zone (mOD)	30.24	33.29	29.50	26.51	27.19	30.10	30.60	34.51
Base of Response Zone (mOD)	10.24	13.79	17.00	17.01	19.19	19.10	23.10	25.51
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1004	BH1005	BH1006	BH1007	BH1008	BH1009
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1003 - No access due to construction facilities for other contractor.
BH1013A - Refuse pile removed but can't open borehole.
BH1015B - No access - cars parked over BH
WS1024 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	17 September 2024	Time of Visit:	8:00 - 16:30

State of Ground:	Dry	☒	Damp	☐	Wet	☐	Saturated	☐
Wind Strength:	Calm	☒	Light	☐	Moderate	☐	Strong	☐
Cloud Cover:	Clear	☒	Slight	☒	Cloudy	☐	Overcast	☐
Precipitation Level:	None	☒	Slight	☐	Moderate	☐	Heavy	☐

Borehole Reference	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Target Stratum	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground
Ground Level (mOD)	40.60	32.62	41.50	38.40	33.62	35.00	38.70	37.91
Groundwater Depth (mbgl)	4.18	Dry	Dry	3.70	Dry	Dry	Dry	4.20
Groundwater Level (mOD)	36.42	Dry	Dry	34.70	Dry	Dry	Dry	33.71
Base of Well (mbgl)	5.36	3.82	4.91	3.90	2.54	1.95	2.46	4.93
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	4.00	1.00	1.00	3.60	1.00	0.50	1.90	1.00
Base of Response Zone (mbgl)	5.50	4.00	5.00	4.00	1.50	2.00	2.60	4.00
Top of Response Zone (mOD)	36.60	31.62	40.50	34.80	32.62	34.50	36.80	36.91
Base of Response Zone (mOD)	35.10	28.62	36.50	34.40	32.12	33.00	36.10	33.91
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	17 September 2024	Time of Visit:	8:00 - 16:30

State of Ground:
 Dry
 ☒
 Damp
 ☐
 Wet
 ☐
 Saturated
 ☐

Wind Strength:
 Calm
 ☒
 Light
 ☐
 Moderate
 ☐
 Strong
 ☐

Cloud Cover:
 Clear
 ☒
 Slight
 ☒
 Cloudy
 ☐
 Overcast
 ☐

Precipitation Level:
 None
 ☒
 Slight
 ☐
 Moderate
 ☐
 Heavy
 ☐

Borehole Reference	WS1014	WS1016	WS1020	WS1023A				
Target Stratum	Made Ground	Made Ground	Made Ground	Made Ground				
Ground Level (mOD)	34.30	34.17	32.88	33				
Groundwater Depth (mbgl)	Dry	Dry	Damp	Dry				
Groundwater Level (mOD)	Dry	Dry	Damp	Dry				
Base of Well (mbgl)	1.98	5.26	4.45	1.42				
Diameter of Well (m)	0.05	0.05	0.05	0.05				
Condition of Well	Good	Good	Good	Good				
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00				
Base of Response Zone (mbgl)	2.00	5.00	4.00	1.45				
Top of Response Zone (mOD)	33.30	33.17	31.88	32.00				
Base of Response Zone (mOD)	32.30	29.17	28.88	31.55				
Hydrocarbon Sheen Observed?	-	-	-	-				
Thickness of Free Product (m)	-	-	-	-				

Groundwater Sampling Details	WS1014	WS1016	WS1020	WS1023A				
Purge Method	-	-	-	-				
Purged Volume	-	-	-	-				
Recharge (Good / Poor)	-	-	-	-				
Sampling Method	-	-	-	-				
Volume of Water Sampled (ltrs)	-	-	-	-				
Volume of Free Product Sampled (ltrs)	-	-	-	-				
Colour / Odours Noted	-	-	-	-				
In-situ pH	-	-	-	-				
In-situ Temperature (°C)	-	-	-	-				
In-situ Dissolved Oxygen (%)	-	-	-	-				
In-situ Electrical Conductivity (mS/cm)	-	-	-	-				
In-situ Total Dissolved Solids (ppt)	-	-	-	-				

Notes:

WS1016 - very silty at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	17 September 2024	Time of Visit:	8:00 - 16:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH2002	BH2004	BH2005	BH2007	WS2001	WS2002	WS2004	WS2005
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Made Ground	Made Ground	Made Ground	Sandstone
Ground Level (mOD)	33.81	34.04	34.36	35.16	34.30	33.80	34.00	34.26
Groundwater Depth (mbgl)	6.30	6.35	Dry	7.60	Dry	Dry	Dry	Dry
Groundwater Level (mOD)	27.51	27.69	Dry	27.56	Dry	Dry	Dry	Dry
Base of Well (mbgl)	12.43	13.77	2.18	10.02	3.80	2.92	1.48	4.88
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	8.00	1.00	1.00	0.50	3.00
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	4.00	3.00	1.50	5.00
Top of Response Zone (mOD)	30.81	31.04	33.36	27.16	33.30	32.80	33.50	31.26
Base of Response Zone (mOD)	18.81	19.04	30.36	20.16	30.30	30.80	32.50	29.26
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005	BH2007	WS2001	WS2002	WS2004	WS2005
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH2006 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	17 September 2024	Time of Visit:	8:00 - 16:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	WS2006							
Target Stratum	Made Ground							
Ground Level (mOD)	34.00							
Groundwater Depth (mbgl)	Dry							
Groundwater Level (mOD)	Dry							
Base of Well (mbgl)	1.52							
Diameter of Well (m)	0.05							
Condition of Well	Good							
Top of Response Zone (mbgl)	0.50							
Base of Response Zone (mbgl)	1.50							
Top of Response Zone (mOD)	33.50							
Base of Response Zone (mOD)	32.50							
Hydrocarbon Sheen Observed?	-							
Thickness of Free Product (m)	-							

Groundwater Sampling Details	WS2006							
Purge Method	-							
Purged Volume	-							
Recharge (Good / Poor)	-							
Sampling Method	-							
Volume of Water Sampled (ltrs)	-							
Volume of Free Product Sampled (ltrs)	-							
Colour / Odours Noted	-							
In-situ pH	-							
In-situ Temperature (°C)	-							
In-situ Dissolved Oxygen (%)	-							
In-situ Electrical Conductivity (mS/cm)	-							
In-situ Total Dissolved Solids (ppt)	-							

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	17 October 2024	Time of Visit:	8:30 - 15:30

State of Ground: Dry ☐ Damp ☒ Wet ☒ Saturated ☐Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐Cloud Cover: Clear ☐ Slight ☒ Cloudy ☒ Overcast ☐Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1001	BH1002	BH1004	BH1005	BH1006	BH1007	BH1008	BH1009
Target Stratum	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till
Ground Level (mOD)	35.24	38.79	36.50	33.51	34.19	34.10	33.60	40.51
Groundwater Depth (mbgl)	6.00	10.60	Dry	5.32	6.22	5.82	5.79	Dry
Groundwater Level (mOD)	29.24	28.19	Dry	28.19	27.97	28.28	27.81	Dry
Base of Well (mbgl)	21.41	25.13	6.87	15.80	14.90	6.90	10.58	5.30
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	7.00	7.00	7.00	4.00	3.00	6.00
Base of Response Zone (mbgl)	25.00	25.00	19.50	16.50	15.00	15.00	10.50	15.00
Top of Response Zone (mOD)	30.24	33.29	29.50	26.51	27.19	30.10	30.60	34.51
Base of Response Zone (mOD)	10.24	13.79	17.00	17.01	19.19	19.10	23.10	25.51
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1004	BH1005	BH1006	BH1007	BH1008	BH1009
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1003 - No access - cover broken
BH1013A - Refuse pile removed but can't open borehole.
BH1015B - No access - cars parked over BH
WS1024 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	17 October 2024	Time of Visit:	8:30 - 15:30

State of Ground: Dry Damp ☒ Wet ☒ Saturated

Wind Strength: Calm ☒ Light Moderate Strong

Cloud Cover: Clear Slight ☒ Cloudy ☒ Overcast

Precipitation Level: None ☒ Slight Moderate Heavy

Borehole Reference	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Target Stratum	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground
Ground Level (mOD)	40.60	32.62	41.50	38.40	33.62	35.00	38.70	37.91
Groundwater Depth (mbgl)	4.01	Dry	Dry	3.75	Dry	Dry	Dry	Dry
Groundwater Level (mOD)	36.59	Dry	Dry	34.65	Dry	Dry	Dry	Dry
Base of Well (mbgl)	5.36	3.83	4.91	3.90	2.59	1.98	2.60	4.47
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	4.00	1.00	1.00	3.60	1.00	0.50	1.90	1.00
Base of Response Zone (mbgl)	5.50	4.00	5.00	4.00	1.50	2.00	2.60	4.00
Top of Response Zone (mOD)	36.60	31.62	40.50	34.80	32.62	34.50	36.80	36.91
Base of Response Zone (mOD)	35.10	28.62	36.50	34.40	32.12	33.00	36.10	33.91
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	17 October 2024	Time of Visit:	8:30 - 15:30

State of Ground: Dry Damp ☒ Wet ☒ Saturated

Wind Strength: Calm ☒ Light Moderate Strong

Cloud Cover: Clear Slight ☒ Cloudy ☒ Overcast

Precipitation Level: None ☒ Slight Moderate Heavy

Borehole Reference	WS1014	WS1016	WS1020	WS1023A				
Target Stratum	Made Ground	Made Ground	Made Ground	Made Ground				
Ground Level (mOD)	34.30	34.17	32.88	33				
Groundwater Depth (mbgl)	Dry	Dry	Damp	Dry				
Groundwater Level (mOD)	Dry	Dry	Damp	Dry				
Base of Well (mbgl)	1.97	5.30	4.47	1.48				
Diameter of Well (m)	0.05	0.05	0.05	0.05				
Condition of Well	Good	Good	Good	Good				
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00				
Base of Response Zone (mbgl)	2.00	5.00	4.00	1.45				
Top of Response Zone (mOD)	33.30	33.17	31.88	32.00				
Base of Response Zone (mOD)	32.30	29.17	28.88	31.55				
Hydrocarbon Sheen Observed?	-	-	-	-				
Thickness of Free Product (m)	-	-	-	-				

Groundwater Sampling Details	WS1014	WS1016	WS1020	WS1023A				
Purge Method	-	-	-	-				
Purged Volume	-	-	-	-				
Recharge (Good / Poor)	-	-	-	-				
Sampling Method	-	-	-	-				
Volume of Water Sampled (ltrs)	-	-	-	-				
Volume of Free Product Sampled (ltrs)	-	-	-	-				
Colour / Odours Noted	-	-	-	-				
In-situ pH	-	-	-	-				
In-situ Temperature (°C)	-	-	-	-				
In-situ Dissolved Oxygen (%)	-	-	-	-				
In-situ Electrical Conductivity (mS/cm)	-	-	-	-				
In-situ Total Dissolved Solids (ppt)	-	-	-	-				

Notes:

WS1016 - very silty at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	17 October 2024	Time of Visit:	8:30 - 15:30

State of Ground: Dry Damp ☒ Wet ☒ Saturated Wind Strength: Calm ☒ Light Moderate Strong Cloud Cover: Clear Slight ☒ Cloudy ☒ Overcast Precipitation Level: None ☒ Slight Moderate Heavy

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone		Made Ground		Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81		34.36		35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	6.10		Dry		7.32	Dry	Dry	Dry
Groundwater Level (mOD)	27.71		Dry		27.84	Dry	Dry	Dry
Base of Well (mbgl)	12.29		2.20		10.06	3.83	2.92	1.87
Diameter of Well (m)	0.05		0.05		0.05	0.05	0.05	0.05
Condition of Well	Good		Good		Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00		1.00		8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00		4.00		15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81		33.36		27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81		30.36		20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-		-		-	-	-	-
Thickness of Free Product (m)	-		-		-	-	-	-

Groundwater Sampling Details	BH2002		BH2005		BH2007	WS2001	WS2002	WS2004
Purge Method	-		-		-	-	-	-
Purged Volume	-		-		-	-	-	-
Recharge (Good / Poor)	-		-		-	-	-	-
Sampling Method	-		-		-	-	-	-
Volume of Water Sampled (ltrs)	-		-		-	-	-	-
Volume of Free Product Sampled (ltrs)	-		-		-	-	-	-
Colour / Odours Noted	-		-		-	-	-	-
In-situ pH	-		-		-	-	-	-
In-situ Temperature (°C)	-		-		-	-	-	-
In-situ Dissolved Oxygen (%)	-		-		-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-		-		-	-	-	-
In-situ Total Dissolved Solids (ppt)	-		-		-	-	-	-

Notes:

BH2004 and BH2006 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	12 November 2024	Time of Visit:	8:30 - 16:30

State of Ground:
 Dry
 Damp
 Wet
 Saturated

Wind Strength:
 Calm
 Light
 Moderate
 Strong

Cloud Cover:
 Clear
 Slight
 Cloudy
 Overcast

Precipitation Level:
 None
 Slight
 Moderate
 Heavy

Borehole Reference	BH1001	BH1002	BH1006	BH1007	BH1008	BH1009	BH1012	BH1014A
Target Stratum	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till	Glacial Till	Made Ground
Ground Level (mOD)	35.24	38.79	34.19	34.10	33.60	40.51	40.60	32.62
Groundwater Depth (mbgl)	7.27	10.96	6.37	5.99	5.89	Dry	3.48	Dry
Groundwater Level (mOD)	27.97	27.83	27.82	28.11	27.71	Dry	37.12	Dry
Base of Well (mbgl)	21.62	25.30	14.92	6.78	10.58	5.27	5.32	3.75
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	7.00	4.00	3.00	6.00	4.00	1.00
Base of Response Zone (mbgl)	25.00	25.00	15.00	15.00	10.50	15.00	5.50	4.00
Top of Response Zone (mOD)	30.24	33.29	27.19	30.10	30.60	34.51	36.60	31.62
Base of Response Zone (mOD)	10.24	13.79	19.19	19.10	23.10	25.51	35.10	28.62
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1006	BH1007	BH1008	BH1009	BH1012	BH1014A
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1003 - No access - cover broken

BH1004 - No access - car parked over borehole

BH1005 - No access - skips on top of borehole

BH1013A - No access - cover broken.

WS1023 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	12 November 2024	Time of Visit:	8:30 - 16:30

State of Ground:

Dry

Damp

Wet

Saturated

Wind Strength:

Calm

Light

Moderate

Strong

Cloud Cover:

Clear

Slight

Cloudy

Overcast

Precipitation Level:

None

Slight

Moderate

Heavy

Borehole Reference	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012	WS1014	WS1016
Target Stratum	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	41.50	38.40	33.62	35.00	38.70	37.91	34.30	34.17
Groundwater Depth (mbgl)	Dry	3.80	Dry	Dry	Dry	4.35	Dry	Dry
Groundwater Level (mOD)	Dry	34.60	Dry	Dry	Dry	33.56	Dry	Dry
Base of Well (mbgl)	4.96	3.90	2.50	1.91	2.60	5.83	1.96	5.22
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	1.00	3.60	1.00	0.50	1.90	1.00	1.00	1.00
Base of Response Zone (mbgl)	5.00	4.00	1.50	2.00	2.60	4.00	2.00	5.00
Top of Response Zone (mOD)	40.50	34.80	32.62	34.50	36.80	36.91	33.30	33.17
Base of Response Zone (mOD)	36.50	34.40	32.12	33.00	36.10	33.91	32.30	29.17
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012	WS1014	WS1016
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	12 November 2024	Time of Visit:	8:30 - 16:30

State of Ground:

Dry

Damp

Wet

Saturated

Wind Strength:

Calm

Light

Moderate

Strong

Cloud Cover:

Clear

Slight

Cloudy

Overcast

Precipitation Level:

None

Slight

Moderate

Heavy

Borehole Reference	WS1020	WS1024						
Target Stratium	Made Ground	Made Ground						
Ground Level (mOD)	32.88	35.00						
Groundwater Depth (mbgl)	Damp	Dry						
Groundwater Level (mOD)	Damp	Dry						
Base of Well (mbgl)	4.40	5.81						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	1.00	1.00						
Base of Response Zone (mbgl)	4.00	3.70						
Top of Response Zone (mOD)	31.88	34.00						
Base of Response Zone (mOD)	28.88	31.30						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS1020	WS1024						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

WS1016 - very silty at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	12 November 2024	Time of Visit:	8:30 - 16:30

State of Ground:

Dry

Damp

Wet

Saturated

Wind Strength:

Calm

Light

Moderate

Strong

Cloud Cover:

Clear

Slight

Cloudy

Overcast

Precipitation Level:

None

Slight

Moderate

Heavy

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81	34.04	34.36	30.74	35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	10.58	6.32	Dry	3.54	7.32	Dry	Dry	Dry
Groundwater Level (mOD)	23.23	27.72	Dry	27.20	27.84	Dry	Dry	Dry
Base of Well (mbgl)	12.24	13.83	2.15	10.75	9.75	3.81	2.85	1.78
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	6.00	8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81	31.04	33.36	24.74	27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81	19.04	30.36	15.74	20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005		BH2007	WS2001	WS2002	WS2004
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	12 November 2024	Time of Visit:	8:30 - 16:30

State of Ground:	Dry	Damp	Wet	Saturated
Wind Strength:	Calm	Light	Moderate	Strong
Cloud Cover:	Clear	Slight	Cloudy	Overcast
Precipitation Level:	None	Slight	Moderate	Heavy

Borehole Reference	WS2005	WS2006						
Target Stratum	Sandstone	Made Ground						
Ground Level (mOD)	34.26	34.00						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.80	1.46						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	3.00	0.50						
Base of Response Zone (mbgl)	5.00	1.50						
Top of Response Zone (mOD)	31.26	33.50						
Base of Response Zone (mOD)	29.26	32.50						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS2005	WS2006						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	10 December 2024	Time of Visit:	9:00 - 16:30

State of Ground:
 Dry ☒
 Damp ☒
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☒
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☒
 Cloudy ☒
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference	BH1002	BH1003	BH1004	BH1006	BH1007	BH1008	BH1009	BH1012
Target Stratum	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till	Glacial Till
Ground Level (mOD)	38.79	34.06	36.50	34.19	34.10	33.60	40.51	40.60
Groundwater Depth (mbgl)	10.90	Damp	Dry	7.21	5.83	5.77	Dry	3.40
Groundwater Level (mOD)	27.89	Damp	Dry	26.98	28.27	27.83	Dry	37.20
Base of Well (mbgl)	25.10	3.50	6.66	14.80	6.77	10.50	5.16	5.32
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.50	4.50	7.00	7.00	4.00	3.00	6.00	4.00
Base of Response Zone (mbgl)	25.00	25.00	19.50	15.00	15.00	10.50	15.00	5.50
Top of Response Zone (mOD)	33.29	29.56	29.50	27.19	30.10	30.60	34.51	36.60
Base of Response Zone (mOD)	13.79	9.06	17.00	19.19	19.10	23.10	25.51	35.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1002	BH1003	BH1004	BH1006	BH1007	BH1008	BH1009	BH1012
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1001 - No access - Within a 'drop zone'
 BH1005 - No access - skips on top of borehole

 WS1008 - No access - Within a 'drop zone'
 WS1009 - No access - East Coast unaware of access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	10 December 2024	Time of Visit:	9:00 - 16:30

State of Ground:
 Dry ☒
 Damp ☒
 Wet ☐
 Saturated ☐

Wind Strength:
 Calm ☐
 Light ☒
 Moderate ☒
 Strong ☐

Cloud Cover:
 Clear ☐
 Slight ☒
 Cloudy ☒
 Overcast ☐

Precipitation Level:
 None ☒
 Slight ☐
 Moderate ☐
 Heavy ☐

Borehole Reference	BH1013A	BH1014A	WS1001	WS1002	WS1006	WS1012	WS1014	WS1016
Target Stratum	Sandstone	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.60	32.62	41.50	38.40	33.62	37.91	34.30	34.17
Groundwater Depth (mbgl)	5.51	Dry	3.96	3.62	Dry	3.14	Dry	Dry
Groundwater Level (mOD)	28.09	Dry	37.54	34.78	Dry	34.77	Dry	Dry
Base of Well (mbgl)	16.16	3.74	4.95	3.90	2.45	4.48	1.96	5.20
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	1.00	1.00	3.60	1.00	1.00	1.00	1.00
Base of Response Zone (mbgl)	20.00	4.00	5.00	4.00	1.50	4.00	2.00	5.00
Top of Response Zone (mOD)	28.60	31.62	40.50	34.80	32.62	36.91	33.30	33.17
Base of Response Zone (mOD)	13.60	28.62	36.50	34.40	32.12	33.91	32.30	29.17
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1012	WS1014	WS1016
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	10 December 2024	Time of Visit:	9:00 - 16:30

State of Ground: Dry ☒ Damp ☒ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☒ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☒ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	WS1020	WS1023A	WS1024					
Target Stratum	Made Ground	Made Ground	Made Ground					
Ground Level (mOD)	32.88	33	35.00					
Groundwater Depth (mbgl)	Dry	Dry	Dry					
Groundwater Level (mOD)	Dry	Dry	Dry					
Base of Well (mbgl)	4.38	1.32	3.49					
Diameter of Well (m)	0.05	0.05	0.05					
Condition of Well	Good	Good	Good					
Top of Response Zone (mbgl)	1.00	1.00	1.00					
Base of Response Zone (mbgl)	4.00	1.45	3.70					
Top of Response Zone (mOD)	31.88	32.00	34.00					
Base of Response Zone (mOD)	28.88	31.55	31.30					
Hydrocarbon Sheen Observed?	-	-	-					
Thickness of Free Product (m)	-	-	-					

Groundwater Sampling Details	WS1020	WS1023A	WS1024					
Purge Method	-	-	-					
Purged Volume	-	-	-					
Recharge (Good / Poor)	-	-	-					
Sampling Method	-	-	-					
Volume of Water Sampled (ltrs)	-	-	-					
Volume of Free Product Sampled (ltrs)	-	-	-					
Colour / Odours Noted	-	-	-					
In-situ pH	-	-	-					
In-situ Temperature (°C)	-	-	-					
In-situ Dissolved Oxygen (%)	-	-	-					
In-situ Electrical Conductivity (mS/cm)	-	-	-					
In-situ Total Dissolved Solids (ppt)	-	-	-					

Notes:

WS1016 - very silty at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	10 December 2024	Time of Visit:	9:00 - 16:30

State of Ground: Dry ☒ Damp ☒ Wet ☐ Saturated ☐Wind Strength: Calm ☐ Light ☒ Moderate ☒ Strong ☐Cloud Cover: Clear ☐ Slight ☒ Cloudy ☒ Overcast ☐Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone	Sandstone	Made Ground		Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81	34.04	34.36		35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	6.11	5.99	Dry		7.32	Dry	Dry	Dry
Groundwater Level (mOD)	27.70	28.05	Dry		27.84	Dry	Dry	Dry
Base of Well (mbgl)	12.24	13.74	2.21		9.75	3.82	2.87	1.77
Diameter of Well (m)	0.05	0.05	0.05		0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good		Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00		8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00	15.00	4.00		15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81	31.04	33.36		27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81	19.04	30.36		20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-	-	-		-	-	-	-
Thickness of Free Product (m)	-	-	-		-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005		BH2007	WS2001	WS2002	WS2004
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH2006 - No access.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	10 December 2024	Time of Visit:	9:00 - 16:30

State of Ground:

Dry

☒

Damp

☒

Wet

☐

Saturated

☐

Wind Strength:

Calm

☐

Light

☒

Moderate

☒

Strong

☐

Cloud Cover:

Clear

☐

Slight

☒

Cloudy

☒

Overcast

☐

Precipitation Level:

None

☒

Slight

☐

Moderate

☐

Heavy

☐

Borehole Reference	WS2005	WS2006						
Target Stratum	Sandstone	Made Ground						
Ground Level (mOD)	34.26	34.00						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.80	1.46						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	3.00	0.50						
Base of Response Zone (mbgl)	5.00	1.50						
Top of Response Zone (mOD)	31.26	33.50						
Base of Response Zone (mOD)	29.26	32.50						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS2005	WS2006						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	16 January 2025	Time of Visit:	9:00 - 15:30

State of Ground: Dry ☐ Damp ☒ Wet ☐ Saturated ☐Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1001	BH1002	BH1003	BH1006	BH1007	BH1008	BH1009	BH1012
Target Stratum	Sandstone	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Glacial Till	Glacial Till
Ground Level (mOD)	35.24	38.79	34.06	34.19	34.10	33.60	40.51	40.60
Groundwater Depth (mbgl)	6.38	10.61	Dry	5.92	5.50	5.35	Dry	3.15
Groundwater Level (mOD)	28.86	28.18	Dry	28.27	28.60	28.25	Dry	37.45
Base of Well (mbgl)	21.55	25.40	3.40	14.75	6.80	10.60	5.15	5.30
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	4.50	7.00	4.00	3.00	6.00	4.00
Base of Response Zone (mbgl)	25.00	25.00	25.00	15.00	15.00	10.50	15.00	5.50
Top of Response Zone (mOD)	30.24	33.29	29.56	27.19	30.10	30.60	34.51	36.60
Base of Response Zone (mOD)	10.24	13.79	9.06	19.19	19.10	23.10	25.51	35.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1003	BH1006	BH1007	BH1008	BH1009	BH1012
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1004 - No access - Car parked on top of borehole during visit.
BH1005 - No access - Skips on top of borehole.
BH1015A - No access - Car parked on top of borehole.

WS1023A - No access - Borehole in drop zone.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	16 January 2025	Time of Visit:	9:00 - 15:30

State of Ground: Dry ☐ Damp ☒ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012	WS1014	WS1016
Target Stratium	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	41.50	38.40	33.62	35.00	38.70	37.91	34.30	34.17
Groundwater Depth (mbgl)	3.99	Dry	Dry	Dry	Dry	3.72	Dry	4.10
Groundwater Level (mOD)	37.51	Dry	Dry	Dry	Dry	34.19	Dry	30.07
Base of Well (mbgl)	4.85	3.86	2.56	1.90	5.15	4.86	1.92	4.60
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	1.00	3.60	1.00	0.50	1.90	1.00	1.00	1.00
Base of Response Zone (mbgl)	5.00	4.00	1.50	2.00	2.60	4.00	2.00	5.00
Top of Response Zone (mOD)	40.50	34.80	32.62	34.50	36.80	36.91	33.30	33.17
Base of Response Zone (mOD)	36.50	34.40	32.12	33.00	36.10	33.91	32.30	29.17
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012	WS1014	WS1016
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	16 January 2025	Time of Visit:	9:00 - 15:30

State of Ground: Dry ☐ Damp ☒ Wet ☐ Saturated ☐

Wind Strength: Calm ☒ Light ☐ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	WS1020	WS1024						
Target Stratium	Made Ground	Made Ground						
Ground Level (mOD)	32.88	35.00						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.38	3.48						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	1.00	1.00						
Base of Response Zone (mbgl)	4.00	3.70						
Top of Response Zone (mOD)	31.88	34.00						
Base of Response Zone (mOD)	28.88	31.30						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS1020	WS1024						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

WS1016 - very silty/sludgy at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	16 January 2025	Time of Visit:	9:00 - 15:30

State of Ground: Dry Damp ☒ Wet Saturated
 Wind Strength: Calm ☒ Light Moderate Strong
 Cloud Cover: Clear ☒ Slight ☒ Cloudy Overcast
 Precipitation Level: None ☒ Slight Moderate Heavy

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81	34.04	34.36	30.74	35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	5.83	5.88	Dry	3.20	7.00	Dry	Dry	Dry
Groundwater Level (mOD)	27.98	28.16	Dry	27.54	28.16	Dry	Dry	Dry
Base of Well (mbgl)	12.25	13.72	2.41	10.60	9.57	3.85	2.87	1.77
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	6.00	8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81	31.04	33.36	24.74	27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81	19.04	30.36	15.74	20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005		BH2007	WS2001	WS2002	WS2004
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	16 January 2025	Time of Visit:	9:00 - 15:30

State of Ground: Dry Damp ☒ Wet Saturated

Wind Strength: Calm ☒ Light Moderate Strong

Cloud Cover: Clear ☒ Slight ☒ Cloudy Overcast

Precipitation Level: None ☒ Slight Moderate Heavy

Borehole Reference	WS2005	WS2006						
Target Stratum	Sandstone	Made Ground						
Ground Level (mOD)	34.26	34.00						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.23	1.46						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	3.00	0.50						
Base of Response Zone (mbgl)	5.00	1.50						
Top of Response Zone (mOD)	31.26	33.50						
Base of Response Zone (mOD)	29.26	32.50						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS2005	WS2006						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

WS2005 - Base very silty/sludgy

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	12 February 2025	Time of Visit:	9:30 - 17:00

State of Ground: Dry Damp ☒ Wet ☒ Saturated Wind Strength: Calm Light ☒ Moderate Strong Cloud Cover: Clear Slight Cloudy Overcast ☒Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	BH1001	BH1002	BH1003	BH1004	BH1005	BH1006	BH1007	BH1008
Target Stratum	Sandstone	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Ground Level (mOD)	35.24	38.79	34.06	36.50	33.51	34.19	34.10	33.60
Groundwater Depth (mbgl)	6.95	10.75	Dry	Dry	5.17	6.04	5.57	5.56
Groundwater Level (mOD)	28.29	28.04	Dry	Dry	28.34	28.15	28.53	28.04
Base of Well (mbgl)	21.52	25.33	3.34	6.78	14.94	14.80	6.80	10.47
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	4.50	7.00	7.00	7.00	4.00	3.00
Base of Response Zone (mbgl)	25.00	25.00	25.00	19.50	16.50	15.00	15.00	10.50
Top of Response Zone (mOD)	30.24	33.29	29.56	29.50	26.51	27.19	30.10	30.60
Base of Response Zone (mOD)	10.24	13.79	9.06	17.00	17.01	19.19	19.10	23.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1003	BH1004	BH1005	BH1006	BH1007	BH1008
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	12 February 2025	Time of Visit:	9:30 - 17:00

State of Ground: Dry Damp ☒ Wet ☒ Saturated

Wind Strength: Calm Light ☒ Moderate Strong

Cloud Cover: Clear Slight Cloudy Overcast ☒

Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	BH1009	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009
Target Stratum	Glacial Till	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till
Ground Level (mOD)	40.51	40.60	32.62	41.50	38.40	33.62	35.00	38.70
Groundwater Depth (mbgl)	Dry	3.66	Dry	3.97	Dry	Dry	Dry	Dry
Groundwater Level (mOD)	Dry	36.94	Dry	37.53	Dry	Dry	Dry	Dry
Base of Well (mbgl)	6.78	5.34	3.75	4.83	3.87	2.45	1.90	2.93
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	6.00	4.00	1.00	1.00	3.60	1.00	0.50	1.90
Base of Response Zone (mbgl)	15.00	5.50	4.00	5.00	4.00	1.50	2.00	2.60
Top of Response Zone (mOD)	34.51	36.60	31.62	40.50	34.80	32.62	34.50	36.80
Base of Response Zone (mOD)	25.51	35.10	28.62	36.50	34.40	32.12	33.00	36.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1009	BH1012	BH1014A	WS1001	WS1002	WS1006	WS1008	WS1009
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	12 February 2025	Time of Visit:	9:30 - 17:00

State of Ground: Dry Damp ☒ Wet ☒ Saturated

Wind Strength: Calm Light ☒ Moderate Strong

Cloud Cover: Clear Slight Cloudy Overcast ☒

Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	WS1012	WS1014	WS1016	WS1020	WS1023A			
Target Stratium	Made Ground	Made Ground	Made Ground	Made Ground	Made Ground			
Ground Level (mOD)	37.91	34.30	34.17	32.88	35.00			
Groundwater Depth (mbgl)	4.05	Dry	Dry	Dry	Dry			
Groundwater Level (mOD)	33.86	Dry	Dry	Dry	Dry			
Base of Well (mbgl)	4.88	1.92	5.20	4.37	1.37			
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05			
Condition of Well	Good	Good	Good	Good	Good			
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00	1.00			
Base of Response Zone (mbgl)	4.00	2.00	5.00	4.00	3.70			
Top of Response Zone (mOD)	36.91	33.30	33.17	31.88	34.00			
Base of Response Zone (mOD)	33.91	32.30	29.17	28.88	31.30			
Hydrocarbon Sheen Observed?	-	-	-	-	-			
Thickness of Free Product (m)	-	-	-	-	-			

Groundwater Sampling Details	WS1012	WS1014	WS1016	WS1020	WS1024			
Purge Method	-	-	-	-	-			
Purged Volume	-	-	-	-	-			
Recharge (Good / Poor)	-	-	-	-	-			
Sampling Method	-	-	-	-	-			
Volume of Water Sampled (ltrs)	-	-	-	-	-			
Volume of Free Product Sampled (ltrs)	-	-	-	-	-			
Colour / Odours Noted	-	-	-	-	-			
In-situ pH	-	-	-	-	-			
In-situ Temperature (°C)	-	-	-	-	-			
In-situ Dissolved Oxygen (%)	-	-	-	-	-			
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-			
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-			

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	12 February 2025	Time of Visit:	9:30 - 17:00

State of Ground: Dry Damp ☒ Wet ☒ Saturated Wind Strength: Calm Light ☒ Moderate Strong Cloud Cover: Clear Slight Cloudy Overcast ☒Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81	34.04	34.36	30.74	35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	5.94	5.75	Dry	3.25	7.07	Dry	Dry	Dry
Groundwater Level (mOD)	27.87	28.29	Dry	27.49	28.09	Dry	Dry	Dry
Base of Well (mbgl)	12.23	13.17	2.15	10.78	10.02	3.82	2.87	1.76
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	6.00	8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81	31.04	33.36	24.74	27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81	19.04	30.36	15.74	20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005		BH2007	WS2001	WS2002	WS2004
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	12 February 2025	Time of Visit:	9:30 - 17:00

State of Ground: Dry Damp ☒ Wet ☒ Saturated

Wind Strength: Calm Light ☒ Moderate Strong

Cloud Cover: Clear Slight Cloudy Overcast ☒

Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	WS2005	WS2006						
Target Stratum	Sandstone	Made Ground						
Ground Level (mOD)	34.26	34.00						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.21	1.44						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	3.00	0.50						
Base of Response Zone (mbgl)	5.00	1.50						
Top of Response Zone (mOD)	31.26	33.50						
Base of Response Zone (mOD)	29.26	32.50						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS2005	WS2006						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

WS2005 - Base very silty/sludgy

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	11 March 2025	Time of Visit:	9:30 - 17:45

State of Ground: Dry ☐ Damp ☒ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☐ Cloudy ☐ Overcast ☒

Precipitation Level: None ☐ Slight ☒ Moderate ☐ Heavy ☐

Borehole Reference	BH1001	BH1002	BH1003	BH1004	BH1006	BH1007	BH1008	BH1009
Target Stratum	Sandstone	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Sandstone	Glacial Till
Ground Level (mOD)	35.24	38.79	34.06	36.50	34.19	34.10	33.60	40.51
Groundwater Depth (mbgl)	6.97	10.52	Dry	Dry	6.10	5.73	5.64	Dry
Groundwater Level (mOD)	28.27	28.27	Dry	Dry	28.09	28.37	27.96	Dry
Base of Well (mbgl)	21.30	25.17	3.40	6.55	14.70	6.80	10.98	5.17
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Poor
Top of Response Zone (mbgl)	5.00	5.50	4.50	7.00	7.00	4.00	3.00	6.00
Base of Response Zone (mbgl)	25.00	25.00	25.00	19.50	15.00	15.00	10.50	15.00
Top of Response Zone (mOD)	30.24	33.29	29.56	29.50	27.19	30.10	30.60	34.51
Base of Response Zone (mOD)	10.24	13.79	9.06	17.00	19.19	19.10	23.10	25.51
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1003	BH1004	BH1006	BH1007	BH1008	BH1009
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1003 - Slugdey at base.

BH1005 - No access - Skips on top of BH.

BH1009 - Slugdey at base.

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	11 March 2025	Time of Visit:	9:30 - 17:45

State of Ground: Dry Damp ☒ Wet Saturated

Wind Strength: Calm Light ☒ Moderate Strong

Cloud Cover: Clear Slight Cloudy Overcast ☒

Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	BH1012	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012	WS1014
Target Stratum	Glacial Till	Made Ground	Glacial Till	Made Ground	Made Ground	Glacial Till	Made Ground	Made Ground
Ground Level (mOD)	40.60	41.50	38.40	33.62	35.00	38.70	37.91	34.30
Groundwater Depth (mbgl)	3.91	4.00	Dry	Dry	Dry	Dry	3.48	Dry
Groundwater Level (mOD)	36.69	37.50	Dry	Dry	Dry	Dry	34.43	Dry
Base of Well (mbgl)	5.20	4.87	3.87	2.50	1.91	2.63	4.80	1.94
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	4.00	1.00	3.60	1.00	0.50	1.90	1.00	1.00
Base of Response Zone (mbgl)	5.50	5.00	4.00	1.50	2.00	2.60	4.00	2.00
Top of Response Zone (mOD)	36.60	40.50	34.80	32.62	34.50	36.80	36.91	33.30
Base of Response Zone (mOD)	35.10	36.50	34.40	32.12	33.00	36.10	33.91	32.30
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1012	WS1001	WS1002	WS1006	WS1008	WS1009	WS1012	WS1014
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	11 March 2025	Time of Visit:	9:30 - 17:45

State of Ground: Dry Damp ☒ Wet Saturated

Wind Strength: Calm Light ☒ Moderate Strong

Cloud Cover: Clear Slight Cloudy Overcast ☒

Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	WS1016	WS1020	WS1023A	WS1024				
Target Stratum	Made Ground	Made Ground	Made Ground	Made Ground				
Ground Level (mOD)	34.17	32.88	35.00	35.00				
Groundwater Depth (mbgl)	Dry	Dry	Dry	Dry				
Groundwater Level (mOD)	Dry	Dry	Dry	Dry				
Base of Well (mbgl)	5.22	4.37	1.30	3.50				
Diameter of Well (m)	0.05	0.05	0.05	0.05				
Condition of Well	Good	Good	Good	Good				
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00				
Base of Response Zone (mbgl)	5.00	4.00	3.70	3.70				
Top of Response Zone (mOD)	33.17	31.88	34.00	34.00				
Base of Response Zone (mOD)	29.17	28.88	31.30	31.30				
Hydrocarbon Sheen Observed?	-	-	-	-				
Thickness of Free Product (m)	-	-	-	-				

Groundwater Sampling Details	WS1016	WS1020	WS1023A	WS1024				
Purge Method	-	-	-	-				
Purged Volume	-	-	-	-				
Recharge (Good / Poor)	-	-	-	-				
Sampling Method	-	-	-	-				
Volume of Water Sampled (ltrs)	-	-	-	-				
Volume of Free Product Sampled (ltrs)	-	-	-	-				
Colour / Odours Noted	-	-	-	-				
In-situ pH	-	-	-	-				
In-situ Temperature (°C)	-	-	-	-				
In-situ Dissolved Oxygen (%)	-	-	-	-				
In-situ Electrical Conductivity (mS/cm)	-	-	-	-				
In-situ Total Dissolved Solids (ppt)	-	-	-	-				

Notes:

WS1016 - very silty/sludgy at base

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	11 March 2025	Time of Visit:	9:30 - 17:45

State of Ground: Dry Damp ☒ Wet Saturated
 Wind Strength: Calm Light ☒ Moderate Strong
 Cloud Cover: Clear Slight Cloudy Overcast ☒
 Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81	34.04	34.36	30.74	35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	5.98	5.85	Dry	3.36	7.12	Dry	Dry	Dry
Groundwater Level (mOD)	27.83	28.19	Dry	27.38	28.04	Dry	Dry	Dry
Base of Well (mbgl)	12.22	13.70	2.14	10.78	10.02	3.83	2.87	1.77
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	6.00	8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81	31.04	33.36	24.74	27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81	19.04	30.36	15.74	20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005		BH2007	WS2001	WS2002	WS2004
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	11 March 2025	Time of Visit:	9:30 - 17:45

State of Ground: Dry Damp ☒ Wet Saturated
 Wind Strength: Calm Light ☒ Moderate Strong
 Cloud Cover: Clear Slight Cloudy Overcast ☒
 Precipitation Level: None Slight ☒ Moderate Heavy

Borehole Reference	WS2005	WS2006						
Target Stratum	Sandstone	Made Ground						
Ground Level (mOD)	34.26	34.00						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.80	1.44						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	3.00	0.50						
Base of Response Zone (mbgl)	5.00	1.50						
Top of Response Zone (mOD)	31.26	33.50						
Base of Response Zone (mOD)	29.26	32.50						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS2005	WS2006						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

WS2005 - Base very silty/sludgy

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	07 April 2025	Time of Visit:	9:30 - 16:30

State of Ground:	Dry ☒	Damp ☐	Wet ☐	Saturated ☐
Wind Strength:	Calm ☐	Light ☒	Moderate ☐	Strong ☐
Cloud Cover:	Clear ☒	Slight ☒	Cloudy ☐	Overcast ☐
Precipitation Level:	None ☒	Slight ☐	Moderate ☐	Heavy ☐

Borehole Reference	BH1001	BH1002	BH1003	BH1004	BH1005	BH1006	BH1007	BH1008
Target Stratum	Sandstone	Sandstone	Alluvium	Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Ground Level (mOD)	35.24	38.79	34.06	36.50	33.51	34.19	34.10	33.60
Groundwater Depth (mbgl)	7.07	10.76	Dry	Dry	5.38	6.24	5.89	5.78
Groundwater Level (mOD)	28.17	28.03	Dry	Dry	28.13	27.95	28.21	27.82
Base of Well (mbgl)	21.20	25.20	3.40	6.50	14.92	14.78	6.75	10.47
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Poor	Good	Good	Good
Top of Response Zone (mbgl)	5.00	5.50	4.50	7.00	7.50	7.00	4.00	3.00
Base of Response Zone (mbgl)	25.00	25.00	25.00	19.50	16.50	15.00	15.00	10.50
Top of Response Zone (mOD)	30.24	33.29	29.56	29.50	26.01	27.19	30.10	30.60
Base of Response Zone (mOD)	10.24	13.79	9.06	17.00	17.01	19.19	19.10	23.10
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1001	BH1002	BH1003	BH1004	BH1005	BH1006	BH1007	BH1008
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH1003 - Slugdey at base.

BH1002 - Diver removed at 15:15pm

BH1006 - Diver removed at 13:32pm

BH1007 - Diver removed at 15:54pm

BH1008 - Diver removed at 15:58pm

BH1013A - Diver removed at 15:01pm

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	07 April 2025	Time of Visit:	9:30 - 16:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1009	BH1012	WS1001	WS1002	WS1006	WS1008	WS1012	WS1014
Target Stratum	Glacial Till	Glacial Till	Made Ground	Glacial Till	Made Ground	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	40.51	40.60	41.50	38.40	33.62	35.00	37.91	34.30
Groundwater Depth (mbgl)	Dry	Dry	4.00	Dry	Dry	Dry	4.16	Dry
Groundwater Level (mOD)	Dry	Dry	37.50	Dry	Dry	Dry	33.75	Dry
Base of Well (mbgl)	5.17	5.32	4.83	3.87	2.50	1.91	4.87	1.91
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Poor	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	6.00	4.00	1.00	3.60	1.00	0.50	1.00	1.00
Base of Response Zone (mbgl)	15.00	5.50	5.00	4.00	1.50	2.00	4.00	2.00
Top of Response Zone (mOD)	34.51	36.60	40.50	34.80	32.62	34.50	36.91	33.30
Base of Response Zone (mOD)	25.51	35.10	36.50	34.40	32.12	33.00	33.91	32.30
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH1009	BH1012	WS1001	WS1002	WS1006	WS1008	WS1012	WS1014
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	07 April 2025	Time of Visit:	9:30 - 16:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	WS1016	WS1020	WS1023A	WS1024				
Target Stratium	Made Ground	Made Ground	Made Ground	Made Ground				
Ground Level (mOD)	34.17	32.88	35.00	35.00				
Groundwater Depth (mbgl)	Dry	Dry	Dry	Dry				
Groundwater Level (mOD)	Dry	Dry	Dry	Dry				
Base of Well (mbgl)	5.23	4.40	1.36	3.50				
Diameter of Well (m)	0.05	0.05	0.05	0.05				
Condition of Well	Good	Good	Good	Good				
Top of Response Zone (mbgl)	1.00	1.00	1.00	1.00				
Base of Response Zone (mbgl)	5.00	4.00	3.70	3.70				
Top of Response Zone (mOD)	33.17	31.88	34.00	34.00				
Base of Response Zone (mOD)	29.17	28.88	31.30	31.30				
Hydrocarbon Sheen Observed?	-	-	-	-				
Thickness of Free Product (m)	-	-	-	-				

Groundwater Sampling Details	WS1016	WS1020	WS1023A	WS1024				
Purge Method	-	-	-	-				
Purged Volume	-	-	-	-				
Recharge (Good / Poor)	-	-	-	-				
Sampling Method	-	-	-	-				
Volume of Water Sampled (ltrs)	-	-	-	-				
Volume of Free Product Sampled (ltrs)	-	-	-	-				
Colour / Odours Noted	-	-	-	-				
In-situ pH	-	-	-	-				
In-situ Temperature (°C)	-	-	-	-				
In-situ Dissolved Oxygen (%)	-	-	-	-				
In-situ Electrical Conductivity (mS/cm)	-	-	-	-				
In-situ Total Dissolved Solids (ppt)	-	-	-	-				

Notes:

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	07 April 2025	Time of Visit:	9:30 - 16:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Target Stratum	Sandstone	Sandstone	Made Ground	Sandstone	Sandstone	Made Ground	Made Ground	Made Ground
Ground Level (mOD)	33.81	34.04	34.36	30.74	35.16	34.30	33.80	34.00
Groundwater Depth (mbgl)	6.10	5.98	Dry	3.48	7.20	Dry	Dry	Dry
Groundwater Level (mOD)	27.71	28.06	Dry	27.26	27.96	Dry	Dry	Dry
Base of Well (mbgl)	12.27	13.87	2.15	10.74	10.05	3.83	2.86	1.78
Diameter of Well (m)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Condition of Well	Good	Good	Good	Good	Good	Good	Good	Good
Top of Response Zone (mbgl)	3.00	3.00	1.00	6.00	8.00	1.00	1.00	0.50
Base of Response Zone (mbgl)	15.00	15.00	4.00	15.00	15.00	4.00	3.00	1.50
Top of Response Zone (mOD)	30.81	31.04	33.36	24.74	27.16	33.30	32.80	33.50
Base of Response Zone (mOD)	18.81	19.04	30.36	15.74	20.16	30.30	30.80	32.50
Hydrocarbon Sheen Observed?	-	-	-	-	-	-	-	-
Thickness of Free Product (m)	-	-	-	-	-	-	-	-

Groundwater Sampling Details	BH2002	BH2004	BH2005	BH2006	BH2007	WS2001	WS2002	WS2004
Purge Method	-	-	-	-	-	-	-	-
Purged Volume	-	-	-	-	-	-	-	-
Recharge (Good / Poor)	-	-	-	-	-	-	-	-
Sampling Method	-	-	-	-	-	-	-	-
Volume of Water Sampled (ltrs)	-	-	-	-	-	-	-	-
Volume of Free Product Sampled (ltrs)	-	-	-	-	-	-	-	-
Colour / Odours Noted	-	-	-	-	-	-	-	-
In-situ pH	-	-	-	-	-	-	-	-
In-situ Temperature (°C)	-	-	-	-	-	-	-	-
In-situ Dissolved Oxygen (%)	-	-	-	-	-	-	-	-
In-situ Electrical Conductivity (mS/cm)	-	-	-	-	-	-	-	-
In-situ Total Dissolved Solids (ppt)	-	-	-	-	-	-	-	-

Notes:

BH2002 - Diver removed at 14:25pm
 BH2006 - Diver removed at 14:18pm
 BH2007 - Diver removed at 16:16pm

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/03	Engineer:	KIA
Date of Visit:	07 April 2025	Time of Visit:	9:30 - 16:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☒ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	WS2005	WS2006						
Target Stratum	Sandstone	Made Ground						
Ground Level (mOD)	34.26	34.00						
Groundwater Depth (mbgl)	Dry	Dry						
Groundwater Level (mOD)	Dry	Dry						
Base of Well (mbgl)	4.83	1.45						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Good	Good						
Top of Response Zone (mbgl)	3.00	0.50						
Base of Response Zone (mbgl)	5.00	1.50						
Top of Response Zone (mOD)	31.26	33.50						
Base of Response Zone (mOD)	29.26	32.50						
Hydrocarbon Sheen Observed?	-	-						
Thickness of Free Product (m)	-	-						

Groundwater Sampling Details	WS2005	WS2006						
Purge Method	-	-						
Purged Volume	-	-						
Recharge (Good / Poor)	-	-						
Sampling Method	-	-						
Volume of Water Sampled (ltrs)	-	-						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	-	-						
In-situ pH	-	-						
In-situ Temperature (°C)	-	-						
In-situ Dissolved Oxygen (%)	-	-						
In-situ Electrical Conductivity (mS/cm)	-	-						
In-situ Total Dissolved Solids (ppt)	-	-						

Notes:

WS2005 - Base very silty/sludgy

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA/AP
Date of Visit:	25 March 2025	Time of Visit:	8:00 to 17:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐
 Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐
 Cloud Cover: Clear ☐ Slight ☐ Cloudy ☒ Overcast ☐
 Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1001	BH1002	BH1005	BH1006	BH1007	BH1008	BH1013A	BH1015B
Target Stratum	Sandstone	Sandstone		Sandstone	Sandstone	Sandstone	Sandstone	Sandstone
Ground Level (mOD)	35.24	38.79		34.19	34.10	33.60	33.60	33.00
Groundwater Depth (mbgl)	7.05	10.73		6.17	5.73	5.76	5.51	DRY
Groundwater Level (mOD)	28.19	28.06		28.02	28.37	27.84	28.09	-
Base of Well (mbgl)	21.36	25.10		14.86	6.82	10.17	16.10	8.89
Diameter of Well (m)	0.05	0.05		0.05	0.05	0.05	0.05	0.05
Condition of Well	Poor	Good		Good	Good	Good	Poor	Good
Top of Response Zone (mbgl)	5.00	5.50		7.00	4.00	3.00	5.00	4.5
Base of Response Zone (mbgl)	25.00	25.00		15.00	15.00	10.50	25.00	6.0
Top of Response Zone (mOD)	30.24	33.29		27.19	30.10	30.60	28.60	28.50
Base of Response Zone (mOD)	10.24	13.79		19.19	19.10	23.10	8.60	27.00
Hydrocarbon Sheen Observed?	No	No		No	No	No	No	No
Thickness of Free Product (m)	0.00	0.00		0.00	0.00	0.00	o	0.00

Groundwater Sampling Details	BH1001	BH1002	BH1005	BH1006	BH1007	BH1008	BH1013A	BH1015A
Purge Method	Bail	Bail		Bail	Bail	Bail	Bail	-
Purged Volume	84	84		51	6	28	62	-
Recharge (Good / Poor)	Good	Good		Good	Good	Good	Good	-
Sampling Method	Bailer	Bailer		Bailer	Bailer	Bailer	Bailer	-
Volume of Water Sampled (ltrs)	2 Bottles 2 Vials	2 Bottles 2 Vials		2 Bottles 2 Vials	2 Bottles 2 Vials	2 Bottles 2 Vials	2 Bottles 2 Vials	-
Volume of Free Product Sampled (ltrs)	-	-		-	-	-	-	-
Colour / Odours Noted	Light Orangish Brown, slightly sandy, no odour	Light Orangish Brown, silty and sandy, no odour		Light Orangish Brown, silty and sandy, no odour	Orangish Brown, very silty and sandy, no odour	Orangish Brown, sandy, no odour	Clear to very pale orangish brown, slightly sandy, no odour	-
In-situ pH	7.22	7.78		6.51	6.75	6.61	6.96	-
In-situ Temperature (°C)	12.9	12.4		12.2	12.0	12.4	13.4	-
In-situ Dissolved Oxygen (%)	10.9	12.3		8.9	9.3	8.6	6.8	-
In-situ Electrical Conductivity (mS/cm)	0.36	0.87		0.98	1.07	0.90	0.61	-
In-situ Total Dissolved Solids (ppt)	0.17	0.42		0.49	0.53	0.46	0.30	-

Notes:

BH1001 - Damage to flush cover caused by skips being pushed over the location
 BH1005 - Unable to reach as location was covered by a waste skip
 BH1007 - Groundwater was very silty and sandy
 BH1013A - Damage to flush cover caused by skips being pushed over the location

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA/AP
Date of Visit:	25 March 2025	Time of Visit:	8:00 to 17:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☐ Cloudy ☒ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1016A	BH1017						
Target Stratum	Sandstone	Sandstone						
Ground Level (mOD)	34.10	33.60						
Groundwater Depth (mbgl)	5.95	5.78						
Groundwater Level (mOD)	28.15	27.82						
Base of Well (mbgl)	19.72	17.43						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Poor	Good						
Top of Response Zone (mbgl)	4.00	3.00						
Base of Response Zone (mbgl)	15.00	10.50						
Top of Response Zone (mOD)	30.10	30.60						
Base of Response Zone (mOD)	19.10	23.10						
Hydrocarbon Sheen Observed?	No	No						
Thickness of Free Product (m)	0.00	0.00						

Groundwater Sampling Details	BH1007	BH1008						
Purge Method	Bail	Bail						
Purged Volume	81	70						
Recharge (Good / Poor)	Good	Good						
Sampling Method	Bailer	Bailer						
Volume of Water Sampled (ltrs)	2 Bottles 2 Vials	2 Bottles 2 Vials						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	Clear to very pale orangish brown, slightly sandy, no odour	Clear to very pale orangish brown, slightly sandy, no odour						
In-situ pH	6.84	6.82						
In-situ Temperature (°C)	13.0	12.2						
In-situ Dissolved Oxygen (%)	10.9	11.4						
In-situ Electrical Conductivity (mS/cm)	1.18	0.63						
In-situ Total Dissolved Solids (ppt)	0.58	0.32						

Notes:

BH1016A - Gas tap not installed in bung, not enough space left beneath the lid of the flush cover to install gas tap

Groundwater Monitoring Record

Project Name:	ID Manchester	Client:	ID Manchester Limited
Project Reference:	51019/02	Engineer:	KIA
Date of Visit:	02 April 2025	Time of Visit:	9:00 to 14:30

State of Ground: Dry ☒ Damp ☐ Wet ☐ Saturated ☐

Wind Strength: Calm ☐ Light ☒ Moderate ☐ Strong ☐

Cloud Cover: Clear ☐ Slight ☒ Cloudy ☐ Overcast ☐

Precipitation Level: None ☒ Slight ☐ Moderate ☐ Heavy ☐

Borehole Reference	BH1005	BH1016A						
Target Stratum	Sandstone	Sandstone						
Ground Level (mOD)	33.51	34.10						
Groundwater Depth (mbgl)	5.33	5.97						
Groundwater Level (mOD)	28.18	28.13						
Base of Well (mbgl)	14.95	19.62						
Diameter of Well (m)	0.05	0.05						
Condition of Well	Poor	Poor						
Top of Response Zone (mbgl)	7.50	4.00						
Base of Response Zone (mbgl)	16.50	15.00						
Top of Response Zone (mOD)	26.01	30.10						
Base of Response Zone (mOD)	17.01	19.10						
Hydrocarbon Sheen Observed?	No	No						
Thickness of Free Product (m)	0.00	0.00						

Groundwater Sampling Details	BH1005	BH1016A						
Purge Method	Bail	Bail						
Purged Volume	57	80						
Recharge (Good / Poor)	Good	Good						
Sampling Method	Bailer	Bailer						
Volume of Water Sampled (ltrs)	2 Bottles 2 Vials	2 Bottles 2 Vials						
Volume of Free Product Sampled (ltrs)	-	-						
Colour / Odours Noted	Pale orangish yellow, slightly sandy, no odour	Clear to very pale orangish brown, slightly sandy, no odour						
In-situ pH	7.12	7.75						
In-situ Temperature (°C)	13.3	13.6						
In-situ Dissolved Oxygen (%)	7.4	6.4						
In-situ Electrical Conductivity (mS/cm)	0.72	1.20						
In-situ Total Dissolved Solids (ppt)	0.36	0.61						

Notes:

Appendix E

Chemical Soil Analysis Results

Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
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t: 01923 225404
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e: kirsty.poore@civicearth.com

Analytical Report Number : 24-014285

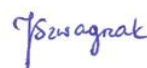
Replaces Analytical Report Number: 24-014285, issue no. 1

Additional analysis undertaken.

Asbestos Quantification added to positive sample at client's request.

Project / Site name:	ID Manchester	Samples received on:	15/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	15/04/2024
Your order number:	PO 0059	Analysis completed by:	22/04/2024
Report Issue Number:	2	Report issued on:	01/05/2024
Samples Analysed:	11 soil samples - 3 leachate samples		

Signed:



Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 24-014285
Project / Site name: ID Manchester
Your Order No: PO 0059

Lab Sample Number	171384	171385	171386	171387	171388
Sample Reference	BH1005	BH1005	BH1005	FIP1017	BH1003
Sample Number	ES1	ES2	ES3	ES1	ES1
Depth (m)	0.60	4.10	5.10	0.80	2.10
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
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	56.6	< 0.1
Moisture Content	%	0.01	NONE	19	20	14	8.2	13
Total mass of sample received	kg	0.1	NONE	1.3	1.3	1	1.1	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	-	EWS	IZJ
Actinolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	Detected	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	0.005	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	Loose Fibrous Debris	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9.4	8.8	8.6	8.6	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	1.1	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1900	2100	230	710	740
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	2.6	2.1	0.8	7.2	1.5

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	7.8	1.1	0.28	0.12	0.46
Acenaphthylene	mg/kg	0.05	MCERTS	1.6	0.1	< 0.05	0.1	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	1.4	1.2	0.15	0.22	0.21
Fluorene	mg/kg	0.05	MCERTS	1.7	0.83	0.09	0.15	0.16
Phenanthrene	mg/kg	0.05	MCERTS	16	3	0.3	1.5	0.58
Anthracene	mg/kg	0.05	MCERTS	4.3	0.88	0.06	0.43	0.12
Fluoranthene	mg/kg	0.05	MCERTS	23	4.7	0.36	2	0.6
Pyrene	mg/kg	0.05	MCERTS	25	4.5	0.36	1.8	0.63
Benzo(a)anthracene	mg/kg	0.05	MCERTS	14	2.3	0.2	0.9	0.31
Chrysene	mg/kg	0.05	MCERTS	13	2.3	0.17	0.95	0.32
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	14	2.5	0.17	0.95	0.32
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	6.6	1.2	0.12	0.46	0.15
Benzo(a)pyrene	mg/kg	0.05	MCERTS	13	2.2	0.16	0.78	0.27
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.8	1	0.07	0.52	0.14
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.8	0.23	< 0.05	0.14	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.7	1.2	0.1	0.68	0.18
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	154	29.4	2.59	11.6	4.45
Total WAC-17 PAHs	mg/kg	0.85	NONE	154	29.4	2.59	11.6	4.45

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.8	4.2	< 1.0	< 1.0	2.6
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Analytical Report Number: 24-014285
Project / Site name: ID Manchester
Your Order No: PO 0059

Lab Sample Number				171384	171385	171386	171387	171388
Sample Reference				BH1005	BH1005	BH1005	FIP1017	BH1003
Sample Number				ES1	ES2	ES3	ES1	ES1
Depth (m)				0.60	4.10	5.10	0.80	2.10
Date Sampled				10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21	31	7.8	8.6	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	160	110	21	80	92
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.97	0.83	0.39	0.28	0.84
Boron (water soluble)	mg/kg	0.2	MCERTS	1.2	0.7	< 0.2	0.3	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.8	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	20	19	12	11	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	19	12	11	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	58	59	6.2	13	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	180	120	12	64	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.8	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	35	11	14	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	22	15	18	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69	100	30	69	46

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	4.7	< 1.0	< 1.0	< 1.0	2.6
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	22	< 2.0	3.8	2.1	13
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	34	< 8.0	< 8.0	8.3	16
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	68	< 8.0	< 8.0	160	75
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	130	< 10	< 10	170	110

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	4.1	< 1.0	< 1.0	< 1.0	1.5
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	35	7.5	2.4	6.9	6.5
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	200	26	< 10	18	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	270	46	13	220	58
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	500	79	16	240	66

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	420	51	20	65	66
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	240	29	18	740	180

Analytical Report Number: 24-014285
 Project / Site name: ID Manchester
 Your Order No: PO 0059

Lab Sample Number	171384	171385	171386	171387	171388
Sample Reference	BH1005	BH1005	BH1005	FIP1017	BH1003
Sample Number	ES1	ES2	ES3	ES1	ES1
Depth (m)	0.60	4.10	5.10	0.80	2.10
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
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	5	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	-
Chloroform	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	-	-	-
Bromoform	µg/kg	5	NONE	-	-	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromobenzene	µg/kg	5	NONE	-	-	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
Butylbenzene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-

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Lab Sample Number				171384	171385	171386	171387	171388
Sample Reference				BH1005	BH1005	BH1005	FIP1017	BH1003
Sample Number				ES1	ES2	ES3	ES1	ES1
Depth (m)				0.60	4.10	5.10	0.80	2.10
Date Sampled				10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Hexachlorobutadiene				µg/kg	5	NONE	-	-
1,2,3-Trichlorobenzene				µg/kg	5	ISO 17025	-	-

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Lab Sample Number	171384	171385	171386	171387	171388
Sample Reference	BH1005	BH1005	BH1005	FIP1017	BH1003
Sample Number	ES1	ES2	ES3	ES1	ES1
Depth (m)	0.60	4.10	5.10	0.80	2.10
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	-

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	< 0.001	-
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Lab Sample Number	171384	171385	171386	171387	171388
Sample Reference	BH1005	BH1005	BH1005	FIP1017	BH1003
Sample Number	ES1	ES2	ES3	ES1	ES1
Depth (m)	0.60	4.10	5.10	0.80	2.10
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	< 0.001	-
Total PCBs	mg/kg	0.012	NONE	-	-	-	< 0.012	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number	171389	171390	171391	171392	171393
Sample Reference	BH1003	BH1001	BH1001	BH1006	BH1006
Sample Number	ES2	ES1	ES2	ES1	ES2
Depth (m)	2.70	0.40	3.10	1.30	2.20
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
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	76.9	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	3.5	17	8.5	20
Total mass of sample received	kg	0.1	NONE	1.1	1.1	1	1.1	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	IZJ
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8	9.7	9.6	10.8	8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	560	400	710	1700	16000
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	1.7	3.3	1.4	1.5	3.1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.13
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	0.09	0.09	0.18	0.34	0.51
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.06	0.09
Fluoranthene	mg/kg	0.05	MCERTS	0.08	0.09	0.17	0.58	0.63
Pyrene	mg/kg	0.05	MCERTS	0.09	0.09	0.19	0.62	0.77
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.05	0.06	0.1	0.37	0.57
Chrysene	mg/kg	0.05	MCERTS	0.05	0.08	0.09	0.42	0.52
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.07	0.09	0.46	0.49
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.07	0.18	0.25
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.05	0.09	0.38	0.46
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.16	0.18
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	0.27	0.26
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	0.98	3.84	4.86
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	0.98	3.84	4.86

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	2	1.8	5
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Analytical Report Number: 24-014285
Project / Site name: ID Manchester
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Lab Sample Number				171389	171390	171391	171392	171393
Sample Reference				BH1003	BH1001	BH1001	BH1006	BH1006
Sample Number				ES2	ES1	ES2	ES1	ES2
Depth (m)				2.70	0.40	3.10	1.30	2.20
Date Sampled				10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	5.7	10	15	30
Barium (aqua regia extractable)	mg/kg	1	MCERTS	96	83	100	140	140
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.87	0.18	0.59	0.54	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	0.3	0.5	0.3	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	2.6	0.6	0.5	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	19	7.5	14	14	92
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	7.5	14	14	92
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	12	20	53	83
Lead (aqua regia extractable)	mg/kg	1	MCERTS	37	22	57	180	250
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	1.4	1.2
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	14	13	11	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24	10	19	18	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48	24	80	72	82

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	1.8	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	9.7	3.8	< 2.0	2.3	3.7
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	11	160	< 8.0	10	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	23	160	< 10	12	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	5.7	4.6	< 2.0	2.2	3.1
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	12	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	11	250	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	17	260	< 10	< 10	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	37	59	< 10	20	19
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	16	730	< 10	< 10	< 10

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Lab Sample Number	171389	171390	171391	171392	171393
Sample Reference	BH1003	BH1001	BH1001	BH1006	BH1006
Sample Number	ES2	ES1	ES2	ES1	ES2
Depth (m)	2.70	0.40	3.10	1.30	2.20
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
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	5	ISO 17025	-	< 5.0	-	-	-
Chloroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-	-	-
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Bromoform	µg/kg	5	NONE	-	< 5.0	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-

Analytical Report Number: 24-014285
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Lab Sample Number				171389	171390	171391	171392	171393
Sample Reference				BH1003	BH1001	BH1001	BH1006	BH1006
Sample Number				ES2	ES1	ES2	ES1	ES2
Depth (m)				2.70	0.40	3.10	1.30	2.20
Date Sampled				10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Hexachlorobutadiene				µg/kg	5	NONE	-	< 5.0
1,2,3-Trichlorobenzene				µg/kg	5	ISO 17025	-	< 5.0

Analytical Report Number: 24-014285
Project / Site name: ID Manchester
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Lab Sample Number	171389	171390	171391	171392	171393
Sample Reference	BH1003	BH1001	BH1001	BH1006	BH1006
Sample Number	ES2	ES1	ES2	ES1	ES2
Depth (m)	2.70	0.40	3.10	1.30	2.20
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	-	-

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
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Analytical Report Number: 24-014285
 Project / Site name: ID Manchester
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Lab Sample Number	171389	171390	171391	171392	171393
Sample Reference	BH1003	BH1001	BH1001	BH1006	BH1006
Sample Number	ES2	ES1	ES2	ES1	ES2
Depth (m)	2.70	0.40	3.10	1.30	2.20
Date Sampled	10/04/2024	10/04/2024	10/04/2024	10/04/2024	10/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-	-
Total PCBs	mg/kg	0.012	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-014285
Project / Site name: ID Manchester
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Lab Sample Number	171394			
Sample Reference	BH1006			
Sample Number	ES3			
Depth (m)	3.40			
Date Sampled	10/04/2024			
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	19
Total mass of sample received	kg	0.1	NONE	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	-
Actinolite detected	Type	N/A	ISO 17025	-
Amosite detected	Type	N/A	ISO 17025	-
Anthophyllite detected	Type	N/A	ISO 17025	-
Chrysotile detected	Type	N/A	ISO 17025	-
Crocidolite detected	Type	N/A	ISO 17025	-
Tremolite detected	Type	N/A	ISO 17025	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	3900
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-
Organic Matter (automated)	%	0.1	MCERTS	2.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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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	0.19
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.2
Pyrene	mg/kg	0.05	MCERTS	0.23
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.12
Chrysene	mg/kg	0.05	MCERTS	0.17
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.12
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.07
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.11
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
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.21
Total WAC-17 PAHs	mg/kg	0.85	NONE	1.21

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.1
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Analytical Report Number: 24-014285
 Project / Site name: ID Manchester
 Your Order No: PO 0059

Lab Sample Number				171394
Sample Reference				BH1006
Sample Number				ES3
Depth (m)				3.40
Date Sampled				10/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.81
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	48
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	48
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	92
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	3.3
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	2.1
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	11
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10

Analytical Report Number: 24-014285
 Project / Site name: ID Manchester
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Lab Sample Number				171394
Sample Reference				BH1006
Sample Number				ES3
Depth (m)				3.40
Date Sampled				10/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

VOCs

Chloromethane	µg/kg	5	ISO 17025	-
Chloroethane	µg/kg	5	NONE	-
Bromomethane	µg/kg	5	ISO 17025	-
Vinyl Chloride	µg/kg	5	NONE	-
Trichlorofluoromethane	µg/kg	5	NONE	-
1,1-Dichloroethene	µg/kg	5	NONE	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-
2,2-Dichloropropane	µg/kg	5	NONE	-
Chloroform	µg/kg	5	ISO 17025	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-
Benzene	µg/kg	5	MCERTS	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-
Trichloroethene	µg/kg	5	ISO 17025	-
Dibromomethane	µg/kg	5	ISO 17025	-
Bromodichloromethane	µg/kg	5	ISO 17025	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-
Toluene	µg/kg	5	MCERTS	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-
Dibromochloromethane	µg/kg	5	ISO 17025	-
Tetrachloroethene	µg/kg	5	NONE	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-
Chlorobenzene	µg/kg	5	ISO 17025	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
Styrene	µg/kg	5	ISO 17025	-
Bromoform	µg/kg	5	NONE	-
o-Xylene	µg/kg	5	MCERTS	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-
Bromobenzene	µg/kg	5	NONE	-
n-Propylbenzene	µg/kg	5	ISO 17025	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-
Butylbenzene	µg/kg	5	NONE	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-

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 Project / Site name: ID Manchester
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Lab Sample Number				171394
Sample Reference				BH1006
Sample Number				ES3
Depth (m)				3.40
Date Sampled				10/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Hexachlorobutadiene	µg/kg	5	NONE	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-

Analytical Report Number: 24-014285
 Project / Site name: ID Manchester
 Your Order No: PO 0059

Lab Sample Number				171394
Sample Reference				BH1006
Sample Number				ES3
Depth (m)				3.40
Date Sampled				10/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

SVOCs

Aniline	mg/kg	0.1	NONE	-
Phenol	mg/kg	0.2	ISO 17025	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-
2-Methylphenol	mg/kg	0.3	MCERTS	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-
Nitrobenzene	mg/kg	0.3	MCERTS	-
4-Methylphenol	mg/kg	0.2	NONE	-
Isophorone	mg/kg	0.2	MCERTS	-
2-Nitrophenol	mg/kg	0.3	NONE	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-
4-Chloroaniline	mg/kg	0.1	NONE	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-
Dibenzofuran	mg/kg	0.2	MCERTS	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-
4-Nitroaniline	mg/kg	0.2	NONE	-
Azobenzene	mg/kg	0.3	NONE	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-
Carbazole	mg/kg	0.3	MCERTS	-
Dibutyl phthalate	mg/kg	0.2	NONE	-
Anthraquinone	mg/kg	0.3	NONE	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-
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Analytical Report Number: 24-014285
Project / Site name: ID Manchester
Your Order No: PO 0059

Lab Sample Number				171394
Sample Reference				BH1006
Sample Number				ES3
Depth (m)				3.40
Date Sampled				10/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

PCBs

PCB Congener 077	mg/kg	0.001	NONE	-
PCB Congener 081	mg/kg	0.001	NONE	-
PCB Congener 105	mg/kg	0.001	NONE	-
PCB Congener 114	mg/kg	0.001	NONE	-
PCB Congener 123	mg/kg	0.001	NONE	-
PCB Congener 126	mg/kg	0.001	NONE	-
PCB Congener 156	mg/kg	0.001	NONE	-
PCB Congener 157	mg/kg	0.001	NONE	-
PCB Congener 167	mg/kg	0.001	NONE	-
PCB Congener 169	mg/kg	0.001	NONE	-
PCB Congener 189	mg/kg	0.001	NONE	-

Total PCBs	mg/kg	0.012	NONE	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-014285
Project / Site name: ID Manchester
Your Order No: PO 0059

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
171387	FIP1017	0.80	123	Loose Fibrous Debris	Chrysotile	0.005	0.005

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number: 24-014285
Project / Site name: ID Manchester

Your Order No: PO 0059

Lab Sample Number	171385	171391	171392
Sample Reference	BH1005	BH1001	BH1006
Sample Number	ES2	ES2	ES1
Depth (m)	4.10	3.10	1.30
Date Sampled	10/04/2024	10/04/2024	10/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.4	9.3	11.4
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	1.3	3.9
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	< 1	< 1
Sulphate as SO ₄	mg/l	0.045	ISO 17025	159	5.97	11.7
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	3.9	8.1	7.6

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	1.3	< 1.0	1.5
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	0.66	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	1.9	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	0.61	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	0.72	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	0.19	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.15	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	0.1	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	4.29	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	2.7	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	6.3	3.2
Barium (dissolved)	µg/l	0.05	ISO 17025	44	7.8	61
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	31	31	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	13
Chromium (III)	µg/l	5	NONE	< 5.0	8.9	6.6
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	8.9	19
Copper (dissolved)	µg/l	0.7	ISO 17025	9.7	27	80
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	0.0075	0.0328
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.3	0.3	1.4
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	5.7	13
Zinc (dissolved)	µg/l	0.4	ISO 17025	13	1.8	2.9

Calcium (dissolved)	mg/l	0.012	ISO 17025	82	15	60
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Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	µg/l	10	NONE	< 10	< 10	< 10
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Analytical Report Number: 24-014285
Project / Site name: ID Manchester

Your Order No: PO 0059

Lab Sample Number	171385	171391	171392
Sample Reference	BH1005	BH1001	BH1006
Sample Number	ES2	ES2	ES1
Depth (m)	4.10	3.10	1.30
Date Sampled	10/04/2024	10/04/2024	10/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

TPH (C10 - C25) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	62	< 10	< 10
TPH (C25 - C40) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-014285

Project / Site name: ID Manchester

* 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 *
171384	BH1005	ES1	0.6	Brown clay and sand with gravel
171385	BH1005	ES2	4.1	Brown loam and sand with gravel
171386	BH1005	ES3	5.1	Brown sand with gravel
171387	FIP1017	ES1	0.8	Brown loam and sand with stones
171388	BH1003	ES1	2.1	Brown loam and sand with gravel
171389	BH1003	ES2	2.7	Brown sandy clay with gravel
171390	BH1001	ES1	0.4	Brown gravely sand with stones
171391	BH1001	ES2	3.1	Brown sandy clay with gravel
171392	BH1006	ES1	1.3	Brown sand with gravel
171393	BH1006	ES2	2.2	Brown clay and sand with gravel
171394	BH1006	ES3	3.4	Brown clay and sand with gravel

Analytical Report Number : 24-014285

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCBs WHO 12 in soil	Determination of PCBs (WHO-12 Congeners) by GC-MS	In-house method based on USEPA 8082	L027B	D	NONE
PCBs By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	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	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS

Analytical Report Number : 24-014285

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L0768/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	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	L080	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025

Analytical Report Number : 24-014285
Project / Site name: ID Manchester

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
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 24-014790

Replaces Analytical Report Number: 24-014790, issue no. 1
Additional analysis undertaken.
Quantification added to positive samples as per client's request.

Project / Site name:	ID Manchester	Samples received on:	17/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	17/04/2024
Your order number:	PO-0059	Analysis completed by:	25/04/2024
Report Issue Number:	2	Report issued on:	30/04/2024
Samples Analysed:	8 soil samples		

Signed:



Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 24-014790
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	174029	174030	174031	174032	174033
Sample Reference	BH1015B	BH1015B	BH1015B	BH1005	WS1011
Sample Number	ES1	ES3	ES4	ES4	ES1
Depth (m)	0.20	0.80	1.00	16.50	0.20
Date Sampled	15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
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	12	13	17	29
Total mass of sample received	kg	0.1	NONE	1.2	1	1.1	1.2	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Detected	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MMI	MMI	-	-	MMI
Actinolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	Detected	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	< 0.001	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	Loose Fibres	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.9	8.2	8.7	8.4	7.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	2
Total Sulphate as SO ₄	mg/kg	50	MCERTS	920	860	1200	170	980
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	1.2	-
Organic Matter (automated)	%	0.1	MCERTS	7.1	6.6	6.8	0.6	11

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.2	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	7.9	12	4.5	0.1	0.18
Acenaphthylene	mg/kg	0.05	MCERTS	1.2	1.9	0.79	< 0.05	0.07
Acenaphthene	mg/kg	0.05	MCERTS	39	41	21	0.16	0.16
Fluorene	mg/kg	0.05	MCERTS	24	30	14	0.26	0.1
Phenanthrene	mg/kg	0.05	MCERTS	150	150	84	1.2	1.3
Anthracene	mg/kg	0.05	MCERTS	53	51	28	0.28	0.3
Fluoranthene	mg/kg	0.05	MCERTS	190	200	130	0.9	3
Pyrene	mg/kg	0.05	MCERTS	150	170	110	0.74	3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	77	78	53	0.14	1.7
Chrysene	mg/kg	0.05	MCERTS	72	78	51	0.15	2.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	80	91	50	0.11	3.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	31	36	30	< 0.05	1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	72	80	51	0.07	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	32	39	24	< 0.05	1.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	6.3	9.1	5	< 0.05	0.39
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	36	41	27	< 0.05	1.9
Coronene	mg/kg	0.05	NONE	13	17	11	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1020	1120	686	4.06	22.2
Total WAC-17 PAHs	mg/kg	0.85	NONE	1030	1130	697	4.06	22.2

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.5	1.8	2.3	< 1.0	5
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Analytical Report Number: 24-014790
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				174029	174030	174031	174032	174033
Sample Reference				BH1015B	BH1015B	BH1015B	BH1005	WS1011
Sample Number				ES1	ES3	ES4	ES4	ES1
Depth (m)				0.20	0.80	1.00	16.50	0.20
Date Sampled				15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	14	17	5.5	22
Barium (aqua regia extractable)	mg/kg	1	MCERTS	260	270	180	23	300
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.69	0.87	0.9	0.69	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	1	1.4	0.2	2.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.9	< 0.2	< 0.2	1.1
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	12	12	14	4.9	48
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	12	14	4.9	48
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	47	57	6.7	150
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	86	99	8.3	370
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.4	< 0.3	0.8
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	17	19	3.7	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	21	23	5.3	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	44	92	79	13	260

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	3.3	8.8	1.9	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	28	47	15	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	43	64	33	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	190	190	82	< 8.0	25
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	260	310	130	< 10	25

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	11	24	12	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	120	240	58	3.2	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	560	930	210	< 10	16
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	930	1400	360	< 10	68
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	1600	2600	640	< 10	84

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	1100	1800	480	15	35
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	1100	1300	420	< 10	100

Analytical Report Number: 24-014790
Project / Site name: ID Manchester
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Lab Sample Number	174029	174030	174031	174032	174033
Sample Reference	BH1015B	BH1015B	BH1015B	BH1005	WS1011
Sample Number	ES1	ES3	ES4	ES4	ES1
Depth (m)	0.20	0.80	1.00	16.50	0.20
Date Sampled	15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
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	5	ISO 17025	-	< 5.0	-	< 5.0	-
Chloroethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
1,1-Dichloroethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0##	-	< 5.0##	-
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Bromoform	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-

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Lab Sample Number				174029	174030	174031	174032	174033
Sample Reference				BH1015B	BH1015B	BH1015B	BH1005	WS1011
Sample Number				ES1	ES3	ES4	ES4	ES1
Depth (m)				0.20	0.80	1.00	16.50	0.20
Date Sampled				15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	-	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	< 5.0	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	9.7	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	< 0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	17	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-	< 0.30	-
Carbazole	mg/kg	0.3	MCERTS	-	9.4	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	-	8	-	< 0.3	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	< 0.3	-

Organotins

Tributyltin (chloride)	µg/kg	10	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-014790
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	174034	174035	174036
Sample Reference	WS1011	WS1016	WS1016
Sample Number	ES3	ES5	ES7
Depth (m)	1.00	2.50	4.00
Date Sampled	15/04/2024	15/04/2024	15/04/2024
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	14	31	19
Total mass of sample received	kg	0.1	NONE	1.2	1.1	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MMI	MBI	MBI
Actinolite detected	Type	N/A	ISO 17025	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.3	9.6	9.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2000	18000	1500
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	3.8	2.9	2.6

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.27	0.25	0.18
Acenaphthylene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.44	< 0.05	0.06
Fluorene	mg/kg	0.05	MCERTS	0.34	< 0.05	0.05
Phenanthrene	mg/kg	0.05	MCERTS	3.4	0.2	0.42
Anthracene	mg/kg	0.05	MCERTS	0.72	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	6	0.19	0.28
Pyrene	mg/kg	0.05	MCERTS	6.9	0.18	0.31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.9	0.09	0.15
Chrysene	mg/kg	0.05	MCERTS	4.3	0.14	0.21
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3.8	0.18	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.1	< 0.05	0.06
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.1	0.06	0.14
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.5	0.08	0.08
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.46	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.8	0.09	0.11
Coronene	mg/kg	0.05	NONE	0.73	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	38.1	1.47	2.23
Total WAC-17 PAHs	mg/kg	0.85	NONE	38.8	1.47	2.23

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	6.3	6.4	1.9
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Analytical Report Number: 24-014790
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				174034	174035	174036
Sample Reference				WS1011	WS1016	WS1016
Sample Number				ES3	ES5	ES7
Depth (m)				1.00	2.50	4.00
Date Sampled				15/04/2024	15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	16	17
Barium (aqua regia extractable)	mg/kg	1	MCERTS	300	500	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	3.2	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	2.6	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1	5.1	0.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	40	40	12
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	40	40	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	450	53
Lead (aqua regia extractable)	mg/kg	1	MCERTS	330	1700	290
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.1	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	33	73	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	23	14
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	240	220	110

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	2.1	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	33	< 8.0	44
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	35	< 10	44

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	5.4	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	63	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	110	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	180	< 10	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	130	< 10	16
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	110	< 10	42

Analytical Report Number: 24-014790
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	174034	174035	174036
Sample Reference	WS1011	WS1016	WS1016
Sample Number	ES3	ES5	ES7
Depth (m)	1.00	2.50	4.00
Date Sampled	15/04/2024	15/04/2024	15/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	< 5.0	-
Chloroethane	µg/kg	5	NONE	-	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-
1,1-Dichloroethene	µg/kg	5	NONE	-	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0 #	-
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-
Bromoform	µg/kg	5	NONE	-	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-

Analytical Report Number: 24-014790
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				174034	174035	174036
Sample Reference				WS1011	WS1016	WS1016
Sample Number				ES3	ES5	ES7
Depth (m)				1.00	2.50	4.00
Date Sampled				15/04/2024	15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-

Organotins

Tributyltin (chloride)	µg/kg	10	NONE	-	< 10	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-014790
Project / Site name: ID Manchester
Your Order No: PO-0059

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
174030	BH1015B	0.80	120	Loose Fibres	Amosite	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 24-014790

Project / Site name: ID Manchester

* 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 *
174029	BH1015B	ES1	0.2	Brown loam and gravel
174030	BH1015B	ES3	0.8	Brown loam and gravel
174031	BH1015B	ES4	1	Brown loam and gravel
174032	BH1005	ES4	16.5	Brown sand
174033	WS1011	ES1	0.2	Brown loam and clay with gravel and vegetation
174034	WS1011	ES3	1	Brown loam with gravel and vegetation
174035	WS1016	ES5	2.5	Brown loam and clay with gravel and vegetation
174036	WS1016	ES7	4	Brown loam and sand with gravel and vegetation

Analytical Report Number : 24-014790

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Organotins in soil	Determination of organotins compounds in soil by GC-MS	In-house method		W	NONE
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
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	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Analytical Report Number : 24-014790
Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

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Analytical Report Number : 24-015354

Replaces Analytical Report Number: 24-015354, issue no. 1
Additional analysis undertaken.
Asbestos Quantification added to sample 176799 at client's request.

Project / Site name:	ID Manchester	Samples received on:	19/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	19/04/2024
Your order number:	PO-0059	Analysis completed by:	29/04/2024
Report Issue Number:	2	Report issued on:	09/05/2024
Samples Analysed:	13 soil samples		


Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	176791	176792	176793	176794	176795
Sample Reference	WS1017	WS1010A	WS1015	BH1013A	BH1013A
Sample Number	1	3	2	2	4
Depth (m)	0.20	2.50	0.50	0.50	1.00
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	28.8	55.2	57.7
Moisture Content	%	0.01	NONE	18	12	12	3.1	4.1
Total mass of sample received	kg	0.1	NONE	0.9	0.8	0.9	0.9	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	-	WEM	WEM	WEM
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.7	8.2	8	8.7	9
Total Cyanide	mg/kg	1	MCERTS	1.4	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1100	130	3500	920	820
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	-	< 0.5
Organic Matter (automated)	%	0.1	MCERTS	10	0.3	2.4	1.7	1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	2.2	< 0.05	0.48	0.15	0.09
Acenaphthylene	mg/kg	0.05	MCERTS	0.74	< 0.05	0.23	0.13	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	9.1	< 0.05	0.85	1.5	0.12
Fluorene	mg/kg	0.05	MCERTS	5.8	< 0.05	0.96	1.1	0.08
Phenanthrene	mg/kg	0.05	MCERTS	45	< 0.05	8.2	11	0.55
Anthracene	mg/kg	0.05	MCERTS	12	< 0.05	1.8	3.7	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	67	< 0.05	11	13	1
Pyrene	mg/kg	0.05	MCERTS	58	< 0.05	10	12	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	29	< 0.05	5.1	4.2	0.49
Chrysene	mg/kg	0.05	MCERTS	28	< 0.05	5.5	4.2	0.58
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	34	< 0.05	5.4	3.8	0.86
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	14	< 0.05	2.2	2.2	0.28
Benzo(a)pyrene	mg/kg	0.05	MCERTS	30	< 0.05	5	3.7	0.68
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	15	< 0.05	2.1	1.6	0.42
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.6	< 0.05	0.6	0.37	0.15
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	17	< 0.05	2.5	1.8	0.41
Coronene	mg/kg	0.05	NONE	7.5	< 0.05	1.2	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	370	-	62.2	64.8	6.89
Total WAC-17 PAHs	mg/kg	0.85	NONE	378	< 0.85	63.4	64.8	6.89

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	176791	176792	176793	176794	176795
Sample Reference	WS1017	WS1010A	WS1015	BH1013A	BH1013A
Sample Number	1	3	2	2	4
Depth (m)	0.20	2.50	0.50	0.50	1.00
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.7	< 1.0	24	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	3.7	54	5.6	7.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	200	17	580	890	710
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.7	0.22	1.1	0.28	0.27
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	< 0.2	0.4	0.3	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.9	< 0.2	< 0.2	1.6	1.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	62	9.5	30	5.9	6.3
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	62	9.5	30	5.9	6.3
Copper (aqua regia extractable)	mg/kg	1	MCERTS	55	9.8	120	11	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	7.4	600	33	32
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3	0.9	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	6.4	21	8.8	9.2
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	11	28	7.7	8.5
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	210	22	320	61	66

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	1.4	< 1.0	< 1.0	19	1.3
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	11	< 2.0	4.8	77	27
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	16	< 8.0	22	59	18
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	47	< 8.0	90	440	200
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	76	< 10	120	590	250

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	5.8	< 1.0	< 1.0	1.1	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	88	< 2.0	13	21	2.9
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	440	< 10	90	83	19
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	720	< 10	120	340	260
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	1200	< 10	220	440	280

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	800	< 10	210	390	140
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	620	< 10	160	1100	730

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	176791	176792	176793	176794	176795
Sample Reference	WS1017	WS1010A	WS1015	BH1013A	BH1013A
Sample Number	1	3	2	2	4
Depth (m)	0.20	2.50	0.50	0.50	1.00
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	5	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	-
Chloroform	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	-	-	-
Bromoform	µg/kg	5	NONE	-	-	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromobenzene	µg/kg	5	NONE	-	-	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				176791	176792	176793	176794	176795
Sample Reference				WS1017	WS1010A	WS1015	BH1013A	BH1013A
Sample Number				1	3	2	2	4
Depth (m)				0.20	2.50	0.50	0.50	1.00
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	-

Organotins

Tributyltin (chloride)	µg/kg	10	NONE	-	-	< 10	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	176796	176797	176798	176799	176800
Sample Reference	BH1014A	BH1014A	BH1014A	WS1021	WS1007
Sample Number	1	3	5	4	3
Depth (m)	0.20	0.80	2.00	1.00	0.80
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	21.8	< 0.1	52.1	< 0.1
Moisture Content	%	0.01	NONE	20	12	19	7.4	14
Total mass of sample received	kg	0.1	NONE	0.9	0.9	0.9	0.9	1.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	WEM	WEM	WEM
Actinolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	Detected	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	< 0.001	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	Loose Fibres	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.3	8.8	9.1	9.5	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	440	770	480	4900	690
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	4.7	2.3	1	0.7	1.6

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.07	0.39	0.09	< 0.05	0.28
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.22
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.07	< 0.05	0.55
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.09	< 0.05	0.76
Phenanthrene	mg/kg	0.05	MCERTS	0.47	0.28	1.4	< 0.05	4.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.22	< 0.05	0.95
Fluoranthene	mg/kg	0.05	MCERTS	0.82	0.3	1.8	0.11	4.2
Pyrene	mg/kg	0.05	MCERTS	0.87	0.31	1.7	0.12	4.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.5	0.17	0.75	0.05	1.7
Chrysene	mg/kg	0.05	MCERTS	0.53	0.19	0.85	0.05	1.9
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.76	0.21	1	0.09	1.9
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.2	< 0.05	0.39	< 0.05	0.68
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.44	0.14	0.78	< 0.05	1.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.31	< 0.05	0.35	< 0.05	0.81
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	0.33	< 0.05	0.4	< 0.05	0.97
Coronene	mg/kg	0.05	NONE	< 0.05	0.12	< 0.05	< 0.05	0.36

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	5.31	1.99	9.8	< 0.80	24.9
Total WAC-17 PAHs	mg/kg	0.85	NONE	5.31	2.1	9.8	< 0.85	25.3

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				176796	176797	176798	176799	176800
Sample Reference				BH1014A	BH1014A	BH1014A	WS1021	WS1007
Sample Number				1	3	5	4	3
Depth (m)				0.20	0.80	2.00	1.00	0.80
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.2	2	1.2	3.4	3.8
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	16	9.9	40	19
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	650	190	520	240
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.88	1.2	0.37	1.9	1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.4	< 0.2	1.9	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.9	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	15	18	8.4	31	23
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	18	8.4	31	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	46	40	26	51	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	24	55	54	110
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	23	8.3	30	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	36	10	64	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	96	33	54	92	130

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	2.5	1.1
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	4.5	3.8
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	11
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	13	19
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	< 10	< 10	20	35

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	8.2
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	12	< 10	< 10	< 10	30
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	26	< 10	< 10	13	27
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	37	< 10	< 10	13	65

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	23	< 10	14	14	73
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	37	< 10	< 10	59	27

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				176796	176797	176798	176799	176800
Sample Reference				BH1014A	BH1014A	BH1014A	WS1021	WS1007
Sample Number				1	3	5	4	3
Depth (m)				0.20	0.80	2.00	1.00	0.80
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	5	ISO 17025	-	-	-	-	< 5.0
Chloroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Bromomethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	-	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	< 5.0
Chloroform	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Tetrachloroethene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Bromoform	µg/kg	5	NONE	-	-	-	-	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Bromobenzene	µg/kg	5	NONE	-	-	-	-	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0

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Lab Sample Number				176796	176797	176798	176799	176800
Sample Reference				BH1014A	BH1014A	BH1014A	WS1021	WS1007
Sample Number				1	3	5	4	3
Depth (m)				0.20	0.80	2.00	1.00	0.80
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.30
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	< 0.3

Organotins

Tributyltin (chloride)	µg/kg	10	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-015354
Project / Site name: ID Manchester
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Lab Sample Number	176801	176802	176803
Sample Reference	BH1007	BH1007	BH1007
Sample Number	1	2	3
Depth (m)	0.80	1.50	3.30
Date Sampled	17/04/2024	17/04/2024	17/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Stone Content	%	0.1	NONE	32.4	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.3	9	12
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	-
Actinolite detected	Type	N/A	ISO 17025	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8	8.2	8.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	260	380	520
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	1.3	1.6	0.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.59	0.57	0.13
Fluorene	mg/kg	0.05	MCERTS	0.51	0.53	0.08
Phenanthrene	mg/kg	0.05	MCERTS	6	6.7	0.76
Anthracene	mg/kg	0.05	MCERTS	1.2	1.4	0.19
Fluoranthene	mg/kg	0.05	MCERTS	6	6.9	1.2
Pyrene	mg/kg	0.05	MCERTS	5	5.9	0.98
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.1	2.7	0.41
Chrysene	mg/kg	0.05	MCERTS	2.1	2.4	0.57
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2	3.1	0.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.71	0.99	0.27
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.6	2.3	0.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1	1.1	0.23
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.29	0.53	0.08
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	1.1	0.27
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	30.1	36.3	6.02
Total WAC-17 PAHs	mg/kg	0.85	NONE	30.1	36.3	6.02

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Project / Site name: ID Manchester
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Lab Sample Number	176801	176802	176803
Sample Reference	BH1007	BH1007	BH1007
Sample Number	1	2	3
Depth (m)	0.80	1.50	3.30
Date Sampled	17/04/2024	17/04/2024	17/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	1.3
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	11	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	74	79	64
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.71	0.62	0.44
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.3	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	0.8	1
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	19	15	11
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	15	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	23	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	87	100	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	15	9.5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	19	15
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	130	70

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	9.6	12
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	< 10	12

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	3.7	3.8	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	25	19	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	23	21	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	52	44	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	38	38	< 10
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	17	24	11

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Project / Site name: ID Manchester
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Lab Sample Number	176801	176802	176803
Sample Reference	BH1007	BH1007	BH1007
Sample Number	1	2	3
Depth (m)	0.80	1.50	3.30
Date Sampled	17/04/2024	17/04/2024	17/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

VOCs

Chloromethane	µg/kg	5	ISO 17025	< 5.0	-	-
Chloroethane	µg/kg	5	NONE	< 5.0	-	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	-
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-	-
Chloroform	µg/kg	5	ISO 17025	< 5.0	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	-
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	-	-
Bromoform	µg/kg	5	NONE	< 5.0	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-	-
Bromobenzene	µg/kg	5	NONE	< 5.0	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-

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Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				176801	176802	176803
Sample Reference				BH1007	BH1007	BH1007
Sample Number				1	2	3
Depth (m)				0.80	1.50	3.30
Date Sampled				17/04/2024	17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Butylbenzene	µg/kg	5	NONE	< 5.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	0.2	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-
Anthraquinone	mg/kg	0.3	NONE	0.4	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-

Organotins

Tributyltin (chloride)	µg/kg	10	NONE	< 10	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number: 24-015354
Project / Site name: ID Manchester
Your Order No: PO-0059

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
176799	WS1021	1.00	140	Loose Fibres	Amosite	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 24-015354

Project / Site name: ID Manchester

* 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 *
176791	WS1017	1	0.2	Brown loam with gravel and vegetation
176792	WS1010A	3	2.5	Brown sand
176793	WS1015	2	0.5	Brown loam and clay with clinker and brick
176794	BH1013A	2	0.5	Brown loam and sand with tar and concrete
176795	BH1013A	4	1	Light brown sand with tar and concrete
176796	BH1014A	1	0.2	Brown loam and sand with gravel and vegetation
176797	BH1014A	3	0.8	Brown gravely loam with clinker and stones
176798	BH1014A	5	2	Brown sand with gravel and brick
176799	WS1021	4	1	Brown loam and sand with gravel and concrete
176800	WS1007	3	0.8	Brown sandy loam with clinker and gravel
176801	BH1007	1	0.8	Brown loam and sand with gravel and stones
176802	BH1007	2	1.5	Brown sand with gravel
176803	BH1007	3	3.3	Brown clay and sand with gravel

Analytical Report Number : 24-015354

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Organotins in soil	Determination of organotins compounds in soil by GC-MS	In-house method		W	NONE
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
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	L080	W	MCERTS

Analytical Report Number : 24-015354

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total 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	L080	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 : 24-015976

Replaces Analytical Report Number: 24-015976, issue no. 1
Additional analysis undertaken.
Asbestos Quantification added to sample 179751 as per client request.

Project / Site name:	ID Manchester	Samples received on:	23/04/2024
Your job number:		Samples instructed on/ Analysis started on:	24/04/2024
Your order number:	PO-0059	Analysis completed by:	30/04/2024
Report Issue Number:	2	Report issued on:	14/05/2024
Samples Analysed:	13 soil samples - 2 leachate samples		

Signed:



Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	179741	179742	179743	179744	179745
Sample Reference	WS1006	WS1006	WS1020	WS1020	WS1020
Sample Number	ES1	ES2	ES1	ES2	ES3
Depth (m)	0.20	0.90	0.50	3.80	4.00
Date Sampled	19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
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	30.1	78.2	< 0.1	29.8
Moisture Content	%	0.01	NONE	28	9.1	6.1	11	9.7
Total mass of sample received	kg	0.1	NONE	1.2	1.1	1.2	1.1	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU	SPU	SPU
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.9	8.4	10.4	7.8	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	5	1.8	1.9
Total Sulphate as SO ₄	mg/kg	50	MCERTS	630	450	1700	2600	670
Organic Matter (automated)	%	0.1	MCERTS	6.9	1.4	2.1	1.9	1.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	4.3	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.77	0.15	0.76	0.53
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.21	0.09	0.07	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	1.1	0.25	1.2	0.88
Fluorene	mg/kg	0.05	MCERTS	< 0.05	1.2	0.18	0.67	0.15
Phenanthrene	mg/kg	0.05	MCERTS	0.51	8.7	2.5	2.1	0.58
Anthracene	mg/kg	0.05	MCERTS	0.12	2.1	0.57	0.92	0.19
Fluoranthene	mg/kg	0.05	MCERTS	0.99	9.4	4	4.8	0.59
Pyrene	mg/kg	0.05	MCERTS	1	9	3.8	4.7	0.55
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.58	4.5	1.9	1.9	0.21
Chrysene	mg/kg	0.05	MCERTS	0.77	4.3	2	1.9	0.23
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.79	4.6	2.5	1.9	0.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.27	1.6	0.81	0.46	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.71	4.2	2.3	1.5	0.16
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.34	2	1.2	0.76	0.09
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	0.4	0.25	0.16	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.4	2.3	1.4	0.82	0.13
Coronene	mg/kg	0.05	NONE	0.23	0.7	< 0.05	0.19	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.62	56.4	23.8	24.6	-
Total WAC-17 PAHs	mg/kg	0.85	NONE	6.85	57.1	23.8	24.8	4.58

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				179741	179742	179743	179744	179745
Sample Reference				WS1006	WS1006	WS1020	WS1020	WS1020
Sample Number				ES1	ES2	ES1	ES2	ES3
Depth (m)				0.20	0.90	0.50	3.80	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.6	2.2	1.9	7.1	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	15	14	27	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	96	150	170	130	31
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.72	0.99	0.56	0.51	0.46
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	< 0.2	0.3	0.8	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.8	1.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	19	16	11	36	10
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	16	11	36	10
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36	48	30	81	34
Lead (aqua regia extractable)	mg/kg	1	MCERTS	83	94	120	230	27
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.8	0.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	17	10	25	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	22	16	33	13
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	86	64	73	170	35

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	4.8	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	20	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	19	78	52	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	19	83	71	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	1	1.3	1.4	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	5.5	8.6	7.5	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	24	24	35	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	12	38	140	54	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	12	68	170	98	< 10

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	50	66	110	< 10
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	10	41	290	62	< 10

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Chloroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Bromomethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	-	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				179741	179742	179743	179744	179745
Sample Reference				WS1006	WS1006	WS1020	WS1020	WS1020
Sample Number				ES1	ES2	ES1	ES2	ES3
Depth (m)				0.20	0.90	0.50	3.80	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	< 5.0
Chloroform	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Tetrachloroethene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Bromoform	µg/kg	5	NONE	-	-	-	-	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Bromobenzene	µg/kg	5	NONE	-	-	-	-	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Butylbenzene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				179741	179742	179743	179744	179745
Sample Reference				WS1006	WS1006	WS1020	WS1020	WS1020
Sample Number				ES1	ES2	ES1	ES2	ES3
Depth (m)				0.20	0.90	0.50	3.80	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.30
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	< 0.3

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				179746	179747	179748	179749	179750
Sample Reference				BH1004	BH1004	BH1004	WS1025	WS1025
Sample Number				ES1	ES2	ES3	ES1	ES3
Depth (m)				0.70	6.00	7.50	0.50	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
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	27	< 0.1	39.1	< 0.1
Moisture Content	%	0.01	NONE	14	15	10	9.6	17
Total mass of sample received	kg	0.1	NONE	1.1	1.2	1.1	1.2	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	-	SPU	-
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	10.3	7.3	9.1	9.9	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2200	8800	120	990	270
Organic Matter (automated)	%	0.1	MCERTS	2.3	3	< 0.1	3.2	1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.6	0.07	< 0.05	4.3	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	1.4	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05	0.64	< 0.05
Fluorene	mg/kg	0.05	MCERTS	1.4	< 0.05	< 0.05	0.45	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	17	0.1	< 0.05	3.5	0.12
Anthracene	mg/kg	0.05	MCERTS	7.1	< 0.05	< 0.05	0.72	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	28	0.08	< 0.05	3.1	0.18
Pyrene	mg/kg	0.05	MCERTS	25	0.1	< 0.05	3.6	0.17
Benzo(a)anthracene	mg/kg	0.05	MCERTS	12	< 0.05	< 0.05	0.94	< 0.05
Chrysene	mg/kg	0.05	MCERTS	12	< 0.05	< 0.05	1.4	0.07
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	14	< 0.05	< 0.05	1.3	0.07
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	6.3	< 0.05	< 0.05	0.86	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	12	< 0.05	< 0.05	1.2	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	6.5	< 0.05	< 0.05	0.7	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.2	< 0.05	< 0.05	0.19	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	7.8	< 0.05	< 0.05	0.82	0.08
Coronene	mg/kg	0.05	NONE	2.9	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	< 0.80	-	23.7	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	156	< 0.85	< 0.85	23.7	< 0.85

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				179746	179747	179748	179749	179750
Sample Reference				BH1004	BH1004	BH1004	WS1025	WS1025
Sample Number				ES1	ES2	ES3	ES1	ES3
Depth (m)				0.70	6.00	7.50	0.50	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.7	< 1.0	3.3	2	1.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	20	260	2.6	66	8.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	260	28	11	130	73
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	0.49	0.17	1	0.82
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.6	< 0.2	0.9	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	15	9.9	4.8	17	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	9.9	4.8	17	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	49	12	5.9	43	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	55	30	2.9	35	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.5	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	13	2.2	21	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	36	17	8.4	42	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	42	26	7.3	34	54

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	2.9	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	17	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	16	< 8.0	< 8.0	90	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	16	< 10	< 10	110	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	2	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	6	< 2.0	< 2.0	11	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	78	< 10	< 10	23	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	110	< 10	< 10	130	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	190	< 10	< 10	170	< 10

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	130	< 10	< 10	88	< 10
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	94	< 10	< 10	160	< 10

VOCs

Chloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Chloroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				179746	179747	179748	179749	179750
Sample Reference				BH1004	BH1004	BH1004	WS1025	WS1025
Sample Number				ES1	ES2	ES3	ES1	ES3
Depth (m)				0.70	6.00	7.50	0.50	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-	-	-	-
Chloroform	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Bromoform	µg/kg	5	NONE	< 5.0	-	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Bromobenzene	µg/kg	5	NONE	< 5.0	-	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Butylbenzene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				179746	179747	179748	179749	179750
Sample Reference				BH1004	BH1004	BH1004	WS1025	WS1025
Sample Number				ES1	ES2	ES3	ES1	ES3
Depth (m)				0.70	6.00	7.50	0.50	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	0.3	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	0.8	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	0.9	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	179751	179752	179753
Sample Reference	WS1012	WS1012	WS1018
Sample Number	ES1	ES2	ES3
Depth (m)	0.60	3.00	2.00
Date Sampled	19/04/2024	19/04/2024	19/04/2024
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	16	18	18
Total mass of sample received	kg	0.1	NONE	1	1	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	-	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	-	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	< 0.001	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.5	8.2	8.1
Total Cyanide	mg/kg	1	MCERTS	31	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2600	480	500
Organic Matter (automated)	%	0.1	MCERTS	3.9	1.9	2.6

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	1.8	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	4.6	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.67	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	2.7	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	35	0.08	< 0.05
Anthracene	mg/kg	0.05	MCERTS	13	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	60	0.07	0.07
Pyrene	mg/kg	0.05	MCERTS	56	0.09	0.06
Benzo(a)anthracene	mg/kg	0.05	MCERTS	22	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	21	0.07	0.06
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	24	< 0.05	0.07
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	11	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	24	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	15	< 0.05	0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	3.5	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	17	0.05	0.07
Coronene	mg/kg	0.05	NONE	1.5	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	311	< 0.80	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	312	< 0.85	< 0.85

Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	179751	179752	179753
Sample Reference	WS1012	WS1012	WS1018
Sample Number	ES1	ES2	ES3
Depth (m)	0.60	3.00	2.00
Date Sampled	19/04/2024	19/04/2024	19/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.2	< 1.0	4.5
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	31	12	34
Barium (aqua regia extractable)	mg/kg	1	MCERTS	260	130	76
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.9	1.2	1.2
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.9	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	1.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	20	29	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	29	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100	79	43
Lead (aqua regia extractable)	mg/kg	1	MCERTS	62	39	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	31	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	55	32	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	49	93	180

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	28	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	28	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	1	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	11	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	130	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	190	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	330	< 10	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	230	< 10	< 10
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	160	< 10	< 10

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	-	-
Chloroethane	µg/kg	5	NONE	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-015976
 Project / Site name: ID Manchester
 Your Order No: PO-0059

Lab Sample Number				179751	179752	179753
Sample Reference				WS1012	WS1012	WS1018
Sample Number				ES1	ES2	ES3
Depth (m)				0.60	3.00	2.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-
Chloroform	µg/kg	5	ISO 17025	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	-
Bromoform	µg/kg	5	NONE	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-
Bromobenzene	µg/kg	5	NONE	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-
Butylbenzene	µg/kg	5	NONE	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-

Analytical Report Number: 24-015976
 Project / Site name: ID Manchester
 Your Order No: PO-0059

Lab Sample Number				179751	179752	179753
Sample Reference				WS1012	WS1012	WS1018
Sample Number				ES1	ES2	ES3
Depth (m)				0.60	3.00	2.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number: 24-015976
Project / Site name: ID Manchester
Your Order No: PO-0059

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
179751	WS1012	0.60	163	Loose Fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



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Analytical Report Number: 24-015976

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				179747	179751
Sample Reference				BH1004	WS1012
Sample Number				ES2	ES1
Depth (m)				6.00	0.60
Date Sampled				19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.2	8.1
Total Cyanide	µg/l	10	ISO 17025	< 10	590
Free Cyanide	µg/l	10	ISO 17025	-	< 10
Sulphate as SO ₄	mg/l	0.045	ISO 17025	48.6	74
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.5	5.6

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
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	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	3.7	3.8
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	5.9
Barium (dissolved)	µg/l	0.05	ISO 17025	11	38
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	74	34
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.7	1.8
Copper (dissolved)	µg/l	0.7	ISO 17025	4.4	13
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	0.0346
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.2	1
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	8.6	4.6
Calcium (dissolved)	mg/l	0.012	ISO 17025	14	22



4041



Analytical Report Number: 24-015976

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				179747	179751
Sample Reference				BH1004	WS1012
Sample Number				ES2	ES1
Depth (m)				6.00	0.60
Date Sampled				19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) <small>HS_ID_TOTAL</small>	µg/l	10	NONE	< 10	< 10
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TPH (C10 - C25) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	< 10	< 10
TPH (C25 - C40) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-015976

Project / Site name: ID Manchester

* 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 *
179741	WS1006	ES1	0.2	Brown loam and clay with gravel and vegetation
179742	WS1006	ES2	0.9	Brown clay and sand with gravel and stones
179743	WS1020	ES1	0.5	Brown clay and sand with gravel and stones
179744	WS1020	ES2	3.8	Brown loam and sand with gravel and rubble
179745	WS1020	ES3	4	Brown clay and sand with gravel and stones
179746	BH1004	ES1	0.7	Brown clay and sand with gravel
179747	BH1004	ES2	6	Brown clay and sand with gravel and stones
179748	BH1004	ES3	7.5	Brown sandy clay
179749	WS1025	ES1	0.5	Brown clay and sand with gravel and stones
179750	WS1025	ES3	4	Brown clay and sand
179751	WS1012	ES1	0.6	Brown sand with gravel and clinker
179752	WS1012	ES2	3	Brown clay and sand with gravel
179753	WS1018	ES3	2	Brown clay and sand with gravel

Analytical Report Number : 24-015976

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	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	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE

Analytical Report Number : 24-015976

Project / Site name: ID Manchester

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
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
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	L080	W	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
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	L080	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025

Analytical Report Number : 24-015976
Project / Site name: ID Manchester

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
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 24-016379

Replaces Analytical Report Number: 24-016379, issue no. 1

Additional analysis undertaken.

Asbestos Quantification added to samples 181774, 75, 77, 79 & 81 as per client's request.

Leachate added to samples 181774, 5, 7 & 9

Project / Site name:	ID Manchester	Samples received on:	25/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	25/04/2024
Your order number:	PO-0059	Analysis completed by:	02/05/2024
Report Issue Number:	2	Report issued on:	20/05/2024
Samples Analysed:	9 soil samples - 4 leachate samples		


Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-016379
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181773	181774	181775	181776	181777
Sample Reference	WS1023A	WS1023A	WS1008	WS1008	WS1005
Sample Number	1	2	1	2	1
Depth (m)	0.50	0.80	0.50	1.50	1.00
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
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	6.9	4.9	14	14	11
Total mass of sample received	kg	0.1	NONE	1	1	1	1	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Detected	Detected	Not-detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	SSZ	SSZ	SSZ
Actinolite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Not-detected
Amosite detected	Type	N/A	ISO 17025	-	Not-detected	Detected	-	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	-	Detected	Detected	-	Detected
Crocidolite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Not-detected
Tremolite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	-	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	< 0.001	0.001	-	< 0.001
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	Loose Fibres	Loose Fibres	-	Loose Fibres
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	11.2	8.9	10.6	8.7	9.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.5
Free Cyanide	mg/kg	1	MCERTS	-	-	-	-	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	6800	6600	2800	2800	3400
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	1.5	0.6	1.9	5.3	1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.19	< 0.05	0.16	0.2	0.61
Acenaphthylene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	0.13	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	< 0.05	0.09	0.1	1
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.1	0.1	0.45
Phenanthrene	mg/kg	0.05	MCERTS	3.1	0.11	1.1	1.3	5.7
Anthracene	mg/kg	0.05	MCERTS	0.54	< 0.05	0.19	0.27	0.75
Fluoranthene	mg/kg	0.05	MCERTS	3.4	0.22	1.3	2.4	4.6
Pyrene	mg/kg	0.05	MCERTS	4.1	0.23	1.4	2.4	4.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.5	< 0.05	0.68	1.1	1.8
Chrysene	mg/kg	0.05	MCERTS	1.7	0.16	0.8	1.3	2.4
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.5	0.17	0.75	1.3	1.8
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.54	0.08	0.36	0.51	0.97
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.3	< 0.05	0.73	1.2	1.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.76	0.09	0.33	0.7	0.75
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.23	< 0.05	0.13	0.19	0.35
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.82	0.12	0.46	0.81	1.1
Coronene	mg/kg	0.05	NONE	0.38	< 0.05	< 0.05	0.37	< 0.05

Analytical Report Number: 24-016379
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181773	181774	181775	181776	181777
Sample Reference	WS1023A	WS1023A	WS1008	WS1008	WS1005
Sample Number	1	2	1	2	1
Depth (m)	0.50	0.80	0.50	1.50	1.00
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	1.19	8.57	-	28.8
Total WAC-17 PAHs	mg/kg	0.85	NONE	20.2	1.19	8.57	14.4	28.8

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	2.1	3.4	3.3	1.5
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21	26	21	32	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	210	81	180	200	200
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.61	0.76	0.79	1.2	0.73
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.2	0.7	0.4	1.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	2.9	< 0.2	0.5
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	11	9.5	31	21	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	9.5	31	21	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	24	45	66	88	44
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	62	150	320	73
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	1	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.6	11	20	22	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	16	28	46	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	70	50	310	100	100

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	3.6	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	42	< 2.0	2.3	4.6	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	34	< 8.0	23	27	11
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	270	< 8.0	89	260	57
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	340	< 10	110	290	68

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	11	< 2.0	< 2.0	< 2.0	2.8
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	26	< 10	13	19	21
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	240	13	50	190	44
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	270	13	63	210	67

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	180	< 10	92	150	75
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	660	30	110	490	81

Analytical Report Number: 24-016379
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				181773	181774	181775	181776	181777
Sample Reference				WS1023A	WS1023A	WS1008	WS1008	WS1005
Sample Number				1	2	1	2	1
Depth (m)				0.50	0.80	0.50	1.50	1.00
Date Sampled				23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
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	5	ISO 17025	< 5.0	-	-	< 5.0	-
Chloroethane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
Chloroform	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Bromoform	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
Bromobenzene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-

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Lab Sample Number				181773	181774	181775	181776	181777
Sample Reference				WS1023A	WS1023A	WS1008	WS1008	WS1005
Sample Number				1	2	1	2	1
Depth (m)				0.50	0.80	0.50	1.50	1.00
Date Sampled				23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	-	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	< 5.0	-

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	0.2	-	-	0.2	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-	< 0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	0.2	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-	-	< 0.30	-
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	0.3	-	-	< 0.3	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-	< 0.3	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number	181778	181779	181780	181781
Sample Reference	BH1008	BH1008	BH1008	WS1026
Sample Number	1	2	3	2
Depth (m)	0.10	0.80	3.00	0.50
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	16	7.9	12
Total mass of sample received	kg	0.1	NONE	1	1.1	1.4	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Detected	-	Detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	-	SSZ
Actinolite detected	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
Amosite detected	Type	N/A	ISO 17025	-	Detected	-	Detected
Anthophyllite detected	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	-	Not-detected	-	Detected
Crocidolite detected	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected
Tremolite detected	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	0.01	-	< 0.001
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	Sheeting/Board Debris	-	Loose Fibres
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.9	7.8	8.5	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	1.1	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	850	2200	68	1400
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	5	3.9	0.3	2.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	0.14
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05	0.18
Fluorene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05	0.13
Phenanthrene	mg/kg	0.05	MCERTS	0.68	0.22	< 0.05	1.4
Anthracene	mg/kg	0.05	MCERTS	0.13	< 0.05	< 0.05	0.25
Fluoranthene	mg/kg	0.05	MCERTS	0.99	0.3	< 0.05	1.7
Pyrene	mg/kg	0.05	MCERTS	0.89	0.29	< 0.05	1.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.44	0.13	< 0.05	0.86
Chrysene	mg/kg	0.05	MCERTS	0.59	0.18	< 0.05	1.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.59	0.18	< 0.05	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.07	< 0.05	0.51
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.41	0.17	< 0.05	1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.23	0.14	< 0.05	0.58
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.29	0.16	< 0.05	0.66
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05

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Lab Sample Number	181778	181779	181780	181781
Sample Reference	BH1008	BH1008	BH1008	WS1026
Sample Number	1	2	3	2
Depth (m)	0.10	0.80	3.00	0.50
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	5.48	-	-	11.3
Total WAC-17 PAHs	mg/kg	0.85	NONE	5.48	1.84	< 0.85	11.3

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4	5	< 1.0	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	26	42	3.3	59
Barium (aqua regia extractable)	mg/kg	1	MCERTS	170	180	12	370
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.6	0.22	1.2
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	1.7	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	22	27	5.5	42
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	27	5.5	42
Copper (aqua regia extractable)	mg/kg	1	MCERTS	66	140	7.6	120
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	160	7.5	230
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	31	4.3	68
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	47	7.1	40
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	230	13	180

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	4.6
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	11
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	54
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	< 10	< 10	70

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	< 10	< 10	18
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	< 10	< 10	< 10	18

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	38
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	62

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Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181778	181779	181780	181781
Sample Reference	BH1008	BH1008	BH1008	WS1026
Sample Number	1	2	3	2
Depth (m)	0.10	0.80	3.00	0.50
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Chloroethane	µg/kg	5	NONE	-	< 5.0	-	-
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	< 5.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-	-
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-	-
Bromoform	µg/kg	5	NONE	-	< 5.0	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-	-
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-

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Lab Sample Number				181778	181779	181780	181781
Sample Reference				BH1008	BH1008	BH1008	WS1026
Sample Number				1	2	3	2
Depth (m)				0.10	0.80	3.00	0.50
Date Sampled				23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	< 0.1	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	< 0.2	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	-
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-	-
Carbazole	mg/kg	0.3	MCERTS	-	< 0.3	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	-
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-016379
Project / Site name: ID Manchester
Your Order No: PO-0059

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
181774	WS1023A	0.80	148	Loose Fibres	Chrysotile	< 0.001	< 0.001
181775	WS1008	0.50	108	Loose Fibres	Amosite & Chrysotile	0.001	0.001
181777	WS1005	1.00	118	Loose Fibres	Chrysotile	< 0.001	< 0.001
181779	BH1008	0.80	123	Sheeting/Board Debris	Amosite	0.010	0.010
181781	WS1026	0.50	122	Loose Fibres	Amosite & Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



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Your Order No: PO-0059

Lab Sample Number	181774	181775	181777	181779
Sample Reference	WS1023A	WS1008	WS1005	BH1008
Sample Number	2	1	1	2
Depth (m)	0.80	0.50	1.00	0.80
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.5	8.2	10.7	8.2
Total Cyanide	µg/l	10	ISO 17025	-	-	150	52
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	1.3	< 1.0	-	-
Free Cyanide	µg/l	10	ISO 17025	-	-	< 10	< 10
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1	-	-	-
Sulphate as SO ₄	mg/l	0.045	ISO 17025	817	42.5	45.2	10.3
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	4.6	8.8	11	12

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	-	-	< 10	< 10
Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	1.3	-	-

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 24-016379

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	181774	181775	181777	181779
Sample Reference	WS1023A	WS1008	WS1005	BH1008
Sample Number	2	1	1	2
Depth (m)	0.80	0.50	1.00	0.80
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	13	15	30	3
Barium (dissolved)	µg/l	0.05	ISO 17025	29	29	26	36
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	60	81	78	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	23	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	11	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.4	11	28	1.4
Copper (dissolved)	µg/l	0.7	ISO 17025	14	7.4	24	25
Lead (dissolved)	µg/l	1	ISO 17025	2.2	3.4	4.4	2.5
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	0.0169	0.0945	0.044
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.4	0.7	0.8	1.7
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	1.7	4.4	160	3.9
Zinc (dissolved)	µg/l	0.4	ISO 17025	18	4	5.3	12

Calcium (dissolved)	mg/l	0.012	ISO 17025	350	57	37	49
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Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	µg/l	10	NONE	< 10	< 10	< 10	< 10
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TPH (C10 - C25) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH (C25 - C40) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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* 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 *
181773	WS1023A	1	0.5	Brown gravely sand with chalk
181774	WS1023A	2	0.8	Brown sand with gravel
181775	WS1008	1	0.5	Brown clay and sand with gravel and chalk
181776	WS1008	2	1.5	Brown gravely sand with chalk
181777	WS1005	1	1	Brown gravely sand with chalk
181778	BH1008	1	0.1	Brown loam and clay with gravel and vegetation
181779	BH1008	2	0.8	Brown clay and sand with gravel and vegetation
181780	BH1008	3	3	Brown sand
181781	WS1026	2	0.5	Brown loam and sand with gravel and vegetation

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Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	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	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE

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Project / Site name: ID Manchester

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
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	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	L080	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	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
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 24-016380

Replaces Analytical Report Number: 24-016380, issue no. 1
Additional analysis undertaken.

Asbestos Quantification added to sample 181783 and Leachate added to samples
181786,787 and 790 as per client's request.

Project / Site name:	ID Manchester	Samples received on:	25/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	25/04/2024
Your order number:	PO-0059	Analysis completed by:	02/05/2024
Report Issue Number:	2	Report issued on:	15/05/2024
Samples Analysed:	12 soil samples - 3 leachate samples		

Signed:



Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181782	181783	181784	181785	181786
Sample Reference	BH1012	BH1012	BH1012	BH1012	WS1001
Sample Number	ES1	ES2	ES3	ES4	ES1
Depth (m)	0.20	1.00	4.00	6.00	0.50
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	16	15	9	12
Total mass of sample received	kg	0.1	NONE	1	1	1.1	1.1	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Detected	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	-	-	SSZ
Actinolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	Detected	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	Not-detected	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	< 0.001	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	Loose Fibres	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8	8.3	8.9	8.6	8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.8
Total Sulphate as SO ₄	mg/kg	50	MCERTS	660	1200	330	290	1600
Organic Matter (automated)	%	0.1	MCERTS	4.2	3.7	1.4	0.7	3.6

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.59	1	< 0.05	< 0.05	0.25
Acenaphthylene	mg/kg	0.05	MCERTS	0.29	0.46	< 0.05	< 0.05	0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.8	0.95	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.7	1	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	7.2	8.1	< 0.05	0.09	0.27
Anthracene	mg/kg	0.05	MCERTS	1.4	1.9	< 0.05	0.09	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	9.5	9.2	< 0.05	0.08	0.53
Pyrene	mg/kg	0.05	MCERTS	10	9.9	< 0.05	0.07	0.49
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.7	4.3	< 0.05	< 0.05	0.29
Chrysene	mg/kg	0.05	MCERTS	5.4	4.7	< 0.05	< 0.05	0.44
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	4.8	4.4	< 0.05	< 0.05	0.46
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.6	1.6	< 0.05	< 0.05	0.29
Benzo(a)pyrene	mg/kg	0.05	MCERTS	5	4.1	< 0.05	< 0.05	0.35
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.1	2.1	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.54	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.7	2.4	< 0.05	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	0.85	0.73	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	58.2	-	-	< 0.80	3.42
Total WAC-17 PAHs	mg/kg	0.85	NONE	59	57.4	< 0.85	< 0.85	3.42

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181782	181783	181784	181785	181786
Sample Reference	BH1012	BH1012	BH1012	BH1012	WS1001
Sample Number	ES1	ES2	ES3	ES4	ES1
Depth (m)	0.20	1.00	4.00	6.00	0.50
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.9	3.8	< 1.0	< 1.0	5.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	27	38	9.2	11	24
Barium (aqua regia extractable)	mg/kg	1	MCERTS	180	190	150	170	1600
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.6	1.3	1	0.77	2.4
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	0.4	0.7	0.4	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	4
Chromium (III)	mg/kg	1	NONE	25	24	25	18	46
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	24	25	18	46
Copper (aqua regia extractable)	mg/kg	1	MCERTS	79	74	23	24	120
Lead (aqua regia extractable)	mg/kg	1	MCERTS	220	290	11	16	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	0.7	< 0.3	< 0.3	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	24	28	20	43
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	50	35	27	22	59
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140	150	54	52	230

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	63	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	63	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	6.4	< 2.0	< 2.0	2
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	22	20	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	50	34	< 10	< 10	15
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	72	60	< 10	< 10	17

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	42	60	< 10	< 10	13
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	36	95	< 10	< 10	12

Analytical Report Number: 24-016380
 Project / Site name: ID Manchester
 Your Order No: PO-0059

Lab Sample Number				181782	181783	181784	181785	181786
Sample Reference				BH1012	BH1012	BH1012	BH1012	WS1001
Sample Number				ES1	ES2	ES3	ES4	ES1
Depth (m)				0.20	1.00	4.00	6.00	0.50
Date Sampled				23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
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	5	ISO 17025	-	< 5.0	-	-	-
Chloroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-	-	-
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Bromoform	µg/kg	5	NONE	-	< 5.0	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				181782	181783	181784	181785	181786
Sample Reference				BH1012	BH1012	BH1012	BH1012	WS1001
Sample Number				ES1	ES2	ES3	ES4	ES1
Depth (m)				0.20	1.00	4.00	6.00	0.50
Date Sampled				23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	0.8	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	0.6	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	0.4	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	0.6	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	-	-

Analytical Report Number: 24-016380
 Project / Site name: ID Manchester
 Your Order No: PO-0059

Lab Sample Number	181782	181783	181784	181785	181786
Sample Reference	BH1012	BH1012	BH1012	BH1012	WS1001
Sample Number	ES1	ES2	ES3	ES4	ES1
Depth (m)	0.20	1.00	4.00	6.00	0.50
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-	-

Total PCBs	mg/kg	0.012	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181787	181788	181789	181790	181791
Sample Reference	WS1002	WS1003	WS1003	BH1009	BH1009
Sample Number	ES2	ES1	ES3	ES1	ES2
Depth (m)	1.00	0.35	1.50	0.20	0.80
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
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	18	14	11	16	18
Total mass of sample received	kg	0.1	NONE	0.9	1.1	1.1	1.1	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	-	SSZ	SSZ
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.9	8.6	8.7	6.1	7.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.1	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	220	1100	340	1900	840
Organic Matter (automated)	%	0.1	MCERTS	1.3	2	1.2	2.9	1.6

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.18	< 0.05	0.19	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.2	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.86	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.68	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	9.3	< 0.05	0.27	0.14
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.8	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	13	< 0.05	0.56	0.27
Pyrene	mg/kg	0.05	MCERTS	< 0.05	11	< 0.05	0.53	0.23
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	3.9	< 0.05	0.3	0.11
Chrysene	mg/kg	0.05	MCERTS	< 0.05	3.7	< 0.05	0.46	0.14
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	3.6	< 0.05	0.6	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	1.3	< 0.05	0.37	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	3	< 0.05	0.4	0.13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.6	< 0.05	0.4	0.13
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.35	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.6	< 0.05	0.43	0.17
Coronene	mg/kg	0.05	NONE	< 0.05	0.63	< 0.05	< 0.05	0.28

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-	-	4.5	-
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	56.3	< 0.85	4.5	1.79

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181787	181788	181789	181790	181791
Sample Reference	WS1002	WS1003	WS1003	BH1009	BH1009
Sample Number	ES2	ES1	ES3	ES1	ES2
Depth (m)	1.00	0.35	1.50	0.20	0.80
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	3.8	< 1.0	6.9	3.6
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	41	8	20	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	75	550	140	2100	650
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.71	1.2	0.94	1.3	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	< 0.2	0.2	< 0.2	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	2.3	< 1.8
Chromium (III)	mg/kg	1	NONE	24	19	23	56	45
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	19	23	56	45
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	79	20	83	36
Lead (aqua regia extractable)	mg/kg	1	MCERTS	33	72	8.7	210	69
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	1	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	30	26	25	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	46	25	31	40
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	38	84	48	270	79

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	9.9	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	58	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10	< 10	68	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	29	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	42	< 10	19	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	71	< 10	19	< 10

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	45	< 10	40	< 10
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	37	< 10	65	< 10

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Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				181787	181788	181789	181790	181791
Sample Reference				WS1002	WS1003	WS1003	BH1009	BH1009
Sample Number				ES2	ES1	ES3	ES1	ES2
Depth (m)				1.00	0.35	1.50	0.20	0.80
Date Sampled				23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
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	5	ISO 17025	-	< 5.0	-	-	< 5.0
Chloroethane	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Bromoform	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				181787	181788	181789	181790	181791
Sample Reference				WS1002	WS1003	WS1003	BH1009	BH1009
Sample Number				ES2	ES1	ES3	ES1	ES2
Depth (m)				1.00	0.35	1.50	0.20	0.80
Date Sampled				23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	-	-	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	0.2	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	-	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	0.4	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-	-	< 0.30
Carbazole	mg/kg	0.3	MCERTS	-	0.5	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	0.9	-	-	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	-	< 0.3

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181787	181788	181789	181790	181791
Sample Reference	WS1002	WS1003	WS1003	BH1009	BH1009
Sample Number	ES2	ES1	ES3	ES1	ES2
Depth (m)	1.00	0.35	1.50	0.20	0.80
Date Sampled	23/04/2024	23/04/2024	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	< 0.001	-	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	< 0.001	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	< 0.001	-	-	-

Total PCBs	mg/kg	0.012	NONE	-	< 0.012	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	181792	181793
Sample Reference	BH1009	BH1009
Sample Number	ES3	ES4
Depth (m)	5.50	6.00
Date Sampled	23/04/2024	23/04/2024
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	12	9.8
Total mass of sample received	kg	0.1	NONE	1.1	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-
Actinolite detected	Type	N/A	ISO 17025	-	-
Amosite detected	Type	N/A	ISO 17025	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9.2	9.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	250	180
Organic Matter (automated)	%	0.1	MCERTS	0.6	0.7

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.09
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.07
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.06
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	ISO 17025	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 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
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85

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Lab Sample Number	181792	181793
Sample Reference	BH1009	BH1009
Sample Number	ES3	ES4
Depth (m)	5.50	6.00
Date Sampled	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection
		Accreditation Status

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	1.6
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.2	7.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130	100
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.65	0.7
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	14	14
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.9	9.8
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	16
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	32	33

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	< 10	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10

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Lab Sample Number	181792	181793
Sample Reference	BH1009	BH1009
Sample Number	ES3	ES4
Depth (m)	5.50	6.00
Date Sampled	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection
		Accreditation Status

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	-
Chloroethane	µg/kg	5	NONE	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-
Chloroform	µg/kg	5	ISO 17025	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-
Bromoform	µg/kg	5	NONE	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-
Bromobenzene	µg/kg	5	NONE	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-

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Lab Sample Number				181792	181793
Sample Reference				BH1009	BH1009
Sample Number				ES3	ES4
Depth (m)				5.50	6.00
Date Sampled				23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Butylbenzene	µg/kg	5	NONE	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-
Azobenzene	mg/kg	0.3	NONE	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-

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Lab Sample Number				181792	181793
Sample Reference				BH1009	BH1009
Sample Number				ES3	ES4
Depth (m)				5.50	6.00
Date Sampled				23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-

Total PCBs	mg/kg	0.012	NONE	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number: 24-016380
Project / Site name: ID Manchester
Your Order No: PO-0059

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
181783	BH1012	1.00	128	Loose Fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.



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Analytical Report Number: 24-016380

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				181786	181787	181790
Sample Reference				WS1001	WS1002	BH1009
Sample Number				ES1	ES2	ES1
Depth (m)				0.50	1.00	0.20
Date Sampled				23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status			

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.3	7.7	6.8
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	1.4
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	-	< 1
Sulphate as SO ₄	mg/l	0.045	ISO 17025	18.3	14	16.9
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	7	4.4	5.8

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	3.8	< 1.7	11
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	2.5	3.4
Barium (dissolved)	µg/l	0.05	ISO 17025	57	10	91
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	19	48	18
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.2	< 0.4	1.6
Copper (dissolved)	µg/l	0.7	ISO 17025	67	43	36
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	1.9	< 1.0
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0633	< 0.0070	0.0735
Nickel (dissolved)	µg/l	0.3	ISO 17025	6.8	1.8	5.9
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	52	5.7	81
Calcium (dissolved)	mg/l	0.012	ISO 17025	3.8	12	3.6



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Analytical Report Number: 24-016380

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	181786	181787	181790
Sample Reference	WS1001	WS1002	BH1009
Sample Number	ES1	ES2	ES1
Depth (m)	0.50	1.00	0.20
Date Sampled	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	µg/l	10	NONE	< 10	< 10	< 10
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TPH (C10 - C25) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10	< 10	< 10
TPH (C25 - C40) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-016380

Project / Site name: ID Manchester

* 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 *
181782	BH1012	ES1	0.2	Brown clay and sand with gravel and vegetation
181783	BH1012	ES2	1	Brown clay and sand with gravel and vegetation
181784	BH1012	ES3	4	Brown clay with gravel
181785	BH1012	ES4	6	Brown clay and sand with gravel
181786	WS1001	ES1	0.5	Brown gravely sand with clinker and vegetation
181787	WS1002	ES2	1	Brown clay and sand with gravel and vegetation
181788	WS1003	ES1	0.35	Brown clay and sand with clinker and gravel
181789	WS1003	ES3	1.5	Brown sandy clay with gravel
181790	BH1009	ES1	0.2	Brown clay and loam with gravel and vegetation
181791	BH1009	ES2	0.8	Brown clay and sand with gravel and vegetation
181792	BH1009	ES3	5.5	Brown clay and sand with gravel
181793	BH1009	ES4	6	Brown clay and sand with gravel

Analytical Report Number : 24-016380

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCBs WHO 12 in soil	Determination of PCBs (WHO-12 Congeners) by GC-MS	In-house method based on USEPA 8082	L027B	D	NONE
PCBs By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	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	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS

Analytical Report Number : 24-016380

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L0768/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	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	L080	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025

Analytical Report Number : 24-016380
Project / Site name: ID Manchester

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
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



4041



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Analytical Report Number : 24-016598

Project / Site name:	ID Manchester	Samples received on:	17/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	29/04/2024
Your order number:	PO-0059	Analysis completed by:	03/05/2024
Report Issue Number:	1	Report issued on:	07/05/2024
Samples Analysed:	2 leachate samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



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Environmental Science

Analytical Report Number: 24-016598

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				182925	182926
Sample Reference				BH1015B	WS1016
Sample Number				ES4	ES5
Depth (m)				1.00	2.50
Date Sampled				15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.8	9.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	1.8
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	< 1
Sulphate as SO ₄	mg/l	0.045	ISO 17025	134	158
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	10	12

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	1.8	1.1
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
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	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	8.7	13
Arsenic (dissolved)	µg/l	1	ISO 17025	4.4	78
Barium (dissolved)	µg/l	0.05	ISO 17025	56	2.9
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	150	530
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	34
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	35
Copper (dissolved)	µg/l	0.7	ISO 17025	19	14
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	14
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070	0.1889
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.6	1.2
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	9.4
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.8	21
Zinc (dissolved)	µg/l	0.4	ISO 17025	16	3.9

Calcium (dissolved)	mg/l	0.012	ISO 17025	76	3.8
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Analytical Report Number: 24-016598

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				182925	182926
Sample Reference				BH1015B	WS1016
Sample Number				ES4	ES5
Depth (m)				1.00	2.50
Date Sampled				15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) <small>HS_ID_TOTAL</small>	µg/l	10	NONE	< 10	< 10
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TPH (C10 - C25) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	90	< 10
TPH (C25 - C40) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number : 24-016598

Project / Site name: ID Manchester

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
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025



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**Analytical Report Number : 24-016598****Project / Site name: ID Manchester****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
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore 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 : 24-016922

Replaces Analytical Report Number: 24-016922, issue no. 1
Additional analysis undertaken.

Asbestos Quantification added to samples 184450, 56 & 61 as per client's request.

Project / Site name:	ID Manchester	Samples received on:	29/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	29/04/2024
Your order number:	PO-0059	Analysis completed by:	06/05/2024
Report Issue Number:	2	Report issued on:	17/05/2024
Samples Analysed:	17 soil samples		

Signed:



Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	184448	184449	184450	184451	184452
Sample Reference	WS1024	WS1022B	WS1022B	BH1002	BH1002
Sample Number	ES1	ES1	ES2	ES1	ES2
Depth (m)	0.40	0.60	1.00	0.40	1.30
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
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	29.6	< 0.1	< 0.1	18.4
Moisture Content	%	0.01	NONE	17	10	14	17	15
Total mass of sample received	kg	0.1	NONE	1.1	1.1	1.2	1.2	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MWI	MWI	MWI	MWI	MWI
Actinolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	Detected	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	0.003	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	Loose Fibrous Debris	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.1	7.2	8	10.9	10.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	51	< 1.0	< 1.0	2.3
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1700	4100	7300	760	790
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	< 0.5	-	-
Organic Matter (automated)	%	0.1	MCERTS	12	5.2	2.5	6.5	5.4

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.22	2.8	0.66	110	87
Acenaphthylene	mg/kg	0.05	MCERTS	0.13	0.87	1.1	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.31	2.6	0.49	130	99
Fluorene	mg/kg	0.05	MCERTS	0.25	1.6	1.2	98	82
Phenanthrene	mg/kg	0.05	MCERTS	3.2	18	8.3	550	480
Anthracene	mg/kg	0.05	MCERTS	0.75	4	2.5	150	130
Fluoranthene	mg/kg	0.05	MCERTS	3.6	23	12	460	400
Pyrene	mg/kg	0.05	MCERTS	4.3	22	12	390	340
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.3	8.2	6.9	160	140
Chrysene	mg/kg	0.05	MCERTS	2.3	9.3	6.9	180	150
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.1	9.8	6.4	180	150
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.76	4.3	3	73	55
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.8	8.6	6.1	160	140
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.69	4.4	2.6	83	68
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.22	1.1	< 0.05	22	19
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.87	5.3	2.9	94	77
Coronene	mg/kg	0.05	NONE	< 0.05	1.9	< 0.05	51	39

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	184448	184449	184450	184451	184452
Sample Reference	WS1024	WS1022B	WS1022B	BH1002	BH1002
Sample Number	ES1	ES1	ES2	ES1	ES2
Depth (m)	0.40	0.60	1.00	0.40	1.30
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	23.8	125	73.9	2820	2410
Total WAC-17 PAHs	mg/kg	0.85	NONE	23.8	127	73.9	2870	2450

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	9.5	1.9	4.5	3.9	2.8
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	66	21	41	21	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	250	480	210	180	240
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	7.7	1.1	1.9	1.5	1.2
Boron (water soluble)	mg/kg	0.2	MCERTS	1.3	2.5	1.4	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.8	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	29	22	27	29	31
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	22	27	29	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	640	51	100	230	90
Lead (aqua regia extractable)	mg/kg	1	MCERTS	200	36	230	950	290
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.7	0.5	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	91	24	27	33	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.1	1.1	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	110	38	41	38	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	32	160	260	190

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	14	< 1.0	5.6	2.8
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	59	10	18	13
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	35	52	33	26
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	40	200	140	75	50
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	40	310	200	130	91

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	0.066	0.05
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	0.092	0.06
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	0.43	0.2
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	5.7	< 1.0	89	96
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	7.1	34	13	480	440
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	25	91	75	1300	1200
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	51	300	150	1200	910
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	83	430	240	3100	2600

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	58	320	240	2500	2100
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	83	660	230	910	690

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	184448	184449	184450	184451	184452
Sample Reference	WS1024	WS1022B	WS1022B	BH1002	BH1002
Sample Number	ES1	ES1	ES2	ES1	ES2
Depth (m)	0.40	0.60	1.00	0.40	1.30
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
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	5	ISO 17025	-	-	-	-	< 5.0 ##
Chloroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Bromomethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	-	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	< 5.0
Chloroform	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	61	48
Carbontetrachloride	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0 ##
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	86	58
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Tetrachloroethene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	68	33
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	150	82
Styrene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Bromoform	µg/kg	5	NONE	-	-	-	-	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	180	53
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	< 5.0
Bromobenzene	µg/kg	5	NONE	-	-	-	-	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	50
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	110
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0

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Lab Sample Number				184448	184449	184450	184451	184452
Sample Reference				WS1024	WS1022B	WS1022B	BH1002	BH1002
Sample Number				ES1	ES1	ES2	ES1	ES2
Depth (m)				0.40	0.60	1.00	0.40	1.30
Date Sampled				25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-	-	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	53
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	59
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	< 0.30
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	42
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	14
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	< 0.3

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Project / Site name: ID Manchester
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Lab Sample Number	184448	184449	184450	184451	184452
Sample Reference	WS1024	WS1022B	WS1022B	BH1002	BH1002
Sample Number	ES1	ES1	ES2	ES1	ES2
Depth (m)	0.40	0.60	1.00	0.40	1.30
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-	-

Total PCBs	mg/kg	0.012	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				184453	184454	184455	184456	184457
Sample Reference				BH1002	BH1002	WS1019	WS1009	WS1009
Sample Number				ES3	ES4	ES2	ES2	ES4
Depth (m)				3.10	5.00	1.70	0.50	2.00
Date Sampled				25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	12	21	13	13
Total mass of sample received	kg	0.1	NONE	1.1	1.2	1.2	1	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Detected	-
Asbestos Analyst ID	N/A	N/A	N/A	MWI	-	MWI	MWI	-
Actinolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	Detected	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	< 0.001	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	Loose Fibres	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.7	8.7	7.8	8.3	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	620	4400	40000	670	320
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	0.8	0.4	< 0.1	3.6	1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.57	0.15	< 0.05	0.28	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.62	0.21	< 0.05	0.49	0.07
Fluorene	mg/kg	0.05	MCERTS	0.54	0.22	< 0.05	0.38	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	3.5	1.2	0.17	3.4	0.41
Anthracene	mg/kg	0.05	MCERTS	0.91	0.34	< 0.05	0.72	0.1
Fluoranthene	mg/kg	0.05	MCERTS	3	1.1	0.19	4.3	0.74
Pyrene	mg/kg	0.05	MCERTS	2.5	0.89	< 0.05	3.8	0.62
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.93	0.36	< 0.05	1.6	0.26
Chrysene	mg/kg	0.05	MCERTS	1.1	0.38	< 0.05	1.9	0.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.92	0.4	< 0.05	2	0.28
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.55	0.14	< 0.05	0.78	0.18
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.92	0.33	< 0.05	1.7	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.43	0.16	< 0.05	0.81	0.15
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	0.21	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.49	0.19	< 0.05	0.93	0.16
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	0.46	< 0.05

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Project / Site name: ID Manchester
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Lab Sample Number	184453	184454	184455	184456	184457
Sample Reference	BH1002	BH1002	WS1019	WS1009	WS1009
Sample Number	ES3	ES4	ES2	ES2	ES4
Depth (m)	3.10	5.00	1.70	0.50	2.00
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	17	6.1	< 0.80	23.3	3.5
Total WAC-17 PAHs	mg/kg	0.85	NONE	17	6.1	< 0.85	23.8	3.5

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	2.3	3.6	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.4	7.3	18	15	9.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	70	74	110	280	87
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.44	0.48	0.23	1.4	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.2	0.3	1.9
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.4	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	12	12	27	49	29
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	12	27	49	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	8.1	14	69	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	11	43	340	120	23
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.3	8.8	4.5	29	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	14	19	38	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	26	25	10	180	61

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	3.5	< 2.0	< 2.0	6.5	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	14	< 10	< 10	25	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	22	< 10	< 10	40	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	39	< 10	< 10	71	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	24	< 10	< 10	45	< 10
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	18	< 10	< 10	31	< 10

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	184453	184454	184455	184456	184457
Sample Reference	BH1002	BH1002	WS1019	WS1009	WS1009
Sample Number	ES3	ES4	ES2	ES2	ES4
Depth (m)	3.10	5.00	1.70	0.50	2.00
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
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	5	ISO 17025	-	-	-	-	-
Chloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	-	-
Chloroform	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	-	-	-
Bromoform	µg/kg	5	NONE	-	-	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	-	-
Bromobenzene	µg/kg	5	NONE	-	-	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-

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Lab Sample Number				184453	184454	184455	184456	184457
Sample Reference				BH1002	BH1002	WS1019	WS1009	WS1009
Sample Number				ES3	ES4	ES2	ES2	ES4
Depth (m)				3.10	5.00	1.70	0.50	2.00
Date Sampled				25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	-	-

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Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	184453	184454	184455	184456	184457
Sample Reference	BH1002	BH1002	WS1019	WS1009	WS1009
Sample Number	ES3	ES4	ES2	ES2	ES4
Depth (m)	3.10	5.00	1.70	0.50	2.00
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-	-

Total PCBs	mg/kg	0.012	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				184458	184459	184460	184461	184462
Sample Reference				WS1013	WS1013	WS1014	WS1014	FIP1014
Sample Number				ES1	ES2	ES1	ES2	ES3
Depth (m)				0.50	3.00	0.50	2.00	1.00
Date Sampled				25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
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	21.5
Moisture Content	%	0.01	NONE	11	13	12	15	5.1
Total mass of sample received	kg	0.1	NONE	1.1	1.1	1.1	1.1	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Detected	-
Asbestos Analyst ID	N/A	N/A	N/A	MWI	MWI	PDO	PDO	-
Actinolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	Detected	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	Detected	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	Detected	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	Not-detected	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	0.003	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	Loose Fibrous Debris, Loose Fibres	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.3	8.6	8.4	8.4	8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	44	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1600	1700	1300	13000	140
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	3.2	1.5	6.5	8.2	0.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.41	0.93	32	13	0.06
Acenaphthylene	mg/kg	0.05	MCERTS	0.22	0.29	9.5	12	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	1.1	1.5	55	54	0.07
Fluorene	mg/kg	0.05	MCERTS	0.69	1.3	52	40	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	8.5	10	360	330	0.13
Anthracene	mg/kg	0.05	MCERTS	2.2	2.4	78	100	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	15	13	400	500	0.07
Pyrene	mg/kg	0.05	MCERTS	13	12	390	420	0.07
Benzo(a)anthracene	mg/kg	0.05	MCERTS	6.4	5.9	160	210	< 0.05
Chrysene	mg/kg	0.05	MCERTS	7.5	6.1	180	200	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	8	6.5	180	240	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	3.2	2.4	75	81	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	6.8	5.8	170	200	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3.5	2.9	84	94	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.9	0.47	23	25	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.8	3.4	100	100	< 0.05
Coronene	mg/kg	0.05	NONE	1.1	1.3	< 0.05	40	< 0.05

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Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	184458	184459	184460	184461	184462
Sample Reference	WS1013	WS1013	WS1014	WS1014	FIP1014
Sample Number	ES1	ES2	ES1	ES2	ES3
Depth (m)	0.50	3.00	0.50	2.00	1.00
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	81	75.9	2350	2610	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	82.1	77.2	2350	2650	< 0.85

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	6.1	3.5	3.6	9.2	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	91	16	22	110	2.8
Barium (aqua regia extractable)	mg/kg	1	MCERTS	250	340	200	480	10
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.91	0.84	1.1	2.3	0.27
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.2	< 0.2	0.7	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	22	18	22	53	6.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	18	22	53	6.2
Copper (aqua regia extractable)	mg/kg	1	MCERTS	170	66	110	200	7.2
Lead (aqua regia extractable)	mg/kg	1	MCERTS	380	330	780	650	7.1
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.9	0.4	0.4	1.8	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	14	25	41	3.4
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.6	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	26	33	95	11
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180	210	100	220	19

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	2.7	< 1.0	4.4	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	8.1	2.7	20	31	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	9.6	< 8.0	23	73	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	36	22	34	240	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	57	25	82	350	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	27	8	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	9.7	12	220	230	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	54	52	950	1400	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	130	110	1100	2200	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	200	170	2300	3800	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	130	110	1700	2700	< 10
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	160	110	890	2000	< 10

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
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Lab Sample Number	184458	184459	184460	184461	184462
Sample Reference	WS1013	WS1013	WS1014	WS1014	FIP1014
Sample Number	ES1	ES2	ES1	ES2	ES3
Depth (m)	0.50	3.00	0.50	2.00	1.00
Date Sampled	25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
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	5	ISO 17025	-	-	< 5.0 ##	-	-
Chloroethane	µg/kg	5	NONE	-	-	< 5.0	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-	< 5.0	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	< 5.0	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-	< 5.0	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	< 5.0	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	< 5.0	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	< 5.0	-	-
Chloroform	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	< 5.0	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	< 5.0 ##	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-	< 5.0	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Bromoform	µg/kg	5	NONE	-	-	< 5.0	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	< 5.0	-	-
Bromobenzene	µg/kg	5	NONE	-	-	< 5.0	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-

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Lab Sample Number				184458	184459	184460	184461	184462
Sample Reference				WS1013	WS1013	WS1014	WS1014	FIP1014
Sample Number				ES1	ES2	ES1	ES2	ES3
Depth (m)				0.50	3.00	0.50	2.00	1.00
Date Sampled				25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	-	< 5.0	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-	< 5.0	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	< 5.0	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	< 0.1	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	< 0.05	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	< 0.3	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	< 0.1	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	< 0.2	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	60	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	< 0.1	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	< 0.2	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	63	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	< 0.3	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	< 0.2	-	-
Azobenzene	mg/kg	0.3	NONE	-	-	< 0.3	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.30	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-	39	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	< 0.2	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-	36	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	< 0.3	-	-

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Lab Sample Number				184458	184459	184460	184461	184462
Sample Reference				WS1013	WS1013	WS1014	WS1014	FIP1014
Sample Number				ES1	ES2	ES1	ES2	ES3
Depth (m)				0.50	3.00	0.50	2.00	1.00
Date Sampled				25/04/2024	25/04/2024	25/04/2024	25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-	-

Total PCBs	mg/kg	0.012	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number				184463	184464
Sample Reference				FIP1015	FIP1024
Sample Number				ES1	ES1
Depth (m)				1.00	0.50
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection
				Accreditation Status	

Stone Content	%	0.1	NONE	31.3	52.3
Moisture Content	%	0.01	NONE	12	6.4
Total mass of sample received	kg	0.1	NONE	1.1	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO
Actinolite detected	Type	N/A	ISO 17025	-	-
Amosite detected	Type	N/A	ISO 17025	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9.9	11.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	3100	2100
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-
Organic Matter (automated)	%	0.1	MCERTS	1.3	0.5

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.08	< 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	0.35	0.3
Anthracene	mg/kg	0.05	MCERTS	0.09	0.07
Fluoranthene	mg/kg	0.05	MCERTS	0.51	0.34
Pyrene	mg/kg	0.05	MCERTS	0.51	0.31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.36	0.17
Chrysene	mg/kg	0.05	MCERTS	0.49	0.19
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.29	0.19
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.08	0.06
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.2	0.15
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.11	0.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.12	0.1
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

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Lab Sample Number	184463	184464
Sample Reference	FIP1015	FIP1024
Sample Number	ES1	ES1
Depth (m)	1.00	0.50
Date Sampled	25/04/2024	25/04/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection
		Accreditation Status

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	3.36	1.98
Total WAC-17 PAHs	mg/kg	0.85	NONE	3.36	1.98

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.7	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	6.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	82	320
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.69	0.25
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	19	13
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	99	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	53
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	5.6
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	26	9.4
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	35

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	4.6	6.5
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	16	13
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	110	80
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	130	100

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	< 10	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	47	33
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	80	85

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Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	184463	184464
Sample Reference	FIP1015	FIP1024
Sample Number	ES1	ES1
Depth (m)	1.00	0.50
Date Sampled	25/04/2024	25/04/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection
		Accreditation Status

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	-
Chloroethane	µg/kg	5	NONE	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-
Chloroform	µg/kg	5	ISO 17025	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-
Bromoform	µg/kg	5	NONE	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-
Bromobenzene	µg/kg	5	NONE	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				184463	184464
Sample Reference				FIP1015	FIP1024
Sample Number				ES1	ES1
Depth (m)				1.00	0.50
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Butylbenzene	µg/kg	5	NONE	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-
Azobenzene	mg/kg	0.3	NONE	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				184463	184464
Sample Reference				FIP1015	FIP1024
Sample Number				ES1	ES1
Depth (m)				1.00	0.50
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection
				Accreditation Status	

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 081	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 105	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 114	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 123	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 126	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 156	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 157	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 167	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 169	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 189	mg/kg	0.001	NONE	< 0.001	< 0.001

Total PCBs	mg/kg	0.012	NONE	< 0.012	< 0.012
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-016922
Project / Site name: ID Manchester
Your Order No: PO-0059

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
184450	WS1022B	1.00	105	Loose Fibrous Debris	Chrysotile	0.003	0.003
184456	WS1009	0.50	144	Loose Fibres	Amosite	< 0.001	< 0.001
184461	WS1014	2.00	145	Loose Fibrous Debris, Loose Fibres	Amosite & Chrysotile & Crocidolite	0.003	0.003

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 24-016922

Project / Site name: ID Manchester

* 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 *
184448	WS1024	ES1	0.4	Brown gravel ^{nb}
184449	WS1022B	ES1	0.6	Brown gravel with stones ^{nb}
184450	WS1022B	ES2	1	Brown clay and sand with gravel
184451	BH1002	ES1	0.4	Brown clay and sand with vegetation and oil / petroleum
184452	BH1002	ES2	1.3	Brown clay and sand with stones and oil / petroleum
184453	BH1002	ES3	3.1	Brown sandy clay with gravel
184454	BH1002	ES4	5	Brown sandy clay
184455	WS1019	ES2	1.7	Brown clay and sand
184456	WS1009	ES2	0.5	Brown loam with glass and vegetation
184457	WS1009	ES4	2	Brown clay and sand with gravel
184458	WS1013	ES1	0.5	Brown loam with gravel and vegetation
184459	WS1013	ES2	3	Brown gravely sand with vegetation
184460	WS1014	ES1	0.5	Brown loam and clay with gravel and vegetation
184461	WS1014	ES2	2	Brown loam with gravel
184462	FIP1014	ES3	1	Brown sand with stones
184463	FIP1015	ES1	1	Brown loam with stones and vegetation
184464	FIP1024	ES1	0.5	Brown gravel with stones ^{nb}

Analytical Report Number : 24-016922

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCBs WHO 12 in soil	Determination of PCBs (WHO-12 Congeners) by GC-MS	In-house method based on USEPA 8082	L027B	D	NONE
PCBs By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS

Analytical Report Number : 24-016922

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 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	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

*b - Unaccredited sample matrix.

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised



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Analytical Report Number : 24-017525

Project / Site name:	ID Manchester	Samples received on:	02/05/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	02/05/2024
Your order number:	PO-0059	Analysis completed by:	09/05/2024
Report Issue Number:	1	Report issued on:	09/05/2024
Samples Analysed:	1 soil sample		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-017525

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	187758			
Sample Reference	FIP1020			
Sample Number	1			
Depth (m)	0.70			
Date Sampled	30/04/2024			
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	13
Total mass of sample received	kg	0.1	NONE	0.8

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	11000
Organic Matter (automated)	%	0.1	MCERTS	2.1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.11
Acenaphthylene	mg/kg	0.05	MCERTS	0.12
Acenaphthene	mg/kg	0.05	MCERTS	0.82
Fluorene	mg/kg	0.05	MCERTS	0.48
Phenanthrene	mg/kg	0.05	MCERTS	5.4
Anthracene	mg/kg	0.05	MCERTS	1.2
Fluoranthene	mg/kg	0.05	MCERTS	7.5
Pyrene	mg/kg	0.05	MCERTS	6.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.1
Chrysene	mg/kg	0.05	MCERTS	3.4
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3.3
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.47
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.7
Coronene	mg/kg	0.05	NONE	0.67

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	40
Total WAC-17 PAHs	mg/kg	0.85	NONE	40.7

Analytical Report Number: 24-017525
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number					187758
Sample Reference					FIP1020
Sample Number					1
Depth (m)					0.70
Date Sampled					30/04/2024
Time Taken					None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	8.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	42
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	160
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	160
Copper (aqua regia extractable)	mg/kg	1	MCERTS	140
Lead (aqua regia extractable)	mg/kg	1	MCERTS	550
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.8
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	38
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	2.1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	41
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	41

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	1.4
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	10
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	30
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	45
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	87

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	72
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	70

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-017525

Project / Site name: ID Manchester

* 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 *
187758	FIP1020	1	0.7	Brown loam and clay with gravel

Analytical Report Number : 24-017525

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
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	L080	W	MCERTS

Analytical Report Number : 24-017525

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total 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	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 - underscore 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 : 24-017529

Project / Site name:	ID Manchester	Samples received on:	02/05/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	02/05/2024
Your order number:	PO-0059	Analysis completed by:	08/05/2024
Report Issue Number:	1	Report issued on:	08/05/2024
Samples Analysed:	1 soil sample		

Signed:

Anna Goc
PL Head of 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: 24-017529

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				187792
Sample Reference				BH1013A
Sample Number				6
Depth (m)				3.50
Date Sampled				02/05/2024
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	12
Total mass of sample received	kg	0.1	NONE	0.8

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	51
Organic Matter (automated)	%	0.1	MCERTS	0.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
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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	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 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
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85

Analytical Report Number: 24-017529

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				187792
Sample Reference				BH1013A
Sample Number				6
Depth (m)				3.50
Date Sampled				02/05/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	14
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	5.5
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	5.5
Copper (aqua regia extractable)	mg/kg	1	MCERTS	4.6
Lead (aqua regia extractable)	mg/kg	1	MCERTS	1.7
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	2.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	9
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	14

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-017529

Project / Site name: ID Manchester

* 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 *
187792	BH1013A	6	3.5	Brown sand

Analytical Report Number : 24-017529

Project / Site name: ID Manchester

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
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
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	L080	W	MCERTS

Analytical Report Number : 24-017529

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total 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	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore 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 : 24-018701

Replaces Analytical Report Number: 24-018701, issue no. 1
Additional analysis undertaken.
Leachate suite added to sample 194323 as per client's request.

Project / Site name:	ID Manchester	Samples received on:	09/05/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	09/05/2024
Your order number:	PO-0059	Analysis completed by:	23/05/2024
Report Issue Number:	2	Report issued on:	24/05/2024
Samples Analysed:	2 soil samples - 1 leachate sample		



Signed:

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

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

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

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

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

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

Analytical Report Number: 24-018701
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				194323	194324
Sample Reference				FIP1033	FIP1035
Sample Number				ES1	ES1
Depth (m)				0.50	0.50
Date Sampled				07/05/2024	07/05/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection
				Accreditation Status	

Stone Content	%	0.1	NONE	62.9	59
Moisture Content	%	0.01	NONE	8.7	11
Total mass of sample received	kg	0.1	NONE	1.1	1.1

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.3	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	500	170
Organic Matter (automated)	%	0.1	MCERTS	3.2	1.8

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.16	0.13
Acenaphthylene	mg/kg	0.05	MCERTS	0.19	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.13	0.38
Fluorene	mg/kg	0.05	MCERTS	0.15	0.22
Phenanthrene	mg/kg	0.05	MCERTS	12	1.9
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.52
Fluoranthene	mg/kg	0.05	MCERTS	21	2.2
Pyrene	mg/kg	0.05	MCERTS	22	2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	10	0.77
Chrysene	mg/kg	0.05	MCERTS	13	1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	14	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	4.9	0.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	7.3	0.81
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3.6	0.35
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1	0.08
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	4.4	0.4
Coronene	mg/kg	0.05	NONE	1.7	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	114	12.3
Total WAC-17 PAHs	mg/kg	0.85	NONE	116	12.3

Analytical Report Number: 24-018701
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number	194323	194324
Sample Reference	FIP1033	FIP1035
Sample Number	ES1	ES1
Depth (m)	0.50	0.50
Date Sampled	07/05/2024	07/05/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection
		Accreditation Status

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.5	1.9
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	6.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	78
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.93	0.58
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	17	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	44	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	31
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	66	56

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	1.2	1.4
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	7.4	12
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	22	15
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	84	10
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	120	38

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	5.4	7.1
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	33	19
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	83	18
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	120	44

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	110	64
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	160	18

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-018701
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				194323
Sample Reference				FIP1033
Sample Number				ES1
Depth (m)				0.50
Date Sampled				07/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	8.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	5.99
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	9.4

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	12
Barium (dissolved)	µg/l	0.05	ISO 17025	21
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	37
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.8
Copper (dissolved)	µg/l	0.7	ISO 17025	13
Lead (dissolved)	µg/l	1	ISO 17025	1.5
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.1427
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.5
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.4
Zinc (dissolved)	µg/l	0.4	ISO 17025	4.5

Calcium (dissolved)	mg/l	0.012	ISO 17025	19
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Analytical Report Number: 24-018701
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				194323
Sample Reference				FIP1033
Sample Number				ES1
Depth (m)				0.50
Date Sampled				07/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	
Petroleum Hydrocarbons				
Petroleum Range Organics (C6 - C10) <small>HS_ID_TOTAL</small>		µg/l	10	NONE
				< 10
TPH (C10 - C25) <small>EH_ID_TOTAL_MS</small>		µg/l	10	NONE
				< 10
TPH (C25 - C40) <small>EH_ID_TOTAL_MS</small>		µg/l	10	NONE
				< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-018701

Project / Site name: ID Manchester

* 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 *
194323	FIP1033	ES1	0.5	Brown loam and sand with gravel and stones
194324	FIP1035	ES1	0.5	Brown sand with gravel and stones

Analytical Report Number : 24-018701

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	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	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE

Analytical Report Number : 24-018701
Project / Site name: ID Manchester

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
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	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	L080	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Analytical Report Number : 24-018701
Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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



4041



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Analytical Report Number : 24-018896

Project / Site name:	ID Manchester	Samples received on:	29/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	13/05/2024
Your order number:	PO-0059	Analysis completed by:	16/05/2024
Report Issue Number:	1	Report issued on:	17/05/2024
Samples Analysed:	1 soil sample - 2 leachate samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-018896
Project / Site name: ID Manchester
Your Order No: PO-0059

Lab Sample Number				195186
Sample Reference				FIP1024
Sample Number				ES1
Depth (m)				0.50
Date Sampled				25/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

Alkali Reserve (soils)	g/100g NaOH	0.0025	NONE	0.2367
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number: 24-018896
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				195183	195186
Sample Reference				WS1013	FIP1024
Sample Number				ES2	ES1
Depth (m)				3.00	0.50
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.9	12
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	2
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	< 1
Sulphate as SO ₄	mg/l	0.045	ISO 17025	28.8	35.8
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.8	13

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	1.7
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
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	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	2	< 1.0
Barium (dissolved)	µg/l	0.05	ISO 17025	25	240
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	36	< 10
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	9	21
Chromium (III)	µg/l	5	NONE	6.7	12
Chromium (dissolved)	µg/l	0.4	ISO 17025	16	34
Copper (dissolved)	µg/l	0.7	ISO 17025	12	40
Lead (dissolved)	µg/l	1	ISO 17025	7.2	1.8
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0249	< 0.0070
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.7	2.5
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.2	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	12	4.2

Calcium (dissolved)	mg/l	0.012	ISO 17025	24	130
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Analytical Report Number: 24-018896
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				195183	195186
Sample Reference				WS1013	FIP1024
Sample Number				ES2	ES1
Depth (m)				3.00	0.50
Date Sampled				25/04/2024	25/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) _{HS_1D_TOTAL}	µg/l	10	NONE	< 10	< 10
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TPH (C10 - C25) _{EH_1D_TOTAL_MS}	µg/l	10	NONE	< 10	< 10
TPH (C25 - C40) _{EH_1D_TOTAL_MS}	µg/l	10	NONE	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number : 24-018896
Project / Site name: ID Manchester

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
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Alkali Reserve of soils	Alkali Reserve of Soils by calculation	In-house method	L046B	W	NONE
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025



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Analytical Report Number : 24-018896
Project / Site name: ID Manchester

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
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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 : 24-019236

Replaces Analytical Report Number: 24-019236, issue no. 1

Additional analysis undertaken.

Dissolved Tin and Tributyltin added to all samples as per clients request

Project / Site name:	ID Manchester	Samples received on:	19/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	14/05/2024
Your order number:	PO-0059	Analysis completed by:	28/05/2024
Report Issue Number:	2	Report issued on:	03/06/2024
Samples Analysed:	3 leachate samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



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Analytical Report Number: 24-019236

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	196805	196806	196807
Sample Reference	BH1014A	WS1007	BH1007
Sample Number	1	3	2
Depth (m)	0.20	0.80	1.50
Date Sampled	18/04/2024	18/04/2024	18/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.3	7.8	7.9
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	4.32	9.14	6.46
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	10	5.5	7.8

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0	2.4	1.8
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	5	9.3	1.8
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	5	3.9
Barium (dissolved)	µg/l	0.05	ISO 17025	26	39	31
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	23	17	22
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.7	3.2	2.9
Copper (dissolved)	µg/l	0.7	ISO 17025	9.7	14	20
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	8.2	13
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0204	0.009	< 0.0070
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.2	2.1	3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0
Tin (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7	2.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.5	12	26
Calcium (dissolved)	mg/l	0.012	ISO 17025	12	19	18



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Analytical Report Number: 24-019236

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	196805	196806	196807
Sample Reference	BH1014A	WS1007	BH1007
Sample Number	1	3	2
Depth (m)	0.20	0.80	1.50
Date Sampled	18/04/2024	18/04/2024	18/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	µg/l	10	NONE	< 10	< 10	< 10
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TPH (C10 - C25) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10	< 10	< 10
TPH (C25 - C40) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10	< 10	< 10

Organotin

Tributyltin (chloride)	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number : 24-019236

Project / Site name: ID Manchester

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
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Organotins in leachate	Determination of organotins compounds in leachate by GC-MS	In-house method		W	NONE
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators



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Analytical Report Number : 24-019236

Project / Site name: ID Manchester

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
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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e: kirsty.poore@civicearth.com

Analytical Report Number : 24-016050

Project / Site name:	ID Manchester	Samples received on:	15/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	25/04/2024
Your order number:	PO 0059	Analysis completed by:	30/04/2024
Report Issue Number:	1	Report issued on:	30/04/2024
Samples Analysed:	2 10:1 WAC samples		

Signed:



Joanna Szwarzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



4041



Environmental Science

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Waste Acceptance Criteria Analytical Results							
Report No:		24-016050					
					Client: CIVICEARTH		
Location		ID Manchester			Landfill Waste Acceptance Criteria		
Lab Reference (Sample Number)		180153					
Sampling Date		10/04/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID		BH1003 ES2					
Depth (m)		2.70					
Solid Waste Analysis							
TOC (%)**		1.3			3%	5%	6%
Loss on Ignition (%) **		3.3			--	--	10%
BTEX (µg/kg) **		< 5.0			6000	--	--
Sum of PCBs (mg/kg) **		< 0.007			1	--	--
Mineral Oil (mg/kg) <small>BH, ID, CU, AL</small>		< 10			500	--	--
Total PAH (WAC-17) (mg/kg)		< 0.85			100	--	--
pH (units)**		8.2			--	>6	--
Acid Neutralisation Capacity (mmol / kg)		7.3			--	To be evaluated	To be evaluated
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			mg/kg		
					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.00130		0.0130	0.5	2	25
Barium *		0.0247		0.247	20	100	300
Cadmium *		< 0.000100		< 0.00100	0.04	1	5
Chromium *		0.0022		0.022	0.5	10	70
Copper *		0.017		0.17	2	50	100
Mercury *		< 0.000500		< 0.00500	0.01	0.2	2
Molybdenum *		0.00872		0.0872	0.5	10	30
Nickel *		0.0012		0.012	0.4	10	40
Lead *		< 0.0010		< 0.010	0.5	10	50
Antimony *		< 0.0017		< 0.017	0.06	0.7	5
Selenium *		< 0.0040		< 0.040	0.1	0.5	7
Zinc *		0.0087		0.087	4	50	200
Chloride *		3.4		34	800	15000	25000
Fluoride*		0.72		7.2	10	150	500
Sulphate *		12		120	1000	20000	50000
TDS*		80		800	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.010		< 0.10	1	-	-
DOC		7.48		74.8	500	800	1000
Leach Test Information							
Stone Content (%)		< 0.1					
Sample Mass (kg)		0.8					
Dry Matter (%)		83					
Moisture (%)		17					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
					** = UKAS accredited (liquid eluate analysis only)		
					** = MCERTS accredited		

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



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Waste Acceptance Criteria Analytical Results							
Report No:	24-016050						
					Client: CIVICEARTH		
Location	ID Manchester				Landfill Waste Acceptance Criteria		
Lab Reference (Sample Number)	180154						
Sampling Date	10/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1006 ES2						
Depth (m)	2.20						
Solid Waste Analysis							
TOC (%)**	1.3				3%	5%	6%
Loss on Ignition (%) **	3.5				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	24				500	--	--
Total PAH (WAC-17) (mg/kg)	4.83				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	43				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.00488			0.0488	0.5	2	25
Barium *	0.0393			0.393	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.018			0.18	0.5	10	70
Copper *	0.010			0.10	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00673			0.0673	0.5	10	30
Nickel *	0.00038			0.0038	0.4	10	40
Lead *	0.0031			0.031	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.011			0.11	4	50	200
Chloride *	2.3			23	800	15000	25000
Fluoride*	0.29			2.9	10	150	500
Sulphate *	990			9900	1000	20000	50000
TDS*	900			9000	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	4.23			42.3	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	83						
Moisture (%)	17						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
* = UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = MCERTS accredited							

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

Analytical Report Number : 24-016050

Project / Site name: ID Manchester

* 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 *
180153	BH1003	ES2	2.7	Brown clay and sand with gravel
180154	BH1006	ES2	2.2	Brown sand with gravel

Analytical Report Number : 24-016050

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-016050
Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 24-016050

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1003	ES2	S	180153	c	BTEX and/or Volatile organic compounds in soil	L073B	c
BH1003	ES2	S	180153	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c
BH1006	ES2	S	180154	c	BTEX and/or Volatile organic compounds in soil	L073B	c
BH1006	ES2	S	180154	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c



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e: reception@i2analytical.com

Analytical Report Number : 24-016594

Project / Site name:	ID Manchester	Samples received on:	17/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	29/04/2024
Your order number:	PO-0059	Analysis completed by:	02/05/2024
Report Issue Number:	1	Report issued on:	03/05/2024
Samples Analysed:	10:1 WAC sample		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



4041



Environmental Science

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Waste Acceptance Criteria Analytical Results

Report No:	24-016594					
				Client: CIVICEARTH		
Location	ID Manchester					
Lab Reference (Sample Number)	182905			Landfill Waste Acceptance Criteria		
				Limits		
Sampling Date	15/04/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1015B ES1					
Depth (m)	0.20					
Solid Waste Analysis						
TOC (%)**	3.8			3%	5%	6%
Loss on Ignition (%) **	7.0			--	--	10%
BTEX (µg/kg) **	-			6000	--	--
Sum of PCBs (mg/kg) **	-			1	--	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	-			500	--	--
Total PAH (WAC-17) (mg/kg)	-			100	--	--
pH (units)**	7.9			--	>6	--
Acid Neutralisation Capacity (mmol / kg)	9.3			--	To be evaluated	To be evaluated
Eluate Analysis						
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test	
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)	
Arsenic *	0.0321			0.321	0.5	2
Barium *	0.0218			0.218	20	100
Cadmium *	< 0.000100			< 0.00100	0.04	1
Chromium *	0.0014			0.014	0.5	10
Copper *	0.020			0.20	2	50
Mercury *	< 0.000500			< 0.00500	0.01	0.2
Molybdenum *	0.00526			0.0526	0.5	10
Nickel *	0.0015			0.015	0.4	10
Lead *	0.010			0.10	0.5	10
Antimony *	< 0.0017			< 0.017	0.06	0.7
Selenium *	< 0.0040			< 0.040	0.1	0.5
Zinc *	0.011			0.11	4	50
Chloride *	3.0			30	800	15000
Fluoride*	0.21			2.1	10	150
Sulphate *	26			260	1000	20000
TDS*	78			780	4000	60000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-
DOC	9.93			99.3	500	800
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	0.8					
Dry Matter (%)	85					
Moisture (%)	15					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** - MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.

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

Analytical Report Number : 24-016594

Project / Site name: ID Manchester

* 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 *
182905	BH1015B	ES1	0.2	Brown loam and gravel

Analytical Report Number : 24-016594

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

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Analytical Report Number : 24-017433

Project / Site name:	ID Manchester	Samples received on:	23/04/2024
Your job number:		Samples instructed on/ Analysis started on:	02/05/2024
Your order number:	PO-0059	Analysis completed by:	08/05/2024
Report Issue Number:	1	Report issued on:	09/05/2024
Samples Analysed:	2 10:1 WAC sample		

Signed:



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Waste Acceptance Criteria Analytical Results

Report No:	24-017433						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	187305				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	19/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS1006 ES2						
Depth (m)	0.90						
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	1.1				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	21				500	--	--
Total PAH (WAC-17) (mg/kg)	11.7				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	6.7				--	To be evaluated	To be evaluated
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	0.00229			0.0229	0.5	2	25
Barium *	0.00438			0.0438	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.00077			0.0077	0.5	10	70
Copper *	0.0096			0.096	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00446			0.0446	0.5	10	30
Nickel *	0.0011			0.011	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0033			0.033	4	50	200
Chloride *	0.50			5.0	800	15000	25000
Fluoride*	0.36			3.6	10	150	500
Sulphate *	5.0			50	1000	20000	50000
TDS*	35			350	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	9.05			90.5	500	800	1000
Leach Test Information							
Stone Content (%)	30.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	91						
Moisture (%)	9.1						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		

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

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Waste Acceptance Criteria Analytical Results

Waste Acceptance Criteria Analytical Results							
Report No:	24-017433						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	187306				Landfill Waste Acceptance Criteria		
Sampling Date	19/04/2024				Limits		
Sample ID	WS1020 ES2				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	3.80						
Solid Waste Analysis							
TOC (%)**	1.1				3%	5%	6%
Loss on Ignition (%) **	2.8				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	67				500	--	--
Total PAH (WAC-17) (mg/kg)	54.2				100	--	--
pH (units)**	7.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.86				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.0593			0.593	20	100	300
Cadmium *	0.000296			0.00296	0.04	1	5
Chromium *	0.00055			0.0055	0.5	10	70
Copper *	0.0082			0.082	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	< 0.000400			< 0.00400	0.5	10	30
Nickel *	0.0046			0.046	0.4	10	40
Lead *	0.0023			0.023	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.024			0.24	4	50	200
Chloride *	4.3			43	800	15000	25000
Fluoride*	0.086			0.86	10	150	500
Sulphate *	140			1400	1000	20000	50000
TDS*	180			1800	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	3.56			35.6	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	89						
Moisture (%)	11						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** - MCERTS accredited		

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

Analytical Report Number : 24-017433

Project / Site name: ID Manchester

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
187305	WS1006	ES2	0.9	Brown clay and sand with gravel and stones
187306	WS1020	ES2	3.8	Brown loam and sand with gravel and rubble

Analytical Report Number : 24-017433

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-017433

Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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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 : 24-017858

Project / Site name:	ID Manchester	Samples received on:	25/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	07/05/2024
Your order number:	PO-0059	Analysis completed by:	13/05/2024
Report Issue Number:	1	Report issued on:	14/05/2024
Samples Analysed:	2 10:1 WAC samples		

Signed:



Joanna Wawrzeczko
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Waste Acceptance Criteria Analytical Results

Report No:	24-017858					
					Client:	CIVICEARTH
Location	ID Manchester					
Lab Reference (Sample Number)	189670				Landfill Waste Acceptance Criteria	
Sampling Date	23/04/2024				Limits	
Sample ID	BH1012 ES1				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill
Depth (m)	0.20					
Solid Waste Analysis						
TOC (%)**	2.1				3%	5%
Loss on Ignition (%) **	5.0				--	10%
BTEX (µg/kg) **	< 5.0				6000	--
Sum of PCBs (mg/kg) **	< 0.007				1	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	35				500	--
Total PAH (WAC-17) (mg/kg)	57.1				100	--
pH (units)**	7.7				--	>6
Acid Neutralisation Capacity (mmol / kg)	9.0				--	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test	
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)	
Arsenic *	0.00618			0.0618	0.5	2
Barium *	0.0303			0.303	20	100
Cadmium *	< 0.000100			< 0.00100	0.04	1
Chromium *	0.0029			0.029	0.5	10
Copper *	0.030			0.30	2	50
Mercury *	< 0.000500			< 0.00500	0.01	0.2
Molybdenum *	0.00189			0.0189	0.5	10
Nickel *	0.0026			0.026	0.4	10
Lead *	0.017			0.17	0.5	10
Antimony *	< 0.0017			< 0.017	0.06	0.7
Selenium *	< 0.0040			< 0.040	0.1	0.5
Zinc *	0.021			0.21	4	50
Chloride *	0.84			8.4	800	15000
Fluoride*	0.45			4.5	10	150
Sulphate *	5.3			53	1000	20000
TDS*	45			450	4000	60000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-
DOC	7.91			79.1	500	800
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	1.0					
Dry Matter (%)	81					
Moisture (%)	19					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

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

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Waste Acceptance Criteria Analytical Results

Report No:	24-017858					
					Client:	CIVICEARTH
Location	ID Manchester					
Lab Reference (Sample Number)	189671				Landfill Waste Acceptance Criteria	
Sampling Date	24/04/2024				Limits	
Sample ID	BH1009 ES2				Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill
Depth (m)	0.80					
Solid Waste Analysis						
TOC (%)**	0.9				3%	5%
Loss on Ignition (%) **	3.3				--	10%
BTEX (µg/kg) **	< 5.0				6000	--
Sum of PCBs (mg/kg) **	< 0.007				1	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	< 10				500	--
Total PAH (WAC-17) (mg/kg)	1.52				100	--
pH (units)**	6.8				--	>6
Acid Neutralisation Capacity (mmol / kg)	-6.6				--	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test	
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)	
Arsenic *	< 0.00100			< 0.0100	0.5	2
Barium *	0.00494			0.0494	20	100
Cadmium *	< 0.000100			< 0.00100	0.04	1
Chromium *	0.00052			0.0052	0.5	10
Copper *	0.0061			0.061	2	50
Mercury *	< 0.000500			< 0.00500	0.01	0.2
Molybdenum *	0.000498			0.00498	0.5	10
Nickel *	0.00054			0.0054	0.4	10
Lead *	0.0016			0.016	0.5	10
Antimony *	< 0.0017			< 0.017	0.06	0.7
Selenium *	< 0.0040			< 0.040	0.1	0.5
Zinc *	0.0045			0.045	4	50
Chloride *	1.1			11	800	15000
Fluoride*	0.25			2.5	10	150
Sulphate *	9.2			92	1000	20000
TDS*	18			180	4000	60000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-
DOC	6.15			61.5	500	800
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	1.2					
Dry Matter (%)	82					
Moisture (%)	18					
Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)						
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited						

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

Analytical Report Number : 24-017858

Project / Site name: ID Manchester

* 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 *
189670	BH1012	ES1	0.2	Brown clay and sand with gravel and vegetation
189671	BH1009	ES2	0.8	Brown clay and sand with gravel and vegetation

Analytical Report Number : 24-017858

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-017858

Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 : 24-017957

Project / Site name:	ID Manchester	Samples received on:	25/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	07/05/2024
Your order number:	PO-0059	Analysis completed by:	13/05/2024
Report Issue Number:	1	Report issued on:	14/05/2024
Samples Analysed:	1 10:1 WAC sample		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



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Waste Acceptance Criteria Analytical Results								
Report No:		24-017957						
						Client: CIVICEARTH		
Location		ID Manchester						
Lab Reference (Sample Number)		190317				Landfill Waste Acceptance Criteria		
Sampling Date		23/04/2024				Limits		
Sample ID		BH1008 1				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)		0.10						
Solid Waste Analysis								
TOC (%)**		2.0				3%	5%	6%
Loss on Ignition (%) **		5.2				--	--	10%
BTEx (µg/kg) **		< 5.0				6000	--	--
Sum of PCBs (mg/kg) **		< 0.007				1	--	--
Mineral Oil (mg/kg) <small>EH, LD, CU, AL</small>		33				500	--	--
Total PAH (WAC-17) (mg/kg)		6.44				100	--	--
pH (units)**		8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)		10				--	To be evaluated	To be evaluated
Eluate Analysis		10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.00270			0.0270	0.5	2	25
Barium *		0.00913			0.0913	20	100	300
Cadmium *		< 0.000100			< 0.00100	0.04	1	5
Chromium *		0.00061			0.0061	0.5	10	70
Copper *		0.0089			0.089	2	50	100
Mercury *		< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *		0.00208			0.0208	0.5	10	30
Nickel *		< 0.00030			< 0.0030	0.4	10	40
Lead *		0.0012			0.012	0.5	10	50
Antimony *		< 0.0017			< 0.017	0.06	0.7	5
Selenium *		< 0.0040			< 0.040	0.1	0.5	7
Zinc *		0.0036			0.036	4	50	200
Chloride *		1.3			13	800	15000	25000
Fluoride*		0.58			5.8	10	150	500
Sulphate *		2.5			25	1000	20000	50000
TDS*		44			440	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.010			< 0.10	1	-	-
DOC		6.86			68.6	500	800	1000
Leach Test Information								
Stone Content (%)		< 0.1						
Sample Mass (kg)		1.0						
Dry Matter (%)		86						
Moisture (%)		14						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. * = UKAS accredited (liquid eluate analysis only)								
Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation ** = MCFERTS accredited								

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.

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

Analytical Report Number : 24-017957

Project / Site name: ID Manchester

* 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 *
190317	BH1008	1	0.1	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-017957

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-017957

Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 : 24-018895

Project / Site name:	ID Manchester	Samples received on:	29/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	13/05/2024
Your order number:	PO-0059	Analysis completed by:	16/05/2024
Report Issue Number:	1	Report issued on:	20/05/2024
Samples Analysed:	4 10:1 WAC samples		


Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



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

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Waste Acceptance Criteria Analytical Results								
Report No:		24-018895						
						Client: CIVICEARTH		
Location		ID Manchester						
Lab Reference (Sample Number)		195182				Landfill Waste Acceptance Criteria		
Sampling Date		25/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID		WS1019 ES2						
Depth (m)		1.70						
Solid Waste Analysis								
TOC (%)**		< 0.1				3%	5%	6%
Loss on Ignition (%) **		1.3				--	--	10%
BTEX (µg/kg) **		< 5.0				6000	--	--
Sum of PCBs (mg/kg) **		< 0.007				1	--	--
Mineral Oil (mg/kg) _{EH_ID_CU_AL}		18				500	--	--
Total PAH (WAC-17) (mg/kg)		76.3				100	--	--
pH (units)**		7.2				--	>6	--
Acid Neutralisation Capacity (mmol / kg)		0.53				--	To be evaluated	To be evaluated
Eluate Analysis		10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *		< 0.00100			< 0.0100	0.5	2	25
Barium *		0.0106			0.106	20	100	300
Cadmium *		< 0.000100			< 0.00100	0.04	1	5
Chromium *		0.0036			0.036	0.5	10	70
Copper *		0.016			0.16	2	50	100
Mercury *		< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *		0.000736			0.00736	0.5	10	30
Nickel *		0.00057			0.0057	0.4	10	40
Lead *		0.0094			0.094	0.5	10	50
Antimony *		< 0.0017			< 0.017	0.06	0.7	5
Selenium *		< 0.0040			< 0.040	0.1	0.5	7
Zinc *		0.023			0.23	4	50	200
Chloride *		0.36			3.6	800	15000	25000
Fluoride*		0.15			1.5	10	150	500
Sulphate *		720			7200	1000	20000	50000
TDS*		650			6500	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.010			< 0.10	1	-	-
DOC		2.37			23.7	500	800	1000
Leach Test Information								
Stone Content (%)		< 0.1						
Sample Mass (kg)		0.8						
Dry Matter (%)		81						
Moisture (%)		19						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.						* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation						** = MCERTS accredited		

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

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Waste Acceptance Criteria Analytical Results							
Report No:	24-018895						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	195184				Landfill Waste Acceptance Criteria		
Sampling Date	25/04/2024				Limits		
Sample ID	WS1014 ES2				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	2.00						
Solid Waste Analysis							
TOC (%)**	5.8				3%	5%	6%
Loss on Ignition (%) **	10				--	--	10%
BTEX (µg/kg) **	-				6000	--	--
Sum of PCBs (mg/kg) **	-				1	--	--
Mineral Oil (mg/kg) CH,10, CU, AL	-				500	--	--
Total PAH (WAC-17) (mg/kg)	-				100	--	--
pH (units)**	8.2				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	11				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.00728			0.0728	0.5	2	25
Barium *	0.0555			0.555	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0046			0.046	0.5	10	70
Copper *	0.024			0.24	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.0153			0.153	0.5	10	30
Nickel *	0.0022			0.022	0.4	10	40
Lead *	0.039			0.39	0.5	10	50
Antimony *	0.0027			0.027	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.020			0.20	4	50	200
Chloride *	0.71			7.1	800	15000	25000
Fluoride*	0.72			7.2	10	150	500
Sulphate *	14			140	1000	20000	50000
TDS*	78			780	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	9.50			95.0	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	87						
Moisture (%)	13						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			

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

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Waste Acceptance Criteria Analytical Results							
Report No:	24-018895						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	195185				Landfill Waste Acceptance Criteria		
Sampling Date	25/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	FIP1015 ES1						
Depth (m)	1.00						
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	1.9				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) _{EH,ID,CU,AL}	110				500	--	--
Total PAH (WAC-17) (mg/kg)	53.7				100	--	--
pH (units)**	8.5				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	26				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.00510			0.0510	0.5	2	25
Barium *	0.0131			0.131	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0027			0.027	0.5	10	70
Copper *	0.0099			0.099	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00508			0.0508	0.5	10	30
Nickel *	0.00067			0.0067	0.4	10	40
Lead *	0.0038			0.038	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.010			0.10	4	50	200
Chloride *	1.0			10	800	15000	25000
Fluoride*	0.073			0.73	10	150	500
Sulphate *	160			1600	1000	20000	50000
TDS*	220			2200	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	2.68			26.8	500	800	1000
Leach Test Information							
Stone Content (%)	31.3						
Sample Mass (kg)	0.8						
Dry Matter (%)	86						
Moisture (%)	14						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			

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

Analytical Report Number : 24-018895

Project / Site name: ID Manchester

* 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 *
195181	BH1002	ES1	0.4	Brown clay and sand with oil / petroleum and vegetation
195182	WS1019	ES2	1.7	Brown clay and sand
195184	WS1014	ES2	2	Brown loam with gravel
195185	FIP1015	ES1	1	Brown loam with vegetation and stones

Analytical Report Number : 24-018895

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-018895

Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 24-018895

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
FIP1015	ES1	S	195185	c	BTEX and/or Volatile organic compounds in soil	L073B	c
FIP1015	ES1	S	195185	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c
WS1019	ES2	S	195182	c	BTEX and/or Volatile organic compounds in soil	L073B	c
WS1019	ES2	S	195182	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c

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Analytical Report Number : 24-019238

Project / Site name:	ID Manchester	Samples received on:	19/04/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	14/05/2024
Your order number:	PO-0059	Analysis completed by:	17/05/2024
Report Issue Number:	1	Report issued on:	21/05/2024
Samples Analysed:	3 10:1 WAC samples		


Signed:

Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



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Waste Acceptance Criteria Analytical Results							
Report No:	24-019238						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	196827				Landfill Waste Acceptance Criteria		
Sampling Date	17/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1013A 2						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	1.1				3%	5%	6%
Loss on Ignition (%) **	1.9				--	--	10%
BTEX (µg/kg) **	-				6000	--	--
Sum of PCBs (mg/kg) **	-				1	--	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	-				500	--	--
Total PAH (WAC-17) (mg/kg)	-				100	--	--
pH (units)**	8.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	52				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.168			1.68	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0020			0.020	0.5	10	70
Copper *	0.0058			0.058	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00128			0.0128	0.5	10	30
Nickel *	0.0011			0.011	0.4	10	40
Lead *	0.0017			0.017	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0088			0.088	4	50	200
Chloride *	0.90			9.0	800	15000	25000
Fluoride*	0.22			2.2	10	150	500
Sulphate *	6.4			64	1000	20000	50000
TDS*	40			400	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	4.58			45.8	500	800	1000
Leach Test Information							
Stone Content (%)	55.2						
Sample Mass (kg)	0.8						
Dry Matter (%)	97						
Moisture (%)	3.1						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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Waste Acceptance Criteria Analytical Results							
Report No:	24-019238						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	196828				Landfill Waste Acceptance Criteria		
Sampling Date	17/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1014A 5						
Depth (m)	2.00						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	2.0				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) _{BH_ID_CU_AL}	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	9.92				100	--	--
pH (units)**	8.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	25				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0131			0.131	0.5	2	25
Barium *	0.0422			0.422	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0026			0.026	0.5	10	70
Copper *	0.012			0.12	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00270			0.0270	0.5	10	30
Nickel *	0.0023			0.023	0.4	10	40
Lead *	0.0047			0.047	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.012			0.12	4	50	200
Chloride *	1.1			11	800	15000	25000
Fluoride*	0.21			2.1	10	150	500
Sulphate *	17			170	1000	20000	50000
TDS*	71			710	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.55			55.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	81						
Moisture (%)	19						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** – MCERTS accredited			

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

Analytical Report Number : 24-019238

Project / Site name: ID Manchester

* 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 *
196826	WS1017	1	0.2	Brown loam with gravel and vegetation
196827	BH1013A	2	0.5	Brown loam and sand with tar and concrete
196828	BH1014A	5	2	Brown sand with gravel and brick

Analytical Report Number : 24-019238

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-019238
Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 24-019238

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1014A	5	S	196828	c	BTEX and/or Volatile organic compounds in soil	L073B	c
BH1014A	5	S	196828	c	PCB's By GC-MS in soil	L027B	c
BH1014A	5	S	196828	c	Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	L064B	c
BH1014A	5	S	196828	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c



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Analytical Report Number : 24-020213

Project / Site name:	ID Manchester	Samples received on:	02/05/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	20/05/2024
Your order number:	PO-0059	Analysis completed by:	23/05/2024
Report Issue Number:	1	Report issued on:	24/05/2024
Samples Analysed:	10:1 WAC sample		

Signed: 

Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

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Waste Acceptance Criteria Analytical Results

Report No:	24-020213						
				Client: CIVICEARTH			
Location	ID Manchester						
Lab Reference (Sample Number)	202320			Landfill Waste Acceptance Criteria			
				Limits			
Sampling Date	30/04/2024			Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill	Hazardous Waste Landfill	
Sample ID	FIP1020 1						
Depth (m)	0.70						
Solid Waste Analysis							
TOC (%)**	1.7			3%	5%	6%	
Loss on Ignition (%) **	3.4			--	--	10%	
BTEX (µg/kg) **	< 5.0			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.007			1	--	--	
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	47			500	--	--	
Total PAH (WAC-17) (mg/kg)	12.4			100	--	--	
pH (units)**	8.7			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	29			--	To be evaluated	To be evaluated	
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	0.0128			0.128	0.5	2	25
Barium *	0.0172			0.172	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0075			0.075	0.5	10	70
Copper *	0.010			0.10	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00841			0.0841	0.5	10	30
Nickel *	0.00046			0.0046	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0069			0.069	4	50	200
Chloride *	1.7			17	800	15000	25000
Fluoride*	0.27			2.7	10	150	500
Sulphate *	290			2900	1000	20000	50000
TDS*	360			3600	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	4.58			45.8	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	87						
Moisture (%)	13						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)			
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited			

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

Analytical Report Number : 24-020213

Project / Site name: ID Manchester

* 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 *
202320	FIP1020	1	0.7	Brown loam and clay with gravel

Analytical Report Number : 24-020213

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-020213

Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 24-020213

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
FIP1020	1	S	202320	c	BTEX and/or Volatile organic compounds in soil	L073B	c
FIP1020	1	S	202320	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c

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Analytical Report Number : 24-020214

Project / Site name:	ID Manchester	Samples received on:	09/05/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	20/05/2024
Your order number:	PO-0059	Analysis completed by:	23/05/2024
Report Issue Number:	1	Report issued on:	24/05/2024
Samples Analysed:	10:1 WAC samples		

Signed: 

Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
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Waste Acceptance Criteria Analytical Results

Report No:	24-020214					
				Client: CIVICEARTH		
Location	ID Manchester					
Lab Reference (Sample Number)	202321			Landfill Waste Acceptance Criteria		
Sampling Date	07/05/2024			Limits		
Sample ID	FIP1035 ES1			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	0.50					
Solid Waste Analysis						
TOC (%)**	1.3			3%	5%	6%
Loss on Ignition (%) **	2.5			--	--	10%
BTEX (µg/kg) **	-			6000	--	--
Sum of PCBs (mg/kg) **	-			1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	-			500	--	--
Total PAH (WAC-17) (mg/kg)	-			100	--	--
pH (units)**	6.8			--	>6	--
Acid Neutralisation Capacity (mmol / kg)	-3.0			--	To be evaluated	To be evaluated
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test	
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)	
Arsenic *	0.00185			0.0185	0.5	2
Barium *	0.00861			0.0861	20	100
Cadmium *	< 0.000100			< 0.00100	0.04	1
Chromium *	< 0.00040			< 0.0040	0.5	10
Copper *	0.010			0.10	2	50
Mercury *	< 0.000500			< 0.00500	0.01	0.2
Molybdenum *	0.000849			0.00849	0.5	10
Nickel *	< 0.00030			< 0.0030	0.4	10
Lead *	< 0.0010			< 0.010	0.5	10
Antimony *	< 0.0017			< 0.017	0.06	0.7
Selenium *	< 0.0040			< 0.040	0.1	0.5
Zinc *	0.0062			0.062	4	50
Chloride *	0.42			4.2	800	15000
Fluoride*	0.31			3.1	10	150
Sulphate *	1.7			17	1000	20000
TDS*	20			200	4000	60000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-
DOC	8.87			88.7	500	800
Leach Test Information						
Stone Content (%)	59.0					
Sample Mass (kg)	1.1					
Dry Matter (%)	89					
Moisture (%)	11					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

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

Analytical Report Number : 24-020214

Project / Site name: ID Manchester

* 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 *
202321	FIP1035	ES1	0.5	Brown sand with gravel and stones

Analytical Report Number : 24-020214

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.



Analytical Report Number : 24-020214
Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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Analytical Report Number : 24-014789

Replaces Analytical Report Number: 24-014789, issue no. 1
Additional analysis undertaken.
Quantification added to positive samples as per client's request.

Project / Site name:	ID Manchester	Samples received on:	17/04/2024
Your job number:	51019-03	Samples instructed on/ Analysis started on:	17/04/2024
Your order number:	PO-0060	Analysis completed by:	30/04/2024
Report Issue Number:	2	Report issued on:	30/04/2024
Samples Analysed:	6 soil samples		

Signed:



Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-014789
Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number	174023	174024	174025	174026	174027
Sample Reference	BH2005	BH2005	WS2005	WS2006	WS2006
Sample Number	ES1	ES2	ES3	ES1	ES4
Depth (m)	0.20	0.50	0.60	0.20	2.00
Date Sampled	15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
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	18	16	10	31	18
Total mass of sample received	kg	0.1	NONE	0.9	1	1.1	1.2	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Detected	Not-detected	Not-detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	WEM	WEM	WEM
Actinolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Amosite detected	Type	N/A	ISO 17025	Detected	Detected	-	-	Detected
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	Not-detected	Detected	-	-	Detected
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected
Tremolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	0.003	0.004	-	-	0.001
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres, Sheetting/Board Debris	Loose Fibres, Sheetting/Board Debris	-	-	Loose Fibres
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2	7.8	8.2	7.3	7.8
Total Cyanide	mg/kg	1	MCERTS	1.6	1.5	< 1.0	1.2	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1300	1100	100	1000	1000
Organic Matter (automated)	%	0.1	MCERTS	5.4	4.5	0.4	10	7.5

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.2	0.88	< 0.05	0.39	1.1
Acenaphthylene	mg/kg	0.05	MCERTS	0.06	0.09	< 0.05	0.46	0.07
Acenaphthene	mg/kg	0.05	MCERTS	0.36	1.3	< 0.05	0.26	0.31
Fluorene	mg/kg	0.05	MCERTS	0.26	0.99	< 0.05	0.22	0.43
Phenanthrene	mg/kg	0.05	MCERTS	2.2	7.5	0.07	2.4	2.8
Anthracene	mg/kg	0.05	MCERTS	0.51	1.8	< 0.05	0.58	0.59
Fluoranthene	mg/kg	0.05	MCERTS	3.4	7.2	0.1	5.4	2.3
Pyrene	mg/kg	0.05	MCERTS	3.3	6.8	0.09	5.5	2.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.5	3.3	< 0.05	2.9	0.88
Chrysene	mg/kg	0.05	MCERTS	1.7	3.2	0.06	3.4	1.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.1	3.4	< 0.05	4.8	0.96
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.82	1.3	< 0.05	1.7	0.32
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.8	3	< 0.05	4	0.76
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.88	1.4	< 0.05	2	0.35
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.25	0.33	< 0.05	0.52	0.09
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	1.6	< 0.05	2.3	0.45
Coronene	mg/kg	0.05	NONE	< 0.05	0.68	< 0.05	0.85	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	20.3	44	< 0.80	36.6	14.7
Total WAC-17 PAHs	mg/kg	0.85	NONE	20.3	44.7	< 0.85	37.5	14.7

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.1	2.8	1.5	5.9	4.8
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Analytical Report Number: 24-014789
Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number				174023	174024	174025	174026	174027
Sample Reference				BH2005	BH2005	WS2005	WS2006	WS2006
Sample Number				ES1	ES2	ES3	ES1	ES4
Depth (m)				0.20	0.50	0.60	0.20	2.00
Date Sampled				15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	18	3.6	21	31
Barium (aqua regia extractable)	mg/kg	1	MCERTS	240	220	28	360	100
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.76	0.86	0.57	1.2	4.4
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	< 0.2	< 0.2	0.8	1.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1	0.9	< 0.2	2.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	2.6	< 1.8
Chromium (III)	mg/kg	1	NONE	60	45	9	51	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	60	45	9	51	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	73	68	9.2	180	130
Lead (aqua regia extractable)	mg/kg	1	MCERTS	400	370	17	370	280
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.8	0.8	< 0.3	1	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	16	6.9	25	55
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	22	12	31	49
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	200	170	31	300	130

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	2.5	< 2.0	2	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	11	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	39	27	< 8.0	100	16
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	39	30	< 10	110	16

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	1.5	1.2	< 1.0	1.1	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	8.5	8.4	< 2.0	6.5	2.6
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	33	37	< 10	27	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	69	60	< 10	110	22
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	110	110	< 10	140	25

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	81	83	< 10	96	20
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	89	71	< 10	190	43

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Chloroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	-	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	< 5.0	-	-	-
Chloroform	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-

Analytical Report Number: 24-014789
 Project / Site name: ID Manchester
 Your Order No: PO-0060

Lab Sample Number				174023	174024	174025	174026	174027
Sample Reference				BH2005	BH2005	WS2005	WS2006	WS2006
Sample Number				ES1	ES2	ES3	ES1	ES4
Depth (m)				0.20	0.50	0.60	0.20	2.00
Date Sampled				15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0 ##	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Bromoform	µg/kg	5	NONE	-	< 5.0	-	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	< 5.0	-	-	-
Bromobenzene	µg/kg	5	NONE	-	< 5.0	-	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Butylbenzene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	-	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-

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Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number				174023	174024	174025	174026	174027
Sample Reference				BH2005	BH2005	WS2005	WS2006	WS2006
Sample Number				ES1	ES2	ES3	ES1	ES4
Depth (m)				0.20	0.50	0.60	0.20	2.00
Date Sampled				15/04/2024	15/04/2024	15/04/2024	15/04/2024	15/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	0.5	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	0.7	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.30	-	-	-
Carbazole	mg/kg	0.3	MCERTS	-	0.6	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	-	-	-
Anthraquinone	mg/kg	0.3	NONE	-	< 0.3	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	-	-	-
Organotins								
Tributyltin (chloride)	µg/kg	10	NONE	-	< 10	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-014789
Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number	174028			
Sample Reference	WS2006			
Sample Number	ES6			
Depth (m)	3.50			
Date Sampled	15/04/2024			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	15
Total mass of sample received	kg	0.1	NONE	1.1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	-
Actinolite detected	Type	N/A	ISO 17025	-
Amosite detected	Type	N/A	ISO 17025	-
Anthophyllite detected	Type	N/A	ISO 17025	-
Chrysotile detected	Type	N/A	ISO 17025	-
Crocidolite detected	Type	N/A	ISO 17025	-
Tremolite detected	Type	N/A	ISO 17025	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	120
Organic Matter (automated)	%	0.1	MCERTS	1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.47
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.67
Fluorene	mg/kg	0.05	MCERTS	0.39
Phenanthrene	mg/kg	0.05	MCERTS	2.2
Anthracene	mg/kg	0.05	MCERTS	0.69
Fluoranthene	mg/kg	0.05	MCERTS	2.4
Pyrene	mg/kg	0.05	MCERTS	1.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.72
Chrysene	mg/kg	0.05	MCERTS	0.8
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.84
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.29
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.65
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.36
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.07
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.41
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	12.7
Total WAC-17 PAHs	mg/kg	0.85	NONE	12.7

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0
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Analytical Report Number: 24-014789
 Project / Site name: ID Manchester
 Your Order No: PO-0060

Lab Sample Number				174028
Sample Reference				WS2006
Sample Number				ES6
Depth (m)				3.50
Date Sampled				15/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.5
Barium (aqua regia extractable)	mg/kg	1	MCERTS	26
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.33
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	7.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.4
Copper (aqua regia extractable)	mg/kg	1	MCERTS	7.4
Lead (aqua regia extractable)	mg/kg	1	MCERTS	5.8
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	6.1
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	9.5
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	20

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	4.8
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	14
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	19

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	20
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	10

VOCs

Chloromethane	µg/kg	5	ISO 17025	-
Chloroethane	µg/kg	5	NONE	-
Bromomethane	µg/kg	5	ISO 17025	-
Vinyl Chloride	µg/kg	5	NONE	-
Trichlorofluoromethane	µg/kg	5	NONE	-
1,1-Dichloroethene	µg/kg	5	NONE	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-
2,2-Dichloropropane	µg/kg	5	NONE	-
Chloroform	µg/kg	5	ISO 17025	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-

Analytical Report Number: 24-014789
Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number				174028
Sample Reference				WS2006
Sample Number				ES6
Depth (m)				3.50
Date Sampled				15/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-
Benzene	µg/kg	5	MCERTS	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-
Trichloroethene	µg/kg	5	ISO 17025	-
Dibromomethane	µg/kg	5	ISO 17025	-
Bromodichloromethane	µg/kg	5	ISO 17025	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-
Toluene	µg/kg	5	MCERTS	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-
Dibromochloromethane	µg/kg	5	ISO 17025	-
Tetrachloroethene	µg/kg	5	NONE	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-
Chlorobenzene	µg/kg	5	ISO 17025	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
Styrene	µg/kg	5	ISO 17025	-
Bromoform	µg/kg	5	NONE	-
o-Xylene	µg/kg	5	MCERTS	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-
Bromobenzene	µg/kg	5	NONE	-
n-Propylbenzene	µg/kg	5	ISO 17025	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-
Butylbenzene	µg/kg	5	NONE	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-
Hexachlorobutadiene	µg/kg	5	NONE	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-

SVOCs

Aniline	mg/kg	0.1	NONE	-
Phenol	mg/kg	0.2	ISO 17025	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-
2-Methylphenol	mg/kg	0.3	MCERTS	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-
Nitrobenzene	mg/kg	0.3	MCERTS	-
4-Methylphenol	mg/kg	0.2	NONE	-

Analytical Report Number: 24-014789
 Project / Site name: ID Manchester
 Your Order No: PO-0060

Lab Sample Number				174028
Sample Reference				WS2006
Sample Number				ES6
Depth (m)				3.50
Date Sampled				15/04/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Isophorone	mg/kg	0.2	MCERTS	-
2-Nitrophenol	mg/kg	0.3	NONE	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-
4-Chloroaniline	mg/kg	0.1	NONE	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-
Dibenzofuran	mg/kg	0.2	MCERTS	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-
4-Nitroaniline	mg/kg	0.2	NONE	-
Azobenzene	mg/kg	0.3	NONE	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-
Carbazole	mg/kg	0.3	MCERTS	-
Dibutyl phthalate	mg/kg	0.2	NONE	-
Anthraquinone	mg/kg	0.3	NONE	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-

Organotins

Tributyltin (chloride)	µg/kg	10	NONE	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-014789
Project / Site name: ID Manchester
Your Order No: PO-0060

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
174023	BH2005	0.20	125	Loose Fibres, Sheeting/Board Debris	Amosite	0.003	0.003
174024	BH2005	0.50	125	Loose Fibres, Sheeting/Board Debris	Amosite & Chrysotile	0.004	0.004
174027	WS2006	2.00	118	Loose Fibres	Amosite & Chrysotile	0.001	0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 24-014789

Project / Site name: ID Manchester

* 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 *
174023	BH2005	ES1	0.2	Brown loam and clay with gravel and vegetation
174024	BH2005	ES2	0.5	Brown loam and clay with gravel and vegetation
174025	WS2005	ES3	0.6	Brown sand with gravel
174026	WS2006	ES1	0.2	Brown loam and clay with gravel
174027	WS2006	ES4	2	Brown loam and gravel
174028	WS2006	ES6	3.5	Brown sand

Analytical Report Number : 24-014789

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Organotins in soil	Determination of organotins compounds in soil by GC-MS	In-house method		W	NONE
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
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	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Analytical Report Number : 24-014789
Project / Site name: ID Manchester

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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

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Analytical Report Number : 24-015353

Replaces Analytical Report Number: 24-015353, issue no. 1
Additional analysis undertaken.
Asbestos Quantification added to sample no 176779 as per client's request.

Project / Site name:	ID Manchester	Samples received on:	19/04/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	19/04/2024
Your order number:	PO 0060	Analysis completed by:	09/05/2024
Report Issue Number:	2	Report issued on:	13/05/2024
Samples Analysed:	12 soil samples - 2 leachate samples		

Signed:

Karolina Marek
PL Head of 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.

Analytical Report Number: 24-015353

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number	176779	176780	176781	176782	176783
Sample Reference	WS2003	WS2003	WS2004	BH2002	BH2002
Sample Number	1	2	2	2	4
Depth (m)	0.50	1.00	1.00	0.50	1.00
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	4.4	8	12	8	10
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ	KSZ
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	< 0.001	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4	8.7	9.8	8.5	9.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	700	180	1900	330	490
Organic Matter (automated)	%	0.1	MCERTS	2.6	0.3	1.8	< 0.1	< 0.1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	1.8	0.14	0.49	0.16	0.28
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	20	0.72	0.34	0.12	< 0.05
Fluorene	mg/kg	0.05	MCERTS	13	0.52	0.17	0.06	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	160	6.6	2.8	0.67	0.2
Anthracene	mg/kg	0.05	MCERTS	27	1.2	0.55	0.14	0.05
Fluoranthene	mg/kg	0.05	MCERTS	120	5.1	4.4	0.69	0.51
Pyrene	mg/kg	0.05	MCERTS	98	4.2	4.1	0.7	0.49
Benzo(a)anthracene	mg/kg	0.05	MCERTS	46	1.8	2	0.3	0.27
Chrysene	mg/kg	0.05	MCERTS	44	2.1	2.4	0.36	0.27
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	41	1.5	2.3	< 0.05	0.36
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	23	1.1	1.1	< 0.05	0.17
Benzo(a)pyrene	mg/kg	0.05	MCERTS	39	1.6	2.1	0.27	0.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	17	0.64	0.97	0.12	0.16
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	5.4	< 0.05	< 0.05	< 0.05	0.07
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	22	0.74	1.2	0.15	0.19
Coronene	mg/kg	0.05	NONE	14	< 0.05	< 0.05	< 0.05	0.07

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	681	27.9	24.8	3.77	3.33
Total WAC-17 PAHs	mg/kg	0.85	NONE	696	27.9	24.8	3.77	3.4

Analytical Report Number: 24-015353
Project / Site name: ID Manchester
Your Order No: PO 0060

Lab Sample Number				176779	176780	176781	176782	176783
Sample Reference				WS2003	WS2003	WS2004	BH2002	BH2002
Sample Number				1	2	2	2	4
Depth (m)				0.50	1.00	1.00	0.50	1.00
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	< 1.0	4	< 1.0	1.3
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.4	5.3	23	7.7	6.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	390	79	510	110	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.37	0.28	0.91	0.45	0.43
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.3	0.6	0.5	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.7	< 0.2	< 0.2	0.8	0.4
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	2.3	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	8.6	7	21	8.9	9.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.6	7	21	8.9	9.4
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	11	61	14	14
Lead (aqua regia extractable)	mg/kg	1	MCERTS	43	34	830	43	33
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	1.8	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.6	6.1	17	10	9.2
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	13	9.7	31	12	14
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	61	30	250	110	67

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	6	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	12	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	65	< 8.0	11	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	83	< 10	11	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	1.4	< 1.0	1.2	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	74	< 2.0	4.8	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	380	13	19	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	400	14	39	< 10	11
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	860	27	64	< 10	11

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	630	19	42	< 10	< 10
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	450	12	44	< 10	13

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Lab Sample Number	176779	176780	176781	176782	176783
Sample Reference	WS2003	WS2003	WS2004	BH2002	BH2002
Sample Number	1	2	2	2	4
Depth (m)	0.50	1.00	1.00	0.50	1.00
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	5	ISO 17025	< 5.0	-	-	-	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0

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Lab Sample Number				176779	176780	176781	176782	176783
Sample Reference				WS2003	WS2003	WS2004	BH2002	BH2002
Sample Number				1	2	2	2	4
Depth (m)				0.50	1.00	1.00	0.50	1.00
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	-	-	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	7.2	-	-	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-	-	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	27	-	-	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-	-	-	< 0.30
Carbazole	mg/kg	0.3	MCERTS	21	-	-	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	24	-	-	-	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-	-	< 0.3

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Lab Sample Number				176779	176780	176781	176782	176783
Sample Reference				WS2003	WS2003	WS2004	BH2002	BH2002
Sample Number				1	2	2	2	4
Depth (m)				0.50	1.00	1.00	0.50	1.00
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-	-

Total PCBs	mg/kg	0.012	NONE	-	-	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Lab Sample Number	176784	176785	176786	176787	176788
Sample Reference	BH2002	WS2002	WS2001	WS2001	BH2004
Sample Number	5	5	1	5	1
Depth (m)	2.00	2.00	0.20	2.00	1.20
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	49.7	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	10	12	21	9.3
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	1

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	-	SPU	SPU	SPU	SPU
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2	8.9	9.6	8.6	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	3300	380	2300	900	330
Organic Matter (automated)	%	0.1	MCERTS	3.1	0.1	1.2	1.9	2.8

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.08	< 0.05	0.36	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.14	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.62	0.13	0.63
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.67	0.11	0.52
Phenanthrene	mg/kg	0.05	MCERTS	0.39	0.34	5.9	1.3	5.6
Anthracene	mg/kg	0.05	MCERTS	0.09	0.07	1.4	0.3	1.3
Fluoranthene	mg/kg	0.05	MCERTS	0.6	0.78	7.9	2.1	6.6
Pyrene	mg/kg	0.05	MCERTS	0.52	0.8	7.9	2	5.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.27	0.46	3.9	0.93	2.7
Chrysene	mg/kg	0.05	MCERTS	0.34	0.45	4	1.1	2.6
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.32	0.47	3.8	1	2.8
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.18	0.3	1.9	0.51	0.95
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.48	4	0.94	2.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.15	0.25	1.6	0.48	1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.4	0.21	0.26
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.28	1.8	0.56	1.1
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2.93	4.67	46.1	11.7	33.8
Total WAC-17 PAHs	mg/kg	0.85	NONE	2.93	4.67	46.1	11.7	33.8

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Lab Sample Number				176784	176785	176786	176787	176788
Sample Reference				BH2002	WS2002	WS2001	WS2001	BH2004
Sample Number				5	5	1	5	1
Depth (m)				2.00	2.00	0.20	2.00	1.20
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	9.2	1.4	4.3	3.1	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	130	8.2	36	19	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	280	71	160	220	120
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	2	0.43	1.4	1.1	0.98
Boron (water soluble)	mg/kg	0.2	MCERTS	1.9	0.2	0.8	0.6	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4	< 0.2	< 0.2	0.9
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	26	10	19	27	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	10	19	27	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	160	21	120	70	26
Lead (aqua regia extractable)	mg/kg	1	MCERTS	97	29	110	150	83
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	43	9.9	27	28	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	42	14	30	31	23
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	260	63	170	120	150

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	2.4	2.5	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	11	18	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10	14	21	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	7.3	3.4	2.9
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	39	11	23
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	42	12	20
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	< 10	88	27	46

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	15	10	75	35	40
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10	37	20	17

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Lab Sample Number	176784	176785	176786	176787	176788
Sample Reference	BH2002	WS2002	WS2001	WS2001	BH2004
Sample Number	5	5	1	5	1
Depth (m)	2.00	2.00	0.20	2.00	1.20
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
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	5	ISO 17025	-	-	-	< 5.0	-
Chloroethane	µg/kg	5	NONE	-	-	-	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	-	-	-	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-	-	< 5.0	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-	-	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-	-	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-	-	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	-	< 5.0	-
Chloroform	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-	-	< 5.0	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Trichloroethene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Dibromomethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	-	-	-	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Bromoform	µg/kg	5	NONE	-	-	-	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	-	< 5.0	-
Bromobenzene	µg/kg	5	NONE	-	-	-	< 5.0	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-

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Lab Sample Number				176784	176785	176786	176787	176788
Sample Reference				BH2002	WS2002	WS2001	WS2001	BH2004
Sample Number				5	5	1	5	1
Depth (m)				2.00	2.00	0.20	2.00	1.20
Date Sampled				17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/kg	5	NONE	-	-	-	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-	-	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-	-	< 5.0	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	-	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	-	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	-	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	-	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	-	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	-	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	-	< 0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Azobenzene	mg/kg	0.3	NONE	-	-	-	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	-	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	-	< 0.30	-
Carbazole	mg/kg	0.3	MCERTS	-	-	-	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	-	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	-	-	-	< 0.3	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	-	< 0.3	-

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Project / Site name: ID Manchester

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Lab Sample Number	176784	176785	176786	176787	176788
Sample Reference	BH2002	WS2002	WS2001	WS2001	BH2004
Sample Number	5	5	1	5	1
Depth (m)	2.00	2.00	0.20	2.00	1.20
Date Sampled	17/04/2024	17/04/2024	17/04/2024	17/04/2024	17/04/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	< 0.001	< 0.001	-

Total PCBs	mg/kg	0.012	NONE	-	-	< 0.012	< 0.012	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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Project / Site name: ID Manchester

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Lab Sample Number				176789	176790
Sample Reference				BH2004	BH2004
Sample Number				2	3
Depth (m)				2.10	3.10
Date Sampled				17/04/2024	17/04/2024
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	13
Total mass of sample received	kg	0.1	NONE	0.9	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	-	-
Asbestos Analyst ID	N/A	N/A	N/A	-	-
Actinolite detected	Type	N/A	ISO 17025	-	-
Amosite detected	Type	N/A	ISO 17025	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9.2	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	200	250
Organic Matter (automated)	%	0.1	MCERTS	< 0.1	< 0.1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.06
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.18	0.43
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.29	0.65
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.58
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.1	0.25
Chrysene	mg/kg	0.05	MCERTS	0.12	0.29
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.26
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.17
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.26
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07	0.14
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.14
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	3.24
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	3.24

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Project / Site name: ID Manchester

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Lab Sample Number				176789	176790
Sample Reference				BH2004	BH2004
Sample Number				2	3
Depth (m)				2.10	3.10
Date Sampled				17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.6	1.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.4	6.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	38	53
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.4	0.38
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	11	9.9
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	11	9.9
Copper (aqua regia extractable)	mg/kg	1	MCERTS	8.5	10
Lead (aqua regia extractable)	mg/kg	1	MCERTS	9.2	16
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9	7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	14	14
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	36	43

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	< 10

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	14
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10

Analytical Report Number: 24-015353

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				176789	176790
Sample Reference				BH2004	BH2004
Sample Number				2	3
Depth (m)				2.10	3.10
Date Sampled				17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/kg	5	ISO 17025	-	-
Chloroethane	µg/kg	5	NONE	-	-
Bromomethane	µg/kg	5	ISO 17025	-	-
Vinyl Chloride	µg/kg	5	NONE	-	-
Trichlorofluoromethane	µg/kg	5	NONE	-	-
1,1-Dichloroethene	µg/kg	5	NONE	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	-	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-
Chloroform	µg/kg	5	ISO 17025	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,2-Dichloroethane	µg/kg	5	ISO 17025	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	-	-
1,2-Dichloropropane	µg/kg	5	ISO 17025	-	-
Trichloroethene	µg/kg	5	ISO 17025	-	-
Dibromomethane	µg/kg	5	ISO 17025	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	-
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	-	-
Tetrachloroethene	µg/kg	5	NONE	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	-
Chlorobenzene	µg/kg	5	ISO 17025	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	-	-
Bromoform	µg/kg	5	NONE	-	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-
Bromobenzene	µg/kg	5	NONE	-	-
n-Propylbenzene	µg/kg	5	ISO 17025	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
tert-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	-
sec-Butylbenzene	µg/kg	5	ISO 17025	-	-
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
p-Isopropyltoluene	µg/kg	5	ISO 17025	-	-
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	-	-
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	-	-

Analytical Report Number: 24-015353

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				176789	176790
Sample Reference				BH2004	BH2004
Sample Number				2	3
Depth (m)				2.10	3.10
Date Sampled				17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Butylbenzene	µg/kg	5	NONE	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	-
Hexachlorobutadiene	µg/kg	5	NONE	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	-

SVOCs

Aniline	mg/kg	0.1	NONE	-	-
Phenol	mg/kg	0.2	ISO 17025	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-
4-Methylphenol	mg/kg	0.2	NONE	-	-
Isophorone	mg/kg	0.2	MCERTS	-	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-
Azobenzene	mg/kg	0.3	NONE	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-
Carbazole	mg/kg	0.3	MCERTS	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-
Anthraquinone	mg/kg	0.3	NONE	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-

Analytical Report Number: 24-015353

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				176789	176790
Sample Reference				BH2004	BH2004
Sample Number				2	3
Depth (m)				2.10	3.10
Date Sampled				17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

PCBs by GC-MS

PCB Congener 118	mg/kg	0.001	MCERTS	-	-
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PCBs

PCB Congener 077	mg/kg	0.001	NONE	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-

Total PCBs	mg/kg	0.012	NONE	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number: 24-015353

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				176782	176785
Sample Reference				BH2002	WS2002
Sample Number				2	5
Depth (m)				0.50	2.00
Date Sampled				17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)				Units	Limit of detection
				Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.9	8
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	22.7	16.3
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.4	6.2

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	1.1	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
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	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	2.7	3.9
Barium (dissolved)	µg/l	0.05	ISO 17025	16	13
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	11	11
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.5	1.6
Copper (dissolved)	µg/l	0.7	ISO 17025	5.3	6.6
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.012	0.0138
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.9	0.7
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	4.1	2.3
Zinc (dissolved)	µg/l	0.4	ISO 17025	4.6	4.4

Calcium (dissolved)	mg/l	0.012	ISO 17025	12	13
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4041



Analytical Report Number: 24-015353

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				176782	176785
Sample Reference				BH2002	WS2002
Sample Number				2	5
Depth (m)				0.50	2.00
Date Sampled				17/04/2024	17/04/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) <small>HS_ID_TOTAL</small>	µg/l	10	NONE	< 10	< 10
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TPH (C10 - C25) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	< 10	< 10
TPH (C25 - C40) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-015353
Project / Site name: ID Manchester
Your Order No: PO 0060

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
176779	WS2003	0.50	135	Loose Fibres	Chrysotile	< 0.001	< 0.001

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 24-015353

Project / Site name: ID Manchester

* 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 *
176779	WS2003	1	0.5	Brown sand with gravel and vegetation
176780	WS2003	2	1	Brown sand with gravel
176781	WS2004	2	1	Brown loam and sand with gravel and brick
176782	BH2002	2	0.5	Brown sandy clay with gravel
176783	BH2002	4	1	Brown sand with gravel
176784	BH2002	5	2	Brown sand with clinker and gravel
176785	WS2002	5	2	Brown sand with gravel
176786	WS2001	1	0.2	Brown sandy loam with gravel and brick
176787	WS2001	5	2	Brown clay and sand with gravel and brick
176788	BH2004	1	1.2	Brown loam and sand with gravel and vegetation
176789	BH2004	2	2.1	Brown sandy clay
176790	BH2004	3	3.1	Brown sandy clay with gravel

Analytical Report Number : 24-015353

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCBs WHO 12 in soil	Determination of PCBs (WHO-12 Congeners) by GC-MS	In-house method based on USEPA 8082	L027B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS

Analytical Report Number : 24-015353

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	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	L080	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 : 24-015353

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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 : 24-015948

Replaces Analytical Report Number: 24-015948, issue no. 1
Additional analysis undertaken.
Asbestos Quantification added to sample no 179675 as per client's request.

Project / Site name:	ID Manchester	Samples received on:	23/04/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	24/04/2024
Your order number:	PO-0060	Analysis completed by:	30/04/2024
Report Issue Number:	2	Report issued on:	13/05/2024
Samples Analysed:	3 soil samples		

Signed: 

Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-015948

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number	179674	179675	179676
Sample Reference	BH2001	BH2001	BH2001
Sample Number	ES1	ES2	ES3
Depth (m)	0.20	0.80	3.00
Date Sampled	19/04/2024	19/04/2024	19/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	16	16
Total mass of sample received	kg	0.1	NONE	1.2	1.2	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MLO	EWS	MLO
Actinolite detected	Type	N/A	ISO 17025	-	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	-	Not-detected	-
Anthophyllite detected	Type	N/A	ISO 17025	-	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	-	Detected	-
Crocidolite detected	Type	N/A	ISO 17025	-	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	-	Not-detected	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	0.003	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	Loose Fibrous Debris	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.8	8.5	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	1.3
Total Sulphate as SO ₄	mg/kg	50	MCERTS	820	2300	1700
Organic Matter (automated)	%	0.1	MCERTS	3.5	3.1	2.2

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.45	0.11	0.16
Acenaphthylene	mg/kg	0.05	MCERTS	0.23	0.1	0.14
Acenaphthene	mg/kg	0.05	MCERTS	0.28	0.11	0.13
Fluorene	mg/kg	0.05	MCERTS	0.48	0.2	0.22
Phenanthrene	mg/kg	0.05	MCERTS	3.2	1.5	2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.32	0.59
Fluoranthene	mg/kg	0.05	MCERTS	3.8	1.9	2.6
Pyrene	mg/kg	0.05	MCERTS	3.7	1.9	2.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.8	0.96	1.1
Chrysene	mg/kg	0.05	MCERTS	2	1.1	1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.1	1.1	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.99	0.38	0.63
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.8	0.93	0.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.82	0.43	0.41
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.38	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1	0.52	0.46
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	23	11.5	13.4
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Analytical Report Number: 24-015948
Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number				179674	179675	179676
Sample Reference				BH2001	BH2001	BH2001
Sample Number				ES1	ES2	ES3
Depth (m)				0.20	0.80	3.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.6	2.9	4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	23	31
Barium (aqua regia extractable)	mg/kg	1	MCERTS	140	180	260
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.96	1.3	1.5
Boron (water soluble)	mg/kg	0.2	MCERTS	0.2	0.6	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	< 0.2	0.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	21	19	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	19	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	61	68	80
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	150	140
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.3	0.5	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	23	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	32	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	150	120	190

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_1D_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_1D_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	4.4
TPHCWG - Aliphatic >C16 - C21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	8.3
TPHCWG - Aliphatic >C21 - C35 EH_CU_1D_AL	mg/kg	8	MCERTS	15	14	63
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_1D_AL	mg/kg	10	NONE	15	14	76

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	3.3	2.3	4.2
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	14	< 10	19
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	31	18	56
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	48	20	79

Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	28	23	59
TPH (C25 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	44	28	130

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-015948
Project / Site name: ID Manchester
Your Order No: PO-0060

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
179675	BH2001	0.80	135	Loose Fibrous Debris	Chrysotile	0.003	0.003

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 24-015948

Project / Site name: ID Manchester

* 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 *
179674	BH2001	ES1	0.2	Brown loam and clay with gravel and vegetation
179675	BH2001	ES2	0.8	Brown loam and sand with gravel and vegetation
179676	BH2001	ES3	3	Brown clay and sand with gravel

Analytical Report Number : 24-015948

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
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	L080	W	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Analytical Report Number : 24-015948

Project / Site name: ID Manchester

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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 : 24-016384

Replaces Analytical Report Number: 24-016384, issue no. 1

Additional analysis undertaken.

Leachate added to sample 181798 as per client's requested and

Asbestos Quantification added to sample 181797 as per client's requested.

Project / Site name:	ID Manchester	Samples received on:	25/04/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	25/04/2024
Your order number:	PO 0060	Analysis completed by:	10/05/2024
Report Issue Number:	2	Report issued on:	13/05/2024
Samples Analysed:	3 soil samples - 1 leachate sample		

Signed:



Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 24-016384
Project / Site name: ID Manchester
Your Order No: PO 0060

Lab Sample Number	181797	181798	181799
Sample Reference	BH2007	BH2007	BH2007
Sample Number	1	2	3
Depth (m)	3.00	7.50	9.00
Date Sampled	23/04/2024	23/04/2024	23/04/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status

Stone Content	%	0.1	NONE	56.7	43.2	31.3
Moisture Content	%	0.01	NONE	12	12	12
Total mass of sample received	kg	0.1	NONE	1.2	1.1	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	MBI	MBI	-
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	-	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	-	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	0.002	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres, Asbestos Cement	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	10.7	11	11.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	650	310	510
Organic Matter (automated)	%	0.1	MCERTS	0.7	< 0.1	0.1

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.09	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.16	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.14	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.4	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.33	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.9	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	1.8	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.84	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.97	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.89	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.44	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.83	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.37	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.07	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.46	< 0.05	< 0.05
Coronene	mg/kg	0.05	NONE	0.17	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	10.7	-	-
Total WAC-17 PAHs	mg/kg	0.85	NONE	10.8	< 0.85	< 0.85

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.2	1.4	1.3
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Analytical Report Number: 24-016384
Project / Site name: ID Manchester
Your Order No: PO 0060

Lab Sample Number				181797	181798	181799
Sample Reference				BH2007	BH2007	BH2007
Sample Number				1	2	3
Depth (m)				3.00	7.50	9.00
Date Sampled				23/04/2024	23/04/2024	23/04/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	2.6	2.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130	28	13
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.5	0.57	1
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	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	15	9.9	11
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	15	9.9	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	25	3.8	4.5
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	5.5	5.8
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	3.5	3.8
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	15	9.3	6.9
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48	17	17

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	3.8	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	11	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	33	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	48	< 10	< 10

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	24	< 10	< 10
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	27	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-016384
Project / Site name: ID Manchester
Your Order No: PO 0060

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
181797	BH2007	3.00	134	Loose Fibres, Asbestos Cement	Chrysotile	0.002	0.002

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number: 24-016384
Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				181798
Sample Reference				BH2007
Sample Number				2
Depth (m)				7.50
Date Sampled				23/04/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	15.5
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	4.2

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	4.8
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0
Barium (dissolved)	µg/l	0.05	ISO 17025	8.9
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	22
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.8
Copper (dissolved)	µg/l	0.7	ISO 17025	4.2
Lead (dissolved)	µg/l	1	ISO 17025	2.2
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.9
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	8

Calcium (dissolved)	mg/l	0.012	ISO 17025	2.7
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Analytical Report Number: 24-016384
Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number		181798		
Sample Reference		BH2007		
Sample Number		2		
Depth (m)		7.50		
Date Sampled		23/04/2024		
Time Taken		None Supplied		
Analytical Parameter (Leachate Analysis)		Units	Limit of detection	Accreditation Status
Petroleum Hydrocarbons				
Petroleum Range Organics (C6 - C10) <small>HS_1D_TOTAL</small>		µg/l	10	NONE
TPH (C10 - C25) <small>EH_1D_TOTAL_MS</small>		µg/l	10	NONE
TPH (C25 - C40) <small>EH_1D_TOTAL_MS</small>		µg/l	10	NONE

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-016384

Project / Site name: ID Manchester

* 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 *
181797	BH2007	1	3	Brown loam and sand with gravel and vegetation
181798	BH2007	2	7.5	Brown sand with stones
181799	BH2007	3	9	Brown sand with stones

Analytical Report Number : 24-016384

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE

Analytical Report Number : 24-016384
Project / Site name: ID Manchester

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
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	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	L080	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Analytical Report Number : 24-016384
Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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



4041



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Analytical Report Number : 24-016670

Project / Site name:	ID Manchester	Samples received on:	17/04/2024
Your job number:	51019-03	Samples instructed on/ Analysis started on:	29/04/2024
Your order number:	PO-0060	Analysis completed by:	06/05/2024
Report Issue Number:	1	Report issued on:	07/05/2024
Samples Analysed:	1 leachate sample		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



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Analytical Report Number: 24-016670

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				183212
Sample Reference				WS2005
Sample Number				ES3
Depth (m)				0.60
Date Sampled				16/04/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.9
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	1.99
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	4.7

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	1.5
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	6.1
Arsenic (dissolved)	µg/l	1	ISO 17025	2.6
Barium (dissolved)	µg/l	0.05	ISO 17025	13
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	12
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.1
Copper (dissolved)	µg/l	0.7	ISO 17025	11
Lead (dissolved)	µg/l	1	ISO 17025	2.3
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0197
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.6
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	8

Calcium (dissolved)	mg/l	0.012	ISO 17025	9.5
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Analytical Report Number: 24-016670

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				183212
Sample Reference				WS2005
Sample Number				ES3
Depth (m)				0.60
Date Sampled				16/04/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

Petroleum Hydrocarbons

Petroleum Range Organics (C6 - C10) <small>HS_ID_TOTAL</small>	µg/l	10	NONE	< 10
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TPH (C10 - C25) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	< 10
TPH (C25 - C40) <small>EH_ID_TOTAL_MS</small>	µg/l	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number : 24-016670

Project / Site name: ID Manchester

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
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025



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Analytical Report Number : 24-016670

Project / Site name: ID Manchester

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
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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 - underscore 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 : 24-018704

Replaces Analytical Report Number: 24-018704, issue no. 1
Additional analysis undertaken.
Leachate suite added to sample 194345 as per client's request.

Project / Site name:	ID Manchester	Samples received on:	09/05/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	09/05/2024
Your order number:	PO-0060	Analysis completed by:	24/05/2024
Report Issue Number:	2	Report issued on:	24/05/2024
Samples Analysed:	1 soil sample - 1 leachate sample		



Signed:

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

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

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

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

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

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

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

Analytical Report Number: 24-018704
Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number	194345			
Sample Reference	BH2006			
Sample Number	ES1			
Depth (m)	0.90			
Date Sampled	08/05/2024			
Time Taken	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.1	NONE	1.1

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	860
Organic Matter (automated)	%	0.1	MCERTS	1.9

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	1.6
Acenaphthylene	mg/kg	0.05	MCERTS	0.16
Acenaphthene	mg/kg	0.05	MCERTS	1.7
Fluorene	mg/kg	0.05	MCERTS	1.5
Phenanthrene	mg/kg	0.05	MCERTS	12
Anthracene	mg/kg	0.05	MCERTS	2.9
Fluoranthene	mg/kg	0.05	MCERTS	12
Pyrene	mg/kg	0.05	MCERTS	12
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.9
Chrysene	mg/kg	0.05	MCERTS	5.7
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	5.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	5.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.8
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.5
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.2
Coronene	mg/kg	0.05	NONE	0.69

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	71.9
Total WAC-17 PAHs	mg/kg	0.85	NONE	72.5

Analytical Report Number: 24-018704
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Your Order No: PO-0060

Lab Sample Number				194345
Sample Reference				BH2006
Sample Number				ES1
Depth (m)				0.90
Date Sampled				08/05/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4.6
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18
Barium (aqua regia extractable)	mg/kg	1	MCERTS	260
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.8
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	150
Lead (aqua regia extractable)	mg/kg	1	MCERTS	370
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	150

Petroleum Hydrocarbons

TPHCWG - Aliphatic >C5 - C6 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C6 - C8 HS_ID_AL	mg/kg	0.02	NONE	< 0.020
TPHCWG - Aliphatic >C8 - C10 HS_ID_AL	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aliphatic >C10 - C12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aliphatic >C12 - C16 EH_CU_ID_AL	mg/kg	2	MCERTS	3
TPHCWG - Aliphatic >C16 - C21 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C21 - C35 EH_CU_ID_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >C5 - C35 EH_CU+HS_ID_AL	mg/kg	10	NONE	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	NONE	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.05	NONE	< 0.050
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	1.3
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	5.7
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	17
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	25
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	48

Petroleum Range Organics (C6 - C10) HS_ID_TOTAL	mg/kg	1	ISO 17025	< 1.0
TPH (C10 - C25) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	41
TPH (C25 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	22

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-018704
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				194345
Sample Reference				BH2006
Sample Number				ES1
Depth (m)				0.90
Date Sampled				08/05/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	8.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	5.2
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1
Sulphate as SO ₄	mg/l	0.045	ISO 17025	16.9
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	3

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	3.6
Barium (dissolved)	µg/l	0.05	ISO 17025	31
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	46
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	3.6
Copper (dissolved)	µg/l	0.7	ISO 17025	11
Lead (dissolved)	µg/l	1	ISO 17025	1.5
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0621
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.6
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.1

Calcium (dissolved)	mg/l	0.012	ISO 17025	16
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Analytical Report Number: 24-018704
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number		194345		
Sample Reference		BH2006		
Sample Number		ES1		
Depth (m)		0.90		
Date Sampled		08/05/2024		
Time Taken		None Supplied		
Analytical Parameter (Leachate Analysis)		Units	Limit of detection	Accreditation Status
Petroleum Hydrocarbons				
Petroleum Range Organics (C6 - C10) <small>HS_ID_TOTAL</small>		µg/l	10	NONE
				< 10
TPH (C10 - C25) <small>EH_ID_TOTAL_MS</small>		µg/l	10	NONE
				< 10
TPH (C25 - C40) <small>EH_ID_TOTAL_MS</small>		µg/l	10	NONE
				< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-018704

Project / Site name: ID Manchester

* 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 *
194345	BH2006	ES1	0.9	Brown clay and sand with gravel

Analytical Report Number : 24-018704
Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE

Analytical Report Number : 24-018704
Project / Site name: ID Manchester

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
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	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	L080	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	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	L080	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In-house method	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Analytical Report Number : 24-018704
Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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 : 24-041756

Replaces Analytical Report Number: 24-041756, issue no. 2
Client references/information amended.
Sample ID for Sample 314653 amended, as per client's request

Project / Site name:	ID Manchester	Samples received on:	11/09/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	13/09/2024
Your order number:	PO-0060	Analysis completed by:	26/09/2024
Report Issue Number:	3	Report issued on:	11/10/2024
Samples Analysed:	3 soil samples - 1 leachate sample		

Signed: 

Claire Bancroft
Customer Service Advisor
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: 24-041756
Project / Site name: ID Manchester
Your Order No: PO-0060

Lab Sample Number	314653	314654	314655
Sample Reference	WS2007A	WS2008	WS2009
Sample Number	ES3	ES2	ES2
Depth (m)	2.80	1.30	1.90
Date Sampled	10/09/2024	10/09/2024	10/09/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	11	10
Total mass of sample received	kg	0.1	NONE	1.2	0.4	1.1

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.8	10.2	10.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	310	300	3100
Organic Matter (automated)	%	0.1	MCERTS	1.4	< 0.1	0.5

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 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	0.14
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.07
Phenanthrene	mg/kg	0.05	MCERTS	0.08	< 0.05	0.89
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.19
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.1
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.96
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.42
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.5
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.46
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.21
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.42
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23
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	0.28
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	5.87
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	< 0.85	5.87

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.2	1.6	3.1
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	3.4	1.6	16
Barium (aqua regia extractable)	mg/kg	1	MCERTS	33	48	150
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.42	0.38	1
Boron (water soluble)	mg/kg	0.2	MCERTS	1	0.5	2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	9.3	7.1	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.3	7.1	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	47	53

Analytical Report Number: 24-041756

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				314653	314654	314655
Sample Reference				WS2007A	WS2008	WS2009
Sample Number				ES3	ES2	ES2
Depth (m)				2.80	1.30	1.90
Date Sampled				10/09/2024	10/09/2024	10/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6.7	2.4	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	9.1	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	12	11	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	33	15	35

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10

Petroleum Range Organics (EC6 - EC10) _{HS_1D_TOTAL}	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC25) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH (EC25 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	< 10	< 10	< 10

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	-	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	-	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	-	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	-	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0

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Lab Sample Number				314653	314654	314655
Sample Reference				WS2007A	WS2008	WS2009
Sample Number				ES3	ES2	ES2
Depth (m)				2.80	1.30	1.90
Date Sampled				10/09/2024	10/09/2024	10/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	-	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	-	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	-	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	-	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3

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Lab Sample Number				314653	314654	314655
Sample Reference				WS2007A	WS2008	WS2009
Sample Number				ES3	ES2	ES2
Depth (m)				2.80	1.30	1.90
Date Sampled				10/09/2024	10/09/2024	10/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	-	< 0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	< 0.2
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	-	< 0.30
Carbazole	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	-	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	< 0.3

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-041756
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				314653
Sample Reference				WS2007A
Sample Number				ES3
Depth (m)				2.80
Date Sampled				10/09/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	5.6
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	179
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.9

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	4.5
Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0
Barium (dissolved)	µg/l	0.05	ISO 17025	92
Beryllium (dissolved)	µg/l	0.2	ISO 17025	0.3
Boron (dissolved)	µg/l	10	ISO 17025	140
Cadmium (dissolved)	µg/l	0.08	ISO 17025	0.68
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	14
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0
Mercury - CV-AFS	µg/l	0.007	ISO 17025	< 0.0070
Nickel (dissolved)	µg/l	0.3	ISO 17025	37
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	110

Calcium (dissolved)	mg/l	0.012	ISO 17025	63
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Petroleum Hydrocarbons

Analytical Report Number: 24-041756
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				314653
Sample Reference				WS2007A
Sample Number				ES3
Depth (m)				2.80
Date Sampled				10/09/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Petroleum Range Organics (EC6 - EC10) HS_ID_TOTAL	µg/l	10	NONE	< 10
TPH (EC10 - EC25) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10
TPH (EC25 - EC40) EH_ID_TOTAL_MS	µg/l	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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* 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 *
314653	WS2007A	ES3	2.8	Brown sand
314654	WS2008	ES2	1.3	Brown sand
314655	WS2009	ES2	1.9	Brown sand

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Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088-PL	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE

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Project / Site name: ID Manchester

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
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	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	L080-PL	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	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	L080-PL	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
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 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		ISO 17025
Organic 2:1 Leachate		In house method based on BS EN 12457-1	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))

Analytical Report Number : 24-041756

Project / Site name: ID Manchester

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
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 - underscore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



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Analytical Report Number : 24-017434

Project / Site name:	ID Manchester	Samples received on:	23/04/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	02/05/2024
Your order number:	PO-0060	Analysis completed by:	08/05/2024
Report Issue Number:	1	Report issued on:	09/05/2024
Samples Analysed:	10:1 WAC sample		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



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Waste Acceptance Criteria Analytical Results

Report No:	24-017434					
				Client: CIVICEARTH		
Location	ID Manchester					
Lab Reference (Sample Number)	187307			Landfill Waste Acceptance Criteria		
				Limits		
Sampling Date	19/04/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH2001 ES3					
Depth (m)	3.00					
Solid Waste Analysis						
TOC (%)**	1.1			3%	5%	6%
Loss on Ignition (%) **	2.5			--	--	10%
BTEX (µg/kg) **	< 5.0			6000	--	--
Sum of PCBs (mg/kg) **	< 0.007			1	--	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	63			500	--	--
Total PAH (WAC-17) (mg/kg)	12.3			100	--	--
pH (units)**	6.7			--	>6	--
Acid Neutralisation Capacity (mmol / kg)	-2.7			--	To be evaluated	To be evaluated
Eluate Analysis						
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1		10:1	Limit values for compliance leaching test		
	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.00328		0.0328	0.5	2	25
Barium *	0.0383		0.383	20	100	300
Cadmium *	< 0.000100		< 0.00100	0.04	1	5
Chromium *	0.0030		0.030	0.5	10	70
Copper *	0.017		0.17	2	50	100
Mercury *	< 0.000500		< 0.00500	0.01	0.2	2
Molybdenum *	0.00230		0.0230	0.5	10	30
Nickel *	0.0021		0.021	0.4	10	40
Lead *	0.024		0.24	0.5	10	50
Antimony *	< 0.0017		< 0.017	0.06	0.7	5
Selenium *	< 0.0040		< 0.040	0.1	0.5	7
Zinc *	0.027		0.27	4	50	200
Chloride *	0.45		4.5	800	15000	25000
Fluoride*	0.19		1.9	10	150	500
Sulphate *	17		170	1000	20000	50000
TDS*	52		520	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-
DOC	6.34		63.4	500	800	1000
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	1.2					
Dry Matter (%)	84					
Moisture (%)	16					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

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

Analytical Report Number : 24-017434

Project / Site name: ID Manchester

* 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 *
187307	BH2001	ES3	3	Brown clay and sand with gravel

Analytical Report Number : 24-017434

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-017434

Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



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Analytical Report Number : 24-017440

Project / Site name:	ID Manchester	Samples received on:	19/04/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	02/05/2024
Your order number:	PO 0060	Analysis completed by:	08/05/2024
Report Issue Number:	1	Report issued on:	09/05/2024
Samples Analysed:	3 10:1 WAC samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



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Waste Acceptance Criteria Analytical Results

Report No:	24-017440						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	187325				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	17/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS2003 1						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	1.2				3%	5%	6%
Loss on Ignition (%) **	2.0				--	--	10%
BTEX (µg/kg) **	-				6000	--	--
Sum of PCBs (mg/kg) **	-				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	-				500	--	--
Total PAH (WAC-17) (mg/kg)	-				100	--	--
pH (units)**	8.2				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	19				--	To be evaluated	To be evaluated
Eluate Analysis		10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	0.00203			0.0203	0.5	2	25
Barium *	0.0131			0.131	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	< 0.00040			< 0.0040	0.5	10	70
Copper *	0.0059			0.059	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00180			0.0180	0.5	10	30
Nickel *	0.00065			0.0065	0.4	10	40
Lead *	0.0022			0.022	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0027			0.027	4	50	200
Chloride *	2.6			26	800	15000	25000
Fluoride*	0.24			2.4	10	150	500
Sulphate *	4.5			45	1000	20000	50000
TDS*	45			450	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.49			84.9	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	96						
Moisture (%)	4.4						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** = MCERTS accredited		

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



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Waste Acceptance Criteria Analytical Results

Report No:	24-017440						
					Client: CIVICEARTH		
Location	ID Manchester						
Lab Reference (Sample Number)	187327				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	17/04/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH2004 1						
Depth (m)	1.20						
Solid Waste Analysis							
TOC (%)**	0.6				3%	5%	6%
Loss on Ignition (%) **	1.2				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) <small>EH, ID, CU, AL</small>	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	17.2				100	--	--
pH (units)**	8.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.36				--	To be evaluated	To be evaluated
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.00603			0.0603	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	< 0.00040			< 0.0040	0.5	10	70
Copper *	0.0062			0.062	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.000510			0.00510	0.5	10	30
Nickel *	0.00037			0.0037	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0024			0.024	4	50	200
Chloride *	0.69			6.9	800	15000	25000
Fluoride*	0.24			2.4	10	150	500
Sulphate *	3.3			33	1000	20000	50000
TDS*	28			280	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.06			80.6	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.0						
Dry Matter (%)	91						
Moisture (%)	9.3						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.					* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation					** - MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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Analytical Report Number : 24-017440

Project / Site name: ID Manchester

* 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 *
187325	WS2003	1	0.5	Brown sand with gravel and vegetation
187326	WS2004	2	1	Brown loam and sand with gravel and brick
187327	BH2004	1	1.2	Brown loam and sand with gravel and vegetation

Analytical Report Number : 24-017440

Project / Site name: ID Manchester

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

Analytical Report Number : 24-017440

Project / Site name: ID Manchester

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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
WAC Leachate 10:1		In-house method	L043B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report



Analytical Report Number : 24-017440

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH2004	1	S	187327	c	BTEX and/or Volatile organic compounds in soil	L073B	c
BH2004	1	S	187327	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c
WS2004	2	S	187326	c	BTEX and/or Volatile organic compounds in soil	L073B	c
WS2004	2	S	187326	c	Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	L076B/L088	c

Civic Earth Limited
Carvers Warehouse
77 Dale Street
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M1 2HG

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Analytical Report Number : 25-013669

Project / Site name:	ID Manchester	Samples received on:	18/03/2025
Your job number:	51019 02	Samples instructed on/ Analysis started on:	18/03/2025
Your order number:	PO-0240	Analysis completed by:	26/03/2025
Report Issue Number:	1	Report issued on:	26/03/2025
Samples Analysed:	5 soil samples - 1 leachate sample		

Signed:



Trevor Hill
Customer Service Advisor
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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-013669

Project / Site name: ID Manchester

Your Order No: PO-0240

Lab Sample Number				486127	486128	486129	486130	486131
Sample Reference				BH1016A	BH1016A	BH1016A	BH1016A	BH1016A
Sample Number				2	3	4	5	6
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				1.00	3.70	4.60	6.70	6.90
Date Sampled				17/03/2025	17/03/2025	17/03/2025	17/03/2025	17/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Stone Content	%	0.1	NONE	23.8	42.6	< 0.1	75.1	50.6
Moisture Content	%	0.01	NONE	11	10	17	7.8	8.4
Total mass of sample received	kg	0.1	NONE	0.6	0.6	0.6	0.6	0.6

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected	-	-
Asbestos Analyst ID	N/A	N/A	N/A	MUA	MUA	MUA	-	-
Analysis completed	N/A	N/A	N/A	24/03/2025	24/03/2025	24/03/2025	-	-
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	0.002	-	-	-	-
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Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres	-	-	-	-
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General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9.9	8.5	8.1	8.1	8
Total Cyanide	mg/kg	1	MCERTS	5.2	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1900	790	830	130	120
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	-	-
Organic Matter (automated)	%	0.1	MCERTS	2.3	1.7	1.5	1.2	1.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.34	< 0.05	< 0.05	0.72	0.13
Acenaphthylene	mg/kg	0.05	MCERTS	0.24	< 0.05	0.08	1.4	0.54
Acenaphthene	mg/kg	0.05	MCERTS	0.29	< 0.05	< 0.05	0.06	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.31	< 0.05	< 0.05	0.43	0.18
Phenanthrene	mg/kg	0.05	MCERTS	3.3	< 0.05	0.05	0.45	0.19
Anthracene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	0.59	0.15
Fluoranthene	mg/kg	0.05	MCERTS	5.4	0.06	0.06	1.2	0.28
Pyrene	mg/kg	0.05	MCERTS	5.1	< 0.05	0.11	2.8	0.51
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.2	0.05	< 0.05	1.5	0.3
Chrysene	mg/kg	0.05	MCERTS	2.4	0.06	< 0.05	1.9	0.62
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.2	0.08	0.13	2.9	1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.3	< 0.05	< 0.05	1.2	0.51
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.3	0.1	0.14	3.8	1.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05	1.1	0.48
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	0.26	< 0.05	< 0.05	0.6	0.18
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.3	< 0.05	0.09	1.9	0.82
Coronene	mg/kg	0.05	NONE	0.25	< 0.05	< 0.05	0.68	< 0.05

Total PAH

Analytical Report Number: 25-013669

Project / Site name: ID Manchester

Your Order No: PO-0240

Lab Sample Number				486127	486128	486129	486130	486131
Sample Reference				BH1016A	BH1016A	BH1016A	BH1016A	BH1016A
Sample Number				2	3	4	5	6
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				1.00	3.70	4.60	6.70	6.90
Date Sampled				17/03/2025	17/03/2025	17/03/2025	17/03/2025	17/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Total WAC-17 PAHs	mg/kg	0.85	NONE	29.3	< 0.85	< 0.85	23.2	7.45

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.2	3.1	2.7	1.1	1.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	28	12	5.7	4.6
Barium (aqua regia extractable)	mg/kg	1	MCERTS	350	85	160	22	26
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.5	1.4	0.47	0.36
Boron (water soluble)	mg/kg	0.2	MCERTS	2.6	1.3	2.1	0.8	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	20	13	26	7.7	13
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	13	26	8.1	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	88	83	74	42	41
Lead (aqua regia extractable)	mg/kg	1	MCERTS	65	90	27	4.7	6.7
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.6	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	23	35	12	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	21	31	11	16
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	64	49	70	23	33

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	7.4	< 2.0	< 2.0	9.6	2.8
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	21	< 8.0	< 8.0	18	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	59	< 8.0	< 8.0	37	12
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	87	< 10	< 10	65	15

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	0.015	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	1.1	< 1.0	< 1.0	1.3	2
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	3.7	< 2.0	< 2.0	16	9.8
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	23	< 10	< 10	80	22
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	36	< 10	< 10	230	71
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	64	< 10	< 10	330	100

Petroleum Range Organics (EC6 - EC10) _{HS_1D_TOTAL}	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC25) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	85	< 10	< 10	210	68
TPH (EC25 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	83	< 10	< 10	200	63

VOCs

Chloromethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Chloroethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Bromomethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	-	-	< 5.0	< 5.0	-
Trichlorofluoromethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,1-Dichloroethene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-

Analytical Report Number: 25-013669

Project / Site name: ID Manchester

Your Order No: PO-0240

Lab Sample Number				486127	486128	486129	486130	486131
Sample Reference				BH1016A	BH1016A	BH1016A	BH1016A	BH1016A
Sample Number				2	3	4	5	6
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				1.00	3.70	4.60	6.70	6.90
Date Sampled				17/03/2025	17/03/2025	17/03/2025	17/03/2025	17/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	-	-	< 5.0	< 5.0	-
Chloroform	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,2-Dichloroethane	µg/kg	7	MCERTS	-	-	< 7.0	< 7.0	-
1,1-Dichloropropene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	15	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,2-Dichloropropane	µg/kg	6	MCERTS	-	-	< 6.0	< 6.0	-
Trichloroethene	µg/kg	10	MCERTS	-	-	81	< 10	-
Dibromomethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Bromodichloromethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	-	-	< 10	< 10	-
Toluene	µg/kg	5	MCERTS	< 5.0	9.3	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	-	-	< 6.0	< 6.0	-
1,3-Dichloropropane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Dibromochloromethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Tetrachloroethene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,2-Dibromoethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Chlorobenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Bromoform	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	-	-	< 5.0	< 5.0	-
Bromobenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
n-Propylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
2-Chlorotoluene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
4-Chlorotoluene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
tert-Butylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
sec-Butylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,3-Dichlorobenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
p-Isopropyltoluene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,4-Dichlorobenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,2-Dichlorobenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Butylbenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	-	-	< 8.0	< 8.0	-
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
Hexachlorobutadiene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	-	-	< 5.0	< 5.0	-

SVOCs

Analytical Report Number: 25-013669

Project / Site name: ID Manchester

Your Order No: PO-0240

Lab Sample Number				486127	486128	486129	486130	486131
Sample Reference				BH1016A	BH1016A	BH1016A	BH1016A	BH1016A
Sample Number				2	3	4	5	6
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				1.00	3.70	4.60	6.70	6.90
Date Sampled				17/03/2025	17/03/2025	17/03/2025	17/03/2025	17/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Aniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	-	-	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	-	-	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	-	-	< 0.1	0.2	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	-	-	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	-	< 0.1	< 0.1	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	-	-	< 0.2	0.3	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Azobenzene	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	-	< 0.2	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	-	< 0.30	< 0.30	-
Carbazole	mg/kg	0.3	MCERTS	-	-	< 0.3	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	-	-	< 0.2	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	-	< 0.3	< 0.3	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



4041



Analytical Report Number: 25-013669
Project / Site name: ID Manchester
Your Order No: PO-0240

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample	Analysis completed	Analyst ID
486127	BH1016A	1.00	152	Loose Fibres	Chrysotile	0.002	0.002	24/03/2025	MUA

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number: 25-013669

Project / Site name: ID Manchester

Your Order No: PO-0240

Lab Sample Number				486128
Sample Reference				BH1016A
Sample Number				3
Water Matrix				N/A
Depth (m)				3.70
Date Sampled				17/03/2025
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	7.9
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	12
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1
Sulphate as SO ₄	mg/l	0.045	ISO 17025	122
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	3.6

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	2.4
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	0.35
Acenaphthylene	µg/l	0.01	NONE	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01
Fluorene	µg/l	0.01	NONE	< 0.01
Phenanthrene	µg/l	0.01	NONE	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	0.35
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	8.8
Barium (dissolved)	µg/l	0.05	ISO 17025	23
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	110
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1
Copper (dissolved)	µg/l	0.7	ISO 17025	6
Lead (dissolved)	µg/l	1	ISO 17025	3.5
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0075
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3
Selenium (dissolved)	µg/l	4	ISO 17025	7.7
Vanadium (dissolved)	µg/l	1.7	ISO 17025	2.4
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.4

Calcium (dissolved)	mg/l	0.012	ISO 17025	42
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Analytical Report Number: 25-013669

Project / Site name: ID Manchester

Your Order No: PO-0240

Lab Sample Number				486128
Sample Reference				BH1016A
Sample Number				3
Water Matrix				N/A
Depth (m)				3.70
Date Sampled				17/03/2025
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Petroleum Hydrocarbons

Petroleum Range Organics (EC6 - EC10) _{HS_ID_TOTAL}	µg/l	10	NONE	< 10
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TPH (EC10 - EC25) _{EH_ID_TOTAL_MS}	µg/l	10	NONE	< 10
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TPH (EC25 - EC40) _{EH_ID_TOTAL_MS}	µg/l	10	NONE	< 10
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-013669

Project / Site name: ID Manchester

* 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 *
486127	BH1016A	2	1	Brown sand with gravel and stones
486128	BH1016A	3	3.7	Brown clay and sand with gravel and stones
486129	BH1016A	4	4.6	Brown clay with gravel
486130	BH1016A	5	6.7	Brown sand with gravel and stones
486131	BH1016A	6	6.9	Brown sand with gravel and stones

Analytical Report Number : 25-013669

Project / Site name: ID Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088-PL	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL	W	NONE

Analytical Report Number : 25-013669

Project / Site name: ID Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide (low level) in leachate	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	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	L080-PL	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	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	L080-PL	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC-MS	In-house method	L129-PL	W	ISO 17025
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 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		NONE
Organic 2:1 Leachate		In house method based on BS EN 12457-1	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Analytical Report Number : 25-013669

Project / Site name: ID Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

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Analytical Report Number : 24-047735

Replaces Analytical Report Number: 24-047735, issue no. 1

Additional analysis undertaken.

Clients Leachate Suite 3 added to sample 348386 as per clients request

Project / Site name:	ID Manchester	Samples received on:	14/10/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	14/10/2024
Your order number:	PO 0184	Analysis completed by:	06/11/2024
Report Issue Number:	2	Report issued on:	18/11/2024
Samples Analysed:	2 soil samples - 1 leachate sample		


Signed:

Matthew O'Connell
Key Account 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

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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: 24-047735
Project / Site name: ID Manchester
Your Order No: PO 0184

Lab Sample Number	348385	348386
Sample Reference	BH1017	BH1017
Sample Number	1	2
Depth (m)	0.30	1.10
Date Sampled	09/10/2024	09/10/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection
		Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	9.3
Moisture Content	%	0.01	NONE	19	19
Total mass of sample received	kg	0.1	NONE	0.6	0.6

Asbestos

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

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.3	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	500	570
Organic Matter (automated)	%	0.1	MCERTS	4.6	2.5

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.06	0.41
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.31
Phenanthrene	mg/kg	0.05	MCERTS	0.56	2.5
Anthracene	mg/kg	0.05	MCERTS	0.13	0.71
Fluoranthene	mg/kg	0.05	MCERTS	1.1	3.2
Pyrene	mg/kg	0.05	MCERTS	1.1	2.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.52	1.2
Chrysene	mg/kg	0.05	MCERTS	0.66	1.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.7	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.34	0.52
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.6	1.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.31	0.48
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.37	0.55
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	6.57	15.9
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Analytical Report Number: 24-047735
Project / Site name: ID Manchester
Your Order No: PO 0184

Lab Sample Number	348385	348386
Sample Reference	BH1017	BH1017
Sample Number	1	2
Depth (m)	0.30	1.10
Date Sampled	09/10/2024	09/10/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection
		Test Accreditation Status

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	5.2	3.1
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	31	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130	120
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1	0.64
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.1	0.6
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	97	50
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	98	51
Copper (aqua regia extractable)	mg/kg	1	MCERTS	60	31
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	56
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.5	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	64

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	17	42
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	17	42

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	10	22
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	10	22

Petroleum Range Organics (EC6 - EC10) _{HS_1D_TOTAL}	mg/kg	1	ISO 17025	< 1.0	< 1.0
TPH (EC10 - EC25) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	18	24
TPH (EC25 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	17	62

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0

Analytical Report Number: 24-047735
 Project / Site name: ID Manchester
 Your Order No: PO 0184

Lab Sample Number				348385	348386
Sample Reference				BH1017	BH1017
Sample Number				1	2
Depth (m)				0.30	1.10
Date Sampled				09/10/2024	09/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0

Analytical Report Number: 24-047735
Project / Site name: ID Manchester
Your Order No: PO 0184

Lab Sample Number				348385	348386
Sample Reference				BH1017	BH1017
Sample Number				1	2
Depth (m)				0.30	1.10
Date Sampled				09/10/2024	09/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection
				Test Accreditation Status	

SVOCs

Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	NONE	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	< 0.1	0.1
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.30	< 0.30
Carbazole	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-047735
Project / Site name: ID Manchester

Your Order No: PO 0184

Lab Sample Number				348386
Sample Reference				BH1017
Sample Number				2
Depth (m)				1.10
Date Sampled				09/10/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status	

General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	8
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	46
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.7

Total Phenols

Total Phenols (monohydric) low level	µg/l	1	NONE	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01
Acenaphthene	µg/l	0.01	NONE	0.19
Fluorene	µg/l	0.01	NONE	0.15
Phenanthrene	µg/l	0.01	NONE	0.26
Anthracene	µg/l	0.01	NONE	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	NONE	0.6
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	3.7
Barium (dissolved)	µg/l	0.05	ISO 17025	49
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	100
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.9
Copper (dissolved)	µg/l	0.7	ISO 17025	17
Lead (dissolved)	µg/l	1	ISO 17025	1.5
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.0082
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.7
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	3.6
Zinc (dissolved)	µg/l	0.4	ISO 17025	13

Calcium (dissolved)	mg/l	0.012	ISO 17025	24
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Petroleum Hydrocarbons

Analytical Report Number: 24-047735
Project / Site name: ID Manchester

Your Order No: PO 0184

Lab Sample Number				348386
Sample Reference				BH1017
Sample Number				2
Depth (m)				1.10
Date Sampled				09/10/2024
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Petroleum Range Organics (EC6 - EC10) <small>HS_1D_TOTAL</small>	µg/l	10	NONE	< 10
TPH (EC10 - EC25) <small>EH_1D_TOTAL_MS</small>	µg/l	10	NONE	< 10
TPH (EC25 - EC40) <small>EH_1D_TOTAL_MS</small>	µg/l	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-047735

Project / Site name: ID Manchester

* 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 *
348385	BH1017	1	0.3	Brown loam with gravel and vegetation
348386	BH1017	2	1.1	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-047735

Project / Site name: ID Manchester

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L038B	D	MCERTS
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	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-MS/GC-MS HS in leachate	Determination of total petroleum hydrocarbons in leachate by GC-MS/GC-MS HS	In-house method	L070B/L088-PL	W	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in leachate	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL	W	NONE
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE

Analytical Report Number : 24-047735
Project / Site name: ID Manchester

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
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols (low level) in leachate	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	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	L080-PL	W	MCERTS
Total cyanide (low level) in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	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	L080-PL	W	MCERTS
Mercury Low Level in leachate	Mercury in leachate by CV-AFS	In-house method based on USEPA method 1631	L085B	W	ISO 17025
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 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in leachate	SVOCs and PAHs in leachate	In-house method	L102B		NONE
Organic 2:1 Leachate		In house method based on BS EN 12457-1	L020B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Analytical Report Number : 24-047735
Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Appendix F

Chemical Water Laboratory Analysis Results



4041



Civic Earth Limited
Carvers Warehouse
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Manchester
M1 2HG

i2 Analytical Ltd.
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Croxley Green
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Analytical Report Number : 24-020044

Replaces Analytical Report Number: 24-020044, issue no. 1
Additional analysis undertaken.
Dissolved Tin added to samples 201287 & 201291 by laboratory

Project / Site name:	ID Manchester	Samples received on:	16/05/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	16/05/2024
Your order number:	PO-0059	Analysis completed by:	29/05/2024
Report Issue Number:	2	Report issued on:	03/06/2024
Samples Analysed:	9 water samples		

Signed:

Joanna Szwagrak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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



4041



Environmental Science

Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201286	201287	201288	201289	201290
Sample Reference				BH1008	BH1007	WS1012	BH1013A	BH1002
Sample Number				W1	W1	W1	W1	W1
Depth (m)				6.50	6.00	4.50	1.00	16.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024	14/05/2024
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 (L099)	pH Units	N/A	ISO 17025	7.1	7.1	7.3	7	7.3
Total Cyanide	µg/l	10	ISO 17025	-	-	97	-	-
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	-	-	4.4	2.5
Free Cyanide	µg/l	10	ISO 17025	-	-	< 10	-	-
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	-	-	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	38.5	I/S	88.1	62.4	63.4
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	27	4300	4400	< 15	< 15
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.2	3.44	8.09	1.19	1.4
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	251	I/S	549	179	233
Redox Potential	mV	-800	NONE	201.4	83.6	196.5	195.4	195.3

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	0.34	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	0.08	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	0.63	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	0.59	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	0.39	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	0.42	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	0.45	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	0.18	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	0.38	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	0.19	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	0.23	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	3.88	< 0.16	< 0.16	< 0.16
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Environmental Science

Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201286	201287	201288	201289	201290
Sample Reference				BH1008	BH1007	WS1012	BH1013A	BH1002
Sample Number				W1	W1	W1	W1	W1
Depth (m)				6.50	6.00	4.50	1.00	16.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024	14/05/2024
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

Antimony (dissolved)	µg/l	0.4	ISO 17025	0.8	I/S	1	1.2	0.8
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.36	I/S	0.97	0.36	< 0.15
Barium (dissolved)	µg/l	0.06	ISO 17025	130	I/S	200	120	130
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	I/S	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.1	I/S	0.07	0.06	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	I/S	0.2	0.3	1.7
Copper (dissolved)	µg/l	0.5	ISO 17025	1.6	I/S	3.8	1.8	1.4
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	I/S	0.8	1.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	I/S	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.7	I/S	9.6	1.8	< 0.5
Selenium (dissolved)	µg/l	0.6	ISO 17025	2.8	I/S	0.9	4.2	0.8
Tin (dissolved)	µg/l	0.2	ISO 17025	-	I/S	-	-	-
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	I/S	0.5	0.5	0.8
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.3	I/S	7.6	4.5	5.2

Boron (dissolved)	µg/l	10	ISO 17025	89	I/S	100	55	85
Calcium (dissolved)	mg/l	0.012	ISO 17025	78	I/S	100	60	42
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	I/S	< 5.0	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >C5 - C6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C6 - C8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C8 - C10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C10 - C12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C12 - C16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C16 - C21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C21 - C35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >C5 - C35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	15	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	20	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	20	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	55	< 10	< 10	< 10



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Environmental Science

Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201286	201287	201288	201289	201290
Sample Reference				BH1008	BH1007	WS1012	BH1013A	BH1002
Sample Number				W1	W1	W1	W1	W1
Depth (m)				6.50	6.00	4.50	1.00	16.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201286	201287	201288	201289	201290
Sample Reference				BH1008	BH1007	WS1012	BH1013A	BH1002
Sample Number				W1	W1	W1	W1	W1
Depth (m)				6.50	6.00	4.50	1.00	16.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10



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Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201286	201287	201288	201289	201290
Sample Reference				BH1008	BH1007	WS1012	BH1013A	BH1002
Sample Number				W1	W1	W1	W1	W1
Depth (m)				6.50	6.00	4.50	1.00	16.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status		
Organotin								
Tributyltin (chloride)				µg/l	0.01	NONE	-	< 0.01
							-	-
							-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201291	201292	201293	201294
Sample Reference				BH1006	BH1001	BH1005	BH1005
Sample Number				W1	W1	W1	W2
Depth (m)				7.00	10.00	6.50	6.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.1	7.5	7.4	7.4
Total Cyanide	µg/l	10	ISO 17025	-	-	24	20
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	2.3	2.7	-	-
Free Cyanide	µg/l	10	ISO 17025	-	-	< 10	< 10
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	-	-
Sulphate as SO ₄	mg/l	0.045	ISO 17025	215	19.1	49.8	46.8
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	48	46	1200	1100
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	1.69	4.78	1.99	1.59
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	529	155	162	162
Redox Potential	mV	-800	NONE	199.6	200.8	128.6	139.3

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.9	2.1
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.09
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.13	0.21
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.07
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	0.11	0.08	0.18
Pyrene	µg/l	0.01	ISO 17025	< 0.01	0.14	0.09	0.18
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	0.25	3.2	2.78
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Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201291	201292	201293	201294
Sample Reference				BH1006	BH1001	BH1005	BH1005
Sample Number				W1	W1	W1	W2
Depth (m)				7.00	10.00	6.50	6.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	1.2	1.1	1	0.9
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.87	0.82	4.41	3.34
Barium (dissolved)	µg/l	0.06	ISO 17025	110	61	76	72
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.06	< 0.02	0.03	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	1	1.4	1.6	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	1.3	3.5	2	1.5
Lead (dissolved)	µg/l	0.2	ISO 17025	1.4	0.9	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.5	0.6	17	1
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.3	1	< 0.6	< 0.6
Tin (dissolved)	µg/l	0.2	ISO 17025	< 0.20	-	-	-
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.5	0.7	0.3	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	2.4	1.3	4.9	2

Boron (dissolved)	µg/l	10	ISO 17025	200	32	39	44
Calcium (dissolved)	mg/l	0.012	ISO 17025	190	47	53	54
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >C5 - C6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C6 - C8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C8 - C10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C10 - C12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >C12 - C16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >C16 - C21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >C21 - C35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >C5 - C35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	25	42
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	20	35
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	14	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	69	77



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Environmental Science

Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201291	201292	201293	201294
Sample Reference				BH1006	BH1001	BH1005	BH1005
Sample Number				W1	W1	W1	W2
Depth (m)				7.00	10.00	6.50	6.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-020044

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201291	201292	201293	201294
Sample Reference				BH1006	BH1001	BH1005	BH1005
Sample Number				W1	W1	W1	W2
Depth (m)				7.00	10.00	6.50	6.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10

Analytical Report Number: 24-020044
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				201291	201292	201293	201294
Sample Reference				BH1006	BH1001	BH1005	BH1005
Sample Number				W1	W1	W1	W2
Depth (m)				7.00	10.00	6.50	6.00
Date Sampled				14/05/2024	14/05/2024	14/05/2024	14/05/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection	Accreditation Status	
Organotin							
Tributyltin (chloride)				µg/l	0.01	NONE	< 0.01 - - -

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number : 24-020044

Project / Site name: ID Manchester

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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	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	L039B	W	ISO 17025
Organotins in water	Determination of organotins compounds in water by GC-MS	In-house method		W	NONE
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by GC-MS in water	Determination of total petroleum hydrocarbons in water by GC-MS/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium III in water	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
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	W	ISO 17025
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	L080	W	NONE
Free cyanide 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	L080	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Total cyanide (low level) 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	L080	W	NONE
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	L080	W	ISO 17025
Redox Potential of water	Determination of conductivity of water by conductivity meter	In-house method	L084	W	NONE
Total petroleum hydrocarbons by GC-MS HS in water	Determination of total petroleum hydrocarbons in water by GC-MS HS	In-house method	L088	W	ISO 17025

Analytical Report Number : 24-020044

Project / Site name: ID Manchester

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
pH at 20°C in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method	L099	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAH) in leachate by extraction in dichloromethane followed by GC-MS	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE
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, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

*I/S - Insufficient sample for analysis.



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Environmental Science

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Analytical Report Number : 24-024760

Replaces Analytical Report Number: 24-024760, issue no. 1

Client sampling date amended.

Sample Date amended for Sample No 225845, as per client's request

Project / Site name:	ID Manchester	Samples received on:	12/06/2024
Your job number:	51019-02	Samples instructed on/ Analysis started on:	12/06/2024
Your order number:	PO-0059	Analysis completed by:	19/06/2024
Report Issue Number:	2	Report issued on:	23/07/2024
Samples Analysed:	9 water samples		

Signed:

Anna Goc
PL Head of 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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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				225844	225845	225846	225847	225848
Sample Reference				BH1008	BH1007	BH1013A	BH1002	WS1001
Sample Number				ES1	ES1	ES1	ES1	ES1
Depth (m)				7.00	7.00	6.50	12.00	4.00
Date Sampled				11/06/2024	11/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Test Limit of detection	Test Accreditation Status		

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.2	7.4	7.2	7.5	7.4
Total Cyanide	µg/l	10	ISO 17025	-	41	-	-	-
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	-	6.8	3.5	6.4
Free Cyanide	µg/l	10	ISO 17025	-	< 10	-	-	-
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	-	< 1.0	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	42.9	119	91.3	68.7	88.3
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	130	160	< 15	50	1100
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.13	1.63	1.1	2.09	10
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	296	275	233	274	567
Redox Potential	mV	-800	NONE	19.3	15.2	48.9	26.7	29.5

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	-	< 10	-	-	-
Total Phenols (Monohydric) Low Level	µg/l	1	NONE	< 1.0	-	< 1.0	1.2	< 1.0

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.06	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.04	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.31	< 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	0.31	0.09
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.26	0.09
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.12	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.11	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.13	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.04	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.1	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	1.48	0.18
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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				225844	225845	225846	225847	225848
Sample Reference				BH1008	BH1007	BH1013A	BH1002	WS1001
Sample Number				ES1	ES1	ES1	ES1	ES1
Depth (m)				7.00	7.00	6.50	12.00	4.00
Date Sampled				11/06/2024	11/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	1	2	0.9	0.5	3.6
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.85	1.17	0.28	0.15	18.3
Barium (dissolved)	µg/l	0.06	ISO 17025	180	74	130	140	240
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.04	0.98	0.07	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.4	0.6	1.8	0.6
Copper (dissolved)	µg/l	0.5	ISO 17025	1	6.3	2.5	2.2	1.3
Lead (dissolved)	µg/l	0.2	ISO 17025	0.3	71	1.2	< 0.2	3
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	3	4.5	1.3	< 0.5	7.8
Selenium (dissolved)	µg/l	0.6	ISO 17025	2.9	0.8	4.9	1.2	< 0.6
Tin (dissolved)	µg/l	0.2	ISO 17025	-	0.71	-	-	-
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.3	0.2	0.6	0.9	4
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.2	32	4.4	4	3.3

Boron (dissolved)	µg/l	10	ISO 17025	98	50	66	85	140
Calcium (dissolved)	mg/l	0.012	ISO 17025	98	100	80	48	150
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

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	45
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	54
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	96
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	920
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	1100

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				225844	225845	225846	225847	225848
Sample Reference				BH1008	BH1007	BH1013A	BH1002	WS1001
Sample Number				ES1	ES1	ES1	ES1	ES1
Depth (m)				7.00	7.00	6.50	12.00	4.00
Date Sampled				11/06/2024	11/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	225844	225845	225846	225847	225848
Sample Reference	BH1008	BH1007	BH1013A	BH1002	WS1001
Sample Number	ES1	ES1	ES1	ES1	ES1
Depth (m)	7.00	7.00	6.50	12.00	4.00
Date Sampled	11/06/2024	11/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status		

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	0.41
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	1.18
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	1.2
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Organotin

Tributyltin (chloride)	µg/l	0.01	NONE	-	< 0.01	-	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	225849	225859	225860	225861
Sample Reference	WS1002	BH1006	BH1001	BH1005
Sample Number	ES1	ES1	ES1	ES1
Depth (m)	3.50	7.00	8.00	9.50
Date Sampled	10/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.3	7.4	7.6	7.4
Total Cyanide	µg/l	10	ISO 17025	-	-	-	-
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	3.9	1.5	13
Free Cyanide	µg/l	10	ISO 17025	-	-	-	-
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	< 1.0	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	1320	169	14.4	59.5
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	4800	1100	< 15	1200
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	13.1	1.54	3.79	1.59
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	2030	438	181	234
Redox Potential	mV	-800	NONE	58.4	30.8	8.4	28.4

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	-	-	-	-
Total Phenols (Monohydric) Low Level	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	4
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	4.03
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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				225849	225859	225860	225861
Sample Reference				WS1002	BH1006	BH1001	BH1005
Sample Number				ES1	ES1	ES1	ES1
Depth (m)				3.50	7.00	8.00	9.50
Date Sampled				10/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	1.8	0.6	1.5	0.7
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.09	1.73	0.91	2.94
Barium (dissolved)	µg/l	0.06	ISO 17025	68	130	54	78
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.09	0.06	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.9	1.5	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	3.8	2.4	2.5	0.8
Lead (dissolved)	µg/l	0.2	ISO 17025	0.5	0.4	0.5	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	7.6	1.4	< 0.5	1
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.7	2.1	0.8	< 0.6
Tin (dissolved)	µg/l	0.2	ISO 17025	-	< 0.20	-	-
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.4	0.8	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	27	3.9	0.6	< 0.5

Boron (dissolved)	µg/l	10	ISO 17025	490	96	38	52
Calcium (dissolved)	mg/l	0.012	ISO 17025	520	160	60	82
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	24
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	15
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	39

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				225849	225859	225860	225861
Sample Reference				WS1002	BH1006	BH1001	BH1005
Sample Number				ES1	ES1	ES1	ES1
Depth (m)				3.50	7.00	8.00	9.50
Date Sampled				10/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status				
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-024760

Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number	225849	225859	225860	225861
Sample Reference	WS1002	BH1006	BH1001	BH1005
Sample Number	ES1	ES1	ES1	ES1
Depth (m)	3.50	7.00	8.00	9.50
Date Sampled	10/06/2024	11/06/2024	10/06/2024	10/06/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05

3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10
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Organotin

Tributyltin (chloride)	µg/l	0.01	NONE	-	< 0.01	-	-
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number : 24-024760

Project / Site name: ID Manchester

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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	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	L039B	W	ISO 17025
Organotins in water	Determination of organotins compounds in water by GC-MS	In-house method		W	NONE
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by GC-MS in water	Determination of total petroleum hydrocarbons in water by GC-MS/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium III in water	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
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	W	ISO 17025
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	L080	W	NONE
Free cyanide 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	L080	W	ISO 17025
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Total cyanide (low level) 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	L080	W	NONE
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	L080	W	ISO 17025
Redox Potential of water	Determination of conductivity of water by conductivity meter	In-house method	L084	W	NONE



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Analytical Report Number : 24-024760

Project / Site name: ID Manchester

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by GC-MS HS in water	Determination of total petroleum hydrocarbons in water by GC-MS HS	In-house method	L088B	W	ISO 17025
pH at 20°C in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method	L099	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAH) in leachate by extraction in dichloromethane followed by GC-MS	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE
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, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



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Environmental Science

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Analytical Report Number : 24-027987

Project / Site name:	ID Manchester	Samples received on:	27/06/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	01/07/2024
Your order number:	PO-0060	Analysis completed by:	05/07/2024
Report Issue Number:	1	Report issued on:	05/07/2024
Samples Analysed:	2 water samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



Analytical Report Number: 24-027987
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				242693	242694
Sample Reference				WS1012	WS1001
Sample Number				W1	W2
Depth (m)				4.11	4.30
Date Sampled				25/06/2024	25/06/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Limit of detection
				Accreditation Status	

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.5	7.3
Total Cyanide	µg/l	10	ISO 17025	120	-
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	3.5
Free Cyanide	µg/l	10	ISO 17025	< 10	-
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	95	108
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	4000	630
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	5.84	4.44
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	570	645
Redox Potential	mV	-800	NONE	98.1	111.1

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	-
Total Phenols (Monohydric) Low Level	µg/l	1	NONE	-	1.9

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
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	0.01	ISO 17025	< 0.01	< 0.01
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

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16
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Analytical Report Number: 24-027987
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				242693	242694
Sample Reference				WS1012	WS1001
Sample Number				W1	W2
Depth (m)				4.11	4.30
Date Sampled				25/06/2024	25/06/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	1	1.7
Arsenic (dissolved)	µg/l	0.15	ISO 17025	4.95	6.75
Barium (dissolved)	µg/l	0.06	ISO 17025	320	170
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.3
Copper (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.9
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2	2.6
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.7	< 0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.9	2.7
Zinc (dissolved)	µg/l	0.5	ISO 17025	0.6	1.7

Boron (dissolved)	µg/l	10	ISO 17025	120	130
Calcium (dissolved)	mg/l	0.012	ISO 17025	110	160
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10



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Analytical Report Number: 24-027987
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				242693	242694
Sample Reference				WS1012	WS1001
Sample Number				W1	W2
Depth (m)				4.11	4.30
Date Sampled				25/06/2024	25/06/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0



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Analytical Report Number: 24-027987
Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				242693	242694
Sample Reference				WS1012	WS1001
Sample Number				W1	W2
Depth (m)				4.11	4.30
Date Sampled				25/06/2024	25/06/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-027987

Project / Site name: ID Manchester

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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	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	L039B	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by GC-MS in water	Determination of total petroleum hydrocarbons in water by GC-MS/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium III in water	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
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	W	ISO 17025
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	L080	W	NONE
Free cyanide 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	L080	W	ISO 17025
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Total cyanide (low level) 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	L080	W	NONE
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	L080	W	ISO 17025
Redox Potential of water	Determination of conductivity of water by conductivity meter	In-house method	L084	W	NONE
Total petroleum hydrocarbons by GC-MS HS in water	Determination of total petroleum hydrocarbons in water by GC-MS HS	In-house method	L088B	W	ISO 17025
pH at 20°C in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method	L099	W	ISO 17025



Analytical Report Number : 24-027987
Project / Site name: ID Manchester

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
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAH) in leachate by extraction in dichloromethane followed by GC-MS	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE
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, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Sample Deviation Report



Analytical Report Number : 24-027987
Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
WS1001	W2	W	242694	c	Ammoniacal Nitrogen as N in water	L082B	c
WS1001	W2	W	242694	c	Redox Potential of water	L084	c
WS1001	W2	W	242694	c	pH at 20°C in water (automated)	L099	c
WS1012	W1	W	242693	c	Ammoniacal Nitrogen as N in water	L082B	c
WS1012	W1	W	242693	c	Redox Potential of water	L084	c
WS1012	W1	W	242693	c	pH at 20°C in water (automated)	L099	c



4041

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Environmental Science

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Analytical Report Number : 24-020033

Project / Site name:	ID Manchester	Samples received on:	16/05/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	16/05/2024
Your order number:	PO 0060	Analysis completed by:	22/05/2024
Report Issue Number:	1	Report issued on:	22/05/2024
Samples Analysed:	3 water samples		

Signed: _____

Anna Goc
PL Head of 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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Analytical Report Number: 24-020033

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				201242	201243	201244
Sample Reference				BH2002	BH2006	BH2007
Sample Number				W1	W1	W1
Depth (m)				6.50	4.00	8.50
Date Sampled				14/05/2024	15/05/2025	15/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.6	8.1	7.6
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	5.3
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	-	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	52.1	69.6	117
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	43	1000	83
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	5.1	3.34	3.52
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	157	213	246
Redox Potential	mV	-800	NONE	192.6	194.8	197.2

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
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Analytical Report Number: 24-020033

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				201242	201243	201244
Sample Reference				BH2002	BH2006	BH2007
Sample Number				W1	W1	W1
Depth (m)				6.50	4.00	8.50
Date Sampled				14/05/2024	15/05/2025	15/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	0.5	2.9	0.8
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.58	3.86	0.39
Barium (dissolved)	µg/l	0.06	ISO 17025	76	51	100
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05	< 0.02	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.2	0.3	12
Copper (dissolved)	µg/l	0.5	ISO 17025	1.9	3	2.4
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	0.08	0.07
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.3	2.2	1.8
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.2	2	18
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	6	0.4
Zinc (dissolved)	µg/l	0.5	ISO 17025	1.9	4.1	1.4

Boron (dissolved)	µg/l	10	ISO 17025	23	110	120
Calcium (dissolved)	mg/l	0.012	ISO 17025	53	73	80
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	6.9
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	5.1

Petroleum Hydrocarbons

TPH - Aliphatic >C5 - C6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C6 - C8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C8 - C10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >C10 - C12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >C12 - C16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >C16 - C21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >C21 - C35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >C5 - C35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10



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Analytical Report Number: 24-020033

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				201242	201243	201244
Sample Reference				BH2002	BH2006	BH2007
Sample Number				W1	W1	W1
Depth (m)				6.50	4.00	8.50
Date Sampled				14/05/2024	15/05/2025	15/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-020033

Project / Site name: ID Manchester

Your Order No: PO 0060

Lab Sample Number				201242	201243	201244
Sample Reference				BH2002	BH2006	BH2007
Sample Number				W1	W1	W1
Depth (m)				6.50	4.00	8.50
Date Sampled				14/05/2024	15/05/2025	15/05/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05

3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10
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U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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**Analytical Report Number : 24-020033****Project / Site name: ID Manchester****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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	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	L039B	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by GC-MS in water	Determination of total petroleum hydrocarbons in water by GC-MS/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium III in water	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
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	W	ISO 17025
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	L080	W	NONE
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide (low level) 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	L080	W	NONE
Redox Potential of water	Determination of conductivity of water by conductivity meter	In-house method	L084	W	NONE
Total petroleum hydrocarbons by GC-MS HS in water	Determination of total petroleum hydrocarbons in water by GC-MS HS	In-house method	L088	W	ISO 17025
pH at 20°C in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method	L099	W	ISO 17025
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAH) in leachate by extraction in dichloromethane followed by GC-MS	In-house method based on USEPA 8270	L102B	W	ISO 17025



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Analytical Report Number : 24-020033

Project / Site name: ID Manchester

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
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE
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, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



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Environmental Science

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Analytical Report Number : 24-024758

Project / Site name:	ID Manchester	Samples received on:	12/06/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	12/06/2024
Your order number:	PO-0060	Analysis completed by:	19/06/2024
Report Issue Number:	1	Report issued on:	19/06/2024
Samples Analysed:	3 water samples		

Signed:

Izabela Wójcik

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

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

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

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

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

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

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



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Analytical Report Number: 24-024758

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				225839	225840	225841
Sample Reference				BH2002	BH2006	BH2007
Sample Number				1	1	1
Depth (m)				6.50	5.00	9.00
Date Sampled				11/06/2024	11/06/2024	11/06/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.4	7.8	7.4
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	2.2	6.1
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	-	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	74.3	77.8	141
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	47	540	< 15
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.93	2.28	3.7
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	235	283	385
Redox Potential	mV	-800	NONE	-17	-18.2	0.3

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	0.4	1.9	0.7
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.31	2.91	0.34
Barium (dissolved)	µg/l	0.06	ISO 17025	92	61	110
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.11	0.02	0.04
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.2	< 0.2	34
Copper (dissolved)	µg/l	0.5	ISO 17025	2.4	5.1	3.1
Lead (dissolved)	µg/l	0.2	ISO 17025	0.6	< 0.2	0.5
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	3	1.3	1.7
Selenium (dissolved)	µg/l	0.6	ISO 17025	3.4	0.9	13
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	3	0.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	4	3.1	2.1



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Environmental Science

Analytical Report Number: 24-024758

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				225839	225840	225841
Sample Reference				BH2002	BH2006	BH2007
Sample Number				1	1	1
Depth (m)				6.50	5.00	9.00
Date Sampled				11/06/2024	11/06/2024	11/06/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
Boron (dissolved)	µg/l	10	ISO 17025	71	120	150
Calcium (dissolved)	mg/l	0.012	ISO 17025	84	100	130
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	9.9
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	25

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS,1D,AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 _{EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH,1D,AL,MS}	µg/l	10	NONE	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS,1D,AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH,1D,AR,MS}	µg/l	10	NONE	< 10	< 10	< 10

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Chloroform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0



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Environmental Science

Analytical Report Number: 24-024758

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				225839	225840	225841
Sample Reference				BH2002	BH2006	BH2007
Sample Number				1	1	1
Depth (m)				6.50	5.00	9.00
Date Sampled				11/06/2024	11/06/2024	11/06/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0	< 3.0	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Phenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachloroethane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Nitrobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Isophorone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05



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Environmental Science

Analytical Report Number: 24-024758

Project / Site name: ID Manchester

Your Order No: PO-0060

Lab Sample Number				225839	225840	225841
Sample Reference				BH2002	BH2006	BH2007
Sample Number				1	1	1
Depth (m)				6.50	5.00	9.00
Date Sampled				11/06/2024	11/06/2024	11/06/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Azobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Carbazole	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10	< 0.10	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



4041



Environmental Science

Analytical Report Number : 24-024758

Project / Site name: ID Manchester

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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	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	L039B	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total petroleum hydrocarbons with carbon banding by GC-MS in water	Determination of total petroleum hydrocarbons in water by GC-MS/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium III in water	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080	W	NONE
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	W	ISO 17025
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	L080	W	NONE
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	NONE
Total cyanide (low level) 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	L080	W	NONE
Redox Potential of water	Determination of conductivity of water by conductivity meter	In-house method	L084	W	NONE
Total petroleum hydrocarbons by GC-MS HS in water	Determination of total petroleum hydrocarbons in water by GC-MS HS	In-house method	L088B	W	ISO 17025
pH at 20°C in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method	L099	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAH) in leachate by extraction in dichloromethane followed by GC-MS	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE



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**Analytical Report Number : 24-024758****Project / Site name: ID Manchester****Water matrix abbreviations:****Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)**

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



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Analytical Report Number : 24-048515

Project / Site name:	ID Manchester	Samples received on:	17/10/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	18/10/2024
Your order number:	PO 0059	Analysis completed by:	24/10/2024
Report Issue Number:	1	Report issued on:	25/10/2024
Samples Analysed:	1 water sample		

Signed: _____

Anna Goc
PL Head of 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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Analytical Report Number: 24-048515

Project / Site name: ID Manchester

Your Order No: PO 0059

Lab Sample Number				352213
Sample Reference				BH1017
Sample Number				W1
Depth (m)				5.50
Date Sampled				17/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	39.6
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	72
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	1.39
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	109
Redox Potential	mV	-800	NONE	186.7

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	1.4
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.26
Barium (dissolved)	µg/l	0.06	ISO 17025	62
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	4
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.11
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.8
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.8
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.6



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Analytical Report Number: 24-048515

Project / Site name: ID Manchester

Your Order No: PO 0059

Lab Sample Number				352213
Sample Reference				BH1017
Sample Number				W1
Depth (m)				5.50
Date Sampled				17/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Boron (dissolved)	µg/l	10	ISO 17025	19
Calcium (dissolved)	mg/l	0.012	ISO 17025	36
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_ID_AL}	µg/l	1	ISO 17025	14
TPH - Aliphatic >EC6 - EC8 _{HS_ID_AL}	µg/l	1	ISO 17025	12
TPH - Aliphatic >EC8 - EC10 _{HS_ID_AL}	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_ID_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_ID_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_ID_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_ID_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_ID_AL_MS}	µg/l	10	NONE	26

TPH - Aromatic >EC5 - EC7 _{HS_ID_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_ID_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_ID_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_ID_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC12 - EC16 _{EH_ID_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC16 - EC21 _{EH_ID_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC21 - EC35 _{EH_ID_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_ID_AR_MS}	µg/l	10	NONE	< 10

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0 [#]
Chloroethane	µg/l	3	ISO 17025	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0
Chloroform	µg/l	3	ISO 17025	17.5
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0 [#]
Dibromomethane	µg/l	3	ISO 17025	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0



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Environmental Science

Analytical Report Number: 24-048515

Project / Site name: ID Manchester

Your Order No: PO 0059

Lab Sample Number				352213
Sample Reference				BH1017
Sample Number				W1
Depth (m)				5.50
Date Sampled				17/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0

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
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05



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Analytical Report Number: 24-048515

Project / Site name: ID Manchester

Your Order No: PO 0059

Lab Sample Number				352213
Sample Reference				BH1017
Sample Number				W1
Depth (m)				5.50
Date Sampled				17/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05
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
Carbazole	µg/l	0.05	NONE	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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**Analytical Report Number : 24-048515****Project / Site name: ID Manchester****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, PW, GW, 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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe, Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of water	Determination of total hardness of water by calculation from calcium and magnesium. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium(III) in water	In-house method by calculation from total Cr and Cr(VI)	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	ISO 17025
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide (low level) in water	Determination of total cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Redox Potential of water	Determination of redox potential of water by potentiometric method	In-house method	L084-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE



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**Analytical Report Number : 24-048515****Project / Site name: ID Manchester****Water matrix abbreviations:****Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)**

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).**For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).****For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.****Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.****Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.**

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as deviating and should be interpreted with caution. The result is not accredited.



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Analytical Report Number : 24-050822

Project / Site name:	ID Manchester	Samples received on:	30/10/2024
Your job number:	21019-02	Samples instructed on/ Analysis started on:	30/10/2024
Your order number:	PO-0059	Analysis completed by:	05/11/2024
Report Issue Number:	1	Report issued on:	05/11/2024
Samples Analysed:	1 water sample		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



4041



Analytical Report Number: 24-050822
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				364144
Sample Reference				BH1017
Sample Number				ES1
Depth (m)				5.57
Date Sampled				28/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.3
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	41.6
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	48
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	1.51
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	146
Redox Potential	mV	-800	NONE	191.2

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	< 1.0
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.24
Barium (dissolved)	µg/l	0.06	ISO 17025	100
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.03
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3
Copper (dissolved)	µg/l	0.5	ISO 17025	3.9
Lead (dissolved)	µg/l	0.2	ISO 17025	1.1
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	4
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.5
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	7.8



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Analytical Report Number: 24-050822
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				364144
Sample Reference				BH1017
Sample Number				ES1
Depth (m)				5.57
Date Sampled				28/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Boron (dissolved)	µg/l	10	ISO 17025	44
Calcium (dissolved)	mg/l	0.012	ISO 17025	47
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10

VOCs

Chloromethane	µg/l	3	ISO 17025	< 3.0
Chloroethane	µg/l	3	ISO 17025	< 3.0
Bromomethane	µg/l	3	ISO 17025	< 3.0
Vinyl Chloride	µg/l	3	NONE	< 3.0
Trichlorofluoromethane	µg/l	3	NONE	< 3.0
1,1-Dichloroethene	µg/l	3	ISO 17025	< 3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	3	ISO 17025	< 3.0
Trans 1,2-dichloroethylene	µg/l	3	ISO 17025	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0
1,1-Dichloroethane	µg/l	3	ISO 17025	< 3.0
2,2-Dichloropropane	µg/l	3	NONE	< 3.0
Chloroform	µg/l	3	ISO 17025	10.1
1,1,1-Trichloroethane	µg/l	3	ISO 17025	< 3.0
1,2-Dichloroethane	µg/l	3	ISO 17025	< 3.0
1,1-Dichloropropene	µg/l	3	ISO 17025	< 3.0
Cis-1,2-dichloroethene	µg/l	3	ISO 17025	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0
Carbontetrachloride	µg/l	3	ISO 17025	< 3.0
1,2-Dichloropropane	µg/l	3	ISO 17025	< 3.0
Trichloroethene	µg/l	3	ISO 17025	< 3.0
Dibromomethane	µg/l	3	ISO 17025	< 3.0
Bromodichloromethane	µg/l	3	ISO 17025	< 3.0
Cis-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0
Trans-1,3-dichloropropene	µg/l	3	ISO 17025	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0
1,1,2-Trichloroethane	µg/l	3	ISO 17025	< 3.0
1,3-Dichloropropane	µg/l	3	ISO 17025	< 3.0
Dibromochloromethane	µg/l	3	ISO 17025	< 3.0



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Analytical Report Number: 24-050822
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				364144
Sample Reference				BH1017
Sample Number				ES1
Depth (m)				5.57
Date Sampled				28/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	
Tetrachloroethene	µg/l	3	ISO 17025	< 3.0
1,2-Dibromoethane	µg/l	3	ISO 17025	< 3.0
Chlorobenzene	µg/l	3	ISO 17025	< 3.0
1,1,1,2-Tetrachloroethane	µg/l	3	ISO 17025	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0
Styrene	µg/l	3	ISO 17025	< 3.0
Bromoform	µg/l	3	ISO 17025	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0
Isopropylbenzene	µg/l	3	ISO 17025	< 3.0
1,1,2,2-Tetrachloroethane	µg/l	3	NONE	< 3.0
Bromobenzene	µg/l	3	ISO 17025	< 3.0
n-Propylbenzene	µg/l	3	ISO 17025	< 3.0
2-Chlorotoluene	µg/l	3	ISO 17025	< 3.0
4-Chlorotoluene	µg/l	3	ISO 17025	< 3.0
1,3,5-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0
tert-Butylbenzene	µg/l	3	ISO 17025	< 3.0
1,2,4-Trimethylbenzene	µg/l	3	ISO 17025	< 3.0
sec-Butylbenzene	µg/l	3	ISO 17025	< 3.0
1,3-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0
p-Isopropyltoluene	µg/l	3	ISO 17025	< 3.0
1,4-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0
1,2-Dichlorobenzene	µg/l	3	ISO 17025	< 3.0
Butylbenzene	µg/l	3	ISO 17025	< 3.0
1,2-Dibromo-3-chloropropane	µg/l	3	ISO 17025	< 3.0
1,2,4-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0
Hexachlorobutadiene	µg/l	3	ISO 17025	< 3.0
1,2,3-Trichlorobenzene	µg/l	3	ISO 17025	< 3.0

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
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



Analytical Report Number: 24-050822
Project / Site name: ID Manchester

Your Order No: PO-0059

Lab Sample Number				364144
Sample Reference				BH1017
Sample Number				ES1
Depth (m)				5.57
Date Sampled				28/10/2024
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05
Dibenzofuran	µg/l	0.05	NONE	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	< 0.05
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
Carbazole	µg/l	0.05	NONE	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05
Anthraquinone	µg/l	0.05	NONE	< 0.05
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05
3+4-Methylphenol	µg/l	0.1	NONE	< 0.10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number : 24-050822

Project / Site name: ID Manchester

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, PW, GW, 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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe, Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of water	Determination of total hardness of water by calculation from calcium and magnesium. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium(III) in water	In-house method by calculation from total Cr and Cr(VI)	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	ISO 17025
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide (low level) in water	Determination of total cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Redox Potential of water	Determination of redox potential of water by potentiometric method	In-house method	L084-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Phenols in water by GC-MS	Determination of phenols in water by GC-MS	In-house method	L102B	W	NONE
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025



Analytical Report Number : 24-050822
Project / Site name: ID Manchester

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution



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Analytical Report Number : 25-015347

Project / Site name:	ID Manchester	Samples received on:	26/03/2025
Your job number:	51019 02	Samples instructed on/ Analysis started on:	26/03/2025
Your order number:	PO-0245	Analysis completed by:	01/04/2025
Report Issue Number:	1	Report issued on:	01/04/2025
Samples Analysed:	11 water samples		

Signed:

Caterina Bentley
Customer Service Advisor
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
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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: 25-015347
Project / Site name: ID Manchester

Your Order No: PO-0245

Lab Sample Number				494962	494963	494964	494965	494966
Sample Reference				BH1007	BH2002	BH1008	BH2006	BH1006
Sample Number				ES1	ES1	ES1	ES1	ES1
Water Matrix				Ground water	Ground water	Ground water	Ground water	Ground water
Depth (m)				5.82	6.06	5.74	3.41	6.10
Date Sampled				25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status					

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	6.9	7.4	7	7.7	6.8
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	26	1.4	2.2	2.4	3.7
Free Cyanide (Low Level)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	112	97.8	53.2	68.8	128
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	770	< 15	< 15	560	770
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	4.65	5.61	5.97	2.38	5.22
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	232	253	292	333	358
Redox Potential	mV	-800	NONE	230.6	200.8	208.3	195.9	213.7

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	1.9	1.4	1.6	1.5	1
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	0.04	< 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	0.02
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.03	0.02
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
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Environmental Science

Analytical Report Number: 25-015347
Project / Site name: ID Manchester

Your Order No: PO-0245

Lab Sample Number				494962	494963	494964	494965	494966
Sample Reference				BH1007	BH2002	BH1008	BH2006	BH1006
Sample Number				ES1	ES1	ES1	ES1	ES1
Water Matrix				Ground water	Ground water	Ground water	Ground water	Ground water
Depth (m)				5.82	6.06	5.74	3.41	6.10
Date Sampled				25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	0.9	< 0.4	< 0.4	0.7	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.04	0.21	0.46	3.19	1.75
Barium (dissolved)	µg/l	0.06	ISO 17025	92	80	120	66	130
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	1.9	0.07	0.04	0.03	0.08
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	0.3
Copper (dissolved)	µg/l	0.5	ISO 17025	4.6	1.5	1	3.1	1.3
Lead (dissolved)	µg/l	0.2	ISO 17025	39	< 0.2	< 0.2	0.3	0.3
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	7.3	1	1.7	0.8	1.2
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.7	4	4.5	1	1.5
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	3	0.4
Zinc (dissolved)	µg/l	0.5	ISO 17025	160	1.4	1.9	3.6	4.1

Boron (dissolved)	µg/l	10	ISO 17025	38	59	110	130	90
Calcium (dissolved)	mg/l	0.012	ISO 17025	90	97	95	120	130
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

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
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

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 25-015347
Project / Site name: ID Manchester

Your Order No: PO-0245

Lab Sample Number	494967	494968	494969	494970	494971
Sample Reference	BH1002	BH1001	BH1013A	BH1016A	BH1017
Sample Number	ES1	ES1	ES1	ES1	ES1
Water Matrix	Ground water	Ground water	Ground water	Ground water	Ground water
Depth (m)	10.73	7.10	5.51	6.00	5.48
Date Sampled	25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status		

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.4	7.3	7	7	7
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	3.4	< 1.0	7.4	28	1.6
Free Cyanide (Low Level)	µg/l	1	NONE	< 1.0	-	< 1.0	1.5	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	60.6	25	73.9	218	67.3
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	< 15	< 15	< 15	76	< 15
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	1.61	10.7	1.35	2.85	1.48
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	257	126	215	452	207
Redox Potential	mV	-800	NONE	196.8	193.1	205.8	205.6	200.8

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	1.5	< 1.0	1.4	1.5	1.4
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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	0.12	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	0.05	< 0.01	0.02	0.02	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	0.04	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.06	< 0.01	0.03	0.09	< 0.01
Pyrene	µg/l	0.01	ISO 17025	0.05	< 0.01	0.04	0.18	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	0.03	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	0.03	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	0.22	< 0.16	< 0.16	0.47	< 0.16
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Environmental Science

Analytical Report Number: 25-015347
Project / Site name: ID Manchester

Your Order No: PO-0245

Lab Sample Number				494967	494968	494969	494970	494971
Sample Reference				BH1002	BH1001	BH1013A	BH1016A	BH1017
Sample Number				ES1	ES1	ES1	ES1	ES1
Water Matrix				Ground water	Ground water	Ground water	Ground water	Ground water
Depth (m)				10.73	7.10	5.51	6.00	5.48
Date Sampled				25/03/2025	25/03/2025	25/03/2025	25/03/2025	25/03/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	< 0.4	0.9	< 0.4	< 0.4	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	< 0.15	0.99	0.26	0.3	0.2
Barium (dissolved)	µg/l	0.06	ISO 17025	140	42	120	64	120
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	0.1	0.08	< 0.02
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.8	1.7	0.4	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	2	6.4	2.9	2.2	2.8
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	1.6	0.3	< 0.2	0.8
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	< 0.5	0.7	1	3	1.7
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.2	1.2	6.2	6.3	2.7
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.9	1.7	0.6	< 0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.5	4.5	8.5	5.1	10

Boron (dissolved)	µg/l	10	ISO 17025	77	27	69	150	69
Calcium (dissolved)	mg/l	0.012	ISO 17025	49	43	74	160	66
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

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
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

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 25-015347
Project / Site name: ID Manchester

Your Order No: PO-0245

Lab Sample Number				494972
Sample Reference				BH2007
Sample Number				ES1
Water Matrix				Ground water
Depth (m)				7.20
Date Sampled				25/03/2025
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.2
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	7.5
Free Cyanide (Low Level)	µg/l	1	NONE	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	279
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	20
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	6.45
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	550
Redox Potential	mV	-800	NONE	199.9

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	1.6
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	0.04
Anthracene	µg/l	0.01	ISO 17025	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.13
Pyrene	µg/l	0.01	ISO 17025	0.17
Benzo(a)anthracene	µg/l	0.01	ISO 17025	0.09
Chrysene	µg/l	0.01	ISO 17025	0.08
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	0.52
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Analytical Report Number: 25-015347
Project / Site name: ID Manchester

Your Order No: PO-0245

Lab Sample Number				494972
Sample Reference				BH2007
Sample Number				ES1
Water Matrix				Ground water
Depth (m)				7.20
Date Sampled				25/03/2025
Time Taken				None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.37
Barium (dissolved)	µg/l	0.06	ISO 17025	60
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05
Chromium (dissolved)	µg/l	0.2	ISO 17025	43
Copper (dissolved)	µg/l	0.5	ISO 17025	3.3
Lead (dissolved)	µg/l	0.2	ISO 17025	1.7
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1
Selenium (dissolved)	µg/l	0.6	ISO 17025	21
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.9
Zinc (dissolved)	µg/l	0.5	ISO 17025	5.6

Boron (dissolved)	µg/l	10	ISO 17025	230
Calcium (dissolved)	mg/l	0.012	ISO 17025	180
Chromium (hexavalent)	µg/l	5	ISO 17025	48
Chromium (III)	µg/l	5	NONE	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0
Benzene	µg/l	1	ISO 17025	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-015347

Project / Site name: ID Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI 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, PW, GW, 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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of water	Determination of total hardness of water by calculation from calcium and magnesium. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium(III) in water	In-house method by calculation from total Cr and Cr(VI)	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	ISO 17025
Free cyanide (low level) in water	Determination of free cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide (low level) in water	Determination of total cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Redox Potential of water	Determination of redox potential of water by potentiometric method	In-house method	L084-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025



Analytical Report Number : 25-015347
Project / Site name: ID Manchester

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution



4041

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e: kirsty.poore@civicearth.com



Environmental Science

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Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

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e: reception@i2analytical.com

Analytical Report Number : 25-016908

Project / Site name:	ID Manchester	Samples received on:	03/04/2025
Your job number:	51019 02	Samples instructed on/ Analysis started on:	03/04/2025
Your order number:	PO 0245	Analysis completed by:	09/04/2025
Report Issue Number:	1	Report issued on:	09/04/2025
Samples Analysed:	2 water samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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



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Analytical Report Number: 25-016908

Project / Site name: ID Manchester

Your Order No: PO 0245

Lab Sample Number				503205	503206
Sample Reference				BH1016A	BH1005
Sample Number				W1	W1
Water Matrix				Ground water	Ground water
Depth (m)				5.97	5.33
Date Sampled				02/04/2025	02/04/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status		

General Inorganics

pH (L099)	pH Units	N/A	ISO 17025	7.1	7.1
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	24	12
Free Cyanide (Low Level)	µg/l	1	NONE	1.2	< 1.0
Sulphate as SO ₄	mg/l	0.045	ISO 17025	227	77.4
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	94	830
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	1.92	1.69
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	457	280
Redox Potential	mV	-800	NONE	205.1	204.3

Total Phenols

Total Phenols (Monohydric) Low Level	µg/l	1	NONE	1.6	1.5
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	8.8
Fluorene	µg/l	0.01	ISO 17025	< 0.01	2.5
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
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	0.01	ISO 17025	< 0.01	< 0.01
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

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	11.3
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Analytical Report Number: 25-016908

Project / Site name: ID Manchester

Your Order No: PO 0245

Lab Sample Number				503205	503206
Sample Reference				BH1016A	BH1005
Sample Number				W1	W1
Water Matrix				Ground water	Ground water
Depth (m)				5.97	5.33
Date Sampled				02/04/2025	02/04/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.28	2.71
Barium (dissolved)	µg/l	0.06	ISO 17025	68	79
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.09	0.13
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.3	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	2.6	1.8
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	NONE	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.7	0.6
Selenium (dissolved)	µg/l	0.6	ISO 17025	5.6	< 0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.1	26

Boron (dissolved)	µg/l	10	ISO 17025	140	46
Calcium (dissolved)	mg/l	0.012	ISO 17025	160	99
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0

Petroleum Hydrocarbons

TPH - Aliphatic >EC5 - EC6 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 _{HS_1D_AL}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC12 - EC16 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC16 - EC21 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC21 - EC35 _{EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aliphatic >EC5 - EC35 _{HS+EH_1D_AL_MS}	µg/l	10	NONE	< 10	< 10

TPH - Aromatic >EC5 - EC7 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 _{HS_1D_AR}	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC12 - EC16 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC16 - EC21 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC21 - EC35 _{EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10
TPH - Aromatic >EC5 - EC35 _{HS+EH_1D_AR_MS}	µg/l	10	NONE	< 10	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0
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

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



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Environmental Science

Analytical Report Number : 25-016908

Project / Site name: ID Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI 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, PW, GW, 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	L012B	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe, Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Hardness of water	Determination of total hardness of water by calculation from calcium and magnesium. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045B	W	ISO 17025
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or 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 USEPA 8260	L073B	W	ISO 17025
Chromium(III) in water	In-house method by calculation from total Cr and Cr(VI)	In-house method by calculation	L080-PL	W	NONE
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	ISO 17025
Free cyanide (low level) in water	Determination of free cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Monohydric phenols (low level) in water	Determination of phenols in water by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Total cyanide (low level) in water	Determination of total cyanide in water by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	NONE
Redox Potential of water	Determination of redox potential of water by potentiometric method	In-house method	L084-PL	W	NONE
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of ammonium/ammonia/ammoniacal nitrogen by the colorimetric salicylate/nitroprusside method using discrete analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	ISO 17025

Analytical Report Number : 25-016908

Project / Site name: ID Manchester

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI 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 in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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 - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Appendix G

Geotechnical Laboratory Analysis Results

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web: www.geolabs.co.uk

Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

31 May 2024

Report No : GEO/40435/01

Page 1 of 1

For the attention of Ms K Poore

Our ref **GEO / 40435**
Your Ref **51019/02**

Date samples received 01/05/2024
Date written instructions received 07/05/2024
Date testing commenced 08/05/2024
Date of sample disposal 28/06/2024

Project **ID MANCHESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Geotechnical Test Summary
2	~	Liquid & Plastic Limits Summary
	1	Water Content
	1	Liquid & Plastic Limits
3	9	Particle Size Distribution
4	1	Unconfined Compressive Strength
5	8	Point Load Strength Index

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**

J Sturges
Operations Manager

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC	LL	PL	PI	<425 µm	Bulk	Dry	Condition	Cell Pressure	Deviator Stress	Shear Stress	pH	2:1 W/S SO4	W/S Mg	
					%	%	%	%	%	Mg/m³	Mg/m³		kPa	kPa	kPa		g/L	mg/L	
BH1001	3.00-3.50		B	Greyish brown gravelly sandy CLAY. Gravel is fine to medium. Sand is fine to medium.	19.0	32	22	10	56										
BH1001	4.00-5.00		B	Orangish brown slightly gravelly clayey silty SAND. Gravel is fine to medium.															Particle Size Distribution
BH1001	5.00-5.50		B	Reddish brown slightly clayey slightly silty gravelly SAND.															Particle Size Distribution
BH1001	16.50-18.00		B	Orangish brown clayey silty SAND.															Particle Size Distribution
BH1001	22.50-24.00		B	Orangish brown slightly silty SAND.															Particle Size Distribution
BH1003	5.00		B	Orangish brown slightly clayey silty gravelly micaceous SAND.															Particle Size Distribution
BH1003	18.00-19.50		B	Orangish brown slightly silty SAND.															Particle Size Distribution
BH1005	4.00-4.45		B	Black and dark grey mottled slightly clayey silty gravelly SAND. Gravel is fine to medium.															Particle Size Distribution
BH1005	5.00-5.50		B	Grey brown slightly silty very gravelly SAND.															Particle Size Distribution
BH1005	6.50-7.50		B	Orangish brown slightly silty gravelly SAND.															Particle Size Distribution

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by  J Sturges - Operations Manager 31/05/2024	Project Number: GEO / 40435 Project Name: ID MANCHESTER 51019/02	
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PARTICLE SIZE DISTRIBUTION

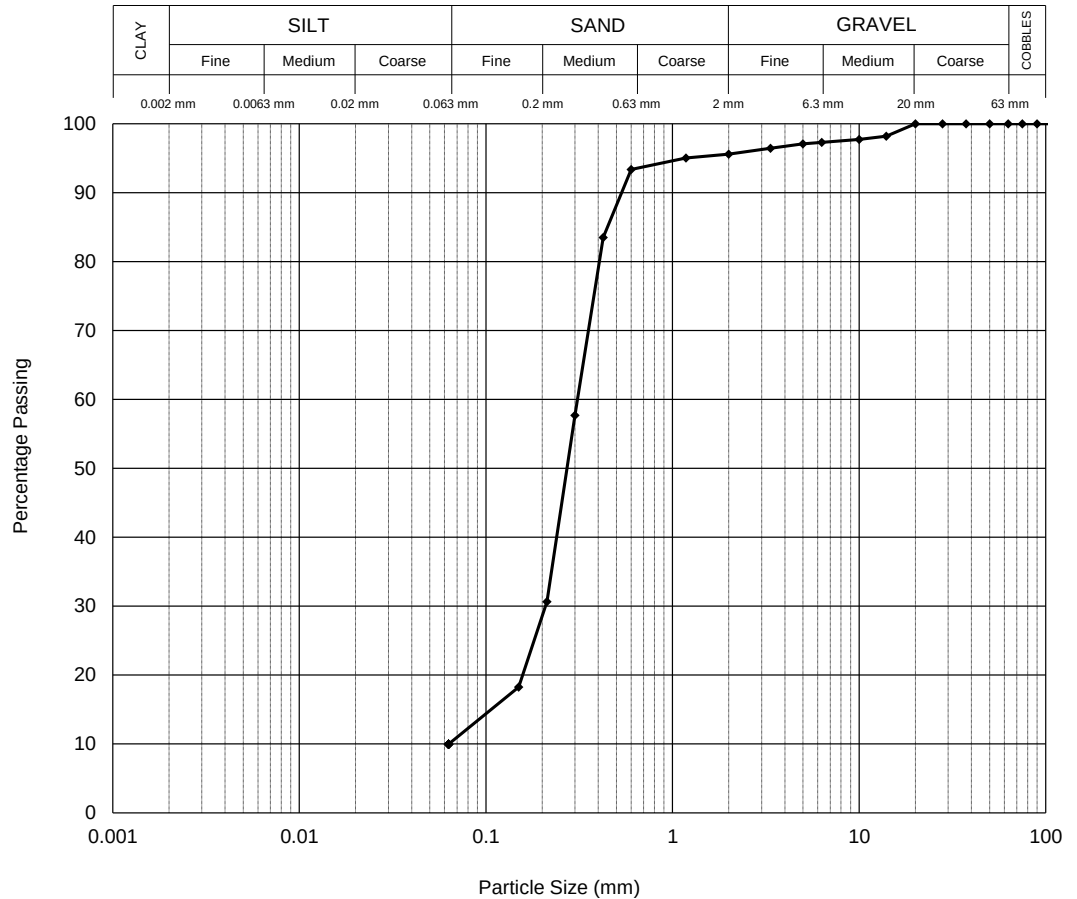
Location BH1001
Sample Depth 4.00-5.00 m
Sample Type B

Description

Orangish brown slightly gravelly clayey silty SAND. Gravel is fine to medium.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	98
10.0 mm	98
6.30 mm	97
5.00 mm	97
3.35 mm	96
2.00 mm	96
1.18 mm	95
600 µm	93
425 µm	83
300 µm	58
212 µm	31
150 µm	18
63 µm	10



Particle Proportions	
Cobbles	0.0
Gravel	4.4
Sand	85.6
Silt & Clay	10.0

Tested by XW
Checked and Approved by


J Sturges - Operations Manager
31/05/2024

Project Number:

GEO / 40435

Project Name:

**ID MANCHESTER
51019/02**



PARTICLE SIZE DISTRIBUTION

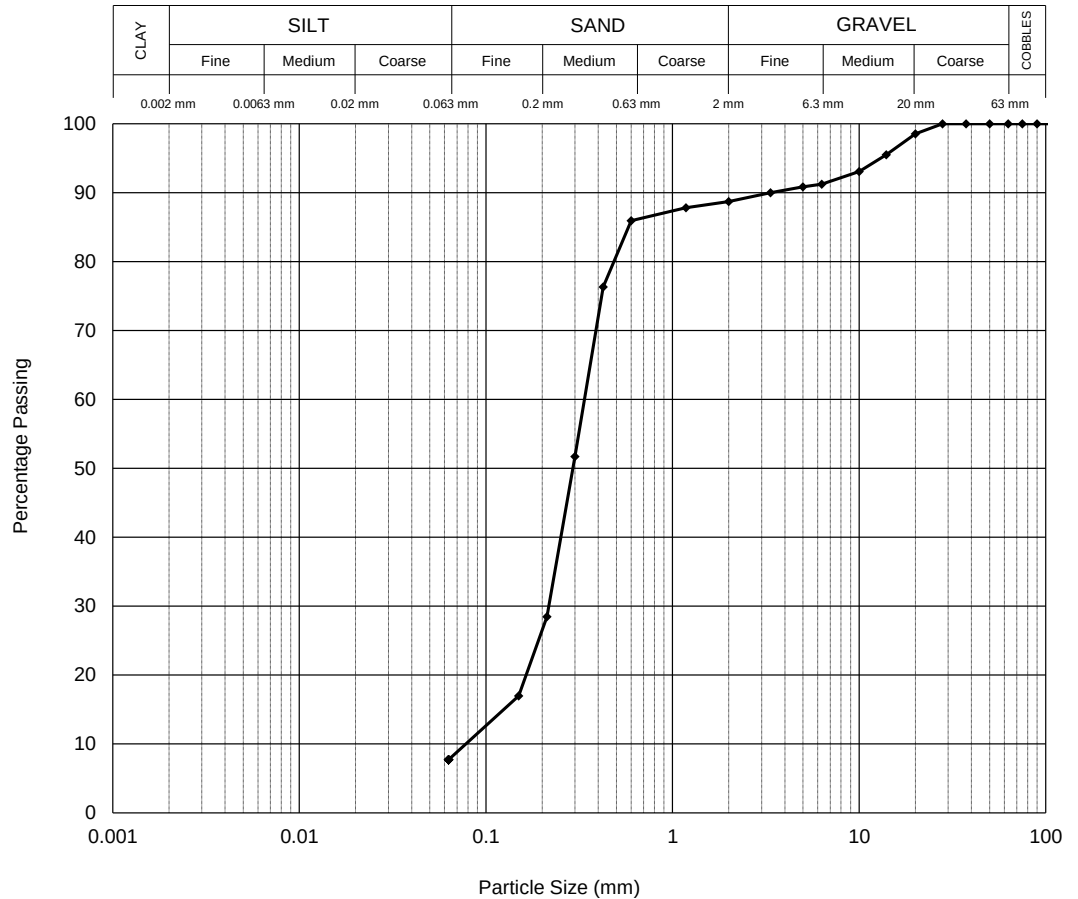
Location BH1001
Sample Depth 5.00-5.50 m
Sample Type B

Description

Reddish brown slightly clayey slightly silty gravelly SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	99
14.0 mm	96
10.0 mm	93
6.30 mm	91
5.00 mm	91
3.35 mm	90
2.00 mm	89
1.18 mm	88
600 µm	86
425 µm	76
300 µm	52
212 µm	28
150 µm	17
63 µm	8



Particle Proportions	
Cobbles	0.0
Gravel	11.3
Sand	81.0
Silt & Clay	7.7

Tested by XW
Checked and Approved by

J Sturges - Operations Manager
31/05/2024

Project Number:

GEO / 40435

Project Name:

**ID MANCHESTER
51019/02**

PARTICLE SIZE DISTRIBUTION

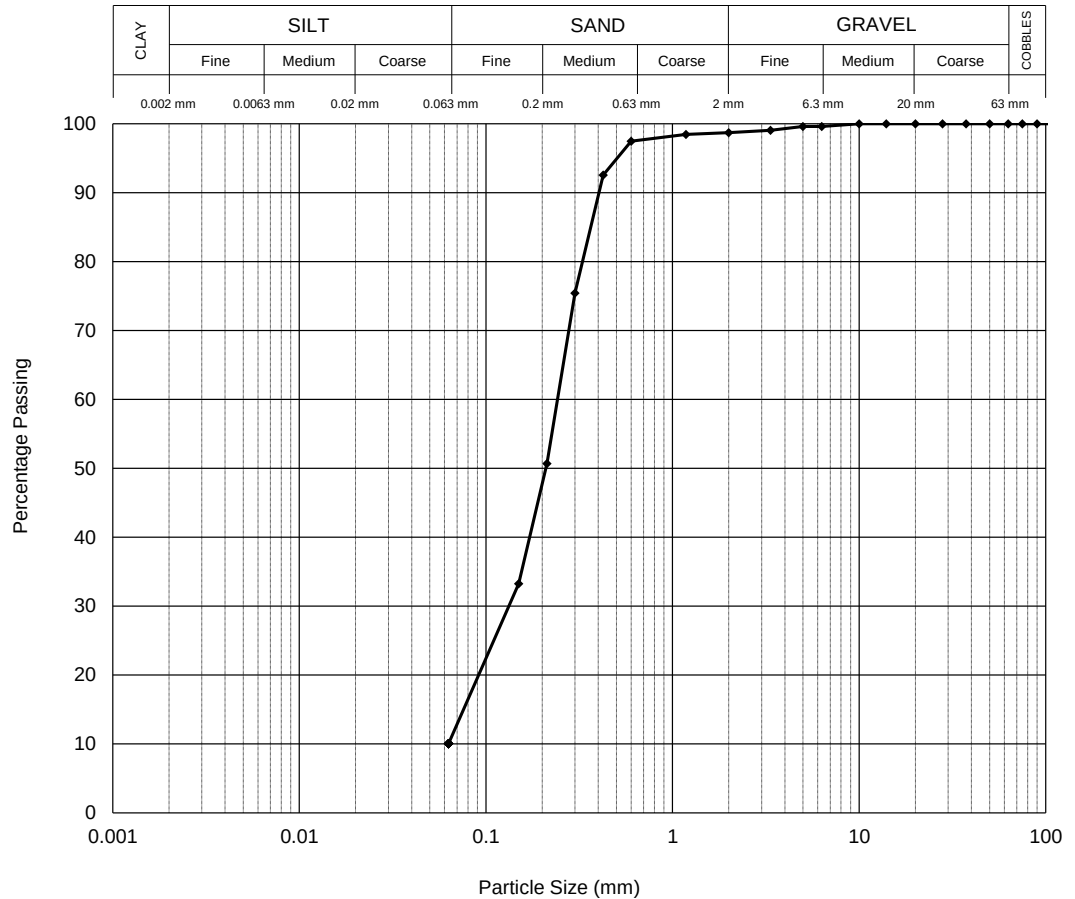
Location BH1001
Sample Depth 16.50-18.00 m
Sample Type B

Description

Orangish brown clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	93
300 µm	75
212 µm	51
150 µm	33
63 µm	10



Particle Proportions	
Cobbles	0.0
Gravel	1.3
Sand	88.7
Silt & Clay	10.0

Tested by XW
Checked and Approved by

J Sturges - Operations Manager
31/05/2024

Project Number:

GEO / 40435

Project Name:

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PARTICLE SIZE DISTRIBUTION

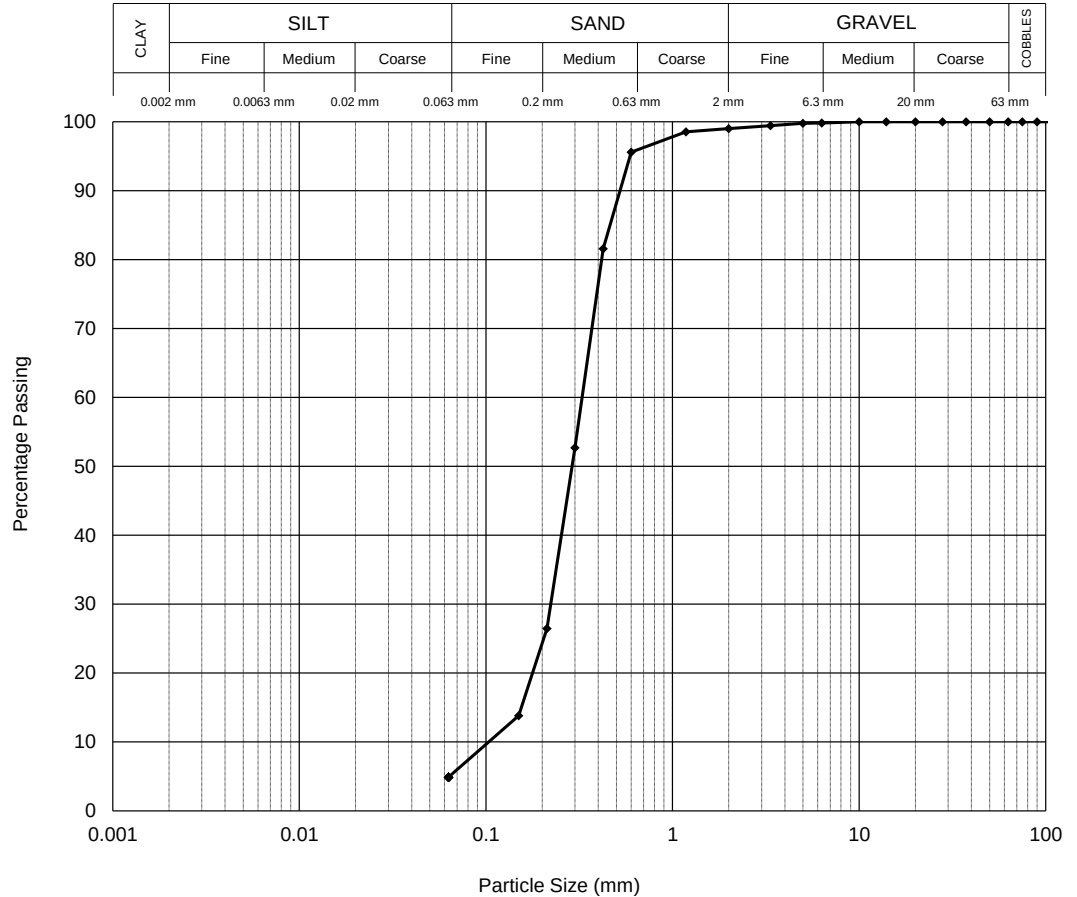
Location BH1001
Sample Depth 22.50-24.00 m
Sample Type B

Description

Orangish brown slightly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	96
425 µm	82
300 µm	53
212 µm	26
150 µm	14
63 µm	5



Particle Proportions	
Cobbles	0.0
Gravel	1.0
Sand	94.1
Silt & Clay	4.9

Tested by XW
Checked and Approved by



J Sturges - Operations Manager
31/05/2024

Project Number:

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Project Name:

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51019/02



PARTICLE SIZE DISTRIBUTION

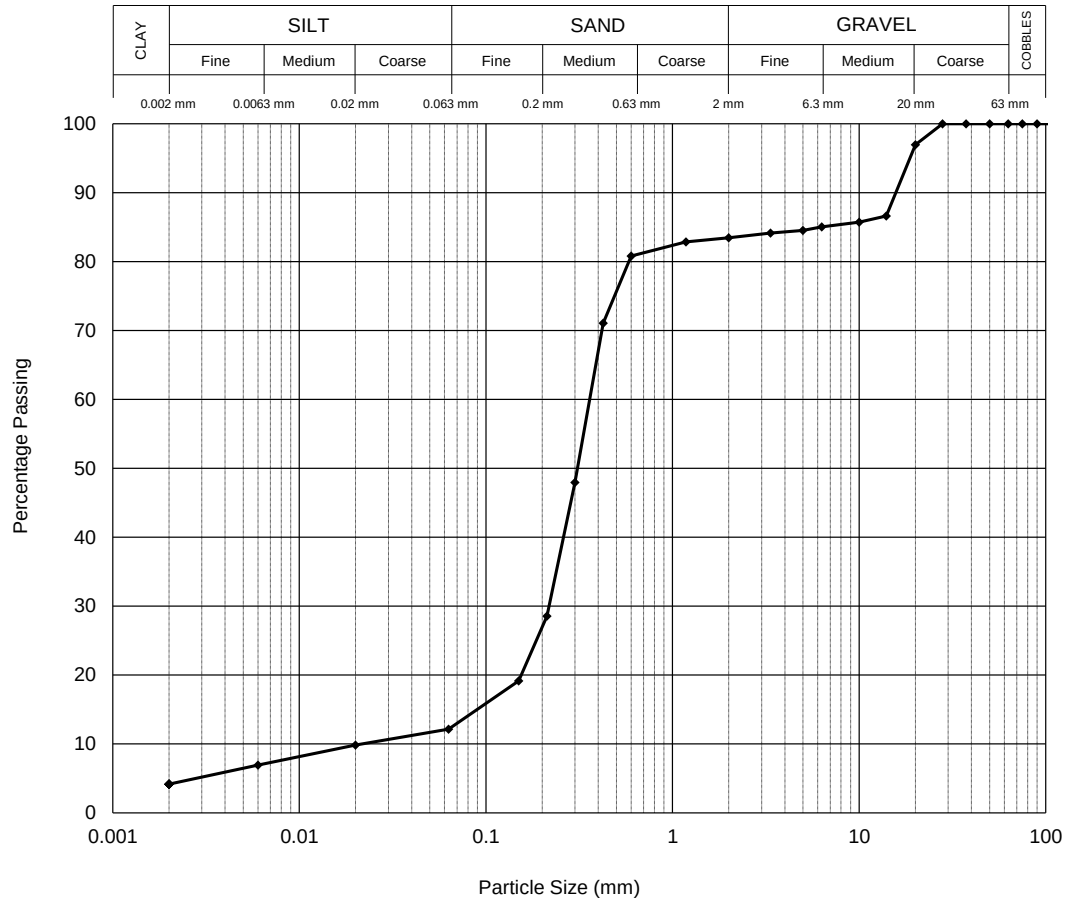
Location BH1003
Sample Depth 5.00 m
Sample Type B

Description

Orangish brown slightly clayey silty gravelly micaceous SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	97
14.0 mm	87
10.0 mm	86
6.30 mm	85
5.00 mm	85
3.35 mm	84
2.00 mm	83
1.18 mm	83
600 µm	81
425 µm	71
300 µm	48
212 µm	29
150 µm	19
63 µm	12



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	10
6 µm	7
2 µm	4

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	16.5
Sand	71.3
Silt	8.0
Clay	4.2

Tested by XW
Checked and Approved by

J Sturges - Operations Manager
31/05/2024

Project Number:

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51019/02**

PARTICLE SIZE DISTRIBUTION

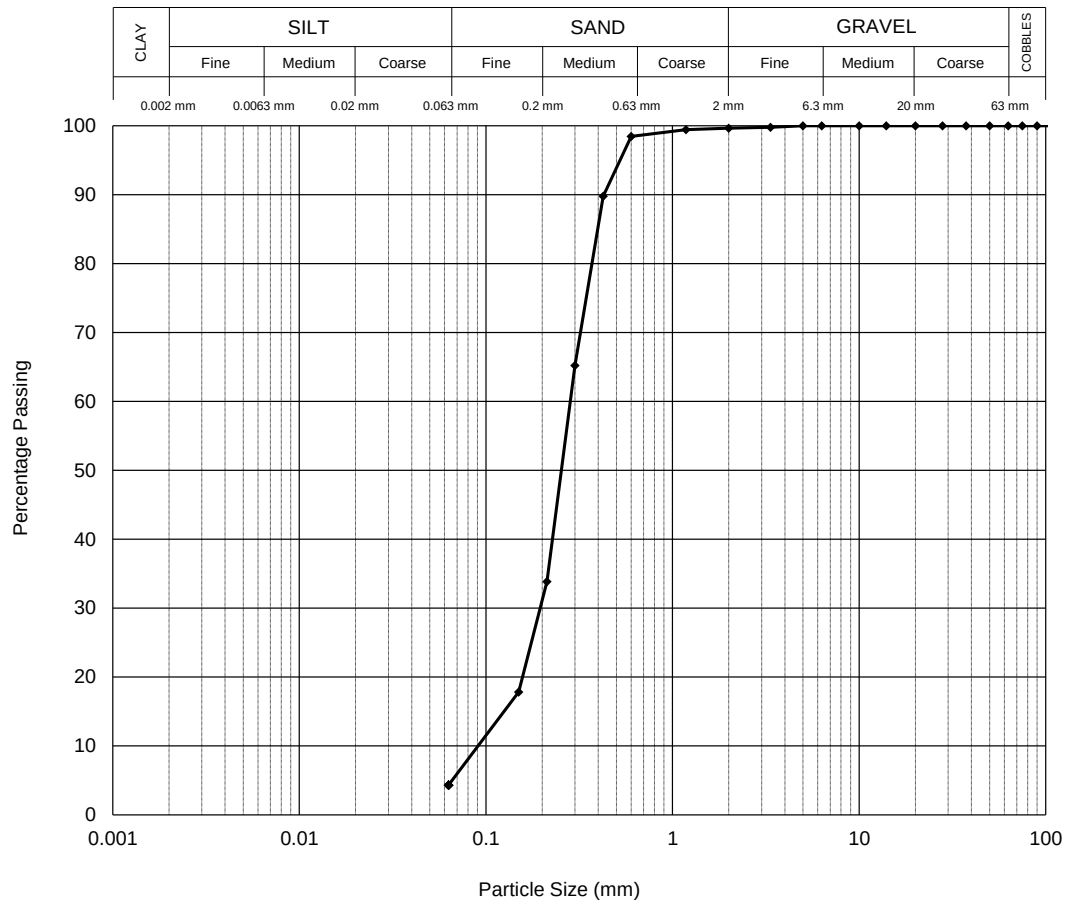
Location BH1003
Sample Depth 18.00-19.50 m
Sample Type B

Description

Orangish brown slightly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	90
300 µm	65
212 µm	34
150 µm	18
63 µm	4



Particle Proportions	
Cobbles	0.0
Gravel	0.4
Sand	95.3
Silt & Clay	4.3

Tested by XW
Checked and Approved by

J Sturges - Operations Manager
31/05/2024

Project Number:

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Project Name:

ID MANCHESTER
51019/02

PARTICLE SIZE DISTRIBUTION

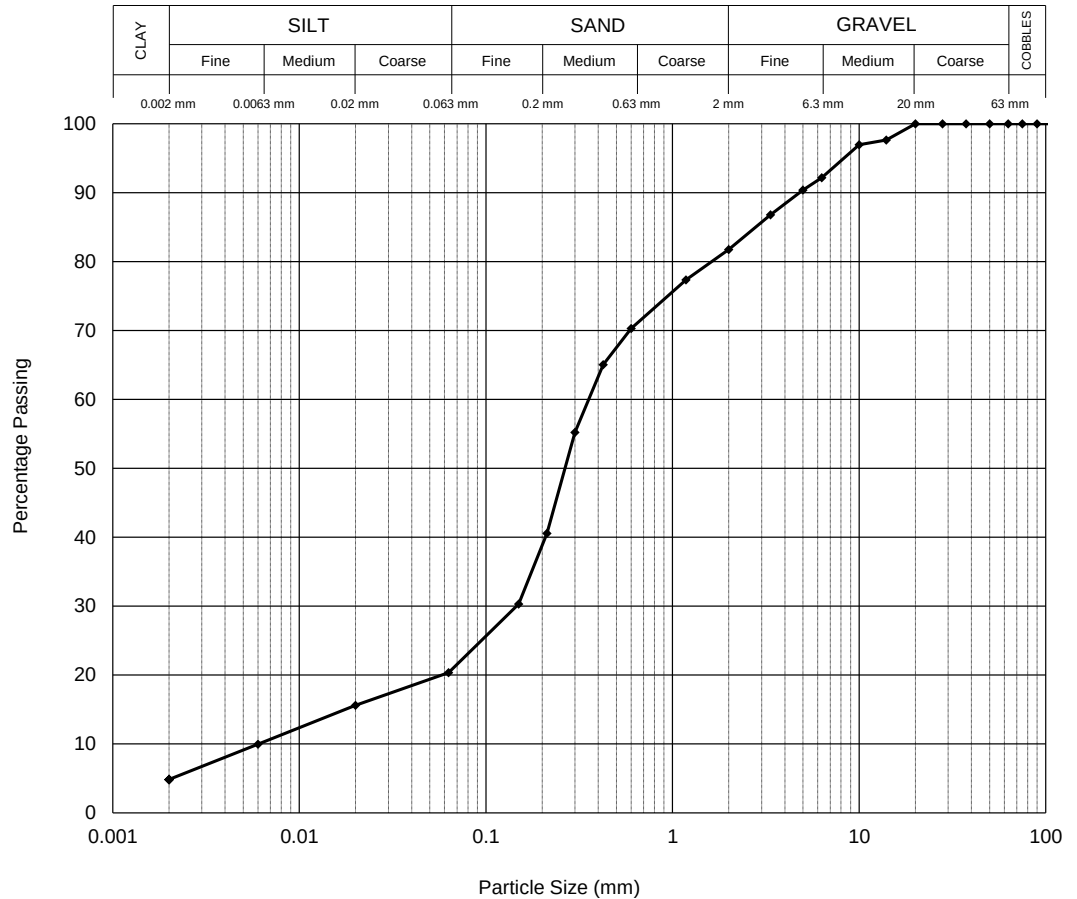
Location BH1005
Sample Depth 4.00-4.45 m
Sample Type B

Description

Black and dark grey mottled slightly clayey silty gravelly SAND. Gravel is fine to medium.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	98
10.0 mm	97
6.30 mm	92
5.00 mm	90
3.35 mm	87
2.00 mm	82
1.18 mm	77
600 µm	70
425 µm	65
300 µm	55
212 µm	41
150 µm	30
63 µm	20



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	16
6 µm	10
2 µm	5

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	18.2
Sand	61.4
Silt	15.5
Clay	4.9

Tested by XW
Checked and Approved by



J Sturges - Operations Manager
31/05/2024

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ID MANCHESTER
51019/02



PARTICLE SIZE DISTRIBUTION

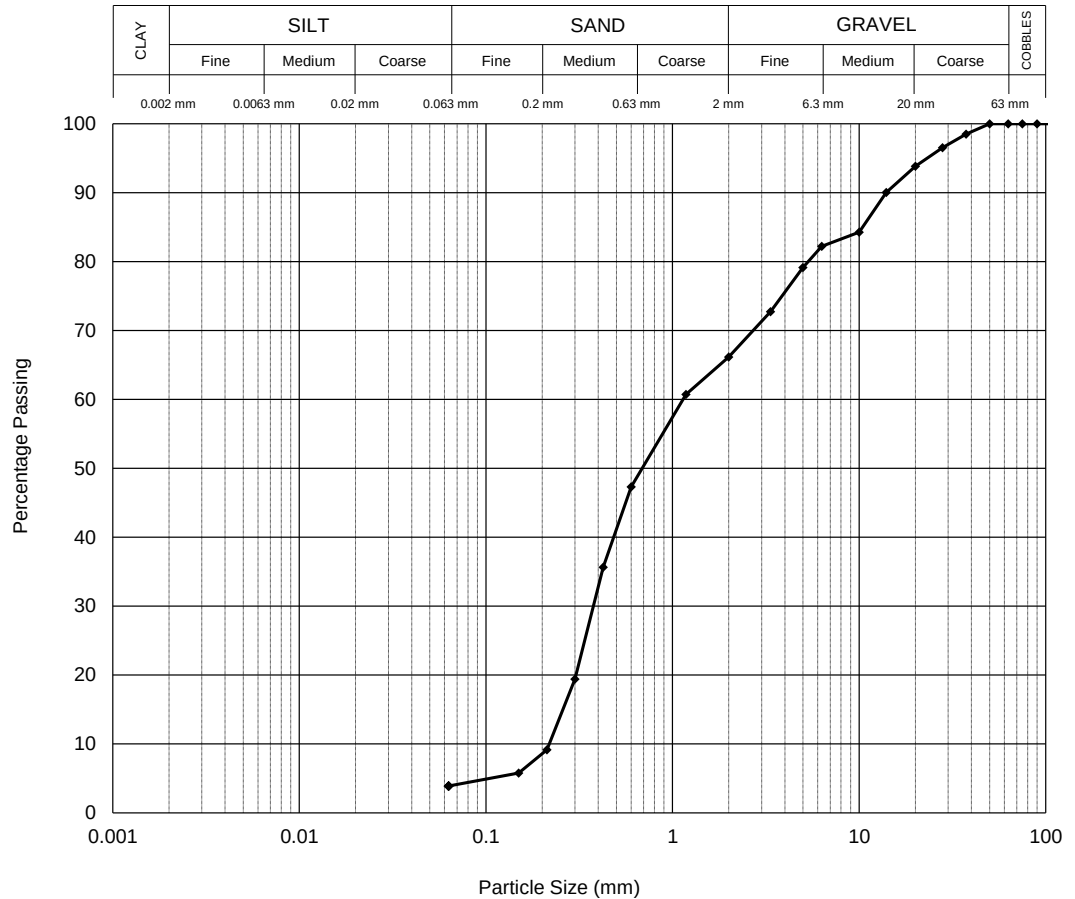
Location BH1005
Sample Depth 5.00-5.50 m
Sample Type B

Description

Grey brown slightly silty very gravelly SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	98
28.0 mm	97
20.0 mm	94
14.0 mm	90
10.0 mm	84
6.30 mm	82
5.00 mm	79
3.35 mm	73
2.00 mm	66
1.18 mm	61
600 µm	47
425 µm	36
300 µm	19
212 µm	9
150 µm	6
63 µm	4



Particle Proportions	
Cobbles	0.0
Gravel	33.8
Sand	62.3
Silt & Clay	3.9

Tested by XW
Checked and Approved by

J Sturges - Operations Manager
31/05/2024

Project Number:

GEO / 40435

Project Name:

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51019/02**

PARTICLE SIZE DISTRIBUTION

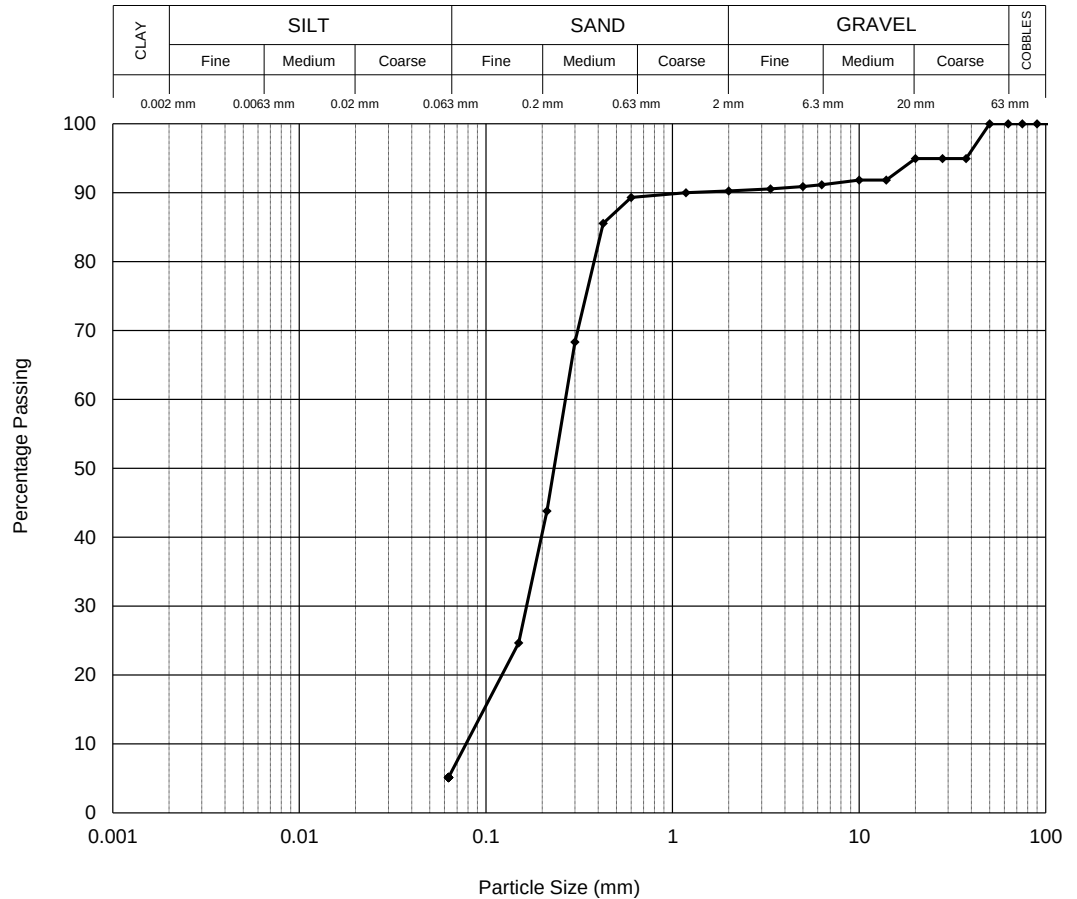
Location BH1005
Sample Depth 6.50-7.50 m
Sample Type B

Description

Orangish brown slightly silty gravelly SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	95
28.0 mm	95
20.0 mm	95
14.0 mm	92
10.0 mm	92
6.30 mm	91
5.00 mm	91
3.35 mm	91
2.00 mm	90
1.18 mm	90
600 µm	89
425 µm	86
300 µm	68
212 µm	44
150 µm	25
63 µm	5



Particle Proportions	
Cobbles	0.0
Gravel	9.8
Sand	85.1
Silt & Clay	5.1

Tested by XW
Checked and Approved by

J Sturges - Operations Manager
31/05/2024

Project Number:

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Project Name:

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51019/02**

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

982

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: BH1005
Sample Ref.: -
Depth (m): 13.00-13.20

Description:
Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered

Diameter

72.00 mm

Height

163.90 mm

Bulk Density

2.00 Mg/m³

Dry Density

1.95 Mg/m³

Water Content

2.5 %

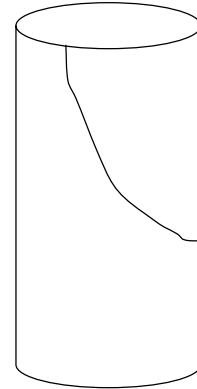
Degree of Saturation: 14.9 %

Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Date tested: 22/05/2024

Test results**Unconfined Compressive Strength**

Maximum load (kN): 28.70

7.05 MPa

Young's Modulus

(tangential at 50% failure load)

2.31 GPa

Poisson's Ratio

(tangential at 50% failure load)

0.47

Young's Modulus

(secant at 10% failure load)

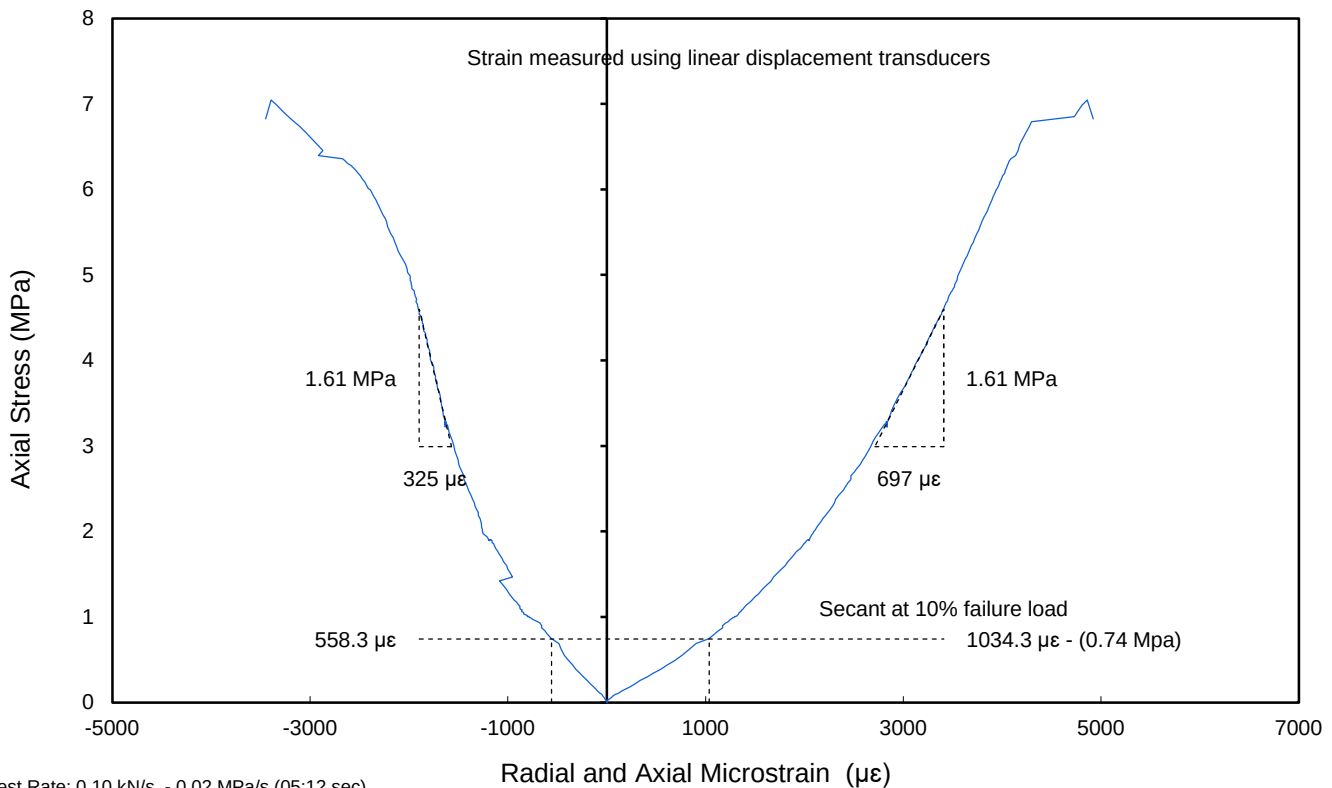
0.72 GPa

Poisson's Ratio

(secant at 10% failure load)

0.54

Sample type

C

Test Rate: 0.10 kN/s - 0.02 MPa/s (05:12 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 24/05/2024

Project Number:

GEO / 40435

Project Name:

**ID MANCHESTER
51019/02****GEOLABS®**

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D _e (mm)	Failure Load P (kN)	I _s P/De ² (MPa)	Correction Factor F	Point Load Index I _{s(50)} (MPa)
								Start D	End D'						
BH1001		7.50-9.00	Extremely weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	23/05/24	D	L	103.7	102.8	100.4		101.6	0.37	0.04	1.38	0.06
BH1001		10.50-12.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	23/05/24	A	P	98.2	59.8	57.6		84.9	0.62	0.09	1.27	0.11
BH1001		13.50-15.00	Extremely weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	23/05/24	D	L	104.5	100.4	98.1		99.2	0.27	0.03	1.36	0.04
BH1003		15.00-16.50	Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	23/05/24	A	P	71.1	61.9	60.2		73.8	3.27	0.60	1.19	0.71
BH1003		21.00-22.50	Very weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	24/05/24	D	L	33.1	31.7	29.8		30.7	0.05	0.06	0.80	0.05
BH1003		22.50-24.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	23/05/24	D	L	71.9	70.4	68.4		69.4	0.77	0.16	1.16	0.19
BH1003		24.00-25.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	23/05/24	D	L	71.6	70.6	68.1		69.3	0.51	0.11	1.16	0.13
BH1005		8.50-10.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	24/05/24	D	L	37.9	35.9	33.3		34.6	0.19	0.16	0.85	0.14

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by  I Tabios (Head of Department) Date: 24/05/2024	Project Number: GEO / 40435	 
	Project Name: ID MANCHESTER 51019/02	

TESTING RESTRICTION

The following tests have been scheduled on the below project. Those listed **CANNOT** be performed for the reason stated. If alternative samples are available for the restricted tests, please supply details.

Sample details				Tests restricted	Reason for restriction and comments
Borehole Ref.	Sample Ref.	Depth (m)	Description		
BH1001		10.50-12.00	n/a	UCS w/ YM and PR	Sample too short even for recoring. Cancel test.
BH1003		15.00-16.50	n/a	UCS	Sample too short even for recoring. Cancel test.
BH1003		21.00-22.50	n/a	UCS w/ YM and PR	Sample failed during recoring process.
BH1005		8.50-10.00	n/a	UCS	Sample failed during recoring process.
BH1005		13.00-14.50	n/a	Not Test Restricted but please see comments	Sample only scheduled for Point Load but is suitable for UCS.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 24/05/2024

Project Number:

GEO / 40435

Project Name:

ID MANCHESTER
51019/02



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web: www.geolabs.co.uk

Civic Earth Limited
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77 Dale Street
Manchester
M1 2HG

30 May 2024

Report No : GEO/40436/01

Page 1 of 1

For the attention of Ms K Poore

Our ref **GEO / 40436**
Your Ref **51019/02**

Date samples received 01/05/2024
Date written instructions received 07/05/2024
Date testing commenced 08/05/2024
Date of sample disposal 27/06/2024

Project **ID MANCHESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Geotechnical Test Summary
~	2	Water Content
~	2	Liquid & Plastic Limits
2	5	Particle Size Distribution
3	1	Unconsolidated Undrained Triaxial Compression

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**



S Burke
Senior Technician

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC	LL	PL	PI	<425 µm	Bulk	Dry	Condition	Cell Pressure	Deviator Stress	Shear Stress	pH	2:1 W/S SO4	W/S Mg	
					%	%	%	%	%	Mg/m³	Mg/m³		kPa	kPa	kPa		g/L	mg/L	
BH1006	2.00-2.45		B	Dark brown gravelly clayey sandy SILT.	23.0		NP		56										
BH1006	3.00-3.50		B	Dark brown slightly gravelly clayey silty SAND with rare brick fragments.															Particle Size Distribution
BH1006	5.00-5.50		B	Brown clayey silty very gravelly SAND.															Particle Size Distribution
BH1006	9.50-10.50		B	Orangish brown slightly clayey slightly silty gravelly SAND.															Particle Size Distribution
BH1007	4.00-5.50		B	Orangish brown SAND.															Particle Size Distribution
BH1015B	2.00-2.45		U	Soft to firm brown sandy CLAY.	24.2					1.93	1.56	Undisturbed	40	72	36				
BH1015B	3.00-3.50		B	Dark brown gravelly sandy silty CLAY. Gravel is fine to medium.	18.2	27	17	10	74										
BH1015B	6.00		B	Orangish brown slightly gravelly slightly clayey silty SAND.															Particle Size Distribution

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

NP=Non Plastic

Checked and Approved by  S Burke - Senior Technician 30/05/2024	Project Number: GEO / 40436 Project Name: ID MANCHESTER 51019/02	
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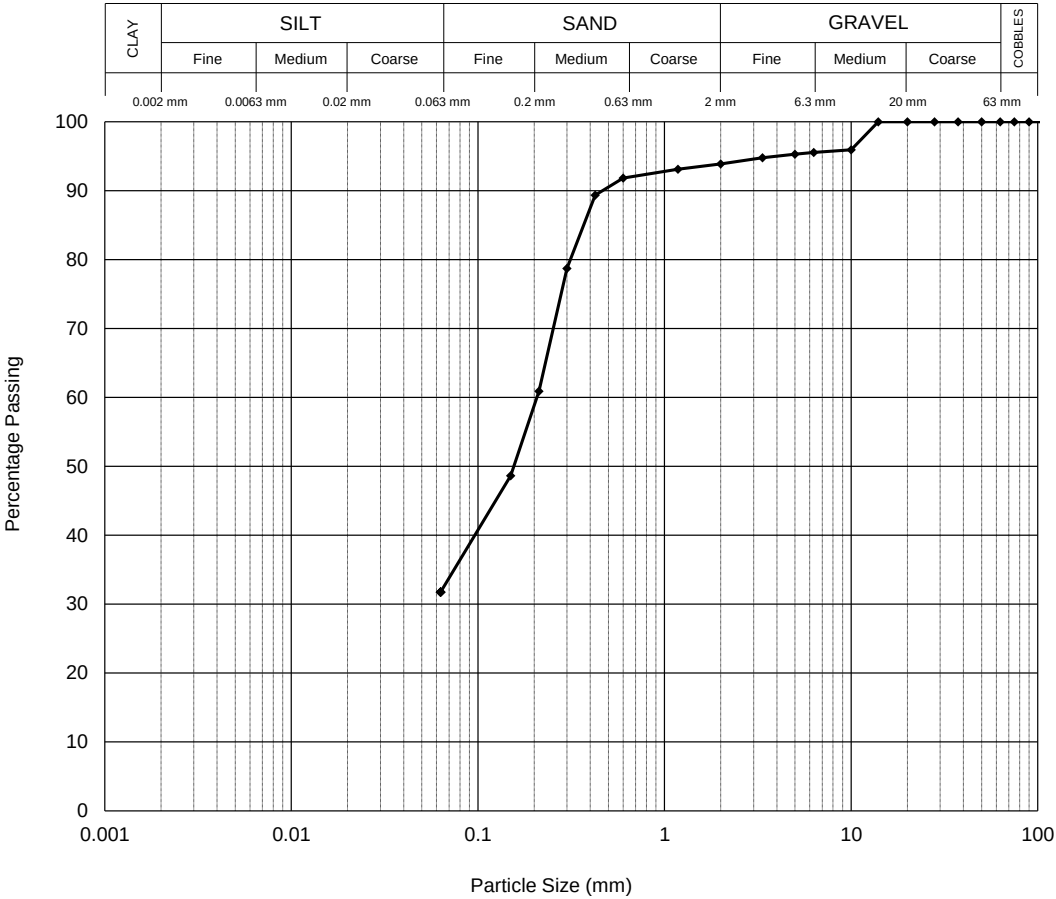
PARTICLE SIZE DISTRIBUTION

Location BH1006
Sample Depth 3.00-3.50 m
Sample Type B

Description
Dark brown slightly gravelly clayey silty SAND with rare brick fragments.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	96
6.30 mm	96
5.00 mm	95
3.35 mm	95
2.00 mm	94
1.18 mm	93
600 µm	92
425 µm	89
300 µm	79
212 µm	61
150 µm	49
63 µm	32



Particle Proportions	
Cobbles	0.0
Gravel	6.1
Sand	62.1
Silt & Clay	31.8

Tested by XW
Checked and Approved by
S Burke
S Burke - Senior Technician
30/05/2024

Project Number:
GEO / 40436
Project Name:
**ID MANCHESTER
51019/02**



PARTICLE SIZE DISTRIBUTION

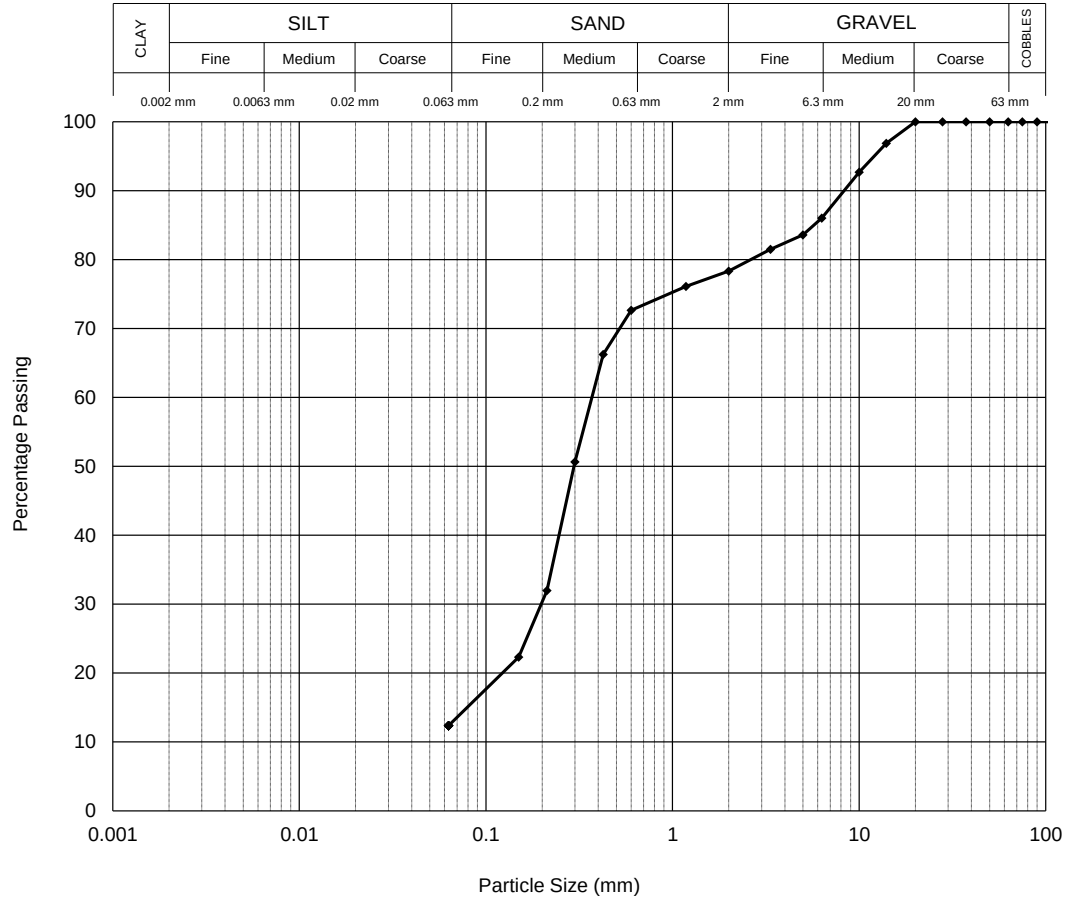
Location BH1006
Sample Depth 5.00-5.50 m
Sample Type B

Description

Brown clayey silty very gravelly SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	97
10.0 mm	93
6.30 mm	86
5.00 mm	84
3.35 mm	81
2.00 mm	78
1.18 mm	76
600 µm	73
425 µm	66
300 µm	51
212 µm	32
150 µm	22
63 µm	12



Particle Proportions	
Cobbles	0.0
Gravel	21.7
Sand	65.9
Silt & Clay	12.4

Tested by XW
Checked and Approved by

S Burke

S Burke - Senior Technician
30/05/2024

Project Number:

GEO / 40436

Project Name:

ID MANCHESTER
51019/02



PARTICLE SIZE DISTRIBUTION

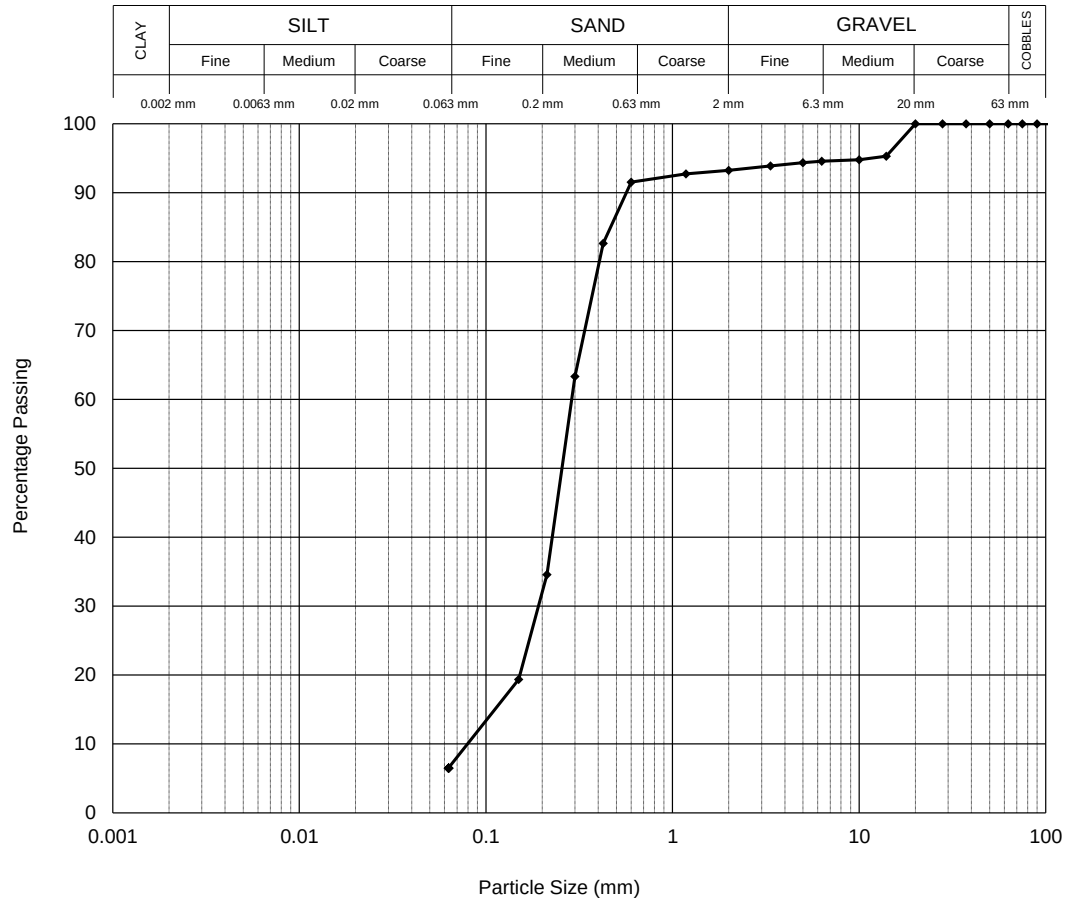
Location BH1006
Sample Depth 9.50-10.50 m
Sample Type B

Description

Orangish brown slightly clayey slightly silty gravelly SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	95
10.0 mm	95
6.30 mm	95
5.00 mm	94
3.35 mm	94
2.00 mm	93
1.18 mm	93
600 µm	92
425 µm	83
300 µm	63
212 µm	35
150 µm	19
63 µm	7



Particle Proportions	
Cobbles	0.0
Gravel	6.8
Sand	86.7
Silt & Clay	6.5

Tested by AD
Checked and Approved by

S Burke

S Burke - Senior Technician
30/05/2024

Project Number:

GEO / 40436

Project Name:

ID MANCHESTER
51019/02



PARTICLE SIZE DISTRIBUTION

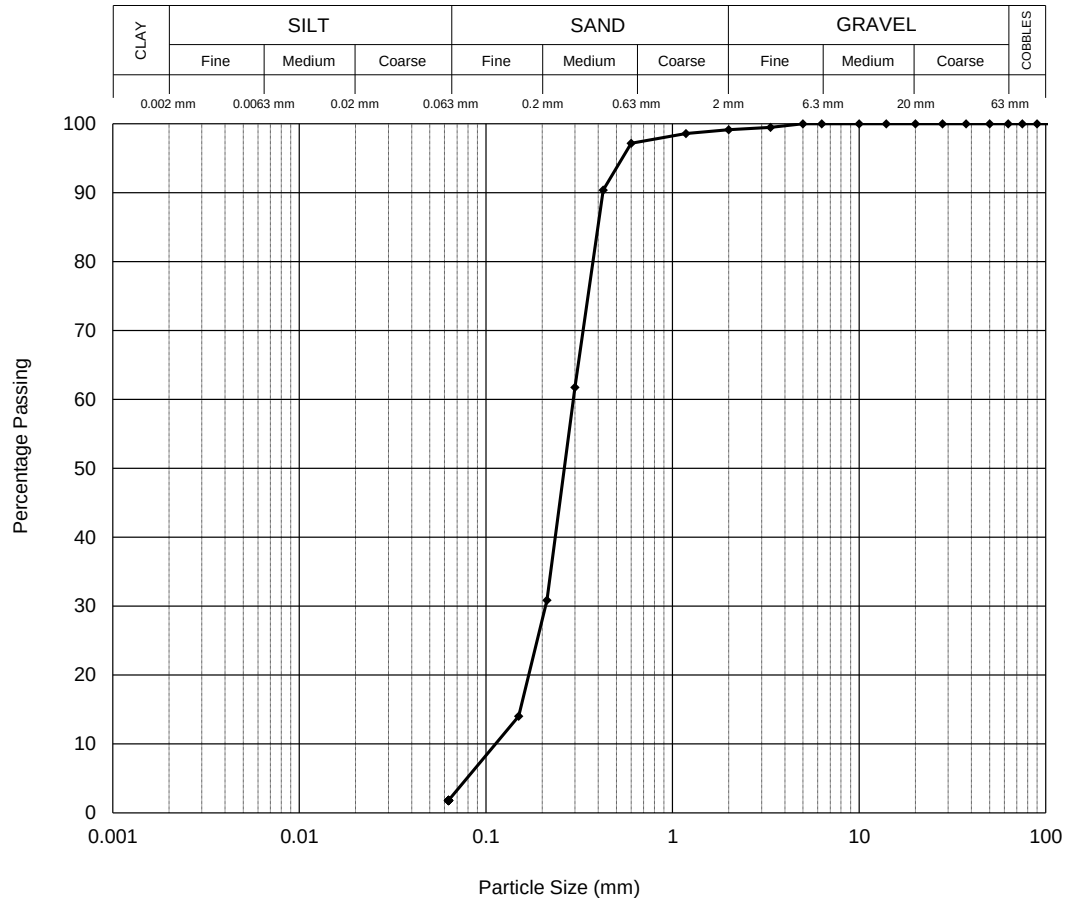
Location BH1007
Sample Depth 4.00-5.50 m
Sample Type B

Description

Orangish brown SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	99
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	90
300 µm	62
212 µm	31
150 µm	14
63 µm	2



Particle Proportions	
Cobbles	0.0
Gravel	0.9
Sand	97.3
Silt & Clay	1.8

Tested by XW
Checked and Approved by

S Burke

S Burke - Senior Technician
30/05/2024

Project Number:

GEO / 40436

Project Name:

ID MANCHESTER
51019/02



PARTICLE SIZE DISTRIBUTION

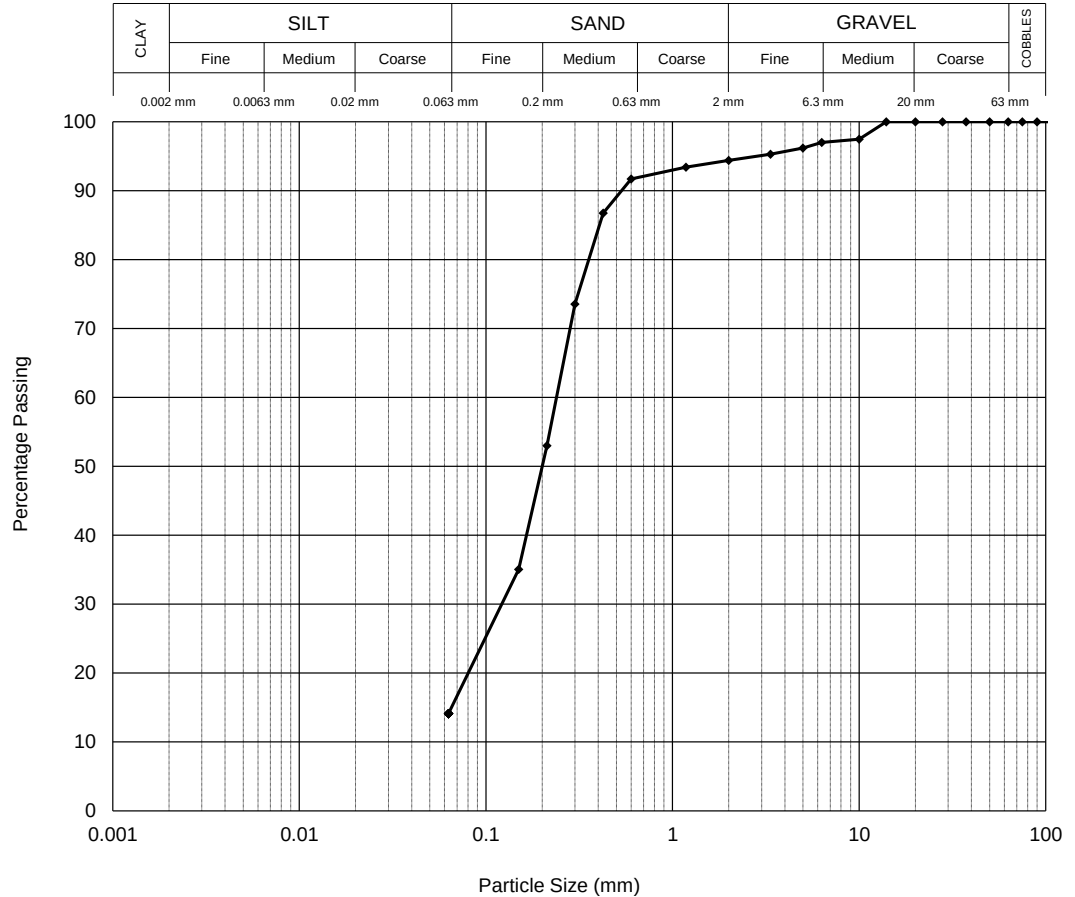
Location BH1015B
Sample Depth 6.00 m
Sample Type B

Description

Orangish brown slightly gravelly slightly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	97
6.30 mm	97
5.00 mm	96
3.35 mm	95
2.00 mm	94
1.18 mm	93
600 µm	92
425 µm	87
300 µm	74
212 µm	53
150 µm	35
63 µm	14



Particle Proportions	
Cobbles	0.0
Gravel	5.6
Sand	80.3
Silt & Clay	14.1

Tested by XW
Checked and Approved by

S Burke

S Burke - Senior Technician
30/05/2024

Project Number:

GEO / 40436

Project Name:

ID MANCHESTER
51019/02



UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

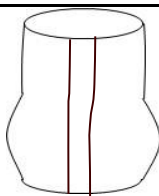
Location BH1015B
Sample Depth 2.00-2.45 m
Sample Type U

Description:

Soft to firm brown sandy CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.3
Diameter	(mm)	101.8
Water content	(%)	24.2
Bulk density	(Mg/m ³)	1.93
Dry density	(Mg/m ³)	1.56
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.3
Membrane correction	(kPa)	1.1
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	40
Strain at failure	(%)	20.0
Maximum deviator stress	(kPa)	72
Shear Stress Cu	(kPa)	36

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	115

Tested by ME
Checked and Approved by

S Burke - Senior Technician
30/05/2024

Project Number:

GEO / 40436

Project Name:

**ID MANCHESTER
51019/02****GEOLABS**

GEOLABS Limited
Bucknalls Lane
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Hertfordshire
WD25 9XX

Tel: +44(0) 1923 892 190
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email: admin@geolabs.co.uk
web: www.geolabs.co.uk

Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

20 May 2024

Report No : GEO/40437/01

Page 1 of 1

For the attention of Ms K Poore

Our ref **GEO / 40437**
Your Ref **51019/02**

Date samples received 01/05/2024
Date written instructions received 07/05/2024
Date testing commenced 08/05/2024
Date of sample disposal 17/06/2024

Project **ID MANCHESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Liquid & Plastic Limits Summary
~	1	Water Content
~	1	Liquid & Plastic Limits

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**



S Burke
Senior Technician

Test Type:	2 - 4 point 80g / 30° fall cone method.	Sample condition:	1 - As Received 2 - Air Dried 3 - Washed & Air Dried
-------------------	---	--------------------------	--

GEOLABS Limited
Bucknalls Lane
Garston
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Hertfordshire
WD25 9XX

Tel: +44(0) 1923 892 190
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email: admin@geolabs.co.uk
web: www.geolabs.co.uk

Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

12 June 2024

Report No : GEO/40519/01

Page 1 of 1

For the attention of Ms K Poore

Our ref **GEO / 40519**
Your Ref **51019/02**

Date samples received 01/05/2024
Date written instructions received 20/05/2024
Date testing commenced 21/05/2024
Date of sample disposal 10/07/2024

Project **ID MANCHESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Liquid & Plastic Limits Summary
~	3	Water Content
~	3	Liquid & Plastic Limits
2	6	Particle Size Distribution
3	1	Unconfined Compressive Strength
4	2	Unconfined Compressive Strength with Deformability
5	1	Point Load Strength Index

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**



S Burke
Senior Technician

BS EN ISO 17892-12 : 2018+A2:2022

SUMMARY OF LIQUID AND PLASTIC LIMIT TESTS

[illegible]

Test Type:	2 - 4 point 80g / 30° fall cone method.
------------	---

Sample condition:

- 1 - As Received
- 2 - Air Dried
- 3 - Washed & Air Dried

Checked and Approved by:

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02



PARTICLE SIZE DISTRIBUTION

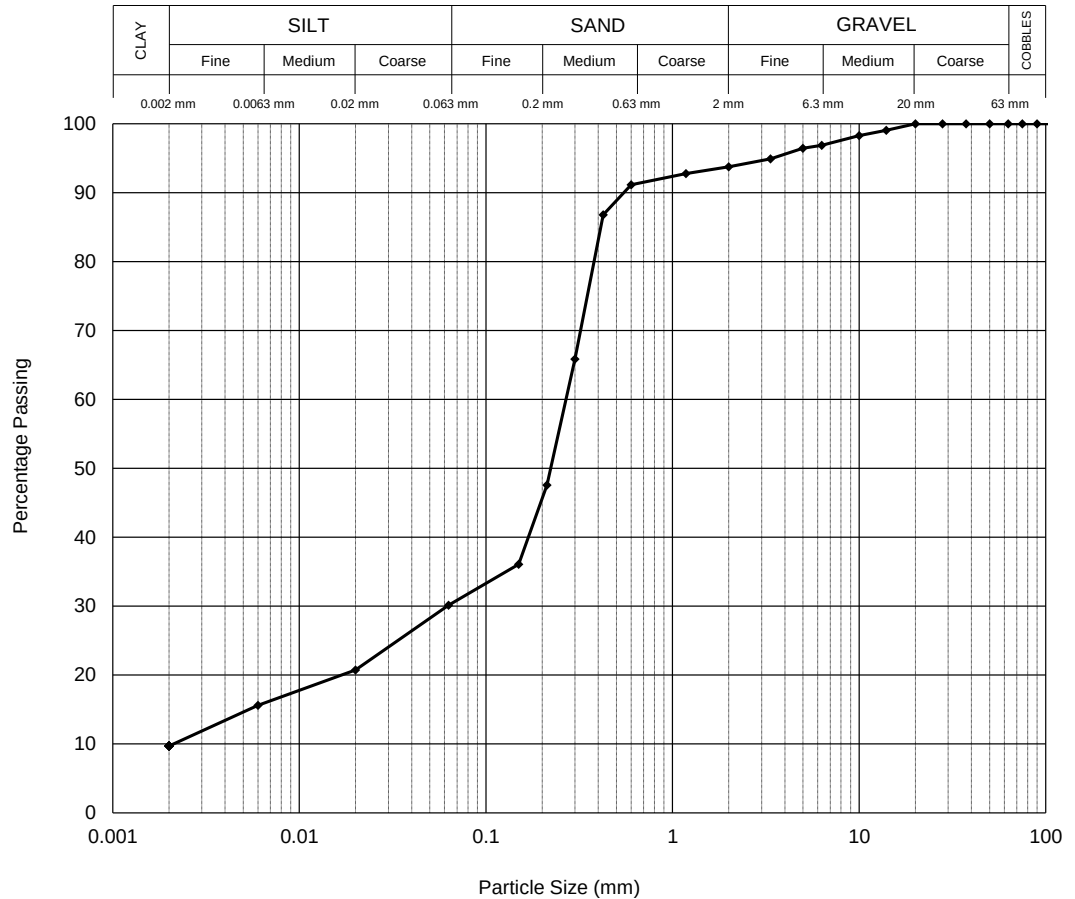
Location BH1002
 Sample Depth 5.00-5.50 m
 Sample Type B

Description

Orangish brown slightly gravelly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
 BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	99
10.0 mm	98
6.30 mm	97
5.00 mm	96
3.35 mm	95
2.00 mm	94
1.18 mm	93
600 µm	91
425 µm	87
300 µm	66
212 µm	48
150 µm	36
63 µm	30



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	21
6 µm	16
2 µm	10

Particle Proportions	
Cobbles	0.0
Gravel	6.3
Sand	63.6
Silt	20.4
Clay	9.7

Particle Density 2.70(A) Mg/m³

Tested by MJ
 Checked and Approved by

S Burke

S Burke - Senior Technician
 12/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
 51019/02



PARTICLE SIZE DISTRIBUTION

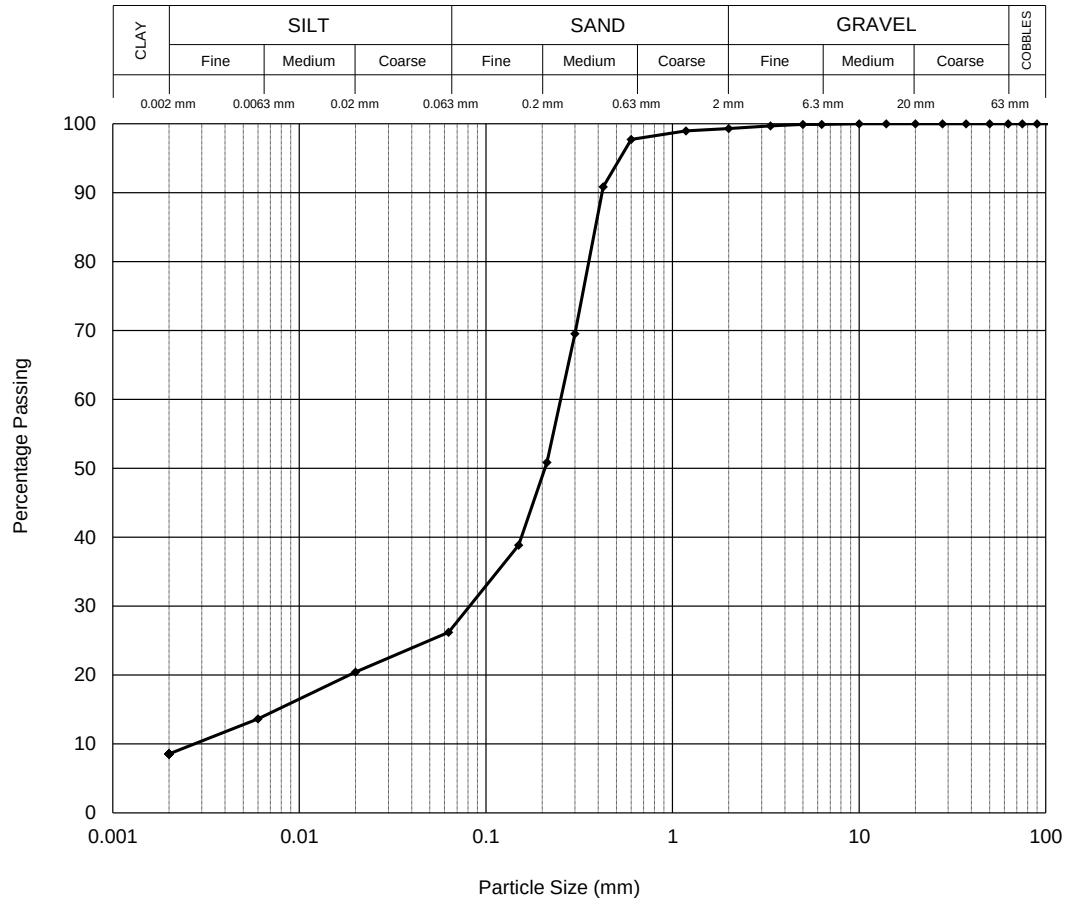
Location BH1002
Sample Depth 10.00-11.50 m
Sample Type B

Description

Orangish brown clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	98
425 µm	91
300 µm	70
212 µm	51
150 µm	39
63 µm	26



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	20
6 µm	14
2 µm	9

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	0.7
Sand	73.1
Silt	17.6
Clay	8.6

Tested by MJ
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02



PARTICLE SIZE DISTRIBUTION

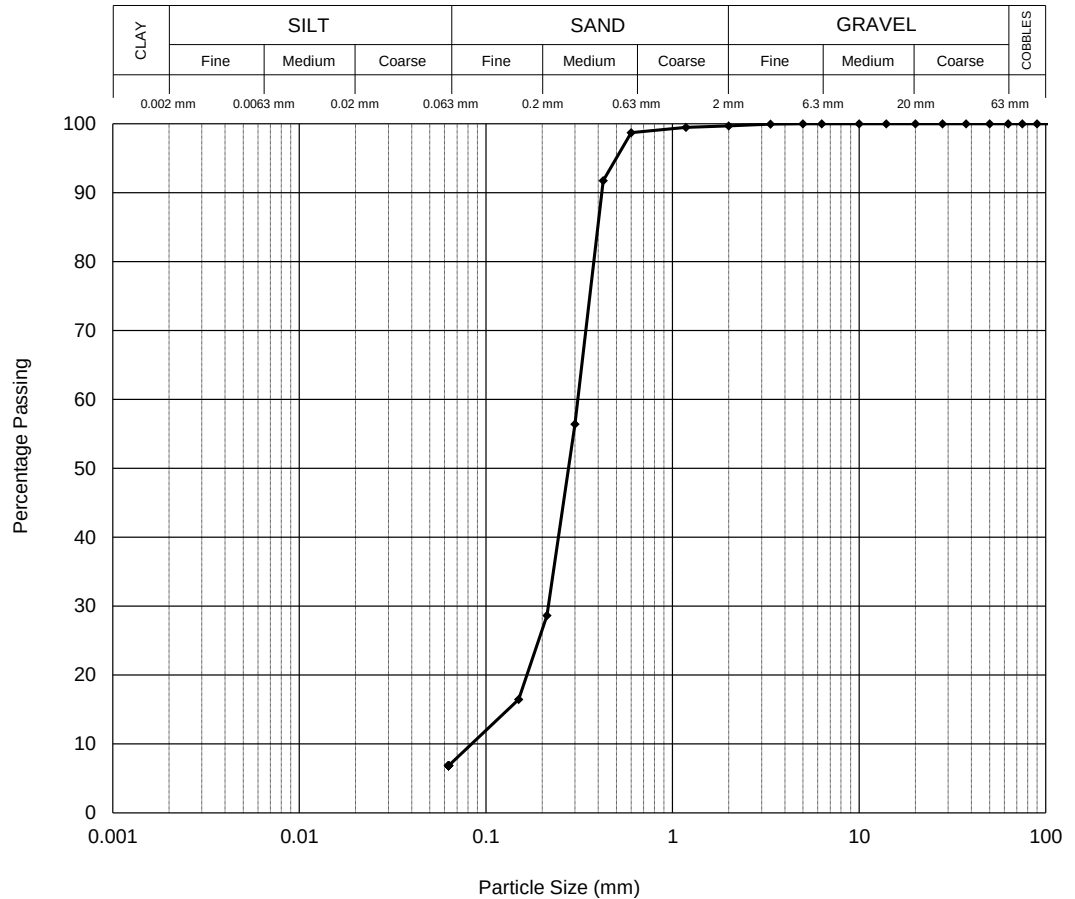
Location BH1002
Sample Depth 17.50-19.00 m
Sample Type B

Description

Orangish brown silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	99
425 µm	92
300 µm	56
212 µm	29
150 µm	16
63 µm	7



Particle Proportions	
Cobbles	0.0
Gravel	0.3
Sand	92.8
Silt & Clay	6.9

Tested by MJ
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02

PARTICLE SIZE DISTRIBUTION

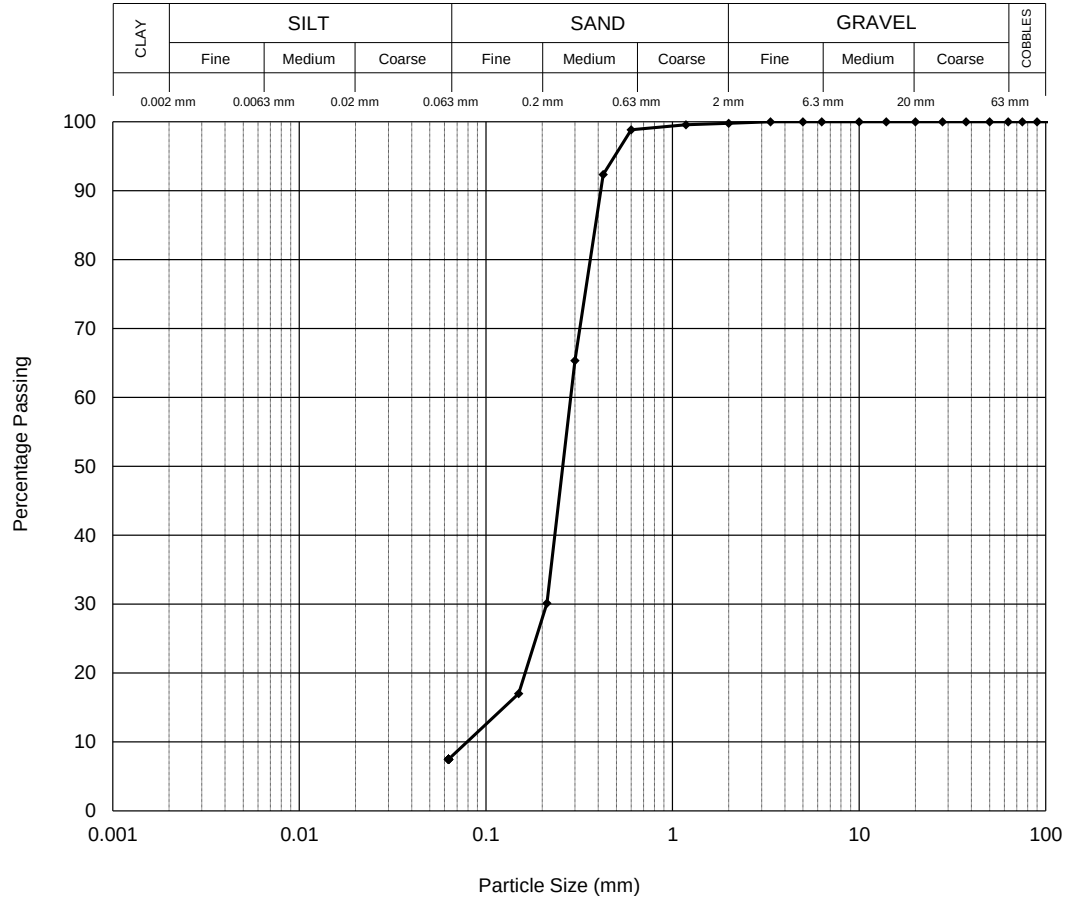
Location BH1002
Sample Depth 23.50-25.00 m
Sample Type B

Description

Orangish brown slightly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	92
300 µm	65
212 µm	30
150 µm	17
63 µm	7



Particle Proportions	
Cobbles	0.0
Gravel	0.2
Sand	92.3
Silt & Clay	7.5

Tested by MJ
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02



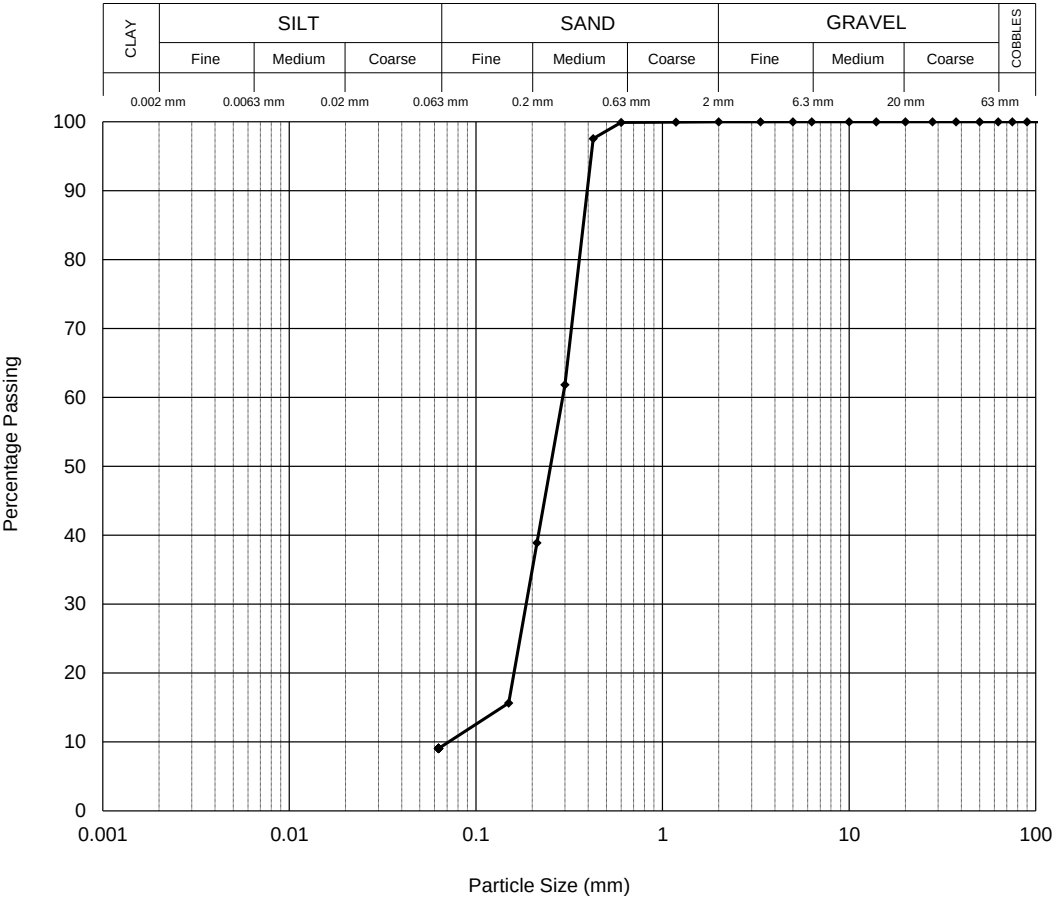
PARTICLE SIZE DISTRIBUTION

Location BH1004
Sample Depth 7.50-9.00 m
Sample Type B

Description
Orangish brown slightly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	100
425 µm	98
300 µm	62
212 µm	39
150 µm	16
63 µm	9



Particle Proportions	
Cobbles	0.0
Gravel	0.0
Sand	90.9
Silt & Clay	9.1

Tested by MJ
Checked and Approved by
S Burke
S Burke - Senior Technician
12/06/2024

Project Number:
GEO / 40519
Project Name:
**ID MANCHESTER
51019/02**



PARTICLE SIZE DISTRIBUTION

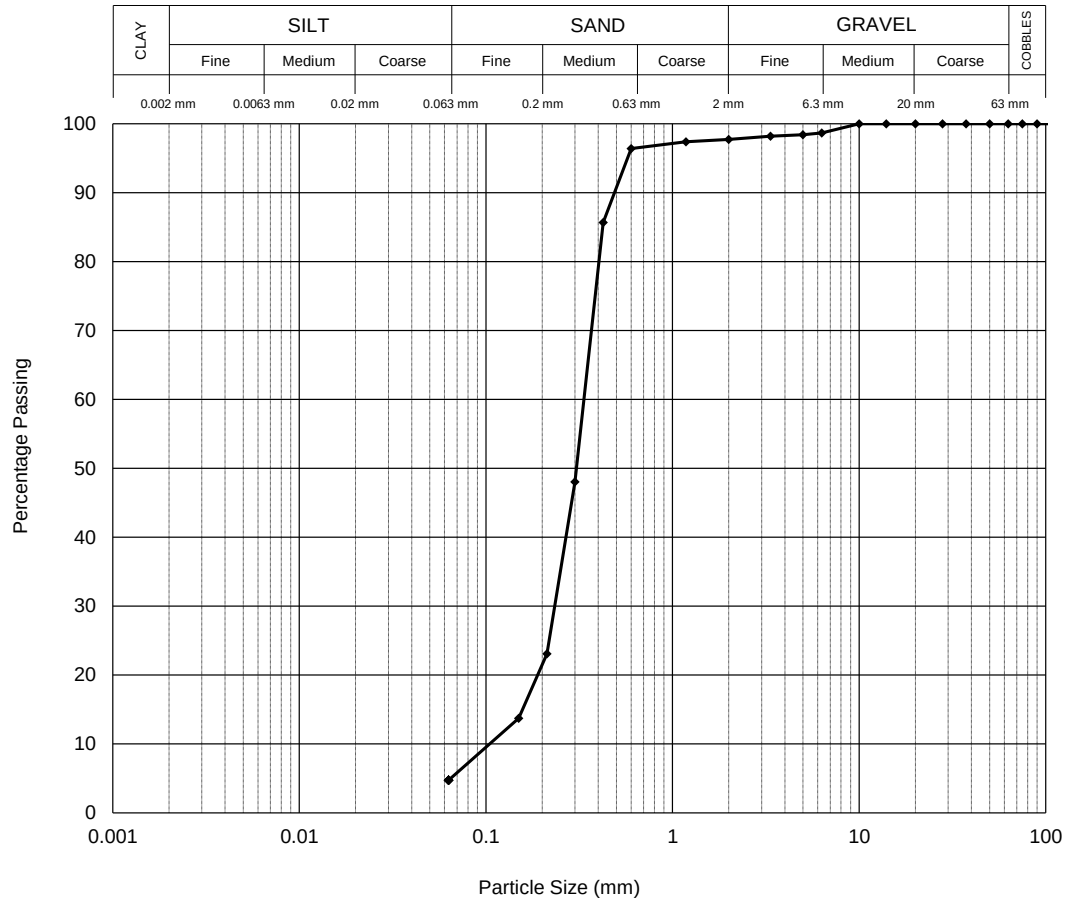
Location BH1004
Sample Depth 12.00-13.50 m
Sample Type B

Description

Reddish brown slightly gravelly slightly clayey slightly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	98
3.35 mm	98
2.00 mm	98
1.18 mm	97
600 µm	96
425 µm	86
300 µm	48
212 µm	23
150 µm	14
63 µm	5



Particle Proportions	
Cobbles	0.0
Gravel	2.3
Sand	93.0
Silt & Clay	4.7

Tested by MJ
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02



DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D _e (mm)	Failure Load P (kN)	I _s P/De ² (MPa)	Correction Factor F	Point Load Index I _{s(50)} (MPa)
								Start D	End D'						
BH1004		15.00-16.50	Extremely weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	P	86.3	85.9	84.8		85.3	0.16	0.02	1.27	0.03

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by IT I Tabios (Head of Department) Date: 06/06/2024	Project Number: GEO / 40519 Project Name: ID MANCHESTER 51019/02	 
--	---	--

TESTING RESTRICTION

The following tests have been scheduled on the below project. Those listed **CANNOT** be performed for the reason stated. If alternative samples are available for the restricted tests, please supply details.

Sample details				Tests restricted	Reason for restriction and comments
Borehole Ref.	Sample Ref.	Depth (m)	Description		
BH1004		15.00-16.50	n/a	UCS	No suitable sample throughout the core. Cancel UCS and perform Point Load Test instead.
BH1004		18.00-19.50	n/a	UCS	Sample too short. Recore a 54mm diameter specimen to get a suitable UCS sample.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 03/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02



UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details						Density		Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
BH1004		13.50-15.00	Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	5.0	28.7	2.02	1.92	100.30	211.90	2.1	54.7	6.92		04/06/24	Test Upper 1/3 of Core.
BH1004		16.50-18.00	Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	8.2	43.0	2.02	1.87	99.40	208.80	2.1	40.4	5.21		03/06/24	Test Middle 1/3 of Core.
BH1004		18.00-19.50	Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	9.7	48.2	2.01	1.83	53.50	112.70	2.1	13.9	6.18		04/06/24	Test Lower 1/3 of Core.

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  I Tabios (Head of Department) Date: 06/06/2024	Project Number: GEO / 40519 Project Name: ID MANCHESTER 51019/02	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: BH1004
 Sample Ref.: -
 Depth (m): 13.50-15.00

Description:

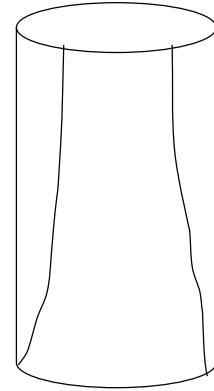
Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered

Diameter	100.30 mm
Height	211.90 mm
Bulk Density	2.02 Mg/m ³
Dry Density	1.92 Mg/m ³
Water Content	5.0 %
Degree of Saturation: 28.7 %	Specific Gravity: 2.9 Mg/m ³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Axial splitting



Solid lines for material failures.
 Dashed lines for apparent weakness failure.

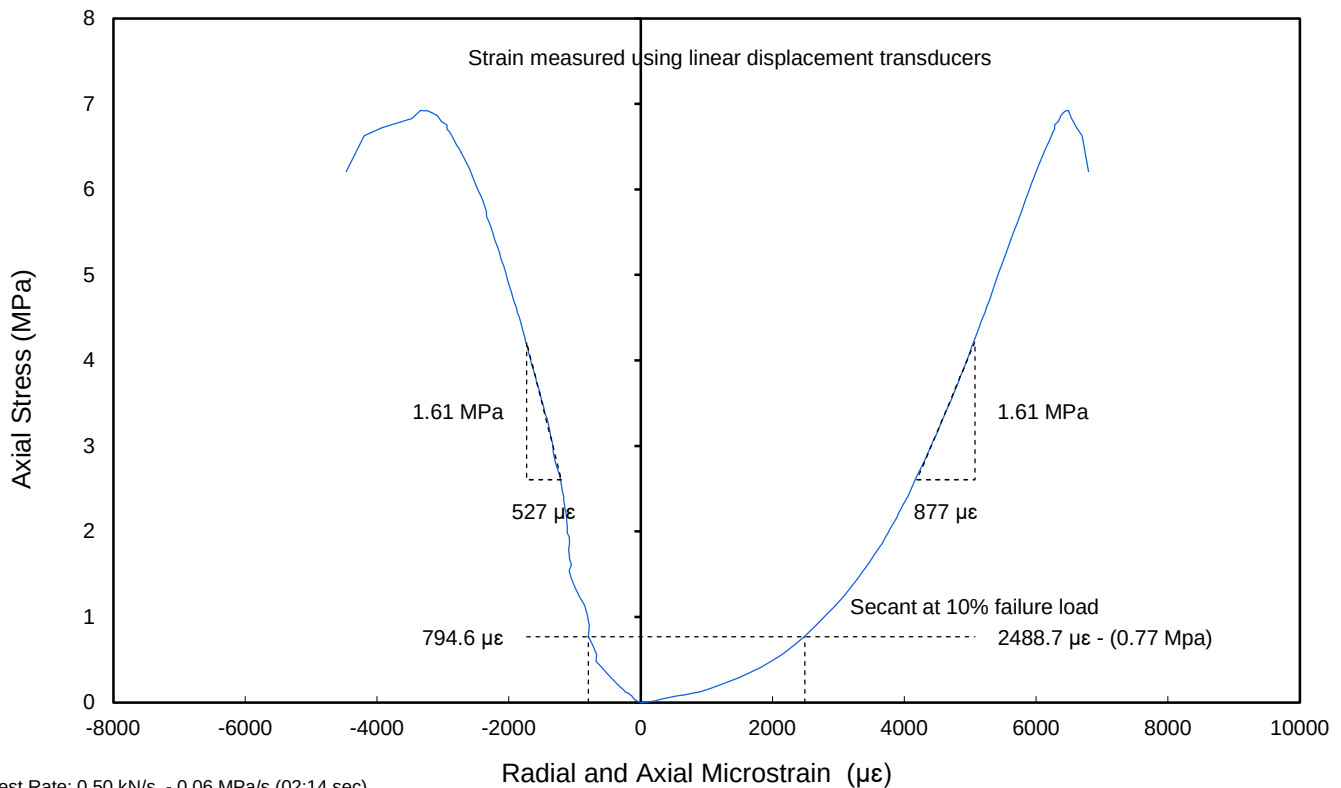
Angle of foliation/Axis of loading: n/a
 Angle of shear plane/Axis of loading: n/a

Date tested: 04/06/2024

Test results

Unconfined Compressive Strength Maximum load (kN): 54.70	6.92 MPa
Young's Modulus (tangential at 50% failure load)	1.84 GPa
Poisson's Ratio (tangential at 50% failure load)	0.60
Young's Modulus (secant at 10% failure load)	0.31 GPa
Poisson's Ratio (secant at 10% failure load)	0.32

Sample type

C

Test Rate: 0.50 kN/s - 0.06 MPa/s (02:14 sec)

Remarks: Test Upper 1/3 of Core.

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02

GEOLABS®

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: BH1004
 Sample Ref.: -
 Depth (m): 16.50-18.00

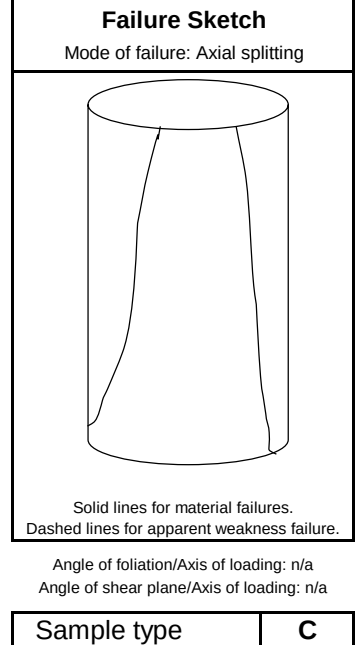
Description:
 Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered

Diameter	99.40 mm
Height	208.80 mm
Bulk Density	2.02 Mg/m ³
Dry Density	1.87 Mg/m ³
Water Content	8.2 %
Degree of Saturation: 43.0 %	Specific Gravity: 2.9 Mg/m ³ (Assumed)

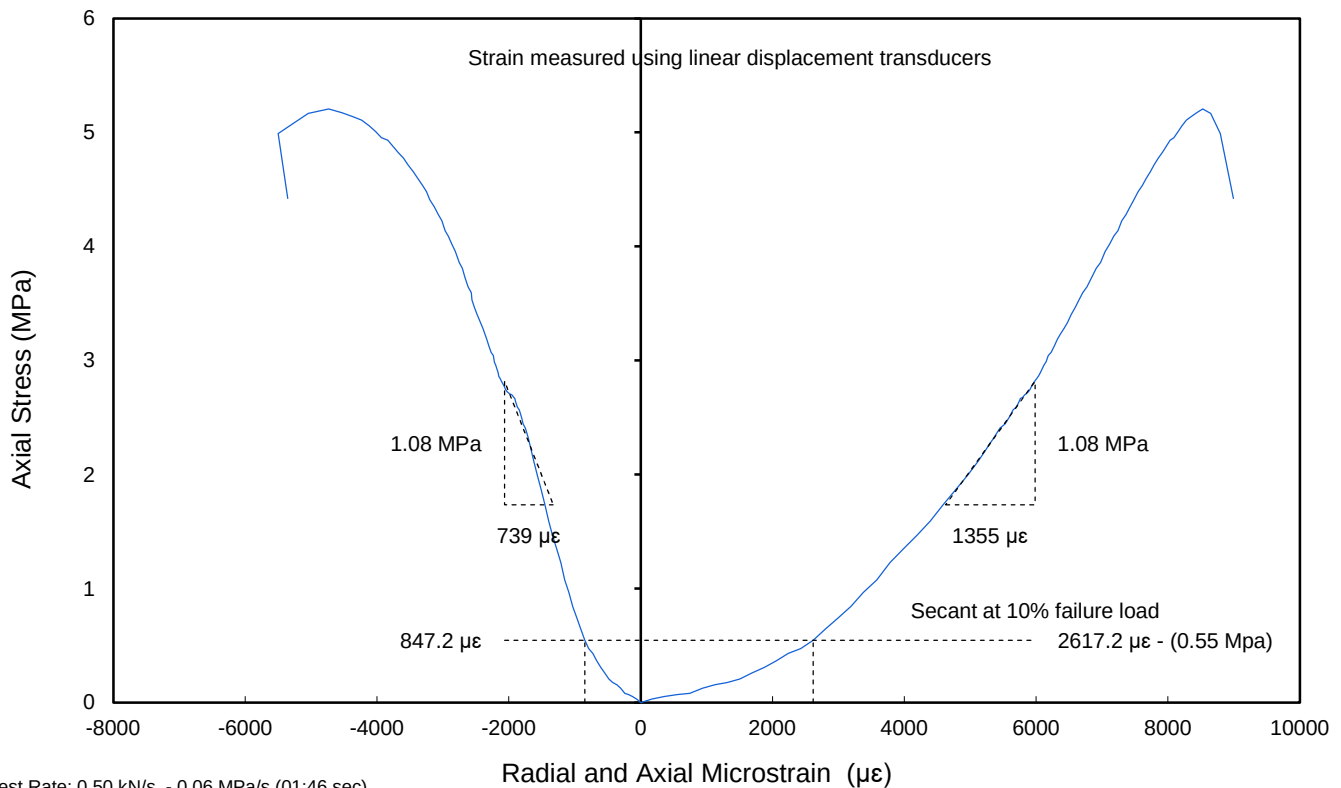
Test results

Unconfined Compressive Strength Maximum load (kN): 40.40	5.21 MPa
Young's Modulus (tangential at 50% failure load)	0.799 GPa
Poisson's Ratio (tangential at 50% failure load)	0.55
Young's Modulus (secant at 10% failure load)	0.209 GPa
Poisson's Ratio (secant at 10% failure load)	0.32

LF0879C (1000kN) compression frame used



Date tested: 03/06/2024



Test Rate: 0.50 kN/s - 0.06 MPa/s (01:46 sec)

Remarks: Test Middle 1/3 of Core.

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40519

Project Name:

**ID MANCHESTER
51019/02****GEOLABS®**

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.: BH1004
 Sample Ref.: -
 Depth (m): 18.00-19.50

Description:
 Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered

Diameter
Height
Bulk Density
Dry Density
Water Content

53.50 mm
112.70 mm
2.01 Mg/m ³
1.83 Mg/m ³
9.7 %

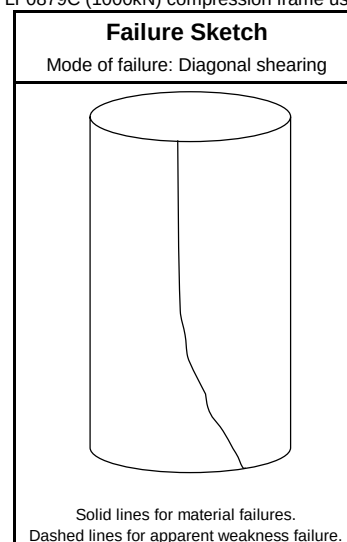
Degree of Saturation: 48.2 %

Specific Gravity: 2.9 Mg/m³ (Assumed)**Test results**

Unconfined Compressive Strength Maximum load (kN): 13.90
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

6.18 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used



Date tested: 04/06/2024

Angle of foliation/Axis of loading: n/a
 Angle of shear plane/Axis of loading: n/a

Sample type	C
-------------	---

Remarks: Test Lower 1/3 of Core.

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40519

Project Name:

ID MANCHESTER
51019/02

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Manchester
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06 June 2024

Report No : GEO/40520/01

Page 1 of 1

For the attention of Ms K Poore

Our ref **GEO / 40520**
Your Ref **51019/02**

Date samples received 01/05/2024
Date written instructions received 20/05/2024
Date testing commenced 21/05/2024
Date of sample disposal 04/07/2024

Project **ID MANCHESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	3	Particle Size Distribution
2	1	Unconfined Compressive Strength
3	4	Point Load Strength Index

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**



S Burke
Senior Technician

PARTICLE SIZE DISTRIBUTION

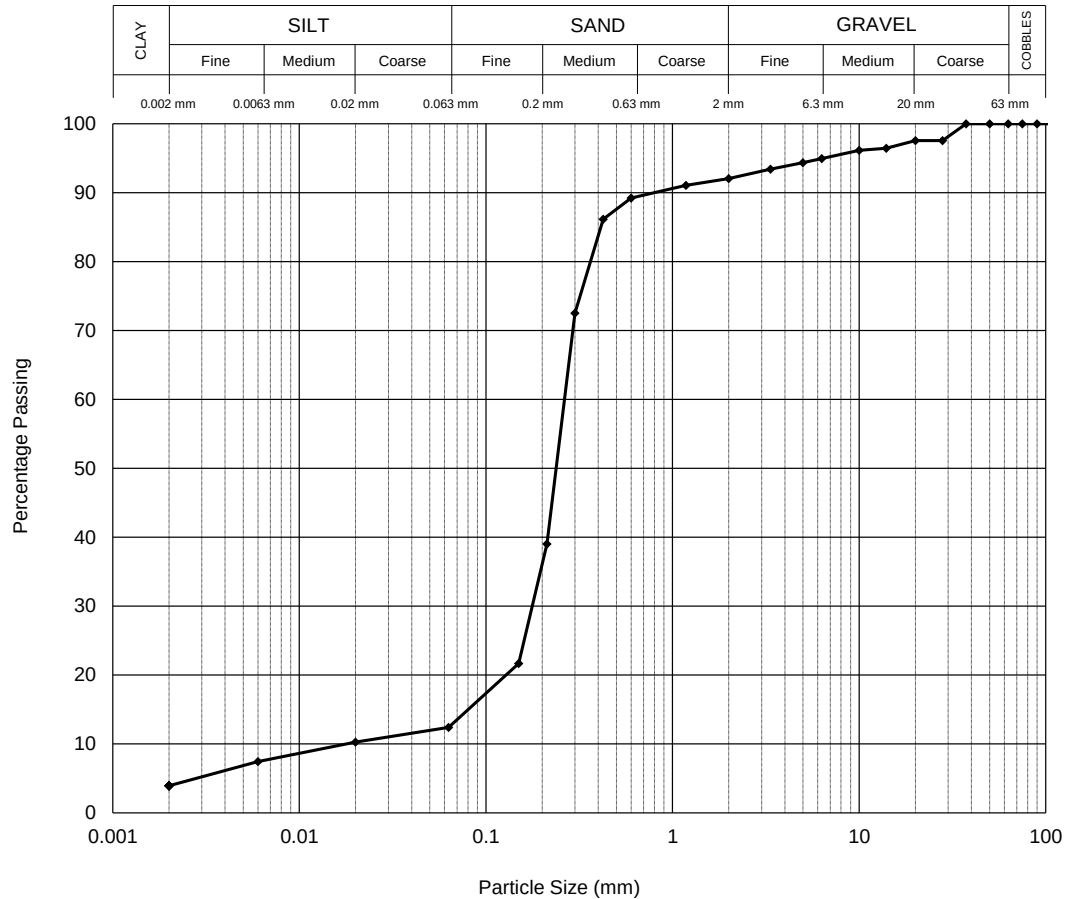
Location BH1008
Sample Depth 3.00-3.50 m
Sample Type B

Description

Orangish brown slightly clayey gravelly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	98
20.0 mm	98
14.0 mm	96
10.0 mm	96
6.30 mm	95
5.00 mm	94
3.35 mm	93
2.00 mm	92
1.18 mm	91
600 µm	89
425 µm	86
300 µm	73
212 µm	39
150 µm	22
63 µm	12



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	10
6 µm	7
2 µm	4

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	8.0
Sand	79.6
Silt	8.5
Clay	3.9

Tested by TH
Checked and Approved by

S Burke

S Burke - Senior Technician
06/06/2024

Project Number:

GEO / 40520

Project Name:

ID MANCHESTER
51019/02



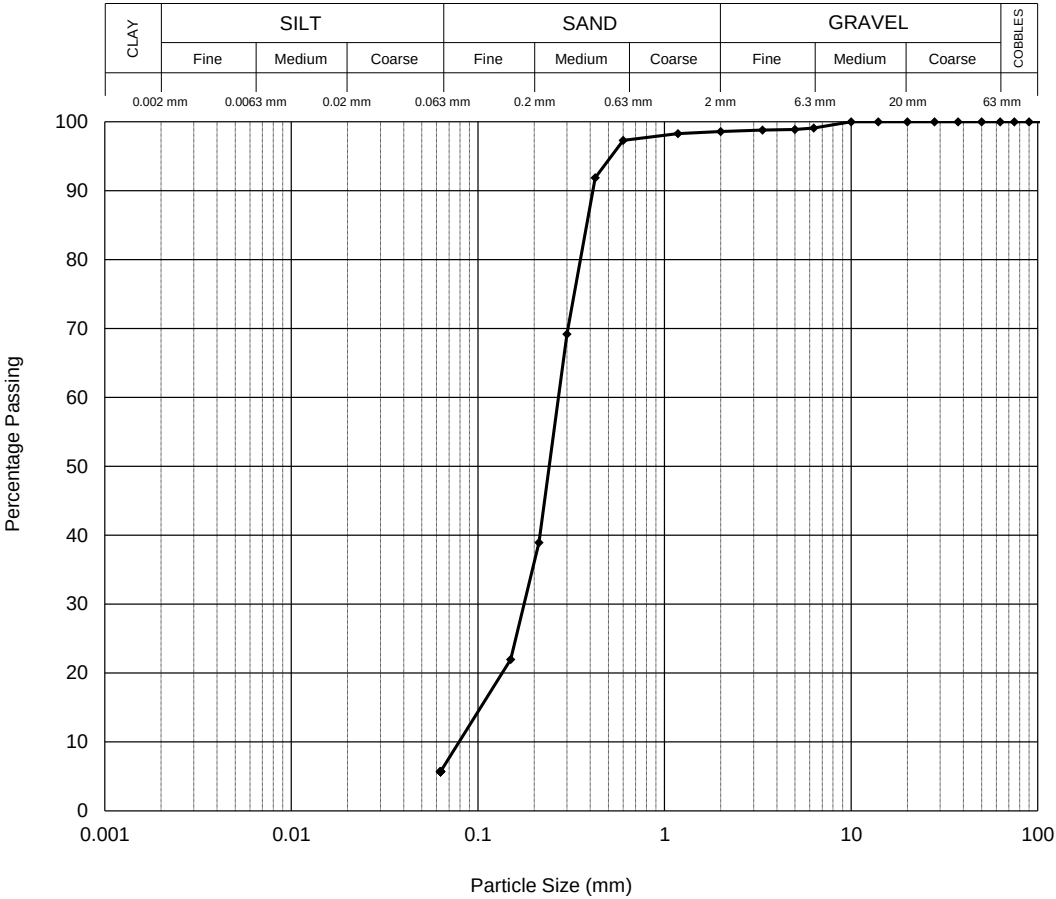
PARTICLE SIZE DISTRIBUTION

Location BH1013A
Sample Depth 18.00-19.50 m
Sample Type B

Description
Orangish brown slightly gravelly silty clayey SAND. Gravel is fine to medium.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	92
300 µm	69
212 µm	39
150 µm	22
63 µm	6



Particle Proportions	
Cobbles	0.0
Gravel	1.4
Sand	92.9
Silt & Clay	5.7

Tested by TH
Checked and Approved by
S Burke
S Burke - Senior Technician
06/06/2024

Project Number:
GEO / 40520
Project Name:
ID MANCHESTER
51019/02



PARTICLE SIZE DISTRIBUTION

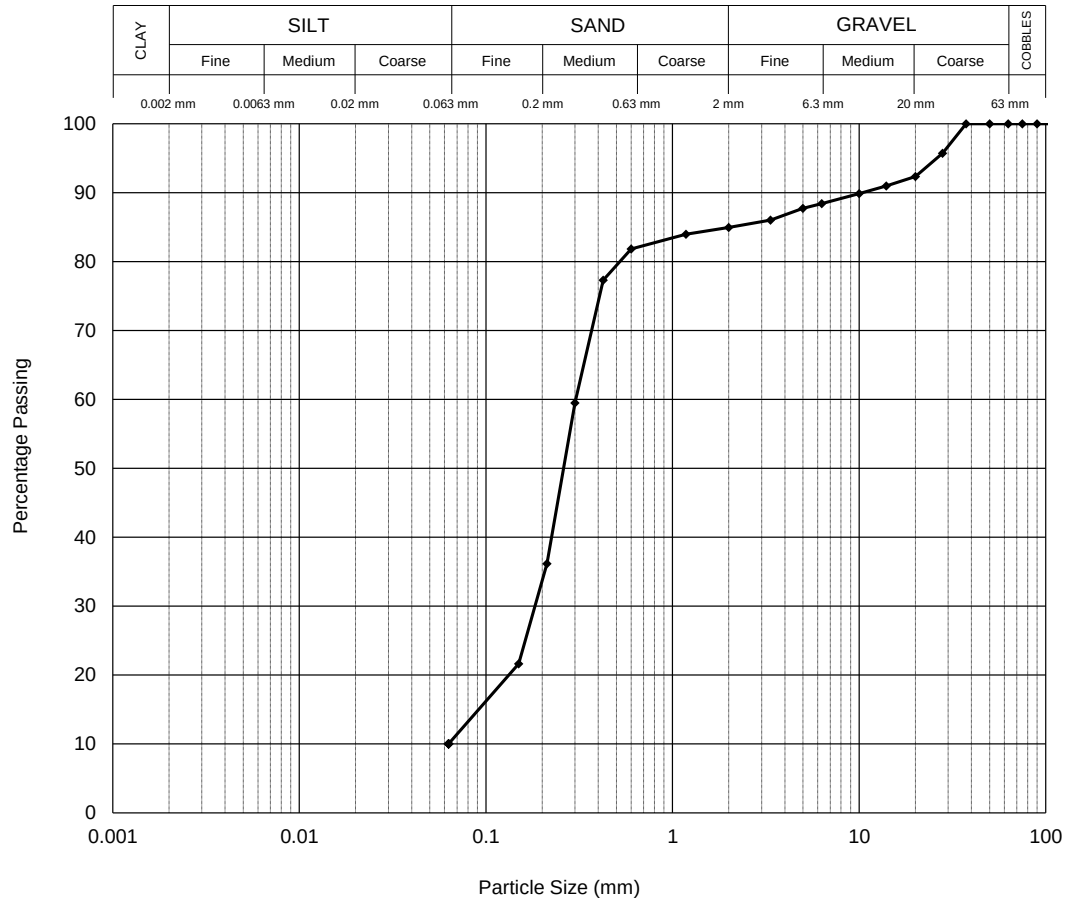
Location FIP1014
Sample Depth 1.00 m
Sample Type B

Description

Orangish brown gravelly silty clayey SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	96
20.0 mm	92
14.0 mm	91
10.0 mm	90
6.30 mm	88
5.00 mm	88
3.35 mm	86
2.00 mm	85
1.18 mm	84
600 µm	82
425 µm	77
300 µm	59
212 µm	36
150 µm	22
63 µm	10



Particle Proportions	
Cobbles	0.0
Gravel	15.1
Sand	74.9
Silt & Clay	10.0

Tested by TH
Checked and Approved by

S Burke

S Burke - Senior Technician
06/06/2024

Project Number:

GEO / 40520

Project Name:

ID MANCHESTER
51019/02

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D _e (mm)	Failure Load P (kN)	I _s P/De ² (MPa)	Correction Factor F	Point Load Index I _{s(50)} (MPa)
								Start D	End D'						
BH1008		3.00-4.50	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	P	97.8	97.2	96.6		96.9	0.95	0.10	1.35	0.13
BH1008		6.00-7.50	Extremely weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	A	L	98.4	42.8	41.3		71.9	0.22	0.04	1.18	0.05
BH1013A		12.00-13.50	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	P	99.1	98.6	97.6		98.1	0.66	0.07	1.35	0.09
BH1013A		15.00-16.50	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	P	98.4	97.9	97.3		97.6	0.85	0.09	1.35	0.12

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by  I Tabios (Head of Department) Date: 06/06/2024	Project Number: GEO / 40520 Project Name: ID MANCHESTER 51019/02	 
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Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

982

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.: BH1008
 Sample Ref.: -
 Depth (m): 4.50-6.00

Description:
 Weak reddish brown fine to medium grained SANDSTONE. Slightly to moderately weathered

Diameter
Height
Bulk Density
Dry Density
Water Content

100.20 mm
238.10 mm
2.07 Mg/m ³
1.90 Mg/m ³
8.8 %

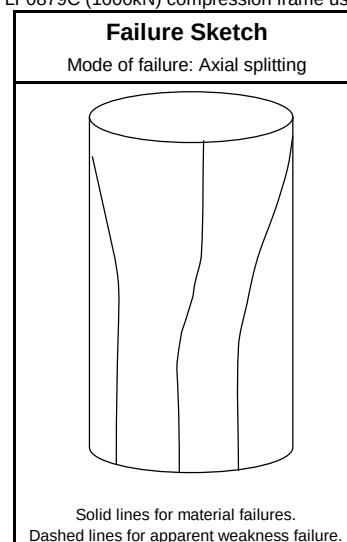
Degree of Saturation: 48.5 %

Specific Gravity: 2.9 Mg/m³ (Assumed)**Test results**

Unconfined Compressive Strength Maximum load (kN): 62.60
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

7.94 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used



Date tested: 03/06/2024

Angle of foliation/Axis of loading: n/a
 Angle of shear plane/Axis of loading: n/a

Sample type	C
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Remarks: Test Middle 1/3 of Core.

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40520

Project Name:

ID MANCHESTER
51019/02

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13 June 2024

Report No : GEO/40521/01

Page 1 of 1

For the attention of Ms K Poore

Our ref **GEO / 40521**

Your Ref **51019/02**

Project **ID MANCHESTER**

Date samples received 01/05/2024
 Date written instructions received 20/05/2024
 Date testing commenced 21/05/2024
Date of sample disposal 11/07/2024

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Liquid & Plastic Limits Summary
~	5	Water Content
~	4	Liquid & Plastic Limits
2	1	Particle Size Distribution

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All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
 on behalf of **GEOLABS Limited**



S Burke
 Senior Technician



PARTICLE SIZE DISTRIBUTION

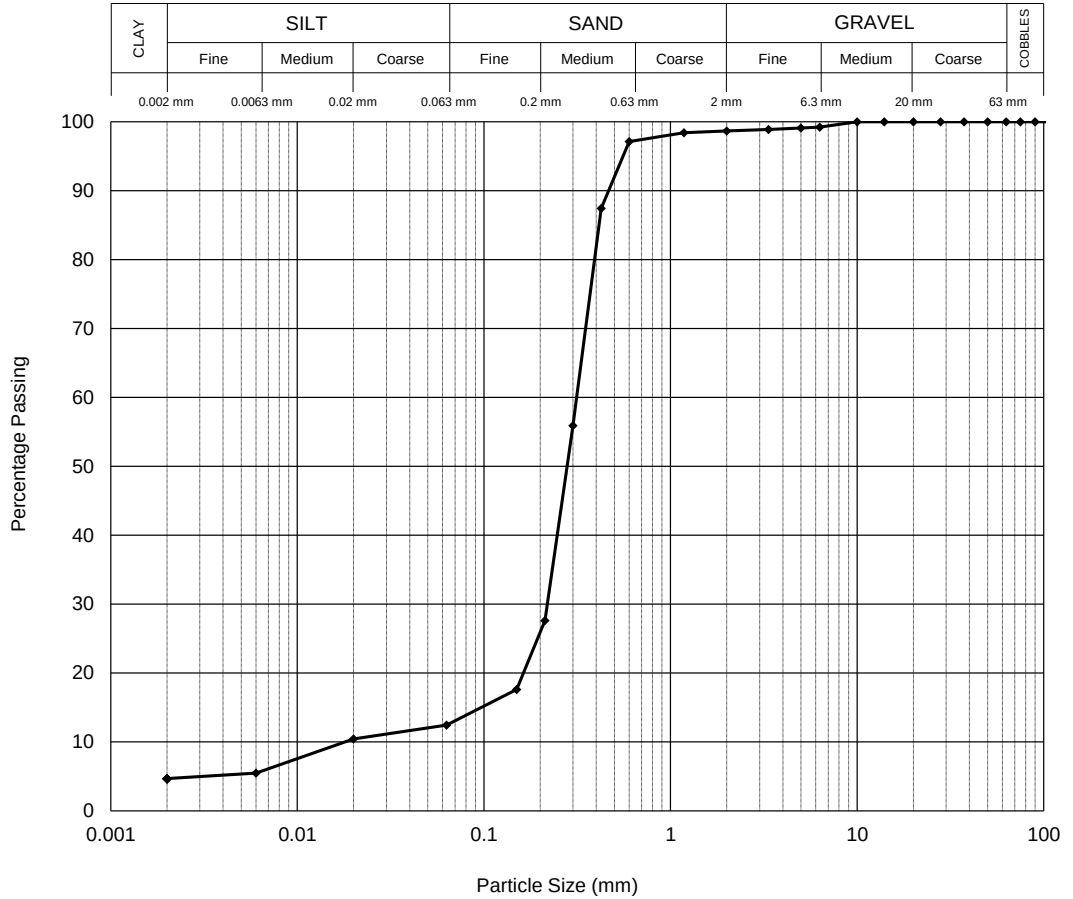
Location BH1009
 Sample Depth 11.50-13.00 m
 Sample Type B

Description

Orangish brown slightly gravelly slightly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
 BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	87
300 µm	56
212 µm	28
150 µm	18
63 µm	12



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	10
6 µm	5
2 µm	5

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	1.3
Sand	86.2
Silt	7.8
Clay	4.7

Tested by TH
 Checked and Approved by

S Burke

S Burke - Senior Technician
 13/06/2024

Project Number:

GEO / 40521

Project Name:

ID MANCHESTER
 51019/02



<div><div>GEOLABS®</div></div>		Client		Civic Earth Limited				TEST RESTRICTION			
		Project No.		40521		Date				05/06/2024	
		Project Name		ID MANCHESTER							
The following tests have been scheduled on the above project and CANNOT be performed for the reason stated. If alternative instructions or samples are available for the restricted tests, please supply details.											
Laboratory ID	Location	Sample Ref.	Depth (m)		Type	Test(s) Scheduled			Reason for Restriction	Description	
625890	BH1009		5.00	5.45	U				Sample fell out of tube in pieces - none suitable to test.	Stiff slightly sandy slightly gravelly CLAY. Gravel is fine to medium.	
							UU TXL				
625889	BH1009		3.00	3.45	U				Sample fell out of tube in pieces - none suitable to test.	Soft to stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium.	
							UU TXL				
Comments / remarks										Test restriction raised by	
											



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M1 2HG

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

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

e: kirsty.poore@civicearth.com

Analytical Combined Report - ID Manchester

Project / Site name:	ID Manchester	Samples received on:	22/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	24/05/2024
Your order number:	PO-0096	Analysis completed by:	29/05/2024
Report Issue Number:	1	Report issued on:	03/06/2024
Samples Analysed:	17 soil samples		

Signed:

Izabela Wójcik

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

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

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

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

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

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



Analytical Combined Report - ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				208759	208760	208761	208762	208763
Sample Reference				BH1001	BH1003	BH1005	BH1005	BH1003
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.50	1.00-1.45	1.00-1.50	2.00-2.45	3.00-3.45
Date Sampled				10/04/2024	09/04/2024	09/04/2024	09/04/2024	09/04/2024
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	12.8	82.5
Moisture Content	%	0.01	NONE	8.7	18	15	16	6
Total mass of sample received	kg	0.1	NONE	0.4	0.5	0.3	0.4	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9.2	8.3	9.5	9.1	8.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	36	120	1600	1400	42
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.9	57.5	812	720	20.8
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2	3.9	9.6	10	2.5
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	4.6	5.5	3.1	6.7	3.4
Magnesium (water soluble)	mg/kg	5	NONE	9.1	11	6.3	13	6.7

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Combined Report - ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				208764	208765	208766	208767	210322
Sample Reference				BH1001	BH1001	BH1005	BH1003	BH1002
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				5.00-5.45	6.00-7.50	6.00-6.45	13.50-15.00	2.00-2.45
Date Sampled				10/04/2024	10/04/2024	09/04/2024	10/04/2024	26/04/2024
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	49.3	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	12	18	16	13
Total mass of sample received	kg	0.1	NONE	0.6	0.4	0.3	0.5	0.2

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.8	8.5	8.5	8.9	8.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	16	15	130	13	57
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8.14	7.46	63.4	6.57	28.4
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3	2.4	4.2	4.1	28
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	2.7	4	< 2.5	7.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	5.5	8	< 5.0	15

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Combined Report - ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				210323	210324	210325	210326	210327
Sample Reference				BH1002	BH1004	BH1004	BH1004	BH1002
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.00-4.45	0.70	3.00-3.45	6.00-6.45	5.00-5.45
Date Sampled				26/04/2024	18/05/2024	18/05/2024	18/05/2024	26/04/2024
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	83.6	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.5	12	16	17	6.1
Total mass of sample received	kg	0.1	NONE	0.4	0.6	0.5	0.4	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9	11.1	9.1	7.8	9.1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	53	280	65	150	38
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	26.4	142	32.5	77.2	18.8
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.4	20	18	16	5.6
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	3.7	< 2.0	< 2.0	3.6	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	2	< 2.0	< 2.0	2.1	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	3.6	< 2.5	2.9	6.2	3
Magnesium (water soluble)	mg/kg	5	NONE	7.1	< 5.0	5.8	12	6.1

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Combined Report - ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				210328	210329
Sample Reference				BH1002	BH1004
Sample Number				None Supplied	None Supplied
Depth (m)				20.50-22.00	9.00-10.50
Date Sampled				07/05/2024	18/05/2024
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	12	17
Total mass of sample received	kg	0.1	NONE	0.4	0.8

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9	9.3
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	16	15
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	7.73	7.46
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.4	2.7
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Combined Report - ID Manchester
Project / Site name: ID Manchester

* 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 *
208759	BH1001	None Supplied	2.00-2.50	Brown gravely sand with brick and rubble
208760	BH1003	None Supplied	1.00-1.45	Brown clay and sand with gravel
208761	BH1005	None Supplied	1.00-1.50	Brown clay and sand with gravel
208762	BH1005	None Supplied	2.00-2.45	Brown sandy clay with gravel and stones
208763	BH1003	None Supplied	3.00-3.45	Brown sand with gravel and stones
208764	BH1001	None Supplied	5.00-5.45	Brown sand with gravel
208765	BH1001	None Supplied	6.00-7.50	Brown sand with gravel and stones
208766	BH1005	None Supplied	6.00-6.45	Brown sand with gravel and vegetation
208767	BH1003	None Supplied	13.50-15.00	Brown sand
210322	BH1002	None Supplied	2.00-2.45	Brown clay
210323	BH1002	None Supplied	4.00-4.45	Brown clay and sand
210324	BH1004	None Supplied	0.7	Brown sand with brick and stones
210325	BH1004	None Supplied	3.00-3.45	Brown clay and sand with brick
210326	BH1004	None Supplied	6.00-6.45	Brown clay and sand
210327	BH1002	None Supplied	5.00-5.45	Brown clay and sand
210328	BH1002	None Supplied	20.50-22.00	Brown sand
210329	BH1004	None Supplied	9.00-10.50	Brown sand



Analytical Combined Report - ID Manchester
Project / Site name: ID Manchester

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 (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Analytical Combined Report - ID Manchester
Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1001	N/A	S	208759	c	Chloride, water soluble, in soil	L082B	c
BH1001	N/A	S	208759	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1001	N/A	S	208759	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1001	N/A	S	208759	c	pH in soil (automated)	L099	c
BH1001	N/A	S	208764	c	Chloride, water soluble, in soil	L082B	c
BH1001	N/A	S	208764	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1001	N/A	S	208764	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1001	N/A	S	208764	c	pH in soil (automated)	L099	c
BH1001	N/A	S	208765	c	Chloride, water soluble, in soil	L082B	c
BH1001	N/A	S	208765	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1001	N/A	S	208765	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1001	N/A	S	208765	c	pH in soil (automated)	L099	c
BH1002	N/A	S	210322	c	Chloride, water soluble, in soil	L082B	c
BH1002	N/A	S	210322	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1002	N/A	S	210322	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1002	N/A	S	210322	c	pH in soil (automated)	L099	c
BH1002	N/A	S	210323	c	Chloride, water soluble, in soil	L082B	c
BH1002	N/A	S	210323	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1002	N/A	S	210323	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1002	N/A	S	210323	c	pH in soil (automated)	L099	c
BH1002	N/A	S	210327	c	Chloride, water soluble, in soil	L082B	c
BH1002	N/A	S	210327	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1002	N/A	S	210327	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1002	N/A	S	210327	c	pH in soil (automated)	L099	c
BH1003	N/A	S	208760	c	Chloride, water soluble, in soil	L082B	c
BH1003	N/A	S	208760	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1003	N/A	S	208760	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1003	N/A	S	208760	c	pH in soil (automated)	L099	c
BH1003	N/A	S	208763	c	Chloride, water soluble, in soil	L082B	c
BH1003	N/A	S	208763	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1003	N/A	S	208763	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1003	N/A	S	208763	c	pH in soil (automated)	L099	c
BH1003	N/A	S	208767	c	Chloride, water soluble, in soil	L082B	c
BH1003	N/A	S	208767	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1003	N/A	S	208767	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1003	N/A	S	208767	c	pH in soil (automated)	L099	c
BH1005	N/A	S	208761	c	Chloride, water soluble, in soil	L082B	c
BH1005	N/A	S	208761	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1005	N/A	S	208761	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1005	N/A	S	208761	c	pH in soil (automated)	L099	c
BH1005	N/A	S	208762	c	Chloride, water soluble, in soil	L082B	c
BH1005	N/A	S	208762	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1005	N/A	S	208762	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1005	N/A	S	208762	c	pH in soil (automated)	L099	c
BH1005	N/A	S	208766	c	Chloride, water soluble, in soil	L082B	c
BH1005	N/A	S	208766	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1005	N/A	S	208766	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1005	N/A	S	208766	c	pH in soil (automated)	L099	c



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Combined Analytical Report - ID Manchester

Project / Site name:	ID Manchester	Samples received on:	22/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	24/05/2024
Your order number:	PO-0096	Analysis completed by:	29/05/2024
Report Issue Number:	1	Report issued on:	03/06/2024
Samples Analysed:	7 soil samples		

Signed:

Izabela Wójcik

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

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

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

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

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

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



Combined Analytical Report - ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				208803	208804	210339	210340	210341
Sample Reference				BH1012	BH1012	BH1009	WS1001	BH1009
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20-1.70	5.00-5.45	0.30-0.50	5.00	2.00-2.50
Date Sampled				23/04/2024	23/04/2024	24/04/2024	24/04/2024	24/04/2024
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	26.2	< 0.1	46.9	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	10	13	11	18
Total mass of sample received	kg	0.1	NONE	0.4	0.9	0.7	1	0.8

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.3	8.5	6.9	8.7	8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	110	45	44	73	130
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	56.7	22.6	21.8	36.3	67
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3.5	1.4	3.4	5.3	8.2
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	2.7	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	5.9	5.6	4.1	8.5	12
Magnesium (water soluble)	mg/kg	5	NONE	12	11	8.1	17	24

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Combined Analytical Report - ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				210342	210343
Sample Reference				BH1009	BH1009
Sample Number				None Supplied	None Supplied
Depth (m)				4.00-4.50	7.00-8.50
Date Sampled				24/04/2024	02/05/2024
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	16	4.9
Total mass of sample received	kg	0.1	NONE	0.4	0.6

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.1	9.1
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	130	14
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	65.6	7.19
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	7.6	1.5
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	13	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	25	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Combined Analytical Report - ID Manchester
Project / Site name: ID Manchester

* 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 *
208803	BH1012	None Supplied	1.20-1.70	Brown loam and clay with vegetation and stones
208804	BH1012	None Supplied	5.00-5.45	Brown clay
210339	BH1009	None Supplied	0.30-0.50	Brown sand with vegetation and stones
210340	WS1001	None Supplied	5	Brown clay with gravel
210341	BH1009	None Supplied	2.00-2.50	Brown clay with gravel
210342	BH1009	None Supplied	4.00-4.50	Brown clay with gravel
210343	BH1009	None Supplied	7.00-8.50	Brown sand



Combined Analytical Report - ID Manchester
Project / Site name: ID Manchester

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 (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.

Combined Analytical Report - ID Manchester

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1009	N/A	S	210339	c	Chloride, water soluble, in soil	L082B	c
BH1009	N/A	S	210339	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1009	N/A	S	210339	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1009	N/A	S	210339	c	pH in soil (automated)	L099	c
BH1009	N/A	S	210341	c	Chloride, water soluble, in soil	L082B	c
BH1009	N/A	S	210341	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1009	N/A	S	210341	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1009	N/A	S	210341	c	pH in soil (automated)	L099	c
BH1009	N/A	S	210342	c	Chloride, water soluble, in soil	L082B	c
BH1009	N/A	S	210342	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1009	N/A	S	210342	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1009	N/A	S	210342	c	pH in soil (automated)	L099	c
BH1012	N/A	S	208803	c	Chloride, water soluble, in soil	L082B	c
BH1012	N/A	S	208803	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1012	N/A	S	208803	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1012	N/A	S	208803	c	pH in soil (automated)	L099	c
BH1012	N/A	S	208804	c	Chloride, water soluble, in soil	L082B	c
BH1012	N/A	S	208804	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1012	N/A	S	208804	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1012	N/A	S	208804	c	pH in soil (automated)	L099	c
WS1001	N/A	S	210340	c	Chloride, water soluble, in soil	L082B	c
WS1001	N/A	S	210340	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
WS1001	N/A	S	210340	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
WS1001	N/A	S	210340	c	pH in soil (automated)	L099	c



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Combined Analytical Report ID Manchester

Project / Site name:	ID Manchester	Samples received on:	22/04/2024
Your job number:	51019 02	Samples instructed on/ Analysis started on:	24/05/2024
Your order number:	PO-0096	Analysis completed by:	29/05/2024
Report Issue Number:	1	Report issued on:	03/06/2024
Samples Analysed:	12 soil samples		

Signed:

Izabela Wójcik

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

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

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

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

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

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



Combined Analytical Report ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				208756	208757	208758	210330	210331
Sample Reference				BH1006	BH1015B	BH1006	BH1008	BH1013A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.45	1.20-1.65	6.00-6.45	0.80-1.00	0.60-0.80
Date Sampled				10/04/2024	12/04/2024	10/04/2024	22/04/2024	11/04/2024
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	54.7
Moisture Content	%	0.01	NONE	14	19	18	17	4.4
Total mass of sample received	kg	0.1	NONE	0.5	0.7	0.5	0.6	0.7

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	7.9	7.9	7.8	8.1	9.2
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	230	650	2500	27	83
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	113	327	1260	13.6	41.5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	8.8	6.5	12	2.9	6.5
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	3.5	20	8.2	3.7	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	7	41	16	7.4	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Combined Analytical Report ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				210332	210333	210334	210335	210336
Sample Reference				FIP1016	FIP1024	WS1013	WS1014	WS1006
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50	0.50	3.00	2.00	2.50
Date Sampled				25/04/2024	23/05/2024	25/04/2024	25/04/2024	19/04/2024
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	62	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	3.2	13	12	7.4
Total mass of sample received	kg	0.1	NONE	0.9	0.5	0.1	0.2	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9.7	12.2	8.2	8.3	7.8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	1600	25	210	65	13
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	800	12.6	105	32.5	6.65
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	9.2	4.5	15	3.8	1.4
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	13	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	7.4	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	11	< 2.5	6.2	2.9	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	21	< 5.0	12	5.7	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Combined Analytical Report ID Manchester
Project / Site name: ID Manchester
Your Order No: PO-0096

Lab Sample Number				210337	210338
Sample Reference				BH1008	BH1013A
Sample Number				None Supplied	None Supplied
Depth (m)				3.00-3.45	16.50-18.00
Date Sampled				22/04/2024	02/05/2024
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	5.9	14
Total mass of sample received	kg	0.1	NONE	0.4	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.7	8.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	7.5	12
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	3.73	5.89
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	1.3	3
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Combined Analytical Report ID Manchester
Project / Site name: ID Manchester

* 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 *
208756	BH1006	None Supplied	2.00-2.45	Brown clay and sand with gravel
208757	BH1015B	None Supplied	1.20-1.65	Brown clay and sand with gravel
208758	BH1006	None Supplied	6.00-6.45	Brown clay and sand with gravel
210330	BH1008	None Supplied	0.80-1.00	Brown loam and clay with gravel and vegetation
210331	BH1013A	None Supplied	0.60-0.80	Brown sandy clay with gravel and stones
210332	FIP1016	None Supplied	0.5	Brown sand with gravel and stones
210333	FIP1024	None Supplied	0.5	Brown sand with metal and gravel
210334	WS1013	None Supplied	3	Brown clay and sand with gravel and brick
210335	WS1014	None Supplied	2	Non Soil.**
210336	WS1006	None Supplied	2.5	Brown sand with gravel
210337	BH1008	None Supplied	3.00-3.45	Brown sand
210338	BH1013A	None Supplied	16.50-18.00	Brown sand



Combined Analytical Report ID Manchester
Project / Site name: ID Manchester

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 (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.

**Unaccredited sample matrix

Combined Analytical Report ID Manchester

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1006	N/A	S	208756	c	Chloride, water soluble, in soil	L082B	c
BH1006	N/A	S	208756	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1006	N/A	S	208756	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1006	N/A	S	208756	c	pH in soil (automated)	L099	c
BH1006	N/A	S	208758	c	Chloride, water soluble, in soil	L082B	c
BH1006	N/A	S	208758	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1006	N/A	S	208758	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1006	N/A	S	208758	c	pH in soil (automated)	L099	c
BH1008	N/A	S	210330	c	Chloride, water soluble, in soil	L082B	c
BH1008	N/A	S	210330	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1008	N/A	S	210330	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1008	N/A	S	210330	c	pH in soil (automated)	L099	c
BH1008	N/A	S	210337	c	Chloride, water soluble, in soil	L082B	c
BH1008	N/A	S	210337	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1008	N/A	S	210337	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1008	N/A	S	210337	c	pH in soil (automated)	L099	c
BH1013A	N/A	S	210331	c	Chloride, water soluble, in soil	L082B	c
BH1013A	N/A	S	210331	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1013A	N/A	S	210331	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1013A	N/A	S	210331	c	pH in soil (automated)	L099	c
BH1015B	N/A	S	208757	c	Chloride, water soluble, in soil	L082B	c
BH1015B	N/A	S	208757	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1015B	N/A	S	208757	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1015B	N/A	S	208757	c	pH in soil (automated)	L099	c
FIP1016	N/A	S	210332	c	Chloride, water soluble, in soil	L082B	c
FIP1016	N/A	S	210332	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
FIP1016	N/A	S	210332	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
FIP1016	N/A	S	210332	c	pH in soil (automated)	L099	c
WS1006	N/A	S	210336	c	Chloride, water soluble, in soil	L082B	c
WS1006	N/A	S	210336	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
WS1006	N/A	S	210336	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
WS1006	N/A	S	210336	c	pH in soil (automated)	L099	c
WS1013	N/A	S	210334	c	Chloride, water soluble, in soil	L082B	c
WS1013	N/A	S	210334	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
WS1013	N/A	S	210334	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
WS1013	N/A	S	210334	c	pH in soil (automated)	L099	c
WS1014	N/A	S	210335	c	Chloride, water soluble, in soil	L082B	c
WS1014	N/A	S	210335	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
WS1014	N/A	S	210335	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
WS1014	N/A	S	210335	c	pH in soil (automated)	L099	c

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Manchester
M1 2HG

12 June 2024

Report No : GEO/40522/01

Page 1 of 1

For the attention of Ms K Poore

Our ref **GEO / 40522**
Your Ref **51019/03**

Date samples received 01/05/2024
Date written instructions received 20/05/2024
Date testing commenced 21/05/2024
Date of sample disposal 10/07/2024

Project **ID MANCHESTER**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	5	Particle Size Distribution
2	1	Unconfined Compressive Strength
3	2	Unconfined Compressive Strength with Deformability
4	12	Point Load Strength Index

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**



S Burke
Senior Technician

PARTICLE SIZE DISTRIBUTION

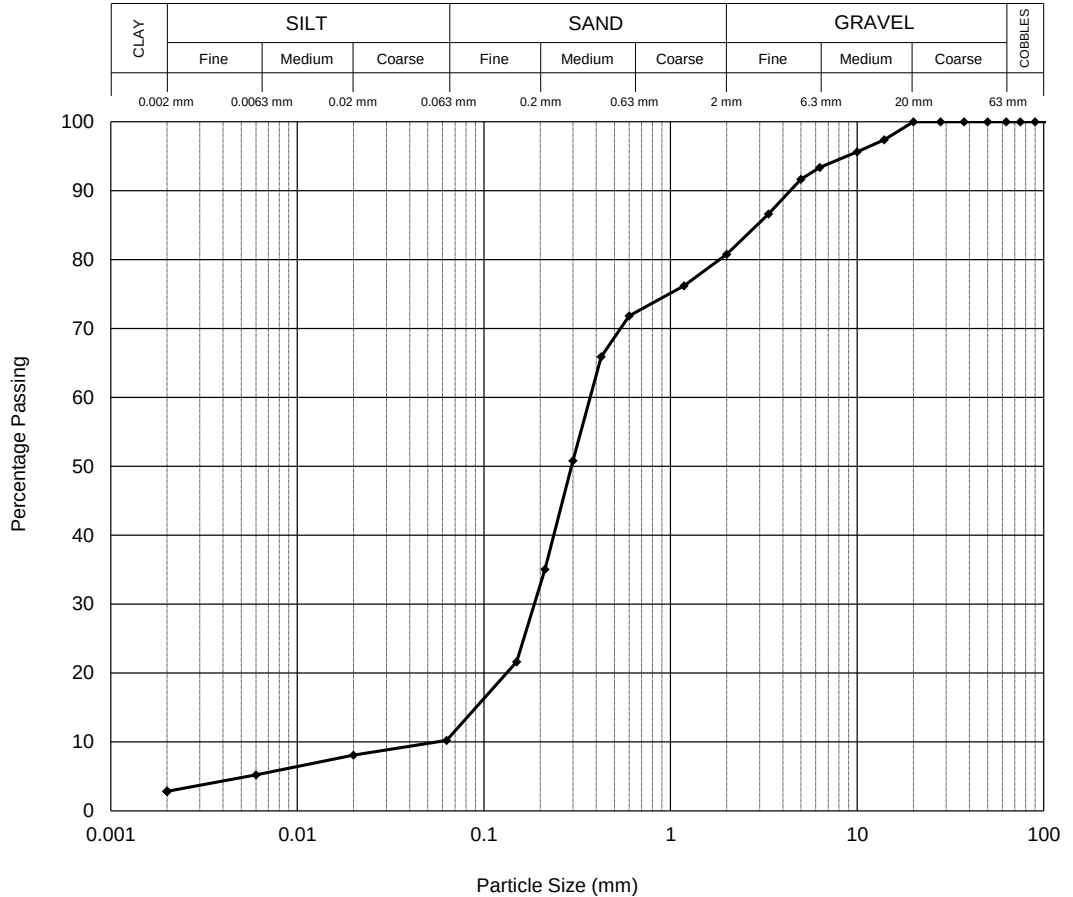
Location BH2002
Sample Depth 2.00-2.50 m
Sample Type B

Description

Orangish brown slightly clayey silty gravelly SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	97
10.0 mm	96
6.30 mm	93
5.00 mm	92
3.35 mm	87
2.00 mm	81
1.18 mm	76
600 µm	72
425 µm	66
300 µm	51
212 µm	35
150 µm	22
63 µm	10



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	8
6 µm	5
2 µm	3

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	19.2
Sand	70.5
Silt	7.4
Clay	2.9

Tested by TH
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40522

Project Name:

ID MANCHESTER
51019/03



PARTICLE SIZE DISTRIBUTION

Location BH2002
Sample Depth 4.50-6.00 m
Sample Type B

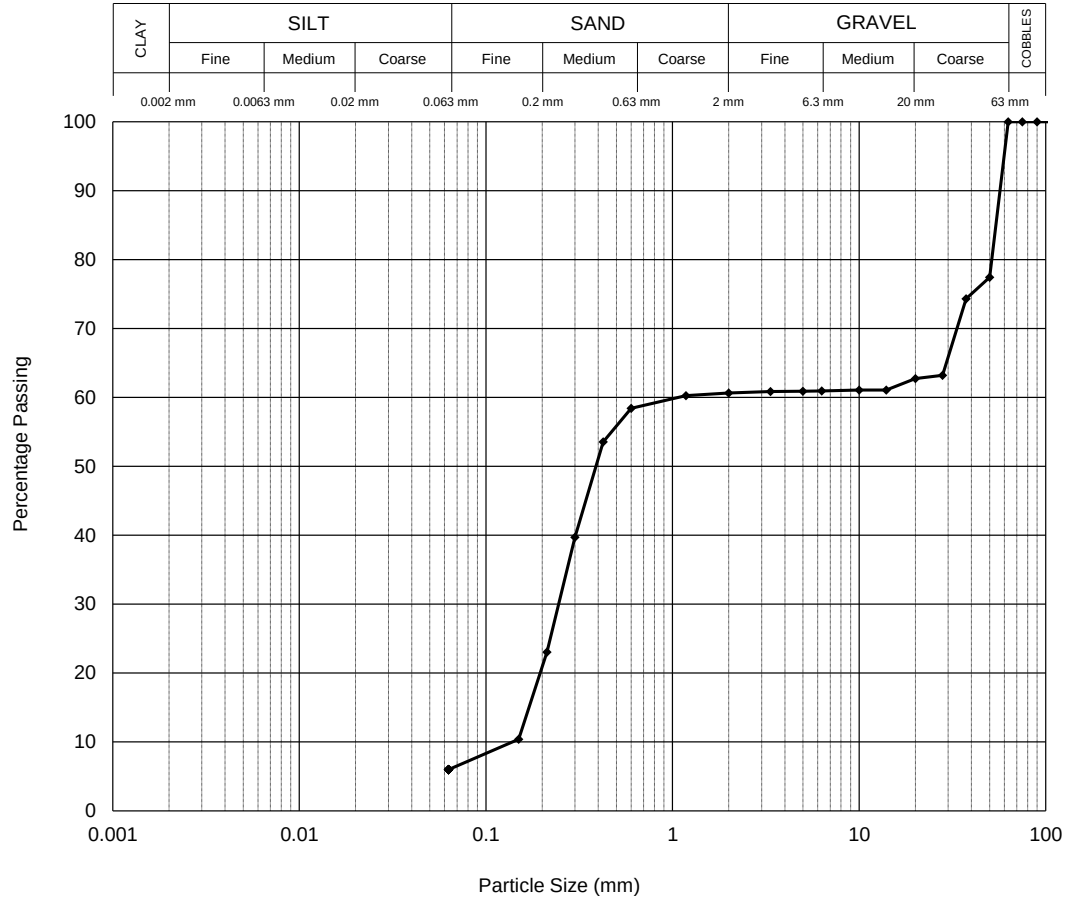
Description

Orangish brown very gravelly SAND. Gravel is sandstone.

Remarks Insufficient sample supplied to comply with BS EN ISO 17892-4 : 2016 minimum mass requirements

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	77
37.5 mm	74
28.0 mm	63
20.0 mm	63
14.0 mm	61
10.0 mm	61
6.30 mm	61
5.00 mm	61
3.35 mm	61
2.00 mm	61
1.18 mm	60
600 µm	58
425 µm	54
300 µm	40
212 µm	23
150 µm	10
63 µm	6



Particle Proportions	
Cobbles	0.0
Gravel	39.4
Sand	54.6
Silt & Clay	6.0

Tested by TH
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40522

Project Name:

ID MANCHESTER
51019/03



PARTICLE SIZE DISTRIBUTION

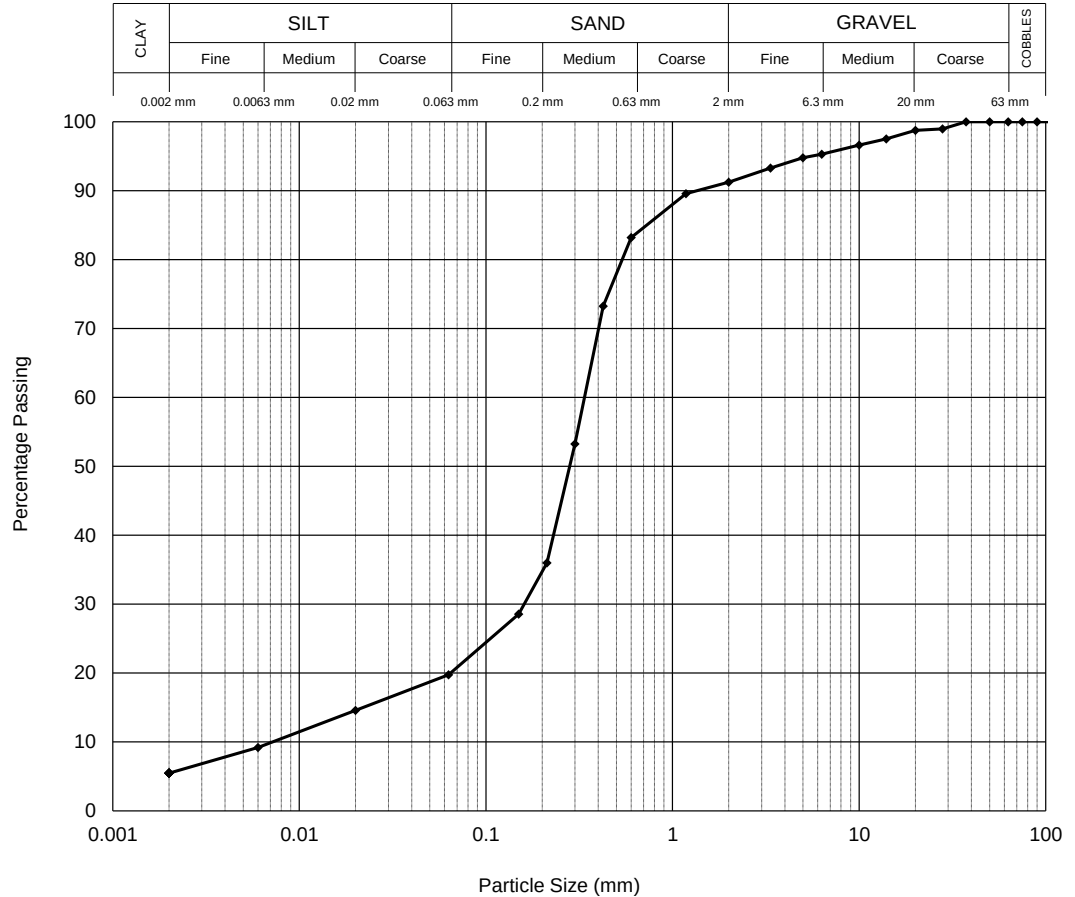
Location BH2004
 Sample Depth 2.00-2.50 m
 Sample Type B

Description

Brown clayey slightly gravelly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
 BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	99
20.0 mm	99
14.0 mm	98
10.0 mm	97
6.30 mm	95
5.00 mm	95
3.35 mm	93
2.00 mm	91
1.18 mm	90
600 µm	83
425 µm	73
300 µm	53
212 µm	36
150 µm	29
63 µm	20



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	15
6 µm	9
2 µm	5

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	8.8
Sand	71.5
Silt	14.3
Clay	5.4

Tested by TH
 Checked and Approved by

S Burke

S Burke - Senior Technician
 12/06/2024

Project Number:

GEO / 40522

Project Name:

ID MANCHESTER
 51019/03



PARTICLE SIZE DISTRIBUTION

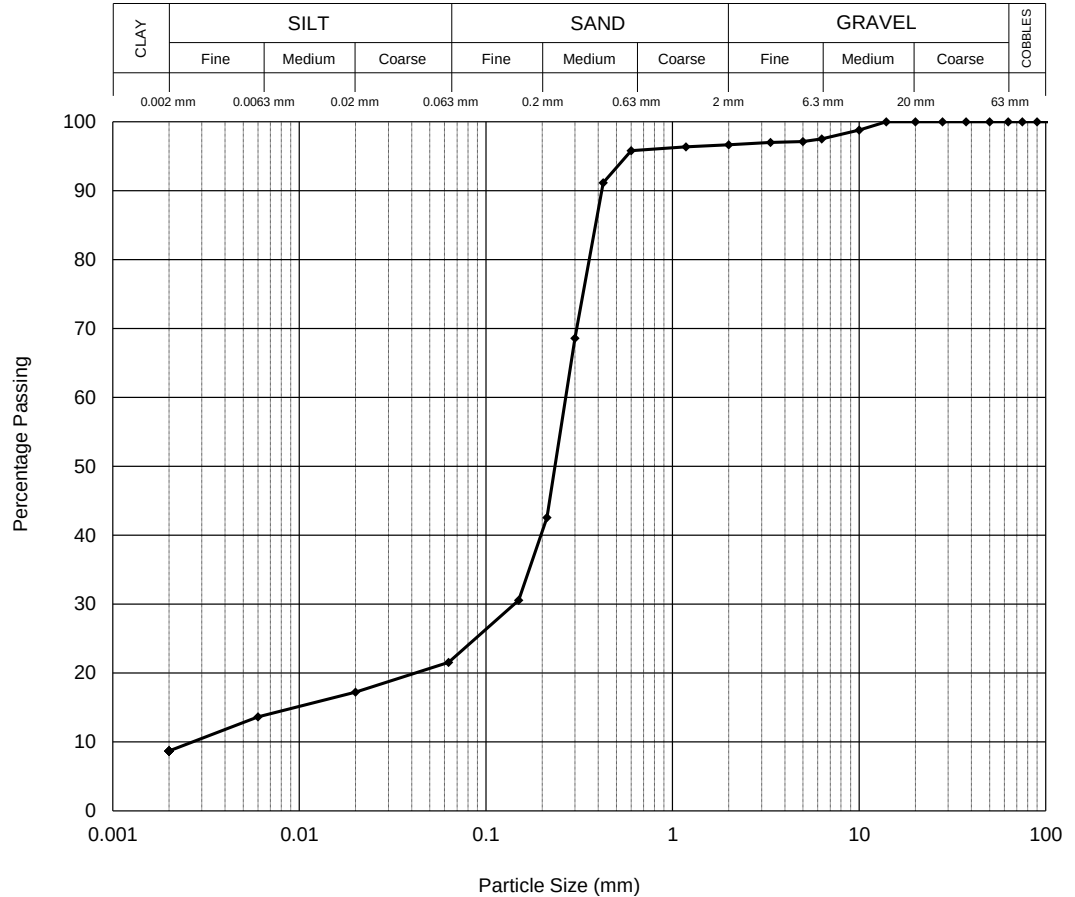
Location BH2004
Sample Depth 3.50-5.00 m
Sample Type B

Description

Orangish brown slightly gravelly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	98
5.00 mm	97
3.35 mm	97
2.00 mm	97
1.18 mm	96
600 µm	96
425 µm	91
300 µm	69
212 µm	43
150 µm	31
63 µm	22



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	17
6 µm	14
2 µm	9

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	3.3
Sand	75.1
Silt	12.9
Clay	8.7

Tested by TH
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40522

Project Name:

ID MANCHESTER
51019/03



PARTICLE SIZE DISTRIBUTION

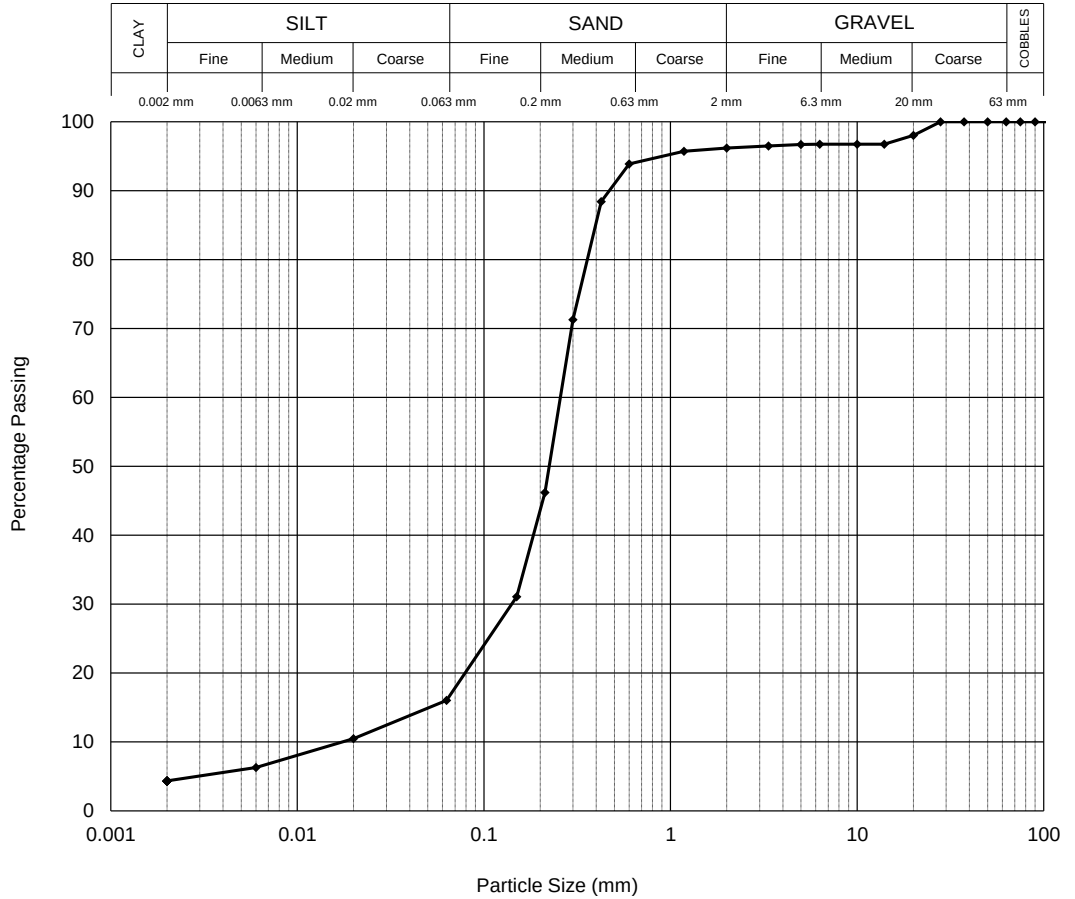
Location WS2005
Sample Depth 3.00-5.00 m
Sample Type AMAL

Description

Reddish brown slightly gravelly slightly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	98
14.0 mm	97
10.0 mm	97
6.30 mm	97
5.00 mm	97
3.35 mm	96
2.00 mm	96
1.18 mm	96
600 µm	94
425 µm	88
300 µm	71
212 µm	46
150 µm	31
63 µm	16



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	11
6 µm	6
2 µm	4

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	3.8
Sand	80.2
Silt	11.7
Clay	4.3

Tested by TH
Checked and Approved by

S Burke

S Burke - Senior Technician
12/06/2024

Project Number:

GEO / 40522

Project Name:

ID MANCHESTER
51019/03



DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D _e (mm)	Failure Load P (kN)	I _s P/De² (MPa)	Correction Factor F	Point Load Index I _{s(50)} (MPa)
								Start D	End D'						
BH2002		7.50-9.00	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	I	L	81.5	74.9	73.7		87.5	0.54	0.07	1.29	0.09
BH2002		10.50-12.00	Extremely weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	U	98.8	98.2	97.5		97.8	0.31	0.03	1.35	0.04
BH2004		6.50-8.00	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	P	97.9	96.8	95.8		96.3	0.79	0.09	1.34	0.12
BH2004		8.00-9.50	Extremely weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	U	53.0	52.8	51.9		52.3	0.07	0.03	1.02	0.03
BH2004		9.50-11.00	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	U	96.2	95.7	94.4		95.0	0.42	0.05	1.34	0.07
BH2004		14.00-15.50	Extremely weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	L	99.2	98.4	98.0		98.2	0.38	0.04	1.35	0.05
BH2006		4.50-6.00	CONCRETE	04/06/24	D	U	99.2	96.2	96.2		96.2	14.69	1.59	1.34	2.13
BH2006		10.50-12.00	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	P	53.6	53.1	51.9		52.5	0.35	0.13	1.02	0.13
BH2006		13.50-15.00	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	U	100.1	99.4	98.5		98.9	1.17	0.12	1.36	0.16
BH2007		10.50-12.00	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	A	P	89.8	69.2	68.4		88.4	0.66	0.08	1.29	0.1

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by  I Tabios (Head of Department) Date: 06/06/2024	Project Number: GEO / 40522 Project Name: ID MANCHESTER 51019/03	 
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DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D _e (mm)	Failure Load P (kN)	I _s P/De ² (MPa)	Correction Factor F	Point Load Index I _{s(50)} (MPa)
								Start D	End D'						
BH2007		12.00-13.50	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	L	99.6	98.9	97.4		98.1	0.86	0.09	1.35	0.12
BH2007		13.50-15.00	Very weak reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	04/06/24	D	P	98.4	96.3	94.9		95.6	1.17	0.13	1.34	0.17

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by IT I Tabios (Head of Department) Date: 06/06/2024	Project Number: GEO / 40522 Project Name: ID MANCHESTER 51019/03	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details						Density		Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
BH2002		13.50-15.00	Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	6.5	34.8	2.00	1.88	100.50	239.80	2.4	57.6	7.26		04/06/24	Test Lower 1/3 of Core.
BH2004		11.00-12.50	Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	10	51.1	2.01	1.82	53.50	125.70	2.3	14.2	6.32		04/06/24	Test Middle 1/3 of Core.
BH2006		7.50-9.00	Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered	11	59.7	2.08	1.87	53.70	128.80	2.4	25.5	11.3		04/06/24	Test Lower 1/3 of Core.

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  I Tabios (Head of Department) Date: 06/06/2024	Project Number: GEO / 40522 Project Name: ID MANCHESTER 51019/03	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: BH2002
Sample Ref.: -
Depth (m): 13.50-15.00

Description:
Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered

Diameter

100.50 mm

Height

239.80 mm

Bulk Density

2.00 Mg/m³

Dry Density

1.88 Mg/m³

Water Content

6.5 %

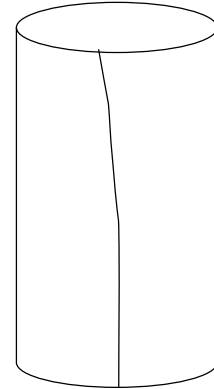
Degree of Saturation: 34.8 %

Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Date tested: 04/06/2024

Test results**Unconfined Compressive Strength**

Maximum load (kN): 57.60

7.26 MPa

Young's Modulus

(tangential at 50% failure load)

0.768 GPa

Poisson's Ratio

(tangential at 50% failure load)

0.24

Young's Modulus

(secant at 10% failure load)

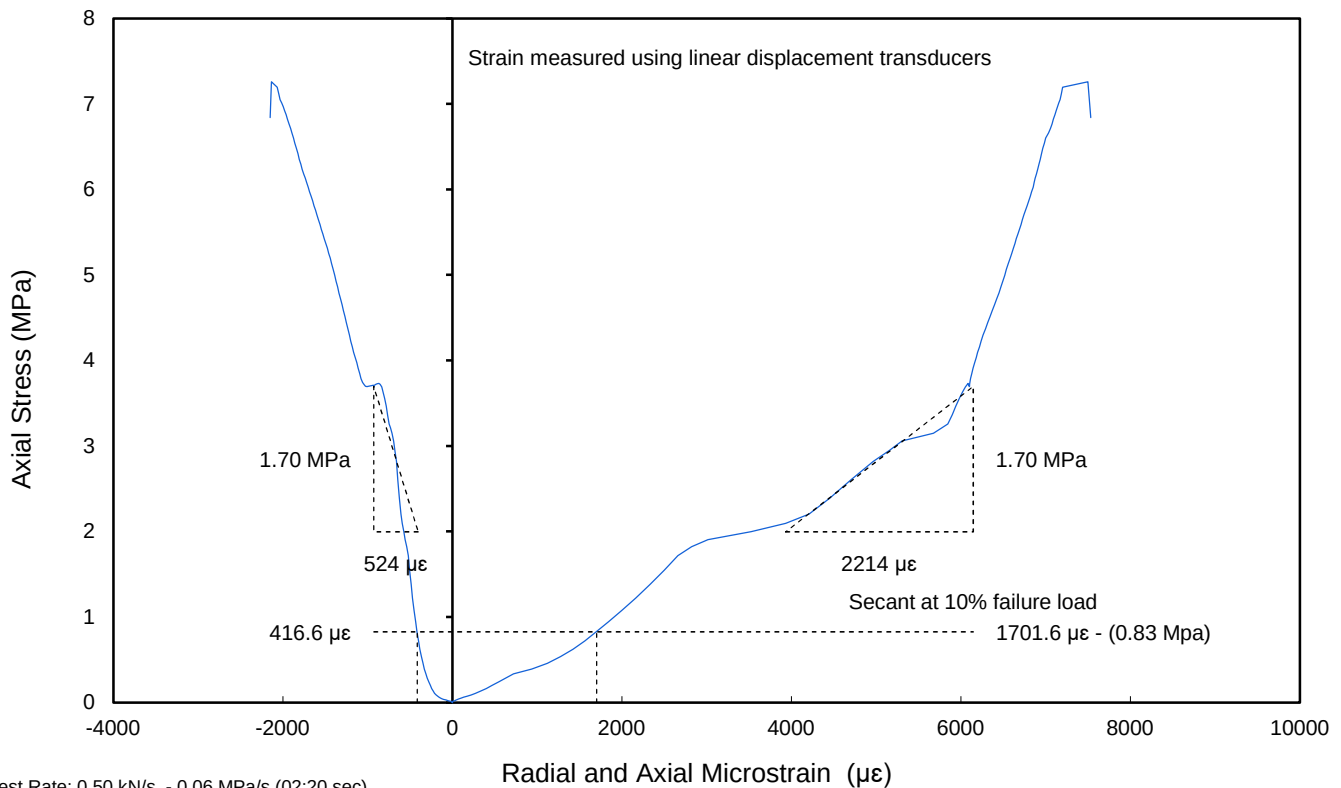
0.487 GPa

Poisson's Ratio

(secant at 10% failure load)

0.25

Sample type

C

Test Rate: 0.50 kN/s - 0.06 MPa/s (02:20 sec)

Remarks: Test Lower 1/3 of Core.

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40522

Project Name:

**ID MANCHESTER
51019/03****GEOLABS®**

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.: BH2004
 Sample Ref.: -
 Depth (m): 11.00-12.50

Description:
 Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered

Diameter
Height
Bulk Density
Dry Density
Water Content

Degree of Saturation: 51.1 %

Specific Gravity: 2.9 Mg/m³ (Assumed)

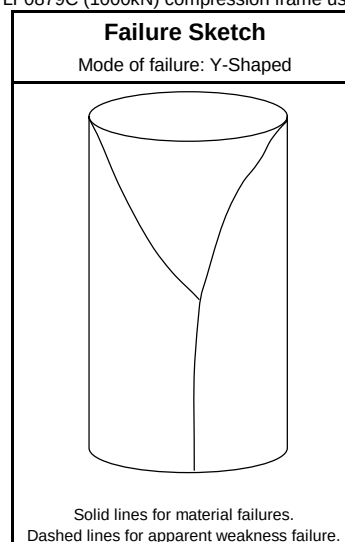
53.50 mm
125.70 mm
2.01 Mg/m ³
1.82 Mg/m ³
10 %

Test results

Unconfined Compressive Strength Maximum load (kN): 14.20
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

6.32 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used



Angle of foliation/Axis of loading: n/a
 Angle of shear plane/Axis of loading: n/a

Sample type

C

Date tested: 04/06/2024

Remarks: Test Middle 1/3 of Core.

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40522

Project Name:

ID MANCHESTER
 51019/03

GEOLABS®



UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: BH2006
Sample Ref.: -
Depth (m): 7.50-9.00

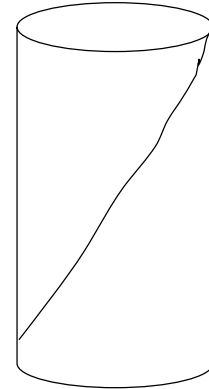
Description:
Weak thinly laminated reddish brown fine grained SANDSTONE. Fresh to slightly weathered

Diameter	53.70 mm
Height	128.80 mm
Bulk Density	2.08 Mg/m ³
Dry Density	1.87 Mg/m ³
Water Content	11 %
Degree of Saturation: 59.7 % Specific Gravity: 2.9 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

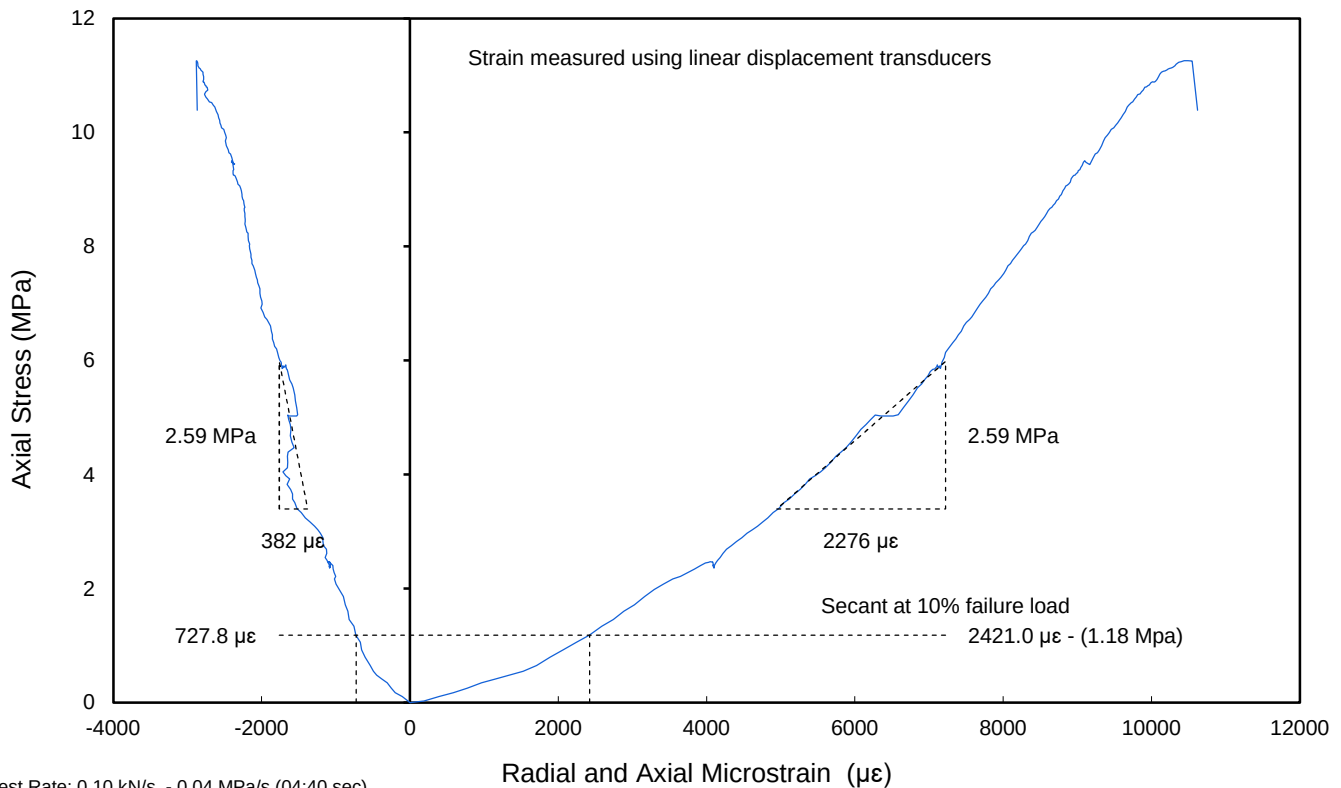
Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Date tested: 04/06/2024

Test results

Unconfined Compressive Strength Maximum load (kN): 25.50	11.3 MPa
Young's Modulus (tangential at 50% failure load)	1.14 GPa
Poisson's Ratio (tangential at 50% failure load)	0.17
Young's Modulus (secant at 10% failure load)	0.488 GPa
Poisson's Ratio (secant at 10% failure load)	0.30

Sample type

C

Test Rate: 0.10 kN/s - 0.04 MPa/s (04:40 sec)

Remarks: Test Lower 1/3 of Core.

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/06/2024

Project Number:

GEO / 40522

Project Name:

**ID MANCHESTER
51019/03****GEOLABS®**



Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

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

e: kirsty.poore@civicearth.com

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

Analytical Report Number : 24-021661

Project / Site name:	ID Manchester	Samples received on:	24/05/2024
Your job number:	51019 03	Samples instructed on/ Analysis started on:	24/05/2024
Your order number:	PO 0095	Analysis completed by:	31/05/2024
Report Issue Number:	1	Report issued on:	03/06/2024
Samples Analysed:	13 soil samples		

Signed: _____

Anna Goc
PL Head of 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.

Analytical Report Number: 24-021661

Project / Site name: ID Manchester

Your Order No: PO 0095

Lab Sample Number				210177	210178	210179	210180	210181
Sample Reference				BH2001	BH2002	BH2004	BH2005	BH2006
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.50	1.20-1.65	1.20-1.65	2.00	0.85
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
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	68.8	92.6	45.8	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	7.8	0.15	3.9	16	12
Total mass of sample received	kg	0.1	NONE	0.4	0.5	0.4	0.3	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.6	9.3	8.5	8.5	8.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	53	72	8.7	82	66
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	26.7	35.8	4.36	41.2	33.2
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3.8	7.8	2.6	2.6	2.5
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	< 2.5	< 2.5	3.1
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	6.2

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-021661

Project / Site name: ID Manchester

Your Order No: PO 0095

Lab Sample Number				210182	210183	210184	210185	210186
Sample Reference				BH2007	BH2007	WS2005	BH2004	BH2002
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.45	7.50-7.95	2.00	2.00-2.45	4.00-4.50
Date Sampled				19/04/2024	19/04/2024	19/04/2024	19/04/2024	19/04/2024
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	87	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.7	12	9.9	6.8	12
Total mass of sample received	kg	0.1	NONE	0.6	0.7	0.5	0.4	0.8

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	9	9.4	11.7	8.4	8.8
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	32	15	31	10	17
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	16.2	7.47	15.3	5.2	8.57
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	3.4	7.1	1.3	3.8	4.6
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-021661

Project / Site name: ID Manchester

Your Order No: PO 0095

Lab Sample Number				210187	210188	210189
Sample Reference				BH2004	WS2003	WS2006
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				3.00-3.50	2.00	4.00
Date Sampled				19/04/2024	19/04/2024	19/04/2024
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	9.8	6.1	9.9
Total mass of sample received	kg	0.1	NONE	0.9	0.5	0.4

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.4	8.2	8.6
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	13	14	10
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	6.71	6.91	5
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.8	2.2	2.6
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-021661

Project / Site name: ID Manchester

* 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 *
210177	BH2001	None Supplied	2.00-2.50	Brown sandy clay with gravel and stones
210178	BH2002	None Supplied	1.20-1.65	Brown sand with gravel and stones
210179	BH2004	None Supplied	1.20-1.65	Brown sand with gravel and stones
210180	BH2005	None Supplied	2	Brown sand with gravel and brick
210181	BH2006	None Supplied	0.85	Brown loam and clay with gravel and brick
210182	BH2007	None Supplied	2.00-2.45	Brown loam and sand with gravel and brick
210183	BH2007	None Supplied	7.50-7.95	Brown sand with brick and stones
210184	WS2005	None Supplied	2	Brown sand with gravel
210185	BH2004	None Supplied	2.00-2.45	Brown sand with gravel
210186	BH2002	None Supplied	4.00-4.50	Brown sandy clay with gravel
210187	BH2004	None Supplied	3.00-3.50	Brown sand with gravel
210188	WS2003	None Supplied	2	Brown sand
210189	WS2006	None Supplied	4	Brown sand

Analytical Report Number : 24-021661

Project / Site name: ID Manchester

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 (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
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	L038B	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

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

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

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

Sample Deviation Report

Analytical Report Number : 24-021661

Project / Site name: ID Manchester

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.

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH2001	N/A	S	210177	c	Chloride, water soluble, in soil	L082B	c
BH2001	N/A	S	210177	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2001	N/A	S	210177	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2001	N/A	S	210177	c	pH in soil (automated)	L099	c
BH2002	N/A	S	210178	c	Chloride, water soluble, in soil	L082B	c
BH2002	N/A	S	210178	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2002	N/A	S	210178	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2002	N/A	S	210178	c	pH in soil (automated)	L099	c
BH2002	N/A	S	210186	c	Chloride, water soluble, in soil	L082B	c
BH2002	N/A	S	210186	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2002	N/A	S	210186	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2002	N/A	S	210186	c	pH in soil (automated)	L099	c
BH2004	N/A	S	210179	c	Chloride, water soluble, in soil	L082B	c
BH2004	N/A	S	210179	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2004	N/A	S	210179	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2004	N/A	S	210179	c	pH in soil (automated)	L099	c
BH2004	N/A	S	210185	c	Chloride, water soluble, in soil	L082B	c
BH2004	N/A	S	210185	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2004	N/A	S	210185	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2004	N/A	S	210185	c	pH in soil (automated)	L099	c
BH2004	N/A	S	210187	c	Chloride, water soluble, in soil	L082B	c
BH2004	N/A	S	210187	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2004	N/A	S	210187	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2004	N/A	S	210187	c	pH in soil (automated)	L099	c
BH2005	N/A	S	210180	c	Chloride, water soluble, in soil	L082B	c
BH2005	N/A	S	210180	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2005	N/A	S	210180	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2005	N/A	S	210180	c	pH in soil (automated)	L099	c
BH2006	N/A	S	210181	c	Chloride, water soluble, in soil	L082B	c
BH2006	N/A	S	210181	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2006	N/A	S	210181	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2006	N/A	S	210181	c	pH in soil (automated)	L099	c
BH2007	N/A	S	210182	c	Chloride, water soluble, in soil	L082B	c
BH2007	N/A	S	210182	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2007	N/A	S	210182	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2007	N/A	S	210182	c	pH in soil (automated)	L099	c
BH2007	N/A	S	210183	c	Chloride, water soluble, in soil	L082B	c
BH2007	N/A	S	210183	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH2007	N/A	S	210183	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH2007	N/A	S	210183	c	pH in soil (automated)	L099	c
WS2003	N/A	S	210188	c	Chloride, water soluble, in soil	L082B	c
WS2003	N/A	S	210188	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
WS2003	N/A	S	210188	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
WS2003	N/A	S	210188	c	pH in soil (automated)	L099	c
WS2005	N/A	S	210184	c	Chloride, water soluble, in soil	L082B	c
WS2005	N/A	S	210184	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
WS2005	N/A	S	210184	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
WS2005	N/A	S	210184	c	pH in soil (automated)	L099	c
WS2006	N/A	S	210189	c	Chloride, water soluble, in soil	L082B	c
WS2006	N/A	S	210189	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
WS2006	N/A	S	210189	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
WS2006	N/A	S	210189	c	pH in soil (automated)	L099	c

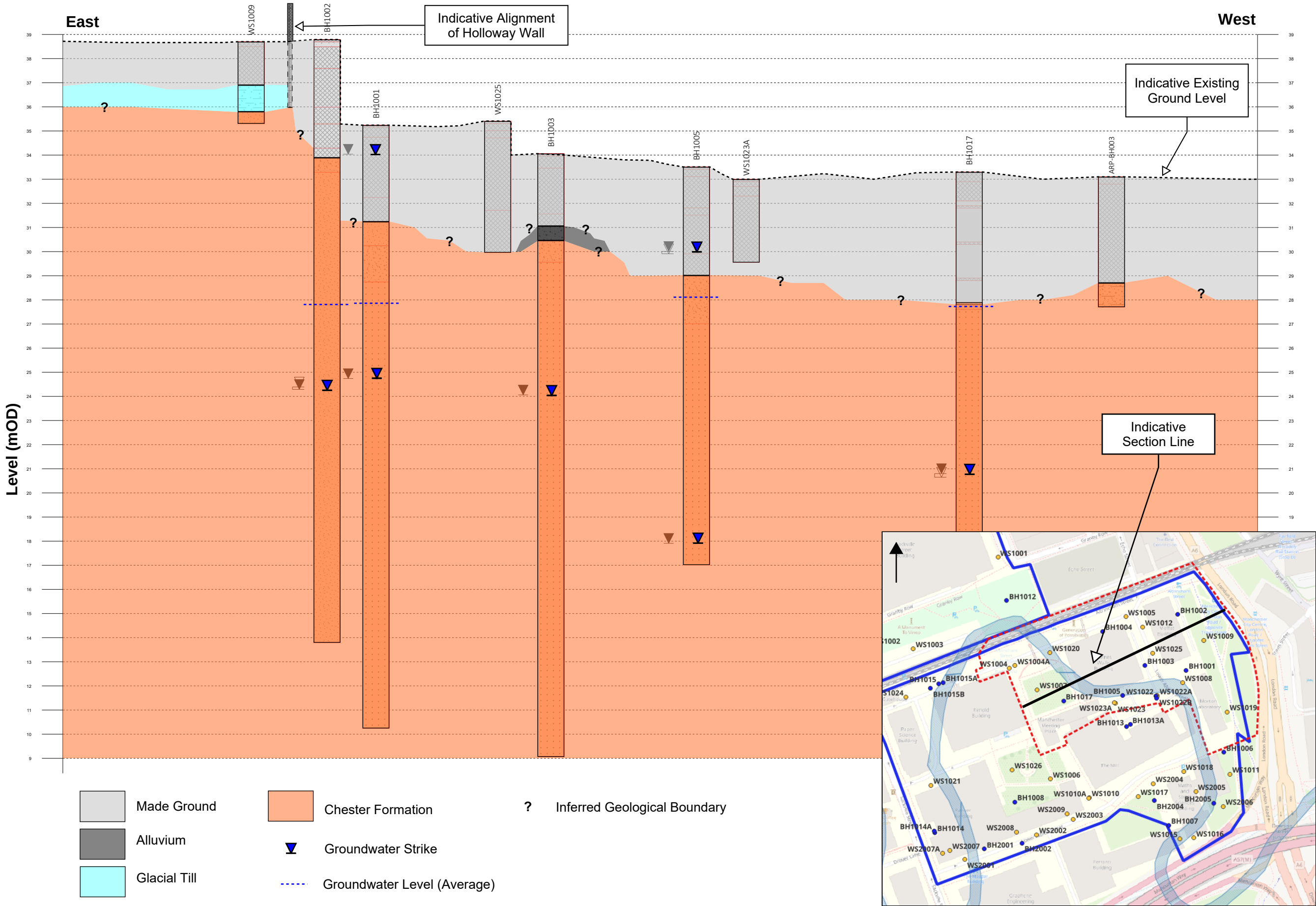
Appendix H

Geological Cross Sections

Project Id: 51019/02
Project Title: Sister
Location: Manchester
Client: ID Manchester Limited

Title: Section Line
Vertical Scale: 1:154
Horizontal Scale: 1:638
Engineer: KP

Civic Earth
Carver's Warehouse
77 Dale Street
Manchester
M1 2HG
www.civicearth.com



Project Id: 51019/02

Project Title: Sister

Location: Manchester

Client: ID Manchester Limited

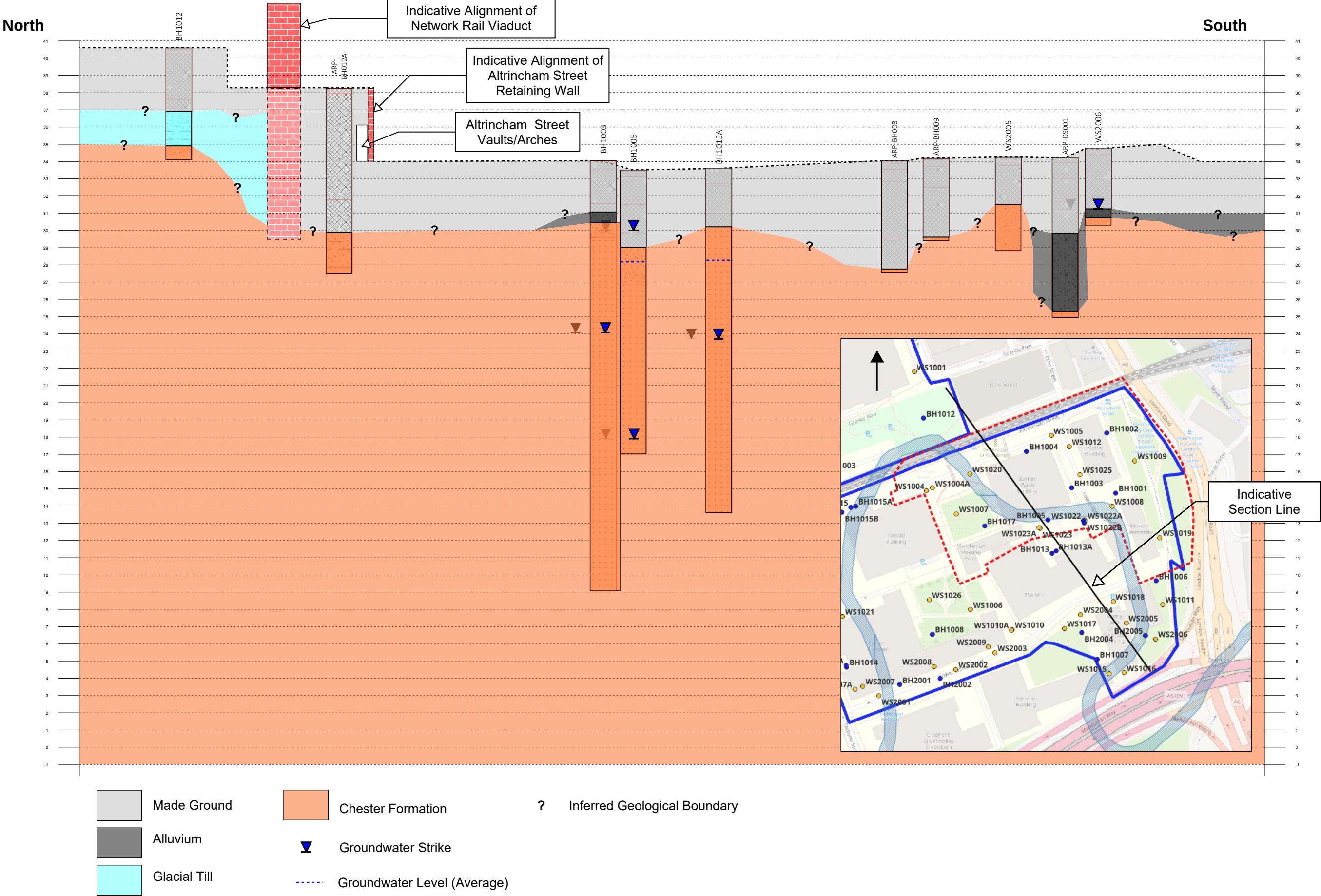
Title: Section Line

Vertical Scale: 1:214

Horizontal Scale: 1:960

Engineer: KP

Civic Earth
Carver's Warehouse
77 Dale Street
Manchester
M1 2HG
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Appendix I

Contamination Assessment

Civic Earth Contamination Assessments

Civic Earth's rationale for the adoption of generic assessment criteria (GAC) in order to evaluate the risks posed to potential receptors from identified contamination at the site is outlined in the following sections. The potential receptors have been identified with reference to the Part 2A Contaminated Land Guidance and associated DEFRA guidance¹. The potential receptors identified include human health, controlled waters, ecology and buildings/ structures if there is the potential for them to be adversely affected by exposure to contamination. The results of the contamination assessments for the site are set out in this appendix.

1.1 Risks to Human Health from Long Term Chronic Risks

The laboratory chemical analysis results have been compared against the Land Quality Management (LQM) / CIEH (Chartered Institute of Environmental Health) Suitable for Use Levels (S4ULs). The S4ULs have been generated based on a sandy loam soil type² and the Soil Organic Matter (SOM) content stated in the assessment tables (1%, 2.5% or 6% SOM). S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.

Where recorded contaminant concentrations for arsenic, cadmium, chromium VI, benzene and benzo(a)pyrene exceed the S4ULs, the results have subsequently been compared to the applicable Category 4 Screening Level (C4SL) published by DEFRA³ to further assess risks. The C4SL for lead has been adopted as a screening level as no S4UL has been derived for lead.

Concentrations of cyanide above the laboratory reporting limit are assessed against a Soil Screening Value (SSV) developed by Atkins. Atkins have based this assessment criteria on acute exposure to a 0-6 year old child.

The Solubility Saturation Limit (SSL) and Vapour Saturation Limit (VSL) criteria are presented in the assessment tables and indicate the theoretical value at which non-aqueous phase liquid (NAPL) is expected to be present. If evidence of free product is observed during the site investigation, the SSL/VSL values are considered as part of the assessment. If no evidence of free product is noted during the site investigation, the SSL/VSL values are not considered within the assessment.

Where appropriate and the dataset is of an appropriate size, assessment of the selected GAC has been carried out against the 95th percentile of the sample mean, designated the US₉₅ value, which is considered to represent a reasonable worst case scenario. Where datasets are normally distributed, the one sample t-test has been used to calculate the US₉₅ value. In the case of non-parametric datasets, the Chebychev Theorem has been applied.

It is noted that the British Geological Society (BGS) has published background concentration levels for a number of organic and inorganic contaminants. In the event that the selected GAC is found to be exceeded, the risk may still be considered to be low and unlikely to meet the definition of contaminated land under Part 2A and potentially acceptable for use from a development perspective, if contaminant concentrations are below local background levels, assuming no other contributing factors.

A positive identification of asbestos fibres in a soil sample by the laboratory is considered sufficient to warrant additional assessment of risks.

1.2 Risks to Human Health from Dissolved Contaminants

Concentrations of organic contaminants detected above the laboratory reporting limit in shallow groundwater or perched waters have been assessed against groundwater vapour GAC (GAC_{gwvap}) developed by the Society of Brownfield Remediation Risk Assessment (SoBRA). The assessment criteria are generic and based on a reasonable worst case scenario assuming a sand soil type, SOM of 1% and groundwater depth of 0.65mbgl.

It is noted that the GACs are designed to be protective of dissolved phase contaminants and do not take account of the vapour risk from NAPL. Where there is evidence of mobile or residual NAPL, the vapour risks from NAPL will be

¹ DEFRA (2012) Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.

² Environment Agency (2009) Updated Technical Background to CLEA Model. Science Report SC050021/SR3.

³ CL:AIRE (2014) Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. SP1010.

considered separately.

1.3 Risks to Human Health from Ground Gases

Recorded flow rates and concentrations of carbon dioxide and methane are converted to Gas Screening Values (GSVs) in accordance with CIRIA C665⁴. Potential risks associated with ground gases are evaluated in accordance with CIRIA C665, BS 8485⁵ and NHBC⁶.

1.4 Risks to Controlled Waters

The laboratory chemical analysis results from eluted liquids (leachate analysis) and dissolved phase (groundwater analysis) have been compared against Environmental Quality Standards (EQS) and/or Drinking Water Values (DWVs) as an initial screen of water quality.

1.5 Risks to Plants and Vegetation

The risks to future plant growth i.e. phytotoxicity have been assessed for boron, copper, nickel and zinc where soil chemical analysis results have been compared against the limits for phytotoxic effect outlined in BS 3882⁷.

1.6 Risks to Buried Water Supply Pipes

An assessment of new buried water supply pipe requirements has been undertaken in general accordance with the UK Water Industry Research (UKWIR) guidance and assessment criteria.

⁴ CIRIA (2007) Assessing risks posed by hazardous ground gases to buildings. C665.

⁵ British Standard Institution (2015+A1:2019) Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. BS 8485.

⁶ NHBC (2023) Hazardous ground gas – an essential guide for housebuilders. NF94.

⁷ British Standard Institution (2015) Specification for Topsoil. BS 3882.

Table A: Plot C and Enabling Area Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Commercial						SOM:	2.5%
Stratum:		Made Ground						No. Samples	36
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	640	-	5.4	260	0	-	-	-	-
Beryllium	12	-	0.18	1.9	0	-	-	-	-
Boron	240,000	-	<0.2	2.6	0	-	-	-	-
Cadmium	190	-	<0.2	2.9	0	-	-	-	-
Chromium (III)	8,600	-	7.5	160	0	-	-	-	-
Chromium (VI)	33	-	<1.8	<1.8	0	-	-	-	-
Copper	68,000	-	12	230	0	-	-	-	-
Lead	2,300	-	11	950	0	-	-	-	-
Mercury	1,100	-	<0.3	1.8	0	-	-	-	-
Nickel	980	-	4.5	37	0	-	-	-	-
Selenium	12,000	-	<1	1.1	0	-	-	-	-
Vanadium	9,000	-	10	55	0	-	-	-	-
Zinc	730,000	-	10	310	0	-	-	-	-
Benzene	47	-	<0.01	0.061	0	-	-	-	-
Toluene	110,000	[1920]	<0.01	0.086	0	-	-	-	-
Ethyl benzene	13,000	[1220]	<0.01	0.068	0	-	-	-	-
o-Xylene	15,000	1120	<0.01	0.18	0	-	-	-	-
m- & p-Xylene	14,000	1350	<0.01	0.15	0	-	-	-	-
Total Phenols	760	-	<1	4.3	0	-	-	-	-
Total Cyanide	34	-	<1	51	1	-	Y	15.5	5.1
Aliphatic EC5-6	5,900	558	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >6-8	17,000	322	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >8-10	4,800	[190]	<0.05	<0.01	0	-	-	-	-
Aliphatic EC >10-12	23,000	[118]	<1	14	0	-	-	-	-
Aliphatic EC >12-16	82,000	59	<2	59	0	-	-	-	-
Aliphatic EC >16-35	1,700,000	-	<8	322	0	-	-	-	-
Aromatic EC5-7	46,000	2,260	<0.01	0.066	0	-	-	-	-
Aromatic EC >7-8	110,000	1920	<0.01	0.092	0	-	-	-	-
Aromatic EC >8-10	8,100	1500	<0.05	0.43	0	-	-	-	-
Aromatic EC >10-12	28,000	899	<1	96	0	-	-	-	-
Aromatic EC >12-16	37,000	-	<2	480	0	-	-	-	-
Aromatic EC >16-21	28,000	-	<10	1300	0	-	-	-	-
Aromatic EC >21-35	28,000	-	<10	1200	0	-	-	-	-
Acenaphthene	97,000	1041	<0.05	130	0	-	-	-	-
Acenaphthylene	97,000	212	<0.05	4.6	0	-	-	-	-
Anthracene	540,000	-	<0.05	150	0	-	-	-	-
Benzo(a)anthracene	170	-	<0.05	160	0	-	-	-	-
Benzo(a)pyrene	35	-	<0.05	160	2	-	Y	53.0	12.4
Benzo(b)fluoranthene	44	-	<0.05	180	2	-	Y	22.0	6.4
Benzo(g,h,i)perylene	4,000	-	<0.05	94	0	-	-	-	-
Benzo(k)fluoranthene	1,200	-	<0.05	73	0	-	-	-	-
Chrysene	350	-	<0.05	180	0	-	-	-	-
Dibenzo(a,h)anthracene	3.6	-	<0.05	22	2	-	Y	7.4	1.9
Fluoranthene	23,000	-	0.06	460	0	-	-	-	-
Fluorene	68,000	-	<0.05	98	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	510	-	<0.05	83	0	-	-	-	-
Naphthalene	460	183	<0.05	110	0	-	-	-	-
Phenanthrene	22,000	-	<0.05	550	0	-	-	-	-
Pyrene	54,000	-	<0.05	390	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				7	-	-	-	-

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B. S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.

C. C4SL stated for lead.

D. S4UL for phenol relates to C₆H₅OH.

E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.

F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table B: Plot C Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	2.5%
Stratum:		Made Ground						No. Samples	36
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	40	-	5.4	260	3	-	Yes	51	36
Beryllium	1.7	-	0.18	1.9	2	-	No	1.7	-
Boron	11,000	-	<0.2	2.6	0	-	-	-	-
Cadmium	85	-	<0.2	2.9	0	-	-	-	-
Chromium (III)	910	-	7.5	160	0	-	-	-	-
Chromium (VI)	6	-	<1.8	<1.8	0	-	-	-	-
Copper	7,100	-	12	230	0	-	-	-	-
Lead	310	-	11	950	3	-	Yes	328	304
Mercury	56	-	<0.3	1.8	0	-	-	-	-
Nickel	180	-	4.5	37	0	-	-	-	-
Selenium	430	-	<1	1.1	0	-	-	-	-
Vanadium	1,200	-	10	55	0	-	-	-	-
Zinc	40,000	-	10	310	0	-	-	-	-
Benzene	0.70	-	<0.005	0.061	0	-	-	-	-
Toluene	1,900	-	<0.005	0.086	0	-	-	-	-
Ethyl benzene	190	-	<0.005	0.068	0	-	-	-	-
o-Xylene	210	-	<0.005	0.18	0	-	-	-	-
m- & p-Xylene	180	-	<0.008	0.15	0	-	-	-	-
Total Phenols	750	-	<1	4.3	0	-	-	-	-
Total Cyanide	34	-	<1	51	1	-	Yes	15.5	5.1
Aliphatic EC5-6	78	-	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >6-8	230	-	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >8-10	65	-	<0.05	<0.01	0	-	-	-	-
Aliphatic EC >10-12	330	[118]	<1	14	0	-	-	-	-
Aliphatic EC >12-16	2,400	[59]	<2	59	0	-	-	-	-
Aliphatic EC >16-35	92,000	21	<8	322	0	-	-	-	-
Aromatic EC5-7	690	-	<0.01	0.066	0	-	-	-	-
Aromatic EC >7-8	1,800	-	<0.01	0.092	0	-	-	-	-
Aromatic EC >8-10	110	-	<0.05	0.43	0	-	-	-	-
Aromatic EC >10-12	590	-	<1	96	0	-	-	-	-
Aromatic EC >12-16	2,300	419	<2	480	0	-	-	-	-
Aromatic EC >16-21	1,900	-	<10	1300	0	-	-	-	-
Aromatic EC >21-35	1,900	-	<10	1200	0	-	-	-	-
Acenaphthene	4,700	141	<0.05	130	0	-	-	-	-
Acenaphthylene	4,600	212	<0.05	4.6	0	-	-	-	-
Anthracene	35,000	-	<0.05	150	0	-	-	-	-
Benzo(a)anthracene	14	-	<0.05	160	4	-	Yes	51.5	12.7
Benzo(a)pyrene	3.2	-	<0.05	160	10	-	Yes	53.0	12.4
Benzo(b)fluoranthene	4.0	-	<0.05	180	9	-	Yes	55.5	14.0
Benzo(g,h,i)perylene	360	-	<0.05	94	0	-	-	-	-
Benzo(k)fluoranthene	110	-	<0.05	73	0	-	-	-	-
Chrysene	31	-	<0.05	180	2	-	Yes	53.3	12.4
Dibenzo(a,h)anthracene	0.32	-	<0.05	22	10	-	Yes	7.4	1.9
Fluoranthene	1,600	-	0.06	460	0	-	-	-	-
Fluorene	3,800	76.5	<0.05	98	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	46	-	<0.05	83	2	-	Yes	28.3	5.4
Naphthalene	5.6	-	<0.05	110	3	-	Yes	7.54	4.3
Phenanthrene	1,500	-	<0.05	550	0	-	-	-	-
Pyrene	3,800	-	<0.05	390	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				7	-	-	-	-

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- B. S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.
- C. C4SL stated for lead.
- D. S4UL for phenol relates to C₆H₅OH.
- E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.
- F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table C: Plot C Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Commercial						SOM:	1.0%
Stratum:		Natural Soils						No. Samples	7
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	640	-	2.6	9.8	0	-	-	-	-
Beryllium	12	-	0.17	1.1	0	-	-	-	-
Boron	240,000	-	<0.2	1.9	0	-	-	-	-
Cadmium	190	-	<0.2	<0.2	0	-	-	-	-
Chromium (III)	8,600	-	4.8	29	0	-	-	-	-
Chromium (VI)	33	-	<1.8	<1.8	0	-	-	-	-
Copper	68,000	-	5.9	42	0	-	-	-	-
Lead	2,300	-	2.9	43	0	-	-	-	-
Mercury	1,100	-	<0.3	<0.3	0	-	-	-	-
Nickel	980	-	2.2	26	0	-	-	-	-
Selenium	12,000	-	<1	<1	0	-	-	-	-
Vanadium	9,000	-	5.3	33	0	-	-	-	-
Zinc	730,000	-	7.3	61	0	-	-	-	-
Benzene	27	-	<0.005	<0.005	0	-	-	-	-
Toluene	56,000	[869]	<0.005	<0.005	0	-	-	-	-
Ethyl benzene	5,700	[518]	<0.005	<0.005	0	-	-	-	-
o-Xylene	6,600	478	<0.005	<0.005	0	-	-	-	-
m- & p-Xylene	5,900	576	<0.005	<0.005	0	-	-	-	-
Total Phenols	760	-	<1	<1	0	-	-	-	-
Total Cyanide	34	-	<1	<1	0	-	-	-	-
Aliphatic EC5-6	3,200	304	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >6-8	7,800	144	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >8-10	2,000	78	<0.05	<0.01	0	-	-	-	-
Aliphatic EC >10-12	9,700	48	<1	<1	0	-	-	-	-
Aliphatic EC >12-16	59,000	24	<2	9.6	0	-	-	-	-
Aliphatic EC >16-35	1,600,000	-	<8	55	0	-	-	-	-
Aromatic EC5-7	26,000	1,200	<0.01	<0.01	0	-	-	-	-
Aromatic EC >7-8	56,000	[869]	<0.01	<0.01	0	-	-	-	-
Aromatic EC >8-10	3,500	[613]	<0.05	<0.02	0	-	-	-	-
Aromatic EC >10-12	16,000	364	<1	2	0	-	-	-	-
Aromatic EC >12-16	36,000	169	<2	16	0	-	-	-	-
Aromatic EC >16-21	28,000	-	<10	80	0	-	-	-	-
Aromatic EC >21-35	28,000	-	<10	230	0	-	-	-	-
Acenaphthene	84,000	57	<0.05	0.21	0	-	-	-	-
Acenaphthylene	83,000	86.1	<0.05	1.4	0	-	-	-	-
Anthracene	520,000	-	<0.05	0.59	0	-	-	-	-
Benzo(a)anthracene	170	-	<0.05	1.5	0	-	-	-	-
Benzo(a)pyrene	35	-	<0.05	3.8	0	-	-	-	-
Benzo(b)fluoranthene	44	-	<0.05	2.9	0	-	-	-	-
Benzo(g,h,i)perylene	3,900	-	<0.05	1.9	0	-	-	-	-
Benzo(k)fluoranthene	1,200	-	<0.05	1.2	0	-	-	-	-
Chrysene	350	-	<0.05	1.9	0	-	-	-	-
Dibenzo(a,h)anthracene	3.5	-	<0.05	0.6	0	-	-	-	-
Fluoranthene	23,000	-	<0.05	1.2	0	-	-	-	-
Fluorene	63,000	30.9	<0.05	0.43	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	500	-	<0.05	1.1	0	-	-	-	-
Naphthalene	190	76.4	<0.05	0.72	0	-	-	-	-
Phenanthrene	22,000	-	<0.05	1.2	0	-	-	-	-
Pyrene	54,000	-	<0.05	2.8	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				0	-	-	-	-

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B. S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.

C. C4SL stated for lead.

D. S4UL for phenol relates to C₆H₅OH.

E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.

F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table D: Plot C Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	1.0%
Stratum:		Natural Soils						No. Samples	7
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	40	-	2.6	9.8	0	-	-	-	-
Beryllium	1.7	-	0.17	1.1	0	-	-	-	-
Boron	11,000	-	<0.2	1.9	0	-	-	-	-
Cadmium	85	-	<0.2	<0.2	0	-	-	-	-
Chromium (III)	910	-	4.8	29	0	-	-	-	-
Chromium (VI)	6	-	<1.8	<1.8	0	-	-	-	-
Copper	7,100	-	5.9	42	0	-	-	-	-
Lead	310	-	2.9	43	0	-	-	-	-
Mercury	56	-	<0.3	<0.3	0	-	-	-	-
Nickel	180	-	2.2	26	0	-	-	-	-
Selenium	430	-	<1	<1	0	-	-	-	-
Vanadium	1,200	-	5.3	33	0	-	-	-	-
Zinc	40,000	-	7.3	61	0	-	-	-	-
Benzene	0.38	-	<0.005	<0.005	0	-	-	-	-
Toluene	880	[869]	<0.005	<0.005	0	-	-	-	-
Ethyl benzene	83	-	<0.005	<0.005	0	-	-	-	-
o-Xylene	88	-	<0.005	<0.005	0	-	-	-	-
m- & p-Xylene	79	-	<0.005	<0.005	0	-	-	-	-
Total Phenols	750	-	<1	<1	0	-	-	-	-
Total Cyanide	34	-	<1	<1	0	-	-	-	-
Aliphatic EC5-6	42	-	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >6-8	100	-	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >8-10	27	-	<0.05	<0.01	0	-	-	-	-
Aliphatic EC >10-12	130	[48]	<1	<1	0	-	-	-	-
Aliphatic EC >12-16	1,100	24	<2	9.6	0	-	-	-	-
Aliphatic EC >16-35	65,000	8.48	<8	55	0	-	-	-	-
Aromatic EC5-7	370	-	<0.01	<0.01	0	-	-	-	-
Aromatic EC >7-8	860	-	<0.01	<0.01	0	-	-	-	-
Aromatic EC >8-10	47	-	<0.05	<0.02	0	-	-	-	-
Aromatic EC >10-12	250	-	<1	2	0	-	-	-	-
Aromatic EC >12-16	1,800	-	<2	16	0	-	-	-	-
Aromatic EC >16-21	1,900	-	<10	80	0	-	-	-	-
Aromatic EC >21-35	1,900	-	<10	230	0	-	-	-	-
Acenaphthene	3,000	57	<0.05	0.21	0	-	-	-	-
Acenaphthylene	2,900	86.1	<0.05	1.4	0	-	-	-	-
Anthracene	31,000	[1.17]	<0.05	0.59	0	-	-	-	-
Benzo(a)anthracene	11	-	<0.05	1.5	0	-	-	-	-
Benzo(a)pyrene	3.2	-	<0.05	3.8	1	-	Y	3.11	1.21
Benzo(b)fluoranthene	3.9	-	<0.05	2.9	0	-	-	-	-
Benzo(g,h,i)perylene	360	-	<0.05	1.9	0	-	-	-	-
Benzo(k)fluoranthene	110	-	<0.05	1.2	0	-	-	-	-
Chrysene	30	-	<0.05	1.9	0	-	-	-	-
Dibenzo(a,h)anthracene	0.31	-	<0.05	0.6	1	-	Y	0.47	0.12
Fluoranthene	1,500	-	<0.05	1.2	0	-	-	-	-
Fluorene	2,800	30.9	<0.05	0.43	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	45	-	<0.05	1.1	0	-	-	-	-
Naphthalene	2.3	-	<0.05	0.72	0	-	-	-	-
Phenanthrene	1,300	36	<0.05	1.2	0	-	-	-	-
Pyrene	3,700	-	<0.05	2.8	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				-	-	-	-	-

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- C. C4SL stated for lead.
- D. S4UL for phenol relates to C₆H₅OH.
- E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.
- F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table E: Plot C Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	2.5%
Stratum:		Made Ground (Historical Arup Investigation Data)						No. Samples	12
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	40	-	6.4	44	0	-	-	-	-
Beryllium	1.7	-	0.3	1.3	0	-	-	-	-
Boron	11,000	-							
Cadmium	85	-	<0.1	0.8	0	-	-	-	-
Chromium (III)	910	-	10	210	0	-	-	-	-
Chromium (VI)	6	-	<1	<1	0	-	-	-	-
Copper	7,100	-	23	230	0	-	-	-	-
Lead	310	-	34	530	1	-	Yes	336	233
Mercury	56	-	0.1	1.6	0	-	-	-	-
Nickel	180	-	7.9	32	0	-	-	-	-
Selenium	430	-	<0.5	1.5	0	-	-	-	-
Vanadium	1,200	-	14	39	0	-	-	-	-
Zinc	40,000	-	31	620	0	-	-	-	-
Benzene	0.70	-	<0.01	<0.01	0	-	-	-	-
Toluene	1,900	-	<0.01	<0.01	0	-	-	-	-
Ethyl benzene	190	-	<0.01	<0.01	0	-	-	-	-
o-Xylene	210	-	<0.01	<0.01	0	-	-	-	-
m- & p-Xylene	180	-							
Total Phenols	750	-	<5	<5	0	-	-	-	-
Total Cyanide	34	-	<1	11	0	-	-	-	-
Aliphatic EC5-6	78	-							
Aliphatic EC >6-8	230	-							
Aliphatic EC >8-10	65	-							
Aliphatic EC >10-12	330	[118]							
Aliphatic EC >12-16	2,400	[59]							
Aliphatic EC >16-35	92,000	21							
Aromatic EC5-7	690	-							
Aromatic EC >7-8	1,800	-							
Aromatic EC >8-10	110	-							
Aromatic EC >10-12	590	-							
Aromatic EC >12-16	2,300	419							
Aromatic EC >16-21	1,900	-							
Aromatic EC >21-35	1,900	-							
Acenaphthene	4,700	141	<0.03	2.4	0	-	-	-	-
Acenaphthylene	4,600	212	<0.03	1.1	0	-	-	-	-
Anthracene	35,000	-	<0.03	3.2	0	-	-	-	-
Benzo(a)anthracene	14	-	<0.03	11	0	-	-	-	-
Benzo(a)pyrene	3.2	-	<0.03	12	1	-	Yes	5.6	1.1
Benzo(b)fluoranthene	4.0	-	<0.03	12	1	-	Yes	5.7	1.4
Benzo(g,h,i)perylene	360	-	<0.03	7.3	0	-	-	-	-
Benzo(k)fluoranthene	110	-	<0.03	6.9	0	-	-	-	-
Chrysene	31	-	<0.03	9.3	0	-	-	-	-
Dibenzo(a,h)anthracene	0.32	-	<0.03	1	1	-	Yes	0.5	0.1
Fluoranthene	1,600	-	<0.03	20	0	-	-	-	-
Fluorene	3,800	76.5	<0.03	2.5	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	46	-	<0.03	5	0	-	-	-	-
Naphthalene	5.6	-	<0.03	3.7	0	-	-	-	-
Phenanthrene	1,500	-	<0.03	12	0	-	-	-	-
Pyrene	3,800	-	<0.03	21	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				3	-	-	-	-

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- D. S4UL for phenol relates to C₆H₅OH.
- E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.
- F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table G: Wider Area Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	2.5%
Stratum:		Topsoil						No. Samples	3
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	40	-	17	22	0	-	-	-	-
Beryllium	1.7	-	0.7	1.2	0	-	-	-	-
Boron	11,000	-	0.5	2.2	0	-	-	-	-
Cadmium	85	-	0.9	2.2	0	-	-	-	-
Chromium (III)	910	-	48	62	0	-	-	-	-
Chromium (VI)	6	-	<1.8	2.6	0	-	-	-	-
Copper	7,100	-	55	180	0	-	-	-	-
Lead	310	-	140	370	2	-	N	-	-
Mercury	56	-	0.4	1	0	-	-	-	-
Nickel	180	-	18	25	0	-	-	-	-
Selenium	430	-	<1	<1	0	-	-	-	-
Vanadium	1,200	-	20	31	0	-	-	-	-
Zinc	40,000	-	210	300	0	-	-	-	-
Benzene	0.70	-	<0.005	<0.005	0	-	-	-	-
Toluene	1,900	-	<0.005	<0.005	0	-	-	-	-
Ethyl benzene	190	-	<0.005	<0.005	0	-	-	-	-
o-Xylene	210	-	<0.005	<0.005	0	-	-	-	-
m- & p-Xylene	180	-	<0.005	<0.005	0	-	-	-	-
Total Phenols	750	-	<1	<1	0	-	-	-	-
Total Cyanide	34	-	1.2	2	0	-	-	-	-
Aliphatic EC5-6	78	-	<0.02	<0.02	0	-	-	-	-
Aliphatic EC >6-8	230	-	<0.02	<0.02	0	-	-	-	-
Aliphatic EC >8-10	65	-	<0.05	<0.05	0	-	-	-	-
Aliphatic EC >10-12	330	[118]	<1	1.4	0	-	-	-	-
Aliphatic EC >12-16	2,400	[59]	<2	11	0	-	-	-	-
Aliphatic EC >16-35	92,000	21	<8	116	0	-	-	-	-
Aromatic EC5-7	690	-	<0.01	<0.01	0	-	-	-	-
Aromatic EC >7-8	1,800	-	<0.01	<0.01	0	-	-	-	-
Aromatic EC >8-10	110	-	<0.05	<0.05	0	-	-	-	-
Aromatic EC >10-12	590	-	<1	5.8	0	-	-	-	-
Aromatic EC >12-16	2,300	419	<2	88	0	-	-	-	-
Aromatic EC >16-21	1,900	-	16	440	0	-	-	-	-
Aromatic EC >21-35	1,900	-	68	720	0	-	-	-	-
Acenaphthene	4,700	141	0.16	9.1	0	-	-	-	-
Acenaphthylene	4,600	212	0.07	0.74	0	-	-	-	-
Anthracene	35,000	-	0.3	12	0	-	-	-	-
Benzo(a)anthracene	14	-	1.7	29	1	-	Y	-	-
Benzo(a)pyrene	3.2	-	2.3	30	2	-	Y	-	-
Benzo(b)fluoranthene	4.0	-	3.1	34	2	-	Y	-	-
Benzo(g,h,i)perylene	360	-	1.9	17	0	-	-	-	-
Benzo(k)fluoranthene	110	-	1	14	0	-	-	-	-
Chrysene	31	-	2.1	28	0	-	-	-	-
Dibenzo(a,h)anthracene	0.32	-	0.39	2.6	3	-	Y	-	-
Fluoranthene	1,600	-	3	67	0	-	-	-	-
Fluorene	3,800	76.5	0.1	5.8	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	46	-	1.6	15	0	-	-	-	-
Naphthalene	5.6	-	0.18	2.2	0	-	-	-	-
Phenanthrene	1,500	-	1.3	45	0	-	-	-	-
Pyrene	3,800	-	3	58	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				-	-	-	-	-

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- D. S4UL for phenol relates to C₆H₅OH.
- E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.
- F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table I: Wider Sister Area Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	2.5%
Stratum:		Made Ground						No. Samples	58
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	40	-	2.6	110	9	-	N	61	-
Beryllium	1.7	-	0.25	7.7	7	-	Y	2.6	2.3
Boron	11,000	-	<0.2	2.6	0	-	-	-	-
Cadmium	85	-	<0.2	5.1	0	-	-	-	-
Chromium (III)	910	-	5.9	92	0	-	-	-	-
Chromium (VI)	6	-	<1.8	4	0	-	-	-	-
Copper	7,100	-	3.8	640	0	-	-	-	-
Lead	310	-	5.5	1700	14	-	Y	689	618
Mercury	56	-	<0.3	2.1	0	-	-	-	-
Nickel	180	-	3.5	91	0	-	-	-	-
Selenium	430	-	<1	1.6	0	-	-	-	-
Vanadium	1,200	-	7.7	110	0	-	-	-	-
Zinc	40,000	-	17	320	0	-	-	-	-
Benzene	0.70	-	<0.05	<0.05	0	-	-	-	-
Toluene	1,900	-	<0.05	<0.05	0	-	-	-	-
Ethyl benzene	190	-	<0.05	<0.05	0	-	-	-	-
o-Xylene	210	-	<0.05	<0.05	0	-	-	-	-
m- & p-Xylene	180	-	<0.05	<0.05	0	-	-	-	-
Total Phenols	750	-	<1	1.2	0	-	-	-	-
Total Cyanide	34	-	<1	44	1	-	Y	1.6	1.5
Aliphatic EC5-6	78	-	<0.01	<0.02	0	-	-	-	-
Aliphatic EC >6-8	230	-	<0.01	<0.02	0	-	-	-	-
Aliphatic EC >8-10	65	-	<0.01	<0.05	0	-	-	-	-
Aliphatic EC >10-12	330	[118]	<1	19	0	-	-	-	-
Aliphatic EC >12-16	2,400	[59]	<2	77	0	-	-	-	-
Aliphatic EC >16-35	92,000	21	<8	513	0	-	-	-	-
Aromatic EC5-7	690	-	<0.01	<0.01	0	-	-	-	-
Aromatic EC >7-8	1,800	-	<0.01	<0.01	0	-	-	-	-
Aromatic EC >8-10	110	-	<0.05	<0.02	0	-	-	-	-
Aromatic EC >10-12	590	-	<1	27	0	-	-	-	-
Aromatic EC >12-16	2,300	419	<2	240	0	-	-	-	-
Aromatic EC >16-21	1,900	-	<10	1400	0	-	-	-	-
Aromatic EC >21-35	1,900	-	<10	2200	1	-	Y	981	349
Acenaphthene	4,700	141	<0.05	55	0	-	-	-	-
Acenaphthylene	4,600	212	<0.05	12	0	-	-	-	-
Anthracene	35,000	-	<0.05	100	0	-	-	-	-
Benzo(a)anthracene	14	-	<0.05	210	6	-	Y	77.2	57.8
Benzo(a)pyrene	3.2	-	<0.05	200	16	-	N	73.2	-
Benzo(b)fluoranthene	4.0	-	<0.05	240	14	-	N	81.7	-
Benzo(g,h,i)perylene	360	-	<0.05	100	0	-	-	-	-
Benzo(k)fluoranthene	110	-	<0.05	81	0	-	-	-	-
Chrysene	31	-	<0.05	200	6	-	N	62.6	-
Dibenzo(a,h)anthracene	0.32	-	<0.05	25	20	-	N	5.9	-
Fluoranthene	1,600	-	<0.05	500	0	-	-	-	-
Fluorene	3,800	76.5	<0.05	52	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	46	-	<0.05	94	2	-	Y	34.1	19.8
Naphthalene	5.6	-	<0.05	32	4	-	Y	7.1	1.8
Phenanthrene	1,500	-	<0.05	360	0	-	-	-	-
Pyrene	3,800	-	<0.05	420	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				13	-	-	-	-

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 - D. S4UL for phenol relates to C₆H₅OH.
 - E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.
 - F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table J: Wider Sister Area Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	2.5%
Stratum:		Made Ground (Historical Arup Site Investigation Data)						No. Samples	16
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	40	-	1.4	260	2	-	Y	48	30
Beryllium	1.7	-	0.4	1.3	0	-	-	-	-
Boron	11,000	-							
Cadmium	85	-	0.2	1.2	0	-	-	-	-
Chromium (III)	910	-	11	33	0	-	-	-	-
Chromium (VI)	6	-	<1	<1	0	-	-	-	-
Copper	7,100	-	30	440	0	-	-	-	-
Lead	310	-	39	2400	3	-	Y	939	310
Mercury	56	-	<0.05	11	0	-	-	-	-
Nickel	180	-	9.2	34	0	-	-	-	-
Selenium	430	-	<0.5	1.1	0	-	-	-	-
Vanadium	1,200	-	15	36	0	-	-	-	-
Zinc	40,000	-	43	560	0	-	-	-	-
Benzene	0.70	-	<0.01	<0.01	0	-	-	-	-
Toluene	1,900	-	<0.01	<0.01	0	-	-	-	-
Ethyl benzene	190	-	<0.01	<0.01	0	-	-	-	-
o-Xylene	210	-	<0.01	<0.01	0	-	-	-	-
m- & p-Xylene	180	-							
Total Phenols	750	-	<5	<5	0	-	-	-	-
Total Cyanide	34	-	<0.1	9	0	-	-	-	-
Aliphatic EC5-6	78	-							
Aliphatic EC >6-8	230	-							
Aliphatic EC >8-10	65	-							
Aliphatic EC >10-12	330	[118]							
Aliphatic EC >12-16	2,400	[59]							
Aliphatic EC >16-35	92,000	21							
Aromatic EC5-7	690	-							
Aromatic EC >7-8	1,800	-							
Aromatic EC >8-10	110	-							
Aromatic EC >10-12	590	-							
Aromatic EC >12-16	2,300	419							
Aromatic EC >16-21	1,900	-							
Aromatic EC >21-35	1,900	-							
Acenaphthene	4,700	141	<0.03	4.6	0	-	-	-	-
Acenaphthylene	4,600	212	<0.03	0.4	0	-	-	-	-
Anthracene	35,000	-	<0.03	6.3	0	-	-	-	-
Benzo(a)anthracene	14	-	<0.03	9.6	0	-	-	-	-
Benzo(a)pyrene	3.2	-	<0.03	6.7	2	-	Y	3.6	1.4
Benzo(b)fluoranthene	4.0	-	<0.03	6.7	2	-	Y	3.9	2.0
Benzo(g,h,i)perylene	360	-	<0.03	2.7	0	-	-	-	-
Benzo(k)fluoranthene	110	-	<0.03	3	0	-	-	-	-
Chrysene	31	-	<0.03	7.3	0	-	-	-	-
Dibenzo(a,h)anthracene	0.32	-	<0.03	0.5	2	-	Y	0.3	0.2
Fluoranthene	1,600	-	<0.03	21	0	-	-	-	-
Fluorene	3,800	76.5	<0.03	3.7	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	46	-	<0.03	2	0	-	-	-	-
Naphthalene	5.6	-	<0.03	5.7	1	-	Y	2.6	0.3
Phenanthrene	1,500	-	<0.03	24	0	-	-	-	-
Pyrene	3,800	-	<0.03	21	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				1	-	-	-	-

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- D. S4UL for phenol relates to C₆H₅OH.
- E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.
- F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table K: Wider Sister Area Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Commercial						SOM:	1.0%
Stratum:		Natural Soils						No. Samples	19
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Arsenic	640	-	1.6	130	0	-	-	-	-
Beryllium	12	-	0.22	2	0	-	-	-	-
Boron	240,000	-	<0.2	1.9	0	-	-	-	-
Cadmium	190	-	<0.2	1	0	-	-	-	-
Chromium (III)	8,600	-	5.5	48	0	-	-	-	-
Chromium (VI)	33	-	<1.8	<1.8	0	-	-	-	-
Copper	68,000	-	4.5	160	0	-	-	-	-
Lead	2,300	-	1.7	97	0	-	-	-	-
Mercury	1,100	-	<0.3	0.5	0	-	-	-	-
Nickel	980	-	2.7	43	0	-	-	-	-
Selenium	12,000	-	<1	<1	0	-	-	-	-
Vanadium	9,000	-	6.9	42	0	-	-	-	-
Zinc	730,000	-	13	260	0	-	-	-	-
Benzene	27	-	<0.005	<0.005	0	-	-	-	-
Toluene	56,000	[869]	<0.005	<0.005	0	-	-	-	-
Ethyl benzene	5,700	[518]	<0.005	<0.005	0	-	-	-	-
o-Xylene	6,600	478	<0.005	<0.005	0	-	-	-	-
m- & p-Xylene	5,900	576	<0.005	<0.005	0	-	-	-	-
Total Phenols	760	-	<1	<1	0	-	-	-	-
Total Cyanide	34	-	<1	<1	0	-	-	-	-
Aliphatic EC5-6	3,200	304	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >6-8	7,800	144	<0.02	<0.01	0	-	-	-	-
Aliphatic EC >8-10	2,000	78	<0.05	<0.01	0	-	-	-	-
Aliphatic EC >10-12	9,700	48	<1	<1	0	-	-	-	-
Aliphatic EC >12-16	59,000	24	<2	3.3	0	-	-	-	-
Aliphatic EC >16-35	1,600,000	-	<8	12	0	-	-	-	-
Aromatic EC5-7	26,000	1,200	<0.01	<0.01	0	-	-	-	-
Aromatic EC >7-8	56,000	[869]	<0.01	<0.01	0	-	-	-	-
Aromatic EC >8-10	3,500	[613]	<0.05	<0.02	0	-	-	-	-
Aromatic EC >10-12	16,000	364	<1	<1	0	-	-	-	-
Aromatic EC >12-16	36,000	169	<2	4.8	0	-	-	-	-
Aromatic EC >16-21	28,000	-	<10	<10	0	-	-	-	-
Aromatic EC >21-35	28,000	-	<10	14	0	-	-	-	-
Acenaphthene	84,000	57	<0.05	0.67	0	-	-	-	-
Acenaphthylene	83,000	86.1	<0.05	<0.05	0	-	-	-	-
Anthracene	520,000	-	<0.05	0.69	0	-	-	-	-
Benzo(a)anthracene	170	-	<0.05	0.72	0	-	-	-	-
Benzo(a)pyrene	35	-	<0.05	0.65	0	-	-	-	-
Benzo(b)fluoranthene	44	-	<0.05	0.84	0	-	-	-	-
Benzo(g,h,i)perylene	3,900	-	<0.05	0.41	0	-	-	-	-
Benzo(k)fluoranthene	1,200	-	<0.05	0.29	0	-	-	-	-
Chrysene	350	-	<0.05	0.8	0	-	-	-	-
Dibenzo(a,h)anthracene	3.5	-	<0.05	0.08	0	-	-	-	-
Fluoranthene	23,000	-	<0.05	2.4	0	-	-	-	-
Fluorene	63,000	30.9	<0.05	0.39	0	-	-	-	-
Indeno(1,2,3,cd)pyrene	500	-	<0.05	0.36	0	-	-	-	-
Naphthalene	190	76.4	<0.05	0.47	0	-	-	-	-
Phenanthrene	22,000	-	<0.05	2.2	0	-	-	-	-
Pyrene	54,000	-	<0.05	1.9	0	-	-	-	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				-	-	-	-	-

Notes:

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B. S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.

C. C4SL stated for lead.

D. S4UL for phenol relates to C₆H₅OH.

E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.

F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table M: Plot C Human Health Data Assessment - Potential Groundwater Vapour Risk to Human Health from Groundwater

Land Use Category:	Commercial			No. Samples	2
Water Body / Stratum:	Made Ground				
Determinand	GAC _{gwwap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwwap}	Outliers Identified?
Benzene	20,000	<3	<3	0	0
Toluene (B)	21,000,000	<3	<3	0	0
Ethylbenzene (B)	960,000	<3	<3	0	0
Total xylene (B)	940,000	<6	<6	0	0
Methyl tertiary butyl ether (MTBE)	7,800,000	<3	<3	0	0
TPH aromatic EC5 to EC7 (B)	20,000,000	<1	<1	0	0
TPH aromatic >EC7 to EC8 (B)	21,000,000	<1	<1	0	0
TPH aromatic >EC8 to EC10 (B)	190,000	<1	<1	0	0
TPH aromatic >EC10 to EC12 (B)	660,000	<10	<10	0	0
TPH aromatic >EC12 to EC16 (B)	3,700,000	<10	<10	0	0
TPH aliphatic EC5 to EC6 (B)	190,000	<1	<1	0	0
TPH aliphatic >EC6 to EC8 (B)	150,000	<1	<1	0	0
TPH aliphatic >EC8 to EC10 (B)	5,700	<1	<1	0	0
TPH aliphatic >EC10 to EC12 (B)	3,600	<10	<10	0	0
Acenaphthene (B)	15,000,000	<0.01	<0.01	0	0
Acenaphthylene (B)	20,000,000	<0.01	<0.01	0	0
Fluorene (B)	18,000,000	<0.01	<0.01	0	0
Naphthalene (B)	23,000	<0.01	<0.01	0	0

Land Use Category:	Residential			No. Samples	2
Water Body / Stratum:	Made Ground				
Determinand	GAC _{gwwap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwwap}	Outliers Identified?
Benzene	210	<3	<3	0	0
Toluene	230,000	<3	<3	0	0
Ethylbenzene	10,000	<3	<3	0	0
Total xylene	9,500	<6	<6	0	0
Methyl tertiary butyl ether (MTBE)	83,000	<3	<3	0	0
TPH aromatic EC5 to EC7	210,000	<1	<1	0	0
TPH aromatic >EC7 to EC8	220,000	<1	<1	0	0
TPH aromatic >EC8 to EC10	1,900	<1	<1	0	0
TPH aromatic >EC10 to EC12	6,800	<10	<10	0	0
TPH aromatic >EC12 to EC16	39,000	<10	<10	0	1
TPH aliphatic EC5 to EC6	1,900	<1	<1	0	0
TPH aliphatic >EC6 to EC8	1,500	<1	<1	0	0
TPH aliphatic >EC8 to EC10	57	<1	<1	0	0
TPH aliphatic >EC10 to EC12	37	<10	<10	0	0
Acenaphthene	170,000	<0.01	<0.01	0	0
Acenaphthylene	220,000	<0.01	<0.01	0	0
Fluorene	210,000	<0.01	<0.01	0	0
Naphthalene	220	<0.01	<0.01	0	0

Notes:

A. Criteria sourced from SoBRA (2017) *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater*.

B. GAC exceed aqueous solubility. An assessment should be made for the potential presence of free product.

C. GAC for TPH aromatic EC5 to EC7 should be compared to the GAC for benzene to assess for potential genotoxic mutagenic effects.

Table N: Plot C Human Health Data Assessment - Potential Groundwater Vapour Risk to Human Health from Groundwater

Land Use Category:	Commercial			No. Samples	15
Water Body / Stratum:	Principal Aquifer				
Determinand	GAC _{gwwap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwwap}	Outliers Identified?
Benzene	20,000	< 3.0	< 3.0	0	-
Toluene	21,000,000	< 3.0	< 3.0	0	-
Ethylbenzene	960,000	< 3.0	< 3.0	0	-
Total xylene	940,000	< 3.0	< 3.0	0	-
Methyl tertiary butyl ether (MTBE)	7,800,000	< 3.0	< 3.0	0	-
TPH aromatic EC5 to EC7	20,000,000	< 1.0	< 1.0	0	-
TPH aromatic >EC7 to EC8	21,000,000	< 1.0	< 1.0	0	-
TPH aromatic >EC8 to EC10	190,000	< 1.0	< 1.0	0	-
TPH aromatic >EC10 to EC12	660,000	< 10	10	0	-
TPH aromatic >EC12 to EC16	3,700,000	< 10	42	0	-
TPH aliphatic EC5 to EC6	190,000	< 1.0	14	0	-
TPH aliphatic >EC6 to EC8	150,000	< 1.0	12	0	-
TPH aliphatic >EC8 to EC10	5,700	< 1.0	< 1.0	0	-
TPH aliphatic >EC10 to EC12	3,600	< 10	< 10	0	-
Acenaphthene	15,000,000	< 0.01	8.8	0	-
Acenaphthylene	20,000,000	< 0.01	0.12	0	-
Fluorene	18,000,000	< 0.01	2.5	0	-
Naphthalene	23,000	< 0.01	< 0.01	0	-

Land Use Category:	Residential			No. Samples	15
Water Body / Stratum:	Principal Aquifer				
Determinand	GAC _{gwwap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwwap}	Outliers Identified?
Benzene	210	< 3.0	< 3.0	0	-
Toluene	230,000	< 3.0	< 3.0	0	-
Ethylbenzene	10,000	< 3.0	< 3.0	0	-
Total xylene	9,500	< 3.0	< 3.0	0	-
Methyl tertiary butyl ether (MTBE)	83,000	< 3.0	< 3.0	0	-
TPH aromatic EC5 to EC7	210,000	< 1.0	< 1.0	0	-
TPH aromatic >EC7 to EC8	220,000	< 1.0	< 1.0	0	-
TPH aromatic >EC8 to EC10	1,900	< 1.0	< 1.0	0	-
TPH aromatic >EC10 to EC12	6,800	< 10	10	0	-
TPH aromatic >EC12 to EC16	39,000	< 10	42	0	-
TPH aliphatic EC5 to EC6	1,900	< 1.0	14	0	-
TPH aliphatic >EC6 to EC8	1,500	< 1.0	12	0	-
TPH aliphatic >EC8 to EC10	57	< 1.0	< 1.0	0	-
TPH aliphatic >EC10 to EC12	37	< 10	< 10	0	-
Acenaphthene	170,000	< 0.01	8.8	0	-
Acenaphthylene	220,000	< 0.01	0.12	0	-
Fluorene	210,000	< 0.01	2.5	0	-
Naphthalene	220	< 0.01	< 0.01	0	-

Notes:

A. Criteria sourced from SoBRA (2017) *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater*.

B. GAC for acenaphthene, acenaphthylene, fluorene, naphthalene, speciated TPHs and toluene exceed aqueous solubility. An assessment should be made for the potential presence of free product.

C. GAC for TPH aromatic EC5 to EC7 should be compared to the GAC for benzene to assess for potential genotoxic mutagenic effects.

Table O: Wider Sister Area Human Health Data Assessment - Potential Groundwater Vapour Risk to Human Health from Groundwater					
Land Use Category:	Commercial			No. Samples	2
Water Body / Stratum:	Made Ground				
Determinand	GAC _{gwwap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwwap}	Outliers Identified?
Benzene	20,000	<3	<3	0	0
Toluene	21,000,000	<3	<3	0	0
Ethylbenzene	960,000	<3	<3	0	0
Total xylene	940,000	<6	<6	0	0
Methyl tertiary butyl ether (MTBE)	7,800,000	<3	<3	0	0
TPH aromatic EC5 to EC7	20,000,000	<1	<1	0	0
TPH aromatic >EC7 to EC8	21,000,000	<1	<1	0	0
TPH aromatic >EC8 to EC10	190,000	<1	<1	0	0
TPH aromatic >EC10 to EC12	660,000	<10	<10	0	0
TPH aromatic >EC12 to EC16	3,700,000	<10	<10	0	0
TPH aliphatic EC5 to EC6	190,000	<1	<1	0	0
TPH aliphatic >EC6 to EC8	150,000	<1	<1	0	0
TPH aliphatic >EC8 to EC10	5,700	<1	<1	0	0
TPH aliphatic >EC10 to EC12	3,600	<10	45	0	1
Acenaphthene (B)	15,000,000	<0.01	<0.01	0	0
Acenaphthylene (B)	20,000,000	<0.01	<0.01	0	0
Fluorene (B)	18,000,000	<0.01	<0.01	0	0
Naphthalene (B)	23,000	<0.01	<0.01	0	0

Land Use Category:	Residential			No. Samples	2
Water Body / Stratum:	Made Ground				
Determinand	GAC _{gwvap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwvap}	Outliers Identified?
Benzene	210	<3	<3	0	0
Toluene	230,000	<3	<3	0	0
Ethylbenzene	10,000	<3	<3	0	0
Total xylene	9,500	<6	<6	0	0
Methyl tertiary butyl ether (MTBE)	83,000	<3	<3	0	0
TPH aromatic EC5 to EC7	210,000	<1	<1	0	0
TPH aromatic >EC7 to EC8	220,000	<1	<1	0	0
TPH aromatic >EC8 to EC10	1,900	<1	<1	0	0
TPH aromatic >EC10 to EC12	6,800	<10	<10	0	0
TPH aromatic >EC12 to EC16	39,000	<10	<10	0	1
TPH aliphatic EC5 to EC6	1,900	<1	<1	0	0
TPH aliphatic >EC6 to EC8	1,500	<1	<1	0	0
TPH aliphatic >EC8 to EC10	57	<1	<1	0	0
TPH aliphatic >EC10 to EC12	37	<10	45	1	Yes
Acenaphthene	170,000	<0.01	<0.01	0	0
Acenaphthylene	220,000	<0.01	<0.01	0	0
Fluorene	210,000	<0.01	<0.01	0	0
Naphthalene	220	<0.01	<0.01	0	0

Notes:
A. Criteria sourced from SoBRA (2017) <i>Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater</i> .
B. GAC exceed aqueous solubility. An assessment should be made for the potential presence of free product.
C. GAC for TPH aromatic EC5 to EC7 should be compared to the GAC for benzene to assess for potential genotoxic mutagenic effects.

Table P: Wider Sister Area Human Health Data Assessment - Potential Groundwater Vapour Risk to Human Health from Groundwater

Land Use Category:		Commercial		No. Samples	1
Water Body / Stratum:		Glacial Till			
Determinand	GAC _{gwvap} (µg/l)	Recorded Concentration (µg/l)	No. Samples exceeding GAC _{gwvap}	Outliers Identified?	
Benzene	20,000	<3	0	0	
Toluene	21,000,000	<3	0	0	
Ethylbenzene	960,000	<3	0	0	
Total xylene	940,000	<6	0	0	
Methyl tertiary butyl ether (MTBE)	7,800,000	<3	0	0	
TPH aromatic EC5 to EC7	20,000,000	<1	0	0	
TPH aromatic >EC7 to EC8	21,000,000	<1	0	0	
TPH aromatic >EC8 to EC10	190,000	<1	0	0	
TPH aromatic >EC10 to EC12	660,000	<10	0	0	
TPH aromatic >EC12 to EC16	3,700,000	<10	0	0	
TPH aliphatic EC5 to EC6	190,000	<1	0	0	
TPH aliphatic >EC6 to EC8	150,000	<1	0	0	
TPH aliphatic >EC8 to EC10	5,700	<1	0	0	
TPH aliphatic >EC10 to EC12	3,600	<10	0	0	
Acenaphthene (B)	15,000,000	<0.01	0	0	
Acenaphthylene (B)	20,000,000	<0.01	0	0	
Fluorene (B)	18,000,000	<0.01	0	0	
Naphthalene (B)	23,000	<0.01	0	0	

Land Use Category:	Residential		No. Samples	1
Water Body / Stratum:	Glacial Till			
Determinand	GAC _{gwvap} (µg/l)	Recorded Concentration (µg/l)	No. Samples exceeding GAC _{gwvap}	Outliers Identified?
Benzene	210	<3	0	0
Toluene	230,000	<3	0	0
Ethylbenzene	10,000	<3	0	0
Total xylene	9,500	<6	0	0
Methyl tertiary butyl ether (MTBE)	83,000	<3	0	0
TPH aromatic EC5 to EC7	210,000	<1	0	0
TPH aromatic >EC7 to EC8	220,000	<1	0	0
TPH aromatic >EC8 to EC10	1,900	<1	0	0
TPH aromatic >EC10 to EC12	6,800	<10	0	0
TPH aromatic >EC12 to EC16	39,000	<10	0	0
TPH aliphatic EC5 to EC6	1,900	<1	0	0
TPH aliphatic >EC6 to EC8	1,500	<1	0	0
TPH aliphatic >EC8 to EC10	57	<1	0	0
TPH aliphatic >EC10 to EC12	37	<10	0	0
Acenaphthene	170,000	<0.01	0	0
Acenaphthylene	220,000	<0.01	0	0
Fluorene	210,000	<0.01	0	0
Naphthalene	220	<0.01	0	0

Notes:

A. Criteria sourced from SoBRA (2017) *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater*.

B. GAC exceed aqueous solubility. An assessment should be made for the potential presence of free product.

C. GAC for TPH aromatic EC5 to EC7 should be compared to the GAC for benzene to assess for potential genotoxic mutagenic effects.

Table Q: Wider Area Human Health Data Assessment - Potential Groundwater Vapour Risk to Human Health from Groundwater

Land Use Category:	Commercial			No. Samples	21
Water Body / Stratum:	Principal Aquifer				
Determinand	GAC _{gwwap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwwap}	Outliers Identified?
Benzene	20,000	< 3.0	< 3.0	0	-
Toluene	21,000,000	< 3.0	< 3.0	0	-
Ethylbenzene	960,000	< 3.0	< 3.0	0	-
Total xylene	940,000	< 3.0	< 3.0	0	-
Methyl tertiary butyl ether (MTBE)	7,800,000	< 3.0	< 3.0	0	-
TPH aromatic EC5 to EC7	20,000,000	< 1.0	< 1.0	0	-
TPH aromatic >EC7 to EC8	21,000,000	< 1.0	< 1.0	0	-
TPH aromatic >EC8 to EC10	190,000	< 1.0	< 1.0	0	-
TPH aromatic >EC10 to EC12	660,000	< 1.0	< 1.0	0	-
TPH aromatic >EC12 to EC16	3,700,000	< 10	15	0	-
TPH aliphatic EC5 to EC6	190,000	< 1.0	< 1.0	0	-
TPH aliphatic >EC6 to EC8	150,000	< 1.0	< 1.0	0	-
TPH aliphatic >EC8 to EC10	5,700	< 1.0	< 1.0	0	-
TPH aliphatic >EC10 to EC12	3,600	< 10	< 10	0	-
Acenaphthene	15,000,000	< 0.01	< 0.01	0	-
Acenaphthylene	20,000,000	< 0.01	< 0.01	0	-
Fluorene	18,000,000	< 0.01	< 0.01	0	-
Naphthalene	23,000	< 0.01	< 0.01	0	-

Land Use Category:	Residential			No. Samples	21
Water Body / Stratum:	Principal Aquifer				
Determinand	GAC _{gwwap} (µg/l)	Minimum Recorded (µg/l)	Maximum Recorded (µg/l)	No. Samples exceeding GAC _{gwwap}	Outliers Identified?
Benzene	210	< 3.0	< 3.0	0	-
Toluene	230,000	< 3.0	< 3.0	0	-
Ethylbenzene	10,000	< 3.0	< 3.0	0	-
Total xylene	9,500	< 3.0	< 3.0	0	-
Methyl tertiary butyl ether (MTBE)	83,000	< 3.0	< 3.0	0	-
TPH aromatic EC5 to EC7	210,000	< 1.0	< 1.0	0	-
TPH aromatic >EC7 to EC8	220,000	< 1.0	< 1.0	0	-
TPH aromatic >EC8 to EC10	1,900	< 1.0	< 1.0	0	-
TPH aromatic >EC10 to EC12	6,800	< 1.0	< 1.0	0	-
TPH aromatic >EC12 to EC16	39,000	< 10	15	0	-
TPH aliphatic EC5 to EC6	1,900	< 1.0	< 1.0	0	-
TPH aliphatic >EC6 to EC8	1,500	< 1.0	< 1.0	0	-
TPH aliphatic >EC8 to EC10	57	< 1.0	< 1.0	0	-
TPH aliphatic >EC10 to EC12	37	< 10	< 10	0	-
Acenaphthene	170,000	< 0.01	< 0.01	0	-
Acenaphthylene	220,000	< 0.01	< 0.01	0	-
Fluorene	210,000	< 0.01	< 0.01	0	-
Naphthalene	220	< 0.01	< 0.01	0	-

Notes:

A. Criteria sourced from SoBRA (2017) *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater*.

B. GAC for acenaphthene, acenaphthylene, fluorene, naphthalene, speciated TPHs and toluene exceed aqueous solubility. An assessment should be made for the potential presence of free product.

C. GAC for TPH aromatic EC5 to EC7 should be compared to the GAC for benzene to assess for potential genotoxic mutagenic effects.

Table T: Controlled Waters Data Assessment - Potential Risks to Groundwater (Freshwater) from Dissolved Phase Contaminants

Water Body		Perched Water				No. Samples	4
Determinand	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailable Concentration (µg/l)	No. Samples exceeding EQS	Notes
Arsenic	50	*	0.97	18.3	-	0	A
Beryllium	*	15	<0.1	<0.1	-	0	J
Boron	2,000	*	100	140	-	0	H
Cadmium	0.25	1.5	<0.02	0.07	-	0	A
Chromium (III)	4.7	32	<5.0	<5.0	-	0	A
Chromium (VI)	3.4	*	<5.0	<5.0	-	0	A
Copper	1.0	*	<0.5	3.8	<0.02 to 0.10	0	A
Lead	1.2	14	<0.2	3.0	<0.03 to 0.30	0	A, B
Mercury	*	0.07	<0.05	<0.05	-	0	A
Nickel	4	34	2	9.6	0.47 to 1.70	0	A, B
Zinc	12.3	*	0.6	7.6	0.22 to 2.48	0	A, E
Total Phenols	7.7	46	<1	1.9	-	0	A
Total Cyanide	1	5	3.5	120	-	4	F
Free Cyanide	1	5	<1	<10	-	0	A
Total TPH	*	10	<20	1100	-	1	K
Anthracene	0.1	0.1	<0.01	<0.01	-	0	A
Benzo(a)pyrene	0.00017	0.27	<0.01	<0.01	-	0	A
Benzo(b)fluoranthene	*	0.017	<0.01	<0.01	-	0	A, G
Benzo(k)fluoranthene	*	0.017	<0.01	<0.01	-	0	A, G
Benzo(ghi)perylene	*	0.0082	<0.01	<0.01	-	0	A, G
Fluoranthene	0.0063	0.12	<0.01	0.09	-	1	A
Naphthalene	2	130	<0.01	<0.01	-	0	A
Benzene	10	50	<3.0	<3.0	-	0	A
Toluene	74	380	<3.0	<3.0	-	0	A
Ammoniacal Nitrogen as N	*	750	630	4400	-	3	I
pH	*	6.0 to 9.0	7.3	7.5	-	0	H
Hardness (mg CaCO ₃ /l)	*	*	549	645	-	-	-

Notes:

* No assessment criteria defined.

A. EQS outlined within Water Framework Directive 2015

B. Freshwater Annual Average EQS value for bioavailable fraction for lead, copper, nickel and zinc. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).

C. PAH is sum concentration of four PAH compounds [benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.

D. Cadmium EQS based on hardness of 200mg/l or more.

E. Zinc EQS based on 10.9 µg/l plus ambient background concentration for other freshwaters not listed catchment

F. EQS for free cyanide stated for total cyanide. Laboratory limit of detection for total cyanide is 1 µg/l (the EQS for free cyanide). If total cyanide is present, analysis for free cyanide is carried out.

G. The annual average EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs.

H. Environment Agency Freshwaters Specific Pollutants and Operational Environmental Quality Standards

I. Based on a 'moderate' quality river (Water Framework Directive 2015).

J. Dutch Indication Level of Serious Contamination

Table U: Controlled Waters Data Assessment - Potential Risks to Groundwater (Freshwater) from Dissolved Phase Contaminants

Water Body		Secondary Undifferentiated Aquifer			No. Samples	1
Determinand	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Recorded (µg/l)	Bioavailable Concentration (µg/l)	No. Samples exceeding EQS	Notes
Arsenic	50	*	1.09	-	0	A
Beryllium	*	15	<0.1	-	0	J
Boron	2,000	*	490	-	0	H
Cadmium	0.25	1.5	0.09	-	0	A
Chromium (III)	4.7	32	<5.0	-	0	A
Chromium (VI)	3.4	*	<5.0	-	0	A
Copper	1.0	*	3.8	0.07	0	A
Lead	1.2	14	0.5	0.04	0	A, B
Mercury	*	0.07	<0.05	-	0	A
Nickel	4	34	7.6	1.01	0	A, B
Zinc	12.3	*	27	6.65	0	A, E
Total Phenols	7.7	46	<1.0	-	0	A
Total Cyanide	1	5	<1.0	-	0	F
Free Cyanide	1	5	-	-	-	A
Total TPH	*	10	<20	-	0	K
Anthracene	0.1	0.1	<0.01	-	0	A
Benzo(a)pyrene	0.00017	0.27	<0.01	-	0	A
Benzo(b)fluoranthene	*	0.017	<0.01	-	0	A, G
Benzo(k)fluoranthene	*	0.017	<0.01	-	0	A, G
Benzo(ghi)perylene	*	0.0082	<0.01	-	0	A, G
Fluoranthene	0.0063	0.12	<0.01	-	0	A
Naphthalene	2	130	<0.01	-	0	A
Benzene	10	50	<3.0	-	0	A
Toluene	74	380	<3.0	-	0	A
Ammoniacal Nitrogen as N	*	750	4800	-	1	I
pH	*	6.0 to 9.0	7.3	-	0	H
Hardness (mg CaCO ₃ /l)	*	*	2030	-	-	-

Notes:

* No assessment criteria defined.

A. EQS outlined within Water Framework Directive 2015

B. Freshwater Annual Average EQS value for bioavailable fraction for lead, copper, nickel and zinc. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).

C. PAH is sum concentration of four PAH compounds [benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.

D. Cadmium EQS based on hardness of 200mg/l or more.

E. Zinc EQS based on 10.9 µg/l plus ambient background concentration for other freshwaters not listed catchment

F. EQS for free cyanide stated for total cyanide. Laboratory limit of detection for total cyanide is 1 µg/l (the EQS for free cyanide). If total cyanide is present, analysis for free cyanide is carried out.

G. The annual average EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs.

H. Environment Agency Freshwaters Specific Pollutants and Operational Environmental Quality Standards

I. Based on a 'moderate' quality river (Water Framework Directive 2015).

J. Dutch Indication Level of Serious Contamination

Table W: Controlled Waters Data Assessment - Potential Risks to Drinking Water from Dissolved Phase Contaminants

Water Body		Perched Water			No. Samples	4
Determinand	Drinking Water Value (µg/l)	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailable Concentration (µg/l)	No. Samples exceeding DWV	Notes
Arsenic	10	0.97	18.3	-	1	A
Boron	1,000	100	140	-	0	A
Cadmium	5	<0.02	0.07	-	0	A
Chromium	50	<0.2	0.6	-	0	A
Copper	2,000	<0.5	3.8	<0.02 to 0.10	0	A, B
Lead	10	<0.2	3.0	<0.03 to 0.30	0	A, B
Mercury	1	<0.05	<0.05	-	0	A
Nickel	20	2	9.6	0.47 to 1.70	0	A, B
Selenium	10	<0.6	0.9	-	0	A
Zinc	5,000	0.6	7.6	0.22 to 2.48	0	A, B
Total Phenols	0.5	<1	1.9	-	1	D
Total Cyanide	50	3.5	120	-	2	A
Total TPH	10	<20	1100	-	1	D
TPH Aliphatic EC5-6	15,000	<1.0	<1.0	-	0	G
TPH Aliphatic EC>6-8	15,000	<1.0	<1.0	-	0	G
TPH Aliphatic EC>8-10	300	<1.0	<1.0	-	0	G
TPH Aliphatic EC>10-12	300	<10	45	-	0	G
TPH Aliphatic EC>12-16	300	<10	54	-	0	G
TPH Aromatic EC>5-7	10	<1.0	<1.0	-	0	G
TPH Aromatic EC>7-8	700	<1.0	<1.0	-	0	G
TPH Aromatic EC>8-10	300	<1.0	<1.0	-	0	G
TPH Aromatic EC>10-12	90	<10	<10	-	0	G
TPH Aromatic EC>12-16	90	<10	<10	-	0	G
TPH Aromatic EC>16-21	90	<10	<10	-	0	G
TPH Aromatic EC>21-35	90	<10	<10	-	0	G
PAH	0.1	<0.04	<0.04	-	0	A, C
Benzo(a)pyrene	0.01	<0.01	<0.01	-	0	A
Benzene	1	<3	<3	-	0	A
Toluene	700	<3	<3	-	0	E
Ethylbenzene	300	<3	<3	-	0	E
p & m-xylene	500	<3	<3	-	0	E, F
o-xylene	500	<3	<3	-	0	E, F
Ammoniacal Nitrogen as N	500	630	4400	-	4	A
pH	6.5 to 9.5	7.3	7.5	-	0	A
Total Sulphate (mg SO ₄ /l)	250	88.1	108	-	0	A
Hardness (mg CaCO ₃ /l)	-	549	645	-	-	-

Notes:

- * No assessment criteria defined.
- A. DWV outlined within the Water Supply (Water Quality) Regulations 2018.
- B. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).
- C. PAH is sum concentration of four PAH compounds [benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene].
- D. DWV outlined within the Water Supply (Water Quality) Regulations 1989.
- E. WHO Guidelines for Drinking Water Quality, 4th Edition 2017.
- F. DWV for p-xylene stated; DWV for o-xylene is 500µg/l.
- G. WHO Petroleum Products in Drinking Water, 2008

Table Y: Controlled Waters Data Assessment - Potential Risks to Drinking Water from Dissolved Phase Contaminants

Water Body		Principal Aquifer			No. Samples	36
Determinand	Drinking Water Value (µg/l)	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailable Concentration (µg/l)	No. Samples exceeding DWV	Notes
Arsenic	10	<0.15	4.41	-	0	A
Boron	1,000	19	230	-	0	A
Cadmium	5	<0.02	1.9	-	0	A
Chromium	50	<5.0	25	-	0	A
Copper	2,000	0.8	6.4	<0.01 to 0.97	0	A, B
Lead	10	<0.2	71	<0.01 to 43.56	1	A, B
Mercury	1	<0.05	0.11	-	0	A
Nickel	20	<0.5	17	<0.01 to 5.52	0	A, B
Selenium	10	<0.6	21	-	3	A
Zinc	5,000	<0.5	160	<0.01 to 73.22	0	A, B
Total Phenols	0.5	<1.0	1.9	-	14	D
Total Cyanide	50	<1.0	41	-	0	A
Total TPH	10	<20	77	-	5	D
TPH Aliphatic EC5-6	15,000	<1	14	-	0	G
TPH Aliphatic EC>6-8	15,000	<1	12	-	0	G
TPH Aliphatic EC>8-10	300	<1	<1	-	0	G
TPH Aliphatic EC>10-12	300	<10	<10	-	0	G
TPH Aliphatic EC>12-16	300	<10	<10	-	0	G
TPH Aromatic EC>5-7	10	<1	<1	-	0	G
TPH Aromatic EC>7-8	700	<1	<1	-	0	G
TPH Aromatic EC>8-10	300	<1	<1	-	0	G
TPH Aromatic EC>10-12	90	<10	10	-	0	G
TPH Aromatic EC>12-16	90	<10	42	-	0	G
TPH Aromatic EC>16-21	90	<10	35	-	0	G
TPH Aromatic EC>21-35	90	<10	20	-	0	G
PAH	0.1	<0.04	1.05	-	2	A, C
Benzo(a)pyrene	0.01	<0.01	0.38	-	2	A
Benzene	1	<1.0	<3.0	-	0	A
Toluene	700	<1.0	<3.0	-	0	E
Ethylbenzene	300	<1.0	<3.0	-	0	E
p & m-xylene	500	<1.0	<3.0	-	0	E, F
o-xylene	500	<1.0	<3.0	-	0	E, F
Ammoniacal Nitrogen as N	500	<15	4300	-	11	A
pH	6.5 to 9.5	6.9	8.1	-	0	A
Total Sulphate (mg SO ₄ /l)	250	14.4	279	-	1	A
Hardness (mg CaCO ₃ /l)	-	109	550	-	-	-

Notes:

* No assessment criteria defined.

A. DWV outlined within the Water Supply (Water Quality) Regulations 2018.

B. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).

C. PAH is sum concentration of four PAH compounds [benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene].

D. DWV outlined within the Water Supply (Water Quality) Regulations 1989.

E. WHO Guidelines for Drinking Water Quality, 4th Edition 2017.

F. DWV for p-xylene stated; DWV for o-xylene is 500µg/l.

G. WHO Petroleum Products in Drinking Water, 2008

Table Z: Soil Data Assessment - Potential Risks to Plants and Vegetation

Stratum:	Made Ground - Plot C					No. Samples	36
Determinand	Assessment Threshold (mg/kg)	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Boron (water soluble)	5	<0.2	2.6	0	-	-	-
Copper	135	12	230	1	Y	100	95
Nickel	75	4.5	37	0	-	-	-
Zinc	200	10	310	2	N	218	-

Stratum:	Natural Soils - Plot C					No. Samples	7
Determinand	Assessment Threshold (mg/kg)	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Boron (water soluble)	5	<0.2	1.9	0	-	-	-
Copper	135	5.9	42	0	-	-	-
Nickel	75	2.2	26	0	-	-	-
Zinc	200	7.3	61	0	-	-	-

Stratum:	Topsoil and Made Ground - Wider Sister Area					No. Samples	61
Determinand	Assessment Threshold (mg/kg)	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Boron (water soluble)	5	<0.2	2.6	0	-	-	-
Copper	135	3.8	640	8	N	183	-
Nickel	75	3.5	91	1	N	57	-
Zinc	200	17	320	12	N	261	-

Stratum:	Natural Soils - Wider Sister Area					No. Samples	19
Determinand	Assessment Threshold (mg/kg)	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	Outliers Identified?	US ₉₅ incl. Outliers (mg/kg)	US ₉₅ excl. Outliers (mg/kg)
Boron (water soluble)	5	<0.2	1.9	0	-	-	-
Copper	135	4.5	160	1	Y	64	38
Nickel	75	2.7	43	0	-	-	-
Zinc	200	13	260	1	Y	106	72

Notes:

A. Copper, Nickel and Zinc thresholds based on BSI (2015) *Specification for Topsoil and Requirements for Use*. BS 3882:2015. Based on pH values 6-7

B. Limit for phytotoxic effect for boron stated. Based on Nable, Banuelos and Paull (1997). *Boron Toxicity*. Plant and Soil, Volume 193, pp. 181-198.

Appendix J

HazWaste Online Classification Reports

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