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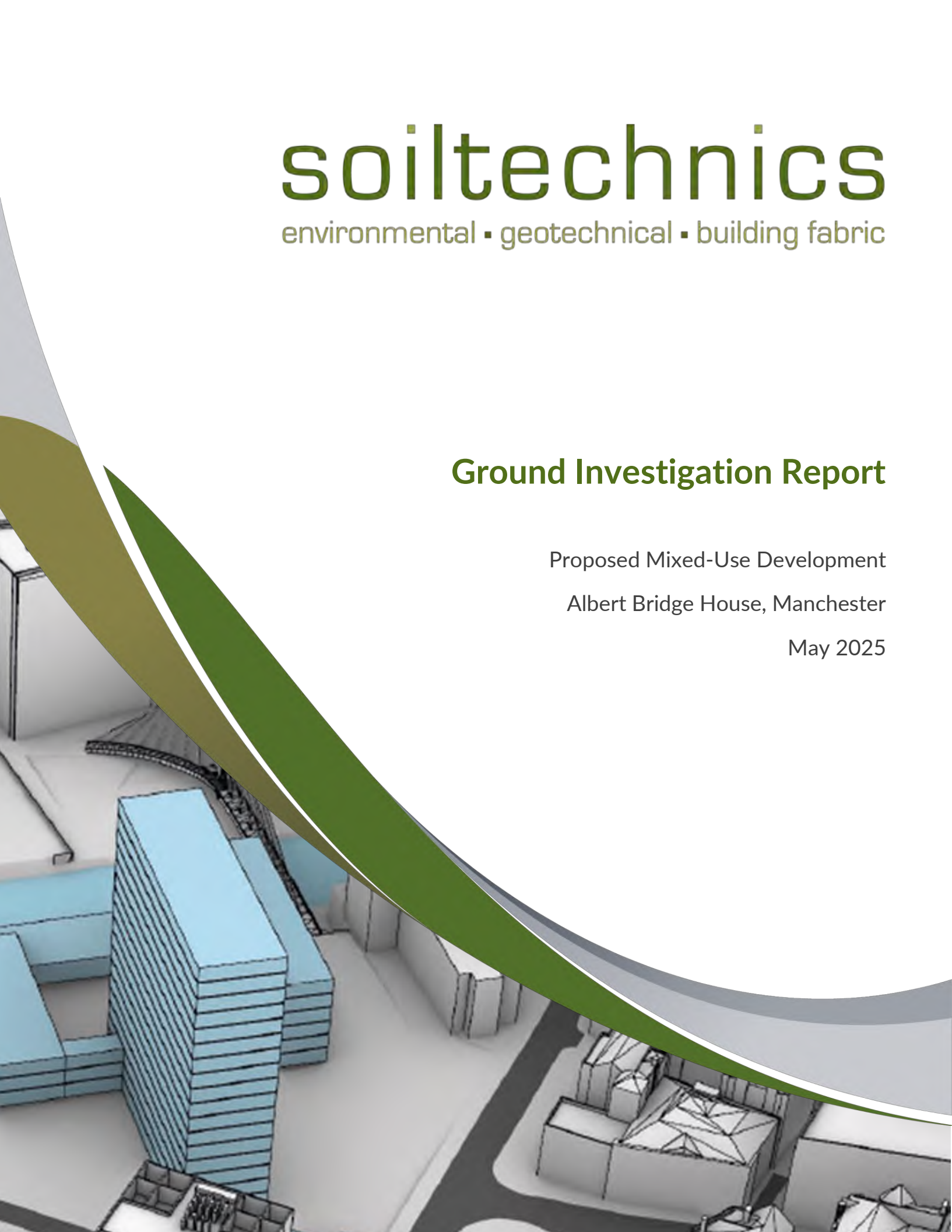
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Ground Investigation Report

Proposed Mixed-Use Development

Albert Bridge House, Manchester

May 2025



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A	May 2025	First Issue – DRAFT, geotechnical only	OH	SCD/DF	SCD
B	May 2025	Second Issue – inclusion of contamination and waste characterisation assessments, in addition to updated geotechnical commentary following draft review	OH	SCD/AW	SCD/AW

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Title	Produced by	Date	Reference
Exploratory Hole Plan (current layout)	Soiltechnics Limited	April 2025	STX6912-D01-A
Exploratory Hole Plan (proposed layout)	Soiltechnics Limited	April 2025	STX6912-D02-A
Exploratory Hole Plan (historical overlay 1851)	Soiltechnics Limited	April 2025	STX6912-D03-A
Geological Cross Section	Soiltechnics Limited	May 2025	STX6912-D04-A
Landscape General Arrangement	AKT II	March 2025	0476-SEW-ZZ-ZZ-DR-L-PL0100-01
GA Elevations – North and East (Block B)	Studio Egret West	March 2025	0476-SEW-BB-ZZ-DR-A-PL1321-2
GA Elevations – Southeast and Southwest (Block C)	Studio Egret West	April 2025	0476-SEW-CC-ZZ-DR-A-PL1353-1

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Non-technical Summary

Topic	Commentary
Development proposals	Development will comprise the construction of three new buildings with basements (the latter c.6m bgl). Namely two residential towers ranging between 37 (Block A) and 49 storeys (Block B) in height, with a third (Block C) commercial office development amounting to 18 storeys in height. This report discusses findings of the initial phase of investigation on land currently under the client's ownership. Blocks B and C fall within this part of the development and area termed 'phase 1' within this report and associated drawings. A second phase of investigation will be carried out once the client obtains full ownership of the wider site and demolition of existing buildings complete. Block A falls within the area not currently under client ownership, termed 'phase 2' within this report and drawings.
Site description	The proposed development lies within Manchester City Centre off Bridge Street in a predominantly commercial/retail area. At the time of the investigation, the site comprised a triangular shaped parcel of land containing the existing Albert Bridge House (ABH, previously occupied by HMRC, vacated in Oct 2022) to the east, Bridge Street open-air car park to the west, and Albert Bridge Gardens to the northwest adjacent to the River Irwell. The site is 0.89Ha in size (final red line and site area TBC). The Albert Bridge House comprises four parts; an 18-storey office building, flanked by a six and a three-storey office building plus a single storey building fronting the River Irwell (collectively known as the New Crown Buildings), as well as associated plant and substation. Single storey basements are also present beneath the three taller buildings, with an under-croft space below the single storey building fronting the River Irwell.
Ground conditions	Ground conditions generally comprised hardstanding onto Made Ground, the latter observed as both granular and cohesive soils. Made Ground was present to depths of 0.4m to 8.38m bgl (31.45 to 23.02m AOD). Below ground relict structures were observed in multiple positions, comprising masonry brick walls to depths of between 2.45m to 8.38m bgl where proven. Localised suspected Glaciofluvial Deposits were encountered underlying Made Ground, predominantly through the centre of the site (southeast to northwest), consisting both granular and cohesive material. The top depths of Glaciofluvial deposits ranged from 0.40m to 4.30m bgl. The Chester Formation was observed as sandstone bedrock underlying the Made Ground or suspected Glaciofluvial Deposits from between 2.45m to 8.38m bgl (29.30 to 23.02m AOD), extending beyond borehole terminated depths.
Development constraints	Deep Made Gound is present across the site, in addition to relict masonry walls noted within the centre of the site, and localised sandstone blockwork (relic hardstanding). Such structures are likely to relate to the historical gas works/ industrial buildings/roads on site and consideration will need to be given during foundation and piling works. Shallower groundwater was observed in RBH06D, at depths of 4.69m to 5.80m bgl (27.69 to 26.58m AOD). The response zone of the installation was located between depths of 10.0m bgl and 15.0m bgl (22.38m to 17.38m AOD) within highly weathered Chester Formation materials, with groundwater measured well above this level. The groundwater could therefore be representative of perched groundwater within the Made Ground, entering a faulty installation, or it could be locally ponding behind the basement structure to the 6 storey block. Further works in the area of RBH06D are recommended to determine if the shallow groundwater is indicative of ground conditions, or artificial. The basement will be excavated into the Chester Formation bedrock. Chester Formation bedrock deposits will be typically designated as Class IV and III rocks. Class IV rocks are suitable for direct excavation but considered hard, with Class III rocks unsuitable for direct excavation, however, are 'easily ripped' using tractor mounted rippers or boom mounted hydraulic peckers.
Foundation and slab solution	Given the anticipated loadings imposed by the proposed buildings, it is likely that a piled foundation solution will be adopted. Preliminary pile resistances are presented in Section 6. Proposed Block B and C will incorporate a basement. The basement slab level for each block is currently proposed at 25.19m AOD, c.6m below existing ground levels. Based on ground conditions, a secant piled wall would likely provide the most appropriate retaining solution. Construction sequence and final design of the proposed development will need consideration for the presence of groundwater long term, and account for the effects of hydrostatic pressures/ buoyancy accordingly. This may result in the requirement to include tension piles below the basement slab. Where disturbed, concrete classification of DS-4 AC-3s required for Made Ground, DS-2 AC-1s for Suspected Glaciofluvial Deposits and DS-1 AC-1 for Chester Formation.

Topic	Commentary
	The granular and cohesive suspected Glaciofluvial Deposits, in addition to granular Made Ground are considered suitable for reuse. Some sorting of Made Ground soils will be required to remove oversized, deleterious and degradable materials. In addition, it should be noted that Made Ground soils are not considered chemically suitable for reuse onsite without remediation (refer to Section 7). As such, the reuse of such soils can be utilised where pathways to such soils are severed i.e. placed below structures/hardstanding or below a remedial capping. If Made Ground was left exposed in any battered slopes, typical slope angles of up to 1v:3h could potentially be adopted, and potentially steepened where Chester Formation is present. This would need further analysis to confirm once proposals are finalised.
Drainage potential	The granular Suspected Glaciofluvial Deposits exhibit a degree of permeability. However, the lateral and vertical extent of such deposits is limited onsite and the potential for such deposits to act as a soakaway medium long term is unlikely to be viable. Made Ground is also not suitable as a drainage medium. Nelgibale water soaked away during the course of the infiltration test in Chester Formation bedrock. It is likely that such deposits are more permeable where fracture networks are present.
Chemical contamination and remedial requirements	Elevated concentrations of lead, arsenic, nickel, and PAHs measured have been measured in near surface Mad Ground soils, in addition to the asbestos fibres in one localised area. Such contamination is likely to be present in areas of proposed landscaping located outside the footprint of the proposed basements (assuming landscaping above basements is formed with clean imported material). In these areas, a clean cover system is recommended, achieving a thickness of at least 600mm, to sever the pathway to contamination identified and reduce the risk to end users. Given there is a lack of Topsoil resource onsite, importation of clean soil will be necessary for landscaped areas. Near surface sandstone block work coated in tar material where present in areas outside the development footprint should be excavated and suitably disposed offsite to avoid nuisance vapours/odours affecting the site long term. Hydrocarbon contamination noted in the Chester Formation in RBH02 and TP04 is likely to be fully excavated during construction of Block C. Providing such soils are segregated and removed from site, the risk of harm to health of end users from vapours is considered to be low, and incorporation of vapour protection measures are not currently considered necessary. A watching brief is, however, recommended during excavation of the basements. Localised asbestos presents a risk to construction workers, in addition to elevated PAHs and lead, and some additional protection measures will be required when working in such areas. Based on the above the risk to controlled waters from contamination identified at the site is considered to be low. There is a requirement for installation of protective barrier pipes for drinking water.
Radon, gas risk and protection measures	No radon or ground gas/ vapour protection measures are required. To be reviewed on completion of the monitoring programme.
Waste characterisation	Clean, uncontaminated, natural materials are considered inert waste without requirements for further testing. Made Ground soils on site are considered hazardous due to elevated concentrations of metals and TPH, and typically exceed the hazardous waste threshold for disposal to landfill and required pre-treatment. However, the latter is due to high organic carbon content. Levels of dissolved organic carbon are below the hazardous threshold and the landfill operators may accept on this basis. If so, soils could be disposed of in SNRHW cell. Further testing is recommended to further delineate the waste characterisation. The hydrocarbon impacted Chester Formation is considered hazardous based on concentrations of hydrocarbons. No WAC testing completed to date. Further testing is recommended to further delineate the waste characterisation.
Recommendation for further works	Remediation Strategy is required to detail the requirements and verification plan for all remedial works, includign a watching brief undertaken during excavation works for the basements. Further delineation of groundwater conditions in the area of RBH06D. Determine extent of relic structures in addition to completion of a second phase of investigation in areas not previously accessible to date. Preferably following demolition of existing buildings. Completion of GMA and BIA to assist in the design of the proposed basements across the wider site. Slope stability analysis of soils along banks of River Irwell if necessary. A Materials Management Plan is recommended to facilitate the reuse of materials on site.

Topic	Commentary
	It is recommended further sampling and testing is undertaken before or during the construction works to fully characterise the waste soils intended for disposal and potentially allow zoning of more hazardous wastes.

1 Introduction

1.1 Scheme Outline

1.1.1 It is understood the development will comprise the demolition of the existing structures onsite and the construction of three new buildings with basements (the latter c.6m bgl). It is proposed that two of the buildings will be residential towers ranging between 37 (referred to herin as 'Block A') and 49 (referred to herin as 'Block B') storeys in height, whilst the third building (referred to herin as 'Block C') will be a commercial office development amounting to 18 storeys in height. Each of the proposed buildings are octagonal on plan with central cores/circulation. The basements to each building provide plant/equipment and cycle storage space. Relevant development drawings are presented within Appendix A.

1.1.2 This report discusses findings of the initial phase of investigation on land currently under the client's ownership. Blocks B and C fall within this part of the development and area termed 'phase 1' within this report and associated drawings, the latter presented in Appendix A. A second phase of investigation will be carried out once the client obtains full ownership of the wider site and demolition of existing buildings complete. Block A falls within the area not currently under client ownership, termed 'phase 2' within this report and drawings.

1.1.3 The report is based on the project proposals and information outlined above; should the scheme change then it will be necessary to review the conclusions and recommendations presented in this report.

1.2 Planning Status

1.2.1 It is understood that the scheme is currently being submitted to planning. This Ground Investigation Report has been prepared to accompany any future planning application, and addresses land contamination and instability risks discussed in our previous Tier 1 Preliminary Risk Assessment (ref STU5827-R01-Rev_D) dated April 2025. A summary of the previous report is presented in Section 2. It should be noted the Tier 1 Preliminary Risk Assessment covered the wider development area.

1.3 Brief

1.3.1 This report has been prepared following instructions received from our Client, Oval Properties 1801 Limited.

1.3.2 The overall brief of works is to:

i) Undertake a ground investigation at the site to establish the prevailing ground conditions and identify potential abnormal development constraints.
ii) Support the planning application by assessing the potential risks from contamination at the site.
iii) Assess potential contamination onsite to inform the construction phase/waste classification.
iv) Determine geotechnical parameters and provide a geotechnical appraisal for the scheme.

1.3.3 The objectives of this report are outlined below:

v) Summarise an existing land contamination Tier 1 preliminary risk assessment.
vi) Summarise the intrusive investigation works undertaken and associated laboratory testing.

vii) Present a ground model summarising the ground and groundwater conditions at the site including relevant geotechnical parameters.

viii) Provide a geotechnical appraisal for the project and highlight key geotechnical issues that may impact upon the proposed scheme.

ix) Undertake a land contamination Tier 2 generic quantitative risk assessment.

x) Undertake a general assessment of potential contamination risks which may affect the development.

xi) Provide a waste characterisation assessment of soils at the site for potential disposal to landfill.

1.4 Definition of Scope

1.4.1 The phasing and scope of the ground investigation works is broadly defined by the following documents.

Title	Document Reference	Publisher	Investigation Scope
Code of practice for ground investigations	BS 5930:2015	British Standards Institution	Phase 2: Preliminary investigation
Eurocode 7 — Geotechnical design Part 2: Ground investigation and Testing	BS EN 1997-2:2007	British Standards Institution	Preliminary Investigation
Investigation of potentially contaminated sites – Code of practice	BS 10175: 2011+A2:2017	British Standards Institution	Exploratory Investigation
Land contamination risk management	Online resource, updated April 2021	Environment Agency	Stage 1 Risk Assessment: Tier 2: Generic quantitative risk assessment
Brief for Geotechnical Investigations & Environmental Assessment	Albert Bridge House 5222M Nov 2024	AKTII Limited	Site-specific ground investigation specification

Table 1-A: Definition of investigation scope

1.5 Limitations

1.5.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

2 Site Context

2.1 Previous Investigations

2.1.1 As outlined in Section 1, a Tier 1 Preliminary Risk Assessment was completed for the wider development site in April 2025. This report should not read in isolation to the Tier 1 Preliminary Risk Assessment, however, relevant extracts are presented in the following sections for completeness.

2.2 Site Description

2.2.1 The proposed development lies within Manchester City Centre off Bridge Street in a predominantly commercial/retail area. At the time of the investigation, the site comprised a triangular shaped parcel of land containing the existing Albert Bridge House (ABH, previously occupied by HMRC, vacated in Oct 2022) to the east, Bridge Street open-air car park to the west, and Albert Bridge Gardens to the northwest adjacent to the River Irwell.

2.2.2 The site is 0.89Ha in size (final red line and site area TBC). The Albert Bridge House comprises four parts; an 18-storey office building, flanked by a six and a three-storey office building plus a single storey building fronting the River Irwell (collectively known as the New Crown Buildings), as well as associated plant and substation. Single storey basements are also present beneath the three taller buildings, with an under-croft space below the single storey building fronting the River Irwell.

2.2.3 The River Irwell bounds the Site to the north-west, Bridge Street lies to the south of the Site, St. Mary's Parsonage to the east and the Trinity Bridge landing is located to the north-east.

2.2.4 An aerial image showing the approximate site boundary is presented below. Existing site layout is also presented in Drawing D01 presented in Appendix A. Photographic records of the site are presented in the Tier 1 report.



Figure 2-A: Aerial photograph and approximate site boundaries (Phase 1 – red, Phase 2 – blue)

2.3 Site History

2.3.1 Historically, the site has undergone a number of phases of development. Maps dating back to c.1850-55 indicate the site previously contained three streets (Albert Street, Gas Street, and Lower King Street) of small residential/ commercial buildings with the Manchester Gas Works Reserve Station (containing gas holders and ancillary buildings) within the east of the site and extending offsite to the east. This was Manchester's first public gas supply facility, which opened in 1817. At that time, gas holder tanks were typically built above ground using timber or iron. However, these early constructions were not particularly robust and were prone to leaks and structural failures.

2.3.2 Gas holders from this period were commonly built by excavating a circular cutting in the ground and constructing an annular channel made of iron or brick to contain water. These were known as annular tanks. In various locations across the UK, sandstone versions of these tanks have been discovered, made watertight using pitch or asphalt. It is possible that the gas holder on site followed a similar construction method given the time period.

2.3.3 The earliest gas holders at the Manchester Gas Works Reserve Station were recorded as being 18 feet in diameter and 27 feet deep. However, it remains unclear whether the tanks were positioned above or below ground.

2.3.4 The gas works was no longer recorded within the mapping by c.1891. By the mid 1900's it is apparent that buildings onsite may have been subject to wartime bombing as the site was occupied by ruins. During this period a garage was developed within the east of the site. By the 1960's the site was developed into the existing ABH buildings, with the existing car parking following by c.1970. The site has remained generally unchanged thereafter up to present day.

2.3.5 Drawing D03 presented in Appendix A illustrates the historical use of the site from 1851.

2.3.6 The surrounding land has been developed and redeveloped for various use throughout recorded history. Notable features of interest include a bailey yard and sidings 100m + west of site, and an iron works, engineering works, and sawmill beyond the River Irwell to the northwest of site. An electrical substation was recorded 130m south of site and hydraulic power station 50m southwest of site.

2.4 Anticipated Geology

2.4.1 The geology underlying the site is anticipated to comprise the Chester Formation (bedrock). No superficial deposits are recorded within the site boundary, however Glaciofluvial Sheet Deposits are recorded near the south-eastern boundary of the site, and could therefore be present onsite. In addition, due to historical construction and demolition phases occurring at the site, it is anticipated that Made Ground is likely to be present across the entire site footprint.

2.5 Hydrogeology and Groundwater Sensitivity

2.5.1 The general hydrogeological profile of the site is provided in the table above.

Stratum	Aquifer Designation	Stratum Thickness (m)	Anticipated Groundwater Depth (m bgl)
Chester Formation	Principal	~220m	3-5m

Table 2-A: Preliminary Hydrogeological Model

2.5.2 There is 19 No. active groundwater abstraction licenses down-gradient of the site. The nearest down-gradient abstraction point lies 47m southwest of the site with water abstracted for non-evaporative cooling (industrial/commercial/public services).

2.5.3 The site is not recorded within a source protection zone. The nearest source protection zone is a Zone III – Total Catchment located 616m southeast of the site.

2.6 Hydrology and Surface Water Sensitivity

2.6.1 The nearest surface water feature to the site is the River Irwell, which flows in a southwest direction at the site's north-western boundary and is designated as a Water Framework Directive (WFD) resource.

2.6.2 There is 1 No. active surface water abstraction license down-gradient of the site. The down-gradient abstraction point lies 1272m southwest of the site, with water abstracted from the River Irwell for other industrial/commercial/public services: general cooling purposes.

2.7 Radon

2.7.1 The site is in an area where the above ground radon Affected Area status is classed as a Lower Probability Radon Area. As such no radon protective measures are necessary in the construction of new buildings.

2.8 Landfill and infilled ground

2.8.1 There are no landfill sites, quarrying activities or infilled land recorded within 500m of the site.

2.9 Outcome of Preliminary Risk Assessment (PRA)

2.9.1 Based on the desk study, the PRA identified the following primary contamination sources which have the potential to impact the site:

- Generic industrial and commercial uses within recorded history (on-site)
- Made Ground (on-site)
- Former gas works (on-site)
- Oil storage tanks, boiler house, electrical substation and incineration associated with former use of ABH
- Car parking
- General industrial and commercial uses within recorded history (off-site)

2.9.2 Potential contaminants of concern associated with such sources were identified, namely relating to metals, PAHs, TPH (including BTEX), (S)VOCs, asbestos and phenol.

2.9.3 Potential receptors were considered to be human receptors (proposed users, construction operatives, adjacent site users), surface waters (adjacent River Irwell) and groundwater (sandstone aquifer).

2.9.4 A Conceptual Site Model (CSM) was produced for the site. A summary of the potential contamination linkages (PCLs) that were identified is presented below.

Source	Pathway	Receptor	Risk rating
Generic industrial and commercial uses within recorded history (on and off-site)	Ingestion, inhalation, and contact with soils, dusts and vapours	End users	Moderate
	Ingestion, inhalation, and contact with soils, dusts and vapours	Construction operatives	Moderate
	Leaching and lateral migration	Surface water and controlled waters	Moderate
Made Ground	Ingestion, inhalation, and contact with soils, dusts and vapours	End users	Moderate
	Migration through the sub-surface into enclosed spaces		Moderate/low
	Inhalation of dusts (cyanide)	Construction workers	Moderate
	Inhalation of dusts (asbestos)		Moderate
	Inhalation of dusts (cyanide)	Adjacent site users (during construction phase)	Moderate/low
	Inhalation of dusts (asbestos)		Moderate/low
Former gas works (on-site)	Ingestion, inhalation, and contact with soils, dusts and vapours	End users	Moderate/low
	Ingestion, inhalation, and contact with soils, dusts and vapours	Construction workers	Moderate
	Migration through the sub-surface into enclosed spaces	End users	Moderate/low
	Leaching and lateral migration	Surface and controlled waters	Moderate
Oil storage tanks, boiler house, electrical substation and incineration associated with former use of ABH	Ingestion, inhalation, and contact with soils, dusts and vapours	End users	Low
Car parking	Ingestion, inhalation, and contact with soils, dusts and vapours	End users	Low

2.10 Underground Infrastructure

2.10.1 Copies of all utility plans obtained are presented as Appendix M. The plans are provided for information only and should not be relied upon to be accurate. In addition, it is worth noting that the public utility plans provided by the asset owners typically exclude private service runs.

2.10.2 Additionally, a utility survey has been completed on site under separate cover by MK Survey in October 2018 (re: 26100). A copy of their survey is also presented in Appendix M.

2.11 Unexploded Ordnance (UXO) Risk Assessment

2.11.1 A detailed risk assessment has been undertaken by a UXO specialist to assess the risk of encountering UXO during ground investigation and construction works, in accordance with CIRIA report C681 'Unexploded Ordnance (UXO) A guide for the construction Industry'. A copy of the assessment is presented in Appendix M.

2.11.2 The risk assessment concluded the site footprint sustained significant enemy bombing during WWII resulting in the total destruction of the majority of structures within the site. 3 No. High Explosive (HE) bomb strikes have been recorded within the site boundary, with others in areas immediately surrounding the site, and a further incendiary bomb strike on the south-western site boundary.

2.11.3 As a result, the site is assessed as medium risk of encountering unexploded ordnance during bulk excavation, piling or borehole drilling works, and mitigation measures are recommended during such works in post war unworked ground.

3 Ground Investigation

3.1 Objectives

3.1.1 The initial ground investigation scope was provided by AKTII Limited and was updated by Soiltechnics in consultation with the Client following site reconnaissance. This phase of the investigation focuses on the Albert Bridge House area of the site (Phase 1 development area) as outlined in Section 1.1.

3.1.2 The objectives of the fieldwork were to:

i) Establish ground and groundwater conditions at the site.
ii) Obtain samples for subsequent laboratory testing.
iii) Install gas and groundwater monitoring wells and undertake a programme of monitoring visits.

3.2 Fieldwork Summary

3.2.1 Fieldwork was undertaken between 19th February and 7th March 2025.

3.2.2 A summary of the works completed is set out in the table below, along with the location of the exploratory logs. Photographic records of the trial pits and rock core are presented in Appendix E, and the exploratory hole location plan is presented within Appendix A.

Exploratory Hole Logs	Method	Qty	Final Depth Range (m bgl/m AOD)	Comments
Appendix B and Appendix D	Machine-excavated trial pits	5	2.50 to 4.30 28.92 to 28.34	TP01 to TP03, TP05 and TP08 Terminated at scheduled depth
		1	3.20 28.55	TP09 Terminated upon encountering Chester formation in order to conduct infiltration test.
		1	1.25 29.87	TP06 Terminated due to encountering multiple services
		2	3.10 to 3.90 28.08 to 27.95	TP04 and TP07 Terminated upon encountering suspected bedrock
Appendix C	Dynamic windowless sampling boreholes	7	0.15 to 0.50 31.77 to 30.70	WLS01A to WL01B, WLS03A to WLS03C, WLS04A to WLS04B Terminated due to concrete at base
		2	1.40 to 2.80 29.99 to 27.73	WLS01C and WLS02 Terminated due to competency of deposits
Appendix C	Rotary Borehole (Geobore S)	2	30.00 to 30.50 1.75 to 0.58	RBH01 to RBH02 Boreholes terminated at scheduled depth.
		5	15.00 to 15.75 16.70 to 16.12	RBH04, RBH05, RBH06D, RBH07B and RBH08 Boreholes terminated at scheduled depth
		1	0.55 31.36	RBH06A Terminated due to suspected service
		1	0.70 31.34	RBH06B Terminated due to obstruction at the base of the pit
		1	4.50 27.84	RBH06C Terminated due to drilling rig failure

Exploratory Hole Logs	Method	Qty	Final Depth Range (m bgl/m AOD)	Comments
		1	1.15	RBH07A Terminated due to concrete overspill and relict masonry wall

Table 3-A: Summary of fieldwork undertaken

3.2.3 All soils encountered were described in accordance with BS EN ISO 14688 "Identification and Classification of soil". Rock was described in accordance with BS EN ISO 14689 "Identification and classification of rock".

3.2.4 All exploratory positions were surveyed to OS datum.

3.3 Unexploded Ordnance (UXO)

3.3.1 The site was assessed to have a credible risk of encountering UXO and the works were supervised by a UXO specialist.

3.3.2 No ferrous anomalies or items of possible UXO were observed.

3.4 Sampling

3.4.1 During the fieldwork, sampling of soil and rock for geotechnical purposes has been undertaken in accordance with BS EN ISO 22475-1 *"Geotechnical Investigation and testing – sampling by drilling and excavation and groundwater measurements".*

3.4.2 Samples collected for chemical analysis have been taken and handled in accordance with BS ISO 18400-105:2017 *"Soil quality — Sampling Part 105: Packaging, transport, storage and preservation of samples".*

3.4.3 Various sampling and sub-sampling methodologies have been adopted as appropriate, with the primary aim of obtaining the highest quality sample class practicable.

3.4.4 Untested chemical and geotechnical samples will be held for a period of 4 weeks from the date of the first report issue, after which they will be disposed of.

3.5 In-situ Testing

3.5.1 The following table summarises the field testing carried out. The results are summarised on individual exploratory hole logs where appropriate and detailed within the Appendices indicated.

Tests	Qty	Applicable standard / guidance	Location of Results
Standard penetration test (SPT)	38	BS EN ISO 22476-3	Included within logs Detailed in Appendix F
Pocket penetrometer	14	Manufacturer's instructions	Included within logs Detailed in Appendix F
Soakaway test	2	BRE 365	Appendix G

Table 3-B: Summary of field testing undertaken

3.6 Monitoring Installations

3.6.1 Instrumentation installed within exploratory holes during the fieldwork are shown on the borehole logs within Appendix C and are summarised below:

Installation type	Target Stratum	Qty	Exploratory hole ID
Gas monitoring well	Made Ground/ Suspected Glaciofluvial deposits	4	WLS02, RBH04, RBH05 and RBH08
Groundwater well	Chester Formation	3	RBH01, RBH02 and RBH06D

Table 3-C: Summary of monitoring installations

3.7 Monitoring Visits and Groundwater Sampling

3.7.1 A summary of the competed and scheduled gas and groundwater spot monitoring visits is outlined in the table below. Results of the post fieldwork monitoring are presented in Appendix H.

3.7.2 Overall, six ground gas monitoring visits, completed fortnightly, are proposed based on current guidance. Groundwater and gas monitoring is still ongoing, with four of the six visits completed to date. The results of the monitoring will be updated in this report upon completion.

Date	Purpose
14/03/2025	Gas, vapour and groundwater monitoring and installation of continuous groundwater monitoring equipment
27/03/2025	Gas, vapour and groundwater spot monitoring, including groundwater and surface water sampling
11/04/2025	Gas, vapour and groundwater spot monitoring
25/04/2025	Gas, vapour and groundwater spot monitoring. WLS02 could not be accessed at the time due to the presence of a tent pitched over the location
09/05/2025	Gas, vapour and groundwater spot monitoring. WLS02 could not be accessed at the time due to the presence of a tent pitched over the location.
23/05/2025	Proposed visit
20/06/2025	Measure groundwater levels and collect continuous logger data (6 month programme)
25/07/2025	
22/08/2025	

Table 3-D: Summary of post fieldwork spot monitoring

3.7.3 Groundwater sampling undertaking during the return visits are summarised below.

Date	Purge Method	Sampling Method	Locations Sampled
27/04/2025	Low-flow peristaltic pump (stabilisation)	Bladder pump (low volume, low flow)	RBH01, RBH02 and RBH06D

Table 3-E: Summary of groundwater sampling undertaken

3.7.4 In addition, a ‘grab’ sample of River Irwell was obtained to determine receptor-specific geochemical parameters for bioavailability and baseline concentrations of chemical contaminants, from upstream and downstream of the site.

3.8 Continuous Groundwater Monitoring

3.8.1 In order to determine the groundwater fluctuations at the site, a groundwater level data logger was installed which is capable of providing continuous groundwater monitoring data. In addition to the data logger, a barometer was installed on site to allow data to be compensated against atmospheric pressure changes.

3.8.2 The following table summarises the dataloggers installed on site, and the results are presented in Appendix H.

3.8.3 Presented alongside the groundwater trend lines is daily rainfall data from a nearby weather station, obtained from the online rainfall databases.

Monitoring Well	Start Date	Reading Frequency	Monitoring Duration
RBH01	14/04/2025	Every 15 minutes	6 months
RBH01 (barometer)			

Table 3-F: Summary of groundwater level data loggers

3.9 Investigation Constraints

3.9.1 The table below outlines restrictions and constraints to the investigation methods which either limited the design of the original scope of work or resulted in a deviation from the agreed scope.

Detail	Impact
Fieldwork constraints	
Location RBH06 and WLS03 were repositioned numerous times due to shallow concrete and suspected services in the area to the east of the 6 storey building on site.	Information was not obtained in this area.
Other windowless sampler locations encountering obstructions/services	Very limited information obtained in such areas.
Sand deposits created during coring process in RBH06D causing coring barrel to become lodged in borehole. Limited recovery in places as a result.	Poor recovery.
Boreholes could not be located within single storey building due to presence of undercroft below slab, including RBH03 (the latter not completed).	No information on makeup of existing river bank and detail to allow slope stability assessment to be completed.
Presence of buildings and services.	Restricted coverage of the site, particularly in the western areas.

Table 3-G Table of site restrictions

4 Laboratory testing

4.1 Overview

4.1.1 Samples obtained from exploratory holes were sent to independent accredited laboratories for geotechnical and chemical testing.

4.2 Geotechnical Testing

4.2.1 The geotechnical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon the scheme proposals and our initial understanding of the ground conditions.

4.2.2 Geotechnical laboratory test results are presented in Appendix I and the total number of geotechnical tests undertaken is summarised below:

Qty	Test
13	Moisture content
9	Atterberg limits
9	Particle size distribution (wet sieve)
9	Particle size distribution (hydrometer)
4	Shear strength of a set of 60mm x 60mm specimens by direct shear
5	Intact dry density/ moisture content relationship 2.5kg hammer
22	Uniaxial compressive strength testing of rock cores
17	Point load testing (per determination axial/ diametral)
11	Determination of the porosity and density of rock specimens using saturation & buoyancy techniques
13	STS BRE Suite D - brownfield site, pyrite present (soils and water)

Table 4-A: Summary of geotechnical laboratory testing

4.3 Chemical Testing

4.3.1 The chemical testing schedule was prepared by Soiltechnics using a targeted and judgemental approach, based upon the initial conceptual site model and fieldwork observations. This is further elaborated on within subsequent report sections.

4.3.2 Chemical laboratory test results are presented in Appendix J, and the total number of chemical tests undertaken is summarised below:

Sample Type	Qty	Testing	Suite Name
Soils	1	PAHs (USEPA 16) + phenol + TPH CWG + BTEX	STS Basic Hydrocarbons
	1	PAHs (USEPA 16) + phenol + TPH CWG + VOCs & SVOCs (inc. TICs)	STS Basic Full Hydrocarbons
	12	Basic Metals Suite + PAHs + Asbestos screen + pH + SOM + moisture content + Banded TPH	STS Basic Classification
	3	Full Metals Suite + PAHs + Asbestos screen + pH + SOM + total & free cyanide + WS Sulphate (2:1) + ammoniacal nitrogen + total phenol + TPH CWG + VOCs+TICs & SVOCs+TICs	STS Full Brownfield
	3	Full Suite - Total soils + 2 stage leachate - As existing / national standards	WAC Suite
	1	Comprehensive Contamination Suite [metals, cyanides, PAHs, TPH CWG, (S)VOCs & inorganics]	ST Suite 17

Sample Type	Qty	Testing	Suite Name
Water	1	M-BAT Suite [DOC, pH, calcium & hardness]	M-BAT Suite
	5	Full metals + Full hydrocarbons, + pH, + cyanide (total & free), + sulphate + ammoniacal nitrogen, nitrate	STW Full Brownfield

Table 4-B: Summary of chemical laboratory testing

5 Ground Investigation Findings

5.1 Ground Model

5.1.1 The tables below present our generalised interpretation of geological and hydrogeological conditions at the site. Unless otherwise stated in subsequent interpretive report sections, this represents the adopted ground model. A geological cross section is also presented as Drawing 04 in Appendix A, which illustrates the typical ground conditions across the site, in addition to the ground model utilised in our site assessments.

5.1.2 Further detail about the ground conditions encountered is provided in the relevant sub-sections below. A surface level benchmark of 31m AOD has been utilised for the site ground model.

Stratum	Brief description	Top depth range (m bgl/m AOD)	Adopted model top depth (m bgl/m AOD)	Thickness (where proven, m)
Hard surfacing	Paving slabs and asphalt cover	G.L	G.L/31.0	0.04 to 0.20
Made Ground	Granular with localised cohesive soils containing gravels/ cobbles of concrete, brick, and occasional clinker and metal. Concrete obstructions in near surface in many locations, and locally relict brickwork to depth.	G.L to 0.25 31.0 to 30.38	0.15 30.75	0.30 to 8.18
Suspected Glaciofluvial Deposits	Granular and cohesive soils with gravels of siltstone, sandstone and coal. Present locally across the site.	0.40 to 4.30 31.45 to 27.45	3.40 27.60	0.65 to 2.70
Chester Formation	Very locally completely weathered to sand, largely extremely weak to weak sandstone bedrock. Could be separated into the following units;	2.45 to 8.38 29.30 to 23.02	5.40 25.60	Basal Unit
	Extremely weak sandstone bedrock	3.00 to 4.50 28.25 to 27.12		
	Very weak sandstone bedrock	5.18 to 6.50 25.90 to 25.20	7.40 23.60	
	Weak sandstone bedrock	10.42 to 12.65 20.8m to 18.43	15.00 16.00	

Table 5-A: Ground model

Type	Stratum	Groundwater depth and range (m bgl/m AOD)	Adopted model depth (m bgl/m AOD)	Comments
Groundwater	Chester Formation	8.10 to 14.00 23.60 to 17.08	N/A	Estimated groundwater strike during drilling.
		7.80 to 8.71 23.95 to 22.37	8.50 22.50	Measured during return monitoring visits. Excludes shallow anomalous area.

Table 5-B: Hydrogeological model

5.2 Hard surfacing

5.2.1 Hard surfacing was encountered across all exploratory positions with the exception of WLS01A, WLS01C and WLS04B.

5.2.2 Hard surfacing generally comprised asphalt from ground level extending to depths of 40mm to 200mm below ground level. In WLS02 and exploratory positions in the northeast of the courtyard, hardstanding consisted of paving slabs overlying orangish brown fine sand.

5.2.3 Locally, concrete was observed either directly underlying asphalt or underlying a thin band of Made Ground. It was observed to a thickness of 50mm in WLS03C and RBH04, and 200mm in TP03 but could not be penetrated at other windowless sampler locations where present.

5.3 Made Ground

5.3.1 Made Ground was encountered across the entire site, which varied significantly in thickness and with no apparent consistency, present to depths of 0.4m to 8.38m bgl (the latter forming a relic structure also). Made Ground was deepest in the eastern part of the site in the area of RBH06D and RBH07B, present to depths of 7.6m and 8.38m bgl respectively. Elsewhere, Made Ground was present to depths of 0.4m to 4.3m bgl where proven.

5.3.2 Made Ground generally consisted of granular soils comprising brown and orangish brown, very gravelly, fine to coarse, sand and very sandy gravel with some cobble content. Locally Made Ground comprised soft to firm greyish brown, slightly gravelly, slightly sandy, clay. Gravels generally comprised fine to coarse, angular to subrounded brick, concrete, ceramics, clinker, chalk, and occasional coal.

5.3.3 A photograph of the Made Ground typically encountered across the site is presented below. Further photographic records are presented in Appendix E



Figure 5-A: Made Ground deposits extracted from TP01

5.4 Suspected Glaciofluvial Deposits

5.4.1 Suspected Glaciofluvial Deposits were encountered through the centre of the site, trending from the northwest of the courtyard to southeast corner of the site. The deposit was observed underlying Made Ground to a depth of, where penetrated, between 2.5m to 5.0m bgl. Deposits were thickest in the southeast of the site, at the closest point to where such deposits are mapped by the BGS.

5.4.2 Suspected Glaciofluvial deposits consisted of cohesive and granular soils. Cohesive soils generally comprised soft to firm, orangish brown, slightly gravelly, slightly sandy clay. The gravels consisted of fine to coarse, angular to subangular, sandstone, siltstone, and coal. Granular soils encountered consisted of orangish brown, slightly clayey, gravelly, fine to coarse sand, with gravels of quartzite, coal, sandstone, and siltstone.

5.4.3 A photograph of the Suspected Glaciofluvial Deposits encountered on site is presented below. Further photographic records are presented in Appendix E.



Figure 5-B: Cohesive Suspected Glaciofluvial Deposits, extracted from RBH02



Figure 5-C: Granular Suspected Glaciofluvial Deposits extracted from TP05

5.5 Chester Formation

5.5.1 The Chester Formation was observed from top depths ranging from 3.75m to 8.38m, with a maximum achieved depth of 30.50m bgl within RBH01.

5.5.2 Weathered deposits of the Chester Formation were initially observed within RBH05, comprising reddish brown, fine to medium sand, at depths of 3.75m to 4.0m bgl. Such deposits are possibly present in RBH04 between depths of 3.0m to 4.5m bgl, characterised by the lack of recovery. Similarly, no recovery was encountered in RBH06D between depths of 8.25m to 8.9m bgl and 9.75m to 10.5m bgl. The latter is, however, more likely to be associated with issues retrieving the coring barrel from the ground, with deposits possibly washed out by the increase in flush used to loosen the barrel. Completely weathered horizons of Chester Formation, comprising sands, were also encountered in RBH06D between depths of 11.25m to 12.4m bgl and in RBH08 between depths of 9.5m to 10.3m bgl.

5.5.3 Typically Chester Formation deposits were observed as competent bedrock, with very localised areas of highly weathered material and core loss as described above. Recovery was generally good (TCR 90-100%) and deposits typically comprised extremely weak to very weak, thinly laminated to medium bedded, medium grained, reddish brown sandstone. The discontinuities observed were generally horizontal to sub-horizontal, very closely to closely spaced, partly open to open, rough and planar, with no infill. Infilling of fractures was occasionally observed, comprising sandy clay and fine to coarse grained, subangular gravel/sand. Inclined sets of discontinuities were also observed locally.

5.5.4 Data indicates that bedrock could be described as extremely weak within the initial 2m of encountering bedrock, which increases to very weak below, and weak from depths of 15m bgl.

5.5.5 Photograph of the Chester Formation encountered on site are presented below. Photographic records of all rotary core are presented in Appendix E.

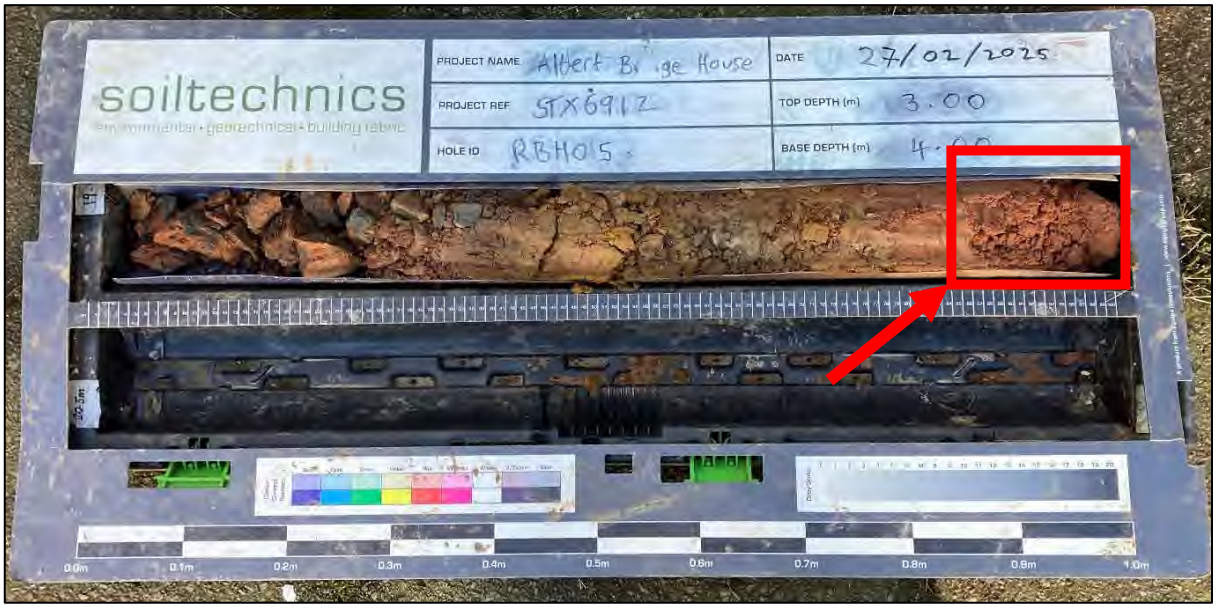


Figure 5-D: Weathered Chester Formation Deposits extracted from RBH05, shown by the red arrow and box.



Figure 5-E: Chester Formation extracted from RBH04.

5.6 Below Ground Relict Structures

5.6.1 In trial pits TP01 and TP05 and TP06, relic sandstone blockwork was present between depths of 0.4m to 0.8m bgl (0.15-0.25m in thickness), possibility representing former hardstandings around the former gas works and along Albert Street (refer to Drawing D03 in Appendix A). The blockwork was bonded by a tar like substance, which exhibited a strong hydrocarbon odour.

5.6.2 Relic brickwork walls/floors were encountered in trial pits TP02 and TP07, as well as boreholes RBH07A and RBH07B. Sections of the structures exposed in trial pits are presented in Appendix D, encountered to depths of 2.45m to >3.0m bgl.

5.6.3 Mortar bonded brickwork was encountered below surface hardstanding in RBH07B to depths of 8.38m bgl (8.13m in thickness). With reference to Drawing D03 presented in Appendix A, RBH07B was drilled below a large building associated with the former gas works, which may have contained sub floor levels associated with the production of gas. Based on in accuracies in historical mapping, it could also potentially represent a brick annulus associated with the large gas holder, which could have been a below ground structure. However, RBH02 was completed closer to the former gas holder than RBH07B, which do not indicate the presence of a possible brick annulus. This could mean the brick annulus runs between RBH07B and RBH02, but the Made Ground depth in RBH02 was not as significant (4.3m bgl).

5.6.4 In addition, borehole RBH06D was completed within the footprint of the former gas holder, encountering Made Ground to depths of 7.6m bgl onto sandstone, with no relic structures in the base of the Made Ground to suggest the remnants of a former tank base.

5.6.5 Photograph of the relict structures in TP02 and TP07 are presented in Appendix D and Appendix E. Photogprahic records of the masonry core from RBH07B are also presented in Appendix E.

5.7 Groundwater

5.7.1 A summary of the groundwater level data obtained during the fieldworks phase is presented below.

Exploratory hole ID	Groundwater observation
RBH01	Groundwater strike recorded at 14.00m bgl, with no significant rise after 20 minutes. Recorded at 10.4m bgl following morning.
RBH02	Groundwater strike recorded at 12.00m bgl, with no significant rise after 20 minutes. Recorded at 12.4m bgl at end of borehole.
RBH04	Groundwater recorded at 12.60m bgl at the end of the shift.
RBH05	Groundwater strike recorded at 13.00m bgl, with no significant rise after 20 minutes.
RBH06D	Groundwater strike recorded at 11.00m bgl, with no significant rise after 20 minutes. Recorded at 7.4m bgl at end of borehole.
RBH08	Groundwater recorded at 8.10m bgl at the end of the shift.

Table 5-C: Summary of groundwater observations during the fieldworks

5.7.2 A summary of the groundwater level data obtained during the monitoring phase is presented below and is detailed within Appendix H.

Targeted strata / Aquifer	Exploratory hole ID	Instrument Type(s)	Range during monitoring period	
			Water depth (m bgl)	Water level (m AOD)
Chester Formation	RBH01	Well	8.55 – 8.70	22.53 – 22.38
	RBH02	Well	7.80 – 8.60	23.95 – 23.15
	RBH06D	Well	4.69 – 5.80	27.69 – 26.58
	RBH01	Logger	8.34 – 8.71	22.75 – 22.37

Table 5-D: Summary of groundwater monitoring visits

5.7.3 Groundwater depths measured in RBH01 (closest to the River Irwell) and RBH02 (distant from River Irwell) were consistent and indicate a flow to the north into the river, with groundwater in the Chester Formation likely to be in hydraulic connectivity with the river (river level just under ~22m AOD based on topographical data).

5.7.4 Groundwater levels in RBH06D were measured at shallower depths. During the monitoring visits, development of the groundwater well was attempted in this position using a submersible pump on 2no' separate occasions with both attempts removing 2.5x the well volume. The recharge of water during each attempt was almost immediate. The response zone of the installation was located between depths of 10.0m bgl and 15.0m bgl (22.38m to 17.38m AOD) within highly weathered Chester Formation materials, with groundwater measured well above this level. The groundwater could therefore be representative of perched groundwater within the Made Ground, entering a faulty installation, or it could be locally ponding behind the basement structure to the 6 storey block.

5.7.5 It is noted, however, that the water level in RBH06D has been dropping ever since it was initially monitored, by >1m. This could be reflective of the annulus of the well fully hydrating over time and preventing further water infiltrating the well, and with the recent dry weather experienced the groundwater level in the well is slowly sinking back to natural levels.

5.7.6 Further works in this area are recommended to determine if the shallow groundwater is indicative of ground conditions, or artificial.

5.7.7 Groundwater levels are expected to vary seasonally and in response to recent weather conditions. Long term monitoring will provide a reasonable quantification of such variation.

5.7.8 It should also be noted that no free phase (LNAPL) was measured on the water column during monitoring visits.

5.8 Evidence of Possible Contamination

5.8.1 The table below summarises the potential contamination noted during the ground investigation works.

Exploratory hole ID / Area	Depth of observation (m bgl)	Stratum	Description
RBH02	5.00 to 6.50	Chester Formation	Strong hydrocarbon odour with slight staining noted.
RBH02	6.50 to 7.85	Chester Formation	Very faint hydrocarbon odour noted.
TP01	0.55 to 0.80	Made Ground	Sandstone blockwork extracted as coarse gravels and cobbles coated in tar substance. Strong hydrocarbon odour from tar noted.
TP03	0.15 to 0.35	Made Ground	Cobbles of sandstone blocks within Made Ground observed with tar coating and faint hydrocarbon odour noted.
TP04	2.70 to >3.90	Cheser Formation	Very faint hydrocarbon odour and slight localised black staining noted.
TP05	0.65 to 0.80	Made Ground	Sandstone blockwork extracted as coarse gravels and cobbles coated in tar substance. Strong hydrocarbon odour from tar noted.
TP06	0.40 to 0.65	Made Ground	Sandstone blockwork extracted as coarse gravels and cobbles coated in tar substance. Strong hydrocarbon odour from tar noted.
TP07	0.30 to 2.45	Made Ground	Occasional gravel and cobble sized pockets of suspected blue billy (associated with cyanide based gas works contamination), characterised by blue colour.

Table 5-E: Summary of potential contamination noted during the investigation works

5.9 Obstructions and Instability

5.9.1 The table below summarises the obstructions and instability encountered that affected the progress of the investigation works. The general stability of trial pits during excavation are also recorded on the trial pit logs.

Strata / Area	Depth range (m bgl)	Issue	Description
West of the 6-storey building	0.30 to 0.70	Obstructions	Positions in this area (RBH06A, RBH06B, WLS03A, WLS03B and WLS03C) terminated due to concrete obstruction.
WLS01C and WLS02	1.40 to 2.80	Obstructions	Terminated due to competency of ground, suspected cobbles.
WLS01A and WLS01B	0.20 to 0.25	Obstructions	Terminated due to concrete obstruction.
TP04	3.90	Obstructions	Hard stratum. Bedrock encountered. Unable to advance excavation.
TP07	3.10	Obstructions	Hard stratum. Suspected bedrock encountered. Unable to advance excavation.
RBH07A	1.15	Obstructions	Terminated due to concrete obstruction and masonry wall.

Table 5-F: Summary of obstructions encountered during the investigation works

6 Geotechnical Discussion

6.1 Scheme Overview

6.1.1 The following assessments are made on the investigatory data presented in the preceding sections of this report and are made with reference to the specific nature of the development. Should scheme proposals change then it is recommended that the validity of the conclusions of this report in relation to the revised scheme are checked.

6.1.2 It is understood the development will comprise the demolition of the existing structures onsite, including basements, and the construction of two new buildings with basement. Block B is a residential development some 50 storeys tall, whilst Block C, a commercial office development, is 20 storeys in height. Each of the proposed buildings are octagonal on plan with central cores/circulation. The basements provide parking and plant space. Relevant development drawings are presented within Appendix A.

6.1.3 It is understood the basement slab for each block will be located at the same level, with the basement footprint covering a much larger area than above ground structure for Block B, and basement for Block C largely similar to the above ground footprint. This will result in very localised areas of the existing basement footprints which would require infilling, with proposals indicating they would form landscaped areas/circulation space.

6.1.4 In view of the scheme proposals, the geotechnical elements considered in this report are outlined below:

- Building foundations
- Drainage
- Slope stability
- Basement/slab
- Pavement

6.2 Geotechnical Category

6.2.1 In accordance with BS EN1997-1:2004 + A1:2013 (Eurocode 7), the project is designated as Geotechnical Category 2. This category includes projects with *conventional types of structures and foundations with no exceptional risk, or difficult ground or loading conditions*. Furthermore, *routine design procedures* are appropriate.

6.2.2 It should be noted that this Report does not constitute a Geotechnical Design Report (GDR) as defined in Eurocode 7. Accordingly, a GDR should be prepared by the designer during the detailed design phase

6.3 Key Geotechnical Issues

6.3.1 In view of the ground conditions, the following list summarises the key geotechnical issues that may impact the scheme and will therefore need to be appropriately managed during the lifecycle of the project:

- Made Ground
- Below Ground Structures

- Groundwater

6.4 Made Ground

6.4.1 Made Ground soils were observed to depths between 0.40m to 7.6m bgl. Such deposits are not considered suitable for supporting concentrated foundation loads due to their low strength/density and variable composition, particularly in light of the very high loadings associated with the proposed structures.

6.5 Groundwater

6.5.1 Shallow groundwater was not recorded in any of the exploratory positions. In the deeper rotary boreholes, groundwater was recorded between depths of 7.8m to 8.71m bgl (23.95 to 22.37m AOD) in RBH01 and RBH02. Such groundwater is likely to be in hydraulic connectivity with the River Irwell to the north based on the level of the river channel (c.21.5-22m AOD).

6.5.2 Shallower water was observed in RBH06D, at depths of 4.69m to 5.80m bgl (27.69 to 26.58m AOD). The response zone of the installation was located between depths of 10.0m bgl and 15.0m bgl (22.38m to 17.38m AOD) within highly weathered Chester Formation materials, with groundwater measured well above this level. The groundwater could therefore be representative of perched groundwater within the Made Ground, entering a faulty installation, or it could be locally ponding behind the basement structure to the 6 storey block. The presence of groundwater will need consideration during the design of the proposed basement walls and slab.

6.5.3 Groundwater levels are expected to vary seasonally and in response to weather events.

6.6 Below Ground Structures

6.6.1 Relict brick/masonry walls were present in localised areas of the site, extending to a depth of 2.45m to 8.38m where the bases were identified.

6.6.2 Such structures are likely to relate to the historical gas works/ industrial buildings on site and consideration will need to be given to the position of these and potentially requiring mitigation measures such as the relocation of foundations, pre-boring, or obstruction removal to achieve design depths. The deeper masonry encountered in RBH07B falls within the footprint of the basement to Block C. The masonry extended to depths of 23.02m AOD, with the basement slab proposed at 25.19m AOD. Factoring in the slab/pile cap construction below, it is likely that the structure would largely be removed and may require some additional excavation to remove in its entirety.

6.7 Building Foundation Strategy

6.7.1 In view of the key geotechnical issues discussed above and anticipated loadings, piled foundations are likely considered most suitable for the project.

6.8 Geotechnical Parameters

6.8.1 Characteristic values of geotechnical parameters have been derived, in accordance with Eurocode 7. The following tables present the recommended characteristic values for the strata encountered:

Variable	Characteristic value	Derivation
Weight density above water table, γ_b (kN/m^3)	17	BS8004:2015 Figure 1

Variable	Characteristic value	Derivation
Critical state angle of shearing resistance, ϕ_{cv} (°)	34	BS8004:2015 Equation 4 Shear box testing
Effective cohesion, c'(kN/m^2)	0	Conservative approach
Drained deformation modulus, E' (MN/m^2)	4	E'=N*1000

Table 6-A: Summary of characteristic geotechnical parameters – Made Ground (granular)

Variable	Characteristic value	Derivation
Weight density above water table, γ_b (kN/m^3)	17	BS8004:2015 Figure 1
Critical state angle of shearing resistance, ϕ_{cv} (°)	24	BS8004:2015 Equation 8 with PI = 20%
Effective cohesion, c'(kN/m^2)	0	Conservative approach
Undrained shear strength, c_u (kN/m^2)	25	In situ testing
Undrained deformation modulus, E_u (MN/m^2)	25	E_u/c_u = 1000 from Jamiolkowski et al (1979) Literature

Table 6-B: Summary of characteristic geotechnical parameters – Made Ground (cohesive)

Variable	Characteristic value	Derivation
Weight density above water table, γ_b (kN/m^3)	18	BS8004:2015 Figure 1
Critical state angle of shearing resistance, ϕ_{cv} (°)	32	BS8004:2015 Equation 4 Shear box testing
Effective cohesion, c'(kN/m^2)	0	Conservative approach
Drained deformation modulus, E' (MN/m^2)	20	E'=N*1000

Table 6-C: Summary of characteristic geotechnical parameters – Suspected Glaciofluvial Deposits (granular)

Variable	Characteristic value	Derivation
Weight density above water table, γ_b (kN/m^3)	19	BS8004:2015 Figure 1
Critical state angle of shearing resistance, ϕ_{cv} (°)	26	BS8004:2015 Equation 4 with PI = 19%
Effective cohesion, c'(kN/m^2)	0	Conservative approach
Undrained shear strength, c_u (kN/m^2)	75	In situ testing
Undrained deformation modulus, E_u (MN/m^2)	75	E_u/c_u = 1000 from Jamiolkowski et al (1979) Literature

Table 6-D: Summary of characteristic geotechnical parameters – Suspected Glaciofluvial Deposits (cohesive)

Variable	Characteristic value	Derivation
Weight density above water table, γ_b (kN/m^3)	21	BS8004:2015 Figure 1
Weight density below water table, γ_{sat} (kN/m^3)	22	BS8004:2015 Figure 2
SPT N Value	>50	In situ testing
Uniaxial compressive strength, UCS (MPa)	1.0 @ 25.6m AOD to 23.6 mAOD, increasing to 5.0 @ 16.0m AOD, then increasing to 7.5 @1.0m AOD	Laboratory testing UCS and correlation with point load indices (refer to Figure 6-A). Point load based on correlation value of 23.
Effective cohesion, c'(kN/m^2)	0	Conservative approach
Porosity (%)	24.5	Laboratory testing. Average value adopted.

Table 6-E: Summary of characteristic geotechnical parameters – Chester Formation

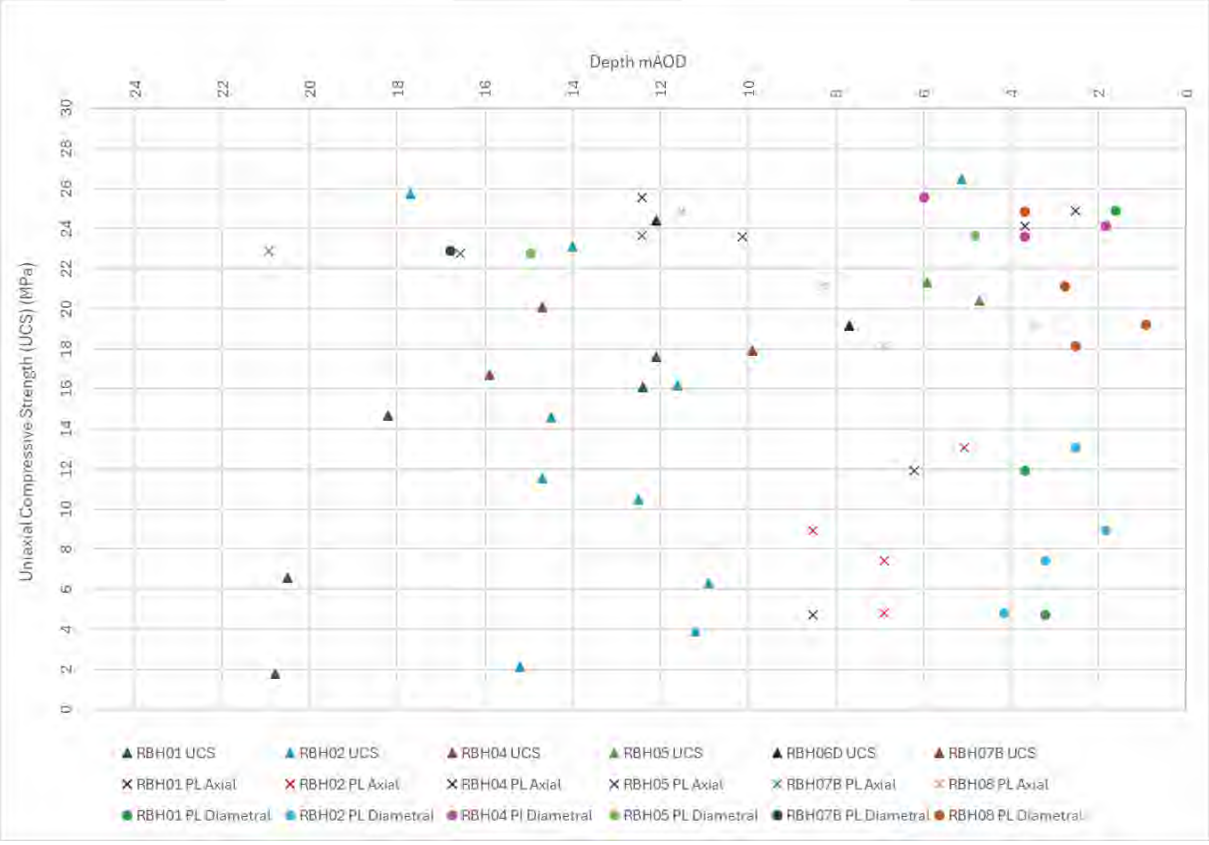


Figure 6-A: Graph illustrating Unconfined Compressive Strength (UCS) values

6.9 Pile Resistance

6.9.1 A preliminary assessment of single pile capacity has been undertaken to assist the foundation designer in establishing a foundation layout who will also retain design responsibility. The assessment has been undertaken in accordance with BS EN1997-1:2004 + A1:2013 and BS 8004:2015. It is recommended that the design and installation of the piles are determined by a specialist piling contractor who has experience in pile installation in these or similar ground conditions.

6.9.2 It is assumed that the piles will be installed using replacement piling techniques; i.e. bored piles.

6.9.3 The calculations have been undertaken with the aid of PILE, a specialist geotechnical software programme developed by OASYS. The analyses have been undertaken without explicit verification of serviceability limit state. Accordingly, set R4 partial factors have been adopted for Combination 2. However, as a general guide, the settlement of a single pile at working loads (factor of safety > 2) is typically of the order of 1% of the pile diameter.

6.9.4 The analysis only considers the properties of the soils and rocks encountered on site and not the material properties of the pile. Therefore, the compressive strength of the concrete pile will need to be accounted for in the design and selection of suitable pile types.

6.9.5 A model factor of 1.4 has been adopted in the analyses. The value may be reduced to 1.2 If the resistance is verified by a maintained load test taken to the required, unfactored ultimate resistance.

6.9.6 Shaft resistance within any Made Ground is assumed to be zero. It is further assumed that the Made Ground will not cause downdrag on the pile.

6.9.7 Unit shaft resistance within the granular strata have been derived using an effective stress approach, adopting the variables detailed in Table 6-F. We have based shaft resistance provided by the Glaciofluvial Deposits on a granular model, which is considered most conservative.

Stratum	Variable	Value	Derivation
Glaciofluvial Deposits (granular)	Earth pressure coefficient, K_s	0.7	BS 8004:2015 – Table 8
	Angle of interface friction, δ (°)	32	BS 8004:2015 – Eqn 36

Table 6-F: Variables used for determining pile resistance – Glaciofluvial Deposits (granular)

6.9.8 Unit shaft resistance within the Chester Formation has been derived based on the compressive strength of the material and the formulae presented in Table 54.8 of the ICE Manual of Geotechnical Engineering; an average value has been adopted. It is assumed that 'good' construction practices will occur when the piles are installed, and as a result full bonding between the concrete and the Chester Formation has been assumed. On this basis a unit shaft resistance of 535kN/m^2 has been adopted for the extremely weak layer of sandstone (refer to Table 5-A), increasing from 535kN/m^2 to 695kN/m^2 for the very weak layer, and increasing again for the weak sandstone from 695kN/m^2 to 860kN/m^2.

6.9.9 Unit base resistance within the Chester Formation has been derived based on the compressive strength of the material and the guidance given in Section 54.3.7.2 of the ICE Manual of Geotechnical Engineering. On this basis a unit base resistance of 1000kN/m^2 has been adopted for the extremely weak layer of sandstone (refer to Table 5-A), increasing from 1000kN/m^2 to 5000kN/m^2 for the very weak layer, and increasing again for the weak sandstone from 5000kN/m^2 to 7500kN/m^2.

6.9.10 The variation of single pile resistance in relation to pile toe level is presented below for three different pile diameters. It should be noted that the resistance of a single pile is reduced in the vicinity of other piles. Accordingly, detailed design of the piled foundation arrangement should take into account spacing between piles and pile group effects.

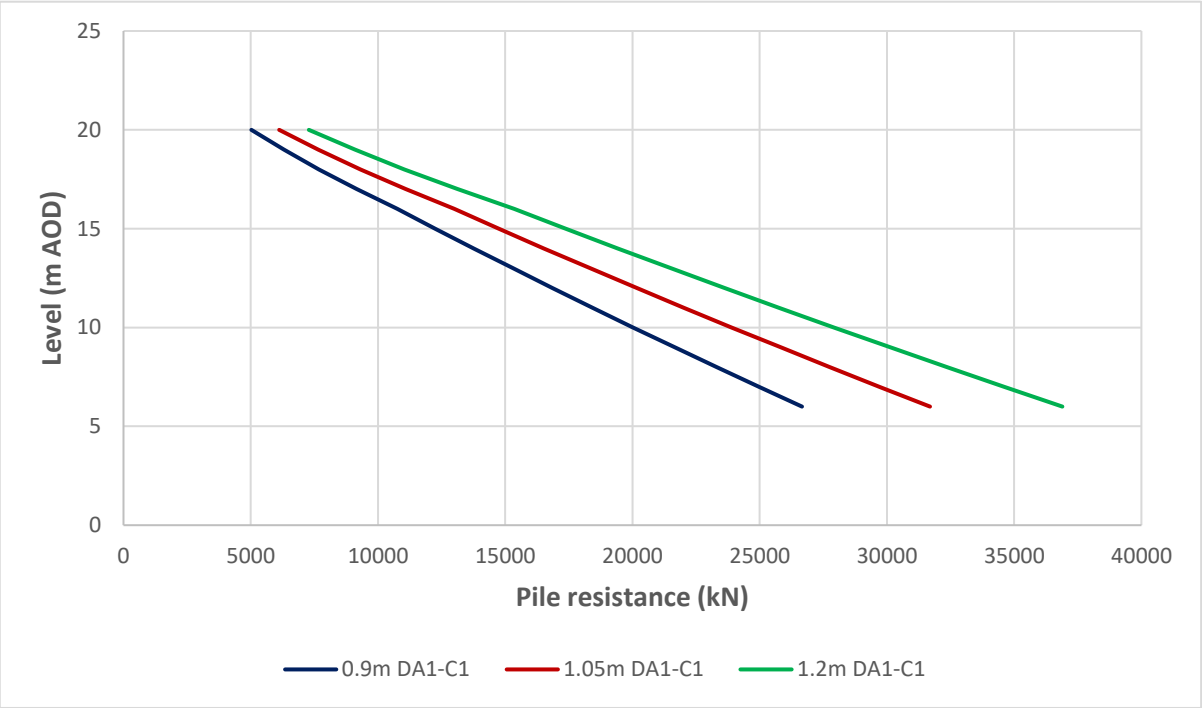


Figure 6-B: Pile resistance versus depth (Combination 1)

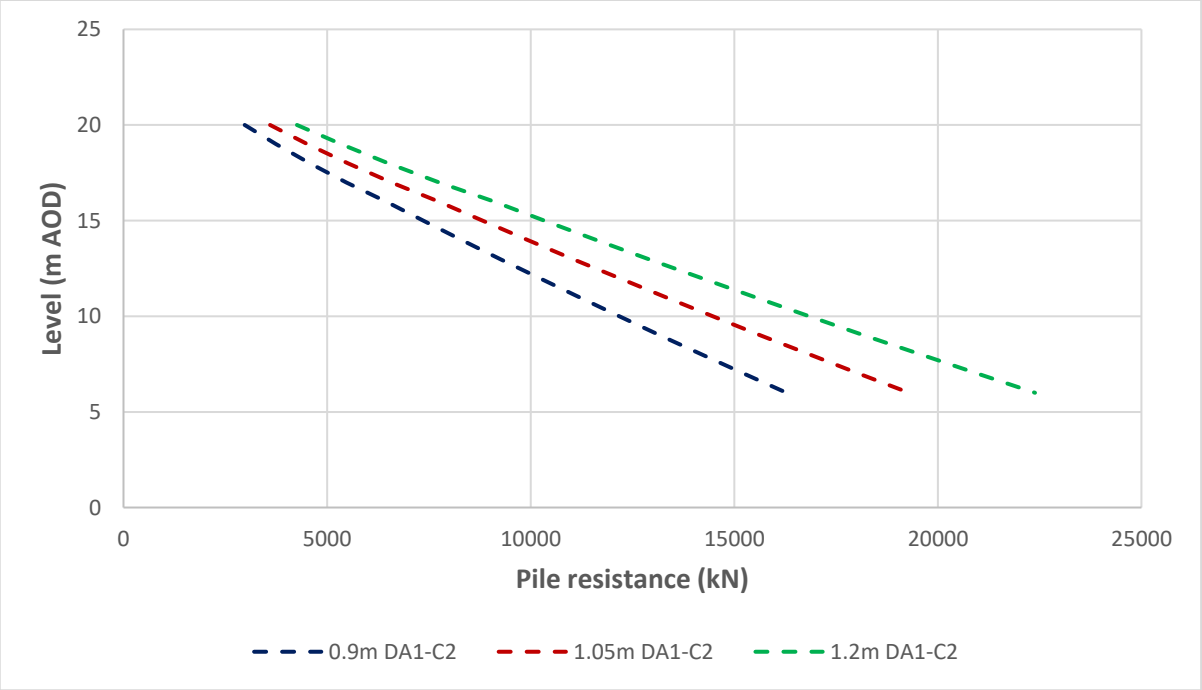


Figure 6-C: Pile resistance versus depth (Combination 2)

6.10 Basement

6.10.1 Proposed Block B and C will incorporate a basement. As outlined in Section 1.1, it is understood the basement slab for each block will be located at the same level, with the basement footprint covering a much larger area than above ground structure for Block B, and basement for Block C largely similar to the above ground footprint. The basement slab level for each block is currently proposed at 25.19m AOD, circa 6m below existing ground levels.

6.10.2 Based on ground conditions, a secant piled wall would likely provide the most appropriate retaining solution. As outlined in Section 6.5, groundwater has been measured at depths of 7.8m to 8.71m bgl (23.95 to 22.37m AOD) in RBH01 and RBH02. However, shallower deposits have been measured in the eastern part of the site in RBH06D, at depths of 4.69m to 5.80m bgl (27.69 to 26.58m AOD).

6.10.3 Further works in the area of RBH06D are recommended to determine if the shallow groundwater is indicative of ground conditions, or artificial.

6.10.4 Based on such, groundwater may potentially be encountered within the basement excavation with groundwater flows anticipated to be relatively rapid and therefore there is a risk that if conventional pumping techniques were adopted, they may quickly become overwhelmed. The use of a secant pile wall would aid in the exclusion of groundwater, making residual groundwater flows easier to control with conventional sump pumping techniques.

6.10.5 In addition, construction sequence and final design of the proposed development will need to consideration for the presence of groundwater long term, and account for the effects of hydrostatic pressures/ buoyancy accordingly. This may result in the requirement to include tension piles below the basement slab.

6.10.6 At proposed slab levels, Chester Formation bedrock will be present. Where Made Ground is locally deeper in the east of site (RBH06D/RBH07B, 7.6-8.38m bgl), the construction of pile/caps and basement slab is likely to remove the majority of such soils but there could be a residual amount of material left insitu. This is unlikely to be an issue if the slab is supported by the pile foundation to the building. If the slab is ground bearing between piles, including any tension piles used in the design to resist the effects of groundwater, removal of Made Ground and replacement with a suitable granular material is recommended.

6.10.7 The secant pile wall is anticipated to retain the Made Ground, suspected Glaciofluvial Deposits and upper horizons of the Chester Formation. The characteristic geotechnical parameters for these materials are presented in Section 6.8. These values should be used to derive earth pressure coefficients after adoption of the appropriate partial factor.

6.10.8 Based on drawings provided by AKT2, it appears that portions of the secant pile wall may carry loadings for the permanent structure. Designs of these piles should be undertaken with both the temporary and permanent conditions accounted for.

6.10.9 The excavation will induce ground movements within the soil that have the potential to cause damage to neighbouring properties and infrastructure. Ground movement will occur due to the following activities:

- Installation of the piles
- Excavation of the basement leading to inward yield

6.10.10 Consideration should be given to completion of a ground movement analysis (GMA) where infrastructure/ buildings are located in proximity to the proposed basement walls. In addition, a basement impact assessment (BIA) is likely to be required.

6.11 Aggressiveness of the Ground to Buried Concrete

6.11.1 The aggressiveness of the ground with respect to buried concrete has been assessed in accordance with Building Research Establishment Special Digest 1: Concrete in Aggressive Ground Third Edition (2005).

6.11.2 The site is interpreted to be a brownfield site where pyrite is likely to be present.

6.11.3 Laboratory testing has been undertaken on soil samples obtained from the investigation works.

6.11.4 The proposed foundations will extend into previously undisturbed soils that contain pyrite Excavating to form a foundation does not create 'disturbed' ground as defined in BRE SD-1. However any arisings resulting from foundation excavation or replacement piling for example would be classified as 'disturbed' ground. Accordingly, the amount of oxidizable sulphides has also been considered when categorising the strata.

6.11.5 The classification of the strata is tabulated below:

Stratum	Disturbed / Undisturbed	Design sulphate class	Aggressive chemical environment for concrete class
Made Ground	Disturbed	DS-4	AC-3s
	Undisturbed	DS-2	AC-1s
Suspected Glaciofluvial Deposits	Disturbed	DS-2	AC-1s
	Undisturbed	DS-1	AC-1s
Chester Formation	Disturbed	DS-1	AC-1
	Undisturbed	DS-1	AC-1

Table 6-G: Summary of the aggressiveness of the ground to buried concrete

6.11.6 It should be noted that where concrete is in contact with more than one soil type then the most onerous DS and ACEC classification should be adopted.

6.12 Drainage

6.12.1 Infiltration testing has been undertaken at the site in accordance with BRE 365: Soakaway Design (2016). The results are presented as Appendix G and summarised below:

Exploratory hole ID	Stratum tested	Cycle	Infiltration rate (m/s)
TP05	Suspected Glaciofluvial Deposits (granular)	1	2.5×10^{-5}
		2	1.6×10^{-5}
TP09	Chester Formation	1	Insufficient infiltration

Table 6-H: Summary of infiltration test results undertaken in accordance with BRE 365

6.12.2 Based on the above, the granular soils of the Suspected Glaciofluvial Deposits exhibit a degree of permeability. However, the lateral and vertical extent of such deposits is limited onsite and the potential for such deposits to act as a soakaway medium long term is unlikely to be viable.

6.12.3 Nelgibale water soaked away during the course of the infiltration test in Chester Formation bedrock. It is likely that such deposits are more permeable where fracture networks are present.

6.12.4 There is extensive Made Ground across site. Soakaways would promote leaching of contaminants within the Made Ground soil. Consequently, if soakaways are adopted, they should extend through the Made Ground and be sufficiently sealed to ensure that stormwater is only discharged into the underlying natural soils.

6.13 Pavement Foundation

6.13.1 As part of the scheme development, up to 75% of the site will be covered by proposed basements, with ground levels in the remainder likely to be significantly altered during the construction process. Accordingly, ground conditions at formation level will be largely dependent upon degree of reworking and compaction achieved in soils.

6.13.2 However, based on ground conditions to date, the subgrade is anticipated to comprise largely granular. Assuming non-plastic soils, a low water table, a 'thin' pavement and average construction conditions, a CBR value in excess of 5% is considered appropriate for preliminary design purposes. It is recommended that this CBR value is used for preliminary design purposes and validated immediately prior to construction.

6.13.3 Following completion of earthworks, it is recommended that design values are validated with in-situ testing immediately prior to construction. Furthermore, it is recommended that the formation level is trimmed and rolled following the requirements outlined in the Specification for Highway Works Series 600.

6.13.4 The Made Ground deposits are considered frost susceptible and this may override the CBR criteria for pavement foundation design purposes.

6.14 Suitability for Material Re-use

6.14.1 Laboratory testing has been undertaken on the near surface Made Ground and suspected Glaciofluvial Deposits. The testing was focused on determining acceptable limits such that in situ material could be reused on site. The samples tested for their maximum dry density/ moisture content relationship with a 2.5kg hammer are presented in Table 6-I below.

Exploratory hole ID	Stratum tested	Sample depth range (m)	As received water content (%)	Other water contents measured (%)
RBH01 TP05	Suspected Glaciofluvial Deposits – granular	1.80 – 2.40 2.00 – 2.50	15.6 11.7	10.3
RBH08	Suspected Glaciofluvial Deposits – cohesive	2.50 – 3.00	13.5	11.5, 13.4, 14.9
TP01	Made Ground – granular	2.00 – 3.00	18.4	18.6
TP04	Made Ground – cohesive	1.00 – 1.50	13.4	18.0, 23.1, 29.7, 28.4

Table 6-I: Summary of strata in which compaction testing has been completed

6.14.2 Compaction testing was undertaken to determine the maximum dry density and optimum moisture content on the samples in the above table. An upper and lower acceptable moisture content corresponding to 95% maximum dry density and subject to a maximum 10% air voids was then calculated for the sample.

6.14.3 Analysis of the granular Suspected Glaciofluvial Deposits was undertaken on 2no' samples (RBH01 at depths of 1.80m to 2.40m bgl, and TP05 at depths of 2.00m to 2.50m bgl), which indicates that the acceptable range of moisture content for compaction, following the principles outlined in 6.15, is 13.0% to 19.0%. The sample from RBH01 is considered acceptable for reuse in its current state. The sample of granular Suspected Glaciofluvial Deposits recovered from TP05, and in another area of the site, are recorded marginally below the acceptable moisture content for reuse. However, upon mixing with soils from the same strata, it is anticipated to be suitable for reuse.

6.14.4 Analysis of the cohesive Suspected Glaciofluvial Deposits indicates that the acceptable range of moisture content for compaction is 13.0% to 18.0%. The as received moisture content of the sample was 13.5%, which is considered acceptable for reuse in its current state. Two further samples of the same strata indicate acceptable moisture contents, with another sample marginally below the limit of acceptability. Upon mixing with soils from the same strata, it is anticipated deposits will be suitable for reuse.

6.14.5 Analysis of the granular Made Ground indicates that the acceptable range of moisture content for compaction is 18.0% to 21.5%. The as received moisture content of the sample was 18.4%, with another measured at 18.6%. Based on such granular Made Ground deposits are considered suitable for reuse in their current state, however, some sorting of soils will be required to remove oversized, deleterious and degradable materials.

6.14.6 Analysis of the cohesive Made Ground indicates that the acceptable range of moisture content for the compaction is 13.0% to 18.0%. The as received moisture content was recorded as 13.4%, with other samples measured between 18.0% to 29.7%. Based on 4 of 5 samples being on or above the limited of acceptability, cohesive Made Ground deposits are unlikely to be considered suitable for reuse in their current state, and suitable conditioning would be required prior to reuse. Again, some sorting of soils will be required to remove oversized, deleterious and degradable materials.

6.14.7 It should be noted that Made Ground soils are not considered chemically suitable for reuse onsite without remediation (refer to Section 7). As such, the reuse of such soils must be utilised where pathways to such soils are severed i.e. placed below structures/hardstanding or below a remedial capping.

6.14.8 Clay soils at the site are likely to be considered suitable for reuse, however, granular soils should be prioritised below areas of infrastructure and plot footprints, with clays utilised below buildings (suspended floor slabs if utilised) where possible.

6.14.9 Should the relict masonry walls, concrete slabs within Made Ground be removed, it is possible that following crushing and sorting the resulting aggregate could be used as 6F1/6F2 fill. However, the relic hardstanding formed from tar bound sandstone blockwork should not be reused onsite and should be suitably disposed offsite.

6.14.10 In addition, it is likely that the unweathered Chester Formation bedrock would be suitable for reuse following crushing and suitable grading. This is with the exception of the hydrocarbon impacted bedrock identified in the area of TP07 and RBH02 (refer to Section 7 for further details).

6.15 Earthworks Classification

6.15.1 It is anticipated that the project will include a notable volume of bulk excavation. The excavated material will comprise Made Ground, Suspected Glaciofluvial Deposits, and the Chester Formation.

6.15.2 Laboratory testing was undertaken on samples of the near surface materials, which is likely to be representative of the soils to be excavated.

6.15.3 Classification of the soils has been undertaken in accordance with the limits defined in the specification for Highway Works Series 600 Table 6/2.

Exploratory hole ID	Depth (m BGL)	Stratum	Earthworks Classification
RBH01 TP05	1.80 – 2.40 2.00 – 2.50	Suspected Glaciofluvial Deposits – granular	1A or 1B – well graded or uniformly graded granular material
RBH06D	5.40 – 6.20	Made Ground – cohesive	2C – stoney cohesive material
RBH08 TP04	2.50 – 3.00 1.00 – 1.50	Suspected Glaciofluvial Deposits - cohesive	2A or 2B – wet cohesive or dry cohesive material
TP01	2.00 – 3.00	Made Ground – granular	1A or 1B – well graded or uniformly graded granular material

Table 6-J: Summary of earthworks classification

6.15.4 It is assumed that unweathered bedrock materials will be excavated, crushed/graded and sorted during earthworks. All cut/fill activities should be undertaken in accordance with a detailed earthworks specification.

6.16 Slope Stability

6.16.1 As part of the redevelopment of the site, the bank of the River Irwell will require reprofiling to facilitate construction of Block B and the proposed landscaping fronting the river channel.

6.16.2 Anticipated slope angles are not currently understood, or if a retaining wall will be constructed immediately along the river channel to facilitate development. If the latter is required, the parameters outlined in Section 6.8 will assist with the design of such.

6.16.3 Due to site access restrictions, boreholes could not be completed in areas close to the existing riverbank, with WLS02 and RBH04 providing the best vertical coverage at closest points to the bank. Such excavations indicate at least 3m of Made Ground onto Chester Formation. Deposits of sandstone are also notable along the base of the river bank at water level based on observations from the bridges either side of the site.

6.16.4 If Made Ground was left exposed in any battered slopes, typical slope angles of up to 1v:3h could potentially be adopted, and potentially steepened where Chester Formation is present. This would need further analysis to confirm once proposals are finalised.

6.17 Constructability

6.17.1 Under most standard contracts it is the responsibility of the Contractor to design, construct and maintain temporary works. Accordingly, the following discussion is provided for information only.

6.17.2 Based on trial pit excavations completed across the site, it is anticipated that service trench excavations will remain stable in the short term. and shallow groundwater is unlikely to present. There is always a risk of some over break/instability in the Made Ground given the consolidated nature of such soils.

6.17.3 It should be noted that oversized materials within the Made Ground, as well as relict structures, may be an obstruction to pilling techniques. However, the vast majority are likely to be grubbed out during basement works. The masonry encountered in RBH07B will need consideration given the depth.

6.17.4 As outlined in Section 6.10, construction sequence and final design of the proposed development will need to consideration for the presence of groundwater long term, and account for the effects of hydrostatic pressures/ buoyancy on the basement accordingly.

6.17.5 Other items to consider in constructability:

- Spatial constraints
- Sequencing of construction

6.18 Excavatability

6.18.1 Rotary logs (refer to Appendix C) indicate discontinuity spacing within the Unweathered Chester Formation bedrock deposits are typically very closely to closely spaced to depths at and below the proposed basement, locally medium spaced. Characteristic UCS within bedrock increased from 3MPa at 5m depth to 7.5MPa at 30m depth. However, UCS ranged from just under 1MPa to 17MPa from top of bedrock to 10m bgl.

6.18.2 Based on characteristic UCS and range in UCS, Chester Formation bedrock deposits will be typically designated as Class IV and III rocks in line with guidance by Waltham (Foundations of Engineering Geology). Class IV rocks are suitable for direct excavation but considered hard, with Class III rocks unsuitable for direct excavation, however, are ‘easily ripped’ using tractor mounted rippers or boom mounted hydraulic peckers.

7 Tier 2 Generic Quantitative Risk Assessment

7.1 Objectives

7.1.1 The objective of this generic quantitative risk assessment (GQRA) is to further assess the potential contaminant linkages (PCLs) identified by the preliminary risk assessment using the following:

- The findings of the intrusive site investigation and resulting site specific ground and hydrogeological model.
- Laboratory analysis of soils and groundwater.
- Monitoring of ground gases and vapours.

7.2 Fieldwork Observations

7.2.1 Hydrocarbon contamination was observed within the upper horizons of the Chester Formation (depths between 5.00m to 6.50m bgl) within RBH02. At this location, the bedrock exhibited slight black staining and a strong hydrocarbon odour. Much less onerous odour and no staining was noted between depths of 6.50m to 7.85m bgl, below this, no hydrocarbon contamination was observed to be present.

7.2.2 Trial pit TP04, completed in an area immediately adjacent to the southeast, exhibited less onerous staining and odour, but minor hydrocarbon presence was still noted between depths of 2.70m to >3.90m bgl. The extent of the contamination is likely to be localised and not laterally extensive, confined to the east car park area/east of the 18 story building with basement and within the area RBH07A/B, TP08, and TP09/RBH08, where no evidence of contamination was noted.

7.2.3 In addition to the above, a localised area of suspected blue billy contamination, associated with the previous gas works, was encountered in Made Ground in TP07. However, such sources of contamination are anticipated based on site history.

7.2.4 Furthermore, sandstone blockwork bonded with a tar/pitch like substance was located near surface in the areas of TP01, TP03, TP05 and TP06. This is likely to represent former hardstandings around the former gas works and along Albert Street. The blockwork was bonded by a tar like substance, which exhibited a strong hydrocarbon odour, however, the blockwork it was not laterally or vertically extensive across the site.

7.2.5 Based on the above, a new potential contaminant linkage has been identified which requires further consideration and incorporation into the CSM, as follows.

Source	Pathways	Receptor	Preliminary Risk Assessment *(probability of harm x consequence)*
Hydrocarbon staining and odours within the Chester Formation	Vapour inhalation	Proposed site users	**Risk: Moderate/Low** (low – medium)
	Ingestion, inhalation and contact with soils, and dusts	Construction operatives	**Risk: Moderate/Low** (low – medium)
	Lateral migration within saturated zone to the nearby River Irwell/groundwater	Surface/groundwater	**Risk: Moderate** (likely – medium)
	Vapour inhalation	Proposed site users	**Risk: Moderate/Low** (low – medium)

Source	Pathways	Receptor	Preliminary Risk Assessment *(probability of harm x consequence)*
Sandstone blockwork coated in tar substance. Strong hydrocarbon odour	Ingestion, inhalation and contact with soils, and dusts	Construction operatives	**Risk: Moderate/Low** (low – medium)

Table 7-A: Fieldwork update to conceptual site model

7.3 Laboratory Testing Rationale

7.3.1 Laboratory testing has been scheduled by targeting potential contaminant linkages identified within the iCSM and observations made during fieldworks. The sampling and testing strategy is based on a judgemental approach.

7.3.2 The testing of Made Ground deposits was undertaken across various locations to gain spatial coverage over the site and to characterise the strata encountered. Testing included a broad suite of analysis due to the potential for unknown contamination to be present.

7.3.3 In addition to the above, the following potential sources of contamination were identified within the iCSM and were subject to targeted sampling and testing as summarised below.

Source	Strata/medium	Qty	Scheduled analysis	Exploratory IDs	Sample Depth Range (m bgl)
Localised hydrocarbon contamination	Chester Formation	1	ST Suite 17	RBH02	5.1
		1	STS Full Hydrocarbons	TP04	3.8
Sandstone blockwork coated in tar	Made Ground	1	STS Basic Hydrocarbons	TP01	0.7

Table 7-B: Summary of scheduled laboratory testing

7.4 Generic Assessment Criteria

7.4.1 Assessment of laboratory test data has been carried out using published generic assessment criteria (GACs). The GACs act as screening values to provide a 'trigger' to an assessor that soil concentrations above these limits might present an unacceptable risk.

7.4.2 Various GAC sources are used within this report. Key assumptions are made in the derivation of screening values in regard to their use and application, and exposure modelling is based on precautionary national scenarios. This generic approach can result in an overly conservative assessment; therefore, the assessor is required to review the outcome of the GQRA screening in the context of the site specific CSM and identified potential contaminant linkages.

7.4.3 Asbestos does not currently have published GACs which can be used for generic assessment purposes, at this stage a present / absent trigger limit has been adopted.

7.4.4 Specific details regarding the published GAC sources chosen and any parameter refinements made are summarised within Appendix K, along with the order of preference where multiple GAC sources are available. The exposure models adopted are discussed in the relevant sections below.

7.5 Human Health GQRA (Soils and Vapour)

7.5.1 The results of the human health screening assessment for soils and vapours are detailed in Appendix K. The following table outlines the exposure models adopted, along with summarising the outcome of each screening assessment.

Receptor	Exposure Model	Outcome
All human health receptors	Presence of asbestos	Chrysotile fibres/ clumps detected in 1 of 15 samples from laboratory testing (WLS02 at 1.2m bgl). Quantified at 0.002%. No other samples had a positive trace.
Proposed users	Residential without plant uptake	Multiple exceedances of metals, largely lead, with localised arsenic and nickel. Multiple exceedances of PAH, in addition to localised o-Xylene and 1,2,4-Trimethylbenzene.
Construction operatives	Acute occupational exposure (assumed no PPE worn)	No exceedances.
Adjacent site users	Acute off-site public exposure during construction phase	No exceedances.

Table 7-C: Human health GQRA models and outcomes

7.5.2 The table below summarises the instances where contaminants have exceeded the generic screening criteria.

Receptor	Strata	Contaminant	Locations & Depths	Test Result / Range (mg/kg)	GAC (mg/kg)
Proposed users	Made Ground	Arsenic	RBH06D and WLS02 (1.20-3.00m bgl)	48-200	40
Proposed users	Made Ground	Lead	RBH06D, RBH08, TP05, TP07, TP08, WLS01C, WLS02 (0.40-3.00m bgl)	340-20,000	310
Proposed users	Made Ground	Nickel	TP07 at 1.90m bgl	200	180
Proposed users	Made Ground	PAHs	9 No. holes across site. (0.25-1.00m bgl)	Various PAHs exceeding GAC thresholds.	
	Chester Formation	PAHs	RBH02 and TP04 (3.80-5.10m bgl)	Various PAHs exceeding GAC thresholds.	
		O-Xylene & Sum of Xylenes	RBH02 at 5.10m bgl	>10 >28	210 180
		1,2,4-Trimethylbenzene		>10	0.99
All human health receptors	Made Ground	Asbestos fibres/ clumps	WLS02 at 1.20m bgl	0.002%	N/A

Table 7-D: Human health GQRA exceedances

7.6 Proposed Site Users Risk Assessment (Soils and Vapour)

7.6.1 Two recorded exceedances of arsenic were identified within laboratory testing. One sample returned a marginal exceedance of the GAC. The more onerous result of 200mg/kg is more notable and likely attributed to the inherent variability of Made Ground materials and previous usage of the site.

7.6.2 Lead concentrations were recorded above the relevant screening value (310mg/kg) in multiple samples across site, with exceedances ranging from 340-20,000mg/kg. These elevated levels are not confined to one specific area, and are likely associated with the general Made Ground, including fragments of metal, reflecting the site history and development phases. Furthermore, historical records indicate the site suffered significant bomb damage during the Second World War, with several high explosive devices known to have impacted the area. It is possible that wartime damage and subsequent post-war clearance/infill activities may have contributed to the spread of site-wide lead contamination. The notably higher concentrations of 17,000 to 20,000mg/kg are likely to be associated with soils exhibiting a blue discolouration, relating to heavy lead contamination (not suspected blue billy as cyanide results were very low) noted in TP07 or fragments of general metal contamination.

7.6.3 A single concentration of nickel was recorded exceeding the GAC, measured at 200mg/kg identified in Made Ground in TP07 at 1.90m depth. This exceedance is marginal and not considered to represent significant risk and may reflect the natural variability in the underlying Made Ground.

7.6.4 Significant PAH exceedances were also recorded across multiple samples taken from Made Ground deposits, with the highest values observed at WLS01 at 0.80m depth. PAHs exceeding guidelines across the site include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene and chrysene. These elevated concentrations are indicative of past industrial activities mainly attributing to the former gas works. An additional exceedance was noted for naphthalene from TP01 at 0.7m depth, though this was a direct sample of the tar-like coating observed on the sandstone blocks (former hardstanding).

7.6.5 Fieldwork observations indicated hydrocarbon odours and staining in RBH02 and TP04 within the Chester Formation. Concentrations of o-Xylene and total Xylenes were measured at concentrations greater than what is considered to be measurable in the laboratory (>10 and >28 mg/kg respectively), and far below the GACs for each contaminant. This is possibly a result of the saturation of the laboratory instrumentation. Whilst the actual concentration of each contaminant it not fully understood, based on the GAC values and concentrations of other similar contaminants, Xylenes are not considered to present a risk to human health.

7.6.6 1,2,4-Trimethylbenzene has been measured at concentrations of >10mg/kg, well above the relevant GAC of 0.99mg/kg. Again, the recorded measurement is possibly a result of the saturation of the laboratory instrumentation. PAH exceedances were also identified within the samples obtained from RBH02 and TP04, including benzo(a)pyrene, benzo(b)fluoranthene and dibenz(a,h)anthracene. Such contamination is likely to relate to the previous gas works or garage, particularly given the high levels of 1,2,4-Trimethylbenzene which occur naturally in petroleum and coal tar products.

7.6.7 In general, with the exception of 1,2,4-Trimethylbenzene as discussed above, concentrations of measured VOC/ SVOCs were largely recorded below the limit of detection and below published guidelines. A small number of compounds recorded concentrations above the limit of detection for which published screening values are not currently available, namely 1,3,5-Trimethylbenzene (6.3mg/kg), p-Isopropyltoluene (0.028mg/kg), 2-Methylnaphthalene (52mg/kg), Carbazole (5.5mg/kg) and Dibenzofuran (12mg/kg). These were all measured in the sample of hydrocarbon impacted Chester Formation from RBH02 at 5.1m bgl. The potential origin of such contamination is likely to be associated with coal tar and the gasification of coke.

7.6.8 Based on the concentrations measured, the VOC/SVOC contaminants are not considered to present a significant risk to human health. In addition, such soils will be excavated during the basement construction for Block C, thus the source of such contamination removed from site. This is discussed further below.

7.6.9 A sample of Made Ground from WLS02 at 1.20m bgl recorded the presence of chrysotile asbestos fibres/ clumps at a concentration of 0.002%. At such depths, asbestos is unlikely to pose a risk to human health, particularly given the strata in which the asbestos is present is located from 1.0m bgl. Based on the number of samples screened for asbestos (15 No.), such contamination is not considered to be prevalent across the site.

7.6.10 A basement structure some 6m in depth is proposed below Block B and Block C. There will also be additional excavation to form pile caps and the basement slab. The footprint of the basement covers a much larger area than the above ground structure for Block B, and for Block C is largely similar to the above ground footprint (refer to dashed blue line on Drawing 02 in Appendix A). It is estimated that c.75% of the site will be covered by proposed basement. The remainder will be covered in hardstanding and landscaped areas. Such areas are also proposed above basement areas outside the above ground building footprints.

7.6.11 Based on development proposals, the construction of the proposed basements, and external hardstanding beyond, will sever the pathway to elevated concentrations of lead, arsenic, nickel, and PAHs measured, in addition to the asbestos.

7.6.12 Such contamination is likely to be present in areas of proposed landscaping located outside the footprint of the proposed basements (assuming landscaping above basements is formed with clean imported material). In these areas, a clean cover system is recommended, achieving a thickness of at least 600mm, to sever the pathway to contamination identified. Given there is a lack of Topsoil resource onsite, importation of clean soil will be necessary for landscaped areas.

7.6.13 The primary pathway of the PAH exceedances in soils is not related to vapours, and therefore such pathways will not pose a risk to human health in proposed internal areas. The naphthalene (primary pathway is via the vapour route) exceedance is related to the tar like coating on the sandstone blockwork identified in TP01 at 0.7m depth, in addition to TP03, TP05 and TP06. Such material will be excavated during the basement excavation in the areas of TP05 and TP06. TP01 and TP03 are located in proposed landscaped areas in the east of the site, as such vapours are unlikely to present a risk. However, we recommend the near surface sandstone block work material where present in areas outside the development footprint is excavated and removed from site (should not be reused onsite) to avoid nuisance vapours/odours affecting the site long term. Based on currently proposed ground floor level of the development, existing levels would also be reduced to some extent in this area which will assist with such excavation.

7.6.14 It should be noted that concentrations of aliphatic and aromatic hydrocarbon fractions above the EC10 chain could not be measured in the sample from TP01 at 0.7m depth due to the suitability of the sample i.e. fragments of tar like coating.

7.6.15 Based on the depth of the hydrocarbon contamination identified within the Chester Formation in TP04 and RBH02, including 1,2,4-trimethylbenzene, c. 2.7m bgl, the primary pathway to affect human receptors is considered to be vapour inhalation. These areas fall within the proposed basement extent for Block C, with the depth of excavation likely to be at least 6m below existing ground level with additional excavation required to install pile caps/basement slab. Therefore, an excavation depth of c.7-8m bgl is envisaged.

7.6.16 Based on this, and the lateral extent of the Block C footprint (refer to Drawing D02 in Appendix A), the contamination identified in the Chester Formation in the area of TP04/RBH02 will be excavated. The lateral extent is not considered to be extensive based on works to date, and is likely to fall within the footprint of the proposed excavation. The current basement of the 18 storey building also falls in the western extent of the Block C footprint, during construction of which any further contamination to the west in the Chester Formation is likely to have largely been removed. Providing such soils are segregated and removed from site, the risk of harm to health of end users from vapours is considered to be low, and incorporation of vapour protection measures are not currently considered necessary. The construction of the basement secant wall and associated internal basement wall and waterproofing construction will also offer protection to lateral vapour ingress from any residual areas of contamination. In addition, the basement is proposed to comprise space for plant/equipment and cycle storage, which largely comprise, open, well ventilated areas, offering a further level of protection.

7.6.17 In addition, with reference to Section 7.10, some volatile contaminants have been measured in groundwater in the Chester Formation. Based on the assessment of the chronic effects of groundwater vapour (refer to Appendix K), concentrations of all contaminants are measured below relevant guideline values. Therefore, vapour ingress from groundwater below the basement is highly unlikely to occur. We have also adopted the most stringent parameters within the assessment. Insitu Photoionisation Detection (PID) testing undertaken during the gas/groundwater monitoring programme also indicates very low concentrations of vapours at surface (0.0-0.5 ppm).

7.6.18 A watching brief is however, recommended during excavation of the basement(s), to ensure all hydrocarbon contamination is removed, and subsequent validation completed accordingly, and any previously unencountered contamination is suitably managed.

7.7 Construction Workers Risk Assessment

7.7.1 Asbestos was largely absent across the site, however, chrysotile asbestos fibres/ clumps were detected in 1 of 15 samples of Made Ground tested, detected in WLS02 at a depth of 1.20m bgl. Asbestos was recorded a concentration of 0.002%.

7.7.2 A risk assessment has been undertaken using the JIWG Decision Support Tool (see Appendix K), and at these concentrations, there is considered to be a low risk to construction workers at the site.

7.7.3 The following safety procedures should be implemented during the enabling works and construction phase where excavating within Made Ground soils known to be contaminated with asbestos (area of WLS02).

- RPE comprising FFP3 disposal type. Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
- Manual/localised dust suppression. A reduction in control measures is possible if natural mitigation factors are present (e.g. raining/wet ground).

- Localised and basic personal decontamination facilities. This is a guide only, and the suitability of selected personal hygiene measures may be reviewed on a site/contamination specific basis.

7.7.4 Further to the above, general good working practices for working on brownfield sites should be adhered to at all times, including.

- Asbestos awareness training.
- A watching brief during enabling works.
- A site-specific asbestos awareness briefing as part of the site inductions.
- Establishing an appropriate action plan in the event of encountering unexpected contamination and suspected asbestos containing materials.
- Control of material movements to minimise dust generation, for example by reducing drop heights and ensuring buckets are not over-loaded.
- Blading or covering short-term stockpiles.
- Covering or seeding long-term stockpiles.

7.7.5 With the exception of asbestos, the risk posed to construction workers from contaminants in the ground is considered low to moderate. In addition to the above PPE and hygiene protocols, we recommend that due to high levels of lead and PAHs in Made Ground, full body cover (long sleeves and trousers) and gloves are mandated onsite during Made Ground material movements, along with dust mitigation measures (such as misting and dampening of soils during dry weather).

7.7.6 There is the potential for construction workers to come into contact with some soils/water which may exhibit visual/olfactory evidence of contamination, however, providing the measures outlined above are adopted, the risk to health is considered to be low.

7.8 Adjacent Site Users Risk Assessment

7.8.1 Based upon the laboratory results and our understanding of the site, there is not considered to be an unacceptable level of risk to adjacent site users, both during construction and following completion of the development with respects to soil contamination.

7.8.2 A risk assessment has been undertaken using the JIWG Decision Support Tool (see Appendix K), for the identified asbestos fibres recorded on site in the area of WLS02. Given its observed condition, there is considered to be a very low risk to off-site receptors, and no special precautions are required.

7.9 Controlled Waters GQRA

7.9.1 Surface water samples from the River Irwell have been obtained and analysed to determine its bioavailability parameters. This has been inputted into the UKTAG Metals Bioavailability Assessment Tool to derive site specific (PNEC) values for surface water assessment. The output is presented within our in-house screening sheets in Appendix K.

7.9.2 Given the proximity of the River Irwell to the site, and based on the lack of drinking water abstraction in the local area, in addition to the site located remote from an SPZ, and the closest groundwater abstraction relating to industrial processes, we have screened measured concentrations of contaminants against EQS values.

7.9.3 The results of the GQRA screening for controlled waters are detailed in Appendix K. The following table outlines the exposure models adopted, along with the outcome of the each assessment.

Receptor	Exposure Model	Outcome
Surface/groundwater	Environmental Quality Standards	Exceedances in groundwater below the site as follows; 1 No. manganese 1 No. mercury 1 No. benzene 1=2 No. chloroform No exceedances from surface water samples (River Irwell)

Table 7-E: Controlled water GQRA models and outcomes

7.9.4 The table below summarises the instances where contaminants have exceeded the generic screening criteria.

Receptor	Sample Origin	Contaminant	Locations & Depths	Test Result / Range (µg/l)	GAC (µg/l)
Surface /groundwater	Chester Formation	Manganese	RBH06D at 13.00m	740	266
		Mercury	RBH02 at 13.00m	0.26	0.07
		Benzene		16	10
		Chloroform		5	2.5
			RBH01 at 10.00m	21	2.5

Table 7-F: Controlled waters GQRA exceedances

7.10 Controlled Waters Risk Assessment

7.10.1 The preferential pathway for migration of contaminants in groundwater is likely to be fracture flow in the Chester Formation sandstone bedrock, which based on groundwater monitoring to date, flows immediately north into the River Irwell. It should also be noted that no free phase (LNAPL) was measured on the water column during monitoring visits.

7.10.2 Whilst exceedances have been measured as outlined above, they are recorded within an order of magnitude of the relevant guidelines, and considered marginal in some instances.

7.10.3 Where hydrocarbon impacted Chester Formation deposits have been encountered in TP04 and RBH02, elevated concentrations of soluble benzene and chloroform are present (from the well installed in RBH02), the latter also present in the bedrock material. O-Xylene was present in the bedrock material, in addition to 1,2,4-Trimethylbenzene, the latter exceeding the GAC, which do not appear to be present at concentrations exceeding the respective guidelines in groundwater in the same area, suggesting limited solubility.

7.10.4 Relatively low concentrations of trihalomethanes have been measured in RBH01 and RBH02, for which EQS values are not currently available. However, such values fall well below the drinking water guideline for such contaminants (100 µg/l).

7.10.5 There is some evidence to suggest contaminants such as chloroform and trihalomethanes are migrating north towards the river from the area of observed contamination in RBH02/TP04, with higher concentrations measured in RBH01 (closest to the river channel). However, these will quickly disperse into the River Irwell and are considered marginal exceedances in the first instance.

7.10.6 No determinands within the surface water samples taken from the River Irwell (SW01 downstream and SW02 upstream) exceed the EQS values and therefore the risk from migration of localised contamination in groundwater below the site affecting the river quality is considered to be very low.

7.10.7 Given contaminants in groundwater at the site are likely to quickly disperse into the River Irwell, the risk of contaminants migrating offsite towards groundwater abstraction points is considered to be low. The contamination observed to date in soils/rock at the site will be largely excavated and removed as part of the development, which will also provide overall betterment to current levels of contaminants in groundwater, assuming such contamination is originating from the site, and not offsite. The latter is entirely plausible based on site history and groundwater flow direction in the area.

7.10.8 Furthermore, groundwater samples from RBH02 and RBH06D in the area of the former gas works were taken from the base of the groundwater column to determine the potential presence of DNAPLs, such as chlorinated solvents, commonly associated with gas works sites. Test data indicates concentrations of such contaminants, namely trichloroethylene (TCE), dichloroethene (DCE) and vinyl chloride (VC) are present below the laboratory limits of detection.

7.10.9 Based on the above the risk to controlled waters from contamination identified at the site is considered to be low.

7.11 Ground Gas Monitoring Rationale

7.11.1 Ground gas sources which were identified in the iCSM as potentially posing an unacceptable risk to development were as follows:

- Deep Made Ground

7.11.2 7no' gas monitoring wells were installed at the site (4no' shallow and 3no' deeper, although the latter were essentially for groundwater monitoring purposes), and a total of 5no' of the 6 no' proposed visits have been completed to date.

7.11.3 It should be noted that measurements could not be taken from borehole WLS02 on and following the visit of 25th April 2025 due to a tent which had been pitched over the position.

7.11.4 All gas monitoring wells were installed within the Made Ground, and locally in one position (RBH08) crossing into the underlying Suspected Glaciofluvial Deposits. Whilst not critical, gas measurements were also taken at groundwater wells, which extended into the Chester Formation.

7.12 Ground Gas Monitoring Results

7.12.1 A summary of the gas monitoring results follows, with the full results detailed within Appendix H.

- Gas flow rates were detected up to 0.1 l/hr, which is at the limit of detection (0.1 l/hr).
- Steady concentrations of methane were recorded at or below the limit of detection of 0.1%
- Concentrations of carbon dioxide were in the range of <0.1% to 1.4%.
- Average concentrations of oxygen were recorded between <18.1% to 21.7%, which was consistent across monitoring visits.

7.13 Updated Ground Gas Risk Assessment

7.13.1 Given the very low methane and carbon dioxide concentrations recorded site wide, the risk to future site users is considered very low. However, it is recommended should below ground excavations or confined spaces need to be entered during the construction phase that workers are equipped with personal gas alarms.

7.13.2 Due to the absence of a significant actively generating ground gas source and open migration pathway, it is considered very unlikely that ground gases could migrate into the proposed structures on site at sufficient speed and volume to pose any viable risk. An interim CS-1 classification applies.

7.13.3 This assessment will be updated on completion of the gas monitoring programme.

7.14 Risks to Soft Landscaping Vegetation

7.14.1 Currently there are no suitable soil resources present on site, therefore a suitable growing medium will need to be imported for any proposed landscaping scheme. Any soils imported to site will need to be validated to ensure they are suitable for reuse.

7.15 Water Supply Pipes

7.15.1 A full site investigation as set out in the UK Water Industry Research (UKWIR) document *'Guidance for the selection of Water supply pipes to be used in Brownfield sites'* has not been undertaken.

7.15.2 The UKWIR document advises a trigger concentration of 0.125mg/kg for the 'extended VOC (volatile organic compounds) suite', which includes the PAH (polycyclic aromatic hydrocarbons) suite that has been included in the soil analysis during this investigation.

7.15.3 The maximum summed concentration of PAH congeners from individual samples obtained from the site at likely pipe depths (0.50m to 1.50m bgl) exceeds the trigger concentration of 0.125mg/kg in all of 15 samples tested for PAHs, and on this basis the installation of protective barrier-pipes in below ground water infrastructure is recommended as a precaution, unless service trenches are over-dug and backfilled with suitable clean materials.

7.15.4 In all instances, it is advised to consult the water company for advice to determine if protective pipe is necessary or if further assessment and investigation works are warranted. Irrespective of the assessment made here, water companies may insist on barrier pipe being installed. Once the initial consultation has taken place, Soiltechnics can support you in any further assessments that may be required.

7.16 Updated Conceptual Site Model (uCSM)

7.16.1 Following on from the discussions above, an updated conceptual site model has been tabulated overleaf.

7.16.2 The table below presents our approach to the assessment of risks associated with potential contaminant linkages. The categories are based upon the definitions within CIRIA C552 (2001), with the addition of a 'negligible likelihood' scenario, which is to be used where there is no realistic scenario in which harm could occur.

		Consequence of harm			
		Severe	Medium	Mild	Minor
Probability of harm	High likelihood	**Risk: Very high** (high – severe)	**Risk: High** (high – medium)	**Risk: Moderate** (high – mild)	**Risk: Moderate/Low** (high – minor)
	Likely	**Risk: High** (likely – severe)	**Risk: Moderate** (likely – medium)	**Risk: Moderate/Low** (likely – mild)	**Risk: Low** (likely – minor)
	Low Likelihood	**Risk: Moderate** (low – severe)	**Risk: Moderate/Low** (low – medium)	**Risk: Low** (low – mild)	**Risk: Very low** (low – minor)
	Unlikely	**Risk: Moderate/Low** (unlikely – severe)	**Risk: Low** (unlikely – medium)	**Risk: Very low** (unlikely – mild)	**Risk: Very low** (unlikely – minor)
	Negligible Likelihood	**Risk: Low** (negligible – severe)	**Risk: Very Low** (negligible – medium)	**Risk: Very Low** (negligible – mild)	**Risk: Negligible** (negligible – minor)

Table 7-G: CSM risk ratings

Receptor: Proposed end users				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 1 Risk Assessment** *(probability of harm x consequence)*	**Discussion**
General industrial and commercial uses within recorded history (e.g. printers, gunmakers, cotton mills engineers, surgery, gas fitters, shop fitters, garage, saw mill and tramway)	Various inorganic and organic compounds (hydrocarbons, metals, SVOC/VOCs & asbestos)	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** *(likely – medium)*	Asbestos was found in one location (WLS02) in the northwest of the site. Additionally, elevated lead, nickel and arsenic was identified in multiple samples across site, including multiple PAHs. Localised VOC/SVOC and TPH contamination also present at depth in the Chester Formation deposits. Formation of basement for Block C will likely remove all the hydrocarbon impacted soils noted to date. Vapours are not considered to pose a risk. The installation of a suitable cover system in landscaped areas would mitigate the risk to proposed end users of the site. Near surface tar bound sandstone block work material where present in areas outside the development footprint require removal from site to avoid nuisance odours affecting the site long term. Watching brief recommended during excavation of the basement to ensure hydrocarbon contamination is removed, and validated.
Made Ground or unknown origin, and as a result of bomb damage	Metals, polycyclic aromatic hydrocarbons (PAH), asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate** *(likely – medium)*	As above.
	Permanent ground gases (CH4 and CO2)	Migration through the sub-surface into enclosed spaces	**Risk: Low** (unlikely – medium)	Due to the absence of ground gases measured during the monitoring programme, the risk to end users of the site is considered to be low.

Receptor: Proposed end users				
Former gas holder	PAHs, phenol, cresol, xylenol, BTEX, TPHs, organo-sulphur compounds and inorganic components, cyanide, sulphur compounds, coal tar/ bitumen products, heavy metals & asbestos	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Moderate/Low** *(low – medium)*	Localised VOC/SVOC and TPH contamination also present at depth in the Chester Formation deposits. Formation of basement for Block C will likely remove all the hydrocarbon impacted soils noted to date. Vapours are not considered to pose a risk. The installation of a suitable cover system in landscaped areas would mitigate the risk to proposed end users of the site. Near surface sandstone block work material where present in areas outside the development footprint require removal from site to avoid nuisance odours affecting the site long term. Watching brief recommended during excavation of the basement to ensure hydrocarbon contamination is removed, and validated.
	Permanent ground gases (CH4 and CO2)	Migration through the sub-surface into enclosed spaces	**Risk: Low** (unlikely – medium)	Due to the absence of ground generated gasses, the ground gas risk to end users of the site is considered to be low

Table 7-H: uCSM – Proposed end users

Receptor: Construction workers				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** *(probability of harm x consequence)*	**Discussion**
Made Ground	Asbestos fibres and ACMs	Inhalation of dusts	**Risk: Moderate/Low** (low – medium)	Asbestos was found in one location at a concentration of 0.002% (WLS02) in the northwest of the site. A risk assessment has been undertaken using the JIWG Decision Support Tool and at these concentrations, there is there is considered to be a low risk to construction workers. Basic protection measures, such as disposal RPE, localised dust suppression and provision of decontamination facilities is required when handling soils in the area of WLS02.
	Cyanide	Inhalation of dusts	**Risk: Low** (unlikely – medium)	No exceedances in free cyanide recorded through laboratory testing. Standard hygiene and PPE protocols are recommended.

Receptor: Construction workers				
	Lead and PAHs		**Risk: Moderate/Low** (low – medium)	We recommend that due to high levels of lead and PAHs in Made Ground, full body cover (long sleeves and trousers) and gloves are mandated onsite during Made Ground material movements, along with dust mitigation measures (such as misting and dampening of soils during dry weather).
All other contamination sources, excluding asbestos	TPHs, VOCs, SVOCs, PAHs, phenol, cresol, xylenol, BTEX, TPHs, organo-sulphur compounds and inorganic components & sulphur compounds	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** (low – mild)	No gross contamination of high-risk contaminants recorded (e.g. cyanide, benzene and vinyl chloride). Hydrocarbon odours and staining were noted locally in the areas of RBH02 and TP04, however due to the act of air dilution and the likely large size of the excavations, vapour risk posed to construction workers is anticipated to be low. However, basic hygiene precautions should be adopted at all times.
Unexploded Ordnance	UXO	Direct contact / explosion	**Risk: Moderate** (low – severe)	The detailed risk assessment indicates there may be potential for encountering UXO. Mitigation measures will be required during groundworks/construction works.

Table 7-I: uCSM – Acute Exposure to Construction Workers

Receptor: Adjacent site users following completion				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** *(probability of harm x consequence)*	**Discussion**
All identified potential contaminant sources	Metals, PAHs, TPH, (S)VOCs, Asbestos, phenol, cresol, xylenol, BTEX, TPHs, organo-sulphur compounds and inorganic components & sulphur compounds	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** *(unlikely – medium)*	No gross contamination of high-risk contaminants recorded (e.g. cyanide, benzene and vinyl chloride). The installation of a suitable cover system in landscaped areas will also provide further protection.

Table 7-J: uCSM – Chronic Exposure to Adjacent Site Users

Receptor: Adjacent site users during the construction phase				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** *(probability of harm x consequence)*	**Discussion**
Made Ground	Asbestos	Inhalation of dusts	**Risk: Low** (low – mild)	No gross contamination of high-risk contaminants recorded (e.g. cyanide, benzene and vinyl chloride). Whilst asbestos was present in one area of the stie, a risk assessment has been undertaken using the JIWG Decision Support Tool and at these concentrations, there is there is considered to be a very low risk to adjacent site users.
	Cyanide	Inhalation of dusts	**Risk: Low** (low – mild)	No exceedances in free cyanide recorded through laboratory testing.
All other potential contaminant sources	Metals, PAHs, TPH, phenol, cresol, xylenol, BTEX, TPHs, organo-sulphur compounds and inorganic components & sulphur compounds	Ingestion, inhalation and contact with soils, dusts and vapours	**Risk: Low** *(unlikely – medium)*	Unlikely to pose a viable risk to off-site receptors.

Table 7-K: uCSM – Acute Exposure to Adjacent Site Users

Receptor: Proposed planting				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** *(probability of harm x consequence)*	**Discussion**
Contaminants within topsoil and the shallow sub-surface	Metals, PAHs, TPH, phenol, cresol, xylenol, BTEX, TPHs, organo-sulphur compounds and inorganic components & sulphur compounds	Direct contact and root uptake	***Risk: Negligible*** *(negligible– minor)*	No current suitable soil resources are likely to be present on site, therefore a suitable growing medium will need to be imported for any proposed landscaping scheme.

Table 7-L: uCSM – Phytotoxic Risk to Proposed Planting Scheme

Receptor: Controlled Waters				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 2 Risk Assessment** *(probability of harm x consequence)*	**Discussion**
All potential contaminant sources outlined above	Metals, PAHs, TPH, phenol, cresol, xylenol, BTEX, TPHs, organo-sulphur compounds and inorganic components & sulphur compounds	Leaching and vertical migration (Surface and groundwater)	**Risk: Low** (unlikely – medium)	Despite exceedances in PAH and TPH in soil samples obtained from within Chester Formation, groundwater samples showed marginal exceedances. Contaminants in groundwater at the site are likely to quickly disperse into the River Irwell. Testing from the latter indicates no exceedances in guidelines values. The contamination observed to date in soils/rock at the site will be largely excavated and removed as part of the development, which will also provide overall betterment to current levels of contaminants in groundwater, assuming such contamination is originating from the site, and not offsite. The latter is entirely plausible based on site history and groundwater flow direction in the area.

Table 7-M: uCSM – Controlled Waters Risk

7.17 Risk Assessment Conclusions

7.17.1 The updated CSM has identified potential contaminant linkages which exceed the low-risk threshold and require further investigation, mitigation, or remediation. These are discussed in further detail below.

Contaminant Source	Receptor	Recommended Action	Discussion
Asbestos in Made Ground and lead and PAHs	Proposed end users	Remediation	A clean cover system is recommended in areas of soft landscaping.
	Construction workers	Mitigation	The risk to construction workers should be noted and included in risk assessments for the development of the site, with appropriate protective measures included in method statements for all activities where Made Ground ground is broken/moved.
Elevated PAHs and metals within the shallow soils	Proposed end users and vegetation	Remediation	A clean cover system is recommended in areas of soft landscaping. Importation of suitable material will be necessary regardless.
Hydrocarbon hotspot (RBH02/TP04)	Proposed end users and controlled waters	Watching brief and supplementary testing	During the excavation of the basement to Block C, a watching brief and verification testing is recommended. All hydrocarbon impacted soils to be removed from site.
Near surface sandstone block work coated in tar	Proposed end users	Remediation	Sandstone block work material where present in areas outside the development footprint require removal and suitable disposal offsite to avoid nuisance vapours/ odours affecting the site long term.
Elevated organic contaminants within the Made Ground	Drinking water infrastructure	Remediation	There is a requirement for installation protective barrier pipes for drinking water.

Table 7-N: GQRA risk assessment conclusions

7.18 Ground Gas Protection Measures

7.18.1 For clarity, the requirement for ground gas protection measures is summarised in the table below.

Gas Type	Contaminant of Concern	Protection Measures Required?
Permanent Ground Gases	N/A	None required – To be reviewed on completion of the monitoring programme.
Hydrocarbon Vapours	N/A	None required
Radon	N/A	None required

Table 7-O: Ground gas protection measures requirement

7.19 Unexpected and Previously Unencountered Contamination

7.19.1 With the development of any site, there is a residual risk of contamination being found that is unexpected or has not been encountered during investigation or other siteworks.

7.19.2 Should any previously unencountered and unexpected contamination be encountered, works should be temporarily halted and Soiltechnics informed. The Consultant should then assess the situation to determine what remedial action is required and inform the Local Authority at the earliest opportunity.

7.19.3 It is often a requirement of Local Authority planning conditions that the building/demolition contractor has a contamination discovery/contingency strategy in place for dealing with unexpected contamination. Soiltechnics are pleased to provide advice on such a strategy if required.

8 Soil and Waste Management

8.1 Sustainability

8.1.1 Where possible, disposal of soils to landfill should be avoided in preference for more sustainable alternatives. Such alternatives are set out below and rely on appropriate planning and design.

8.1.2 Soiltechnics can provide additional support and guidance to assist in overall material management and soil waste minimisation upon request.

8.2 Waste Hierarchy

8.2.1 Under the Waste Regulations, there is a requirement to apply (where reasonable) the waste management hierarchy, which is summarised below. Within the hierarchy, soil disposal to landfill should be limited to the necessary minimum.

Stage (in order of preference)	Example application
Prevention / Reduce	Design, planning, Site Waste Management Plans (SWMP).
Reuse	Reuse of soils under exemption, permit or Materials Management Plan (MMP), sorting at the point of excavation, screening of excavated material.
Recycling	Recycling aggregate, waste segregation, screening and sorting.
Recovery	Remediation works, transfer to a Soil Treatment Facility
Pre-treatment	Non-hazardous and hazardous soils do not need to be treated, where such treatment would not reduce the volume of waste.
Disposal	If the waste hierarchy steps outline above are followed, the remaining waste can be disposed of to a landfill without any further treatment.

Table 8-A: Waste management hierarchy

8.3 Liability of Waste Management

8.3.1 Part III of the Finance Act was amended in 2018 to extend the scope of landfill tax to cover any site (not exclusively landfills) operating without an appropriate environmental permit, exemption, or MMP.

8.3.2 These changes have given HMRC the powers to work with the Environment Agency to identify non-compliant sites and pursue and penalise the person(s) illegally disposing of waste, and anyone who knowingly facilitates the disposal. This includes sites filling site-won soils which are surplus to requirement.

8.4 Materials Management

8.4.1 In terms of the development, where reasonably practicable, landfill disposal should be minimised through the reuse of site-won materials on site, or off-site transfer of surplus soils to other development schemes or Soil Treatment Facilities. Early consideration of the site's overall material balance at the design stage is also critical in reducing the need for off-site disposal, limiting costs, and increasing the overall sustainability of the development.

8.4.2 Where Made Ground soils are to be reused onsite or materials transferred between sites, a Materials Management Plan (MMP) or Waste Exemption is recommended.

8.4.3 The process of an MMP allows soils that are suitable for reuse and have a certainty of use to not be considered a waste, and therefore not fall under the waste regulations. This scheme is self-regulated within the industry and is supported in principle by the Environment Agency.

8.5 Waste Characterisation Governance

8.5.1 The classification of soils for disposal to landfill is undertaken in accordance with WM3 (v1.2GB), and a Waste Acceptance Criteria assessment (WAC) undertaken in accordance with the limits in Annex II of the Landfill Directive (Directive 1999/31/EC).

8.6 Waste Populations

8.6.1 Based on the site observations, development proposals and laboratory results, the following potential waste populations have been identified for preliminary assessment purposes:

Potential Waste Population	Description
Made Ground (CS01 - located to the west of ABH)	Reddish brown and dark brown slightly clayey, slightly gravelly sand with gravels of brick and concrete.
Made Ground (CS02 - located in the car parking area of ABH)	Brown gravelly, slightly clayey, sands with gravels of brick, concrete, sandstone, coal and clinker
Made Ground (CS03 - located in the courtyard of ABH)	Brown gravelly, slightly clayey, sands with gravels of brick, concrete, sandstone, coal and clinker
Hydrocarbon impacted natural soils	Natural sandstone stained black, with hydrocarbon odours.
Clean naturally occurring soils	Natural, uncontaminated clays, sands and sandstones.

Table 8-B: Potential waste populations

8.6.2 Each of the potential waste populations can be readily identified and segregated at the point of excavation, based upon visual and olfactory observations.

8.7 Sampling and Testing

8.7.1 The hazardous waste classification assessment has been undertaken by adopting the maximum recorded concentration of each compound from all the samples tested within the identified waste population, as outlined in WM3, Approach D.

8.7.2 In addition, sample-specific assessments have been completed for reference.

8.7.3 For the Waste Acceptance Criteria (WAC) assessment, representative composite samples were obtained by combining soils from multiple exploratory holes. These are as follows:

- CS01 – located to the west of ABH (WLS01-02)
- CS02 – located in the carparking area of ABH (TP01-04)
- CS03 – located in the courtyard area of ABH (TP05-TP07)

8.7.4 It should be noted that the Made Ground across the site was quite homogeneous and the testing of soils in selected areas of the site has been chosen to provide a preliminary waste categorisation only.

8.8 Waste Characterisation

8.8.1 Where testing has been carried out, the waste classification assessment sheets are enclosed within Appendix L, and a summary of the findings is presented in the table below.

8.8.2 Observations from the fieldwork indicate that the underlying natural soils (the Chester Formation only) are impacted by hydrocarbon contamination in the area of RBH02 and TP04. All other underlying natural soils are not impacted by contamination and therefore are considered suitable for disposal as a non-hazardous waste in an inert landfill site without the requirement for further testing.

Potential Waste Population	Hazardous Classification (LoW code)	Landfill Classification	Comments
Made Ground (CS01 - located to the west of ABH)	Hazardous (17-05-03*)	Stable non-reactive hazardous waste cell within a non-hazardous waste landfill site (SNRHW)	Considered hazardous due to elevated concentrations of metals and TPH. Unsuitable for disposal to inert landfill sites due to high organic carbon content
Made Ground (CS02 - located in the car parking area of ABH)	Hazardous (17-05-03*)	Exceeds hazardous waste threshold and requires pre-treatment	Considered hazardous due to elevated concentrations of metals and TPH. Requires pre-treatment due to high organic carbon content. However, levels of dissolved organic carbon are below the hazardous threshold and the landfill operators may accept on this basis. If so, soils could be disposed in SNRHW cell.
Made Ground (CS03 - located in the courtyard of ABH)	Hazardous (17-05-03*)	Exceeds hazardous waste threshold and requires pre-treatment	Considered hazardous due to elevated concentrations of metals and TPH. Requires pre-treatment due to high organic carbon content. However, levels of dissolved organic carbon are below the hazardous threshold and the landfill operators may accept on this basis. If so, soils could be disposed in SNRHW cell.
Hydrocarbon impacted natural soils	Hazardous 17-05-03*	Unknown	Considered hazardous based on concentrations of hydrocarbons. No WAC testing completed to date.
Clean naturally occurring soils	Non-hazardous (17-05-04)	Inert	Considered non-hazardous and inert without any testing required.

Table 8-C: Waste characterisation summary

8.8.3 Hazardous waste that must be landfilled and cannot meet the WAC limits, even after treatment, is a 'problematic waste'. If you need to dispose of problematic waste to landfill you must complete a problematic waste stream request proforma, by contacting the Environment Agency.

8.9 Tar Coated Sandstone Blockwork

8.9.1 A sample of the tar like substance, which was observed to bond the sandstone blockwork (possible former hardstanding) in the areas of TP01, TP03, TP05 and TP06, has been obtained and tested to determine if material is hazardous. Testing indicates due to the concentrations of PAHs and TPHs the material is considered to be hazardous.

8.10 Application of Advice

8.10.1 Where assessments have been carried out of soils currently in-situ at the time of investigation and not of stockpiled waste soils, they should be treated as provisional only.

8.10.2 Additional investigation works and testing may help to identify and segregate different waste populations on site, including inert materials, and therefore reduce costs.

8.10.3 There is no obligation on any waste operator to accept our waste characterisation assessments. Landfill operators may consider your waste to fall under a different classification and/or may require additional testing of waste soils prior to acceptance. It is therefore recommended that this report along with the chemical results is provided to the preferred facility to confirm (or otherwise) it can accept the waste. It is strongly recommended to do this at the earliest opportunity for any soils which contain asbestos fibres at concentrations below hazardous waste levels, as some waste operators insist on disposal to an asbestos waste cell on a presence/absence basis, which deviates from the approaches outlined in WM3.

8.10.4 It should be noted that there remains the potential for unexpected or previously unencountered contamination to be encountered. Any such materials intended for waste disposal should be segregated and tested to determine the appropriate classification and disposal route.

8.11 Further Recommendations

8.11.1 Given the history of the site and inherent variability of Made Ground deposits, it is possible that previously unencountered contamination may be present, including asbestos containing materials (ACMs). Therefore, it is advisable to provide a watching brief during excavation works to identify and segregate any soils at the point of excavation with visual or olfactory evidence of contamination, in order to minimise the overall volume of any impacted material. Any such materials, if encountered, are likely to require further testing to determine the appropriate disposal route.

8.11.2 As the reuse of soils on site is likely to exceed 1,000 tonnes (U1 Exemption limit), it is recommended that the works are controlled under an MMP in accordance with the CL:AIRE DoW CoP. An effective MMP should help increase the sustainability of a development by reducing the requirement for landfill disposal and will serve to reduce the overall liability the developer holds over managing waste and site-won soil arisings.

8.11.3 The full extent of the hydrocarbon hotspot in the natural Chester Formation and associated hazardous waste soils is unknown. To provide a higher degree of certainty, consideration should be given to carrying out further investigative works in advance of site enabling works. It may be possible to delineate a smaller ‘hazardous waste area’ through additional sampling and analysis.

8.11.4 Similarly, given the large basement excavations required onsite, and disposal of associated waste, consideration should be given to carrying out further investigative works to potentially delineate areas where Made Ground is non-hazardous through additional sampling and analysis. Although, based on current sample population this could be difficult to successfully achieve given how widespread elevated metals are currently.

8.11.5 As the waste classifications provided are preliminary only and based on limited sampling of soils in-situ, it is recommended to undertake additional sampling and testing during the construction works to fully characterise the waste soils intended for disposal. The overall frequency of testing should be dependent upon the composition, volume and variability of the material excavated.

9 Recommendations for Further Works

9.1.1 The following table summarises the additional works which should be undertaken prior to commencement of any construction works and in support of the planning conditions.

Aspect	Delivered By	Description	Necessity
Discovery Strategy	Principal Contractor	The Principal Contractor should have a discovery strategy in place in the event of exposing unexpected or previously unencountered contamination. Soiltechnics should be informed at the earliest opportunity to undertake an assessment, and to inform the Local Authority as appropriate.	**REQUIRED**
Remediation Strategy	Soiltechnics	A Remediation Strategy is required to detail the requirements and verification plan for all remedial works.	**REQUIRED**
Detailed (design) Investigations	Soiltechnics	A supplementary phase of intrusive works is recommended in the area of RBH06D to further delineate the groundwater conditions in this area. Determine extent of relic structures in addition to completion of a second phase of investigation in areas not previously accessible to date. Preferably following demolition of existing buildings. Completion of GMA and BIA to assist in the design of the proposed basements across the wider site. Slope stability analysis of soils along banks of River Irwell if necessary.	**RECOMMENDED**
Materials Management Plan	Soiltechnics	Once the overall designs and soil reuse requirements for the scheme have been finalised, and before excavation works commence, an MMP is recommended to facilitate the reuse of soils on site and the transfer of materials on or off-site.	**RECOMMENDED**
Waste Disposal	Soiltechnics	Current waste classifications are preliminary only. It is recommended further sampling and testing is undertaken before or during the construction works to fully characterise the waste soils intended for disposal and potentially allow zoning of more hazardous wastes.	**RECOMMENDED**
Options Appraisal	Soiltechnics	Provides a comparison of remedial options based on their feasibility, cost, sustainability, effectiveness, and operational requirements. Not considered to be required as remedial requirements are not complex.	**OPTIONAL**

Table 9-A: Recommended further works (pre-commencement)

9.1.2 The following table summarises the additional works which should be undertaken during the enabling and construction works phases to support the safe development of the site.

Aspect	Delivered By	Description	Necessity
Excavation Works Watching Brief	Soiltechnics	Due to the potential for contamination to be encountered, an intermittent watching brief, provided by Soiltechnics, is recommended to be undertaken during excavation works for the basements, particularly to Block C.	**REQUIRED**

Aspect	Delivered By	Description	Necessity
Undertaking remedial works	3rd Party	Undertaking the works, as specified within the Remediation Strategy. Remedial works are expected to comprise of the installation of a clean cover system, bulk removal of impacted hydrocarbon natural soils, and removal of tar coated sandstone blockwork.	**REQUIRED**
Verification of remedial works	Soiltechnics	All remedial works must be witnessed and evidenced by a geoenvironmental consultant to demonstrate compliance to the Remediation Strategy, with a Verification Report produced to demonstrate compliance.	**REQUIRED**
Installation barrier pipe	3rd Party	The Principal Contractor should liaise with the statutory undertaker to confirm the requirement for barrier pipe installation and associated verification.	**REQUIRED**
Verification of the MMP	Soiltechnics	If a Materials Management Plan undertaken, the earthworks and material movements on site must be witnessed and evidenced by a geoenvironmental consultant, with a Verification Report produced to demonstrate compliance.	**RECOMMENDED**

Table 9-B: Recommended further works (enabling works & construction phase)

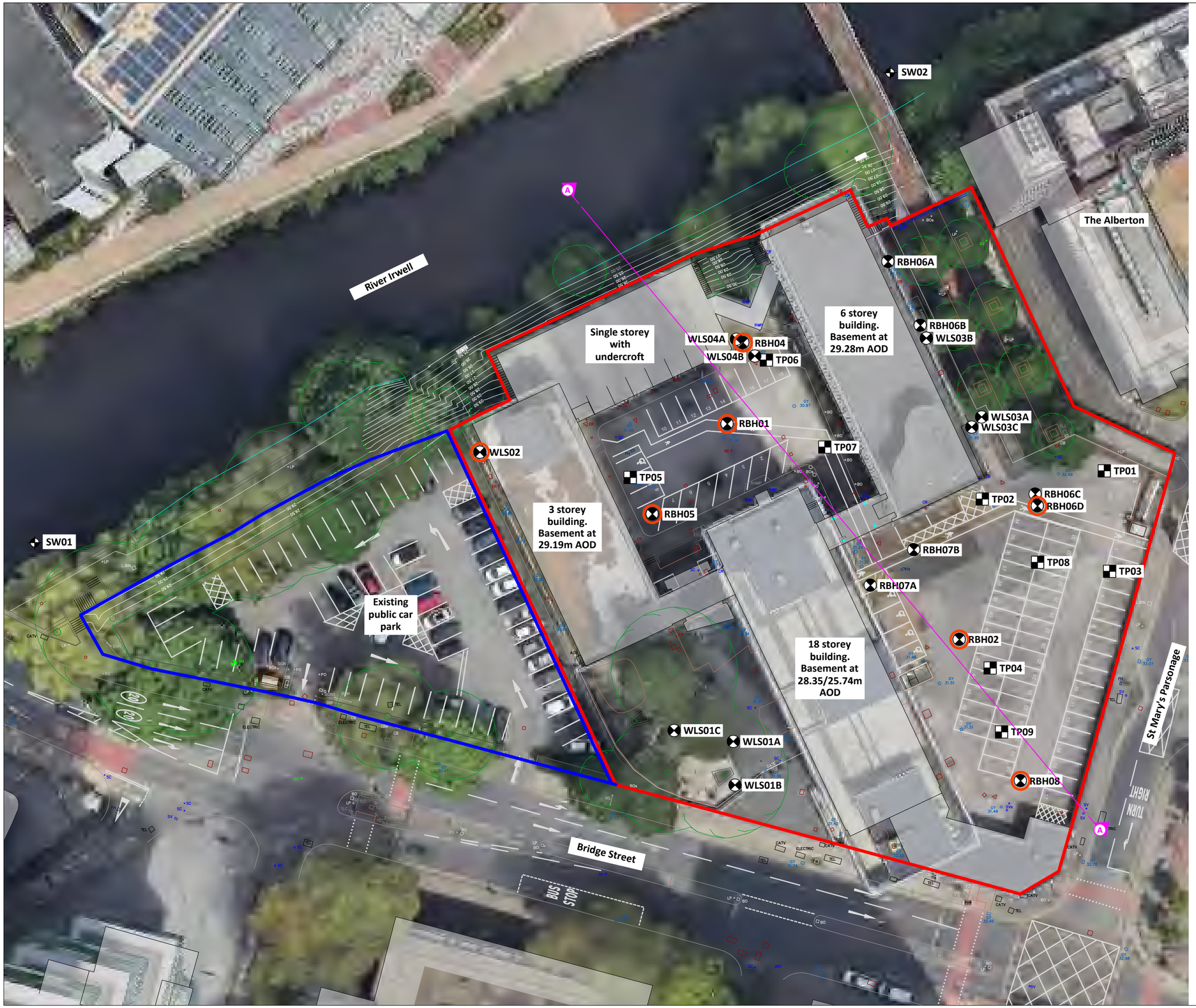
9.1.3 The following table summarises the additional works which should be undertaken following completion and occupation of the building.

Aspect	Delivered By	Description	Necessity
Radon Monitoring	Specialist	It is noted that verification monitoring is required post occupation under the Health and Safety at Work Regulations (1999). It may be prudent to undertake radon monitoring within the existing basements to provide some reassurance that further mitigation will not be required.	**RECOMMENDED**

Table 9-C: Recommended further works (following completion)

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Appendix A Drawings



Key

RBH	Rotary borehole
WLS	Windowless sampling borehole
TP	Trial pit
SP	Surface water sampling point
	Standpipe installed
	Phase 1 Development Boundary
	Phase 2 Development Boundary
	Section line (refer to drawing 04 for details)

Notes

1. Base drawing provided by Client.
2. Map data ©2025 Google.

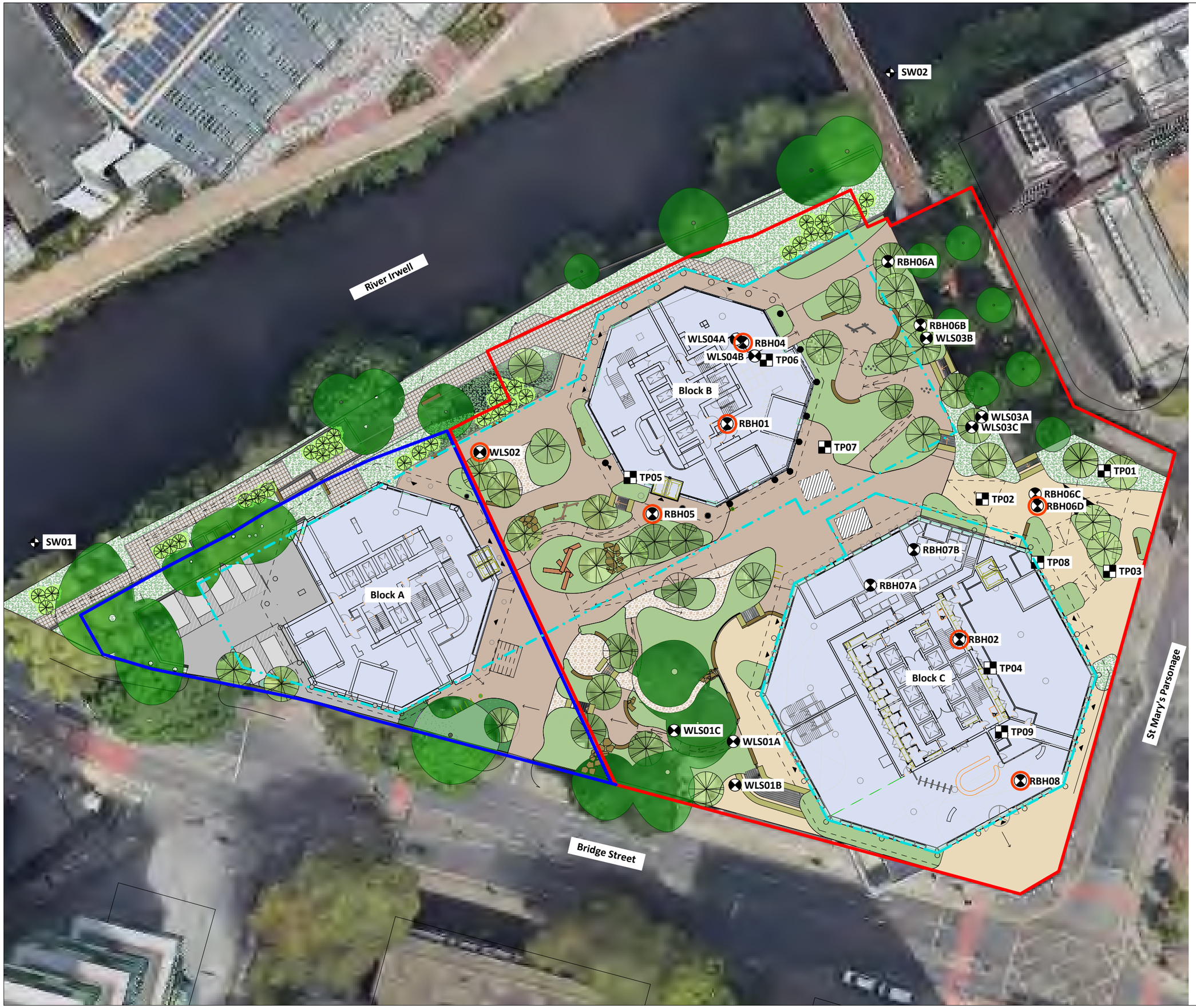
REV	DESCRIPTION	PREP	DATE
A	First issue	AM	25.04.2025

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PROJECT
Albert Bridge House, Manchester

TITLE
Exploratory hole plan (current layout)

DRAWING NO.	SCALE AT A3
STX6912-D01-A	1:500



Key

- RBH — Rotary borehole
- WLS — Windowless sampling borehole
- TP — Trial pit
- SP — Surface water sampling point
- Standpipe installed
- Phase 1 Development Boundary
- Phase 2 Development Boundary
- Basement footprint extent

Notes

1. Base drawing provided by Client.
2. Map data ©2025 Google.

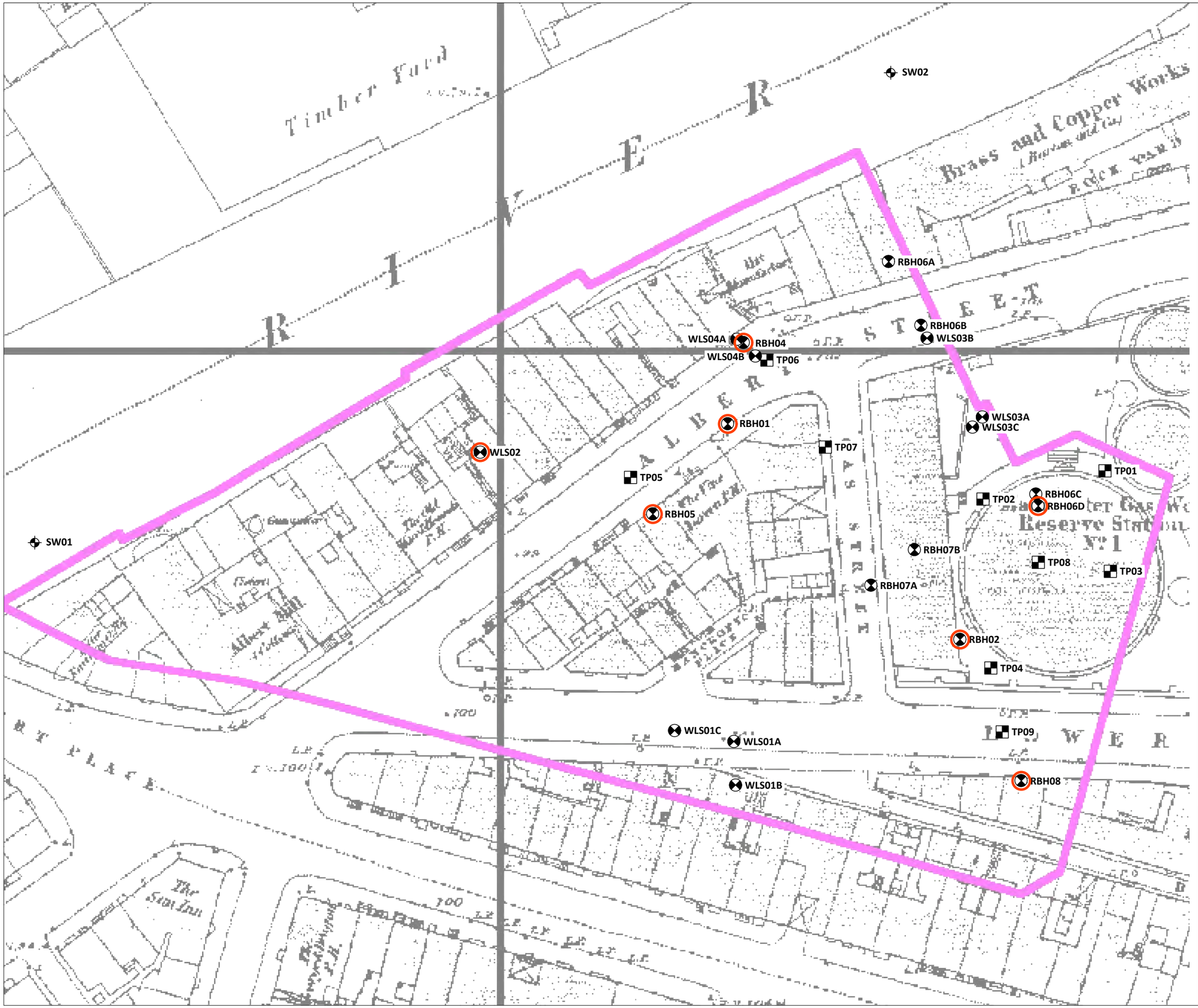
REV	DESCRIPTION	PREP	DATE
A	First issue	AM	25.04.2025

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PROJECT
Albert Bridge House, Manchester

TITLE
Exploratory hole plan (proposed layout)

DRAWING NO.	SCALE AT A3
STX6912-D02-A	1:500



Key

RBH	Rotary borehole
WLS	Windowless sampling borehole
TP	Trial pit
SP	Surface water sampling point
	Standpipe installed

REV	DESCRIPTION	PREP	DATE
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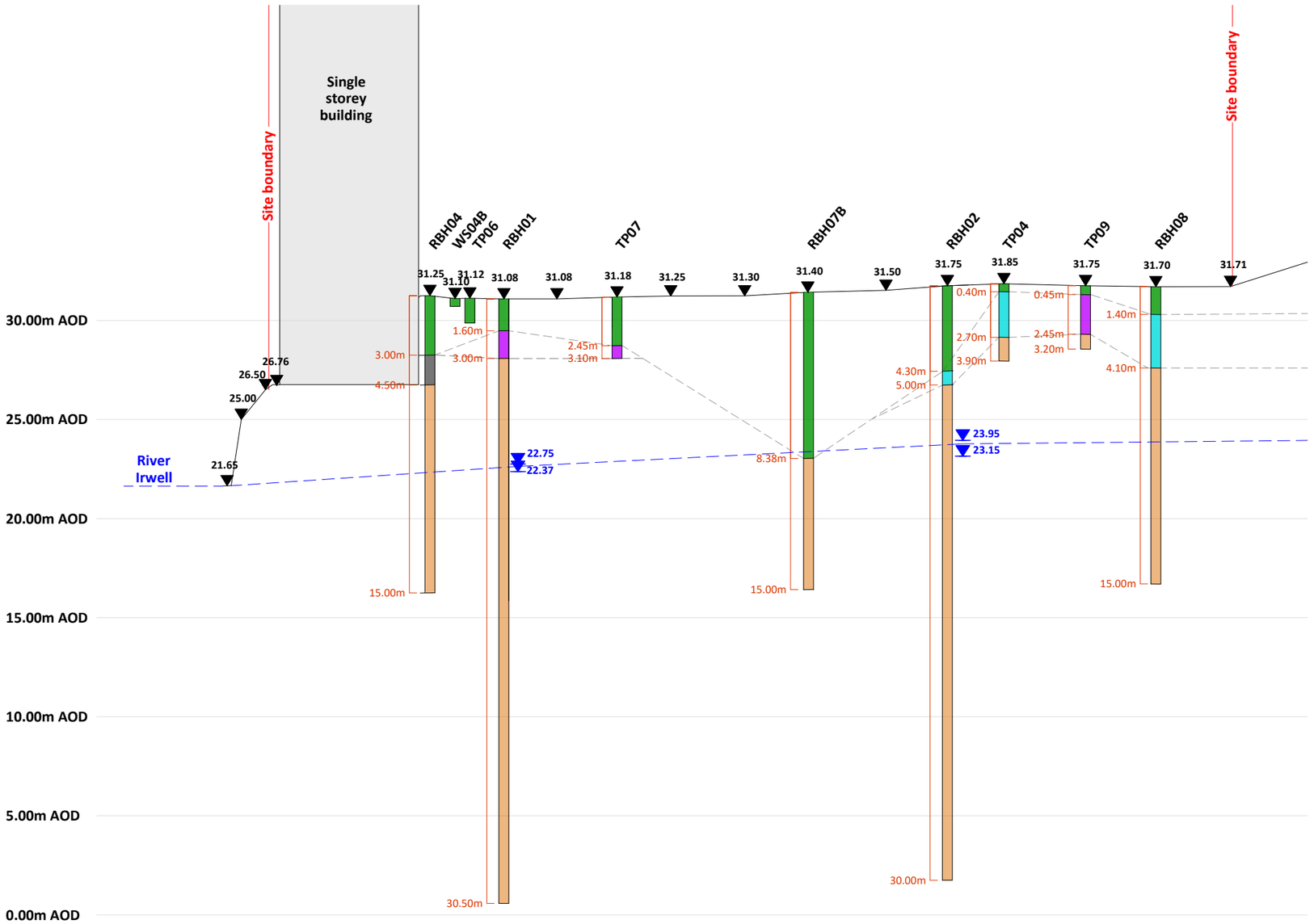
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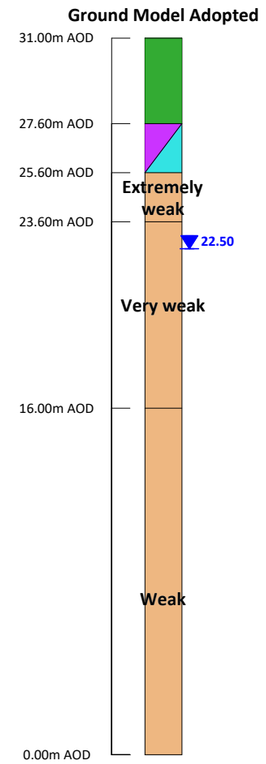
PROJECT
Albert Bridge House, Manchester

TITLE
Exploratory hole plan (historical layout 1851)

DRAWING NO.	SCALE AT A3
STX6912-D03-A	1:500

Section A-A - refer to drawing 01 for details





Key

- Made Ground
- Granular Suspected Glaciofluvial Deposits
- Cohesive Granular Suspected Glaciofluvial Deposits
- Chester Formation (bedrock)
- No Recovery
- Groundwater table

REV	DESCRIPTION	PREP	DATE
A	First issue	AM	15.05.2025

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PROJECT
Albert Bridge House, Manchester

TITLE
Geological Cross Section

DRAWING NO.
STX6912-D04-A

SCALE AT A3
Vertical: 1:500
Horizontal: 1:250



General Notes

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All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Note: Coordination ongoing

- Play elements to be reviewed

-Retained trees to be confirmed by Arboriculturalist

-Existing Walls along river bank to be reviewed

-Drainage strategy to be coordinated with civil engineer.

-Planting strategy to be coordinated with Ecologist

-Access and maintenance strategy to be coordinated.

-Basement Layout to be confirmed

Key

- Planning Application Boundary
- Building Entrance

Levels

- (+30.00) Existing spot height
- +30.00 Proposed spot height

Hard Landscape

- P01 Paving Type 01 — Description: Natural Stone Pavers; Dimension: 200x300(Thickness varies as per vehicular access requirements)
- P02 Paving Type 02 — Description: Permeable resin bound gravel - Pedestrian access only; Colour: Buff
- P02a Paving Type 02a — Description: Permeable resin bound gravel - Vehicular access; Colour: Buff
- P03 Paving Type 03 — Description: Galvanised pressure welded grating
- P04 Paving Type 04 — Description: Asphalt; Vehicular access
- P05 Paving Type 06 — Description: Corduroy hazad warning paving at top and bottom of external staircases
- P06 Paving Type 01b — Description: Portland stone reused from existing facade cladding; Laid in random pattern; Dimension: Varies
- ST01 Proposed Steps — Description: Natural stone paved steps. Typical 150mm riser, 280mm tread with contrasting nosing & tactile to top and bottom of step. 1000mm high handrail with underlighting. 1000-1800mm clearance between handrails. To be designed in accordance with DFA2

Walls and Edges

- RW1 Retaining Wall-1 — Description: Existing timber wall retained
- RW2 Retaining Wall-2 — Description: Proposed low retaining wall
- RW3 Retaining Wall-3 — Description: Proposed retaining wall edge to replace existing slab on edge

Furniture's

- F01 Furniture Type 01 — Description: Timber bench; Seat width 500mm; With back support and arm rest
- F01a Furniture Type 01 — Description: Curved timber timber bench; Seat width 500mm; With back support and arm rest
- F02 Furniture Type 02 — Description: Short stay cycle parking stands; Dimensions: 750x750mm; Finish: Powder coated steel- colour TBC
- F03 Access Hatch — Description:Access hatch for plant replacement. Ensure openings prevent rain ingress. Location TBC
- F04 Refuse Bins — Description:Powder coated refuse bins, Colour TBC
- F05 Play elements — Description: Play on the way features For Example: Balancing logs, stepping stones, climbing net etc
- F06 Description: Flat topped stepping stones. Size: Various (500-1000m diameter) Finish: Stone - Locally Sourced

Softscape

- S01 Ornamental and perennial planting — Description: Herbaceous perennials, shrubs and ornamental grass planting 600mm minimum growing medium depth.
- S02 Rain garden — Description: Herbaceous perennials, shrubs and ornamental grass planting with rain garden build-up. 600mm minimum growing medium depth
- S03 Embankment — Description: Existing embankment cleared +thinned out.Proposed woodland understorey planting.
- Existing trees retained — Refer to Arboricultural plan
- Proposed semi-mature tree — Size: Semi-Mature Tree; Fixing: Underground Guyed; Allowance:Rootrain precint system; Soil Depth: Minimum 1000mm
- Proposed heavy standard trees — Size: Semi-Mature native tree (Girth 16-18cm) In clusters as indicated; Soil Depth: Minimum 1000mm

0 10m
@ 1:250

Key Plan

DRAFT

3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

FOR INFORMATION

Project No.	0476
Project Name	Albert Bridge House
Drawing Title	Landscape General Arrangement
Client	Oval Real Estate
Scale	1 : 250
Date	07/03/25
Drawn by	JT
Checked by	MA

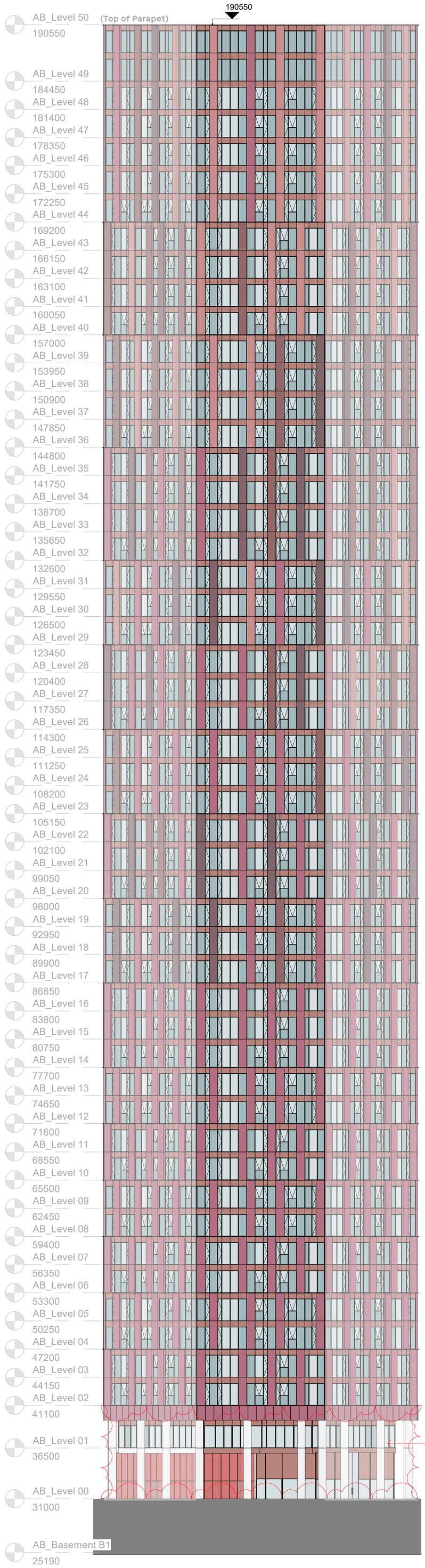
Rev	Date	Reason	Chk
01	28/03/25	Design Freeze 2	SEW
00	14/03/25	Design Freeze	SEW

Drawing Number	Rev
0476-SEW-ZZ-ZZ-DR-L-PL0100	01

WIP



1 North Elevation
1 : 250



2 East Elevation
1 : 250

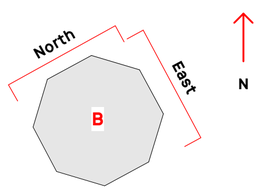
General Notes

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All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

- Anodised Aluminium Tone 00 - Base
- Anodised Aluminium Tone 01
- Anodised Aluminium Tone 02
- Anodised Aluminium Tone 03
- Oxidised Aluminium Spadrel
- Glazing
- Coloured Interlayer Glass
- Perforated Metal Panel, Glazing Behind

Key Plan



0 10m
@ 1:250

INFORMATION

Project No.	0476
Project Name	
Albert Bridge House - Block B	

Drawing Title

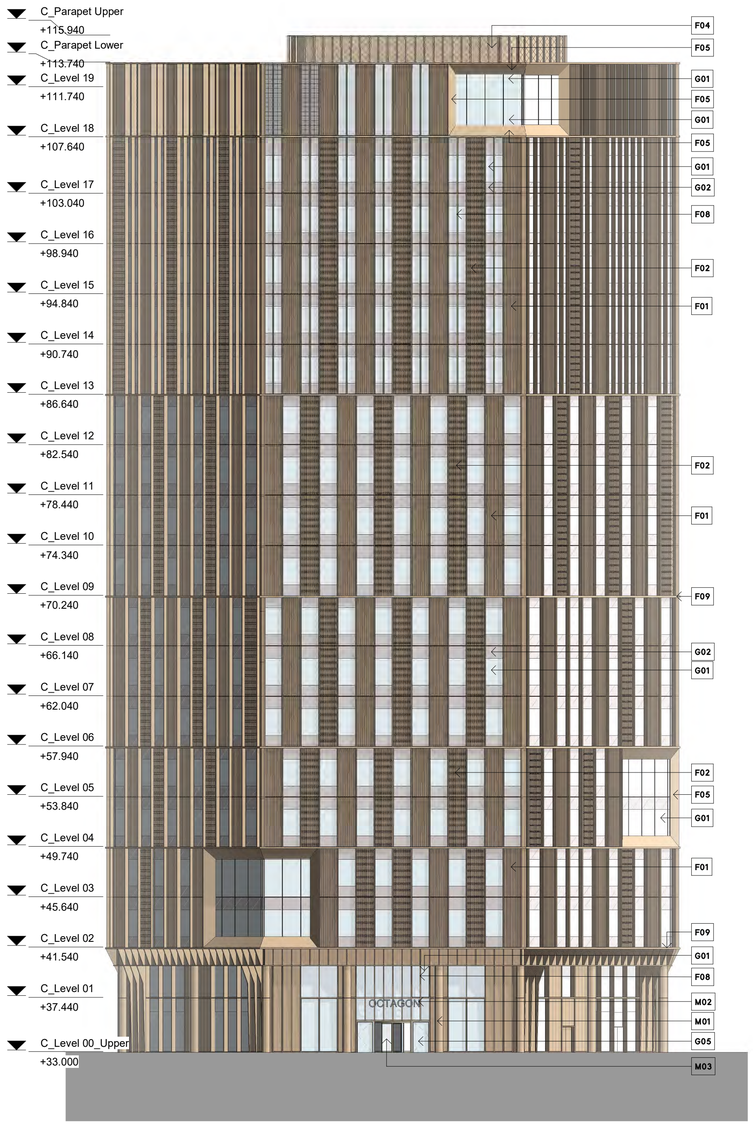
GA Elevations - North and East

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Scale @A1	As indicated
Date	04/02/25
Drawn by	LL
Checked by	EB

Rev	Date	Reason	Chk
2	21/03/25	Design Freeze Issue Update	SEW
1	19/02/25	For Information	

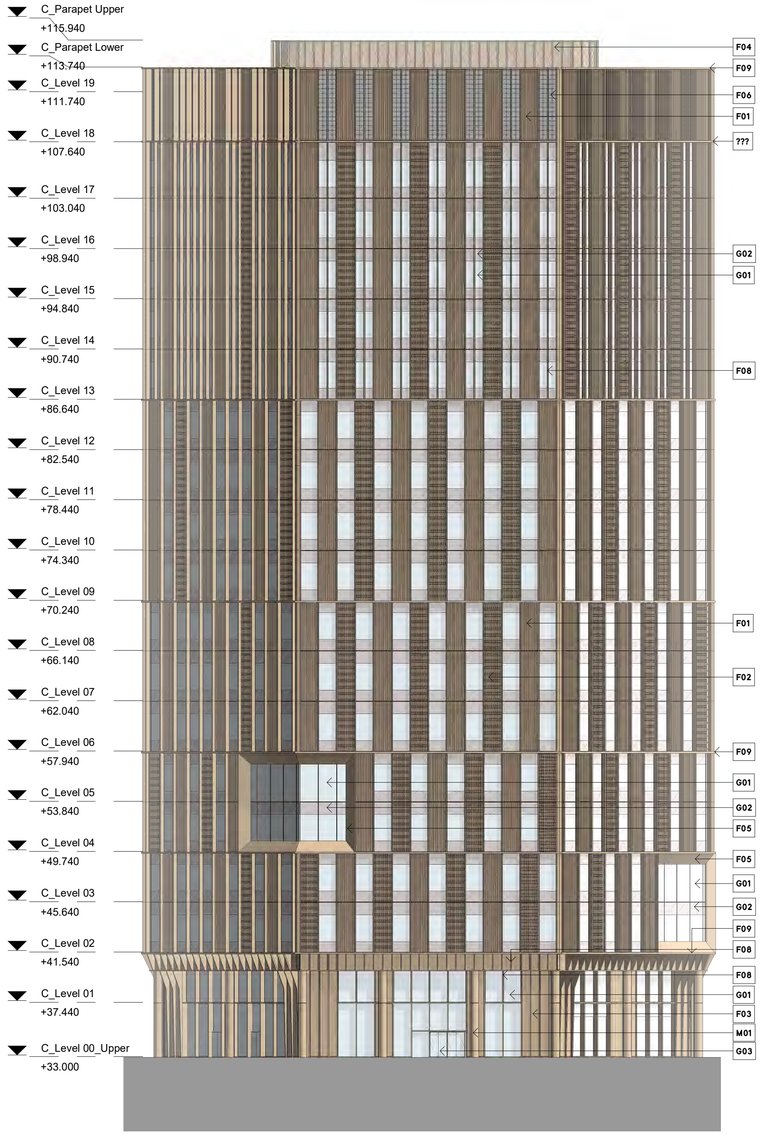
Studio Egret West
3 Brewhouse Yard
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+44 (0) 20 7549 1730

Drawing Number	Rev
0476-SEW-BB-ZZ-DR-A-PL1321	2



1 South East Elevation

1 : 250



2 South West Elevation

1 : 250

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Notes

Material Key

Facade

- F01 Anodised Aluminium Scalloped Profile Panel
- F02 Perforated Anodised Aluminium Scalloped Profile Panel
- F03 Anodised Aluminium Sinusoidal Profile Panel
- F04 Perforated Anodised Aluminium Sinusoidal Profile Panel
- F05 Anodised Aluminium Panel
- F06 Perforated Anodised Aluminium Panel - 50% Free Area
- F07 Vertical Louvred Anodised Aluminium Panel
- F08 Anodised Aluminium Vertical Fin (Light Bronze)
- F09 Anodised Aluminium Horizontal Fin (Light Bronze)

Glazing, Windows and

- G01 Glazing (Frame Colour - Light Bronze)
- G02 Insulated Spandrel Panel - Glass with Coloured Interlayer
- G03 Glazed Door (Frame Colour - Light Bronze)
- G04 Perforated Anodised Aluminium Door (Light Bronze)

Miscellaneous

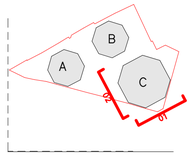
- M01 Fluted Anodised Aluminium-clad Columns (Light Bronze)
- M02 Anodised Aluminium Signage (Light Bronze)
- M03 Glazed Revolving Door Frame Colour to match curtain wall framing

Colours

- Light Bronze (Scalloped)
- Light Bronze (Perforated/Scalloped)
- Light Bronze (Sinusoidal)
- Light Bronze (Perforated/Sinusoidal)
- Light Grey (Perforated/50% free area)
- Light Grey (Coloured Interlayer)
- Clear Glazing

0 10m
@ 1:250

Key Plan



3 Brewhouse Yard
London, EC1V 4JQ
hello@egretwest.com
+44 (0) 20 7549 1730

Information

Project No.	0476
Project Name	Albert Bridge House
Drawing Title	Block C - GA Elevations - South East & South West
Client	Oval Properties 1801 Ltd
Scale	1 : 250
Date	21/03/25
Drawn by	JB
Checked by	EB

Rev	Date	Reason	Chk
1	25/04/25	Planning Draft	SEW

Drawing Number	Rev
0476-SEW-CC-ZZ-DR-A-PL1353	1

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Appendix B Exploratory Hole Logs: Trial Pits

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Key to legends

Composite materials, soils and lithology							
	Topsoil		Made Ground		Boulders		Chalk
	Clay		Coal		Cobbles		Concrete
	Gravel		Limestone		Mudstone		Peat
	Sand		Sandstone		Silt		Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result	
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	ES	Environmental sample
	W	Water sample
	U	Undisturbed thick-walled sample 100mm diameter sampler
	UT	Undisturbed thin walled sample 100mm diameter sampler
	UTF	Failed undisturbed sample

Water observations

Described at foot of log and shown in the 'water strike' column.

▼ Water level observed after specified delay in drilling

▽ Water strike

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

Albert Bridge House, Manchester

STX6912

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT (ASPHALT)	0.15	32.78							
Medium desne brown very gravelly fine to coarse SAND with a medium cobble content of angular brick fragments and concrete. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker. Occassional metal. (MADE GROUND)	0.55	32.38					0.30 0.40		ES D
...between 0.53m and 0.55m depth, steel plate.	0.80	32.13					0.70 0.70		D ES
Sandstone blockwork recovered as coarse gravels and cobbles. Blockwork coated in tar substance. Strong hydrocarbon odour noted. (MADE GROUND)									
Medium deense dark brown mottled reddish brown slightly clayey gravelly fine to coarse SAND with frequent rootlets, a high cobble content of angular brick fragments and concrete and frequent cobble sized pockets of fine to medium light grey SAND. Gravel is fine to coarse angular to subangular brick, clinker, ceramics, sandstone and rare slag. Occassional metal, oyster shells and plastic. (MADE GROUND)							1.30		ES
							2.00 2.00 2.00 2.20	3.00 3.00	D B B ES
							4.00		ES
TRIAL PIT TERMINATED AT 4.20m	4.20	28.73							

Notes

Hydraulic breaker used to advance pit between depths of 0.55m to 0.80m bgl.
Terminated at scheduled depth. Sides remained upright and stable upon completion.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 1.10m x 3.40m	**Date(s)** 03/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 32.93	**Logged by** OH	**Revision** A
Co-ordinates 383486E, 398383N	**Status** FINAL	**TP01**

Albert Bridge House, Manchester

STX6912

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT (ASPHALT)	0.15	31.77							
[Medium desne] brown very gravelly fine to coarse SAND with a medium cobble content of angular brick fragments and concrete. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker. (MADE GROUND)	0.45	31.47					0.30		ES
...between 0.25m and 0.55m depth, 12" cast iron pipe on southern edge of pit.	0.80	31.12			PP 0.75	PP 88	0.60 0.60		ES D
Soft to firm brown slightly gravelly CLAY. Gravel is fine to medium angular to subangular brick. (MADE GROUND)									
[Medium dense] reddish brown slightly gravelly fine to medium SAND with a low cobble content of subangular sandstone and brick. Gravel is fine to coarse angular to subangular brick and sandstone. (MADE GROUND)							1.20 1.20		ES D
...at 1.3m depth, relict brick wall trending northwest to southeast, along the northern edge of the pit extending to base.	1.80	30.12							
Soft brown slightly gravelly slightly sandy CLAY with frequent boulder sized pockets of reddish brown and brownish grey slightly gravelly fine to coarse SAND and a low cobble content of angular brick fragments. Gravel is fine to medium angular to subangular brick, concrete and sandstone. (MADE GROUND)							2.20		ES
TRIAL PIT TERMINATED AT 3.00m	3.00	28.92							

Notes
Terminated at scheduled depth. Sides remained upright and stable upon completion.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 0.75m x 3.20m	**Date(s)** 03/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 31.92	**Logged by** OH	**Revision** A
Co-ordinates 383469E, 398379N	**Status** FINAL	**TP02**

Albert Bridge House, Manchester

STX6912

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT (ASPHALT)	0.15	32.78							
[Medium dense] brown very gravelly fine to coarse SAND with a medium cobble content of angular brick fragments, concrete and sandstoneblocks with a faint hydrocarbon odour and tar coating. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker. (MADE GROUND)	0.35	32.58					0.30		ES
CONCRETE (CONCRETE)	0.55	32.38					0.80		ES
[Medium dense] brown mottled greyish brown slightly clayey gravelly fine to coarse SAND with a high cobble content of angular brick fragments and. Gravel is fine to coarse angular to subangular brick, clinker, ceramics, sandstone and rare slag. Occassional metal, oyster shells and plastic. (MADE GROUND)							1.30		ES
[Medium dense] brown slightly clayey gravelly fine to coarse SAND with a high cobble content of subangular brick fragments, concrete and sandstone and occassional boulder sized pockets of soft grey slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded sandstone, brick, ceramics, coal, charcoal, concrete and rare clinker. Occassional glass, timber and oyster shells. (MADE GROUND)	2.90	30.03					3.00		ES
TRIAL PIT TERMINATED AT 4.30m	4.30	28.63							

Notes
Terminated at scheduled depth. Sides remained upright and stable upon completion.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.90m	**Date(s)** 03/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 32.93	**Logged by** OH	**Revision** A
Co-ordinates 383487E, 398369N	**Status** FINAL	**TP03**

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STX6912

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT (ASPHALT)	0.15	31.70					0.25		ES
[Medium dense] brown very gravelly fine to coarse SAND with a medium cobble content of angular brick fragments and concrete. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker. (MADE GROUND)	0.40	31.45							
Firm brown mottled light grey very sandy gravelly CLAY. Gravel is fine to coarse angular to subangular sandstone, coal and quartzite. (SUSPECTED GLACIOFLUVIAL DEPOSITS)							1.00 1.00 1.20 1.20	1.50 1.50	B B D D
Extremely weak SANDSTONE extracted as a reddish brown fine to coarse SAND and GRAVEL with a high cobble content of angular to subangular sandstone very faint hydrocarbon odour and slight localised black staining noted. (CHESTER FORMATION)	2.70	29.15					3.00 3.00	3.50	D B
TRIAL PIT TERMINATED AT 3.90m	3.90	27.95					3.80		ES

Notes
Terminated due to competency of bedrock. Sides remained upright and stable upon completion. Sides remained upright and stable upon completion. Infiltration testing performed.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 0.70m x 3.20m	**Date(s)** 03/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 31.85	**Logged by** OH	**Revision** A
Co-ordinates 383470E, 398355N	**Status** FINAL	**TP04**

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STX6912

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT (ASPHALT)	0.15	31.12							
[Medium dense] brown very gravelly fine to coarse SAND with a low cobble content of subangular brick fragments and concrete. Gravel is fine to coarse angular to subrounded quartzite, brick, clinker, concrete and sandstone. Occassional glass and metal. (MADE GROUND)							0.50		ES
Sandstone blockwork recovered as coarse gravels and cobbles. Blockwork coated in tar substance. Strong hydrocarbon odour noted. (MADE GROUND)	0.65 0.80	30.62 30.47							
[Medium dense] orangish brown very gravelly fine to coarse SAND with occasional cobble sized pockets of orangish brown and grey slightly sandy CLAY and a low cobble content of subrounded sandstone. Gravel is fine to coarse subrounded to rounded quartzite, sandstone and rare coal. (SUSPECTED GLACIOFLUVIAL DEPOSITS)							1.20 1.20		D D
							2.00 2.00	2.50 2.50	B B
TRIAL PIT TERMINATED AT 2.50m	2.50	28.77							

Notes
Hydraulic breaker used to advance pit between 0.65m to 0.80m bgl. Terminated at scheduled depth.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 0.85m x 3.35m	**Date(s)** 04/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 31.27	**Logged by** OH	**Revision** A
Co-ordinates 383419E, 398382N	**Status** FINAL	**TP05**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT (ASPHALT)	0.15	30.97							
[Medium dense] brown very gravelly fine to coarse SAND with a low cobble content of subangular brick fragments and concrete. Gravel is fine to coarse angular to subrounded quartzite, brick, clinker, concrete and sandstone. Occassional glass and metal. (MADE GROUND)	0.40	30.72					0.30		ES
Sandstone blockwork recovered as coarse gravels and cobbles. Blockwork coated in tar substance. Strong hydrocarbon odour noted. (MADE GROUND)	0.65	30.47					1.00 1.00		ES D
[Medium dense] brown and orangish brown very gravelly fine to coarse SAND with a low cobble content of subangular brick fragments and concrete. Gravel is fine to coarse angular to subrounded quartzite, ceramics, brick, clinker, concrete and sandstone. (MADE GROUND)	1.25	29.87							
...at 1.00m depth, redundant capped lead pipe oriented north south on the western edge of the pit.									
...at 1.10m depth, cast iron pipe with clay surround oriented east to west in the middle of the pit.									
TRIAL PIT TERMINATED AT 1.25m									

Notes
Terminated due to presence of multiple services within the pit. Sides remained upright and stable upon completion.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 0.75m x 3.30m	**Date(s)** 04/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 31.12	**Logged by** OH	**Revision** A
Co-ordinates 383438E, 398399N	**Status** FINAL	**TP06**

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STX6912

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT. (ASPHALT)	0.15	31.03					0.20		ES
[Medium dense] brown very gravelly fine to coarse SAND with a low cobble content of subangular brick fragments and concrete. Gravel is fine to coarse angular to subrounded quartzite, brick, clinker, concrete and sandstone. (MADE GROUND)	0.30	30.88							
[Loose] brown very sandy fine to coarse angular to subangular GRAVEL and COBBLES of brick, concrete, slate, ceramics, and sandstone. Frequent metal and boulders of masonry up to 940mm x 720mm x 630mm in size. Occassional gravel and cobble sized pockets of suspected blue billy. (MADE GROUND)							0.90 0.90		ES D
...at 0.35m depth, masonry walls observed in east and west of pit from depths of 0.35m to base.							1.90		ES
...between 2.25m and 2.45m depth, masonry slab observed between depths of 2.25m to 2.45m bgl.									
[Medium dense] brown and orangish brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded sandstone and quartzite. (SUSPECTED GLACIOFLUVIAL DEPOSITS)	2.45	28.73							
TRIAL PIT TERMINATED AT 3.10m	3.10	28.08							

Notes
Terminated due to competency of deposits. Suspected bedrock. Sides remained upright and stable upon completion.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 1.30m x 2.80m	**Date(s)** 04/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 31.18	**Logged by** OH	**Revision** A
Co-ordinates 383446E, 398386N	**Status** FINAL	**TP07**

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STX6912

STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT. (ASPHALT)	0.04 0.24	32.30 32.10					0.10		ES
[Medium dense] dark brown gravelly fine to coarse SAND with low cobble content of subangular brick fragments and concrete. Gravel is fine to coarse subrounded to subangular brick, concrete, clinker, ceramics and sandstone. (MADE GROUND)									
[Medium dense] brown gravelly fine to coarse SAND with occassional cobbles of brick fragments and sandstone slabs and cobble sized pockets of brown sandy slightly gravelly CLAY. Gravel is fine to coarse subrounded to subangular sandstone, brick, concrete, ceramics, ash, clinker and chalk. Occasional oyster shells and glass. (MADE GROUND)							0.80		ES
							2.00		ES
TRIAL PIT TERMINATED AT 4.00m	4.00	28.34							

Notes
Terminated at scheduled depth. Sides remained upright and stable upon completion.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 0.90m x 3.20m	**Date(s)** 04/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 32.34	**Logged by** OH	**Revision** A
Co-ordinates 383477E, 398370N	**Status** FINAL	**TP08**

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STRATA				WATER STRIKES	IN SITU TESTING		SAMPLING		
DESCRIPTION	DEPTH (m)	REDUCED LVL (m OD)	LEGEND		TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
ASPHALT (ASPHALT)	0.15	31.60							
[Medium dense] brown very gravelly fine to coarse SAND with a medium cobble content of angular brick fragments, concrete and sandstoneblocks with a faint hydrocarbon odour and tar staining. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker. (MADE GROUND)	0.45	31.30							
[Medium dense] orangish brown slightly clayey slightly gravelly fine to coarse SAND with occasional cobble sized pockets of stiff grey slightly gravelly CLAY. Gravel is fine to coarse subangular to subrounded sandstone and quartzite. (SUSPECTED GLACIOFLUVIAL DEPOSITS)									
Extremely weak SANDSTONE extracted as a reddish brown fine to coarse SAND and GRAVEL with a high cobble content of angular to subsngular sandstone. (CHESTER FORMATION)	2.45	29.30							
TRIAL PIT TERMINATED AT 3.20m	3.20	28.55							

Notes
Terminated upon encountering Chester Formation. Sides remained upright and stable upon completion. Infiltration testing performed.

Groundwater observations

Strike (m)	Comments

No groundwater strike recorded

Title Trial pit record	**Dimensions (w x l)** 0.70m x 2.80m	**Date(s)** 04/03/2025
Method Machine Excavated	**Plant used** JCB 3CX	**Sheet number** Sheet 1 of 1
Level (m OD) 31.75	**Logged by** OH	**Revision** A
Co-ordinates 383472E, 398346N	**Status** FINAL	**TP09**

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Appendix C Exploratory Hole Logs: Boreholes

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Key to legends

Composite materials, soils and lithology

Topsoil	Made Ground	Boulders	Chalk
Clay	Coal	Cobbles	Concrete
Gravel	Limestone	Mudstone	Peat
Sand	Sandstone	Silt	Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sample/core recovery' columns

Test result

Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.
	SPT – Standard Penetration Test result (N value uncorrected)[1,2,3] SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected)[1,2,3] * Signifies that the test was terminated before full penetration was achieved.
	UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample

Sample/core recovery

Run No.	Records depth and number of the abstracted core[3]
Total Core Recovery (TCR) %	Ratio of core recovered (solid and non-intact) to length of core run
Solid Core Recovery (SCR) %	Ratio of solid, cylindrical, pieces of rock core recovered to length of core run
Rock Quality Designation (RQD) %	Ratio of core pieces longer than 100mm to length of core run
Fracture Index (FI)	Inverse of fracture spacing, per metre, over arbitrary length
D	Disturbed sample
B	Bulk disturbed sample
ES	Environmental sample
SPTLS	SPT liner sample
W	Water sample
C	Core sample

Note 1: Total seating blows recorded in brackets.

Note 2: Casing depth records depth of casing.

Note 3: The depths of open holing will be recorded in the notes. Method of lubrication of and diameter of drilling tools will be recorded on the log, together with location of circulation loss during drilling.

Water observations

Described at foot of log and shown in the 'water strike' column.

Water level observed after specified delay in drilling

Water strike

Installation details

Gravel filter		Bentonite	
Slotted pipe		Unslotted pipe	
Arisings		Grout	
Extensometer magnet		Vibrating wire piezometer	

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	ASPHALT (ASPHALT)	0.10	30.98																
	Medium dense brown slightly sandy very clayey fine to coarse angular to subangular GRAVEL of brick, concrete, sandstone, coal and occasional clinker. (MADE GROUND)																0.40 0.50		ES ES
											C 1.00	(6) 18							
	Medium dense orangish brown clayey gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded quartzite, sandstone and coal. (SUSPECTED GLACIOFLUVIAL DEPOSITS)	1.60	29.48														1.70 1.80 1.80	 2.40 2.40	D B B
											S 2.00	(11) 27							
	...at 2.3m depth, becoming gravelly.																		
	Extremely weak thickly laminated to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal extremely closely to very closely spaced partly open to open rough and panar with no infill. (CHESTER FORMATION)	3.00	28.08								S 3.00	(16) 50*					2.90		D
						3.00 - 3.50	80	30	0	13									
	...between 4.05m and 4.15m depth, smooth subvertical fracture steeply inclined at 70° to bedding.					3.50 - 5.00	90	70	21	24							3.80 3.80	3.89	C C
	...between 4.3m and 4.5m depth, smooth subvertical fracture steeply inclined at 70° to bedding.									17									

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 10.4m bgl morning of next shift.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
14.00				14.00	Steady

Title
Borehole record

Date(s)
27/02/2025 - 28/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 7

Level (m OD)
31.08

Logged by
OH

Revision
A

Co-ordinates
383433E, 398390N

Status
FINAL

RBH01

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Very weak thinly to medium bedded reddish brown medium to coarse grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to closely spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)	5.18	25.90							17									
						5.00 - 6.50	92	82	47	10							6.20 6.20	6.36	C C
						6.50 - 8.00	100	89	81	9									
										9							7.57	7.81	C
	...at 8.7m depth, rare moderately open discontinuities.					8.00 - 9.50	96	77	34	12							9.22	9.36	C
						9.50 - 11.00	100	90	62	7							9.75	9.88	C

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 10.4m bgl morning of next shift.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
14.00				14.00	Steady

Title
Borehole record

Date(s)
27/02/2025 - 28/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 2 of 7

Level (m OD)
31.08

Logged by
OH

Revision
A

Co-ordinates
383433E, 398390N

Status
FINAL

RBH01

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
						9.50 - 11.00	100	90	62	7									
										8							11.23	11.38	C
	…between 11.39m and 11.52m depth, rough planar bedding fracture infilled with coarse grained gravel and medium grained sand.					11.00 - 12.50	91	55	16	10									
	…between 11.9m and 12.05m depth, rough planar bedding fractures infilled with coarse grained gravel and medium grained sand.																		
	Weak thinly to thickly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced tight to open rough and planar with no infill. (CHESTER FORMATION)	12.65	18.43			12.50 - 14.00	94	80	69	9							13.48	13.88	C
	…between 12.8m and 12.92m depth, smooth subvertical fracture steeply inclined at 70° to bedding.																13.48		C
	…between 13.02m and 13.06m depth, smooth subvertical fracture steeply inclined at 70° to bedding.									7									
	…between 13.15m and 13.20m depth, smooth subvertical fracture steeply inclined at 70° to bedding.					14.00 - 15.50	96	84	60	10									
																	14.97	15.30	C
																	14.97		C

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 10.4m bgl morning of next shift.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
14.00				14.00	Steady

Title
Borehole record

Date(s)
27/02/2025 - 28/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 3 of 7

Level (m OD)
31.08

Logged by
OH

Revision
A

Co-ordinates
383433E, 398390N

Status
FINAL

RBH01

Albert Bridge House, Manchester

STX6912

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	SPT TESTING TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	RESULT	SAMPLING FROM (m)	TO (m)	TYPE
	Weak thinly to thickly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced tight to open rough and planar with no infill. (CHESTER FORMATION)					14.00 - 15.50	96	84	60	10									
	...between 15.7m and 15.75m depth, highlty weathered zone.					15.50 - 17.00	98	82	56	9							16.38 16.38	16.74	C C
										5									
						17.00 - 18.50	97	77	51								17.50 17.61 17.61	17.79	D C C
	...between 18m and 18.05m depth, highly weathered zone.									12									
						18.50 - 20.00	97	90	69	7							19.17 19.17	19.43	C C
										4									

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 10.4m bgl morning of next shift.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
14.00				14.00	Steady

Title
Borehole record

Date(s)
27/02/2025 - 28/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 4 of 7

Level (m OD)
31.08

Logged by
OH

Revision
A

Co-ordinates
383433E, 398390N

Status
FINAL

RBH01

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Weak thinly to thickly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced tight to open rough and planar with no infill. (CHESTER FORMATION)									4									
						20.00 - 21.50	92	74	59	8							21.30	21.58	C
	...between 20.95m and 21.06m depth, rough subvertical fracture steeply inclined at 70° to bedding.																21.83	22.01	C
						21.50 - 23.00	92	79	63	5									
										7									
						23.00 - 24.50	89	74	57	9							23.44	23.62	C
	...between 24m and 24.3m depth, highly weathered zone.																24.50	24.93	C
						24.50 - 26.00	93	82	82	5							24.50		C

CONTINUED ON NEXT SHEET.

Notes
Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 10.4m bgl morning of next shift.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
14.00				14.00	Steady

Title
Borehole record

Date(s)
27/02/2025 - 28/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 5 of 7

Level (m OD)
31.08

Logged by
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Revision
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Co-ordinates
383433E, 398390N

Status
FINAL

RBH01

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						24.50 - 26.00	93	82	82	5									
	Very weak to weak very thinly to medium bedded reddish brown medium to coarse grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to medium spaced partly open to open rough and planar with no infill. Occasional medium to coarse grained pebbles of subrounded quartzite. (CHESTER FORMATION)	26.00	5.08							5							26.34 26.34	26.57	C C
	...between 26.28m and 26.35m depth, moderately weathered zone.					26.00 - 27.50	97	79	61	11									
						27.50 - 29.00	99	74	49	11							27.79 27.79	27.96	C C
										12									
						29.00 - 30.50	89	78	58	7							29.28 29.28 29.50	29.63	C C D

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 10.4m bgl morning of next shift.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
14.00				14.00	Steady

Title
Borehole record

Date(s)
27/02/2025 - 28/02/2025

Method
Geobore S

Plant used
Comacchio 205

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Sheet 6 of 7

Level (m OD)
31.08

Logged by
OH

Revision
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Co-ordinates
383433E, 398390N

Status
FINAL

RBH01

soiltechnics
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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						29.00 - 30.50	89	78	58	7									
	BOREHOLE TERMINATED AT 30.50m	30.50	0.58																

Notes
Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 10.4m bgl morning of next shift.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
14.00				14.00	Steady

Title
Borehole record

Date(s)
27/02/2025 - 28/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 7 of 7

Level (m OD)
31.08

Logged by
OH

Revision
A

Co-ordinates
383433E, 398390N

Status
FINAL

RBH01

Albert Bridge House, Manchester

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	ASPHALT	0.10	31.65																
	(ASPHALT)																0.20		ES
		0.30	31.45														0.20		D
	[Medium dense] dark brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular brick, concrete, asphalt and sandstone.																0.40		ES
	(MADE GROUND)																0.50		D
	[Medium dense] greyish brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular brick, concrete, asphalt and sandstone.																0.90		ES
	(MADE GROUND)	1.20	30.55								S 1.20	(1) 1							
	Loose brown slightly gravelly very clayey fine to coarse SAND with rare cobbles of angular brick fragments. Gravel is fine to coarse angular to subrounded brick, ceramic, concrete, sandstone, coal and ash. Occasional glass.																1.50		ES
	(MADE GROUND)																1.50		D
											S 2.00	(1) 3							
	Soft orangish brown slightly gravelly sandy CLAY with occasional cobble sized pockets of clayey fine to medium SAND. Gravel is fine to coarse angular to subangular brick, sandstone and coal.	2.65	29.10														2.70		ES
	(MADE GROUND)																2.80		D
																	2.80		D
											S 3.00	(2) 3			PP 3.00	PP 29			
															PP 3.30	PP 29			
															PP 3.80	PP 29			
											S 4.00	(4) 7							
	Soft to firm orangish brown slightly gravelly slightly sandy CLAY with frequent gravel sized pockets of slightly clayey medium SAND and occasional cobbles of angular sandstone. Gravel is fine to coarse angular to subangular sandstone and rare coal.	4.30	27.45														4.50		D
	(SUSPECTED GLACIOFLUVIAL DEPOSITS)																4.50		D
															PP 4.75	PP 75			
																	4.80		ES

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 5.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 12.4m bgl at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.00				12	Steady

Title Borehole record		**Date(s)** 19/02/2025 - 20/02/2025
Method Geobore S	**Plant used** Comacchio 205	**Sheet number** Sheet 1 of 6
Level (m OD) 31.75	**Logged by** OH	**Revision** A
Co-ordinates 383466E, 398359N	**Status** FINAL	**RBH02**

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Weak very thinly to thinly bedded dark brown/ grey medium grained slightly to moderately weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to closely spaced partly open to open rough planar with no infill. Strong hydrocarbon odour with slight staining noted. (CHESTER FORMATION)	5.00	26.75			5.00 - 5.50	80	52	40	NI	S 5.00	(25)* 50*					5.10		ES
																	5.28	5.59	C
																	5.28		C
						5.50 - 6.00	94	78	24	13									
	...at 6.1m depth, becoming reddish brown.																6.03	6.44	C
																	6.03		C
						6.00 - 6.50	100	100	24								6.16	6.34	C
																	6.16		C
	Weak thinly to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely spaced partly open to open rough and planar with no infill. Very faint hydrocarbon odour noted. (CHESTER FORMATION)	6.50	25.25			6.50 - 8.00	100	99	85	8									
	...at 7.85m depth, no hydrocarbon odour noted.																		
	Weak thinly to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)	8.00	23.75			8.00 - 9.50	99	96	86	4									
	...between 8.0m and 8.3m depth, occasional medium to coarse grained pebbles of subrounded quartzite.																8.62	8.94	C
																	8.62		C
		9.33	22.42			9.50 - 11.00	100	89	63	2									

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 5.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 12.4m bgl at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.00				12	Steady

Title Borehole record		**Date(s)** 19/02/2025 - 20/02/2025
Method Geobore S	**Plant used** Comacchio 205	**Sheet number** Sheet 2 of 6
Level (m OD) 31.75	**Logged by** OH	**Revision** A
Co-ordinates 383466E, 398359N	**Status** FINAL	**RBH02**

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Weak very thinly to thinly bedded reddish brown medium to coarse grained slightly to moderately weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to closely spaced partly open to open rough and planar with no infill. Occasional pebbles of fine to medium subrounded quartzite. (CHESTER FORMATION)																		
	...between 10.31m and 10.36m depth, rough subvertical fracture steeply inclined at 45° to bedding.																10.37		C
																	10.37		C
		10.52	21.23			9.50 - 11.00	100	89	63	7								10.54	
	Weak thinly to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely spaced partly open to occasionally open rough and planar with no infill. (CHESTER FORMATION)																		
	...between 11.06m and 11.2m depth, rough subvertical fracture steeply inclined at 45° to bedding.				▼	11.00 - 12.50	93	80	66	9									
										3									
	...between 12.6m and 12.7m depth, moderately weathered zone.									NI									
						12.50 - 14.00	99	77	47	9							13.60	13.80	C
	Weak very thinly to medium bedded reddish brown medium to coarse grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to closely spaced partly open to open and occasionally moderately wide rough and planar with no infill. Occasional pebbles of fine to medium subrounded quartzite. (CHESTER FORMATION)	14.00	17.75			14.00 - 15.50	96	93	53	7									

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Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 5.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 12.4m bgl at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.00				12	Steady

Title
Borehole record

Date(s)
19/02/2025 - 20/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 3 of 6

Level (m OD)
31.75

Logged by
OH

Revision
A

Co-ordinates
383466E, 398359N

Status
FINAL

RBH02

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	SPT TESTING TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	RESULT	SAMPLING FROM (m)	TO (m)	TYPE
	Weak very thinly to medium bedded reddish brown medium to coarse grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to closely spaced partly open to open and occasionally moderately wide rough and planar with no infill. Occasional pebbles of fine to medium subrounded quartzite. (CHESTER FORMATION)					14.00 - 15.50	96	93	53	7							15.17 15.17	15.35	C C
																	15.55 15.55	15.90	C C
	...between 16.4m and 16.8m depth, becoming moderately weathered					15.50 - 17.00	99	85	55	7									
						17.00 - 18.50	100	95	87	7							17.17 17.17	17.47	C C
										2							18.01	18.25	C
										NI									
	...between 19.3m and 20m depth, becoming slightly to moderately weathered.					18.50 - 20.00	99	87	87	13							18.68 18.68	18.85	C C
	...at 19.9m depth, smooth subvertical fracture steeply inclined at 60° to bedding.																		

CONTINUED ON NEXT SHEET.

Notes
Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 5.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 12.4m bgl at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.00				12	Steady

Title
Borehole record

Date(s)
19/02/2025 - 20/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 4 of 6

Level (m OD)
31.75

Logged by
OH

Revision
A

Co-ordinates
383466E, 398359N

Status
FINAL

RBH02

soiltechnics
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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Weak thinly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)	20.00	11.75			20.00 - 21.50	98	93	80	4							20.20 20.20	20.45	C C
	...between 21.1m and 21.4m depth, becoming moderately weathered									6							21.25 21.25 21.27 21.27	21.50 21.36 	C C C C
	Very Weak and weak very thinly to thinly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to closely spaced partly open to open and occasionally moderately wide rough and planar with no infill. (CHESTER FORMATION)	21.70	10.05			21.50 - 23.00	100	86	65	NI									
	...between 22m and 23m depth, coarse grained.									3							22.81 22.81	23.00	C C
						23.00 - 24.50	99	93	78	8									
	...at 24.3m depth, moderately wide discontinuity infilled with medium grained sand.									2							24.30 24.30	24.50	C C
		24.50	7.25			24.50 - 26.00	93	93	77	6									

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Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 5.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 12.4m bgl at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.00				12	Steady

Title
Borehole record

Date(s)
19/02/2025 - 20/02/2025

Method
Geobore S

Plant used
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Level (m OD)
31.75

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Co-ordinates
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Status
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RBH02

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Weak thinly to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced partly open rough and planar occasionally infilled with sandy CLAY. (CHESTER FORMATION)					24.50 - 26.00	93	93	77	6							25.42 25.42	25.76	C C
	...at 26m depth, no further infill to discontinuities.					26.00 - 27.50	97	92	81	8							26.94 26.94	27.17	C C
	...between 27.5m and 27.6m depth, rough subvertical fracture steeply inclined at 70° to bedding.					27.50 - 29.00	100	93	86	5 6							27.82 27.82	28.21	C C
						29.00 - 30.00	90	88	78	4							29.58 29.58	29.93	C C

BOREHOLE TERMINATED AT 30.00m

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 5.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 12.4m bgl at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.00				12	Steady

Title
Borehole record

Date(s)
19/02/2025 - 20/02/2025

Method
Geobore S

Plant used
Comacchio 205

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Sheet 6 of 6

Level (m OD)
31.75

Logged by
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Co-ordinates
383466E, 398359N

Status
FINAL

RBH02

Albert Bridge House, Manchester

STX6912

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	PAVING SLAB (MADE GROUND)	0.05	31.20																
	[Loose] orangish brown fine to medium SAND. (MADE GROUND)	0.15	31.10																
	CONCRETE (CONCRETE)	0.20	31.05																
	Loose brown slightly clayey very gravelly fine to coarse SAND with a low cobble content of subangular brick fragments and concrete. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker. (MADE GROUND)										S 1.20	(1) 7							
	Firm brown mottled orangish brown slightly gravelly very sandy CLAY with frequent gravel sized pockets of orangish brown SAND. Gravel is fine to coarse subrounded sandstone, quartzite and rare coal. (MADE GROUND)	2.00	29.25								S 2.00	(1) 4							
	NO RECOVERY (N/A)	3.00	28.25								S 3.00	(7) 50*							
						3.00 - 4.50	0	0	0										
		4.50	26.75								C 4.50	(25)* 50*	3.00						
						4.50 - 6.00	100	67	15	23									

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.60					End of shift

Title
Borehole record

Date(s)
03/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 3

Level (m OD)
31.25

Logged by
OH

Revision
A

Co-ordinates
383435E, 398401N

Status
FINAL

RBH04

soiltechnics
environmental ▪ geotechnical ▪ building fabric

INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Extremely weak thickly laminated to thinly bedded reddish brown medium grained slightly weathered and occasionally moderately weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to closely spaced partly open rough and planar with no infill. (CHESTER FORMATION)					4.50 - 6.00	100	67	15	23	C 6.00	(25)* 50*	3.00				5.71 5.71	5.88	C C
		5.70	25.55							12									
	Very weak thinly to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)																		
	...at 5.8m depth, rough subvertical fracture steeply inclined at 45° to bedding.					6.00 - 7.50	95	73	51	10							7.11 7.11	7.30	C C
	...between 6.43m and 7m depth, coarse grained with occasional pebbles of subrounded quartzite.																		
						7.50 - 9.00	96	74	71	7							7.65 7.65	7.81	C C
																	8.41	8.62	C
										10									
	...between 9.25m and 9.35m depth, moderately weathered zone	9.27	21.98			9.00 - 10.50	100	66	30										
	...between 9.75m and 9.95m depth, moderately weathered zone									11									

CONTINUED ON NEXT SHEET.

Notes
Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.60					End of shift

Title
Borehole record

Date(s)
03/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 2 of 3

Level (m OD)
31.25

Logged by
OH

Revision
A

Co-ordinates
383435E, 398401N

Status
FINAL

RBH04

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TYPE / DEPTH (m)	SPT RESULT	SPT CASING DEPTH (m)	SPT WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	Very weak thinly bedded reddish brown medium to coarse grained slightly weathered SANDSTONE. Disontinuities are horizontal to sub-horizontal closely spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)					9.00 - 10.50	100	66	30	11							10.09	10.24	C
		10.42	20.83																
	...between 10.2m and 10.3m depth, moderately weathered zone																10.71	10.85	C
	Weak thickly laminated to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal extremely closely to medium spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)					10.50 - 12.00	100	81	70	6							11.16	11.49	C
																	11.16		C
										11									
	...between 12.17m and 12.56m depth, coarse grained with occasional pebbles of subrounded quartzite.																12.04	12.17	C
						12.00 - 13.50	88	59	41	9							13.11	13.29	C
		13.50	17.75																
	Very weak thickly laminated to thinly bedded reddish brown medium to coarse grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal, and occasionally inclined at 45° to bedding, extremely closely to closely spaced partly open to open rough and planar occasionally infilled with reddish brown medium grained SAND and fine to coarse grained subangular GRAVEL. (CHESTER FORMATION)					13.50 - 15.00	100	73	45	12							13.97	14.16	C
										7									

BOREHOLE TERMINATED AT 15.00m

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 3.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
12.60					End of shift

Title
Borehole record

Date(s)
03/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 3 of 3

Level (m OD)
31.25

Logged by
OH

Revision
A

Co-ordinates
383435E, 398401N

Status
FINAL

RBH04

Albert Bridge House, Manchester

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	ASPHALT (ASPHALT)	0.04	31.08																
	[Medium dense] dark greyish brown slightly clayey gravelly fine to coarse SAND with a medium cobble content of subangular brick fragments. Gravel is fine to coarse angular to subangular brick, concrete, clinker and rare chalk. Occasional glass and charcoal. (MADE GROUND)																0.60 0.60		ES D
											S 1.00	(18) 25							
	Soft greyish brown slightly sandy gravelly CLAY with frequent cobbles of angular brick fragments. Gravel is fine to coarse angular to subangular brick and concrete. Occasional rubber. (MADE GROUND)	1.20	29.92														1.30 1.30		ES ES
											S 2.00	(9) 28							
	Medium dense orangish brown silty very sandy fine to coarse GRAVEL of subangular to subrounded quartzite, coal and sandstone. (SUSPECTED GLACIOFLUVIAL DEPOSITS)	2.45	28.67														2.50 2.50	3.00	D B
											S 3.00	(13) 27							
	Reddish brown fine to medium SAND. (WEATHERED CHESTER FORMATION)	3.75	27.37														3.80		D
		4.00	27.12								S 4.00	(25)* 50*	3.00						
	Extremely weak thickly laminated to very thinly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to very closely spaced partly open to open rough and planar occasionally infilled with medium grained SAND. (CHESTER FORMATION)					4.00 - 5.50	93	36	0	17							4.25	4.29	C
	…between 4.4m and 6.65m depth, becoming moderately weathered.																		

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 4.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
13.00				13.00	Steady

Title
Borehole record

Date(s)
26/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 3

Level (m OD)
31.12

Logged by
OH

Revision
A

Co-ordinates
383422E, 398377N

Status
FINAL

RBH05

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	Weak becoming very weak very thinly to medium bedded with occasional thick laminations reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal very closely to medium spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)	5.24	25.88			4.00 - 5.50	93	36	0	23							6.65 6.65	6.80	C C
	...between 6.8m and 7.78m depth, occasional medium to coarse grained pebbles of subrounded quartzite.					5.50 - 7.00	97	79	56	8							7.45 7.45	7.65	C C
	...between 9.15m and 10m depth, occasional medium to coarse grained pebbles of subrounded quartzite.					7.00 - 8.50	100	84	39	13 12							8.38 8.38 8.79	8.50 8.90	C C C
						8.50 - 10.00	99	79	70	7							9.76 9.76	10.00	C C

CONTINUED ON NEXT SHEET.

Notes
Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 4.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
13.00				13.00	Steady

Title
Borehole record

Date(s)
26/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 2 of 3

Level (m OD)
31.12

Logged by
OH

Revision
A

Co-ordinates
383422E, 398377N

Status
FINAL

RBH05

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	SPT TESTING TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	RESULT	SAMPLING FROM (m)	TO (m)	TYPE
	…at 10m depth, occasional discontinuities inclined at 45° to bedding, and occasional cross bedding.					10.00 - 11.50	100	93	89	7							10.73 10.73	11.01	C C
	…between 10.77m and 11.27m depth, occasional medium to coarse grained pebbles of subrounded quartzite.									9									
						11.50 - 13.00	97	87	55	9							12.59 12.59	12.69	C C
																	13.00	13.15	C
						13.00 - 14.50	99	82	81	8									
	…between 13.95m and 14.20m depth, becoming moderately weathered.									4							14.11	14.37	C
						14.50 - 15.00	100	88	68	3							14.50	14.74	C

BOREHOLE TERMINATED AT 15.00m

Notes
Service avoidance pit terminated at 1.0m depth. Dynamic sampling runs completed between 1.0m to 4.0m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
13.00				13.00	Steady

Title
Borehole record

Date(s)
26/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 3 of 3

Level (m OD)
31.12

Logged by
OH

Revision
A

Co-ordinates
383422E, 398377N

Status
FINAL

RBH05

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.10	31.81																
	[Medium dense] brown slightly gravelly fine to coarse SAND with a high cobble content of subangular concrete. Gravel is fine to coarse angular to subangular brick and concrete. (MADE GROUND)	0.55	31.36																
	BOREHOLE TERMINATED AT 0.55m																		

Notes
Terminated due to suspected 6" cast iron water pipe at the base of the pit.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Title
Borehole record

Date(s)
05/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 1

Level (m OD)
31.91

Logged by
OH

Revision
A

Co-ordinates
383455E, 398413N

Status
FINAL

RBH06A

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.10	31.94																
	[Medium dense] brown slightly gravelly fine to coarse SAND with a high cobble content of subangular concrete. Gravel is fine to cosrse angular to subangular brick and concrete. (MADE GROUND)	0.70	31.34																
	BOREHOLE TERMINATED AT 0.70m																		

Notes

Terminated due to obstruction at the base of the pit.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Title
Borehole record

Date(s)
05/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 1

Level (m OD)
32.04

Logged by
OH

Revision
A

Co-ordinates
383460E, 398404N

Status
FINAL

RBH06B

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.15	32.19																
	[Loose] brown mottled orangish brown slightly gravelly very clayey fine to coarse SAND with occasional cobbles of subangular brick fragments. Gravel is fine to coarse angular to subangular brick, concrete, clinker, charcoal, quartzite and sandstone. (MADE GROUND)																		
	Loose brown mottled orangish brown slightly gravelly very clayey fine to coarse SAND with rare cobbles of subangular brick fragments. Gravel is fine to coarse angular to subangular brick, concrete, ceramics, clinker, quartzite and sandstone. (MADE GROUND)	1.20	31.14								C 1.20	(7) 8							
											C 2.00	(3) 6							
											C 3.00	(25)* 50*							
	BOREHOLE TERMINATED AT 4.50m	4.50	27.84																

Notes

Service avoidance pit terminated at 0.7m depth. Dynamic sampling runs completed between 0.7m to 4.5m depth. Terminated due to rotary drilling rig failure.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Title
Borehole record

Date(s)
04/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 1

Level (m OD)
32.34

Logged by
OH

Revision
A

Co-ordinates
383476E, 398380N

Status
FINAL

RBH06C

Albert Bridge House, Manchester

STX6912

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	ASPHALT (ASPHALT)	0.15	32.23																
	[Loose] brown very gravelly fine to coarse SAND with a medium cobble content of angular brick fragments and concrete. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker. (MADE GROUND)																0.60		ES
	Loose dark brown slightly clayey gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular brick, concrete, clinker and sandstone. Occasional oyster shells. (MADE GROUND)	1.20	31.18								S 1.20	(1) 5					1.50		ES
											S 2.00	(2) 4							
	Loose brown mottled orangish brown slightly gravelly very clayey fine to coarse SAND with rare cobbles of subangular brick fragments. Gravel is fine to coarse angular to subangular brick, concrete, clinker, quartzite and sandstone. (MADE GROUND)	2.40	29.98								S 3.00	(5) 8					3.00 3.00		ES D
											S 4.00	(2) 5	3.00						

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.2m depth. Dynamic sampling runs completed between 1.2m to 7.6m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 7.4m at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
11.00				11	Steady

Title
Borehole record

Date(s)
05/03/2025 - 07/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 4

Level (m OD)
32.38

Logged by
OH

Revision
A

Co-ordinates
383477E, 398378N

Status
FINAL

RBH06D

Albert Bridge House, Manchester

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
											S 5.00	(2) 3	3.00				5.40	6.20	B
																	5.40	6.20	B
	Soft brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subangular brick, sandstone and quartzite. Occasional oyster shells. (MADE GROUND)	5.40	26.98																
											S 6.00	(2) 4	3.00		PP 6.00	PP 25	6.00	7.50	B
																	6.00		D
																	6.00		D
															PP 6.30	PP 21			
	…between 6.6m and 7m depth, dark brown and slightly organic odour.														PP 6.60	PP 17			
															PP 6.90	PP 25			
	…between 7m and 7.4m depth, slightly sandy slightly clayey SILT.										S 7.00	(4) 18	6.00						
											S 7.50	(22) 50*	6.00						
	Weak thinly bedded reddish brown medium grained lightly weathered SANDSTONE. Discontinuities are inclined at 45° to bedding partly open to open rough and planar with no infill. (CHESTER FORMATION)	7.60	24.78			7.60 - 8.25	85	61	61	4							7.97	8.25	C
																	7.97		C
	No recovery. (N/A)	8.25	24.13			8.25 - 9.75	55	18	5	NI							9.10	9.20	C
	Moderately weak thickly laminated to very thinly bedded reddish brown medium to coarse grained highly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal extremely closely to very closely spaced partly open to open rough and planar infilled with medium grained sand. (CHESTER FORMATION)	8.90	23.48							4									
										NI									
	…between 8.9m and 9.1m depth, highly weathered zone	9.75	22.63			9.75 - 10.50	0	0	0		S 9.75	(25)* 50*	7.50						

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.2m depth. Dynamic sampling runs completed between 1.2m to 7.6m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 7.4m at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
11.00				11	Steady

Title Borehole record		**Date(s)** 05/03/2025 - 07/03/2025
Method Geobore S	**Plant used** Comacchio 205	**Sheet number** Sheet 2 of 4
Level (m OD) 32.38	**Logged by** OH	**Revision** A
Co-ordinates 383477E, 398378N	**Status** FINAL	**RBH06D**

Albert Bridge House, Manchester

STX6912

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	NO RECOVERY due to drill stuck in weathered sand deposits. (N/A)					9.75 - 10.50	0	0	0										
	Weak thickly laminated to very thinly bedded reddish brown medium to coarse grained moderately weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal extremely closely to very closely spaced partly open to open rough and planar infilled with medium grained SAND. (CHESTER FORMATION)	10.50	21.88			10.50 - 11.25	53	37	0	9							10.96	11.00	C
	Extremely weak reddish brown medium grained completely to highly weathered SANDSTONE recovered as medium grained SAND. (CHESTER FORMATION)	11.25	21.13							N/A	S 11.25	(24) 50*	11.25				11.25 11.25	12.00 12.00	B B
	Very weak very thinky to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal partly open to open rough and planar with no infill. (CHESTER FORMATION)	12.40	19.98			12.40 - 12.75	71	71	0	3							12.42	12.60	C
						12.75 - 14.25	75	57	40	11							13.21 13.21	13.47	C C
										6							13.54	13.67	C
	...between 14.25m and 14.45m depth, completely to highly weathered and recovered as reddish brown medium grained sand.									N/A									
						14.25 - 15.75	95	41	14	14									

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit terminated at 1.2m depth. Dynamic sampling runs completed between 1.2m to 7.6m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 7.4m at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
11.00				11	Steady

Title
Borehole record

Date(s)
05/03/2025 - 07/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 3 of 4

Level (m OD)
32.38

Logged by
OH

Revision
A

Co-ordinates
383477E, 398378N

Status
FINAL

RBH06D

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STX6912

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
[redacted]						14.25 - 15.75	95	41	14	14							15.58	15.65	C
	BOREHOLE TERMINATED AT 15.75m	15.75	16.63																

Notes

Service avoidance pit terminated at 1.2m depth. Dynamic sampling runs completed between 1.2m to 7.6m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth. Groundwater recorded at 7.4m at end of borehole.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
11.00				11	Steady

Title
Borehole record

Date(s)
05/03/2025 - 07/03/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 4 of 4

Level (m OD)
32.38

Logged by
OH

Revision
A

Co-ordinates
383477E, 398378N

Status
FINAL

RBH06D

Albert Bridge House, Manchester

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	CONCRETE (CONCRETE)	0.15	31.27																
	[Medium dense] greyish brown gravelly fine to coarse SAND with a high cobble content of whole bricks and masonry. Gravel is fine to coarse angular to subangular brick, concrete and sandstone. (MADE GROUND)																0.60		ES
	BOREHOLE TERMINATED AT 1.15m	1.15	30.27																

Notes

Service avoidance pit terminated at 1.15m depth. Terminated due to concrete overspill and relict masonry wall. Position relocated.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Title Borehole record		**Date(s)** 24/02/2025
Method Geobore S	**Plant used** Comacchio 205	**Sheet number** Sheet 1 of 1
Level (m OD) 31.42	**Logged by** OH	**Revision** A
Co-ordinates 383453E, 398367N	**Status** FINAL	**RBH07A**

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.20	31.20																
	MORTAR BONDED BRICKWORK (MADE GROUND)					0.20 - 1.50	88	0	0										
						1.50 - 3.00	93	0	0										
						3.00 - 4.50	90	0	0										
						4.50 - 6.00	98	0	0										

CONTINUED ON NEXT SHEET.

Notes

Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Title
Borehole record

Date(s)
24/02/2025 - 25/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 3

Level (m OD)
31.40

Logged by
OH

Revision
A

Co-ordinates
383459E, 398372N

Status
FINAL

RBH07B

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						4.50 - 6.00	98	0	0										
						6.00 - 7.50	91	0	0										
						7.50 - 8.35	99	0	0										
	Weak thinly to medium bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely to medium spaced partly open to open rough and planar with no infill. Rare fine to medium grained pebbles of quartzite. (CHESTER FORMATION)	8.38	23.02			8.35 - 9.00	92	66	22	8							8.50 8.50	8.64	C C
	…between 8.75m and 8.85m depth, rough subvertical 70° fracture.					9.00 - 10.50	96	78	41	11							9.19 9.19	9.38	C C

CONTINUED ON NEXT SHEET.

Notes

Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Title
Borehole record

Date(s)
24/02/2025 - 25/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 2 of 3

Level (m OD)
31.40

Logged by
OH

Revision
A

Co-ordinates
383459E, 398372N

Status
FINAL

RBH07B

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
						9.00 - 10.50	96	78	41	8							10.49	10.71	C
						10.50 - 12.00	99	79	63	9							10.98	11.15	C
	...between 11.23m and 11.3m depth, moderately weathered zone.																11.65	11.84	C
						12.00 - 13.50	100	89	59	9							12.25	12.47	C
																	12.95	13.20	C
										5							13.50	13.83	C
	...between 13.85m and 13.92m depth, moderately weathered zone.																13.50		C
	...between 14.12m and 14.41m depth, moderately weathered zone.					13.50 - 15.00	96	71	57	10							14.70	14.95	C
																	14.70		C

BOREHOLE TERMINATED AT 15.00m

Notes

Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Title
Borehole record

Date(s)
24/02/2025 - 25/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 3 of 3

Level (m OD)
31.40

Logged by
OH

Revision
A

Co-ordinates
383459E, 398372N

Status
FINAL

RBH07B

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	ASPHALT (ASPHALT)	0.10	31.60																
	[Medium dense] dark brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to subangular brick, concrete, asphalt and sandstone. Occasional glass. (MADE GROUND)	0.30	31.40														0.25		ES
																	0.60		ES
																	0.70		D
	[Medium dense] greyish brown slightly gravelly fine to coarse SAND with a high cobble content of whole bricks and angular brick fragments. Gravel is fine to coarse angular to subrounded brick, concrete, chalk and sandstone. (MADE GROUND)										S 1.20	(5) 6							
		1.40	30.30														1.50		D
	Firm brown mottled orangish brown slightly silty slightly sandy slightly gravelly CLAY coarse gravel sized pockets of orangish brown fine SAND. Gravel is fine to medium subangular coal, sandstone and siltstone. (SUSPECTED GLACIOFLUVIAL DEPOSITS)														PP 1.80	PP 134			
											S 2.00	(14) 36							
	…at 2.2m depth, becoming stiff.														PP 2.20	PP 175			
																	2.50		D
															PP 2.60	PP 125	2.50	3.00	B
																	2.50	3.00	B
															PP 2.90	PP 188			
											S 3.00	(11) 30							
															PP 3.50	PP 175			
											S 4.00	(25)* 50*							
	Extremely weak thickly laminated to very thinly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are partly open to open rough and planar with no infill. Occasioanal fine to coarse subrounded pebbles of quartzite. (CHESTER FORMATION)	4.10	27.60			4.00 - 4.50	86	48	0	6									
						4.50 - 5.00	76	62	0	7							4.69	4.76	C

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 4.10m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
8.10					End of shift

Title
Borehole record

Date(s)
21/02/2025 - 24/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 1 of 3

Level (m OD)
31.70

Logged by
OH

Revision
A

Co-ordinates
383474E, 398339N

Status
FINAL

RBH08

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	CORING DEPTH (m)	CORING TCR (%)	CORING SCR (%)	CORING RQD (%)	CORING FI	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	…between 5.2m and 5.45m depth, moderately weathered zone.					5.00 - 5.50	84	32	0	NI									
										2							5.50	5.58	C
						5.50 - 6.50	98	71	0	18									
	Very weak thickly laminated to very thinly bedded reddish brown medium grained grained slightly weathered SANDSTONE. Didcontinuities are horizontal to sub-horizontal extremely closely to very closely spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)	6.50	25.20																
	…between 6.5m and 6.8m depth, moderately weathered zone.					6.50 - 8.00	99	49	17	NI							6.85	7.00	C
	…between 7.1m and 7.2m depth, moderately weathered zone.																6.85		C
	…between 7.4m and 7.5m depth, moderately weathered zone.									11									
										10									
	Very weak thinly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely spaced partly open to open and planar with no infill. (CHESTER FORMATION)	8.58	23.12			8.00 - 9.50	100	69	27	10							8.80	8.90	C
	Extremely weak reddish brown medium grained completely to highly weathered SANDSTONE recovered as medium grained clayey SAND. (CHESTER FORMATION)	9.50	22.20														9.50	10.00	B
																	9.50	10.00	B
																	9.80		D

CONTINUED ON NEXT SHEET.

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 4.10m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
8.10					End of shift

Title
Borehole record

Date(s)
21/02/2025 - 24/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 2 of 3

Level (m OD)
31.70

Logged by
OH

Revision
A

Co-ordinates
383474E, 398339N

Status
FINAL

RBH08

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INSTALL	STRATA				WATER STRIKES	CORING					SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		DEPTH (m)	TCR (%)	SCR (%)	RQD (%)	FI	TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
		10.30	21.40																
	Extremely weak and very weak thinly bedded reddish brown medium grained slightly weathered SANDSTONE. Discontinuities are horizontal to sub-horizontal closely spaced partly open to open rough and planar with no infill. (CHESTER FORMATION)					10.30 - 11.00	100	69	16	11							10.58 10.58	10.68	C C
						11.00 - 12.50	93	63	23	35							11.94	12.09	C
	...at 12.7m depth, discontinuity infilled with soft light grey clay.									7							12.50 12.50	12.70	C C
	...between 13.42m and 13.55m depth, subvertical 70° fracture.					12.50 - 14.00	99	81	55	8							13.55 13.55	13.73	C C
	...at 13.6m depth, discontinuity infilled with soft light grey clay.																		
	...between 14.6m and 14.7m depth, moderately weathered zone.					14.00 - 15.00	98	68	21	11							14.28	14.38	C

BOREHOLE TERMINATED AT 15.00m

Notes

Service avoidance pit excavated to 1.2m depth. Dynamic sampling runs completed between 1.2m to 4.10m depth. Rotary coring completed outside these ranges. Terminated at scheduled depth.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments
8.10					End of shift

Title
Borehole record

Date(s)
21/02/2025 - 24/02/2025

Method
Geobore S

Plant used
Comacchio 205

Sheet number
Sheet 3 of 3

Level (m OD)
31.70

Logged by
OH

Revision
A

Co-ordinates
383474E, 398339N

Status
FINAL

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Key to legends

Composite materials, soils and lithology							
	Topsoil		Made Ground		Boulders		Chalk
	Clay		Coal		Cobbles		Concrete
	Gravel		Limestone		Mudstone		Peat
	Sand		Sandstone		Silt		Siltstone

Note: Composite soil types are signified by combined symbols.

Key to 'test results' and 'sampling' columns

Test result		
Depth	Records depth that the test was carried out (i.e.: at 2.10m or between 2.10m and 2.55m)	
Result	PP – Pocket penetrometer result reported as an equivalent undrained shear strength (kN/m²) by applying a factor of 50. SV – Hand held shear vane result reported as an undrained shear strength (kN/m²). Where multiple readings are taken at the same level the average value is shown on the log. * Signifies that instrument limit reached.	
	SPT – Standard Penetration Test result (N value uncorrected)[1,2,3] SPT(c) – Standard Penetration Test result (solid cone) (N value) (uncorrected)[1,2,3] * Signifies that the test was terminated before full penetration was achieved.	
	UT – Undisturbed sample 100mm diameter sampler with number of blows of driving equipment required to obtain sample	

Sampling		
From (m) To (m)	Records depth of sampling	
Type	D	Disturbed sample
	B	Bulk disturbed sample
	ES	Environmental sample
	SPTLS	SPT liner sample
	W	Water sample
	U	Undisturbed thick-walled sample 100mm diameter sampler
	UT	Undisturbed thin walled sample 100mm diameter sampler
	UTF	Failed undisturbed sample

Note 1: Total seating blows recorded in brackets.

Note 2: Casing depth records depth of casing when SPT or SPT(c) was carried out.

Note 3: Water depth records depth of water when SPT or SPT(c) was carried out.

Water observations

Described at foot of log and shown in the 'water strike' column.

Water level observed after specified delay in drilling

Water strike

Installation details

	Gravel filter		Bentonite
	Slotted pipe		Unslotted pipe
	Arisings		Grout
	Extensometer magnet		Vibrating wire piezometer

Density

Density recorded in brackets determined by qualitative field assessment or inferred from density testing and soil descriptions from across the site (i.e.: [Medium dense]).

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Loose] light grey medium to coarse subangular GRAVEL of limestone. (MADE GROUND)	0.10	31.44											
	ASPHALT (ASPHALT)	0.15	31.39											
	CONCRETE (CONCRETE)	0.25	31.29											
	BOREHOLE TERMINATED AT 0.25m													

Notes
Terminated due to concrete at base. Unable to advance.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
31.54

Logged by
OH

Revision
A

Co-ordinates
383433E, 398344N

Status
FINAL

WLS01A

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.10	31.27											
	CONCRETE (CONCRETE)	0.20	31.17											
	BOREHOLE TERMINATED AT 0.20m													

Notes
Terminated due to concrete at base. Unable to advance.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
31.37

Logged by
OH

Revision
A

Co-ordinates
383434E, 398338N

Status
FINAL

WLS01B

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Loose] light grey medium to coarse subangular GRAVEL of limestone. (MADE GROUND)	0.10	31.29											
	ASPHALT (ASPHALT)	0.15	31.24											
	CONCRETE (CONCRETE)	0.25	31.14									0.30		D
	[Medium dense] brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to subrounded brick, concrete and charcoal. (MADE GROUND)	0.40	30.99			S 1.00	(10) 50					0.80		ES
	[Dense] dark brown and black slightly clayey gravelly fine to coarse SAND with a low cobble content of subangular brick fragments. Gravel is fine to coarse angular to subangular sandstone, brick, ceramic, clinker and coal. (MADE GROUND)	1.40	29.99											
	BOREHOLE TERMINATED AT 1.40m													

Notes
Terminated due to competency of deposits. Suspected cobble.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
31.39

Logged by
OH

Revision
A

Co-ordinates
383425E, 398346N

Status
FINAL

WLS01C

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INSTALL	STRATA DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND	WATER STRIKES	SPT TESTING TYPE / DEPTH (m)	SPT TESTING RESULT	SPT TESTING CASING DEPTH (m)	SPT TESTING WATER LEVEL (m)	OTHER IN SITU TESTING TYPE / DEPTH (m)	OTHER IN SITU TESTING RESULT	SAMPLING FROM (m)	SAMPLING TO (m)	SAMPLING TYPE
	PAVING SLAB	0.06	30.47											
	(MADE GROUND)	0.15	30.38											
	[Loose] orangish brown fine to medium SAND. (MADE GROUND)											0.40		ES
	[Medium dense] reddish brown gravelly fine to coarse SAND with a high cobble content of angular brick fragments and whole bricks. (MADE GROUND)	1.00	29.53											
	Very loose becoming very dense brown slightly gravelly very clayey fine to coarse SAND with frequent cobbles of angular brick fragments and frequent gravel sized pockets of organic matter. Gravel is fine to coarse angular to subangular brick and concrete. Occasional glass. (MADE GROUND)					S 1.20	(1) 2					1.20		ES
						S 2.00	(0) 0							
	BOREHOLE TERMINATED AT 2.80m	2.80	27.73			S 2.80	(25)* 50*							

Notes
Terminated due to competency of deposits. Suspected cobble.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv
1.00 - 2.00	20
2.00 - 2.80	35

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
30.53

Logged by
OH

Revision
A

Co-ordinates
383397E, 398386N

Status
FINAL

WLS02

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.10	32.02											
	[Medium dense] brown slightly gravelly fine to coarse SAND. Gravel is fine to cosrse angular to subangular brick and concrete. (MADE GROUND)	0.40	31.72											
	CONCRETE (CONCRETE)	0.50	31.62											
	BOREHOLE TERMINATED AT 0.40m													

Notes
Terminated due to concrete at base. Unable to advance.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method Dynamic Sampling	**Plant used** Dando Terrier
Level (m OD) 32.12	**Logged by** OH
Co-ordinates 383469E, 398391N	**Status** FINAL

Sheet number
Sheet 1 of 1

Revision
A

WLS03A

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.10	31.93											
	[Medium dense] brown slightly gravelly fine to coarse SAND with a low cobble content of subangular concrete. Gravel is fine to cosrse angular to subangular brick and concrete. (CONCRETE)	0.35	31.68											
	CONCRETE (CONCRETE)	0.40	31.63											
	BOREHOLE TERMINATED AT 0.35m													

Notes
Terminated due to concrete at base. Unable to advance.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
32.03

Logged by
OH

Revision
A

Co-ordinates
383461E, 398402N

Status
FINAL

WLS03B

Albert Bridge House, Manchester

STX6912

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	ASPHALT (ASPHALT)	0.10	31.97											
	CONCRETE (CONCRETE)	0.15	31.92									0.25		ES
	[Medium dense] brown slightly gravelly fine to coarse SAND. Gravel is fine to cosrse angular to subangular brick and concrete. (MADE GROUND)	0.30	31.77											
	BOREHOLE TERMINATED AT 0.30m													

Notes
Terminated due to concrete and warning tape. Suspected service.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
32.07

Logged by
OH

Revision
A

Co-ordinates
383467E, 398389N

Status
FINAL

WLS03C

Albert Bridge House, Manchester

STX6912

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	PAVING SLAB (MADE GROUND)	0.06	31.18											
	[Loose] orangish brown fine to medium SAND. (MADE GROUND)	0.10	31.14											
	CONCRETE (CONCRETE)	0.15	31.09											
	BOREHOLE TERMINATED AT 0.15m													

Notes
Terminated due to concrete at base. Unable to advance.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
31.24

Logged by
OH

Revision
A

Co-ordinates
383434E, 398402N

Status
FINAL

WLS04A

Albert Bridge House, Manchester

STX6912

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INSTALL	STRATA				WATER STRIKES	SPT TESTING				OTHER IN SITU TESTING		SAMPLING		
	DESCRIPTION	DEPTH (m)	REDUCED LVL (mOD)	LEGEND		TYPE / DEPTH (m)	RESULT	CASING DEPTH (m)	WATER LEVEL (m)	TYPE / DEPTH (m)	RESULT	FROM (m)	TO (m)	TYPE
	[Loose] grey slightly slightly silty slightly sandy fine to coarse angular to subangular GRAVEL of limestone and concrete. (MADE GROUND)	0.40	30.70											
	BOREHOLE TERMINATED AT 0.40m													

Notes
Terminated due to concrete at base. Unable to advance.

Groundwater observations

Strike (m)	5mins	10mins	15mins	20mins	Comments

No groundwater strike recorded

Recovery details

Range (m)	% Recv

Title
Dynamic windowless sampling record

Date(s)
24/02/2025

Method
Dynamic Sampling

Plant used
Dando Terrier

Sheet number
Sheet 1 of 1

Level (m OD)
31.10

Logged by
OH

Revision
A

Co-ordinates
383436E, 398399N

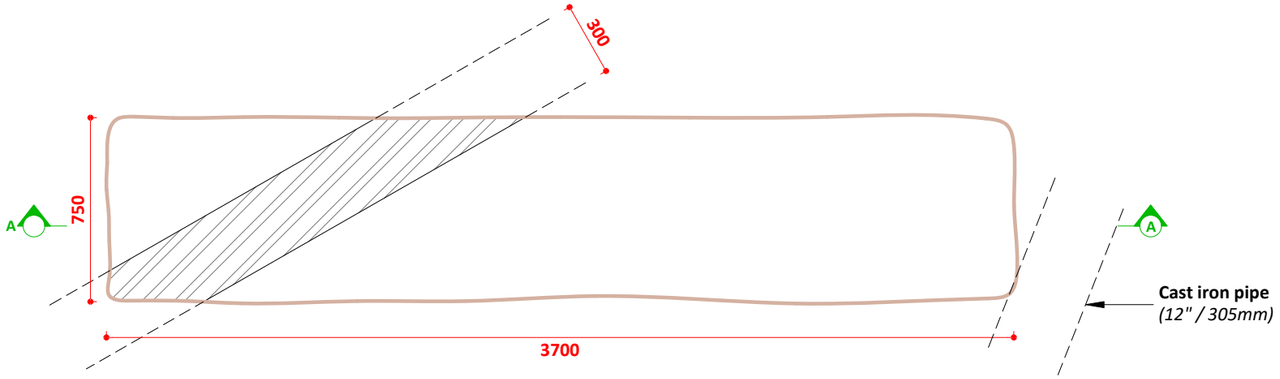
Status
FINAL

WLS04B

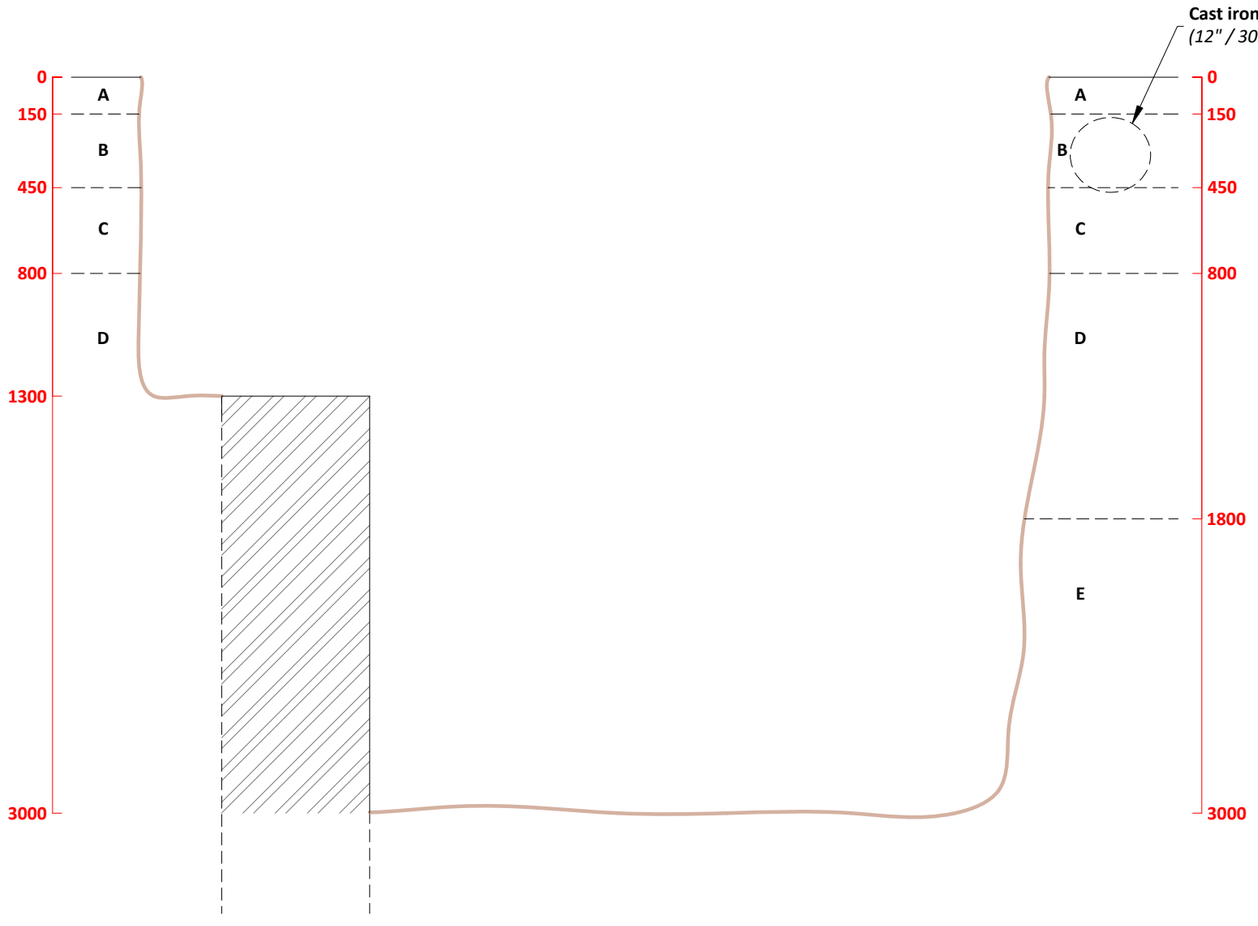
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environmental ▪ geotechnical ▪ building fabric

Appendix D Exploratory Hole Logs: Trial Pit Sections

Plan



Section A-A



Photographic records





Key

A. ASPHALT

B. Brown very gravelly fine to coarse SAND with a medium cobble content of angular brick fragments and concrete. Gravel is fine to coarse angular to subangular brick, concrete, sandstone and clinker.
(MADE GROUND)

C. Soft to firm brown slightly gravelly CLAY. Gravel is fine to medium angular to subangular brick.
(MADE GROUND)

D. Reddish brown slightly gravelly fine to medium SAND with a low cobble content of subangular sandstone and brick. Gravel is fine to coarse angular to subangular brick and sandstone.
(MADE GROUND)

E. Soft brown slightly gravelly slightly sandy CLAY with frequent boulder sized pockets of reddish brown and brownish grey slightly gravelly fine to coarse SAND and a low cobble content of angular brick fragments. Gravel is fine to medium angular to subangular brick, concrete and sandstone.
(MADE GROUND)

Observed features
Assumed features
Excavation outline

Brick

Notes
1. Trial pit sides remained upright and stable.
2. Dimensions shown in millimetres.
3. No groundwater encountered.

Samples - Disturbed (D) / Environmental (ES) / Bulk (B)
- 0.30m (ES)
- 0.60m (ES)
- 0.60m (D)
- 1.20m (ES)
- 1.20m (D)
- 2.20m (ES)

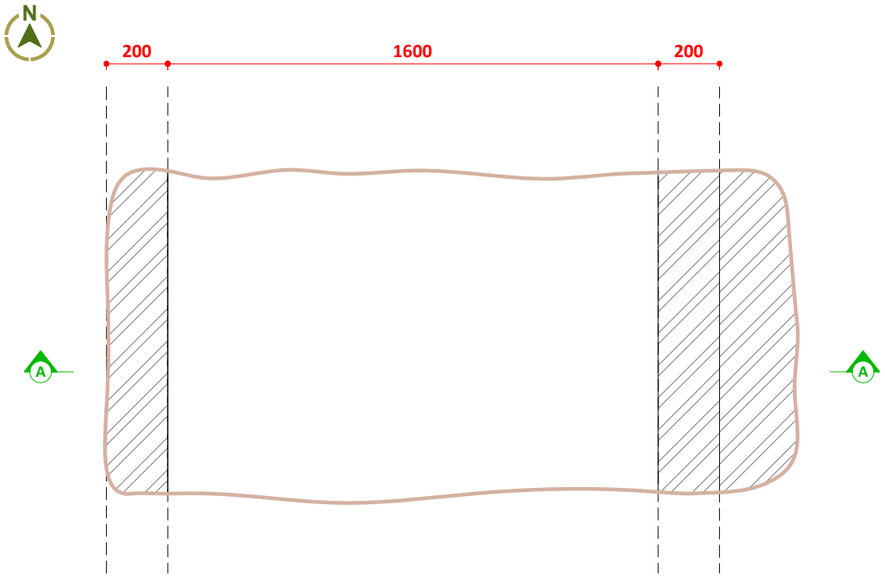
Pocket penetrometer testing
- 0.75m - 88kN/m^2

REV	DESCRIPTION	LOGD	PREP	DATE
A	First issue	OH	AM	24.03.2025

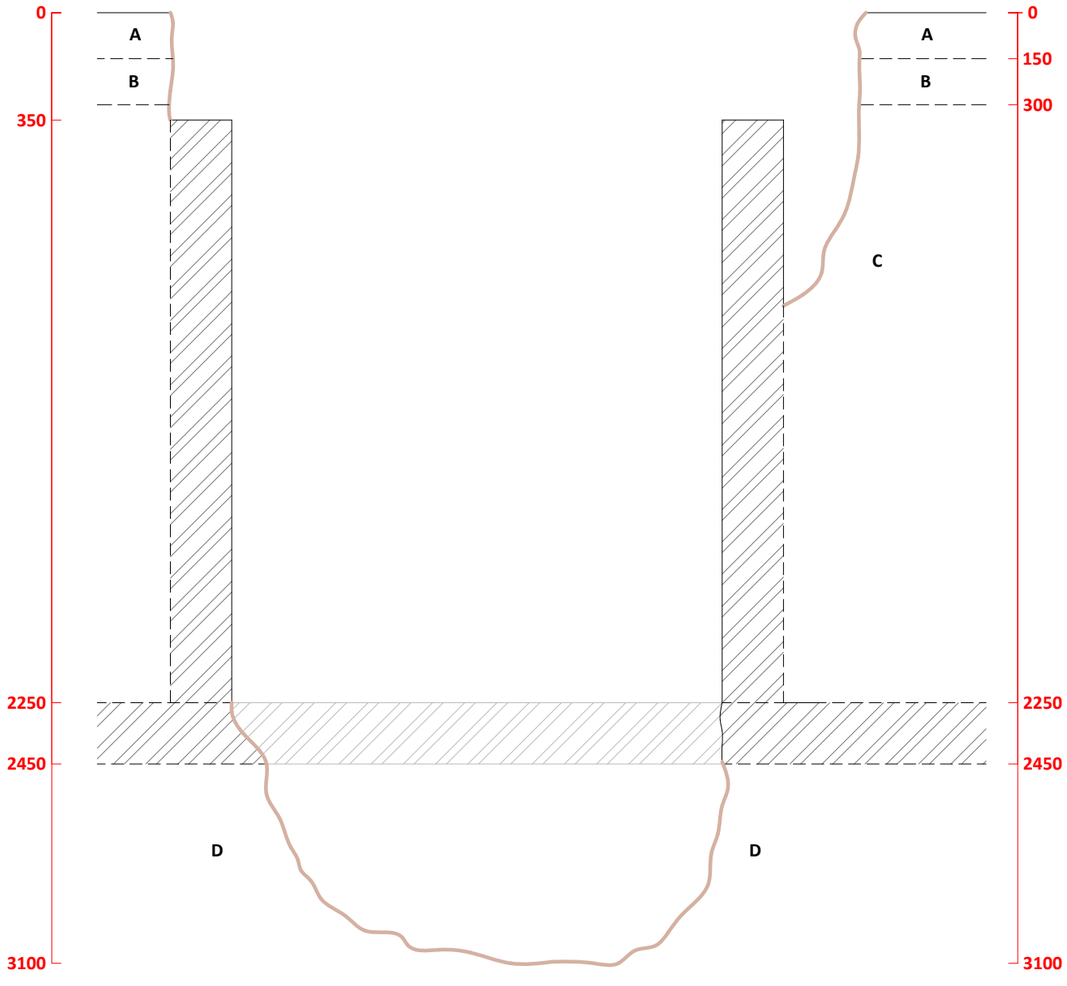
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environmental ▪ geotechnical ▪ building fabric

PROJECT: Albert Bridge House, Manchester		
TITLE: Trial pit record		
METHOD: Machine Excavated		DATE OF WORKS: 03.03.2025
PROJECT NO.: STX6912	SCALE AT A3: 1:25	LOCATION REFERENCE: TP02

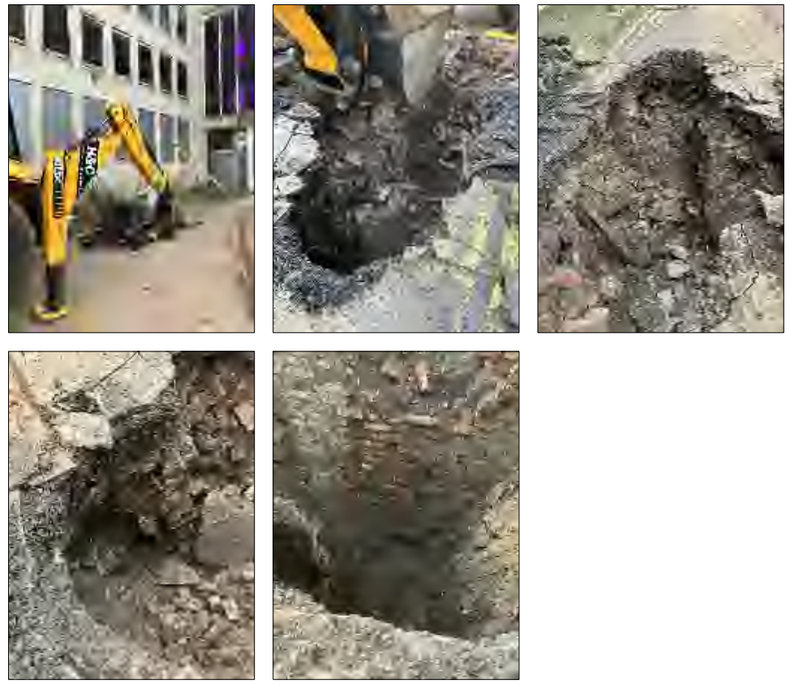
Plan



Section A-A



Photographic records



Key

A. ASPHALT

B. [Medium dense] brown very gravelly fine to coarse SAND with a low cobble content of subangular brick fragments and concrete. Gravel is fine to coarse angular to subrounded quartzite, brick, clinker, concrete and sandstone. (MADE GROUND)

C. [Loose] brown very sandy fine to coarse angular to subangular GRAVEL and COBBLES of brick, concrete, slate, ceramics, and sandstone. Frequent metal and boulders of masonry up to 940mm x 720mm x 630mm. Occassional gravel and cobble sized pockets of suspected blue billy. (MADE GROUND)

D. [Medium dense] brown and orangish brown gravelly fine to coarse SAND. Gravel is fine to coarse subangular to subrounded sandstone and quartzite. (SUSPECTED GLACIOFLUVIAL DEPOSITS)

Observed features
Assumed features
Removed features
Excavation outline

Brick

Notes

1. Trial pit sides remained upright and stable.
2. Dimensions shown in millimetres.
3. No groundwater encountered.
4. Terminated due to competency of deposits. Suspected bedrock.

Samples - Disturbed (D) / Environmental (ES) / Bulk (B)

- 0.20m (ES)
- 0.90m (ES)
- 0.90m (D)
- 1.90m (ES)

REV	DESCRIPTION	LOGD	PREP	DATE
A	First issue	OH	AM	24.03.2025

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PROJECT: Albert Bridge House, Manchester		
TITLE: Trial pit record		
METHOD: Machine Excavated		DATE OF WORKS: 03.03.2025
PROJECT NO.: STX6912	SCALE AT A3: 1:20	LOCATION REFERENCE: TP07

Appendix E Photographic Records

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RBH01



Photograph 1 – Photograph of RBH01 1.2m to 3.00m bgl



Photograph 2 – Photograph of RBH01 3.00m to 3.50m bgl



Photograph 3 – Photograph of RBH01 3.50m to 5.00m bgl



Photograph 4 – Photograph of RBH01 5.00m to 6.50m bgl



Photograph 5 – Photograph of RBH01 6.50m to 8.00m bgl



Photograph 6 – Photograph of RBH01 8.00m to 9.50m bgl



Photograph 7 – Photograph of RBH01 9.50m to 11.00m bgl



Photograph 8 – Photograph of RBH01 11.00m to 12.50m bgl



Photograph 9 – Photograph of RBH01 12.50m to 14.00m bgl



Photograph 10 – Photograph of RBH01 14.00m to 15.50m bgl



Photograph 11 – Photograph of RBH01 15.50m to 17.00m bgl



Photograph 12 – Photograph of RBH01 17.00m to 18.50m bgl



Photograph 13 – Photograph of RBH01 18.50m to 20.50m bgl



Photograph 14 – Photograph of RBH01 20.00m to 21.50m bgl



Photograph 15 – Photograph of RBH01 21.50m to 23.00m bgl



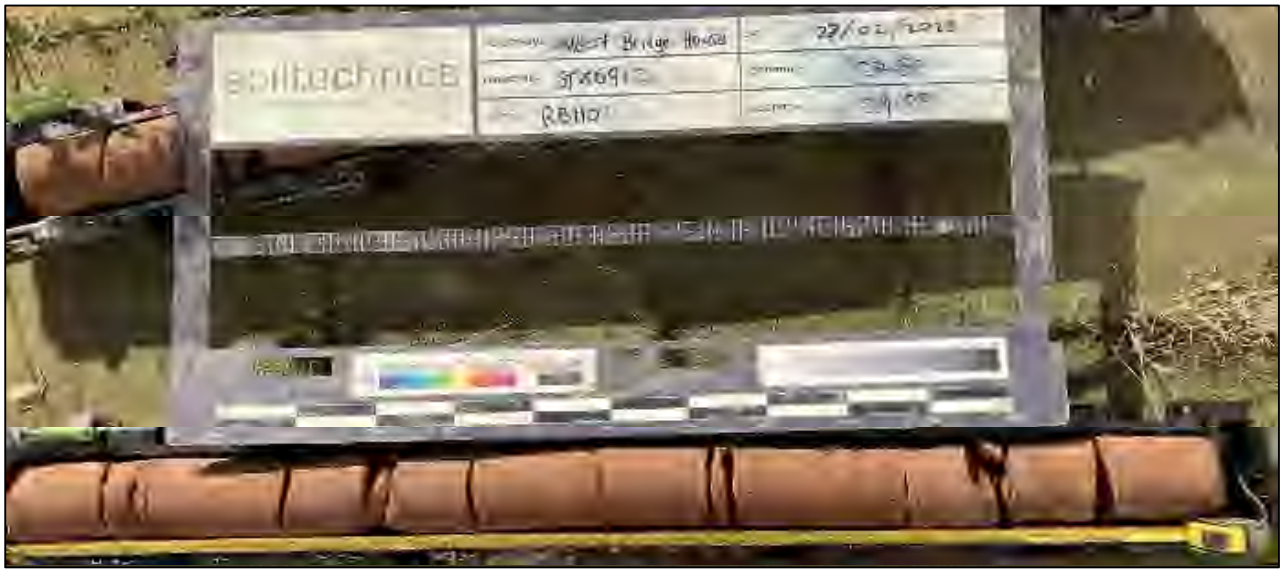
Photograph 16 – Photograph of RBH01 23.00m to 24.50m bgl



Photograph 17 – Photograph of RBH01 24.50m to 26.00m bgl



Photograph 18 – Photograph of RBH01 26.00m to 27.50m bgl



Photograph 19 – Photograph of RBH01 27.50m to 29.00m bgl



Photograph 20 – Photograph of RBH01 29.00m to 30.50m bgl

RBH02



Photograph 21 – Photograph of RBH02 1.20m to 3.00m bgl



Photograph 22 – Photograph of RBH02 3.00m to 5.00m bgl



Photograph 23 – Photograph of RBH02 5.00m to 6.50m bgl



Photograph 24 – Photograph of RBH02 6.50m to 8.00m bgl



Photograph 25 – Photograph of RBH02 8.00m to 9.50m bgl



Photograph 26 – Photograph of RBH02 9.50m to 11.00m bgl



Photograph 27 – Photograph of RBH02 11.00m to 12.50m bgl



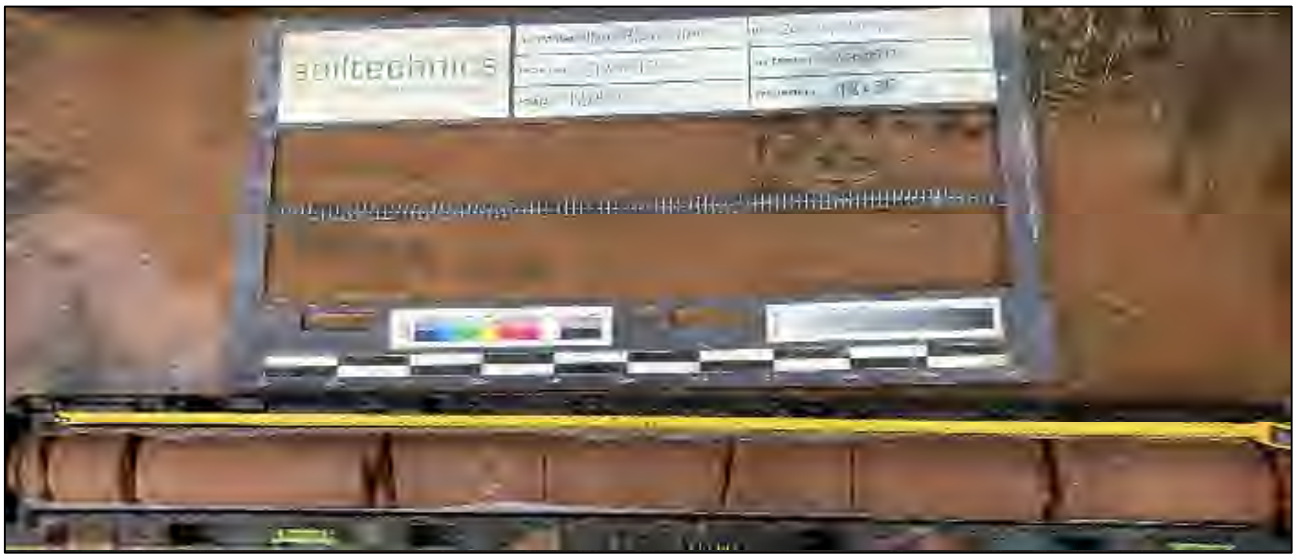
Photograph 28 – Photograph of RBH02 12.50m to 14.00m bgl



Photograph 29 – Photograph of RBH02 14.00m to 15.50m bgl



Photograph 30 – Photograph of RBH02 15.50m to 17.00m bgl



Photograph 31 – Photograph of RBH02 17.00m to 18.50m bgl



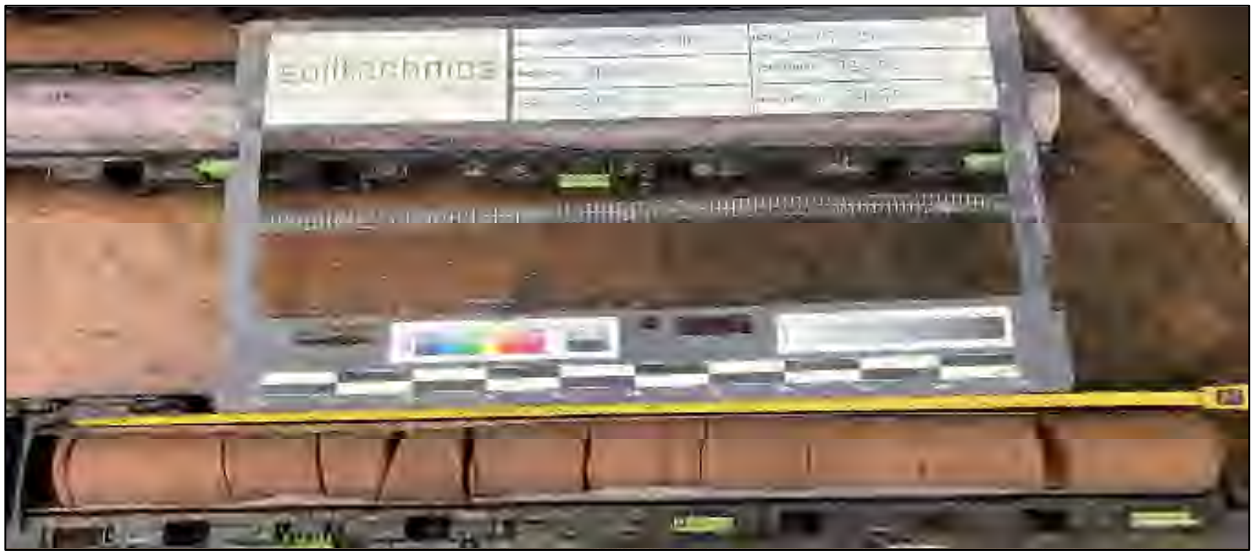
Photograph 32 – Photograph of RBH02 18.50m to 20.00m bgl



Photograph 33 – Photograph of 20.00m to 21.50m bgl



Photograph 34 – Photograph of RBH02 21.50m to 23.00 bgl



Photograph 35 – Photograph of RBH02 23.00m to 24.50m bgl



Photograph 36 – Photograph of RBH02 24.50m to 26.00m bgl



Photograph 37 – Photograph of RBH02 26.00m to 27.50m bgl



Photograph 38 – Photograph of RBH02 27.50m to 29.00m bgl



Photograph 39 – Photograph of RBH02 29.00m to 30.00m bgl

RBH04



Photograph 40 – Photograph of RBH04 1.20m to 3.0m bgl



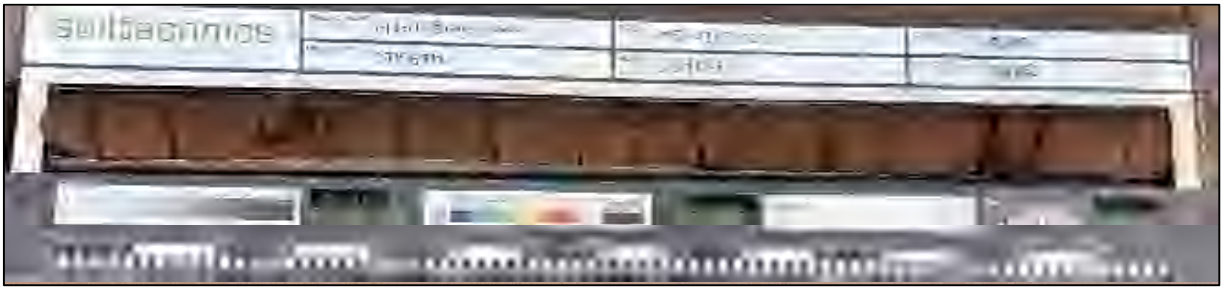
Photograph 41 – Photograph of RBH04 4.50m to 6.00m bgl



Photograph 42 – Photograph of RBH04 6.00m to 7.50m bgl



Photograph 43 – Photograph of RBH04 7.50m to 9.00m bgl



Photograph 44 – Photograph of RBH04 9.00m to 10.50m bgl



Photograph 45 – Photograph of RBH04 10.50m to 12.00m bgl



Photograph 46 – Photograph of RBH04 12.00m to 13.50m bgl



Photograph 47 – Photograph of RBH04 13.50m to 15.00m bgl

RBH05



Photograph 48 – Photograph of RBH05 1.20m to 3.00m bgl



Photograph 49 – Photograph of RBH05 3.00m to 4.00m bgl



Photograph 50 – Photograph of RBH05 4.00m to 5.50m bgl



Photograph 51 – Photograph of RBH05 5.50m to 7.00m bgl



Photograph 52 – Photograph of RBH05 7.00m to 8.50m bgl



Photograph 53 – Photograph of RBH05 8.50m to 10.00m bgl



Photograph 54 – Photograph of RBH05 10.00m to 11.50m bgl



Photograph 55 – Photograph of RBH05 11.50m to 13.00m bgl



Photograph 56 – Photograph of RBH05 13.00m to 14.50m bgl



Photograph 57 – Photograph of RBH05 14.50m to 15.00m bgl

RBH06D



Photograph 58 – Photograph of RBH06D 1.20m to 2.00m bgl



Photograph 59 – Photograph of RBH06D 2.00m to 3.00m bgl



Photograph 60 – Photograph of RBH06D 3.00m to 4.00m bgl



Photograph 61 – Photograph of RBH06D 4.00m to 5.00m bgl



Photograph 62 – Photograph of RBH06D 5.00m to 6.00m bgl



Photograph 63 – Photograph of RBH06D 6.00m to 7.00m bgl



Photograph 64 – Photograph of RBH06D 7.00m to 7.50m bgl



Photograph 65 – Photograph of RBH06D 7.50m to 8.25m bgl



Photograph 66 – Photograph of RBH06D 8.25m to 9.75m bgl



Photograph 67 – Photograph of RBH06D 9.75m to 11.25m bgl



Photograph 68 – Photograph of RBH06D 11.25m to 12.75m bgl



Photograph 69 – Photograph of RBH06D 12.75m to 14.25m bgl



Photograph 70 – Photograph of RBH06D 14.25m to 15.75m bgl

RBH07B



Photograph 71 – Photograph of RBH07B 0.20m to 1.50m bgl



Photograph 72 – Photograph of RBH07B 1.50m to 3.00m bgl



Photograph 73 – Photograph of RBH07B 3.00m to 4.50m bgl



Photograph 74 – Photograph of RBH07B 4.50m to 6.00m bgl



Photograph 75 – Photograph of RBH07B 6.00m to 7.50m bgl



Photograph 76 – Photograph of RBH07B 7.50m to 9.00m bgl



Photograph 77 – Photograph of RBH07B 9.00m to 10.50m bgl



Photograph 78 – Photograph of RBH07B 10.50m to 12.00m bgl



Photograph 79 – Photograph of RBH07B 12.00m to 13.50m bgl



Photograph 80 – Photograph of RBH07B 13.50m to 15.00m bgl

RBH08



Photograph 81 – Photograph of RBH08 1.20m to 3.00m bgl



Photograph 82 – Photograph of RBH08 3.00m to 4.00m bgl



Photograph 83 – Photograph of RBH08 4.00m to 5.50m bgl



Photograph 84 – Photograph of RBH08 5.50m to 6.50m bgl



Photograph 85 – Photograph of RBH08 6.50m to 8.00m bgl



Photograph 86 – Photograph of RBH08 8.00m to 9.50m bgl



Photograph 87 – Photograph of RBH08 9.50m to 11.00m bgl



Photograph 88 – Photograph of RBH08 11.00m to 12.50m bgl



Photograph 89 – Photograph of RBH08 12.50m to 14.00m bgl



Photograph 90 – Photograph of RBH08 14.00m to 15.00m bgl

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TP01



Photograph 1 – Photograph of TP01, facing northwest



Photograph 2 – Photograph of sandstone blocks in TP01 prior to breaking out



Photograph 3 – Photograph of sandstone blocks from TP01, showing tar-like coating



Photograph 4 - Photograph of completed TP01



Photograph 5 - Photograph of TP01 spoil

TP02



Photograph 6 - Photograph of TP02, facing east



Photograph 7 - Photograph of completed TP02



Photograph 8 - Photograph of TP02 spoil

TP03



Photograph 9 - Photograph of TP03, facing south



Photograph 10 - Photograph of completed TP03



Photograph 11 - Photograph of TP03 spoil

TP04



Photograph 12 - Photograph of TP04, facing south



Photograph 13 - Photograph of completed TP04



Photograph 14 - Photograph of TP04 spoil



Photograph 15 - Photograph of localised black staining of Chester Formation within TP04

TP05



Photograph 16 - Photograph of TP05, facing southeast



Photograph 16 - Photograph of sandstone blocks in TP05



Photograph 17 - Photograph of sandstone blocks in TP05, showing tar-like coating



Photograph 18 - Photograph of completed TP05



Photograph 19 - Photograph of TP05 spoil

TP06



Photograph 20 - Photograph of TP06, facing north



Photograph 21 - Photograph of sandstone blocks in TP06, with tar-like coating



Photograph 22 - Photograph of completed TP06



Photograph 23 - Photograph of TP06 spoil

TP07



Photograph 24 - Photograph of TP07, facing southeast



Photograph 25 - Photograph of relict structure in TP07



Photograph 26 - Photograph of TP07 spoil



Photograph 27 - Photograph of metal within Made Ground from TP07

TP08



Photograph 28 - Photograph of TP08 prior to breaking out, facing west



Photograph 29 - Photograph of completed TP08



Photograph 30 - Photograph of TP08 spoil

TP09



Photograph 31 - Photograph of TP09, facing west



Photograph 32 - Photograph of completed TP09



Photograph 33 - Photograph of TP09 spoil

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Appendix F In Situ Test Results

Table summarising Pocket Penetrometer results

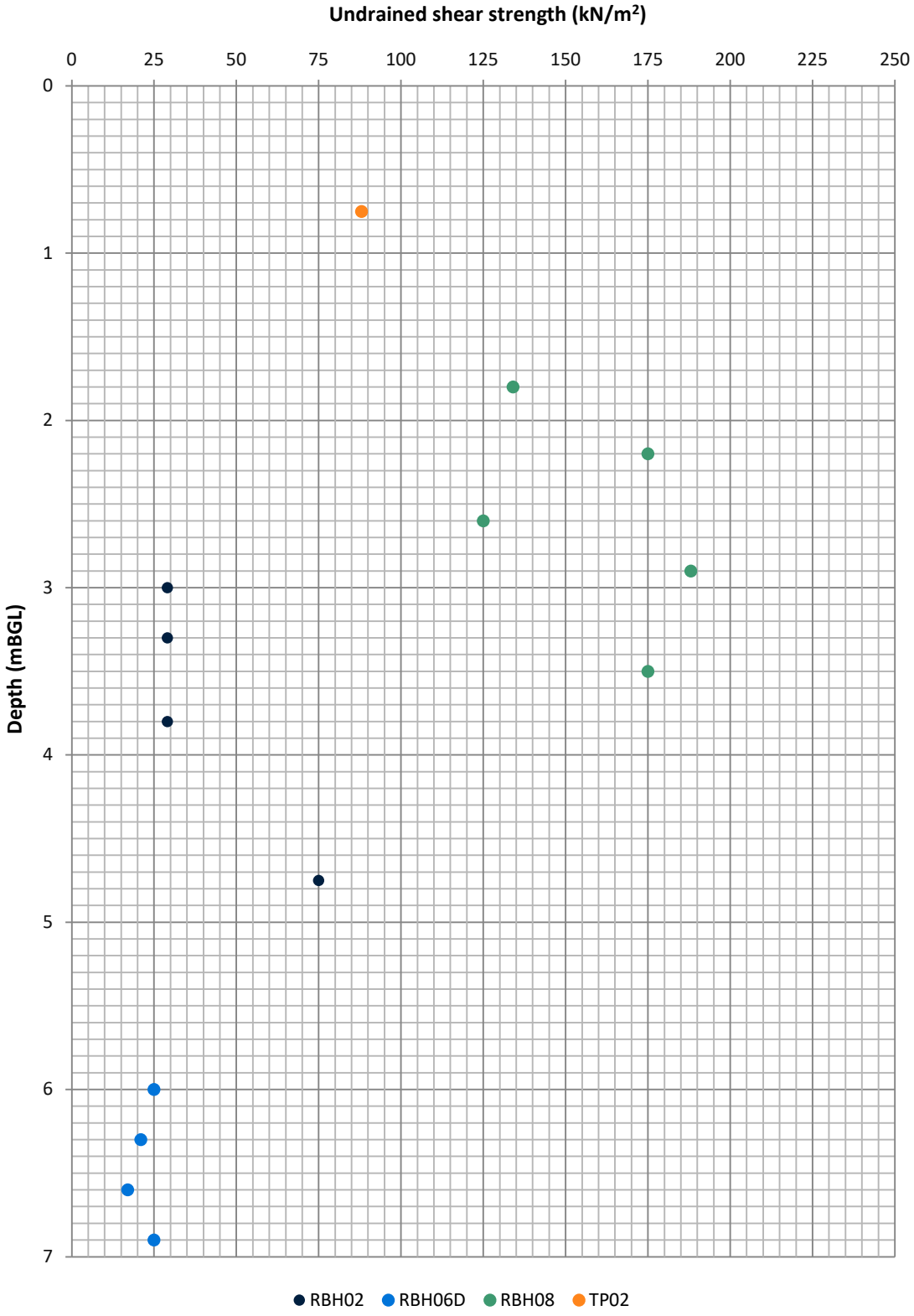
** Instrument limit reached.*

Location	Start Depth (m)	Results 1-3	Average	Undrained Shear Strength (kN/m^2)
RBH02	3.00	0.5/0.5/0.75	0.58	29
RBH02	3.30	0.75/0.5/0.5	0.58	29
RBH02	3.80	0.25/0.75/0.75	0.58	29
RBH02	4.75	1.5/1.5/1.5	1.50	75
RBH06D	6.00	0.5/0.5/0.5	0.50	25
RBH06D	6.30	0.5/0.25/0.5	0.42	21
RBH06D	6.60	0.5/0.25/0.25	0.33	17
RBH06D	6.90	0.5/0.5/0.5	0.50	25
RBH08	1.80	2.75/3/2.27	2.67	134
RBH08	2.20	3.5/3.5/3.5	3.50	175
RBH08	2.60	2.5/2.75/2.25	2.50	125
RBH08	2.90	3.75/3.75/3.75	3.75	188
RBH08	3.50	3.5/3.5/3.5	3.50	175
TP02	0.75	1.5/1.75/2	1.75	88

Table summarising Standard Penetration Test (SPT) results

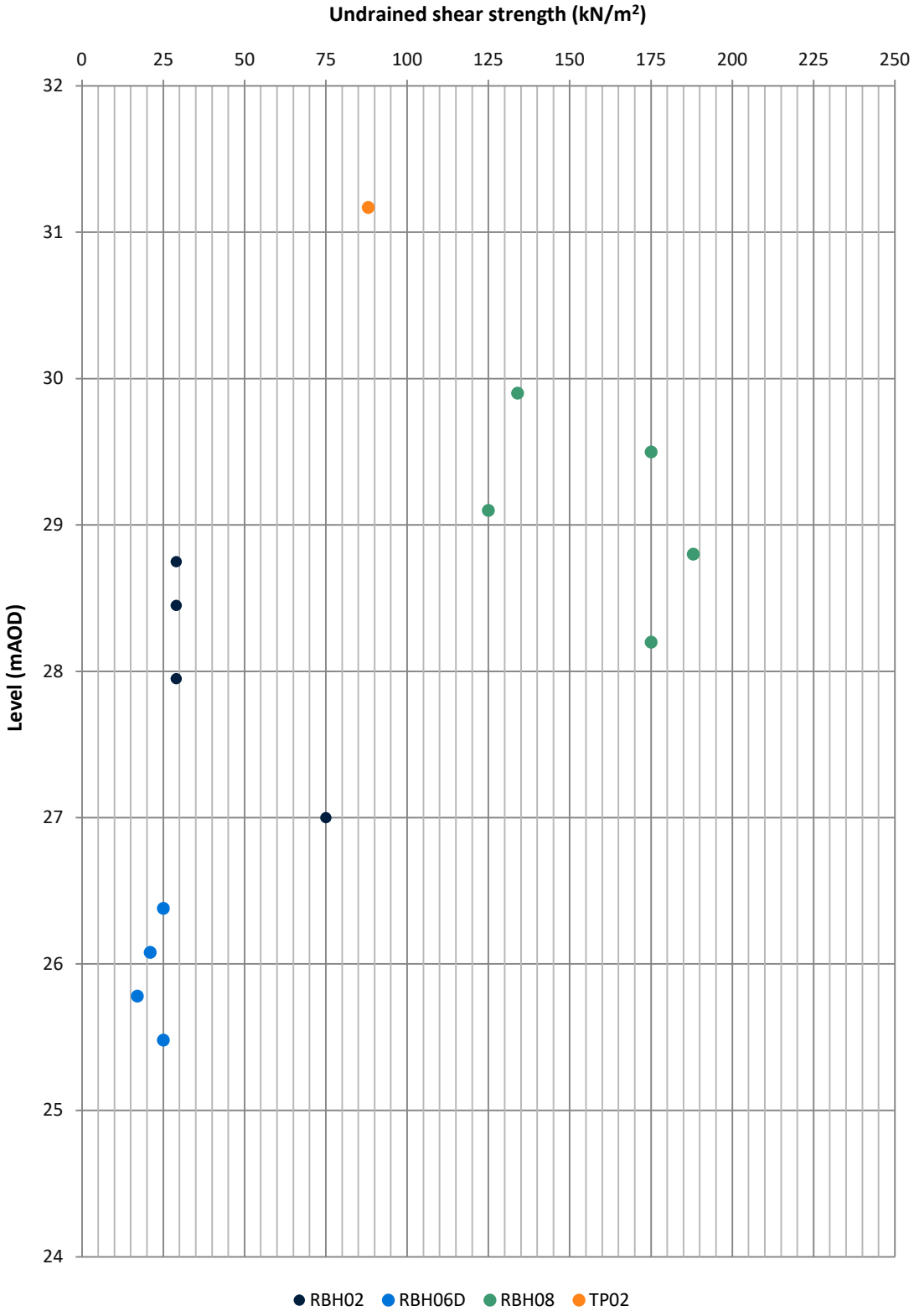
Location	Start Depth (m)					Penetration (mm)	
		Seating 1-2	Main 1-4	Total Seating	Total Main	Total Seating	Total Main
RBH01	1.00	2/4	4/4/4/6	6	18	150	300
RBH01	2.00	5/6	7/7/6/7	11	27	150	300
RBH01	3.00	6/10	25/25	16	50	150	105
RBH02	1.20	1/0	0/0/0/1	1	1	150	300
RBH02	2.00	1/0	1/0/1/1	1	3	150	300
RBH02	3.00	1/1	1/0/1/1	2	3	150	300
RBH02	4.00	2/2	2/2/2/1	4	7	150	300
RBH02	5.00	25	50	25	50	25	15
RBH04	1.20	1/0	1/2/2/2	1	7	150	300
RBH04	2.00	1/0	1/0/1/2	1	4	150	300
RBH04	3.00	3/4	19/31	7	50	150	125
RBH04	4.50	8/17	50	25	50	105	55
RBH04	6.00	25	50	25	50	75	40
RBH05	1.00	8/10	7/8/5/5	18	25	150	300
RBH05	2.00	4/5	7/7/7/7	9	28	150	300
RBH05	3.00	6/7	8/7/6/6	13	27	150	300
RBH05	4.00	6/19	50	25	50	115	30
RBH06C	1.20	3/4	3/2/1/2	7	8	150	300
RBH06C	2.00	2/1	1/2/2/1	3	6	150	300
RBH06C	3.00	7/18	50	25	50	120	55
RBH06D	1.20	1/0	1/1/2/1	1	5	150	300
RBH06D	2.00	1/1	1/1/1/1	2	4	150	300
RBH06D	3.00	2/3	3/2/2/1	5	8	150	300
RBH06D	4.00	1/1	1/2/1/1	2	5	150	300
RBH06D	5.00	1/1	1/0/1/1	2	3	150	300
RBH06D	6.00	1/1	1/1/1/1	2	4	150	300
RBH06D	7.00	1/3	2/3/6/7	4	18	150	300
RBH06D	7.50	2/20	50	22	50	150	45
RBH06D	9.75	25	50	25	50	70	40
RBH06D	11.25	3/21	50	24	50	150	50
RBH08	1.20	3/2	2/1/1/2	5	6	150	300
RBH08	2.00	6/8	8/8/10/10	14	36	150	300
RBH08	3.00	4/7	6/8/7/9	11	30	150	300
RBH08	4.00	25	50	25	50	20	20
WLS01C	1.00	5/5	10/15/15/10	10	50	150	300
WLS02	1.20	1/0	0/0/1/1	1	2	150	300
WLS02	2.00	0/0	0/0/0/0	0	0	150	300
WLS02	2.80	20/5	32/18	25	50	80	75

Plot summarising Pocket Penetrometer results versus depth filtered by location



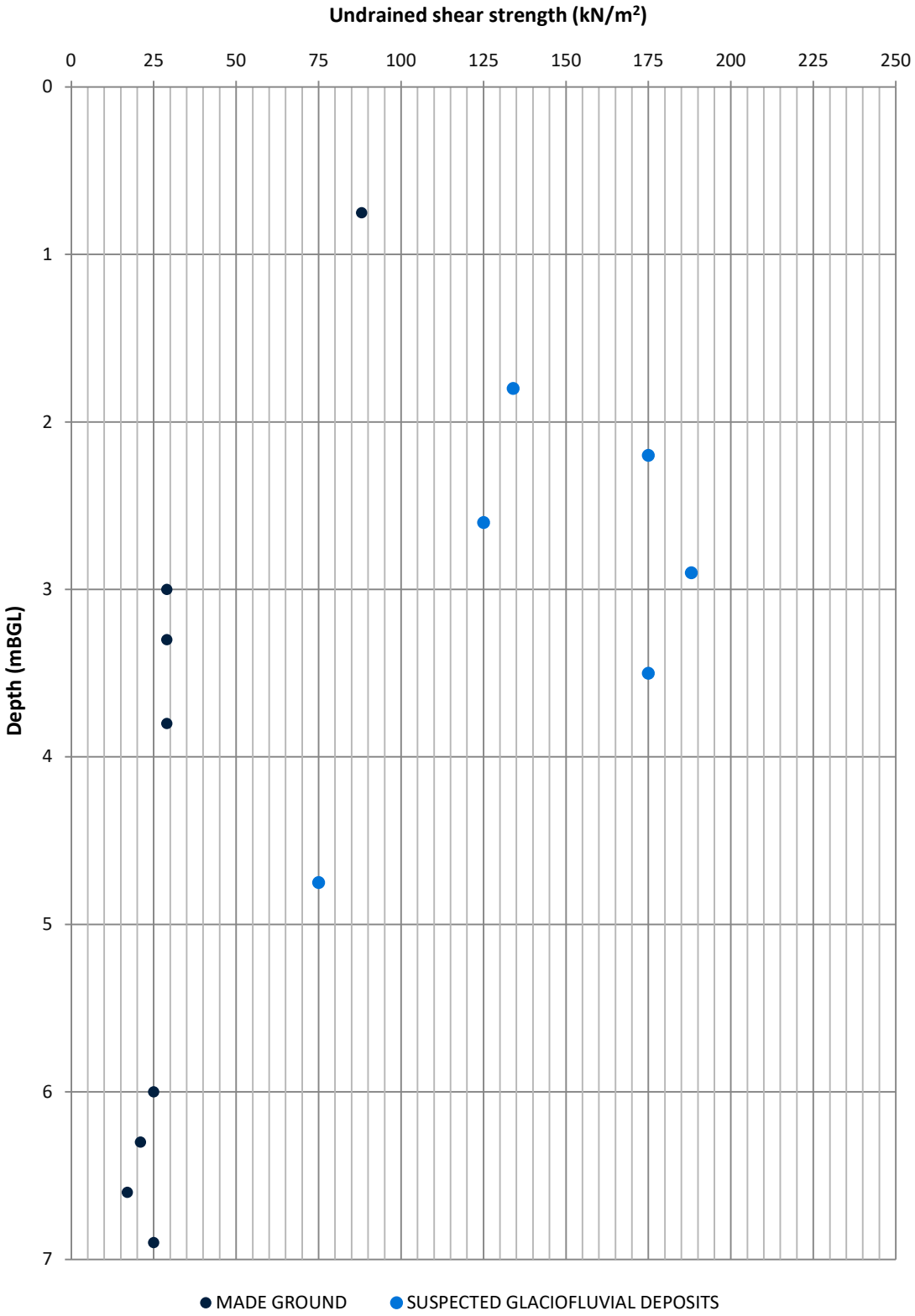
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Plot summarising Pocket Penetrometer results versus level filtered by location

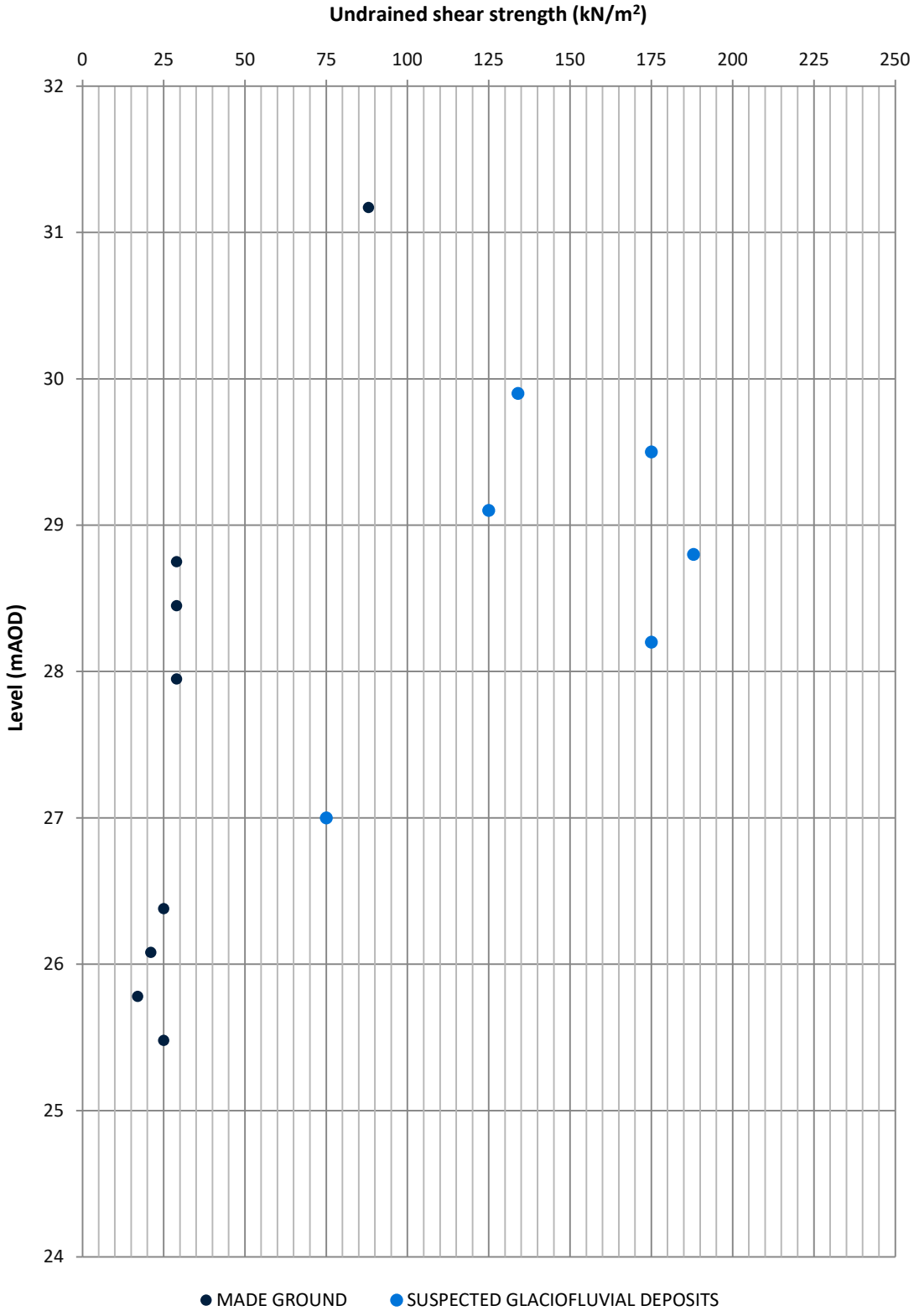


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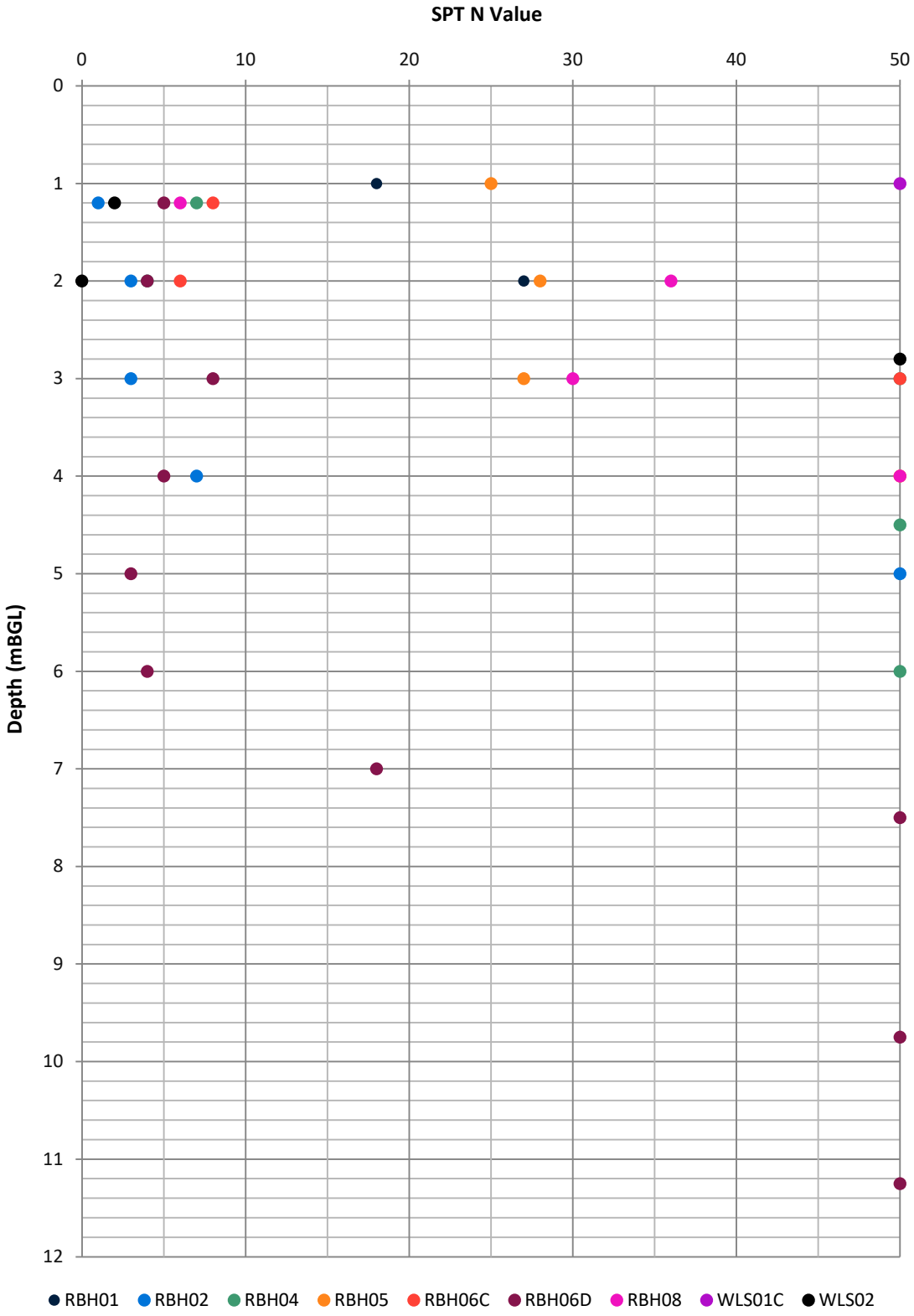
Plot summarising Pocket Penetrometer results versus depth filtered by geology



Plot summarising Pocket Penetrometer results versus level filtered by geology

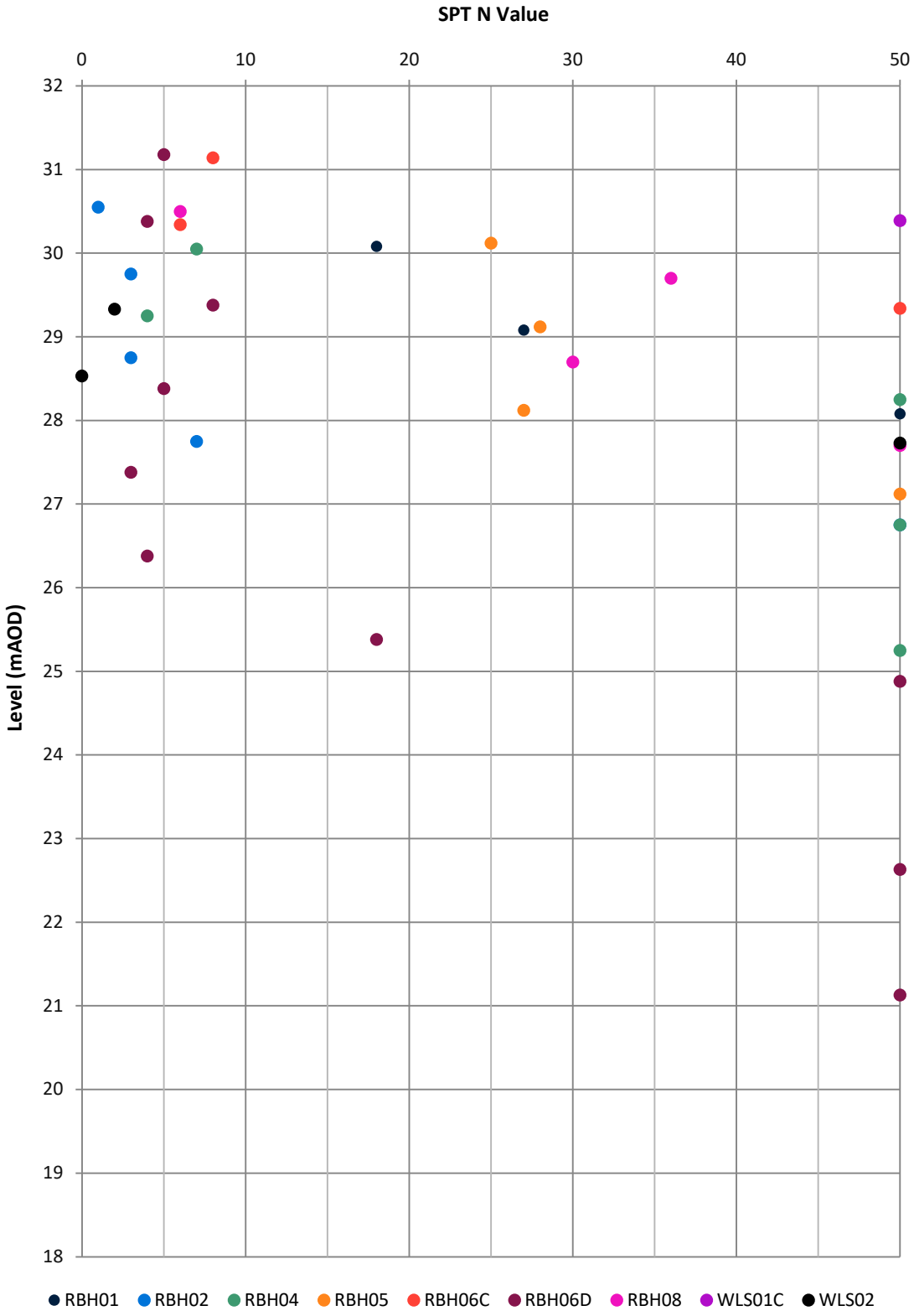


Plot summarising Standard Penetration Test (SPT) results versus depth filtered by location



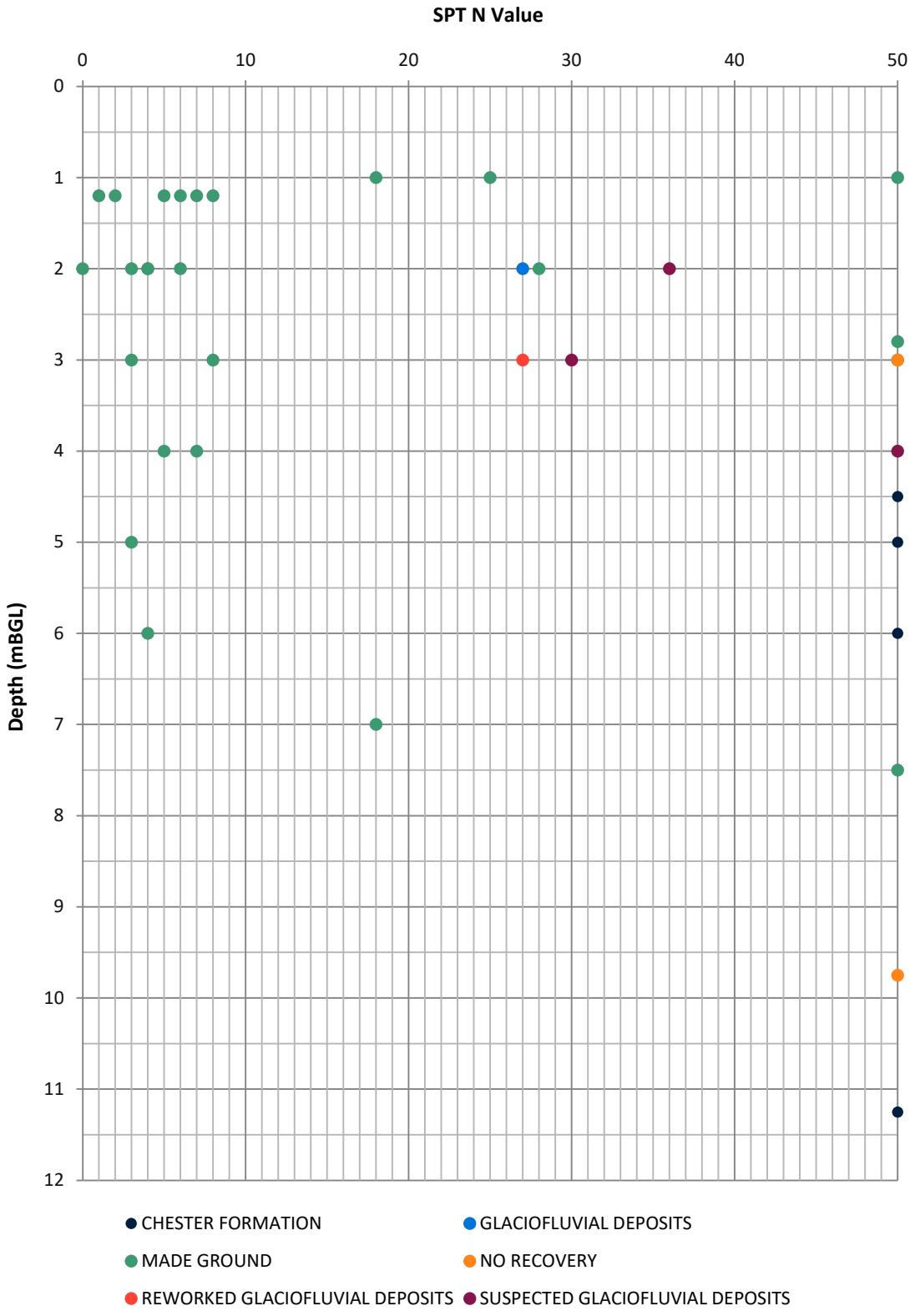
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Plot summarising Standard Penetration Test (SPT) results versus level filtered by location

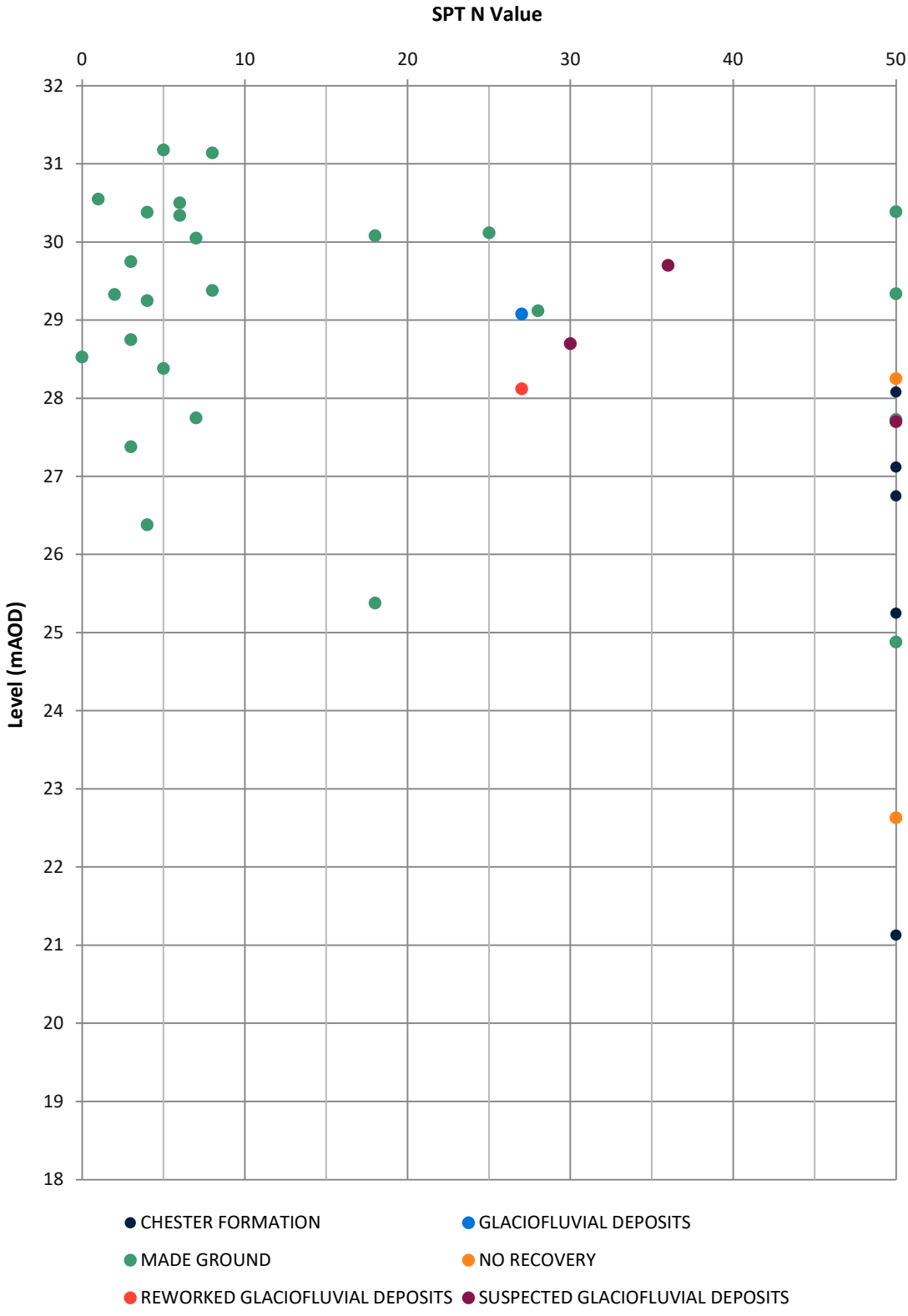


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Plot summarising Standard Penetration Test (SPT) results versus depth filtered by geology



Plot summarising Standard Penetration Test (SPT) results versus level filtered by geology



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Appendix G In Situ Permeability Testing Results

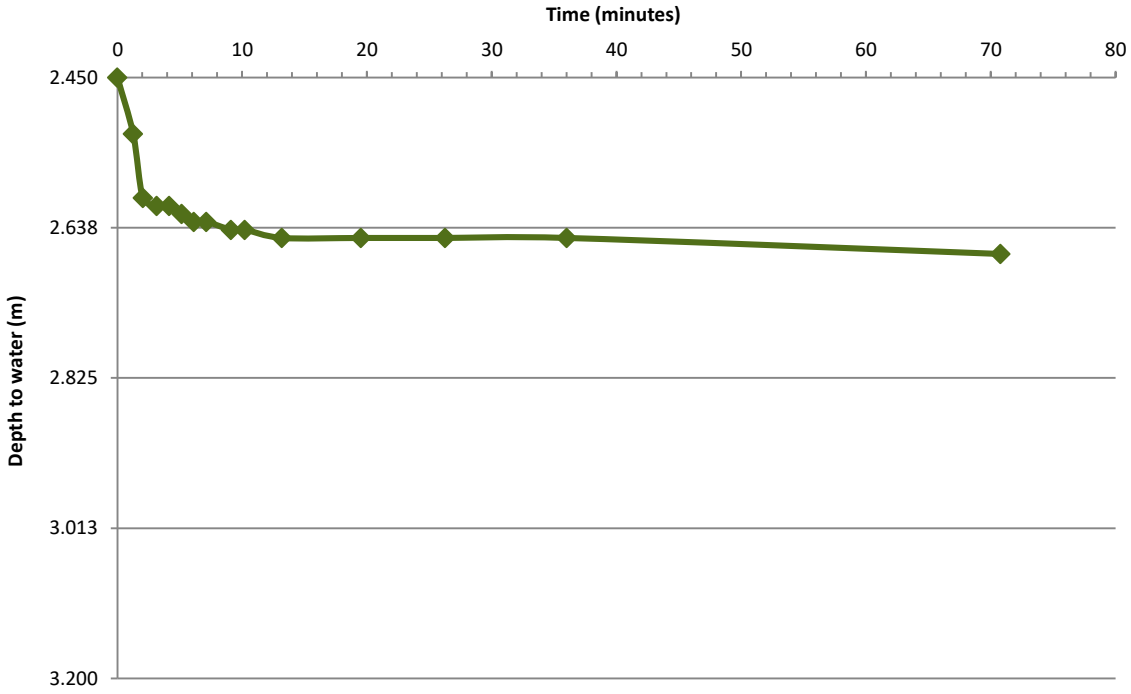
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Plan dimensions (m)
TP09	1	04/03/2025	0.70 x 2.80

Groundwater observations (at time of excavation)

Dry

Depth of pit at start (m)	Depth of pit at end (m)	Strata
3.2	3.2	CHESTER FORMATION



Insufficient infiltration over 71 minutes of monitoring therefore unable to calculate soil infiltration rate.

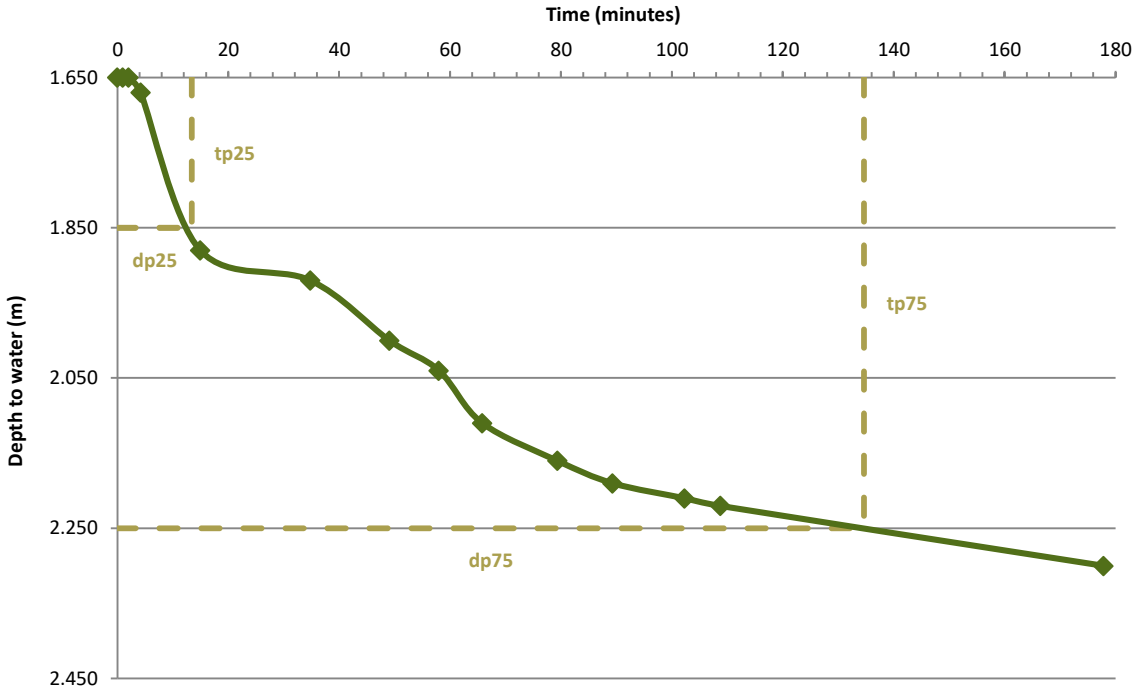
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Plan dimensions (m)
TP05	1	04/03/2025	0.85 x 3.35

Groundwater observations (at time of excavation)

Dry

Depth of pit at start (m)	Depth of pit at end (m)	Strata
2.5	2.45	SUSPECTED GLACIOFLUVIAL DEPOSITS



$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} Effective storage volume of water between 75% (dp75) and 25% (dp25) effective depth	**1.139**	**m^3**
a_{p50} Internal surface area up to 50% effective depth and including the base	**6**	**m^2**
$t_{p75} - t_{p25}$ Time for the water level to fall from 75% to 25% effective depth	**7273**	**s**
f Soil infiltration rate	**2.52E-05**	**m/s**

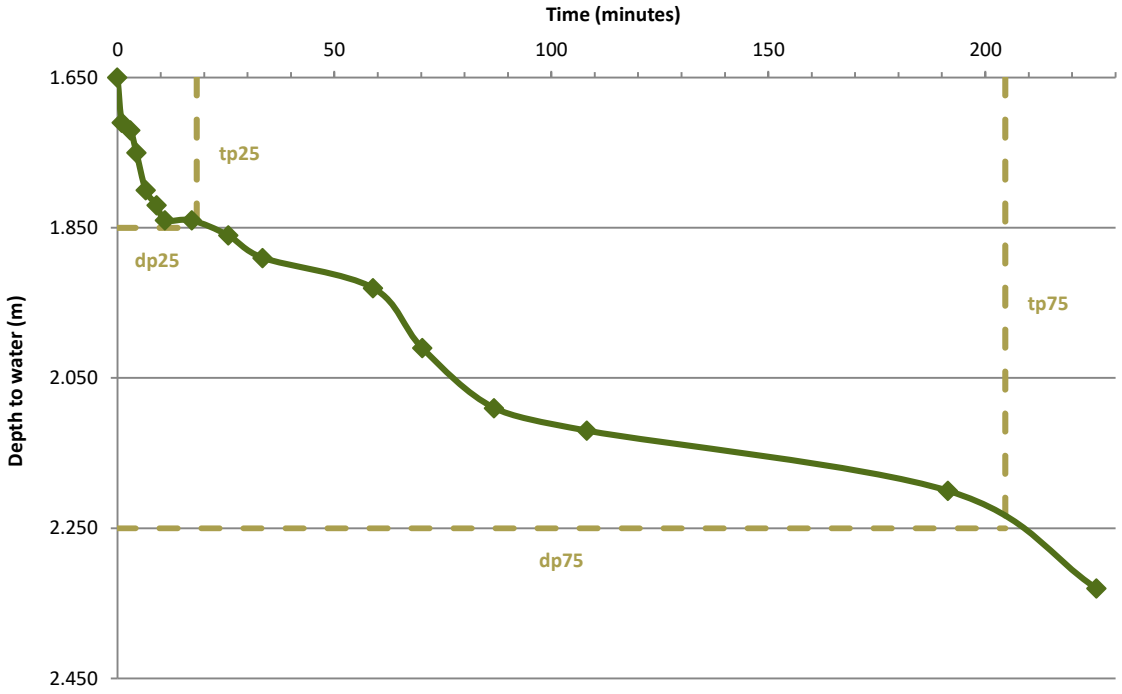
Soil infiltration test (following BRE Digest 365 2016)

Location	Cycle	Test date	Plan dimensions (m)
TP05	2	04/03/2025	0.85 x 3.35

Groundwater observations (at time of excavation)

Dry

Depth of pit at start (m)	Depth of pit at end (m)	Strata
2.45	2.45	SUSPECTED GLACIOFLUVIAL DEPOSITS



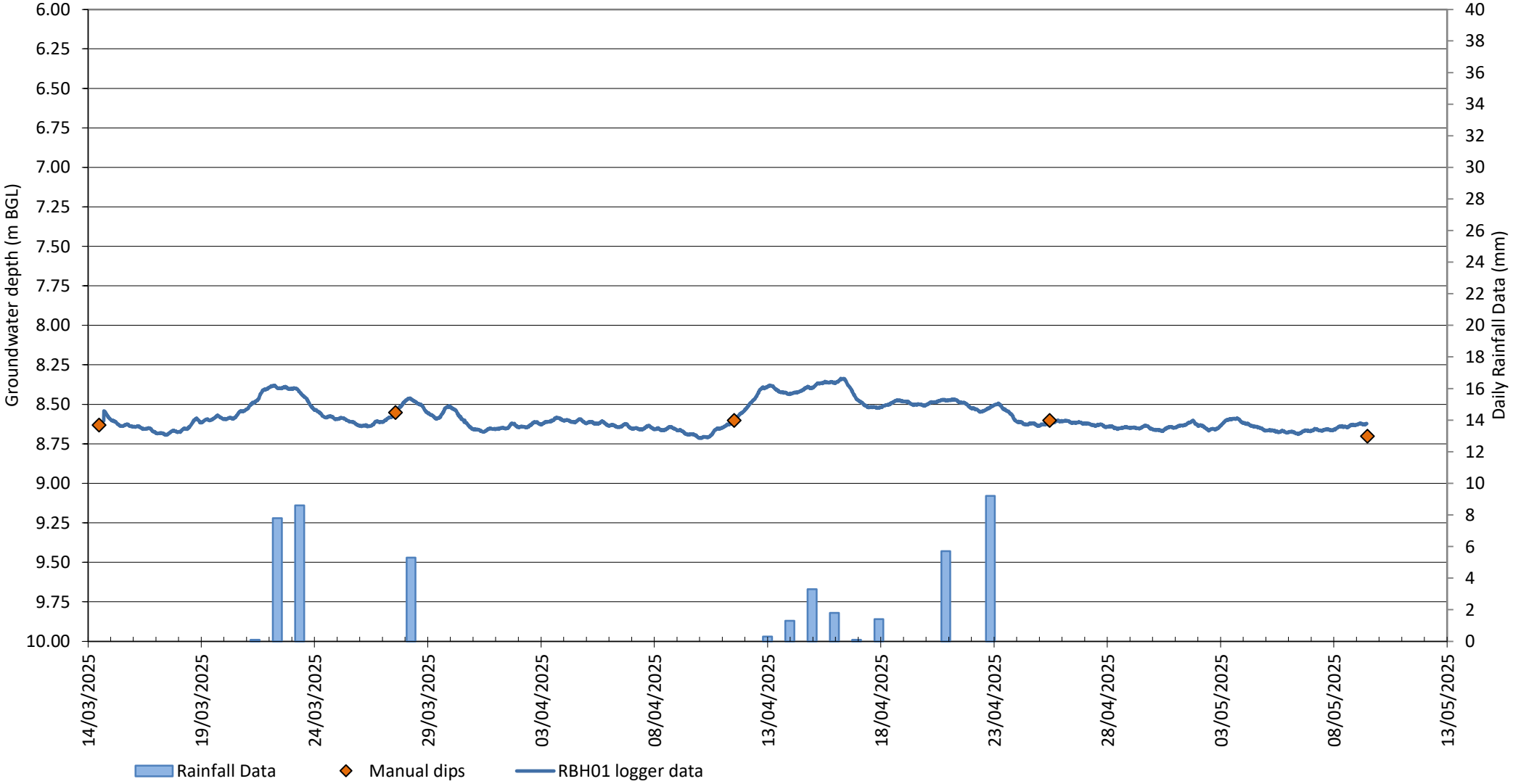
$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

V_{p75-25} Effective storage volume of water between 75% (dp75) and 25% (dp25) effective depth	**1.139**	**m^3**
a_{p50} Internal surface area up to 50% effective depth and including the base	**6**	**m^2**
$t_{p75} - t_{p25}$ Time for the water level to fall from 75% to 25% effective depth	**11177**	**s**
f Soil infiltration rate	**1.64E-05**	**m/s**

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Appendix H Post Fieldwork Monitoring

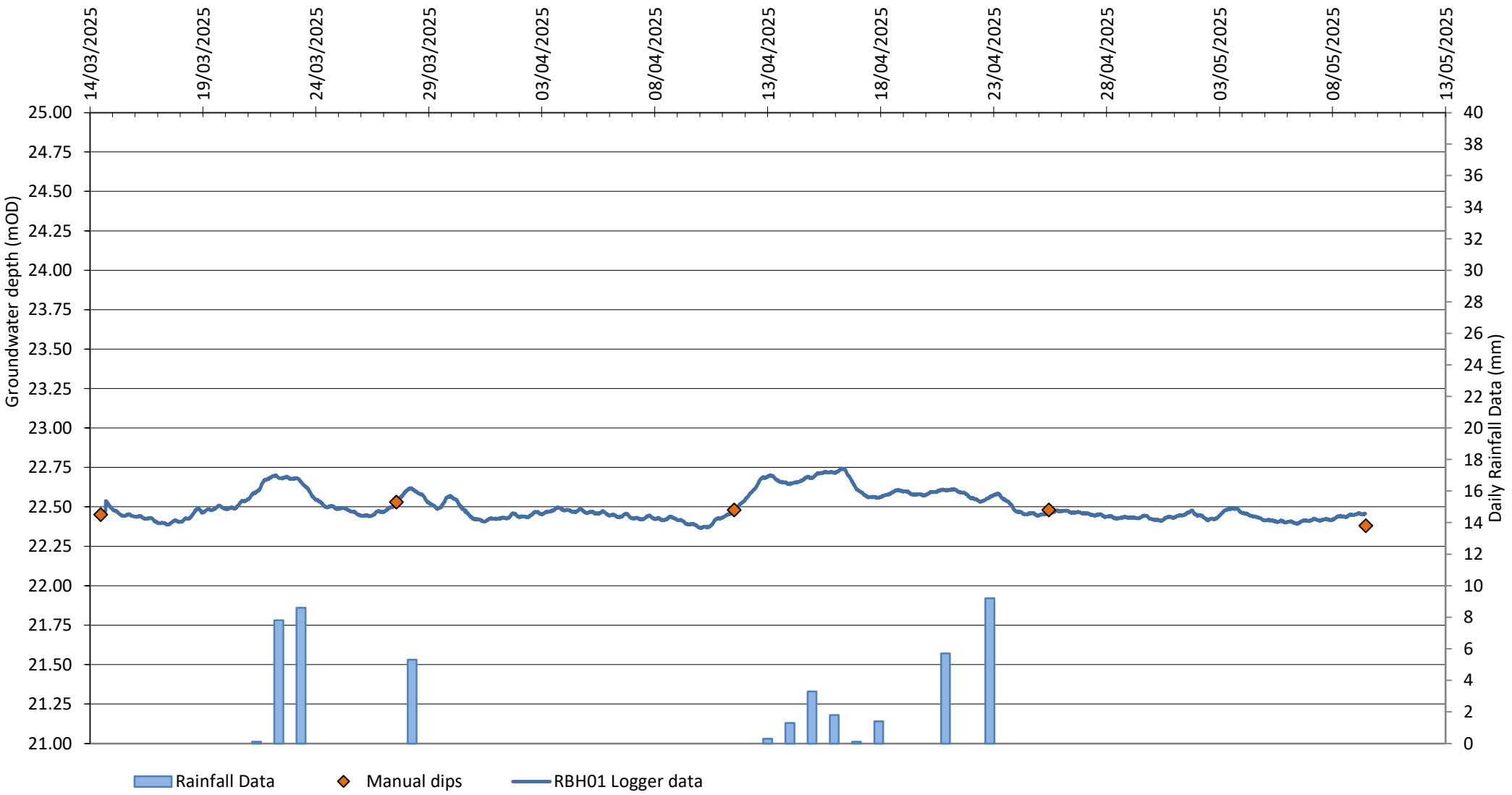
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Title	Scale	Appendix
Groundwater Monitoring Data: m BGL	As shown	H

Groundwater logger data,
Albert Bridge House, Manchester

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Title	Scale	Appendix
Groundwater Monitoring Data: mOD	As shown	H

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Ground gas and groundwater monitoring results

Notes

1) The instrument limit of detection has been adopted where no gas flows or concentrations have been recorded (indicated in grey italics).
2) Atmospheric temperature (*) data sourced from local weather station data.
3) CH4 = methane; CO2 = carbon dioxide; O2 = oxygen; PPM = parts per million CO = carbon monoxide; H2S = hydrogen sulphide.
4) Gas Screening Values (GSVs) are rounded to 3 decimal places.

								Worst case scenario	0.1	0.1	0.1	1.4	1.4	18.0	18.1	0	0	0.00	0.00	0.00	0.00	0.5	ONE	
								Average scenario	0.0	0.0	0.0	0.4	0.3	20.3	20.5	0	0	0.00	0.00	0.00	0.00	0.13	ONE	
Date	Time	Location	Install Reference	Install Response Zone		Atmospheric Pressure (mB)	Atmospheric Temperature (°C) *	Depth to Water (m)	Gas Steady Flow	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases (PPM)		GSV (CH_4)		GSV (CO_2)		PID	Indicative (steady) CIRIA Characteristic Situation	Notes
				Response Zone (mBGL)	Flooded				l/Hr	Peak	Steady	Peak	Steady	Minimum	Average	CO	H_2S	Peak	Steady	Peak	Steady	ppm		
14/03/2025	13:31	RBH01	1	3.00 - 19.00	No	1014	11	8.63	-0.03	0.1	0.1	0.9	0.9	20.6	20.6	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
27/03/2025	14:31	RBH01	1	3.00 - 19.00	No	1015	15	8.55	0	0.0	0.0	0.5	0.5	19.7	19.9	0	0	0.000	0.000	0.001	0.001	0.1	CS-1	
11/04/2025	13:22	RBH01	1	3.00 - 19.00	No	1021	15	8.60	0.1	0.0	0.0	0.3	0.3	20.7	20.7	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
25/04/2025	11:45	RBH01	1	3.00 - 19.00	No	1021	13	8.60	0.05	0.0	0.0	0.2	0.1	20.8	21.1	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
09/05/2025	12:20	RBH01	1	3.00 - 19.00	No	1020	14	8.70	0.05	0.0	0.0	0.1	0.1	20.9	20.9	N/A_	0	0.000	0.000	0.000	0.000	0	CS-1	
14/03/2025	12:52	RBH02	1	10.00 - 15.00	Yes	1014	11	7.89	0.1	0.1	0.1	0.1	0.1	21.1	21.6	N/A_	0	0.000	0.000	0.000	0.000	0.3	CS-1	
27/03/2025	13:15	RBH02	1	10.00 - 15.00	Yes	1015	15	7.80	0	0.0	0.0	0.1	0.1	18.0	19.0	0	0	0.000	0.000	0.000	0.000	0.1	CS-1	
11/04/2025	13:49	RBH02	1	10.00 - 15.00	Yes	1020	15	8.20	0.1	0.1	0.0	0.1	0.1	20.1	21.0	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
25/04/2025	13:03	RBH02	1	10.00 - 15.00	Yes	1020	14	8.15	0.1	0.0	0.0	0.2	0.2	19.7	19.8	N/A_	0	0.000	0.000	0.000	0.000	0.2	CS-1	
09/05/2025	13:57	RBH02	1	10.00 - 15.00	Yes	1019	15	8.60	0.1	0.0	0.0	0.3	0.3	19.8	19.9	N/A_	0	0.000	0.000	0.000	0.000	0	CS-1	
14/03/2025	13:43	RBH04	1	1.00 - 3.00	No	1014	11	dry	0	0.1	0.1	0.1	0.0	21.1	21.1	N/A_	0	0.000	0.000	0.000	0.000	0	CS-1	
27/03/2025	14:37	RBH04	1	1.00 - 3.00	No	1015	15	dry	0	0.0	0.0	0.1	0.0	20.6	20.7	0	0	0.000	0.000	0.000	0.000	0.5	CS-1	
11/04/2025	12:43	RBH04	1	1.00 - 3.00	No	1022	15	Dry	0	0.1	0.0	0.1	0.1	20.5	20.5	N/A_	0	0.000	0.000	0.000	0.000	0.2	CS-1	
25/04/2025	12:07	RBH04	1	1.00 - 3.00	No	1021	13	dry	0.1	0.0	0.0	0.1	0.1	21.0	21.0	N/A_	0	0.000	0.000	0.000	0.000	0.2	CS-1	
09/05/2025	12:59	RBH04	1	1.00 - 3.00	No	1020	14	dry	0.1	0.0	0.0	0.1	0.1	20.4	20.4	N/A_	0	0.000	0.000	0.000	0.000	0	CS-1	
14/03/2025	13:17	RBH05	1	1.00 - 3.00	No	1013	11	dry	0	0.1	0.1	0.1	0.1	20.9	21.0	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
27/03/2025	14:24	RBH05	1	1.00 - 3.00	No	1015	15	dry	0	0.0	0.0	0.1	0.1	20.3	20.5	0	0	0.000	0.000	0.000	0.000	0.4	CS-1	
12/04/2025	13:06	RBH05	1	1.00 - 3.00	No	1021	15	Dry	0.1	0.0	0.0	0.1	0.1	20.5	20.6	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
25/04/2025	11:32	RBH05	1	1.00 - 3.00	No	1021	13	dry	0	0.0	0.0	0.2	0.1	20.7	20.7	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
09/05/2025	12:40	RBH05	1	1.00 - 3.00	No	1020	14	dry	0	0.0	0.0	0.1	0.1	20.9	20.9	N/A_	0	0.000	0.000	0.000	0.000	0.3	CS-1	
14/03/2025	13:05	RBH06D	1	10.00 - 15.00	Yes	1013	11	4.69	0.1	0.1	0.1	0.1	0.1	21.2	21.5	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	
27/03/2025	13:57	RBH06D	1	10.00 - 15.00	Yes	1015	15	5.03	0.1	0.0	0.0	1.1	0.8	19.3	20.2	0	0	0.000	0.000	0.001	0.001	0.1	CS-1	
11/04/2025	14:35	RBH06D	1	10.00 - 15.00	Yes	1020	15	5.45	0	0.0	0.0	0.8	0.8	19.3	19.3	N/A_	0	0.000	0.000	0.001	0.001	0.1	CS-1	
25/04/2025	13:18	RBH06D	1	10.00 - 15.00	Yes	1020	14	5.60	0	0.0	0.0	1.2	0.3	20.1	20.9	N/A_	0	0.000	0.000	0.001	0.000	0.2	CS-1	
09/05/2025	14:13	RBH06D	1	10.00 - 15.00	Yes	1019	15	5.80	0	0.0	0.0	1.3	0.4	20.1	20.7	N/A_	0	0.000	0.000	0.001	0.000	0	CS-1	
14/03/2025	12:36	RBH08	1	1.00 - 4.00	No	1011	11	dry	0	0.1	0.1	0.6	0.5	21.0	21.0	N/A_	0	0.000	0.000	0.001	0.001	0.1	CS-1	
27/03/2025	14:14	RBH08	1	1.00 - 4.00	No	1015	15	dry	0	0.0	0.0	1.4	1.4	18.1	18.1	0	0	0.000	0.000	0.001	0.001	0	CS-1	
11/04/2025	14:11	RBH08	1	1.00 - 4.00	No	1020	15	Dry	0.1	0.0	0.0	1.1	1.1	18.8	18.8	N/A_	0	0.000	0.000	0.001	0.001	0.1	CS-1	
25/04/2025	12:25	RBH08	1	1.00 - 4.00	No	1020	14	dry	0.1	0.0	0.0	0.7	0.7	20.4	20.4	N/A_	0	0.000	0.000	0.001	0.001	0.1	CS-1	
09/05/2025	13:37	RBH08	1	1.00 - 4.00	No	1019	15	dry	0.1	0.0	0.0	1.0	1.0	19.6	19.6	N/A_	0	0.000	0.000	0.001	0.001	0	CS-1	

Date	Time	Location	Install Reference	Install Response Zone		Atmospheric Pressure (mB)	Atmospheric Temperature (°C) *	Depth to Water (m)	Gas Steady Flow	CH_4 (%v/v)		CO_2 (%v/v)		O_2 (%v/v)		Other Gases (PPM)		GSV (CH_4)		GSV (CO_2)		PID	Indicative (steady) CIRIA Characteristic Situation	Notes
				Response Zone (mBGL)	Flooded				l/Hr	Peak	Steady	Peak	Steady	Minimum	Average	CO	H_2S	Peak	Steady	Peak	Steady	ppm		
14/03/2025	15:51	WLS02	1	1.00 - 2.80	No	1012	11	dry	0	0.1	0.1	0.1	0.1	21.2	21.2	N/A_	0	0.000	0.000	0.000	0.000	0.2	CS-1	
27/03/2025	16:01	WLS02	1	1.00 - 2.80	No	1013	15	dry	0	0.0	0.0	0.1	0.1	21.7	21.7	0	0	0.000	0.000	0.000	0.000	0.3	CS-1	
11/04/2025	14:59	WLS02	1	1.00 - 2.80	No	1020	16	Dry	0	0.0	0.0	0.1	0.1	20.9	20.9	N/A_	0	0.000	0.000	0.000	0.000	0.1	CS-1	

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Appendix I Geotechnical Laboratory Test Results

LABORATORY REPORT

Contract Number: PSL25/1897

Report Date: 03 April 2025

Client's Reference: STX6912-20250313-1132-PSL-A

Client Name: Soiltechnics

For the attention of: Oliver Hall/Sam Dean

Contract Title: Albert Bridge House, Manchester

Date Received: 13/3/2025
Date Commenced: 13/3/2025
Date Completed: 3/4/2025

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Managing Director)
R Berriman (Associate Director)
S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technical Coordinator)
T Watkins (Senior Technician)

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DN4 0AR
Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
RBH01	4	B	1.80	2.40	Brown clayey gravelly SAND.
RBH02	9	D	2.80		Brown slightly sandy slightly gravelly CLAY.
RBH02	10	D	4.50		Brown slightly sandy slightly gravelly CLAY.
RBH05	3	ES	1.30		Brown slightly sandy slightly gravelly CLAY.
RBH05	5	B	2.50	3.00	Brown silty very sandy GRAVEL.
RBH06D	161	B	5.40	6.20	Brown slightly sandy gravelly CLAY.
RBH06D	6	D	6.00		Brown slightly sandy slightly gravelly CLAY.
RBH06D	14	B	11.25	12.00	Brown silty gravelly SAND.
RBH08	6	B	2.50	3.00	Brown very sandy slightly gravelly CLAY.
RBH08	16	B	9.50	10.00	Reddish brown clayey SAND.
TP01	162	B	2.00	3.00	MADE GROUND dark brown silty very gravelly sand.
TP04	2	B	1.00	1.50	Brown slightly sandy slightly gravelly CLAY.
TP04	3	D	1.20		Brown slightly sandy slightly gravelly CLAY.
TP05	2	D	1.20		Brown gravelly SAND.
TP05	3	B	2.00	2.50	Brown clayey very sandy GRAVEL.

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP01	162	B	2.00	3.00	Dark brown very gravelly very clayey SAND.
TP04	2	B	1.00	1.50	Brown slightly sandy slightly gravelly CLAY.
TP04	3	D	1.20		Brown slightly gravelly sandy silty CLAY.
TP05	2	D	1.20		Brown gravelly SAND.
TP05	3	B	2.00	2.50	Brown very sandy clayey GRAVEL.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

Contract No:

PSL25/1897

Client Ref:

STX6912

SUMMARY OF SOIL CLASSIFICATION TESTS

BS 1377 - Part 2 : 2022 in accordance with BS EN ISO 17892 (as below)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Water Content %	Linear Shrinkage	Particle Density Mg/m^3	Liquid Limit %	Plastic Limit %	Plasticity Index %	Passing 0.425mm %	Remarks
RBH01	4	B	1.80	2.40	15.6							
RBH02	9	D	2.80		18.0			28	19	9	70	Low Plasticity CIL
RBH02	10	D	4.50		11.5			30	18	12	76	Low Plasticity CIL
RBH05	3	ES	1.30		23.1			35	20	15	70	Medium Plasticity CIM
RBH05	5	B	2.50	3.00	18.6							
RBH06D	161	B	5.40	6.20	29.7			40	20	20	53	Medium Plasticity CIM
RBH06D	6	D	6.00		28.4			41	21	20	80	Medium Plasticity CIM
RBH06D	14	B	11.25	12.00	21.3							
RBH08	6	B	2.50	3.00	13.5			30	18	12	91	Low Plasticity CIL
TP04	2	B	1.00	1.50	13.4			31	18	13	76	Low Plasticity CIL
TP04	3	D	1.20		14.9			38	19	19	82	Medium Plasticity CIM
TP05	2	D	1.20		10.3				NP			
TP05	3	B	2.00	2.50	11.7							

Water Content - BS 1377 - Part 2 : 2022 : Clause 4 in accordance with BS EN ISO 17892 - 1 : 2014 + A1 : 2022
Linear Shrinkage - BS 1377 - Part 2 : 2022 : Clause 7
Particle Density (Gas Jar method) - BS 1377 - Part 2 : 2022 : Clause 9
Liquid, Plastic Limit & Plasticity Index - BS 1377 - Part 2 : 2022 : Clause 5 & 6 in accordance with BS EN ISO 17892 - 12 : 2018 + A2 : 2022

SYMBOLS : NP = Non Plastic

UKAS TESTING 4043

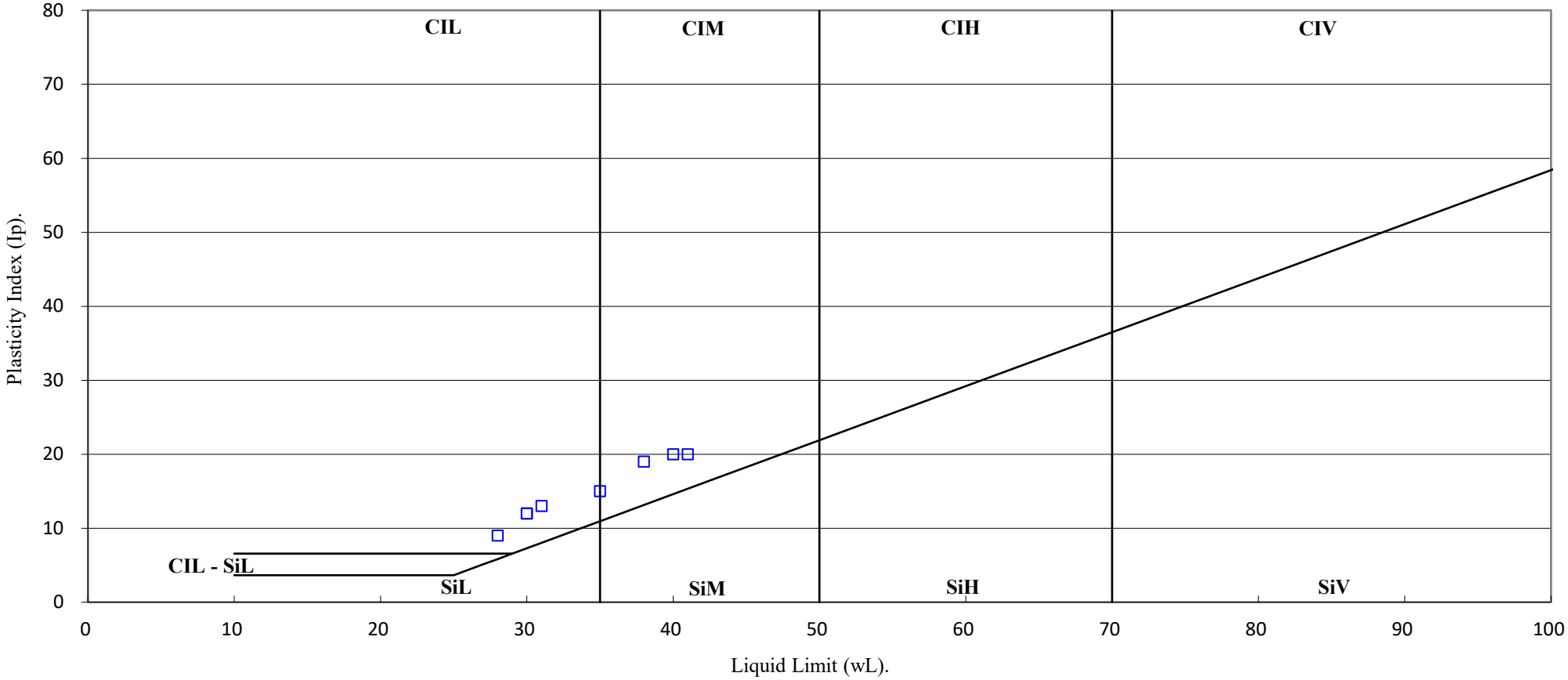
PSL PROFESSIONAL SOILS LABORATORY A PRENNA GROUP COMPANY

Albert Bridge House, Manchester

Contract No:
PSL25/1897
Client Ref:
STX6912

PLASTICITY CHART

BS EN ISO 14688-2:2017 Clause 4.4



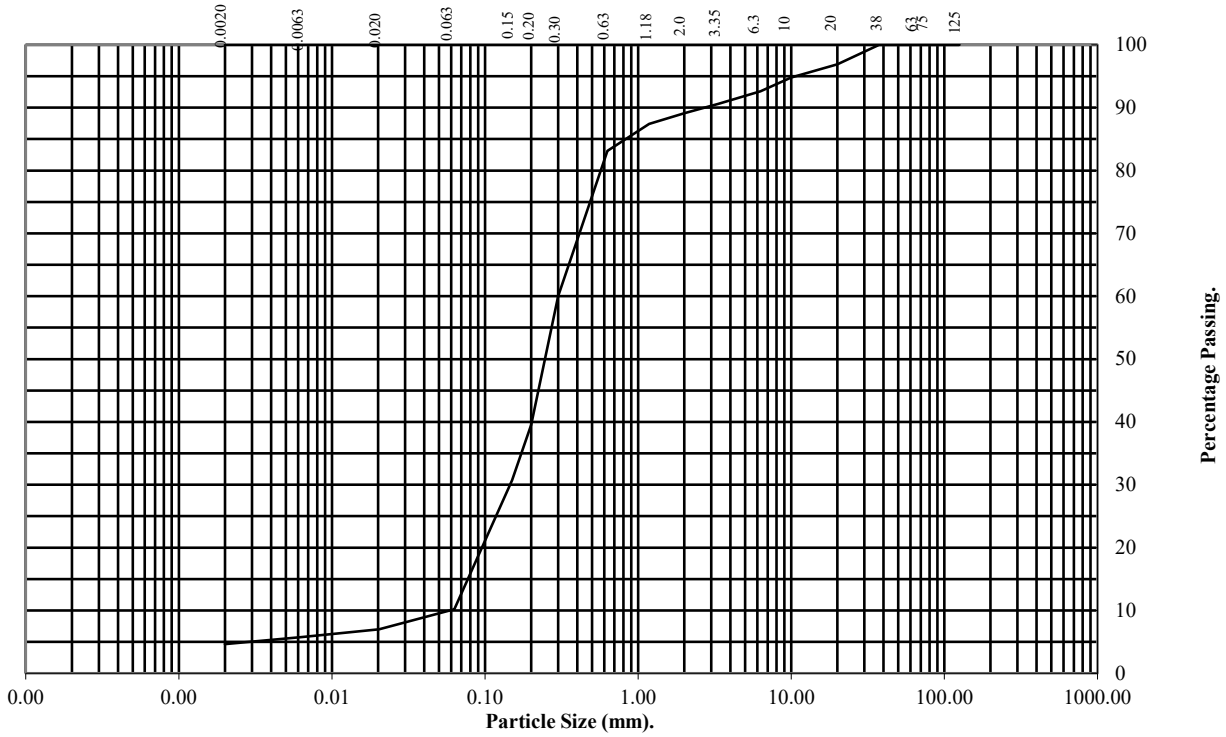
UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PRENNA GROUP COMPANY	**Albert Bridge House, Manchester**	**Contract No:**
		PSL25/1897
		Client Ref:
		STX6912

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

Hole Number:	**RBH01**	**Top Depth (m):**	**1.80**
Sample Number:	**4**	**Base Depth (m):**	**2.40**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	97
10	95
6.3	93
3.35	91
2	89
1.18	87
0.63	83
0.3	60
0.2	40
0.15	31
0.063	10

Particle Diameter	Percentage Passing
0.020	7
0.0063	6
0.0020	5
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	11
Sand	79
Silt	5
Clay	5

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

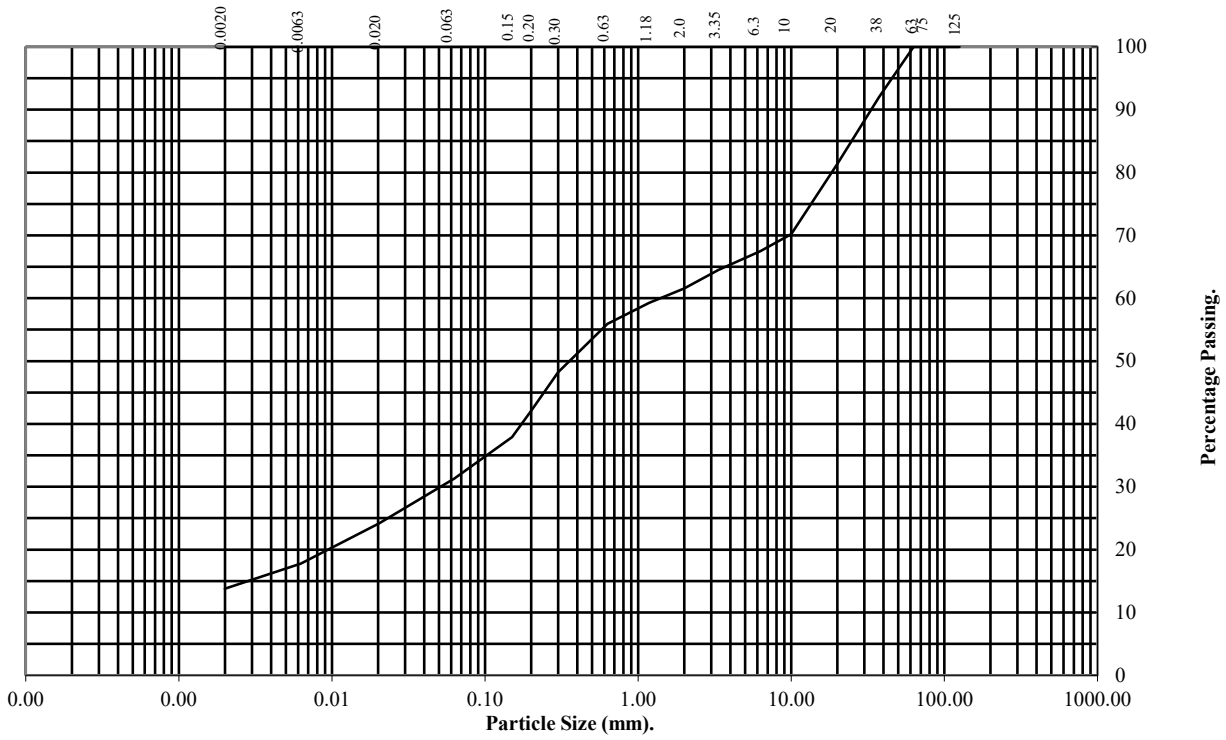
Contract No:
PSL25/1897
Client Ref:
STX6912

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

Hole Number:	**RBH06D**	**Top Depth (m):**	**5.40**
Sample Number:	**161**	**Base Depth (m):**	**6.20**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	92
20	81
10	70
6.3	67
3.35	65
2	62
1.18	59
0.63	56
0.3	48
0.2	42
0.15	38
0.063	31

Particle Diameter	Percentage Passing
0.020	24
0.0063	18
0.0020	14
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	38
Sand	31
Silt	17
Clay	14

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A RHENNA GROUP COMPANY

Albert Bridge House, Manchester

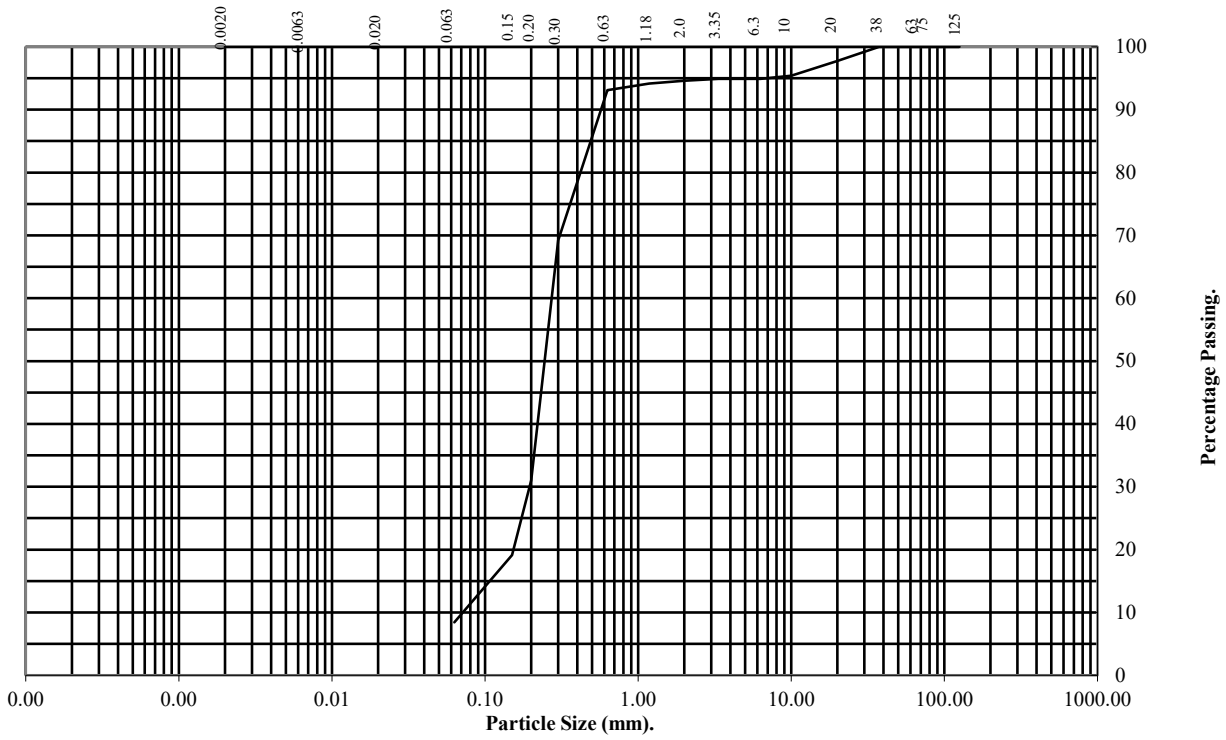
Contract No:
PSL25/1897
Client Ref:
STX6912

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number:	**RBH06D**	**Top Depth (m):**	**11.25**
Sample Number:	**14**	**Base Depth (m):**	**12.00**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	95
6.3	95
3.35	95
2	95
1.18	94
0.63	93
0.3	69
0.2	31
0.15	19
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	87
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

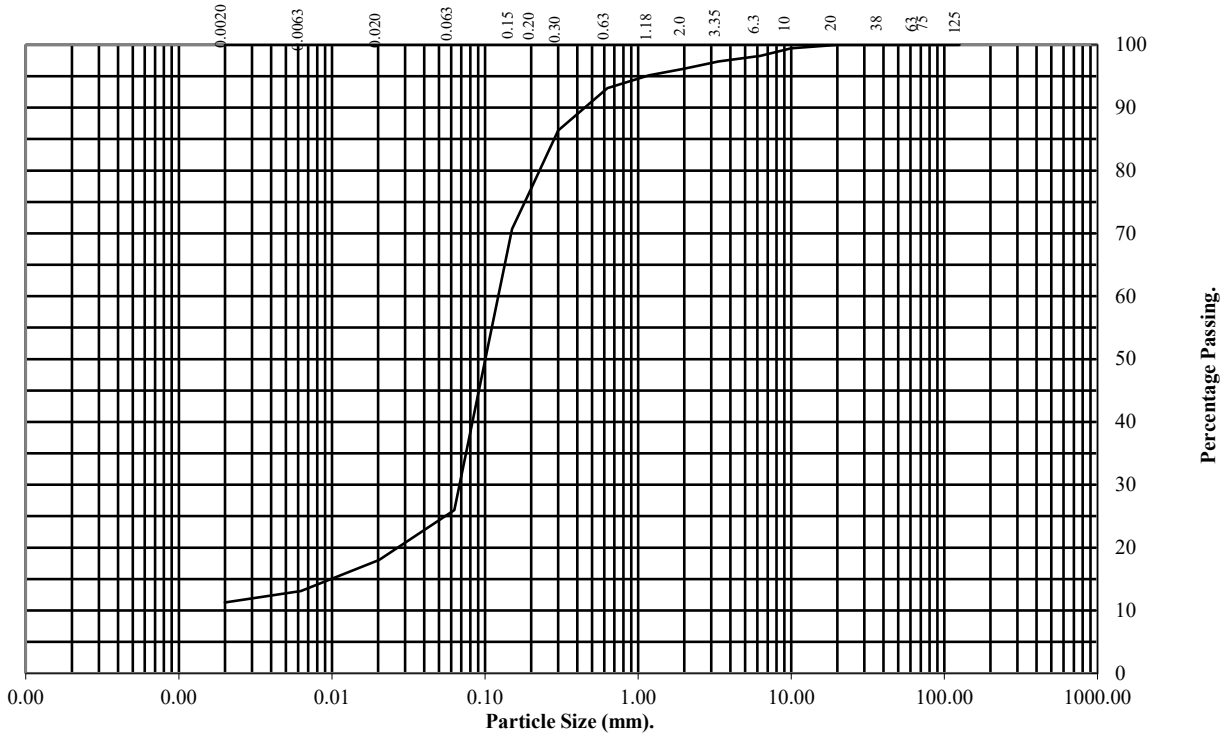
Contract No:	
PSL25/1897	
Client Ref:	
STX6912	

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

Hole Number:	**RBH08**	**Top Depth (m):**	**2.50**
Sample Number:	**6**	**Base Depth (m):**	**3.00**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	98
3.35	97
2	96
1.18	95
0.63	93
0.3	86
0.2	77
0.15	71
0.063	26

Particle Diameter	Percentage Passing
0.020	18
0.0063	13
0.0020	11
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	4
Sand	70
Silt	15
Clay	11

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A RHENNA GROUP COMPANY

Albert Bridge House, Manchester

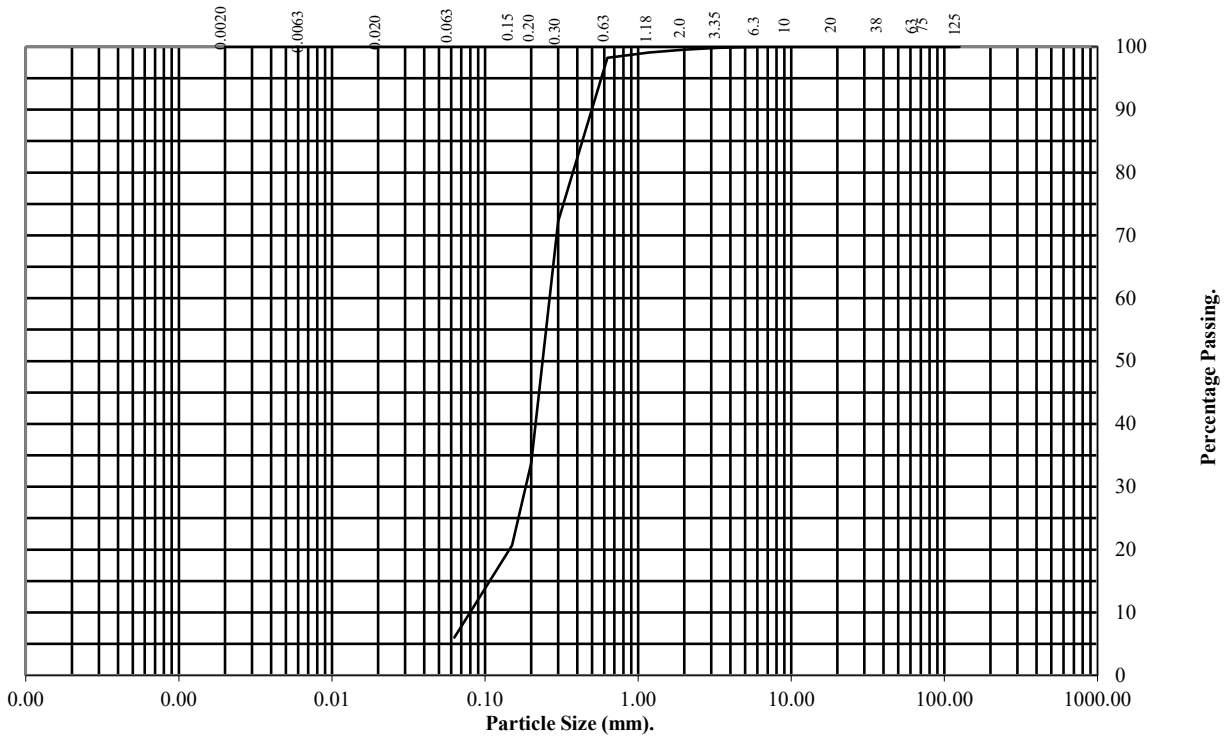
Contract No:
PSL25/1897
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STX6912

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number:	**RBH08**	**Top Depth (m):**	**9.50**
Sample Number:	**16**	**Base Depth (m):**	**10.00**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	99
0.63	98
0.3	72
0.2	34
0.15	21
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	94
Silt/Clay	6

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

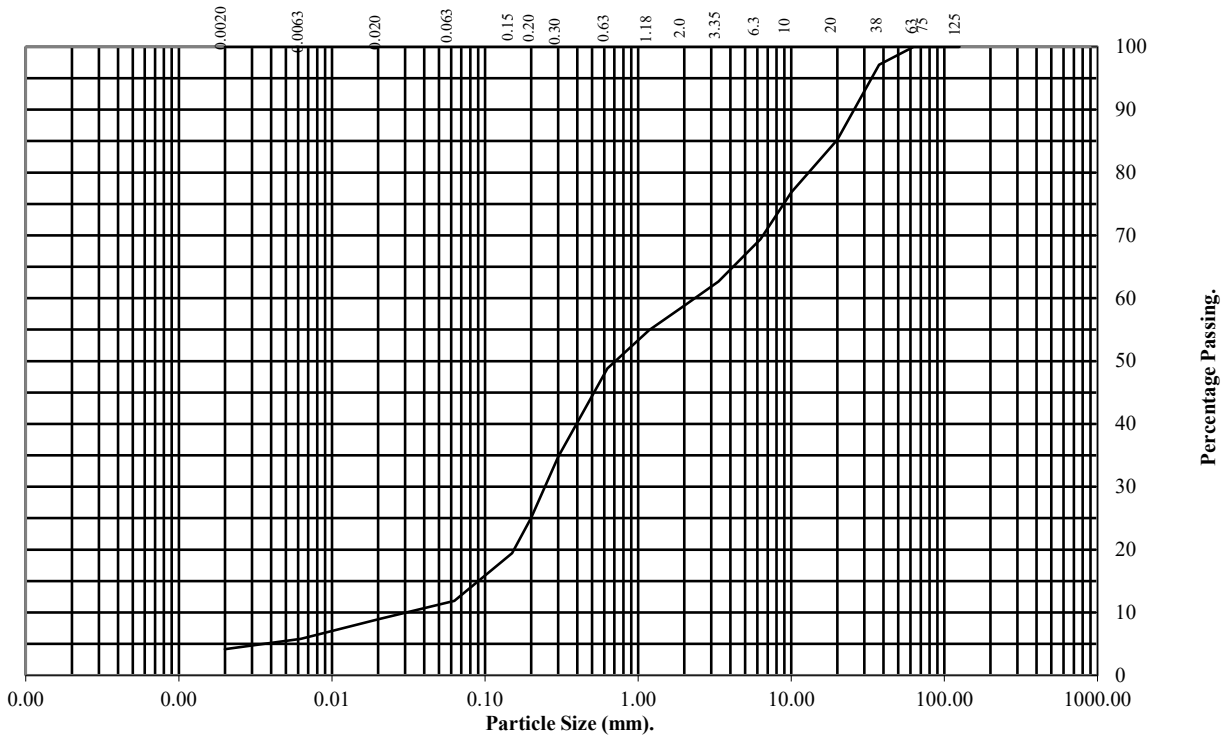
Contract No:
PSL25/1897
Client Ref:
STX6912

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

Hole Number:	**TP01**	**Top Depth (m):**	**2.00**
Sample Number:	**162**	**Base Depth (m):**	**3.00**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	97
20	85
10	77
6.3	69
3.35	63
2	59
1.18	55
0.63	49
0.3	35
0.2	25
0.15	19
0.063	12

Particle Diameter	Percentage Passing
0.020	9
0.0063	6
0.0020	4
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	47
Silt	8
Clay	4

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

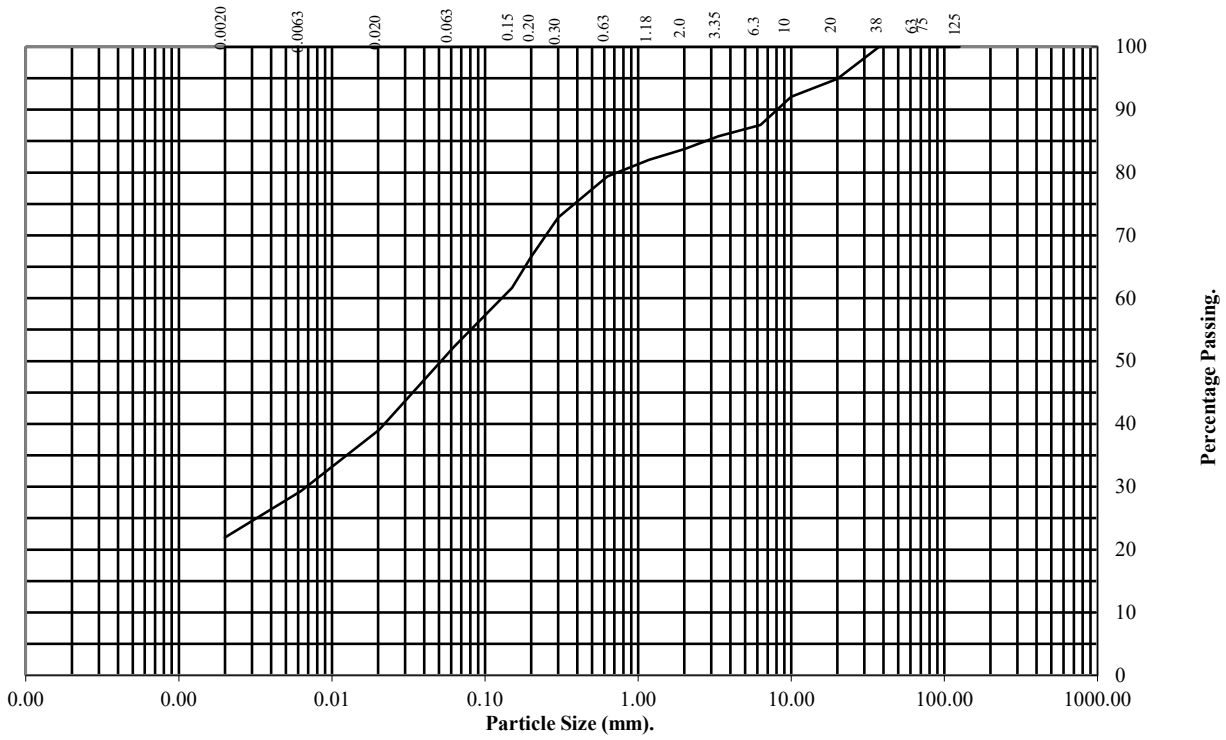
Contract No:
PSL25/1897
Client Ref:
STX6912

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2 & Pipette Method, Clause 5.4

Hole Number:	**TP04**	**Top Depth (m):**	**1.00**
Sample Number:	**2**	**Base Depth (m):**	**1.50**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	95
10	92
6.3	88
3.35	86
2	84
1.18	82
0.63	79
0.3	73
0.2	67
0.15	62
0.063	52

Particle Diameter	Percentage Passing
0.020	39
0.0063	29
0.0020	22
Particle Density - 2.65 Mg/m3 assumed	

Soil Fraction	Total Percentage
Cobbles	0
Gravel	16
Sand	32
Silt	30
Clay	22

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

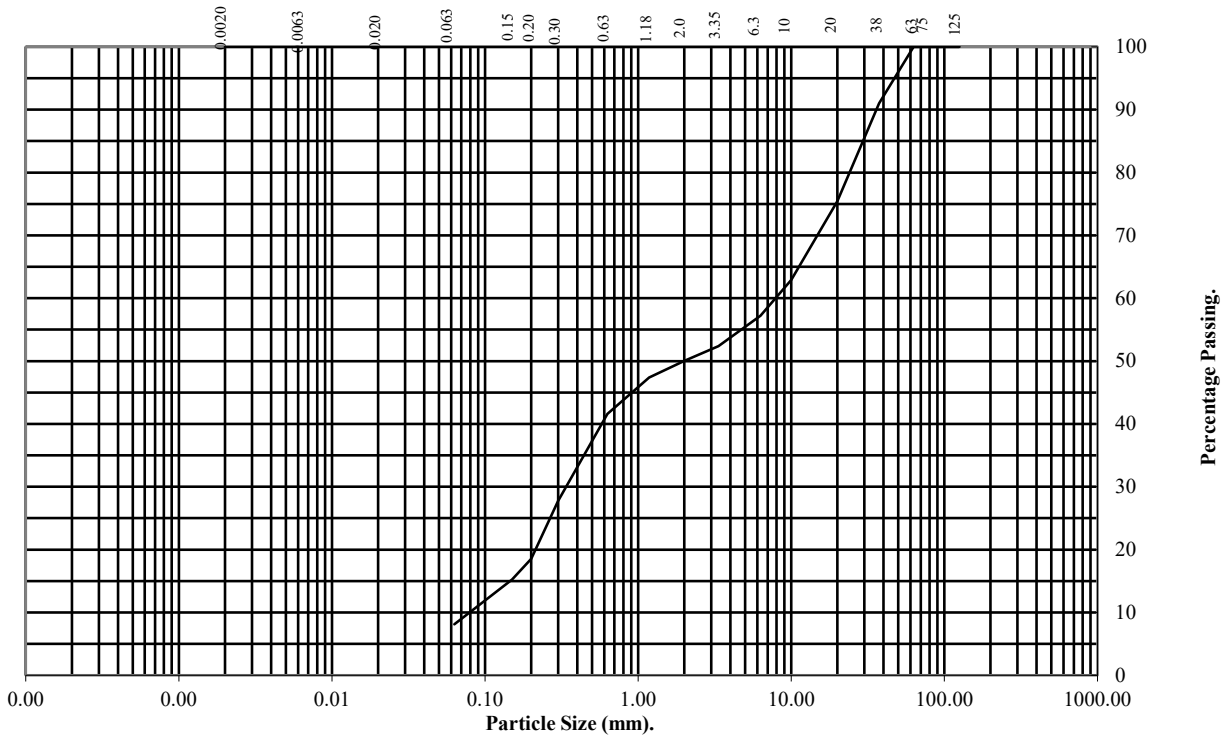
Contract No:
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Client Ref:
STX6912

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 - Part 2 : 2022 : Clause 10 in accordance with BS EN ISO 17892 - 4 : 2016

Sieve Method, Clause 5.2

Hole Number:	**TP05**	**Top Depth (m):**	**2.00**
Sample Number:	**3**	**Base Depth (m):**	**2.50**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	91
20	75
10	63
6.3	57
3.35	52
2	50
1.18	47
0.63	42
0.3	28
0.2	19
0.15	15
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	50
Sand	42
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

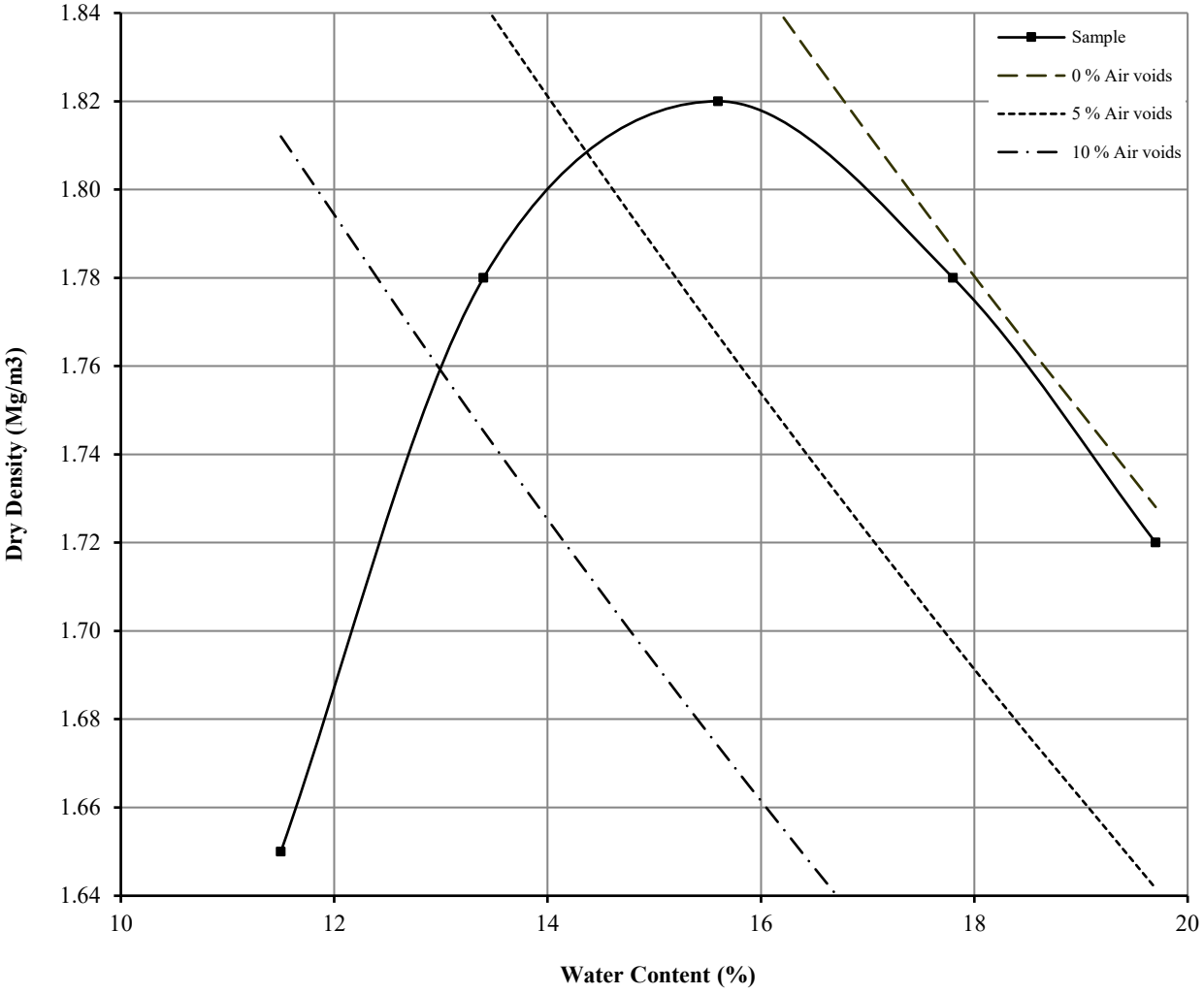
Albert Bridge House, Manchester

Contract No:
PSL25/1897
Client Ref:
STX6912

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

Hole Number:	**RBH01**	**Top Depth (m):**	**1.80**
Sample Number:	**4**	**Base Depth (m):**	**2.40**
Sample Type:	**B**		



Initial Water Content:		15.6	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.62	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.82	Material Retained on 20.0 mm Test Sieve (%):		3
Optimum Water Content (%):		16	Grading Zone:		2
Remarks See summary of soil descriptions					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

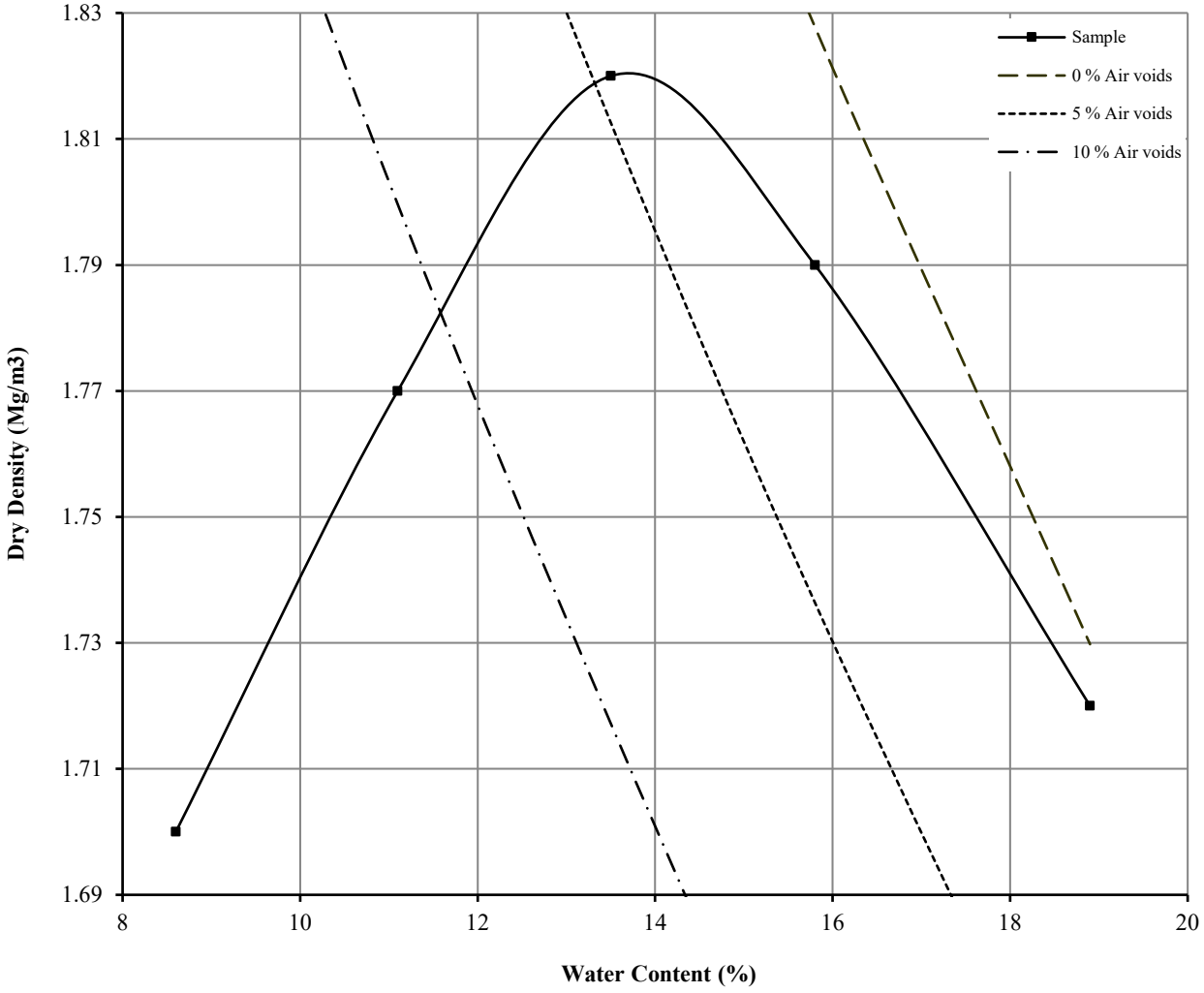
Albert Bridge House, Manchester

Contract No.
PSL25/1897
Client Ref
STX6912

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

Hole Number:	**RBH08**	**Top Depth (m):**	**2.50**
Sample Number:	**6**	**Base Depth (m):**	**3.00**
Sample Type:	**B**		



Initial Water Content:		13.5	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.57	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.82	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Water Content (%):		14	Grading Zone:		1
Remarks See summary of soil descriptions					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

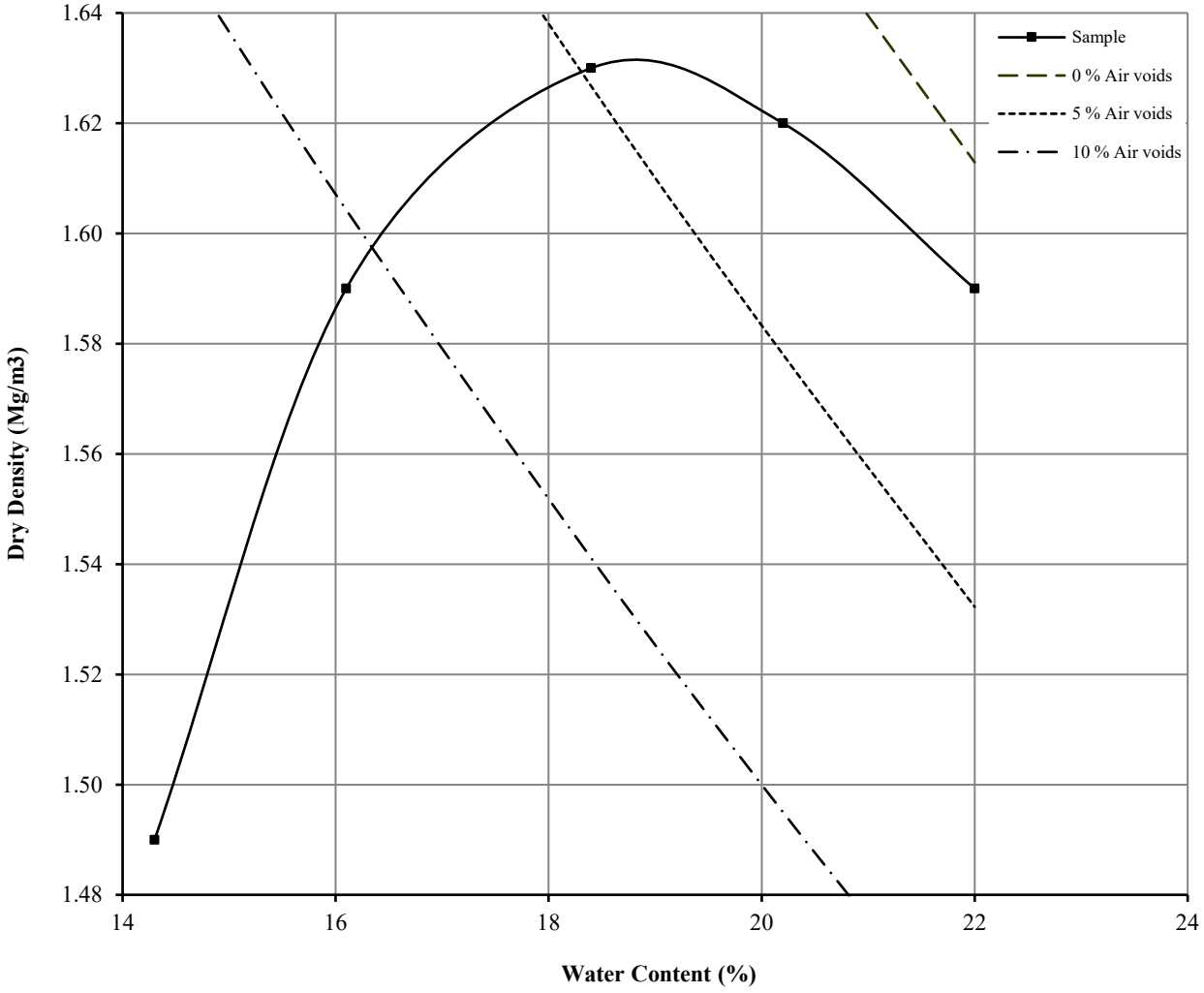
Albert Bridge House, Manchester

Contract No.
PSL25/1897
Client Ref
STX6912

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

Hole Number:	**TP01**	**Top Depth (m):**	**2.00**
Sample Number:	**162**	**Base Depth (m):**	**3.00**
Sample Type:	**B**		

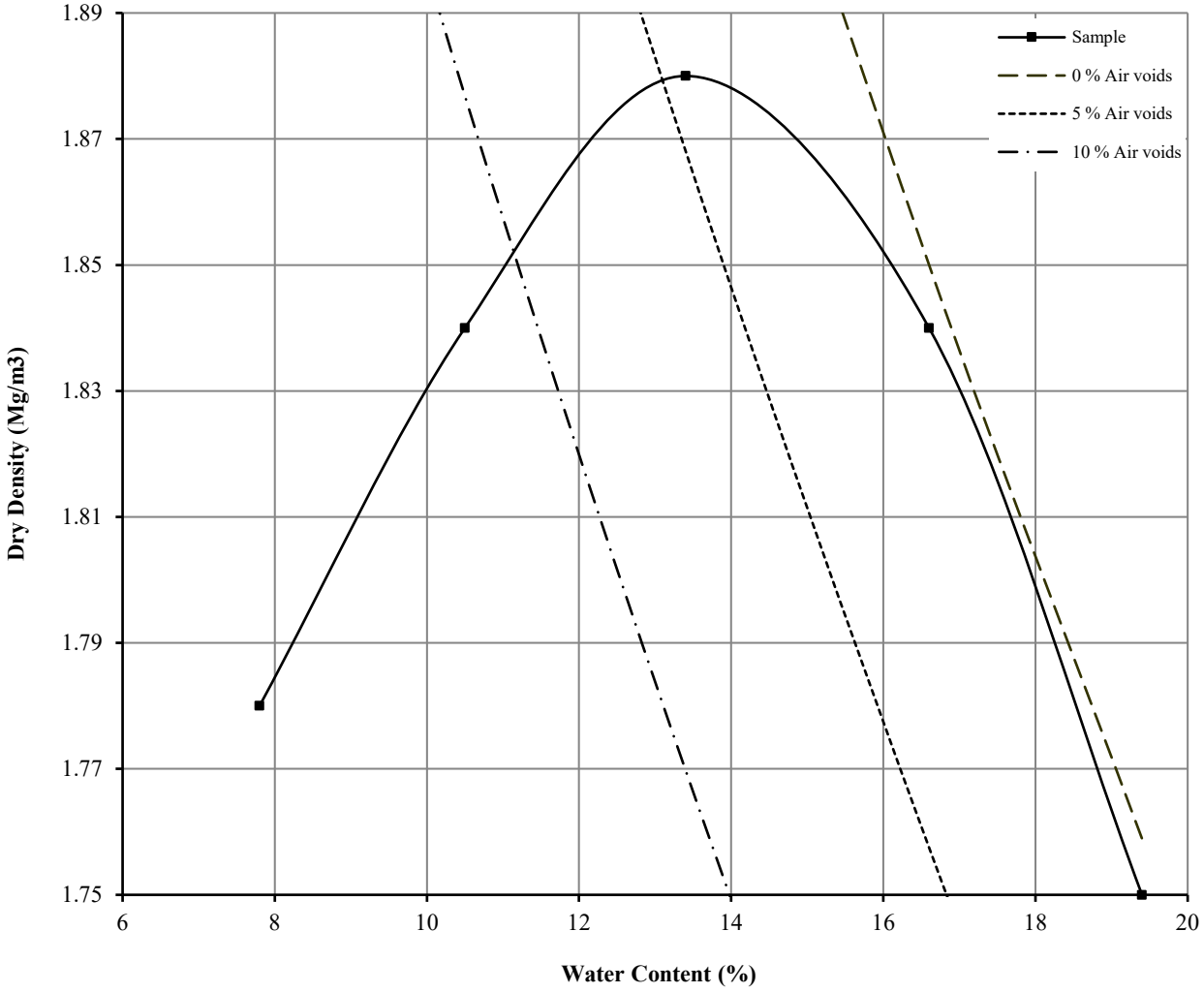


Initial Water Content:		18.4	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.5	Assumed	Material Retained on 37.5 mm Test Sieve (%):		3
Maximum Dry Density (Mg/m3):		1.63	Material Retained on 20.0 mm Test Sieve (%):		12
Optimum Water Content (%):		18	Grading Zone:		4
Remarks See summary of soil descriptions					

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

Hole Number:	**TP04**	**Top Depth (m):**	**1.00**
Sample Number:	**2**	**Base Depth (m):**	**1.50**
Sample Type:	**B**		



Initial Water Content:		13.4	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.67	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.88	Material Retained on 20.0 mm Test Sieve (%):		5
Optimum Water Content (%):		13	Grading Zone:		2
Remarks See summary of soil descriptions					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

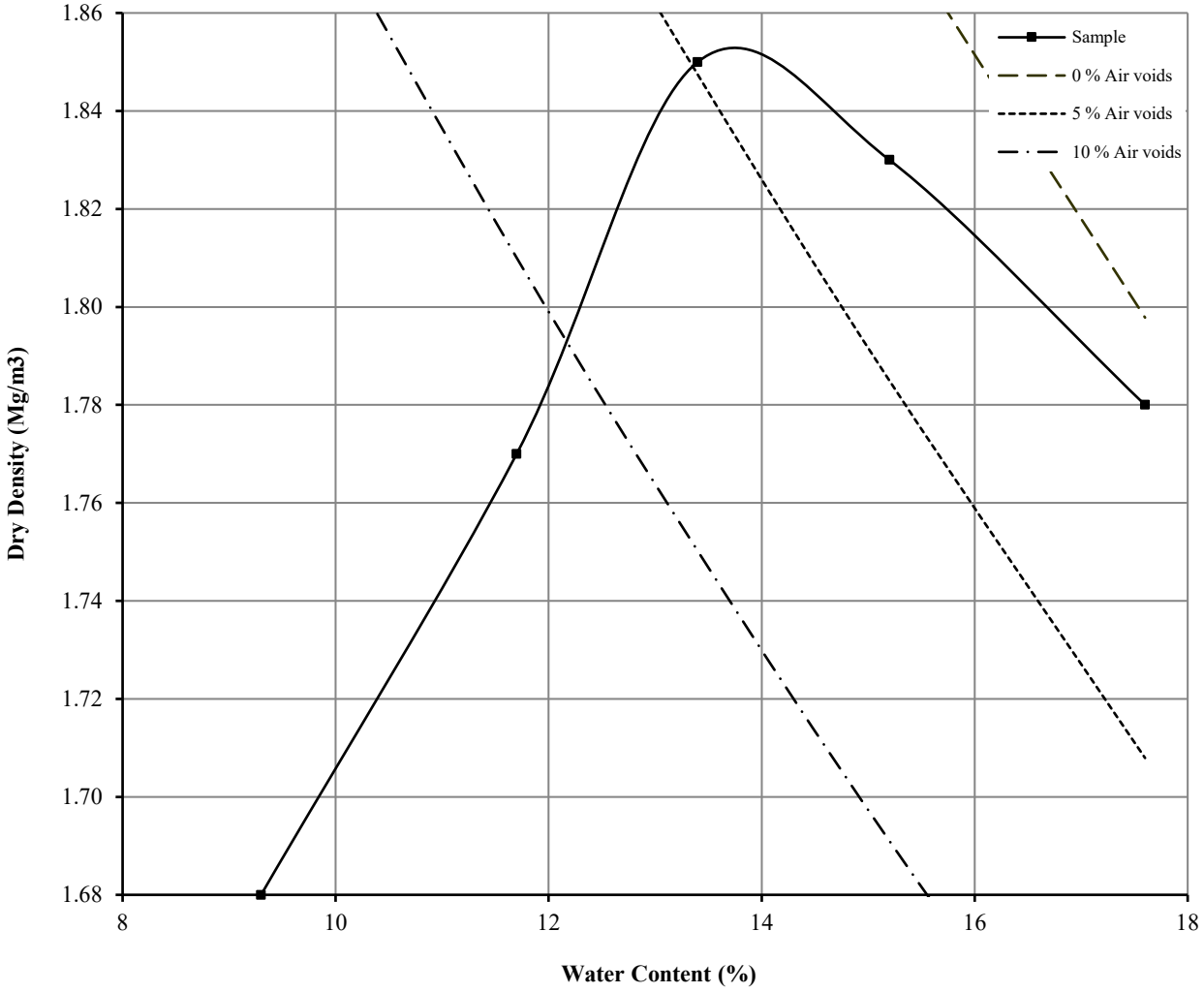
Albert Bridge House, Manchester

Contract No.
PSL25/1897
Client Ref
STX6912

DRY DENSITY/WATER CONTENT RELATIONSHIP

BS 1377 - Part 2 : Clause 11 : 2022

Hole Number:	**TP05**	**Top Depth (m):**	**2.00**
Sample Number:	**3**	**Base Depth (m):**	**2.50**
Sample Type:	**B**		



Initial Water Content:		11.7	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.63	Assumed	Material Retained on 37.5 mm Test Sieve (%):		9
Maximum Dry Density (Mg/m3):		1.85	Material Retained on 20.0 mm Test Sieve (%):		16
Optimum Water Content (%):		13	Grading Zone:		5
Remarks See summary of soil descriptions					

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

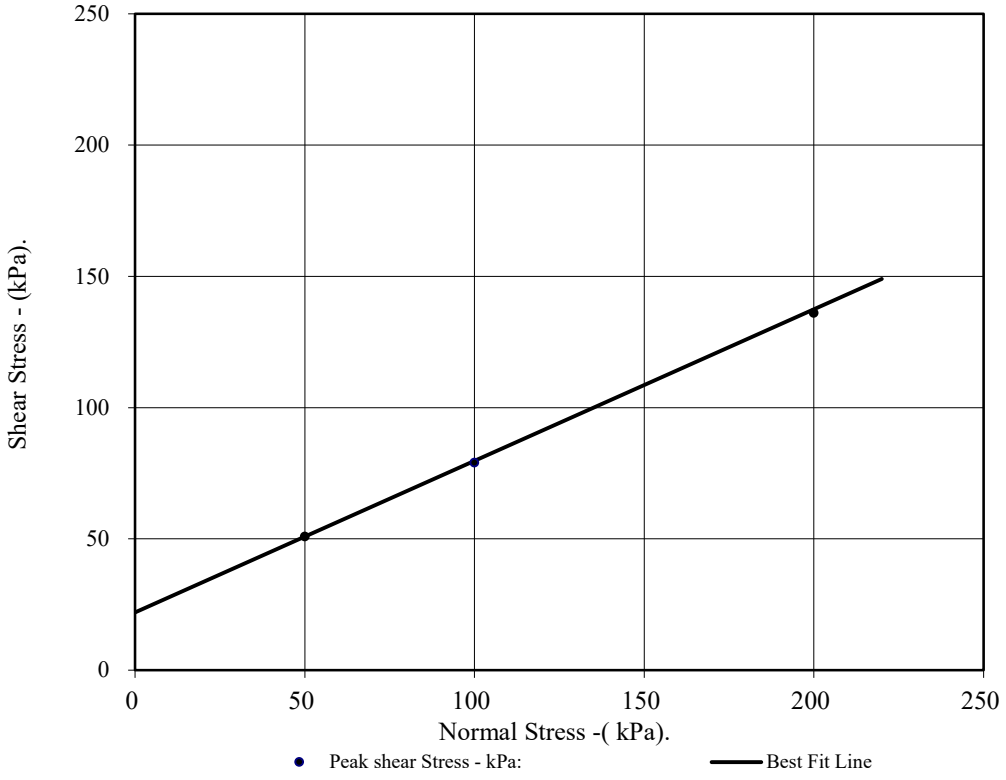
Contract No.
PSL25/1897
Client Ref
STX6912

Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**RBH01**		Top Depth:	**1.80**
Sample Number:	**4**		Base Depth:	**2.40**
Sample Conditions:	Dry		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Material tested passing 2mm sieve Remoulded using hand tamped effort.			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.00	25.00	25.00
Length - mm:	60.05	60.05	60.05
Water Content - %:	15.6	15.6	15.6
Bulk Density - Mg/m3:	2.08	2.08	2.08
Dry Density - Mg/m3:	1.80	1.80	1.80
Voids Ratio:	0.476	0.476	0.476
Degree of saturation:	86.8	86.8	86.8
Normal Pressure- kPa	50	100	200
Consolidation Stage			
Consolidated Height - mm:	24.19	24.04	23.83
Shearing Stage			
Rate of Strain - mm/min	0.60	0.60	0.60
Displacement at peak shear stress - mm	3.00	9.60	2.40
Peak shear Stress - kPa:	51	79	136
Final Consolidated Conditions			
Water Content - %:	15.1	14.6	14.5
Bulk Density - Mg/m3:	2.14	2.16	2.18
Dry Density - Mg/m3:	1.86	1.88	1.90
Peak			
Angle of Shearing Resistance:(~~θ~~)	**30.0**		
Effective Cohesion - kPa:	**22**		

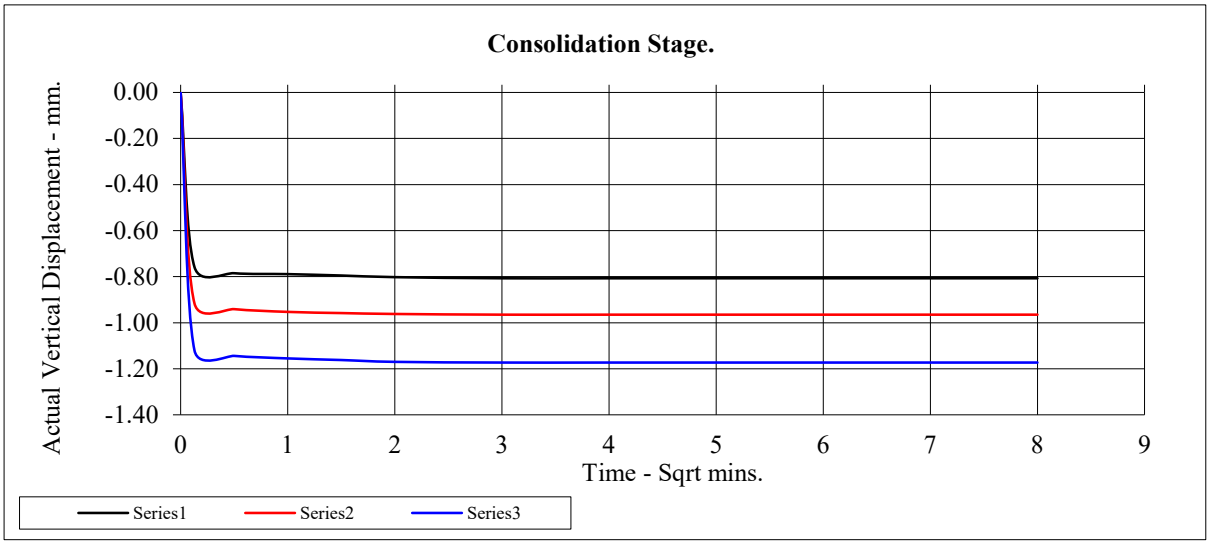


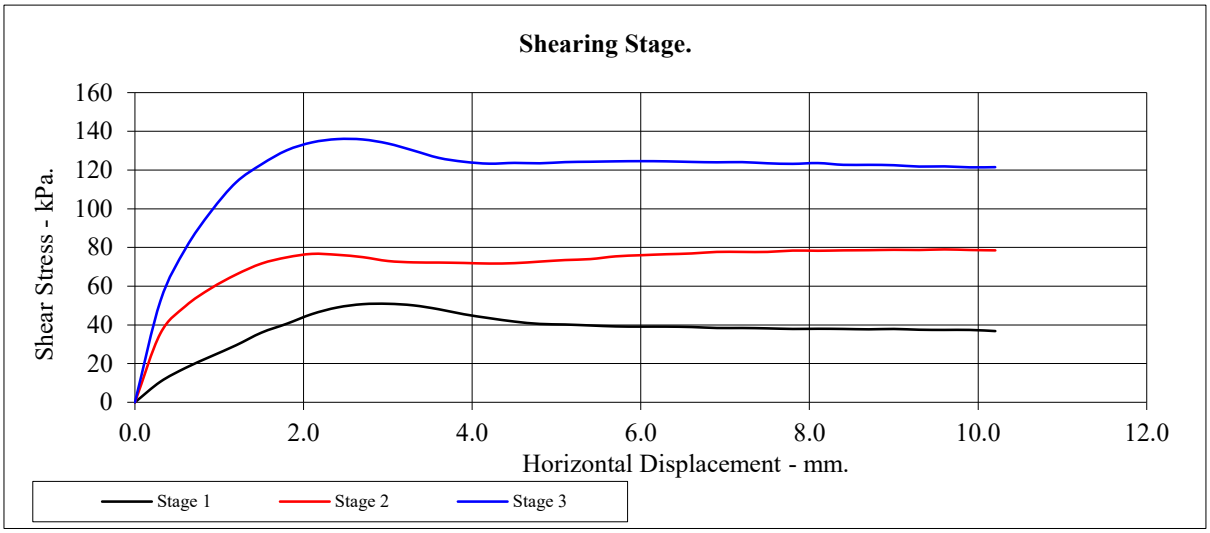
UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** PSL25/1897 **Client Ref:** STX6912

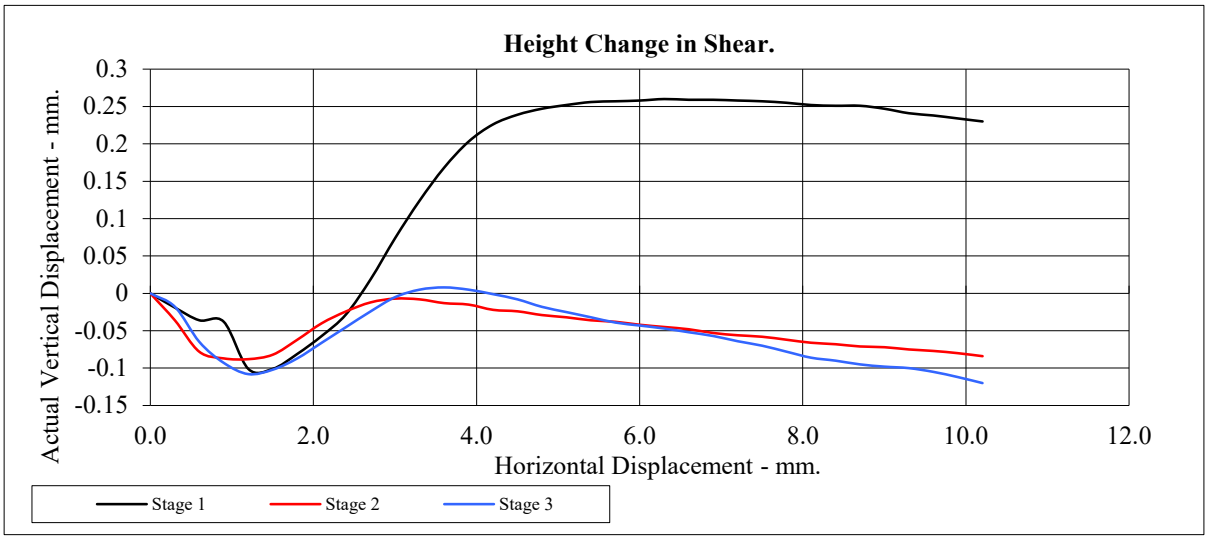
Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**RBH01**	Top Depth:	**1.80**
Sample Number:	**4**	Base Depth:	**2.40**







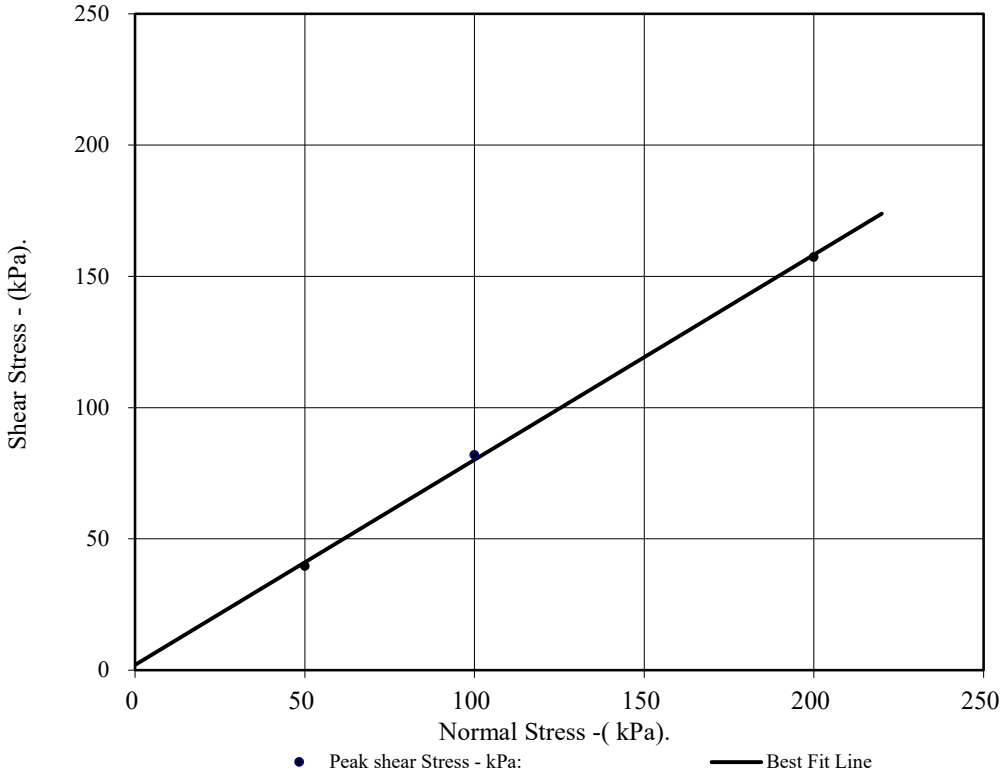
UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** **PSL25/1897** **Client Ref:** **STX6912**

Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**RBH05**		Top Depth:	**2.50**
Sample Number:	**5**		Base Depth:	**3.00**
Sample Conditions:	Dry		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Material tested passing 2mm sieve Remoulded using hand tamped effort.			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.00	25.00	25.00
Length - mm:	60.05	60.05	60.05
Water Content - %:	18.6	18.6	18.6
Bulk Density - Mg/m3:	2.05	2.05	2.05
Dry Density - Mg/m3:	1.73	1.73	1.73
Voids Ratio:	0.529	0.529	0.529
Degree of saturation:	93.0	93.0	93.0
Normal Pressure- kPa	50	100	200
Consolidation Stage			
Consolidated Height - mm:	24.37	24.22	24.15
Shearing Stage			
Rate of Strain - mm/min	0.60	0.60	0.60
Displacement at peak shear stress - mm	3.90	3.00	2.70
Peak shear Stress - kPa:	40	82	157
Final Consolidated Conditions			
Water Content - %:	17.0	16.3	15.6
Bulk Density - Mg/m3:	2.11	2.12	2.13
Dry Density - Mg/m3:	1.80	1.82	1.84
Peak			
Angle of Shearing Resistance:(~~θ~~)	**38.0**		
Effective Cohesion - kPa:	**2**		

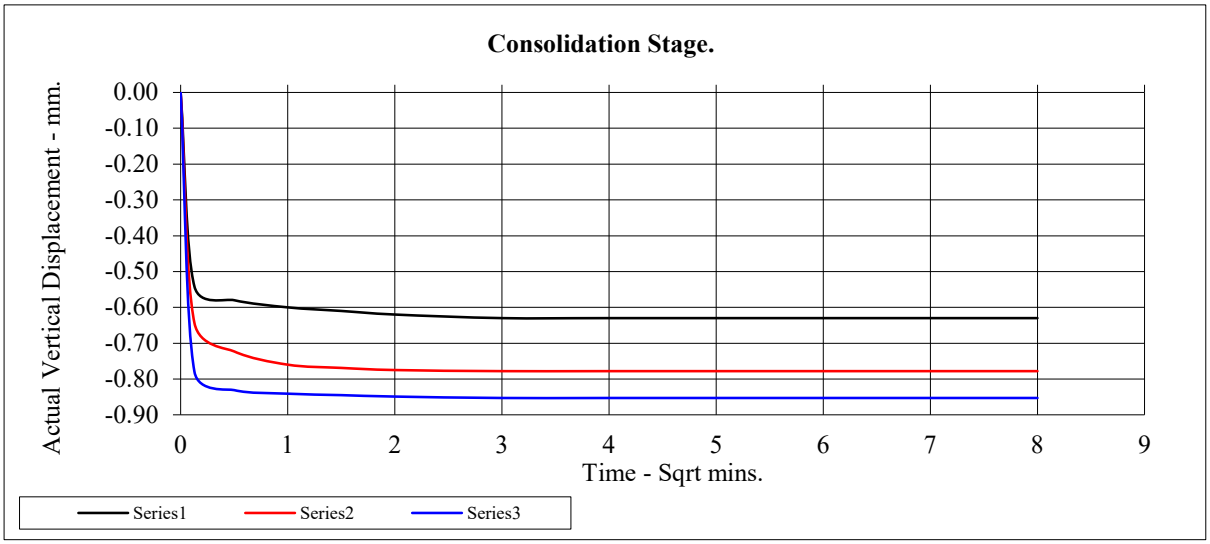


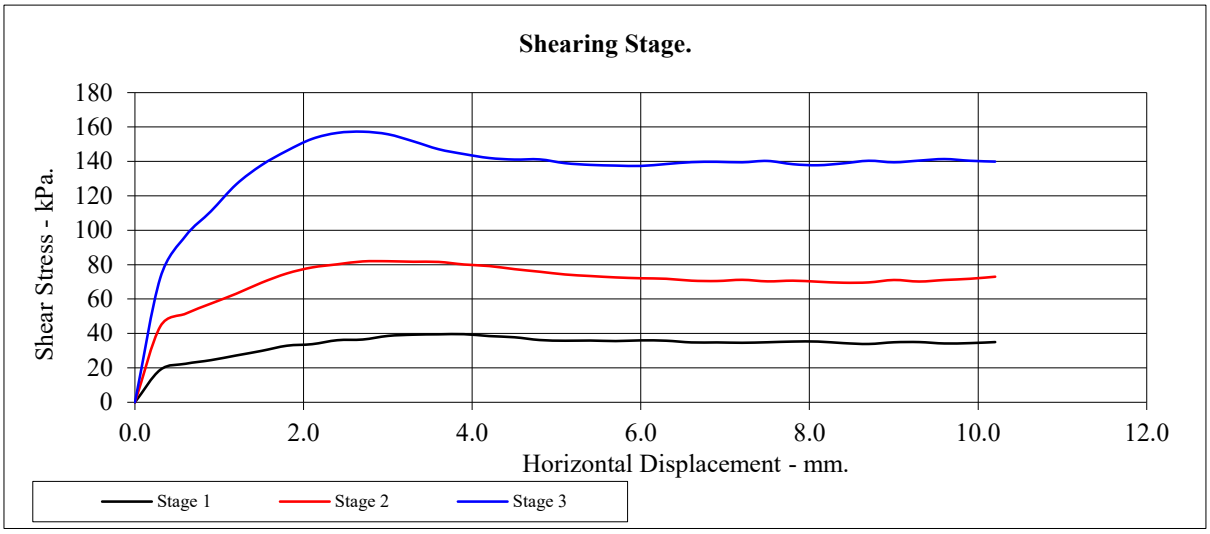
UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** PSL25/1897 **Client Ref:** STX6912

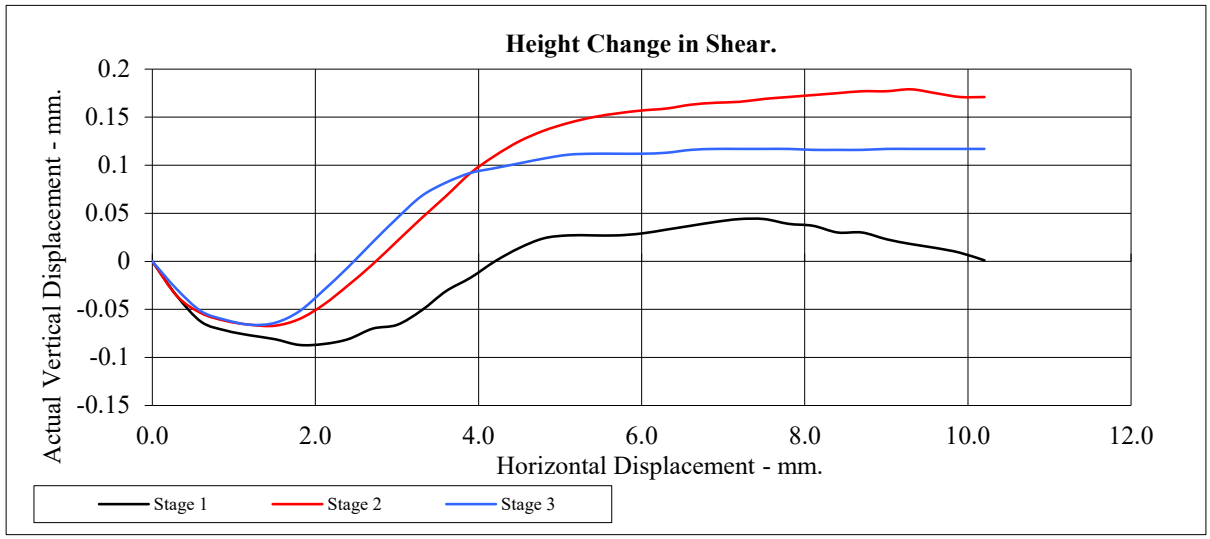
Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**RBH05**	Top Depth:	**2.50**
Sample Number:	**5**	Base Depth:	**3.00**







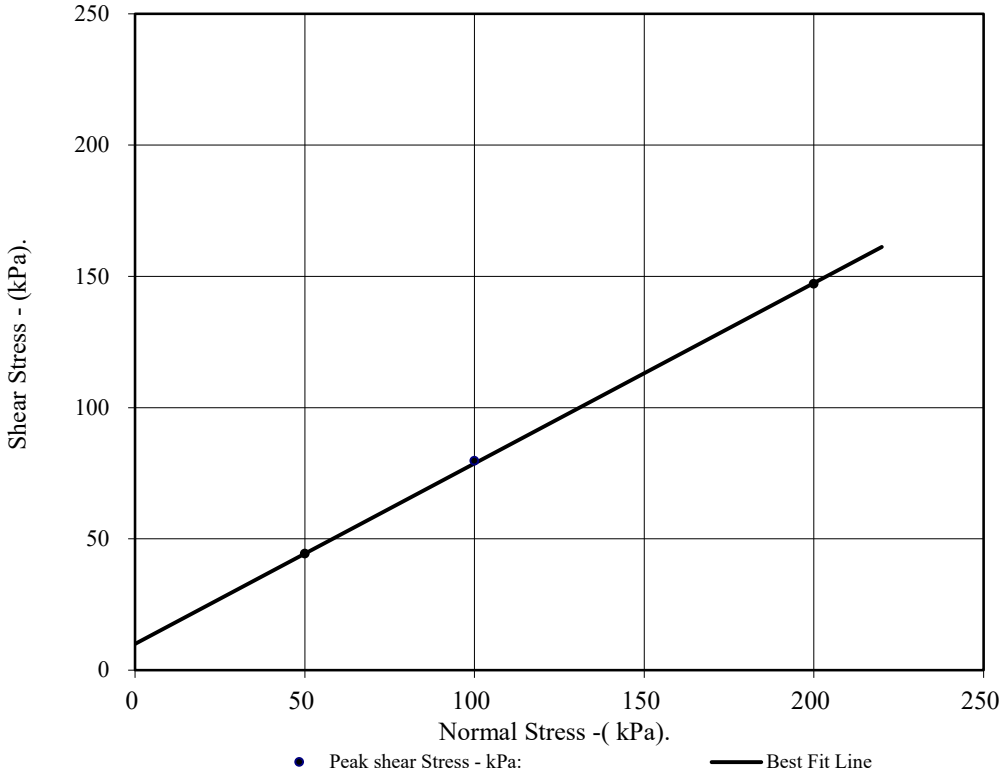
UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** PSL25/1897 / **Client Ref:** STX6912

Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**RBH06D**		Top Depth:	**11.25**
Sample Number:	**14**		Base Depth:	**12.00**
Sample Conditions:	Dry		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Material tested passing 2mm sieve Remoulded using hand tamped effort.			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.00	25.00	25.00
Length - mm:	60.05	60.05	60.05
Water Content - %:	21.3	21.3	21.3
Bulk Density - Mg/m3:	1.84	1.84	1.84
Dry Density - Mg/m3:	1.52	1.52	1.52
Voids Ratio:	0.745	0.745	0.745
Degree of saturation:	75.8	75.8	75.8
Normal Pressure- kPa	50	100	200
Consolidation Stage			
Consolidated Height - mm:	24.22	24.15	24.08
Shearing Stage			
Rate of Strain - mm/min	0.60	0.60	0.60
Displacement at peak shear stress - mm	3.00	3.60	2.40
Peak shear Stress - kPa:	44	80	147
Final Consolidated Conditions			
Water Content - %:	20.5	20.4	20.0
Bulk Density - Mg/m3:	1.90	1.91	1.91
Dry Density - Mg/m3:	1.58	1.58	1.59
Peak			
Angle of Shearing Resistance:(~~θ~~)	**34.5**		
Effective Cohesion - kPa:	**10**		

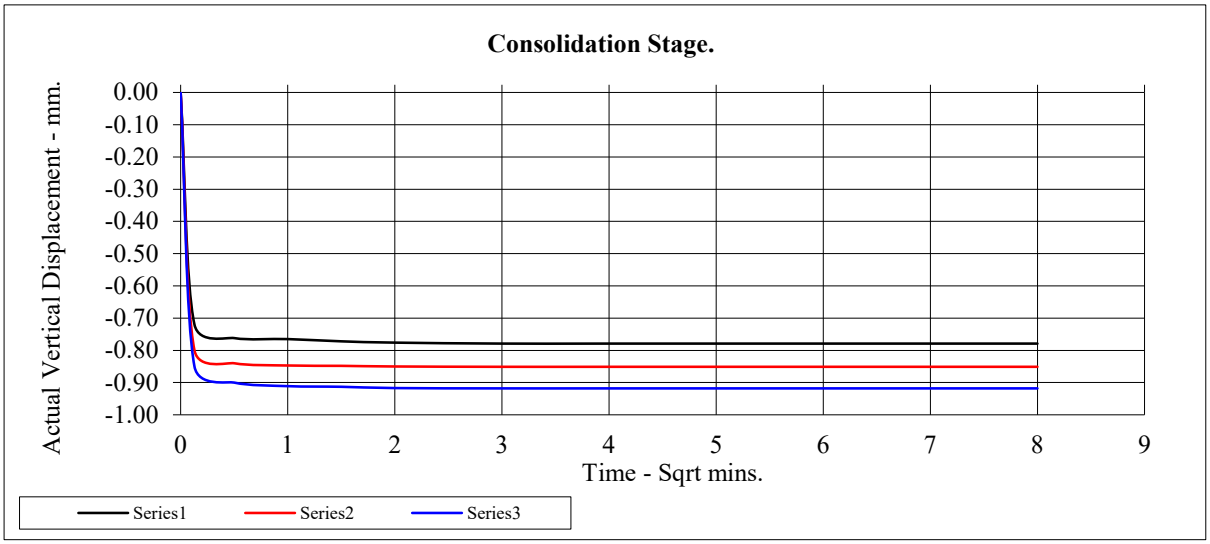


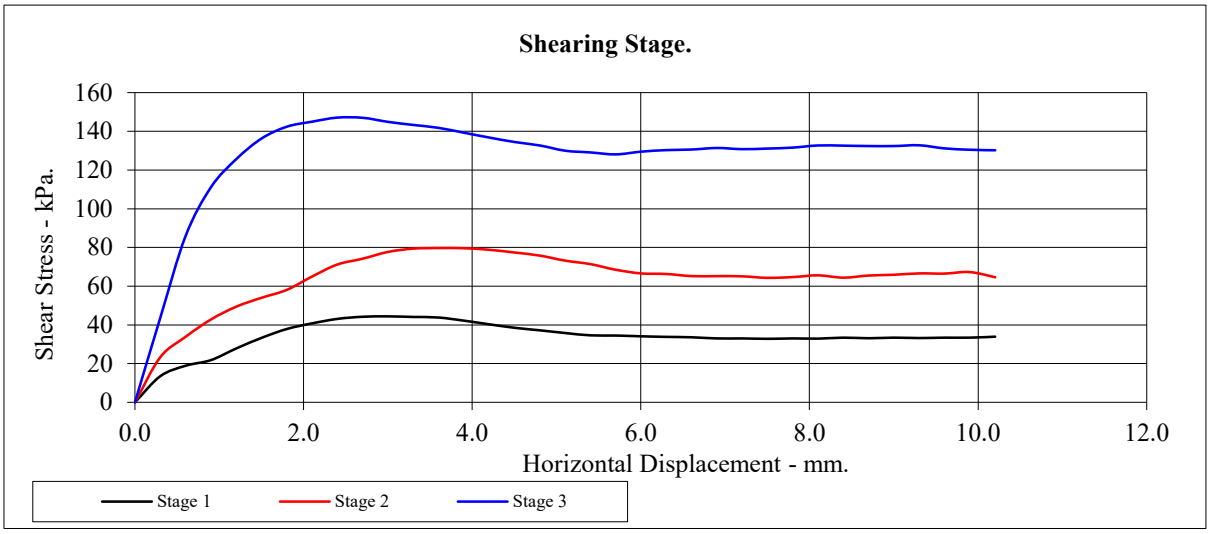
UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** PSL25/1897 **Client Ref:** STX6912

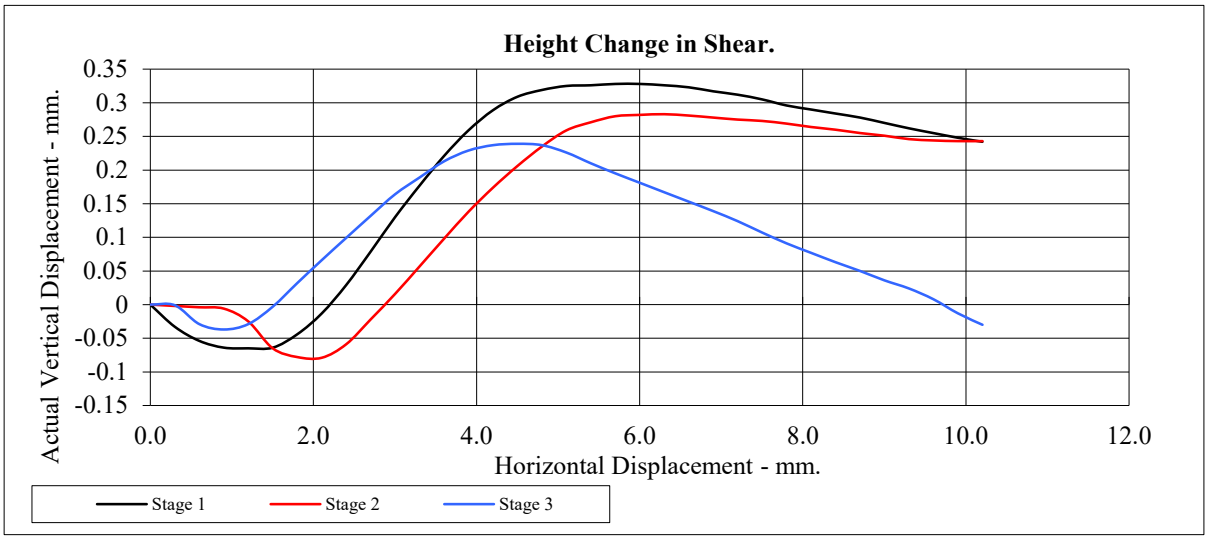
Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**RBH06D**	Top Depth:	**11.25**
Sample Number:	**14**	Base Depth:	**12.00**







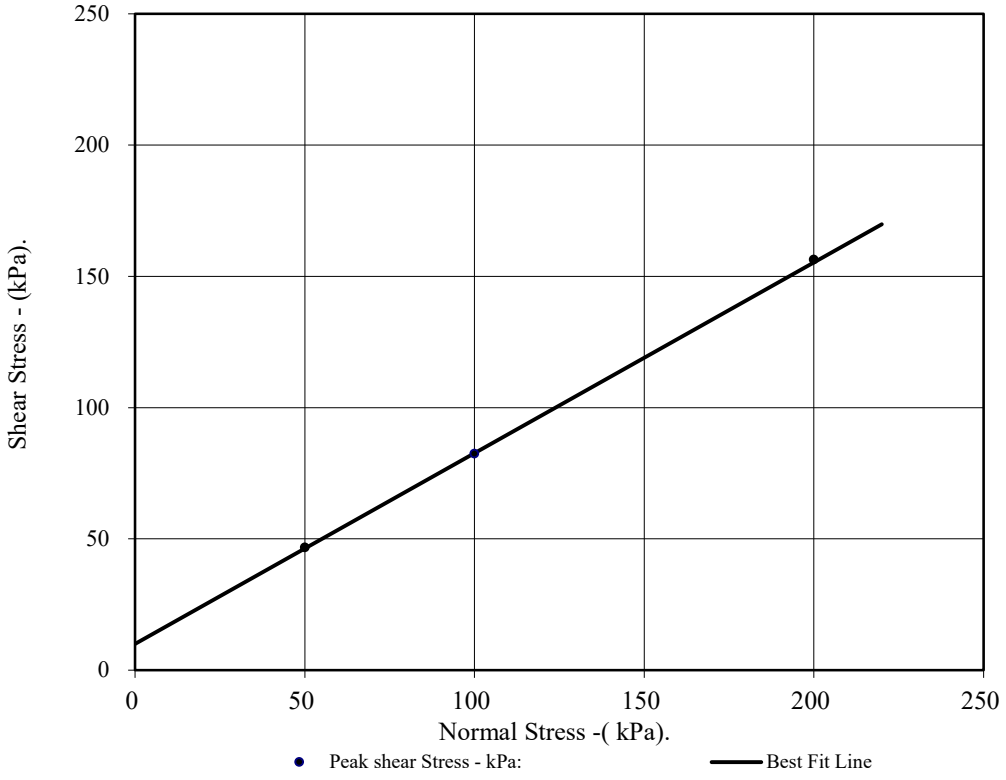
UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** **PSL25/1897** **Client Ref:** **STX6912**

Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**TP01**		Top Depth:	**2.00**
Sample Number:	**162**		Base Depth:	**3.00**
Sample Conditions:	Dry		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Material tested passing 2mm sieve Remoulded using hand tamped effort.			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	25.00	25.00	25.00
Length - mm:	60.05	60.05	60.05
Water Content - %:	23.6	23.6	23.6
Bulk Density - Mg/m3:	1.84	1.84	1.84
Dry Density - Mg/m3:	1.49	1.49	1.49
Voids Ratio:	0.778	0.778	0.778
Degree of saturation:	80.4	80.4	80.4
Normal Pressure- kPa	50	100	200
Consolidation Stage			
Consolidated Height - mm:	24.58	24.30	23.78
Shearing Stage			
Rate of Strain - mm/min	0.60	0.60	0.60
Displacement at peak shear stress - mm	3.91	4.51	7.81
Peak shear Stress - kPa:	47	83	156
Final Consolidated Conditions			
Water Content - %:	21.9	21.8	21.2
Bulk Density - Mg/m3:	1.87	1.90	1.94
Dry Density - Mg/m3:	1.54	1.56	1.60
Peak			
Angle of Shearing Resistance:(~~θ~~)	**36.0**		
Effective Cohesion - kPa:	**10**		

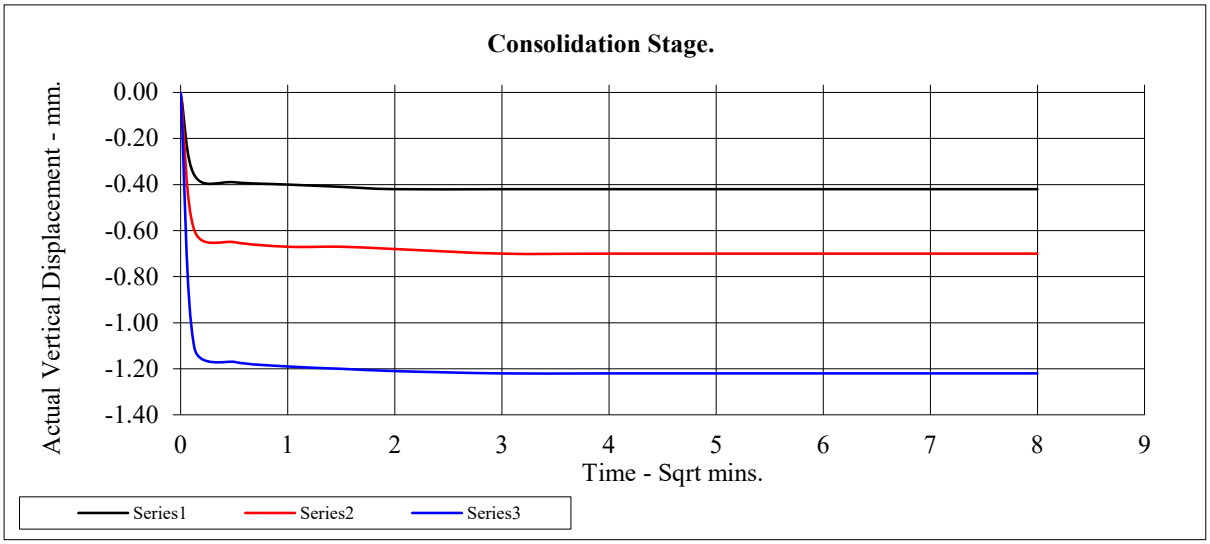


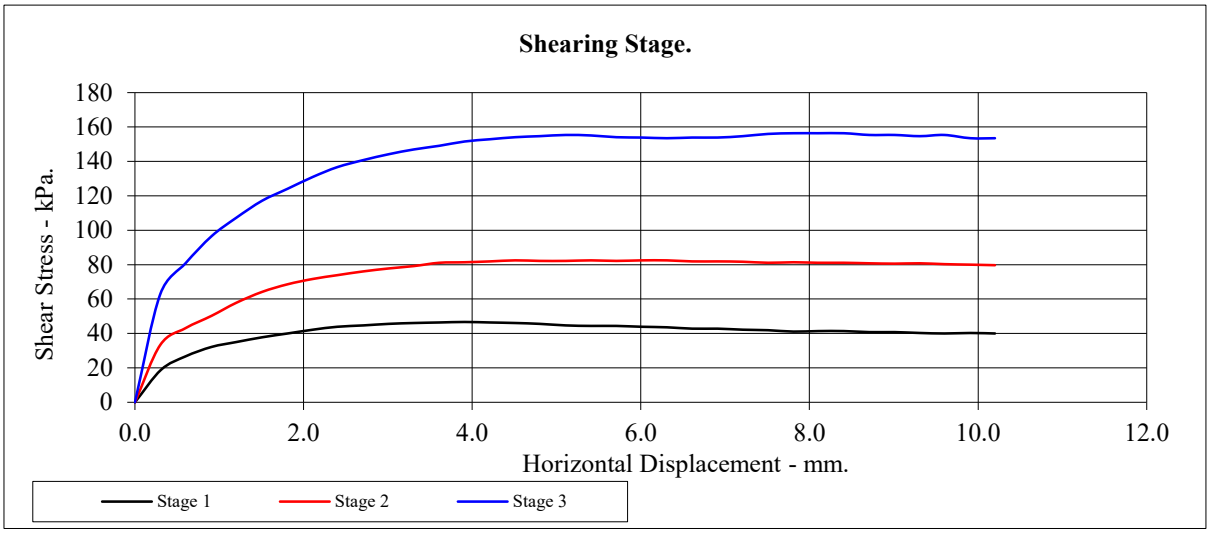
UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** PSL25/1897 **Client Ref:** STX6912

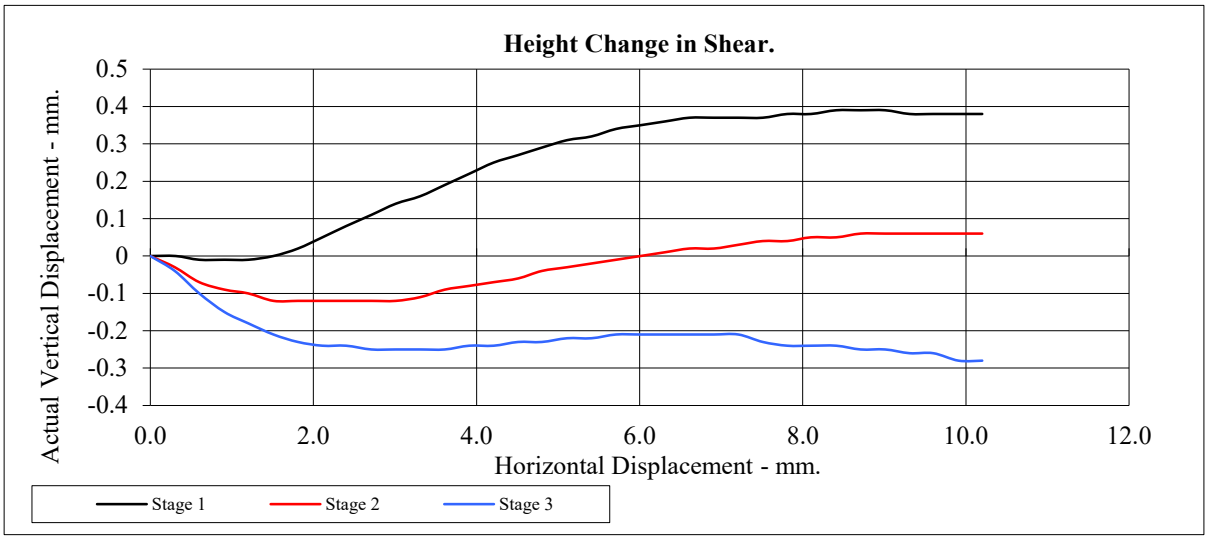
Determination of shear strength by direct shear (shearbox methods)

BS 1377 - Part 2 : 2022 : Clause 25.2 in accordance with BS EN ISO 17892 - 10 : 2018

Hole Number:	**TP01**	Top Depth:	**2.00**
Sample Number:	**162**	Base Depth:	**3.00**







UKAS 4043 / PSL PROFESSIONAL SOILS LABORATORY	**Albert Bridge House, Manchester**	**Contract No:** **PSL25/1897** **Client Ref:** **STX6912**

SUMMARY OF POROSITY TESTS

(ISRM Suggested Method for Porosity Determination)

Hole Number	Sample Number	Sample Type	Sample Depth (m)	Water Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Porosity %	Remarks
RBH01	6	C	3.80	15.9	2.10	1.81	30.4	
RBH01	15	C	17.61	9.4	2.23	2.04	22.1	
RBH01	22	C	27.79	10.9	2.24	2.02	24.3	
RBH02	14	C	6.16	11.1	2.24	2.02	23.3	
RBH02	17	C	10.37	10.7	2.35	2.12	24.2	
RBH02	20	C	15.17	13.0	2.22	1.96	28.2	
RBH02	26	C	21.27	7.8	2.35	2.18	18.5	
RBH05	8	C	6.65	13.6	2.11	1.86	27.0	
RBH05	14	C	12.59	12.7	2.14	1.90	26.8	
RBH06D	12	C	13.54	10.1	2.25	2.04	21.2	
RBH07B	2	C	9.19	11.5	2.17	1.95	23.5	

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

Albert Bridge House, Manchester

Contract No:
PSL25/1897
Client Ref:
STX6912

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
RBH01	6.20	7	A	Perp	100	48	4800	6111.55	78.18	-	0.57	0.09	1.223	0.11	Valid	
RBH01	19.17	16	A	Perp	100	51	5100	6493.52	80.58	-	1.44	0.21	1.240	0.27	Valid	
RBH01	26.34	21	A	Perp	101	56	5656	7201.44	84.86	-	2.19	0.29	1.269	0.37	Valid	
RBH02	18.68	24	A	Perp	100	54	5400	6875.49	82.92	-	1.27	0.18	1.256	0.22	Valid	
RBH02	22.81	27	A	Perp	101	39	3939	5015.29	70.82	-	1.66	0.32	1.170	0.37	Valid	
RBH02	24.30	33	A	Perp	100	54	5400	6875.49	82.92	-	1.72	0.24	1.256	0.30	Valid	
RBH02	26.94	30	A	Perp	100	47	4700	5984.23	77.36	-	1.52	0.25	1.217	0.30	Valid	
RBH04	5.71	1	A	Perp	97	45	4365	5557.69	74.55	-	2.58	0.45	1.197	0.54	Valid	
RBH04	7.11	2	A	Perp	100	55	5500	7002.82	83.68	-	0.91	0.13	1.261	0.16	Valid	
RBH04	7.65	3	A	Perp	100	43	4300	5474.93	73.99	-	2.08	0.37	1.193	0.44	Valid	
RBH05	7.45	9	A	Perp	100	55	5500	7002.82	83.68	-	3.08	0.42	1.261	0.54	Valid	
RBH05	8.38	10	A	Perp	99	48	4752	6050.43	77.78	-	3.71	0.59	1.220	0.72	Valid	
RBH07B	8.50	1	A	Perp	99	63	6237	7941.20	89.11	-	5.77	0.70	1.297	0.91	Valid	
RBH08	6.85	9	A	Perp	96	38	3648	4644.78	68.15	-	2.11	0.44	1.150	0.50	Valid	
RBH08	10.58	11	A	Perp	99	51	5049	6428.59	80.18	-	1.93	0.29	1.237	0.36	Valid	
RBH08	12.50	13	A	Perp	99	38	3762	4789.93	69.21	-	0.66	0.13	1.158	0.15	Valid	
RBH08	13.55	14	A	Perp	100	44	4400	5602.25	74.85	-	1.47	0.25	1.199	0.30	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PRENVA GROUP COMPANY

Albert Bridge House, Manchester

Contract No:

PSL25/1897

Client Ref:

STX6912

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
RBH01	6.20	7	D	Par	-	100	10000	100.00	-	0.51	0.049	1.366	0.07	Valid	
RBH01	19.17	16	D	Par	-	100	10000	100.00	-	1.18	0.114	1.366	0.16	Valid	
RBH01	26.34	21	D	Par	-	101	10201	101.00	-	1.11	0.105	1.372	0.14	Valid	
RBH02	18.68	24	D	Par	-	100	10000	100.00	-	0.82	0.079	1.366	0.11	Valid	
RBH02	22.81	27	D	Par	-	101	10201	101.00	-	0.59	0.056	1.372	0.08	Valid	
RBH02	24.30	33	D	Par	-	100	10000	100.00	-	1.08	0.104	1.366	0.14	Valid	
RBH02	26.94	30	D	Par	-	100	10000	100.00	-	1.35	0.130	1.366	0.18	Valid	
RBH04	5.71	1	D	Par	-	97	9409	97.00	-	1.91	0.196	1.347	0.26	Valid	
RBH04	7.11	2	D	Par	-	100	10000	100.00	-	0.59	0.057	1.366	0.08	Valid	
RBH04	7.65	3	D	Par	-	100	10000	100.00	-	1.19	0.115	1.366	0.16	Valid	
RBH05	7.45	9	D	Par	-	100	10000	100.00	-	1.57	0.152	1.366	0.21	Valid	
RBH05	8.38	10	D	Par	-	99	9801	99.00	-	4.84	0.477	1.360	0.65	Valid	
RBH07B	8.50	1	D	Par	-	99	9801	99.00	-	5.48	0.540	1.360	0.73	Valid	
RBH08	6.85	9	D	Par	-	96	9216	96.00	-	1.12	0.117	1.341	0.16	Valid	
RBH08	10.58	11	D	Par	-	99	9801	99.00	-	0.87	0.086	1.360	0.12	Valid	
RBH08	12.50	13	D	Par	-	99	9801	99.00	-	0.31	0.031	1.360	0.04	Valid	
RBH08	13.55	14	D	Par	-	100	10000	100.00	-	0.83	0.080	1.366	0.11	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PRENVA GROUP COMPANY

Albert Bridge House, Manchester

Contract No:

PSL25/1897

Client Ref:

STX6912

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH01**	**Top Depth (m):**	**13.48**
Sample Number:	**12**	**Base Depth (m):**	**13.88**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.07
Height - mm:	185.61
Water Content - %:	9.5
Sample Mass - g:	3195.9
Bulk Density - Mg/m^3:	2.19
Dry Density - Mg/m^3:	2.00
Height Ratio: * Sample does not comply with H:D ratio	1.9
Degree of Saturation - %:	61
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:21
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.58
Strain at Failure - kN:	94.90
Unconfined Compressive Strength - Mpa:	12.1
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH01**	**Top Depth (m):**	**14.97**
Sample Number:	**13**	**Base Depth (m):**	**15.30**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.47
Height - mm:	179.81
Water Content - %:	10.5
Sample Mass - g:	3169.6
Bulk Density - Mg/m^3:	2.22
Dry Density - Mg/m^3:	2.01
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	69
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:23
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.54
Strain at Failure - kN:	98.60
Unconfined Compressive Strength - Mpa:	12.4
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH01**	**Top Depth (m):**	**16.38**
Sample Number:	**14**	**Base Depth (m):**	**16.74**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.81
Height - mm:	218.63
Water Content - %:	10.9
Sample Mass - g:	3977.6
Bulk Density - Mg/m^3:	2.28
Dry Density - Mg/m^3:	2.06
Height Ratio: * Sample does not comply with H:D ratio	2.2
Degree of Saturation - %:	77
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:32
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.57
Strain at Failure - kN:	145.20
Unconfined Compressive Strength - Mpa:	18.2
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH01**	**Top Depth (m):**	**24.50**
Sample Number:	**20**	**Base Depth (m):**	**24.93**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	101.12
Height - mm:	199.15
Water Content - %:	9.9
Sample Mass - g:	3625.9
Bulk Density - Mg/m^3:	2.27
Dry Density - Mg/m^3:	2.06
Height Ratio: * Sample does not comply with H:D ratio	2.0
Degree of Saturation - %:	71
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:36
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.57
Strain at Failure - kN:	164.90
Unconfined Compressive Strength - Mpa:	20.5
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH01**	**Top Depth (m):**	**29.28**
Sample Number:	**23**	**Base Depth (m):**	**29.63**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.86
Height - mm:	192.90
Water Content - %:	9.4
Sample Mass - g:	3478.2
Bulk Density - Mg/m^3:	2.26
Dry Density - Mg/m^3:	2.06
Height Ratio: * Sample does not comply with H:D ratio	1.9
Degree of Saturation - %:	67
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:37
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.56
Strain at Failure - kN:	166.10
Unconfined Compressive Strength - Mpa:	20.8
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**5.28**
Sample Number:	**13**	**Base Depth (m):**	**5.59**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	99.00
Height - mm:	149.16
Water Content - %:	9.9
Sample Mass - g:	2429.9
Bulk Density - Mg/m^3:	2.12
Dry Density - Mg/m^3:	1.93
Height Ratio: * Sample does not comply with H:D ratio	1.5
Degree of Saturation - %:	57
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:10
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.51
Strain at Failure - kN:	39.50
Unconfined Compressive Strength - Mpa:	5.13
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**6.03**
Sample Number:	**15**	**Base Depth (m):**	**6.44**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	101.12
Height - mm:	185.39
Water Content - %:	10.7
Sample Mass - g:	3335.6
Bulk Density - Mg/m^3:	2.24
Dry Density - Mg/m^3:	2.02
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	72
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:32
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.55
Strain at Failure - kN:	142.50
Unconfined Compressive Strength - Mpa:	17.7
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**8.62**
Sample Number:	**16**	**Base Depth (m):**	**8.94**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	101.41
Height - mm:	180.22
Water Content - %:	9.2
Sample Mass - g:	3201.2
Bulk Density - Mg/m^3:	2.20
Dry Density - Mg/m^3:	2.01
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	61
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:25
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.56
Strain at Failure - kN:	112.90
Unconfined Compressive Strength - Mpa:	14
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**15.55**
Sample Number:	**21**	**Base Depth (m):**	**15.90**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	99.48
Height - mm:	170.56
Water Content - %:	10.2
Sample Mass - g:	2920.1
Bulk Density - Mg/m^3:	2.20
Dry Density - Mg/m^3:	2.00
Height Ratio: * Sample does not comply with H:D ratio	1.7
Degree of Saturation - %:	66
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:19
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.61
Strain at Failure - kN:	90.50
Unconfined Compressive Strength - Mpa:	11.6
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**17.17**
Sample Number:	**22**	**Base Depth (m):**	**17.47**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	101.40
Height - mm:	204.40
Water Content - %:	9.5
Sample Mass - g:	3598.1
Bulk Density - Mg/m^3:	2.18
Dry Density - Mg/m^3:	1.99
Height Ratio: * Sample does not comply with H:D ratio	2.0
Degree of Saturation - %:	60
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:27
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.54
Strain at Failure - kN:	116.70
Unconfined Compressive Strength - Mpa:	14.5
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**20.20**
Sample Number:	**25**	**Base Depth (m):**	**20.45**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	101.40
Height - mm:	151.58
Water Content - %:	9.3
Sample Mass - g:	2681.7
Bulk Density - Mg/m^3:	2.19
Dry Density - Mg/m^3:	2.00
Height Ratio: * Sample does not comply with H:D ratio	1.5
Degree of Saturation - %:	60
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:27
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.54
Strain at Failure - kN:	118.70
Unconfined Compressive Strength - Mpa:	14.7
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**21.25**
Sample Number:	**28**	**Base Depth (m):**	**21.50**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	97.83
Height - mm:	179.56
Water Content - %:	10.7
Sample Mass - g:	2993.6
Bulk Density - Mg/m^3:	2.22
Dry Density - Mg/m^3:	2.00
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	69
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:21
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.60
Strain at Failure - kN:	93.80
Unconfined Compressive Strength - Mpa:	12.5
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**25.42**
Sample Number:	**29**	**Base Depth (m):**	**25.76**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.21
Height - mm:	185.02
Water Content - %:	11.5
Sample Mass - g:	3257.8
Bulk Density - Mg/m^3:	2.23
Dry Density - Mg/m^3:	2.00
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	74
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:18
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.61
Strain at Failure - kN:	85.60
Unconfined Compressive Strength - Mpa:	10.9
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**27.82**
Sample Number:	**31**	**Base Depth (m):**	**28.21**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	101.48
Height - mm:	184.37
Water Content - %:	10.0
Sample Mass - g:	3394.8
Bulk Density - Mg/m^3:	2.28
Dry Density - Mg/m^3:	2.07
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	72
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:19
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.59
Strain at Failure - kN:	90.70
Unconfined Compressive Strength - Mpa:	11.2
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH02**	**Top Depth (m):**	**29.58**
Sample Number:	**32**	**Base Depth (m):**	**29.93**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	101.35
Height - mm:	188.64
Water Content - %:	11.2
Sample Mass - g:	3453.1
Bulk Density - Mg/m^3:	2.27
Dry Density - Mg/m^3:	2.04
Height Ratio: * Sample does not comply with H:D ratio	1.9
Degree of Saturation - %:	77
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:28
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.54
Strain at Failure - kN:	123.00
Unconfined Compressive Strength - Mpa:	15.2
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH04**	**Top Depth (m):**	**11.16**
Sample Number:	**7**	**Base Depth (m):**	**11.49**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.46
Height - mm:	194.87
Water Content - %:	8.9
Sample Mass - g:	3327.4
Bulk Density - Mg/m^3:	2.15
Dry Density - Mg/m^3:	1.98
Height Ratio: * Sample does not comply with H:D ratio	1.9
Degree of Saturation - %:	55
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:25
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.59
Strain at Failure - kN:	116.80
Unconfined Compressive Strength - Mpa:	14.7
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH05**	**Top Depth (m):**	**9.76**
Sample Number:	**12**	**Base Depth (m):**	**10.00**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.44
Height - mm:	150.06
Water Content - %:	8.7
Sample Mass - g:	2502.6
Bulk Density - Mg/m^3:	2.10
Dry Density - Mg/m^3:	1.94
Height Ratio: * Sample does not comply with H:D ratio	1.5
Degree of Saturation - %:	51
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:11
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.54
Strain at Failure - kN:	46.80
Unconfined Compressive Strength - Mpa:	5.91
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH05**	**Top Depth (m):**	**10.73**
Sample Number:	**13**	**Base Depth (m):**	**11.01**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.48
Height - mm:	150.23
Water Content - %:	8.9
Sample Mass - g:	2577.5
Bulk Density - Mg/m^3:	2.16
Dry Density - Mg/m^3:	1.99
Height Ratio: * Sample does not comply with H:D ratio	1.5
Degree of Saturation - %:	56
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:10
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.47
Strain at Failure - kN:	37.40
Unconfined Compressive Strength - Mpa:	4.72
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH06D**	**Top Depth (m):**	**7.97**
Sample Number:	**7**	**Base Depth (m):**	**8.25**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.97
Height - mm:	168.84
Water Content - %:	8.2
Sample Mass - g:	2923.6
Bulk Density - Mg/m^3:	2.16
Dry Density - Mg/m^3:	2.00
Height Ratio: * Sample does not comply with H:D ratio	1.7
Degree of Saturation - %:	53
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:22
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.55
Strain at Failure - kN:	96.80
Unconfined Compressive Strength - Mpa:	12.1
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH06D**	**Top Depth (m):**	**13.21**
Sample Number:	**11**	**Base Depth (m):**	**13.47**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	99.24
Height - mm:	191.67
Water Content - %:	7.8
Sample Mass - g:	3418.7
Bulk Density - Mg/m^3:	2.31
Dry Density - Mg/m^3:	2.14
Height Ratio: * Sample does not comply with H:D ratio	1.9
Degree of Saturation - %:	64
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:15
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.51
Strain at Failure - kN:	59.50
Unconfined Compressive Strength - Mpa:	7.69
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH07B**	**Top Depth (m):**	**13.50**
Sample Number:	**8**	**Base Depth (m):**	**13.83**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	96.10
Height - mm:	147.03
Water Content - %:	9.0
Sample Mass - g:	2244.9
Bulk Density - Mg/m^3:	2.11
Dry Density - Mg/m^3:	1.93
Height Ratio: * Sample does not comply with H:D ratio	1.5
Degree of Saturation - %:	52
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:14
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.71
Strain at Failure - kN:	71.70
Unconfined Compressive Strength - Mpa:	9.89
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**RBH07B**	**Top Depth (m):**	**14.70**
Sample Number:	**8**	**Base Depth (m):**	**14.95**
Sample Type:	**C**	**Sample Date:**	**-**
Storage Condition:	**Sealed in core box**	**Date of Receipt**	**13/03/2025**
Sample Description:	**Brown SANDSTONE**		

Specimen Details/Conditions	
Diameter - mm:	100.37
Height - mm:	154.59
Water Content - %:	9.5
Sample Mass - g:	2798.1
Bulk Density - Mg/m^3:	2.29
Dry Density - Mg/m^3:	2.09
Height Ratio: * Sample does not comply with H:D ratio	1.5
Degree of Saturation - %:	71
Assumed Specific Gravity for Degree of Saturation:	2.90

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	20/03/2025
Test Duration - mins:	00:28
Orientation:	Perpendicular
Stress Rate - MPa/s:	0.57
Strain at Failure - kN:	125.90
Unconfined Compressive Strength - Mpa:	15.9
Mode of Failure:	Vertical Shear

Remarks: -

Professional Soils Laboratory
5/7 Hexthorpe Road
Hexthorpe
Doncaster
DN4 0AR

7 - 11 Harding Street
Leicester
LE1 4DH

Analytical Test Report: L25/03054/PSL - 25-60532

Your Project Reference:	**PSL25/1897 Albert Bridge House, Machester**		
Your Order Number:	PSL25/1897	Samples Received / Instructed:	21/03/2025 / 21/03/2025
Report Issue Number:	1	Sample Tested:	21/03 to 01/04/2025
Samples Analysed:	13 sample(s)	Report issued:	01/04/2025

Signed



James Gane
Analytical Services Manager
CTS

Notes:

General

Please refer to Methodologies page for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with CTS method statement MS - CL - Sample Prep, oven dried at <30˚C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Where specification limits are included these are for guidance only. Where a measured value has been highlighted this is not implying acceptance or failure and certainty of measurement values have not been taken into account.

Uncertainty of measurement values are available on request.

Samples were supplied by customer, results apply to the samples as received.

Deviating Samples

On receipt samples are compared against our sample holding and handling protocols, where any deviations have been noted these are reported on our deviating sample page (if present)

Accreditation Key

This report shall not be reproduce except in full

UKAS = UKAS Accreditation, MCERTS = MCERTS Accreditation, u = Unaccredited, subUKAS - Subcontracted to a laboratory UKAS accredited for this test, subMCERTS - Subcontracted to a laboratory MCERTS accredited for this test

MCERTS Accreditation only covers the SAND, CLAY and LOAM matrices

UKAS accreditation on waters only covers the Ground water and Surface water matrices

Date of Issue: 12.03.25

Issued by: J. Gane

Issue No: 4

Rev No: 26

CONSTRUCTION TESTING SOLUTIONS
A PHENNA GROUP COMPANY

7 - 11 Harding Street
Leicester
LE1 4DH

L25/03054/PSL - 25-60532
Project Reference - PSL25/1897 Albert Bridge House, Machester
Analytical Test Results - Chemical Analysis

Lab Reference			474270	474271	474272	474273	474274	474275
Client Sample ID			-	-	-	-	-	-
Client Sample Location			RBH01	RBH01	RBH01	RBH05	RBH06D	RBH08
Client Sample Type			D	D	D	D	B	D
Client Sample Number			5	159	160	4	14	5
Depth - Top (m)			2.90	17.50	29.50	2.50	11.25	2.50
Depth - Bottom (m)			2.90	17.50	29.50	2.50	12.00	2.50
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Sand	Sand	Sand	Sand	Sand	Clay
Determinant	**Units**	**Accreditation**						
Water soluble sulphate (as SO_4)	(mg/l)	u	21	< 10	27	53	28	180
Acid Soluble Sulphate	(%)	u	0.01	< 0.01	< 0.01	0.02	< 0.01	0.17
Total Sulphur	(%)	UKAS	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.09
pH Value	pH Units	MCERTS	8.6	8.7	8.5	8.4	8.6	8.4
Water Soluble Chloride	(mg/l)	u	3.8	4.6	16	3.5	7.5	3.1
Water Soluble Nitrate (As NO_3)	(mg/l)	u	2.4	< 1.0	< 1.0	< 1.0	< 1.0	5.8
Water Soluble Magnesium	(mg/l)	u	< 15.00	< 15.00	< 15.00	2.1	< 15.00	4.0
Water Soluble Ammonium Ion	(mg/l)	u	1.3	2.8	1.3	1.3	1.3	1.3

7 - 11 Harding Street
Leicester
LE1 4DH

L25/03054/PSL - 25-60532

Project Reference - PSL25/1897 Albert Bridge House, Machester

Analytical Test Results - Chemical Analysis

Lab Reference			474276	474277	474278	474279	474280	474281
Client Sample ID			-	-	-	-	-	-
Client Sample Location			RBH08	TP01	TP01	TP03	TP04	TP06
Client Sample Type			D	D	D	ES	D	D
Client Sample Number			17	2	5	4	5	3
Depth - Top (m)			9.80	0.40	2.00	3.00	3.00	1.00
Depth - Bottom (m)			9.80	0.40	2.00	3.00	3.00	1.00
Date of Sampling			-	-	-	-	-	-
Time of Sampling			-	-	-	-	-	-
Sample Matrix			Sand	Clay	Clay	Clay	Sand	Clay
Determinant	**Units**	**Accreditation**						
Water soluble sulphate (as SO_4)	(mg/l)	u	38	69	1100	1500	67	42
Acid Soluble Sulphate	(%)	u	< 0.01	0.16	0.40	0.50	0.02	0.04
Total Sulphur	(%)	UKAS	< 0.01	0.13	0.39	0.29	< 0.01	0.07
pH Value	pH Units	MCERTS	8.8	8.6	8.4	8.0	8.4	7.7
Water Soluble Chloride	(mg/l)	u	16	8.4	3.3	93	9.2	5.2
Water Soluble Nitrate (As NO_3)	(mg/l)	u	< 1.0	2.6	17	5.2	20	< 1.0
Water Soluble Magnesium	(mg/l)	u	< 15.00	2.4	14	66	5.5	2.0
Water Soluble Ammonium Ion	(mg/l)	u	1.3	1.3	1.3	5.3	1.3	1.3

7 - 11 Harding Street
Leicester
LE1 4DH

L25/03054/PSL - 25-60532

Project Reference - PSL25/1897 Albert Bridge House, Machester

Analytical Test Results - Chemical Analysis

Lab Reference			474282
Client Sample ID			-
Client Sample Location			TP08
Client Sample Type			ES
Client Sample Number			3
Depth - Top (m)			2.00
Depth - Bottom (m)			2.00
Date of Sampling			-
Time of Sampling			-
Sample Matrix			Clay
Determinant	**Units**	**Accreditation**	
Water soluble sulphate (as SO_4)	(mg/l)	u	1500
Acid Soluble Sulphate	(%)	u	1.13
Total Sulphur	(%)	UKAS	0.45
pH Value	pH Units	MCERTS	8.4
Water Soluble Chloride	(mg/l)	u	4.7
Water Soluble Nitrate (As NO_3)	(mg/l)	u	16
Water Soluble Magnesium	(mg/l)	u	13
Water Soluble Ammonium Ion	(mg/l)	u	1.3

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Leicester
LE1 4DH

L25/03054/PSL - 25-60532

Project Reference - PSL25/1897 Albert Bridge House, Machester

Sample Descriptions

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Description	Moisture Content (%)	Stone Content (%)	Passing 2mm test sieve (%)
474270	-	RBH01	D	5	Light brown slightly gravelly silty sand	-	-	46
474271	-	RBH01	D	159	Reddish brown slightly gravelly silty sand	-	-	100
474272	-	RBH01	D	160	Pink brown slightly gravelly silty sand	-	-	100
474273	-	RBH05	D	4	Brown gravelly silty sand	-	-	78
474274	-	RBH06D	B	14	Reddish brown slightly gravelly silty sand	-	-	100
474275	-	RBH08	D	5	Made Ground- brown gravelly slightly sandy silty clay with rare brick fragments	-	-	100
474276	-	RBH08	D	17	Reddish brown silty sand	-	-	100
474277	-	TP01	D	2	Dark brown slightly gravelly slightly sandy silty clay	-	-	84
474278	-	TP01	D	5	Made Ground- dark brown slightly gravelly slightly sandy silty clay with rare brick fragments slag	-	-	96
474279	-	TP03	ES	4	Made Ground- dark brown slightly gravelly slightly sandy silty clay with rare brick fragments ceramic	-	-	86
474280	-	TP04	D	5	Reddish brown slightly gravelly silty sand	-	-	100
474281	-	TP06	D	3	Made Ground- brown slightly gravelly slightly sandy silty clay with rare brick fragments bituminous material	-	-	92
474282	-	TP08	ES	3	Made Ground- dark brown slightly gravelly slightly sandy silty clay with rare brick fragments	-	-	100

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L25/03054/PSL - 25-60532

Project Reference - PSL25/1897 Albert Bridge House, Machester

Sample Comments

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Comments
474270	-	RBH01	D	5	
474271	-	RBH01	D	159	
474272	-	RBH01	D	160	
474273	-	RBH05	D	4	
474274	-	RBH06D	B	14	
474275	-	RBH08	D	5	
474276	-	RBH08	D	17	
474277	-	TP01	D	2	
474278	-	TP01	D	5	
474279	-	TP03	ES	4	
474280	-	TP04	D	5	
474281	-	TP06	D	3	
474282	-	TP08	ES	3	

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Project Reference - PSL25/1897 Albert Bridge House, Machester

Analysis Methodologies

Test Code	Test Name / Reference	Sample condition for analysis	Sample Preperation	Test Details
ANIONSS	MS - CL - Anions by Aquakem (2:1Extract)	Oven dried	Passing 2mm test sieve	Determination of Anions (inc Sulphate, chloride etc.) in soils by Aquakem. Analysis is based on a 2:1 water to soil extraction ratio
PHS	MS - CL - pH in Soils	As received	Passing 10mm test sieve	Determination of pH in soils using a pH probe (using a 1:3 soil to water extraction)
ASSO4S	MS - CL - Acid Soluble Sulphate	Oven Dried	Passing 2mm test sieve	Determination of total sulphate in soils by acid extraction followed by ICP analysis
SAMPLEPREP	MS - CL - Sample Preparation	-	-	Preparation of samples (including determination of moisture content) to allow for subsequent analysis
1377TS-ELT	BS1377 Total Sulphur Content by HTC	Oven dried	BS1377 : Part 1 : 2016	Total Sulphur Content testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 7.10 (using Eltra CS-800 Analyser)
1377MGICP	BS1377 WS Magnesium (ICP)	Oven dried	Passing 2mm test sieve	Water Soluble Magnesium testing of Soil in accordance with BS 1377 : Part 3 : 2018 + A1 : 2021 Clause 10.

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Sample Deviations

Deviations are listed below against each sample and associated test method, where deviation(s) are noted it means data may not be representative of the sample at the time of sampling and it is possible that results provided may be compromised.

Observations on receipt

A - No date of sampling provided
W - No time of sampling provided for water sample
C - Received in inappropriate container
H - Contains headspace
T - Temperature on receipt exceeds storage temperature
R - Sample(s) received with less than 96 hours for testing to commence/complete, any result formally classed as deviating will be marked with an X against the applicable test (i.e. RX)

Observations whilst in laboratory

X - Exceeds sampling to extraction or analysis timescales

Lab Reference	Client Sample ID	Client Sample Location	Client Sample Type	Client Sample Number	Test	Deviations
474270	-	RBH01	D	5		A
474271	-	RBH01	D	159		A
474272	-	RBH01	D	160		A
474273	-	RBH05	D	4		A
474274	-	RBH06D	B	14		A
474275	-	RBH08	D	5		A
474276	-	RBH08	D	17		A
474277	-	TP01	D	2		A
474278	-	TP01	D	5		A
474279	-	TP03	ES	4		A
474280	-	TP04	D	5		A
474281	-	TP06	D	3		A
474282	-	TP08	ES	3		A

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix J Geoenvironmental Laboratory Test Results

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	25-06419-1
Initial Date of Issue:	21-Mar-2025
Re-Issue Details:	
Client	Soiltechnics Limited
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS
Contact(s):	Admin
Project	STX6912 Albert Bridge House

Quotation No.:		**Date Received:**	25-Feb-2025
Order No.:	POR021712	**Date Instructed:**	25-Feb-2025
No. of Samples:	1		
Turnaround (Wkdays):	8	**Results Due:**	06-Mar-2025
Date Approved:	21-Mar-2025	**Subcon Results Due:**	18-Mar-2025

Approved By:



Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-06419
Quotation No.:				**Chemtest Sample ID.:**		1937969
Order No.: POR021712				Client Sample Ref.:		12
				Client Sample ID.:		RB02-5.1-12
				Sample Location:		RBH02
				Sample Type:		SOIL
				Top Depth (m):		5.10
				Date Sampled:		20-Feb-2025
				Time Sampled:		10:24
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Moisture		N	2030	%	0.020	8.8
Soil Colour		N	2040		N/A	Brown
Other Material		N	2040		N/A	Stones and
Soil Texture		N	2040		N/A	Sand
pH at 20C		M	2010		4.0	8.3
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.11
Nitrate (Water Soluble)		N	2220	g/l	0.010	< 0.010
Cyanide (Complex)		M	2300	mg/kg	0.50	12
Cyanide (Free)		M	2300	mg/kg	0.50	< 0.50
Cyanide (Total)		M	2300	mg/kg	0.50	12
Sulphide (Easily Liberatable)		N	2325	mg/kg	0.50	5.7
Arsenic		M	2455	mg/kg	0.5	4.9
Beryllium		U	2455	mg/kg	0.5	< 0.5
Cadmium		M	2455	mg/kg	0.10	0.10
Chromium		M	2455	mg/kg	0.5	4.5
Copper		M	2455	mg/kg	0.50	6.2
Mercury		M	2455	mg/kg	0.05	0.07
Nickel		M	2455	mg/kg	0.50	5.4
Lead		M	2455	mg/kg	0.50	42
Selenium		M	2455	mg/kg	0.25	< 0.25
Vanadium		U	2455	mg/kg	0.5	5.4
Zinc		M	2455	mg/kg	0.50	21
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	S	2780	mg/kg	0.10	< 0.10
Aliphatic VPH >C6-C8	HS_2D_AL	S	2780	mg/kg	0.10	< 0.10
Aliphatic Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	19.00	84
Aromatic Total >C05-C35	HS_2D_AL	S	2780	mg/kg	19.00	820
Ali Aro Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	38.00	900
Aliphatic VPH >C8-C10	HS_2D_AL	SN	2780	mg/kg	0.05	0.18
Aliphatic EPH >C10-C12	EH_2D_AL_#1	S	2690	mg/kg	0.20	1.9
Aliphatic EPH >C12-C16	EH_2D_AL_#1	S	2690	mg/kg	4.00	26
Aliphatic EPH >C16-C21	EH_2D_AL_#1	S	2690	mg/kg	7.00	28
Aliphatic EPH >C21-C35	EH_2D_AL_#1	S	2690	mg/kg	7.00	28
Aromatic VPH >C5-C7	HS_2D_AR	S	2780	mg/kg	0.10	< 0.10
Aromatic VPH >C7-C8	HS_2D_AR	S	2780	mg/kg	0.10	< 0.10
Aromatic VPH >C8-C10	HS_2D_AR	S	2780	mg/kg	0.10	1.0

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-06419
Quotation No.:				**Chemtest Sample ID.:**		1937969
Order No.: POR021712				Client Sample Ref.:		12
				Client Sample ID.:		RB02-5.1-12
				Sample Location:		RBH02
				Sample Type:		SOIL
				Top Depth (m):		5.10
				Date Sampled:		20-Feb-2025
				Time Sampled:		10:24
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic EPH >C10-C12	EH_2D_AR_#1	S	2690	mg/kg	0.20	13
Aromatic EPH >C12-C16	EH_2D_AR_#1	S	2690	mg/kg	4.00	210
Aromatic EPH >C16-C21	EH_2D_AR_#1	S	2690	mg/kg	7.00	310
Aromatic EPH >C21-C35	EH_2D_AR_#1	S	2690	mg/kg	7.00	290
Organic Matter		M	2625	%	0.40	1.1
Naphthalene		M	2700	mg/kg	0.10	15
Acenaphthylene		M	2700	mg/kg	0.10	22
Acenaphthene		M	2700	mg/kg	0.10	9.6
Fluorene		M	2700	mg/kg	0.10	31
Phenanthrene		M	2700	mg/kg	0.10	55
Anthracene		M	2700	mg/kg	0.10	21
Fluoranthene		M	2700	mg/kg	0.10	23
Pyrene		M	2700	mg/kg	0.10	34
Benzo[a]anthracene		M	2700	mg/kg	0.10	14
Chrysene		M	2700	mg/kg	0.10	15
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	9.3
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	5.0
Benzo[a]pyrene		M	2700	mg/kg	0.10	9.3
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	3.5
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	2.1
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	4.8
Total Of 16 PAH's		M	2700	mg/kg	2.0	270
Dichlorodifluoromethane		U	2760	µg/kg	1.0	< 1.0
Chloromethane		M	2760	µg/kg	1.0	< 1.0
Vinyl Chloride		M	2760	µg/kg	1.0	< 1.0
Bromomethane		M	2760	µg/kg	20	< 20
Chloroethane		U	2760	µg/kg	2.0	< 2.0
Trichlorofluoromethane		M	2760	µg/kg	1.0	< 1.0
1,1-Dichloroethene		M	2760	µg/kg	1.0	< 1.0
Trans 1,2-Dichloroethene		M	2760	µg/kg	1.0	< 1.0
1,1-Dichloroethane		M	2760	µg/kg	1.0	< 1.0
cis 1,2-Dichloroethene		M	2760	µg/kg	1.0	< 1.0
Bromochloromethane		U	2760	µg/kg	5.0	< 5.0
Trichloromethane		M	2760	µg/kg	1.0	< 1.0
1,1,1-Trichloroethane		M	2760	µg/kg	1.0	< 1.0
Tetrachloromethane		M	2760	µg/kg	1.0	< 1.0
1,1-Dichloropropene		U	2760	µg/kg	1.0	< 1.0

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-06419
Quotation No.:				**Chemtest Sample ID.:**		1937969
Order No.: POR021712				Client Sample Ref.:		12
				Client Sample ID.:		RB02-5.1-12
				Sample Location:		RBH02
				Sample Type:		SOIL
				Top Depth (m):		5.10
				Date Sampled:		20-Feb-2025
				Time Sampled:		10:24
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Benzene		M	2760	µg/kg	1.0	2.0
1,2-Dichloroethane		M	2760	µg/kg	2.0	< 2.0
Trichloroethene		N	2760	µg/kg	1.0	< 1.0
1,2-Dichloropropane		M	2760	µg/kg	1.0	< 1.0
Dibromomethane		M	2760	µg/kg	1.0	< 1.0
Bromodichloromethane		M	2760	µg/kg	5.0	< 5.0
cis-1,3-Dichloropropene		N	2760	µg/kg	10	< 10
Toluene		M	2760	µg/kg	1.0	220
Trans-1,3-Dichloropropene		N	2760	µg/kg	10	< 10
1,1,2-Trichloroethane		M	2760	µg/kg	10	< 10
Tetrachloroethene		M	2760	µg/kg	1.0	< 1.0
1,3-Dichloropropane		U	2760	µg/kg	2.0	< 2.0
Dibromochloromethane		U	2760	µg/kg	10	< 10
1,2-Dibromoethane		M	2760	µg/kg	5.0	< 5.0
Chlorobenzene		M	2760	µg/kg	1.0	< 1.0
1,1,1,2-Tetrachloroethane		M	2760	µg/kg	2.0	< 2.0
Ethylbenzene		M	2760	µg/kg	1.0	2600
m & p-Xylene		M	2760	µg/kg	1.0	18000
o-Xylene		M	2760	µg/kg	1.0	> 10000
Styrene		M	2760	µg/kg	1.0	3900
Tribromomethane		U	2760	µg/kg	1.0	< 1.0
Isopropylbenzene		M	2760	µg/kg	1.0	28
Bromobenzene		M	2760	µg/kg	1.0	< 1.0
1,2,3-Trichloropropane		N	2760	µg/kg	50	< 50
N-Propylbenzene		U	2760	µg/kg	1.0	53
2-Chlorotoluene		M	2760	µg/kg	1.0	< 1.0
1,3,5-Trimethylbenzene		M	2760	µg/kg	1.0	6300
4-Chlorotoluene		U	2760	µg/kg	1.0	< 1.0
Tert-Butylbenzene		U	2760	µg/kg	1.0	< 1.0
1,2,4-Trimethylbenzene		M	2760	µg/kg	1.0	> 10000
Sec-Butylbenzene		U	2760	µg/kg	1.0	< 1.0
1,3-Dichlorobenzene		M	2760	µg/kg	1.0	< 1.0
4-Isopropyltoluene		U	2760	µg/kg	1.0	28
1,4-Dichlorobenzene		M	2760	µg/kg	1.0	< 1.0
N-Butylbenzene		U	2760	µg/kg	1.0	< 1.0
1,2-Dichlorobenzene		M	2760	µg/kg	1.0	< 1.0
1,2-Dibromo-3-Chloropropane		U	2760	µg/kg	50	< 50

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-06419
Quotation No.:				**Chemtest Sample ID.:**		1937969
Order No.: POR021712				Client Sample Ref.:		12
				Client Sample ID.:		RB02-5.1-12
				Sample Location:		RBH02
				Sample Type:		SOIL
				Top Depth (m):		5.10
				Date Sampled:		20-Feb-2025
				Time Sampled:		10:24
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
1,2,4-Trichlorobenzene		M	2760	µg/kg	1.0	< 1.0
Hexachlorobutadiene		N	2760	µg/kg	1.0	< 1.0
1,2,3-Trichlorobenzene		U	2760	µg/kg	2.0	< 2.0
Carbon Disulphide		N	2760	µg/kg	50	< 50
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0	< 1.0
N-Nitrosodimethylamine		M	2790	mg/kg	0.50	< 0.50
Phenol		M	2790	mg/kg	0.50	< 0.50
2-Chlorophenol		N	2790	mg/kg	0.50	< 0.50
Bis-(2-Chloroethyl)Ether		M	2790	mg/kg	0.50	< 0.50
1,3-Dichlorobenzene		M	2790	mg/kg	0.50	< 0.50
1,4-Dichlorobenzene		N	2790	mg/kg	0.50	< 0.50
1,2-Dichlorobenzene		M	2790	mg/kg	0.50	< 0.50
2-Methylphenol		M	2790	mg/kg	0.50	< 0.50
Bis(2-Chloroisopropyl)Ether		M	2790	mg/kg	0.50	< 0.50
Hexachloroethane		N	2790	mg/kg	0.50	< 0.50
N-Nitrosodi-n-propylamine		M	2790	mg/kg	0.50	< 0.50
4-Methylphenol		M	2790	mg/kg	0.50	< 0.50
Nitrobenzene		N	2790	mg/kg	0.50	< 0.50
Isophorone		M	2790	mg/kg	0.50	< 0.50
2-Nitrophenol		N	2790	mg/kg	0.50	< 0.50
2,4-Dimethylphenol		N	2790	mg/kg	0.50	< 0.50
Bis(2-Chloroethoxy)Methane		M	2790	mg/kg	0.50	< 0.50
2,4-Dichlorophenol		N	2790	mg/kg	0.50	< 0.50
1,2,4-Trichlorobenzene		M	2790	mg/kg	0.50	< 0.50
Naphthalene		M	2790	mg/kg	0.50	85
4-Chloroaniline		N	2790	mg/kg	0.50	< 0.50
Hexachlorobutadiene		M	2790	mg/kg	0.50	< 0.50
4-Chloro-3-Methylphenol		N	2790	mg/kg	0.50	< 0.50
2-Methylnaphthalene		M	2790	mg/kg	0.50	52
4-Nitrophenol		N	2790	mg/kg	0.50	< 0.50
2,4,6-Trichlorophenol		N	2790	mg/kg	0.50	< 0.50
2,4,5-Trichlorophenol		N	2790	mg/kg	0.50	< 0.50
2-Chloronaphthalene		M	2790	mg/kg	0.50	< 0.50
2-Nitroaniline		N	2790	mg/kg	0.50	< 0.50
Acenaphthylene		M	2790	mg/kg	0.50	19
Dimethylphthalate		M	2790	mg/kg	0.50	< 0.50
2,6-Dinitrotoluene		N	2790	mg/kg	0.50	< 0.50

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-06419
Quotation No.:				**Chemtest Sample ID.:**		1937969
Order No.: POR021712				Client Sample Ref.:		12
				Client Sample ID.:		RB02-5.1-12
				Sample Location:		RBH02
				Sample Type:		SOIL
				Top Depth (m):		5.10
				Date Sampled:		20-Feb-2025
				Time Sampled:		10:24
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
Acenaphthene		M	2790	mg/kg	0.50	8.2
3-Nitroaniline		N	2790	mg/kg	0.50	< 0.50
Dibenzofuran		M	2790	mg/kg	0.50	12
4-Chlorophenylphenylether		M	2790	mg/kg	0.50	< 0.50
2,4-Dinitrotoluene		N	2790	mg/kg	0.50	< 0.50
Fluorene		M	2790	mg/kg	0.50	28
Diethyl Phthalate		M	2790	mg/kg	0.50	< 0.50
4-Nitroaniline		N	2790	mg/kg	0.50	< 0.50
Azobenzene		M	2790	mg/kg	0.50	< 0.50
4-Bromophenylphenyl Ether		M	2790	mg/kg	0.50	< 0.50
Hexachlorobenzene		M	2790	mg/kg	0.50	< 0.50
Phenanthrene		M	2790	mg/kg	0.50	59
Anthracene		M	2790	mg/kg	0.50	23
Carbazole		M	2790	mg/kg	0.50	5.5
Di-N-Butyl Phthalate		N	2790	mg/kg	0.50	< 0.50
Fluoranthene		M	2790	mg/kg	0.50	22
Pyrene		M	2790	mg/kg	0.50	29
Butylbenzyl Phthalate		N	2790	mg/kg	0.50	< 0.50
Benzo[a]anthracene		M	2790	mg/kg	0.50	13
Chrysene		M	2790	mg/kg	0.50	12
Bis(2-Ethylhexyl)Phthalate		N	2790	mg/kg	0.50	< 0.50
Di-N-Octyl Phthalate		N	2790	mg/kg	0.50	< 0.50
Benzo[b]fluoranthene		M	2790	mg/kg	0.50	9.4
Benzo[k]fluoranthene		M	2790	mg/kg	0.50	3.0
Benzo[a]pyrene		M	2790	mg/kg	0.50	10
Indeno(1,2,3-c,d)Pyrene		N	2790	mg/kg	0.50	3.0
Dibenz(a,h)Anthracene		N	2790	mg/kg	0.50	1.4
Benzo[g,h,i]perylene		M	2790	mg/kg	0.50	4.3
Total Phenols		M	2920	mg/kg	0.10	< 0.10
VOC TIC		N	2760	µg/kg	N/A	None Detected

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measuremernt by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

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SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at ≤ 30°C prior to analysis.

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Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied

B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

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H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	25-08373-1
Initial Date of Issue:	03-Apr-2025
Re-Issue Details:	
Client	Soiltechnics Limited
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS
Contact(s):	Admin
Project	STX6912 Albert Bridge House

Quotation No.:		**Date Received:**	12-Mar-2025
Order No.:	POR021841	**Date Instructed:**	12-Mar-2025
No. of Samples:	3		
Turnaround (Wkdays):	7	**Results Due:**	20-Mar-2025
Date Approved:	03-Apr-2025		

Approved By:



Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08373	25-08373	25-08373
Quotation No.:				**Chemtest Sample ID.:**		1945518	1945519	1945520
Order No.: POR021841				Client Sample Ref.:		1	1	1
				Client Sample ID.:		CS01-0-1	CS02-0-1	CS03-0-1
				Sample Location:		CS01	CS02	CS03
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.00	0.00	0.00
				Date Sampled:		05-Mar-2025	05-Mar-2025	05-Mar-2025
				Time Sampled:		14:04	14:04	14:05
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Moisture		N	2030	%	0.020	12	15	12

Results - 2 Stage WAC

Project: STX6912 Albert Bridge House

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	25-08373								
Chemtest Sample ID:	1945518								
Sample Ref:	1								
Sample ID:	CS01-0-1						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:	CS01								
Top Depth(m):	0.00								
Bottom Depth(m):									
Sampling Date:	05-Mar-2025								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			4.8	3	5	6
Loss On Ignition	2610	M	%			8.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
WAC Total C10-C40	2780	U	mg/kg			270	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg			270	100	--	--
pH at 20C	2010	M				8.3	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.020	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0030	0.0008	0.0060	0.011	0.5	2	25
Barium	1455	U	0.026	0.045	0.051	0.42	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.022	0.010	0.043	0.12	0.5	10	70
Copper	1455	U	0.018	0.0084	0.036	0.028	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.038	0.010	0.076	0.15	0.5	10	30
Nickel	1455	U	0.0012	0.0005	0.0025	0.0063	0.4	10	40
Lead	1455	U	0.0009	< 0.0005	0.0017	0.0013	0.5	10	50
Antimony	1455	U	0.037	0.042	0.074	0.41	0.06	0.7	5
Selenium	1455	U	0.0022	0.0016	0.0044	0.017	0.1	0.5	7
Zinc	1455	U	0.003	< 0.003	0.007	0.005	4	50	200
Chloride	1220	U	15	4.9	30	65	800	15000	25000
Fluoride	1220	U	0.45	0.38	< 1.0	3.9	10	150	500
Sulphate	1220	U	70	27	140	340	1000	20000	50000
Total Dissolved Solids	1020	N	310	350	620	3500	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	6.4	3.3	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	8.2
WAC Sample Weight	[E] 1189

Leachate Test Information	
Leachant volume 1st extract/l	0.334
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.275

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: STX6912 Albert Bridge House

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	25-08373								
Chemtest Sample ID:	1945519								
Sample Ref:	1								
Sample ID:	CS02-0-1						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:	CS02								
Top Depth(m):	0.00								
Bottom Depth(m):									
Sampling Date:	05-Mar-2025								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			7.2	3	5	6
Loss On Ignition	2610	M	%			9.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
WAC Total C10-C40	2780	U	mg/kg			320	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg			200	100	--	--
pH at 20C	2010	M				7.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.011	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0009	0.0019	0.0017	0.018	0.5	2	25
Barium	1455	U	0.039	0.039	0.076	0.39	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0009	0.0006	0.0019	0.0060	0.5	10	70
Copper	1455	U	0.0029	0.0023	0.0057	0.0024	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.012	0.0091	0.023	0.093	0.5	10	30
Nickel	1455	U	< 0.0005	0.0010	< 0.0005	0.0096	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0008	0.0008	0.0015	0.0082	0.06	0.7	5
Selenium	1455	U	0.0023	0.0013	0.0045	0.014	0.1	0.5	7
Zinc	1455	U	0.005	0.010	0.011	0.095	4	50	200
Chloride	1220	U	20	3.4	40	48	800	15000	25000
Fluoride	1220	U	0.76	0.48	1.5	5.0	10	150	500
Sulphate	1220	U	250	41	490	580	1000	20000	50000
Total Dissolved Solids	1020	N	420	120	830	1400	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.6	3.7	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	13
WAC Sample Weight	[E] 1490

Leachate Test Information	
Leachant volume 1st extract/l	0.324
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.146

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: STX6912 Albert Bridge House

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	25-08373								
Chemtest Sample ID:	1945520								
Sample Ref:	1								
Sample ID:	CS03-0-1						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:	CS03								
Top Depth(m):	0.00								
Bottom Depth(m):									
Sampling Date:	05-Mar-2025								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			12	3	5	6
Loss On Ignition	2610	M	%			7.1	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
WAC Total C10-C40	2780	U	mg/kg			370	500	--	--
Total (Of 17) PAH's	2800	N	mg/kg			440	100	--	--
pH at 20C	2010	M				8.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.012	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0016	0.0005	0.0032	0.0065	0.5	2	25
Barium	1455	U	0.037	0.053	0.073	0.50	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.012	0.0035	0.024	0.047	0.5	10	70
Copper	1455	U	0.026	0.0094	0.052	0.038	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.033	0.0086	0.066	0.12	0.5	10	30
Nickel	1455	U	0.0013	< 0.0005	0.0026	0.0020	0.4	10	40
Lead	1455	U	0.0010	< 0.0005	0.0019	0.0014	0.5	10	50
Antimony	1455	U	0.0074	0.032	0.015	0.28	0.06	0.7	5
Selenium	1455	U	0.0021	0.0014	0.0041	0.015	0.1	0.5	7
Zinc	1455	U	< 0.003	0.003	< 0.003	0.024	4	50	200
Chloride	1220	U	12	3.3	24	46	800	15000	25000
Fluoride	1220	U	0.35	0.31	< 1.0	3.1	10	150	500
Sulphate	1220	U	82	42	160	480	1000	20000	50000
Total Dissolved Solids	1020	N	490	500	970	5000	4000	60000	100000
Phenol Index	1920	U	0.18	< 0.030	0.36	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	17	5.9	< 50	75	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	12
WAC Sample Weight	[E] 1516

Leachate Test Information	
Leachant volume 1st extract/l	0.326
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.259

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1945518	1	CS01-0-1	CS01	##########	E	Amber Glass 250ml
1945518	1	CS01-0-1	CS01	##########	E	Plastic Tub 500g
1945519	1	CS02-0-1	CS02	##########	E	Amber Glass 250ml
1945519	1	CS02-0-1	CS02	##########	E	Plastic Tub 500g
1945520	1	CS03-0-1	CS03	##########	E	Amber Glass 250ml
1945520	1	CS03-0-1	CS03	##########	E	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	TE LE SW GW
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2015	Acid Neutralisation Capacity	Acid Reserve	Titration	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS. Reported PCB 101 results may contain contributions from PCB 90 due to inseparable chromatography.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

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B - Sample age exceeds stability time (sampling to extraction)

C - Sample not received in appropriate containers

D - Broken Container

E - The required amount of sample for analysis was not received

H - Appropriate cooling measures were not taken for sample transportation

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PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

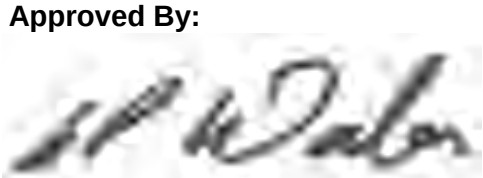
If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	25-08377-4		
Initial Date of Issue:	24-Apr-2025	**Date of Re-Issue:**	24-Apr-2025
Re-Issue Details:	This report has been revised and directly supersedes 25-08377-3 in its entirety		
Client	Soiltechnics Limited		
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS		
Contact(s):	Admin		
Project	STX6912 Albert Bridge House		
Quotation No.:		**Date Received:**	12-Mar-2025
Order No.:	POR021841	**Date Instructed:**	12-Mar-2025
No. of Samples:	17		
Turnaround (Wkdays):	5	**Results Due:**	18-Mar-2025
Date Approved:	24-Apr-2025		

Approved By:



Details: Simon Wicks, Specialist Chemist

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945535	1945536	1945537	1945538	1945539	1945540	1945541
Order No.: POR021841				Client Sample Ref.:		8	3	2	1	158	2	1
				Client Sample ID.:		RBH02-2.7-8	RBH06D-3-3	RBH08-0.6-2	TP01-0.3-1	TP01-0.7-0.7	TP02-0.6-2	TP03-0.3-1
				Sample Location:		RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		2.70	3.00	0.60	0.30	0.70	0.60	0.30
				Date Sampled:		19-Feb-2025	05-Mar-2025	25-Feb-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025
				Time Sampled:		10:23	16:08	9:19	9:32	0:00	11:46	13:05
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		N	2192		N/A	-	-	-	-		-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected
Asbestos by Gravimetry		U	2192	%	0.001							
Asbestos By Fibre Counting		U	2192	%	0.001							
Total Asbestos		U	2192	%	0.001							
Moisture		N	2030	%	0.020	5.8	18	17	12	< 0.020	21	14
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Black	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones	Stones	None	None	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Sand	Sand	tar	Clay	Sand
pH at 20C		M	2010		4.0	8.8	8.1	8.3	8.8		8.5	8.6
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40							
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010							
Cyanide (Free)		M	2300	mg/kg	0.50							
Cyanide (Total)		M	2300	mg/kg	0.50							
Ammoniacal Nitrogen		M	2425	mg/kg	0.50							
Arsenic		M	2455	mg/kg	0.5	18	48	20	25		12	26
Barium		M	2455	mg/kg	0.5							
Beryllium		U	2455	mg/kg	0.5							
Cadmium		M	2455	mg/kg	0.10	0.19	0.20	0.65	0.45		0.18	0.44
Chromium		M	2455	mg/kg	0.5	35	41	20	61		34	20
Manganese		M	2455	mg/kg	1.0							
Molybdenum		M	2455	mg/kg	0.5							
Antimony		N	2455	mg/kg	2.0							
Copper		M	2455	mg/kg	0.50	44	140	55	110		34	230
Mercury		M	2455	mg/kg	0.05	0.34	1.3	0.11	1.2		0.05	0.28
Nickel		M	2455	mg/kg	0.50	35	65	19	36		42	39
Lead		M	2455	mg/kg	0.50	86	460	20000	310		32	200
Selenium		M	2455	mg/kg	0.25	1.2	0.64	0.25	1.1		0.87	1.0
Vanadium		U	2455	mg/kg	0.5							
Zinc		M	2455	mg/kg	0.50	81	90	100	130		68	180
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	S	2780	mg/kg	0.10					< 0.10		
Aliphatic VPH >C6-C8	HS_2D_AL	S	2780	mg/kg	0.10					0.13		
Aliphatic Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	19.00					U/S		

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945535	1945536	1945537	1945538	1945539	1945540	1945541
Order No.: POR021841				Client Sample Ref.:		8	3	2	1	158	2	1
				Client Sample ID.:		RBH02-2.7-8	RBH06D-3-3	RBH08-0.6-2	TP01-0.3-1	TP01-0.7-0.7	TP02-0.6-2	TP03-0.3-1
				Sample Location:		RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		2.70	3.00	0.60	0.30	0.70	0.60	0.30
				Date Sampled:		19-Feb-2025	05-Mar-2025	25-Feb-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025
				Time Sampled:		10:23	16:08	9:19	9:32	0:00	11:46	13:05
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Aromatic Total >C05-C35	HS_2D_AL	S	2780	mg/kg	19.00					U/S		
Ali Aro Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	38.00					U/S		
Aliphatic VPH >C8-C10	HS_2D_AL	SN	2780	mg/kg	0.05					0.21		
Aliphatic EPH >C10-C12	EH_2D_AL_#1	S	2690	mg/kg	0.20					U/S		
Aliphatic EPH >C12-C16	EH_2D_AL_#1	S	2690	mg/kg	4.00					U/S		
Aliphatic EPH >C16-C21	EH_2D_AL_#1	S	2690	mg/kg	7.00					U/S		
Aliphatic EPH >C21-C35	EH_2D_AL_#1	S	2690	mg/kg	7.00					U/S		
Aromatic VPH >C5-C7	HS_2D_AR	S	2780	mg/kg	0.10					1.4		
Aromatic VPH >C7-C8	HS_2D_AR	S	2780	mg/kg	0.10					7.5		
Aromatic VPH >C8-C10	HS_2D_AR	S	2780	mg/kg	0.10					28		
Aromatic EPH >C10-C12	EH_2D_AR_#1	S	2690	mg/kg	0.20					U/S		
Aromatic EPH >C12-C16	EH_2D_AR_#1	S	2690	mg/kg	4.00					U/S		
Aromatic EPH >C16-C21	EH_2D_AR_#1	S	2690	mg/kg	7.00					U/S		
Aromatic EPH >C21-C35	EH_2D_AR_#1	S	2690	mg/kg	7.00					U/S		
Total C6-C10	HS_2D_Total	U	2780	mg/kg	0.50	[B] 8.6	5.6	[B] 5.1				
Total C6-C40	HS_2D_Total	U	2780	mg/kg	0.50	[B] 16	7.6	[B] 230				
Total C10-C21	HS_2D_Total	U	2780	mg/kg	0.50	[B] 5.9	< 0.50	[B] 83				
Total C21-C40	HS_2D_Total	U	2780	mg/kg	0.50	[B] 1.5	1.5	[B] 140				
Organic Matter		M	2625	%	0.40	1.9	2.8	2.6	8.6		1.6	45
TPH >C6-C10	EH_1D_Total	N	2670	mg/kg	1.0				< 1.0		< 1.0	3.0
TPH >C10-C21	EH_1D_Total	N	2670	mg/kg	1.0				250		1.5	54
TPH >C21-C40	EH_1D_Total	N	2670	mg/kg	1.0				340		< 1.0	84
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10				560		< 10	130
Dichlorodifluoromethane		U	2760	µg/kg	1.0							
Chloromethane		M	2760	µg/kg	1.0							
Vinyl Chloride		M	2760	µg/kg	1.0							
Bromomethane		M	2760	µg/kg	20							
Chloroethane		U	2760	µg/kg	2.0							
Trichlorofluoromethane		M	2760	µg/kg	1.0							
1,1-Dichloroethene		M	2760	µg/kg	1.0							
Trans 1,2-Dichloroethene		M	2760	µg/kg	1.0							
1,1-Dichloroethane		M	2760	µg/kg	1.0							
cis 1,2-Dichloroethene		M	2760	µg/kg	1.0							
Bromochloromethane		U	2760	µg/kg	5.0							
Trichloromethane		M	2760	µg/kg	1.0							
1,1,1-Trichloroethane		M	2760	µg/kg	1.0							

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945535	1945536	1945537	1945538	1945539	1945540	1945541
Order No.: POR021841				Client Sample Ref.:		8	3	2	1	158	2	1
				Client Sample ID.:		RBH02-2.7-8	RBH06D-3-3	RBH08-0.6-2	TP01-0.3-1	TP01-0.7-0.7	TP02-0.6-2	TP03-0.3-1
				Sample Location:		RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		2.70	3.00	0.60	0.30	0.70	0.60	0.30
				Date Sampled:		19-Feb-2025	05-Mar-2025	25-Feb-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025
				Time Sampled:		10:23	16:08	9:19	9:32	0:00	11:46	13:05
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Tetrachloromethane		M	2760	µg/kg	1.0							
1,1-Dichloropropene		U	2760	µg/kg	1.0							
Benzene		M	2760	µg/kg	1.0					43		
1,2-Dichloroethane		M	2760	µg/kg	2.0							
Trichloroethene		N	2760	µg/kg	1.0							
1,2-Dichloropropane		M	2760	µg/kg	1.0							
Dibromomethane		M	2760	µg/kg	1.0							
Bromodichloromethane		M	2760	µg/kg	5.0							
cis-1,3-Dichloropropene		N	2760	µg/kg	10							
Toluene		M	2760	µg/kg	1.0					250		
Trans-1,3-Dichloropropene		N	2760	µg/kg	10							
1,1,2-Trichloroethane		M	2760	µg/kg	10							
Tetrachloroethene		M	2760	µg/kg	1.0							
1,3-Dichloropropane		U	2760	µg/kg	2.0							
Dibromochloromethane		U	2760	µg/kg	10							
1,2-Dibromoethane		M	2760	µg/kg	5.0							
Chlorobenzene		M	2760	µg/kg	1.0							
1,1,1,2-Tetrachloroethane		M	2760	µg/kg	2.0							
Ethylbenzene		M	2760	µg/kg	1.0					280		
m & p-Xylene		M	2760	µg/kg	1.0					460		
o-Xylene		M	2760	µg/kg	1.0					280		
Styrene		M	2760	µg/kg	1.0							
Tribromomethane		U	2760	µg/kg	1.0							
Isopropylbenzene		M	2760	µg/kg	1.0							
Bromobenzene		M	2760	µg/kg	1.0							
1,2,3-Trichloropropane		N	2760	µg/kg	50							
N-Propylbenzene		U	2760	µg/kg	1.0							
2-Chlorotoluene		M	2760	µg/kg	1.0							
1,3,5-Trimethylbenzene		M	2760	µg/kg	1.0							
4-Chlorotoluene		U	2760	µg/kg	1.0							
Tert-Butylbenzene		U	2760	µg/kg	1.0							
1,2,4-Trimethylbenzene		M	2760	µg/kg	1.0							
Sec-Butylbenzene		U	2760	µg/kg	1.0							
1,3-Dichlorobenzene		M	2760	µg/kg	1.0							
4-Isopropyltoluene		U	2760	µg/kg	1.0							
1,4-Dichlorobenzene		M	2760	µg/kg	1.0							

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945535	1945536	1945537	1945538	1945539	1945540	1945541
Order No.: POR021841				Client Sample Ref.:		8	3	2	1	158	2	1
				Client Sample ID.:		RBH02-2.7-8	RBH06D-3-3	RBH08-0.6-2	TP01-0.3-1	TP01-0.7-0.7	TP02-0.6-2	TP03-0.3-1
				Sample Location:		RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		2.70	3.00	0.60	0.30	0.70	0.60	0.30
				Date Sampled:		19-Feb-2025	05-Mar-2025	25-Feb-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025
				Time Sampled:		10:23	16:08	9:19	9:32	0:00	11:46	13:05
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
N-Butylbenzene		U	2760	µg/kg	1.0							
1,2-Dichlorobenzene		M	2760	µg/kg	1.0							
1,2-Dibromo-3-Chloropropane		U	2760	µg/kg	50							
1,2,4-Trichlorobenzene		M	2760	µg/kg	1.0							
Hexachlorobutadiene		N	2760	µg/kg	1.0							
1,2,3-Trichlorobenzene		U	2760	µg/kg	2.0							
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0							
N-Nitrosodimethylamine		M	2790	mg/kg	0.50							
Phenol		M	2790	mg/kg	0.50							
2-Chlorophenol		N	2790	mg/kg	0.50							
Bis-(2-Chloroethyl)Ether		M	2790	mg/kg	0.50							
1,3-Dichlorobenzene		M	2790	mg/kg	0.50							
1,4-Dichlorobenzene		N	2790	mg/kg	0.50							
1,2-Dichlorobenzene		M	2790	mg/kg	0.50							
2-Methylphenol		M	2790	mg/kg	0.50							
Bis(2-Chloroisopropyl)Ether		N	2790	mg/kg	0.50							
Hexachloroethane		N	2790	mg/kg	0.50							
N-Nitrosodi-n-propylamine		M	2790	mg/kg	0.50							
4-Methylphenol		M	2790	mg/kg	0.50							
Nitrobenzene		N	2790	mg/kg	0.50							
Isophorone		M	2790	mg/kg	0.50							
2-Nitrophenol		N	2790	mg/kg	0.50							
2,4-Dimethylphenol		N	2790	mg/kg	0.50							
Bis(2-Chloroethoxy)Methane		M	2790	mg/kg	0.50							
2,4-Dichlorophenol		N	2790	mg/kg	0.50							
1,2,4-Trichlorobenzene		M	2790	mg/kg	0.50							
4-Chloroaniline		N	2790	mg/kg	0.50							
Hexachlorobutadiene		M	2790	mg/kg	0.50							
4-Chloro-3-Methylphenol		N	2790	mg/kg	0.50							
2-Methylnaphthalene		M	2790	mg/kg	0.50							
4-Nitrophenol		N	2790	mg/kg	0.50							
2,4,6-Trichlorophenol		N	2790	mg/kg	0.50							
2,4,5-Trichlorophenol		N	2790	mg/kg	0.50							
2-Chloronaphthalene		M	2790	mg/kg	0.50							
2-Nitroaniline		N	2790	mg/kg	0.50							
Dimethylphthalate		M	2790	mg/kg	0.50							

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945535	1945536	1945537	1945538	1945539	1945540	1945541
Order No.: POR021841				Client Sample Ref.:		8	3	2	1	158	2	1
				Client Sample ID.:		RBH02-2.7-8	RBH06D-3-3	RBH08-0.6-2	TP01-0.3-1	TP01-0.7-0.7	TP02-0.6-2	TP03-0.3-1
				Sample Location:		RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		2.70	3.00	0.60	0.30	0.70	0.60	0.30
				Date Sampled:		19-Feb-2025	05-Mar-2025	25-Feb-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025
				Time Sampled:		10:23	16:08	9:19	9:32	0:00	11:46	13:05
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
2,6-Dinitrotoluene		N	2790	mg/kg	0.50							
3-Nitroaniline		N	2790	mg/kg	0.50							
Dibenzofuran		M	2790	mg/kg	0.50							
4-Chlorophenylphenylether		M	2790	mg/kg	0.50							
2,4-Dinitrotoluene		N	2790	mg/kg	0.50							
Diethyl Phthalate		M	2790	mg/kg	0.50							
4-Nitroaniline		N	2790	mg/kg	0.50							
Azobenzene		M	2790	mg/kg	0.50							
4-Bromophenylphenyl Ether		M	2790	mg/kg	0.50							
Hexachlorobenzene		M	2790	mg/kg	0.50							
Carbazole		M	2790	mg/kg	0.50							
Di-N-Butyl Phthalate		N	2790	mg/kg	0.50							
Butylbenzyl Phthalate		N	2790	mg/kg	0.50							
Bis(2-Ethylhexyl)Phthalate		N	2790	mg/kg	0.50							
Di-N-Octyl Phthalate		N	2790	mg/kg	0.50							
Naphthalene		M	2800	mg/kg	0.10	0.30	0.42	< 0.10	0.87	200	0.15	1.6
Acenaphthylene		N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.70	16	< 0.10	0.65
Acenaphthene		M	2800	mg/kg	0.10	< 0.10	< 0.10	7.6	4.7	57	< 0.10	4.9
Fluorene		M	2800	mg/kg	0.10	< 0.10	< 0.10	5.6	2.7	39	< 0.10	3.4
Phenanthrene		M	2800	mg/kg	0.10	0.25	0.19	69	24	190	0.50	34
Anthracene		M	2800	mg/kg	0.10	< 0.10	< 0.10	20	9.3	47	< 0.10	9.4
Fluoranthene		M	2800	mg/kg	0.10	0.33	0.22	91	66	140	0.85	68
Pyrene		M	2800	mg/kg	0.10	0.44	0.24	74	58	100	1.2	57
Benzo[a]anthracene		M	2800	mg/kg	0.10	0.29	0.14	26	24	36	0.64	27
Chrysene		M	2800	mg/kg	0.10	0.30	0.16	27	25	39	0.80	28
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	0.31	< 0.10	28	29	39	0.98	34
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	0.13	< 0.10	11	11	14	0.35	13
Benzo[a]pyrene		M	2800	mg/kg	0.10	0.32	< 0.10	21	25	29	0.76	28
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	0.17	< 0.10	13	13	18	0.51	16
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	< 0.10	< 0.10	2.3	2.6	< 0.10	< 0.10	3.1
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	0.24	< 0.10	13	13	20	0.68	16
Total Of 16 PAH's		N	2800	mg/kg	2.0	3.1	< 2.0	410	310	980	7.4	340
Total Phenols		M	2920	mg/kg	0.10					4.2		
SVOC TIC		N	2790	mg/kg	N/A							
(SVOC TIC) Indene		N	2790	mg/kg	N/A							

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945535	1945536	1945537	1945538	1945539	1945540	1945541
Order No.: POR021841				Client Sample Ref.:		8	3	2	1	158	2	1
				Client Sample ID.:		RBH02-2.7-8	RBH06D-3-3	RBH08-0.6-2	TP01-0.3-1	TP01-0.7-0.7	TP02-0.6-2	TP03-0.3-1
				Sample Location:		RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		2.70	3.00	0.60	0.30	0.70	0.60	0.30
				Date Sampled:		19-Feb-2025	05-Mar-2025	25-Feb-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025	03-Mar-2025
				Time Sampled:		10:23	16:08	9:19	9:32	0:00	11:46	13:05
				Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
VOC TIC		N	2760	µg/kg	N/A							

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945542	1945543	1945544	1945545	1945546	1945547	1945548
Order No.: POR021841				Client Sample Ref.:		1	4	1	2	3	1	2
				Client Sample ID.:		TP04-0.25-1	TP04-3.8-4	TP05-0.5-1	TP06-1.0-2	TP07-0.9-3	TP07-1.9-1	TP08-0.8-2
				Sample Location:		TP04	TP04	TP05	TP06	TP07	TP07	TP08
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.25	3.80	0.50	1.00	0.90	1.90	0.80
				Date Sampled:		03-Mar-2025	03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
				Time Sampled:		14:19	14:20	9:04	10:09	12:29	12:28	14:37
				Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		N	2192		N/A	-		-	-	-	-	-
Asbestos Identification		U	2192		N/A	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Asbestos by Gravimetry		U	2192	%	0.001							
Asbestos By Fibre Counting		U	2192	%	0.001							
Total Asbestos		U	2192	%	0.001							
Moisture		N	2030	%	0.020	6.5	9.0	15	11	17	16	16
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones and slate	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C		M	2010		4.0	7.9		8.8	8.4	8.4	8.4	7.6
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40					0.55	0.63	
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010					0.025	0.023	
Cyanide (Free)		M	2300	mg/kg	0.50					< 0.50	< 0.50	
Cyanide (Total)		M	2300	mg/kg	0.50					0.60	< 0.50	
Ammoniacal Nitrogen		M	2425	mg/kg	0.50					2.3	2.0	
Arsenic		M	2455	mg/kg	0.5	27		15	14	25	16	33
Barium		M	2455	mg/kg	0.5					960	1000	
Beryllium		U	2455	mg/kg	0.5					1.3	< 0.5	
Cadmium		M	2455	mg/kg	0.10	0.47		1.6	0.92	1.7	4.6	1.4
Chromium		M	2455	mg/kg	0.5	25		18	13	20	20	43
Manganese		M	2455	mg/kg	1.0					460	510	
Molybdenum		M	2455	mg/kg	0.5					3.2	2.4	
Antimony		N	2455	mg/kg	2.0					61	130	
Copper		M	2455	mg/kg	0.50	71		260	330	4500	1800	600
Mercury		M	2455	mg/kg	0.05	0.19		0.78	0.80	0.59	0.24	3.3
Nickel		M	2455	mg/kg	0.50	42		27	18	39	200	42
Lead		M	2455	mg/kg	0.50	130		730	280	17000	17000	450
Selenium		M	2455	mg/kg	0.25	1.6		0.66	0.67	0.52	0.32	2.0
Vanadium		U	2455	mg/kg	0.5					45	28	
Zinc		M	2455	mg/kg	0.50	140		570	250	1000	3800	320
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	S	2780	mg/kg	0.10		< 0.10			< 0.10	< 0.10	
Aliphatic VPH >C6-C8	HS_2D_AL	S	2780	mg/kg	0.10		< 0.10			< 0.10	< 0.10	
Aliphatic Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	19.00		220			19	19	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945542	1945543	1945544	1945545	1945546	1945547	1945548
Order No.: POR021841				Client Sample Ref.:		1	4	1	2	3	1	2
				Client Sample ID.:		TP04-0.25-1	TP04-3.8-4	TP05-0.5-1	TP06-1.0-2	TP07-0.9-3	TP07-1.9-1	TP08-0.8-2
				Sample Location:		TP04	TP04	TP05	TP06	TP07	TP07	TP08
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.25	3.80	0.50	1.00	0.90	1.90	0.80
				Date Sampled:		03-Mar-2025	03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
				Time Sampled:		14:19	14:20	9:04	10:09	12:29	12:28	14:37
				Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Aromatic Total >C05-C35	HS_2D_AL	S	2780	mg/kg	19.00		920			52	< 19	
Ali Aro Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	38.00		1100			70	< 38	
Aliphatic VPH >C8-C10	HS_2D_AL	SN	2780	mg/kg	0.05		< 0.05			< 0.05	< 0.05	
Aliphatic EPH >C10-C12	EH_2D_AL_#1	S	2690	mg/kg	0.20		4.0			< 1.00	< 1.00	
Aliphatic EPH >C12-C16	EH_2D_AL_#1	S	2690	mg/kg	4.00		60			< 4.0	< 4.0	
Aliphatic EPH >C16-C21	EH_2D_AL_#1	S	2690	mg/kg	7.00		81			< 8.00	< 8.00	
Aliphatic EPH >C21-C35	EH_2D_AL_#1	S	2690	mg/kg	7.00		77			19	19	
Aromatic VPH >C5-C7	HS_2D_AR	S	2780	mg/kg	0.10		< 0.10			< 0.10	< 0.10	
Aromatic VPH >C7-C8	HS_2D_AR	S	2780	mg/kg	0.10		< 0.10			< 0.10	< 0.10	
Aromatic VPH >C8-C10	HS_2D_AR	S	2780	mg/kg	0.10		< 0.10			< 0.10	< 0.10	
Aromatic EPH >C10-C12	EH_2D_AR_#1	S	2690	mg/kg	0.20		5.1			< 1.00	1.4	
Aromatic EPH >C12-C16	EH_2D_AR_#1	S	2690	mg/kg	4.00		100			5.3	< 4.0	
Aromatic EPH >C16-C21	EH_2D_AR_#1	S	2690	mg/kg	7.00		390			20	< 10.00	
Aromatic EPH >C21-C35	EH_2D_AR_#1	S	2690	mg/kg	7.00		420			26	< 10.00	
Total C6-C10	HS_2D_Total	U	2780	mg/kg	0.50							
Total C6-C40	HS_2D_Total	U	2780	mg/kg	0.50							
Total C10-C21	HS_2D_Total	U	2780	mg/kg	0.50							
Total C21-C40	HS_2D_Total	U	2780	mg/kg	0.50							
Organic Matter		M	2625	%	0.40	15		6.7	24	11	5.7	12
TPH >C6-C10	EH_1D_Total	N	2670	mg/kg	1.0	< 1.0		< 1.0	2.3			< 1.0
TPH >C10-C21	EH_1D_Total	N	2670	mg/kg	1.0	75		63	99			4.7
TPH >C21-C40	EH_1D_Total	N	2670	mg/kg	1.0	120		150	180			3.7
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	190		200	270			< 10
Dichlorodifluoromethane		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Chloromethane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Vinyl Chloride		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Bromomethane		M	2760	µg/kg	20		< 20			< 20	< 20	
Chloroethane		U	2760	µg/kg	2.0		< 2.0			< 2.0	< 2.0	
Trichlorofluoromethane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,1-Dichloroethene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Trans 1,2-Dichloroethene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,1-Dichloroethane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
cis 1,2-Dichloroethene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Bromochloromethane		U	2760	µg/kg	5.0		< 5.0			< 5.0	< 5.0	
Trichloromethane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,1,1-Trichloroethane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945542	1945543	1945544	1945545	1945546	1945547	1945548
Order No.: POR021841				Client Sample Ref.:		1	4	1	2	3	1	2
				Client Sample ID.:		TP04-0.25-1	TP04-3.8-4	TP05-0.5-1	TP06-1.0-2	TP07-0.9-3	TP07-1.9-1	TP08-0.8-2
				Sample Location:		TP04	TP04	TP05	TP06	TP07	TP07	TP08
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.25	3.80	0.50	1.00	0.90	1.90	0.80
				Date Sampled:		03-Mar-2025	03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
				Time Sampled:		14:19	14:20	9:04	10:09	12:29	12:28	14:37
				Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Tetrachloromethane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,1-Dichloropropene		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Benzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,2-Dichloroethane		M	2760	µg/kg	2.0		< 2.0			< 2.0	< 2.0	
Trichloroethene		N	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,2-Dichloropropane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Dibromomethane		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Bromodichloromethane		M	2760	µg/kg	5.0		< 5.0			< 5.0	< 5.0	
cis-1,3-Dichloropropene		N	2760	µg/kg	10		< 10			< 10	< 10	
Toluene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Trans-1,3-Dichloropropene		N	2760	µg/kg	10		< 10			< 10	< 10	
1,1,2-Trichloroethane		M	2760	µg/kg	10		< 10			< 10	< 10	
Tetrachloroethene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,3-Dichloropropane		U	2760	µg/kg	2.0		< 2.0			< 2.0	< 2.0	
Dibromochloromethane		U	2760	µg/kg	10		< 10			< 10	< 10	
1,2-Dibromoethane		M	2760	µg/kg	5.0		< 5.0			< 5.0	< 5.0	
Chlorobenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,1,1,2-Tetrachloroethane		M	2760	µg/kg	2.0		< 2.0			< 2.0	< 2.0	
Ethylbenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
m & p-Xylene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
o-Xylene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Styrene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Tribromomethane		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Isopropylbenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Bromobenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,2,3-Trichloropropane		N	2760	µg/kg	50		< 50			< 50	< 50	
N-Propylbenzene		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
2-Chlorotoluene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,3,5-Trimethylbenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
4-Chlorotoluene		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Tert-Butylbenzene		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,2,4-Trimethylbenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Sec-Butylbenzene		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,3-Dichlorobenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
4-Isopropyltoluene		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,4-Dichlorobenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945542	1945543	1945544	1945545	1945546	1945547	1945548
Order No.: POR021841				Client Sample Ref.:		1	4	1	2	3	1	2
				Client Sample ID.:		TP04-0.25-1	TP04-3.8-4	TP05-0.5-1	TP06-1.0-2	TP07-0.9-3	TP07-1.9-1	TP08-0.8-2
				Sample Location:		TP04	TP04	TP05	TP06	TP07	TP07	TP08
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.25	3.80	0.50	1.00	0.90	1.90	0.80
				Date Sampled:		03-Mar-2025	03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
				Time Sampled:		14:19	14:20	9:04	10:09	12:29	12:28	14:37
				Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
N-Butylbenzene		U	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,2-Dichlorobenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,2-Dibromo-3-Chloropropane		U	2760	µg/kg	50		< 50			< 50	< 50	
1,2,4-Trichlorobenzene		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
Hexachlorobutadiene		N	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
1,2,3-Trichlorobenzene		U	2760	µg/kg	2.0		< 2.0			< 2.0	< 2.0	
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0		< 1.0			< 1.0	< 1.0	
N-Nitrosodimethylamine		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Phenol		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2-Chlorophenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Bis-(2-Chloroethyl)Ether		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
1,3-Dichlorobenzene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
1,4-Dichlorobenzene		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
1,2-Dichlorobenzene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2-Methylphenol		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Bis(2-Chloroisopropyl)Ether		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Hexachloroethane		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
N-Nitrosodi-n-propylamine		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
4-Methylphenol		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Nitrobenzene		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Isophorone		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2-Nitrophenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2,4-Dimethylphenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Bis(2-Chloroethoxy)Methane		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2,4-Dichlorophenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
1,2,4-Trichlorobenzene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
4-Chloroaniline		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Hexachlorobutadiene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
4-Chloro-3-Methylphenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2-Methylnaphthalene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
4-Nitrophenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2,4,6-Trichlorophenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2,4,5-Trichlorophenol		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2-Chloronaphthalene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2-Nitroaniline		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Dimethylphthalate		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945542	1945543	1945544	1945545	1945546	1945547	1945548
Order No.: POR021841				Client Sample Ref.:		1	4	1	2	3	1	2
				Client Sample ID.:		TP04-0.25-1	TP04-3.8-4	TP05-0.5-1	TP06-1.0-2	TP07-0.9-3	TP07-1.9-1	TP08-0.8-2
				Sample Location:		TP04	TP04	TP05	TP06	TP07	TP07	TP08
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.25	3.80	0.50	1.00	0.90	1.90	0.80
				Date Sampled:		03-Mar-2025	03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
				Time Sampled:		14:19	14:20	9:04	10:09	12:29	12:28	14:37
				Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
2,6-Dinitrotoluene		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
3-Nitroaniline		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Dibenzofuran		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
4-Chlorophenylphenylether		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
2,4-Dinitrotoluene		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Diethyl Phthalate		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
4-Nitroaniline		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Azobenzene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
4-Bromophenylphenyl Ether		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Hexachlorobenzene		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Carbazole		M	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Di-N-Butyl Phthalate		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Butylbenzyl Phthalate		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Bis(2-Ethylhexyl)Phthalate		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Di-N-Octyl Phthalate		N	2790	mg/kg	0.50		< 0.50			< 0.50	I/S	
Naphthalene		M	2800	mg/kg	0.10	0.97	0.58	4.5	28	0.24	0.17	0.73
Acenaphthylene		N	2800	mg/kg	0.10	0.83	2.7	0.89	5.4	< 0.10	< 0.10	0.40
Acenaphthene		M	2800	mg/kg	0.10	12	0.75	13	15	0.16	< 0.10	0.40
Fluorene		M	2800	mg/kg	0.10	8.7	4.0	8.6	19	0.14	< 0.10	0.78
Phenanthrene		M	2800	mg/kg	0.10	99	22	72	110	0.97	0.32	6.3
Anthracene		M	2800	mg/kg	0.10	28	8.8	20	28	0.31	< 0.10	1.4
Fluoranthene		M	2800	mg/kg	0.10	170	18	110	130	1.9	0.37	6.3
Pyrene		M	2800	mg/kg	0.10	140	24	89	120	1.6	0.41	6.5
Benzo[a]anthracene		M	2800	mg/kg	0.10	56	13	39	53	0.72	0.20	2.8
Chrysene		M	2800	mg/kg	0.10	60	11	45	59	0.76	0.19	3.0
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	63	10	48	65	0.94	< 0.10	3.2
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	25	3.6	18	23	0.43	< 0.10	1.2
Benzo[a]pyrene		M	2800	mg/kg	0.10	51	12	38	55	0.72	< 0.10	2.6
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	29	3.9	23	30	0.49	< 0.10	1.4
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	5.5	1.4	5.3	6.7	< 0.10	< 0.10	0.35
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	30	4.4	24	31	0.54	< 0.10	1.5
Total Of 16 PAH's		N	2800	mg/kg	2.0	780	140	560	780	9.9	< 2.0	39
Total Phenols		M	2920	mg/kg	0.10		< 0.10			< 0.10	< 0.10	
SVOC TIC		N	2790	mg/kg	N/A		See Below			None Detected	I/S	
(SVOC TIC) Indene		N	2790	mg/kg	N/A		1.41					

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377	25-08377	25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945542	1945543	1945544	1945545	1945546	1945547	1945548
Order No.: POR021841				Client Sample Ref.:		1	4	1	2	3	1	2
				Client Sample ID.:		TP04-0.25-1	TP04-3.8-4	TP05-0.5-1	TP06-1.0-2	TP07-0.9-3	TP07-1.9-1	TP08-0.8-2
				Sample Location:		TP04	TP04	TP05	TP06	TP07	TP07	TP08
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.25	3.80	0.50	1.00	0.90	1.90	0.80
				Date Sampled:		03-Mar-2025	03-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025	04-Mar-2025
				Time Sampled:		14:19	14:20	9:04	10:09	12:29	12:28	14:37
				Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
VOC TIC		N	2760	µg/kg	N/A		None Detected			None Detected	None Detected	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945549	1945550	1945551
Order No.: POR021841				Client Sample Ref.:		2	1	2
				Client Sample ID.:		WLS01-0.8-2	WLS02-0.4-1	WLS02-1.2-2
				Sample Location:		WLS01C	WLS02	WLS02
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.80	0.40	1.20
				Date Sampled:		24-Feb-2025	24-Feb-2025	24-Feb-2025
				Time Sampled:		11:11		
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type		N	2192		N/A	-	-	Fibres/Clumps
Asbestos Identification		U	2192		N/A	No Asbestos Detected	No Asbestos Detected	Chrysotile
Asbestos by Gravimetry		U	2192	%	0.001			0.002
Asbestos By Fibre Counting		U	2192	%	0.001			-
Total Asbestos		U	2192	%	0.001			0.002
Moisture		N	2030	%	0.020	16	16	14
Soil Colour		N	2040		N/A	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Sand
pH at 20C		M	2010		4.0	8.1	10.0	8.9
Boron (Hot Water Soluble)		M	2120	mg/kg	0.40		< 0.40	
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010		0.20	
Cyanide (Free)		M	2300	mg/kg	0.50		[B] < 0.50	
Cyanide (Total)		M	2300	mg/kg	0.50		[B] 1.3	
Ammoniacal Nitrogen		M	2425	mg/kg	0.50		1.2	
Arsenic		M	2455	mg/kg	0.5	20	12	200
Barium		M	2455	mg/kg	0.5		360	
Beryllium		U	2455	mg/kg	0.5		0.9	
Cadmium		M	2455	mg/kg	0.10	4.1	0.53	1.3
Chromium		M	2455	mg/kg	0.5	11	36	85
Manganese		M	2455	mg/kg	1.0		370	
Molybdenum		M	2455	mg/kg	0.5		2.3	
Antimony		N	2455	mg/kg	2.0		5.1	
Copper		M	2455	mg/kg	0.50	97	110	340
Mercury		M	2455	mg/kg	0.05	1.5	0.40	0.88
Nickel		M	2455	mg/kg	0.50	18	20	58
Lead		M	2455	mg/kg	0.50	340	390	3300
Selenium		M	2455	mg/kg	0.25	1.2	0.39	1.1
Vanadium		U	2455	mg/kg	0.5		25	
Zinc		M	2455	mg/kg	0.50	2000	280	1100
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	S	2780	mg/kg	0.10		[B] < 0.10	
Aliphatic VPH >C6-C8	HS_2D_AL	S	2780	mg/kg	0.10		[B] < 0.10	
Aliphatic Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	19.00		[B] < 19	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945549	1945550	1945551
Order No.: POR021841				Client Sample Ref.:		2	1	2
				Client Sample ID.:		WLS01-0.8-2	WLS02-0.4-1	WLS02-1.2-2
				Sample Location:		WLS01C	WLS02	WLS02
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.80	0.40	1.20
				Date Sampled:		24-Feb-2025	24-Feb-2025	24-Feb-2025
				Time Sampled:		11:11		
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Aromatic Total >C05-C35	HS_2D_AL	S	2780	mg/kg	19.00		[B] < 19	
Ali Aro Total >C05-C35	HS_2D_AL	SN	2780	mg/kg	38.00		[B] < 38	
Aliphatic VPH >C8-C10	HS_2D_AL	SN	2780	mg/kg	0.05		[B] < 0.05	
Aliphatic EPH >C10-C12	EH_2D_AL_#1	S	2690	mg/kg	0.20		[B] < 1.00	
Aliphatic EPH >C12-C16	EH_2D_AL_#1	S	2690	mg/kg	4.00		[B] < 4.0	
Aliphatic EPH >C16-C21	EH_2D_AL_#1	S	2690	mg/kg	7.00		[B] < 8.00	
Aliphatic EPH >C21-C35	EH_2D_AL_#1	S	2690	mg/kg	7.00		[B] < 8.00	
Aromatic VPH >C5-C7	HS_2D_AR	S	2780	mg/kg	0.10		[B] < 0.10	
Aromatic VPH >C7-C8	HS_2D_AR	S	2780	mg/kg	0.10		[B] < 0.10	
Aromatic VPH >C8-C10	HS_2D_AR	S	2780	mg/kg	0.10		[B] < 0.10	
Aromatic EPH >C10-C12	EH_2D_AR_#1	S	2690	mg/kg	0.20		[B] < 1.00	
Aromatic EPH >C12-C16	EH_2D_AR_#1	S	2690	mg/kg	4.00		[B] < 4.0	
Aromatic EPH >C16-C21	EH_2D_AR_#1	S	2690	mg/kg	7.00		[B] < 10.00	
Aromatic EPH >C21-C35	EH_2D_AR_#1	S	2690	mg/kg	7.00		[B] 11	
Total C6-C10	HS_2D_Total	U	2780	mg/kg	0.50			
Total C6-C40	HS_2D_Total	U	2780	mg/kg	0.50			
Total C10-C21	HS_2D_Total	U	2780	mg/kg	0.50			
Total C21-C40	HS_2D_Total	U	2780	mg/kg	0.50			
Organic Matter		M	2625	%	0.40	9.3	4.1	4.1
TPH >C6-C10	EH_1D_Total	N	2670	mg/kg	1.0	[B] < 1.0		[B] 1.0
TPH >C10-C21	EH_1D_Total	N	2670	mg/kg	1.0	[B] 75		[B] 36
TPH >C21-C40	EH_1D_Total	N	2670	mg/kg	1.0	[B] 160		[B] 40
Total TPH >C6-C40	EH_1D_Total	U	2670	mg/kg	10	[B] 220		[B] 75
Dichlorodifluoromethane		U	2760	µg/kg	1.0		[B] < 1.0	
Chloromethane		M	2760	µg/kg	1.0		[B] < 1.0	
Vinyl Chloride		M	2760	µg/kg	1.0		[B] < 1.0	
Bromomethane		M	2760	µg/kg	20		[B] < 20	
Chloroethane		U	2760	µg/kg	2.0		[B] < 2.0	
Trichlorofluoromethane		M	2760	µg/kg	1.0		[B] < 1.0	
1,1-Dichloroethene		M	2760	µg/kg	1.0		[B] < 1.0	
Trans 1,2-Dichloroethene		M	2760	µg/kg	1.0		[B] < 1.0	
1,1-Dichloroethane		M	2760	µg/kg	1.0		[B] < 1.0	
cis 1,2-Dichloroethene		M	2760	µg/kg	1.0		[B] < 1.0	
Bromochloromethane		U	2760	µg/kg	5.0		[B] < 5.0	
Trichloromethane		M	2760	µg/kg	1.0		[B] < 1.0	
1,1,1-Trichloroethane		M	2760	µg/kg	1.0		[B] < 1.0	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945549	1945550	1945551
Order No.: POR021841				Client Sample Ref.:		2	1	2
				Client Sample ID.:		WLS01-0.8-2	WLS02-0.4-1	WLS02-1.2-2
				Sample Location:		WLS01C	WLS02	WLS02
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.80	0.40	1.20
				Date Sampled:		24-Feb-2025	24-Feb-2025	24-Feb-2025
				Time Sampled:		11:11		
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Tetrachloromethane		M	2760	µg/kg	1.0		[B] < 1.0	
1,1-Dichloropropene		U	2760	µg/kg	1.0		[B] < 1.0	
Benzene		M	2760	µg/kg	1.0		[B] < 1.0	
1,2-Dichloroethane		M	2760	µg/kg	2.0		[B] < 2.0	
Trichloroethene		N	2760	µg/kg	1.0		[B] < 1.0	
1,2-Dichloropropane		M	2760	µg/kg	1.0		[B] < 1.0	
Dibromomethane		M	2760	µg/kg	1.0		[B] < 1.0	
Bromodichloromethane		M	2760	µg/kg	5.0		[B] < 5.0	
cis-1,3-Dichloropropene		N	2760	µg/kg	10		[B] < 10	
Toluene		M	2760	µg/kg	1.0		[B] < 1.0	
Trans-1,3-Dichloropropene		N	2760	µg/kg	10		[B] < 10	
1,1,2-Trichloroethane		M	2760	µg/kg	10		[B] < 10	
Tetrachloroethene		M	2760	µg/kg	1.0		[B] < 1.0	
1,3-Dichloropropane		U	2760	µg/kg	2.0		[B] < 2.0	
Dibromochloromethane		U	2760	µg/kg	10		[B] < 10	
1,2-Dibromoethane		M	2760	µg/kg	5.0		[B] < 5.0	
Chlorobenzene		M	2760	µg/kg	1.0		[B] < 1.0	
1,1,1,2-Tetrachloroethane		M	2760	µg/kg	2.0		[B] < 2.0	
Ethylbenzene		M	2760	µg/kg	1.0		[B] < 1.0	
m & p-Xylene		M	2760	µg/kg	1.0		[B] < 1.0	
o-Xylene		M	2760	µg/kg	1.0		[B] < 1.0	
Styrene		M	2760	µg/kg	1.0		[B] < 1.0	
Tribromomethane		U	2760	µg/kg	1.0		[B] < 1.0	
Isopropylbenzene		M	2760	µg/kg	1.0		[B] < 1.0	
Bromobenzene		M	2760	µg/kg	1.0		[B] < 1.0	
1,2,3-Trichloropropane		N	2760	µg/kg	50		[B] < 50	
N-Propylbenzene		U	2760	µg/kg	1.0		[B] < 1.0	
2-Chlorotoluene		M	2760	µg/kg	1.0		[B] < 1.0	
1,3,5-Trimethylbenzene		M	2760	µg/kg	1.0		[B] < 1.0	
4-Chlorotoluene		U	2760	µg/kg	1.0		[B] < 1.0	
Tert-Butylbenzene		U	2760	µg/kg	1.0		[B] < 1.0	
1,2,4-Trimethylbenzene		M	2760	µg/kg	1.0		[B] < 1.0	
Sec-Butylbenzene		U	2760	µg/kg	1.0		[B] < 1.0	
1,3-Dichlorobenzene		M	2760	µg/kg	1.0		[B] < 1.0	
4-Isopropyltoluene		U	2760	µg/kg	1.0		[B] < 1.0	
1,4-Dichlorobenzene		M	2760	µg/kg	1.0		[B] < 1.0	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945549	1945550	1945551
Order No.: POR021841				Client Sample Ref.:		2	1	2
				Client Sample ID.:		WLS01-0.8-2	WLS02-0.4-1	WLS02-1.2-2
				Sample Location:		WLS01C	WLS02	WLS02
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.80	0.40	1.20
				Date Sampled:		24-Feb-2025	24-Feb-2025	24-Feb-2025
				Time Sampled:		11:11		
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
N-Butylbenzene		U	2760	µg/kg	1.0		[B] < 1.0	
1,2-Dichlorobenzene		M	2760	µg/kg	1.0		[B] < 1.0	
1,2-Dibromo-3-Chloropropane		U	2760	µg/kg	50		[B] < 50	
1,2,4-Trichlorobenzene		M	2760	µg/kg	1.0		[B] < 1.0	
Hexachlorobutadiene		N	2760	µg/kg	1.0		[B] < 1.0	
1,2,3-Trichlorobenzene		U	2760	µg/kg	2.0		[B] < 2.0	
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0		[B] < 1.0	
N-Nitrosodimethylamine		M	2790	mg/kg	0.50		[B] < 0.50	
Phenol		M	2790	mg/kg	0.50		[B] < 0.50	
2-Chlorophenol		N	2790	mg/kg	0.50		[B] < 0.50	
Bis-(2-Chloroethyl)Ether		M	2790	mg/kg	0.50		[B] < 0.50	
1,3-Dichlorobenzene		M	2790	mg/kg	0.50		[B] < 0.50	
1,4-Dichlorobenzene		N	2790	mg/kg	0.50		[B] < 0.50	
1,2-Dichlorobenzene		M	2790	mg/kg	0.50		[B] < 0.50	
2-Methylphenol		M	2790	mg/kg	0.50		[B] < 0.50	
Bis(2-Chloroisopropyl)Ether		N	2790	mg/kg	0.50		[B] < 0.50	
Hexachloroethane		N	2790	mg/kg	0.50		[B] < 0.50	
N-Nitrosodi-n-propylamine		M	2790	mg/kg	0.50		[B] < 0.50	
4-Methylphenol		M	2790	mg/kg	0.50		[B] < 0.50	
Nitrobenzene		N	2790	mg/kg	0.50		[B] < 0.50	
Isophorone		M	2790	mg/kg	0.50		[B] < 0.50	
2-Nitrophenol		N	2790	mg/kg	0.50		[B] < 0.50	
2,4-Dimethylphenol		N	2790	mg/kg	0.50		[B] < 0.50	
Bis(2-Chloroethoxy)Methane		M	2790	mg/kg	0.50		[B] < 0.50	
2,4-Dichlorophenol		N	2790	mg/kg	0.50		[B] < 0.50	
1,2,4-Trichlorobenzene		M	2790	mg/kg	0.50		[B] < 0.50	
4-Chloroaniline		N	2790	mg/kg	0.50		[B] < 0.50	
Hexachlorobutadiene		M	2790	mg/kg	0.50		[B] < 0.50	
4-Chloro-3-Methylphenol		N	2790	mg/kg	0.50		[B] < 0.50	
2-Methylnaphthalene		M	2790	mg/kg	0.50		[B] < 0.50	
4-Nitrophenol		N	2790	mg/kg	0.50		[B] < 0.50	
2,4,6-Trichlorophenol		N	2790	mg/kg	0.50		[B] < 0.50	
2,4,5-Trichlorophenol		N	2790	mg/kg	0.50		[B] < 0.50	
2-Chloronaphthalene		M	2790	mg/kg	0.50		[B] < 0.50	
2-Nitroaniline		N	2790	mg/kg	0.50		[B] < 0.50	
Dimethylphthalate		M	2790	mg/kg	0.50		[B] < 0.50	

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945549	1945550	1945551
Order No.: POR021841				Client Sample Ref.:		2	1	2
				Client Sample ID.:		WLS01-0.8-2	WLS02-0.4-1	WLS02-1.2-2
				Sample Location:		WLS01C	WLS02	WLS02
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.80	0.40	1.20
				Date Sampled:		24-Feb-2025	24-Feb-2025	24-Feb-2025
				Time Sampled:		11:11		
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
2,6-Dinitrotoluene		N	2790	mg/kg	0.50		[B] < 0.50	
3-Nitroaniline		N	2790	mg/kg	0.50		[B] < 0.50	
Dibenzofuran		M	2790	mg/kg	0.50		[B] < 0.50	
4-Chlorophenylphenylether		M	2790	mg/kg	0.50		[B] < 0.50	
2,4-Dinitrotoluene		N	2790	mg/kg	0.50		[B] < 0.50	
Diethyl Phthalate		M	2790	mg/kg	0.50		[B] < 0.50	
4-Nitroaniline		N	2790	mg/kg	0.50		[B] < 0.50	
Azobenzene		M	2790	mg/kg	0.50		[B] < 0.50	
4-Bromophenylphenyl Ether		M	2790	mg/kg	0.50		[B] < 0.50	
Hexachlorobenzene		M	2790	mg/kg	0.50		[B] < 0.50	
Carbazole		M	2790	mg/kg	0.50		[B] < 0.50	
Di-N-Butyl Phthalate		N	2790	mg/kg	0.50		[B] < 0.50	
Butylbenzyl Phthalate		N	2790	mg/kg	0.50		[B] < 0.50	
Bis(2-Ethylhexyl)Phthalate		N	2790	mg/kg	0.50		[B] < 0.50	
Di-N-Octyl Phthalate		N	2790	mg/kg	0.50		[B] < 0.50	
Naphthalene		M	2800	mg/kg	0.10	12	0.13	0.19
Acenaphthylene		N	2800	mg/kg	0.10	0.51	< 0.10	0.22
Acenaphthene		M	2800	mg/kg	0.10	30	< 0.10	0.20
Fluorene		M	2800	mg/kg	0.10	19	< 0.10	0.26
Phenanthrene		M	2800	mg/kg	0.10	170	1.1	1.9
Anthracene		M	2800	mg/kg	0.10	41	0.34	0.48
Fluoranthene		M	2800	mg/kg	0.10	180	1.9	2.9
Pyrene		M	2800	mg/kg	0.10	150	1.7	3.0
Benzo[a]anthracene		M	2800	mg/kg	0.10	70	0.81	1.3
Chrysene		M	2800	mg/kg	0.10	71	0.84	1.5
Benzo[b]fluoranthene		M	2800	mg/kg	0.10	75	1.1	1.7
Benzo[k]fluoranthene		M	2800	mg/kg	0.10	30	0.46	0.54
Benzo[a]pyrene		M	2800	mg/kg	0.10	59	0.96	1.3
Indeno(1,2,3-c,d)Pyrene		M	2800	mg/kg	0.10	37	0.67	0.72
Dibenz(a,h)Anthracene		N	2800	mg/kg	0.10	7.3	< 0.10	< 0.10
Benzo[g,h,i]perylene		M	2800	mg/kg	0.10	38	0.60	0.88
Total Of 16 PAH's		N	2800	mg/kg	2.0	990	11	17
Total Phenols		M	2920	mg/kg	0.10		< 0.10	
SVOC TIC		N	2790	mg/kg	N/A		[B] None Detected	
(SVOC TIC) Indene		N	2790	mg/kg	N/A			

Results - Soil

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-08377	25-08377	25-08377
Quotation No.:				**Chemtest Sample ID.:**		1945549	1945550	1945551
Order No.: POR021841				Client Sample Ref.:		2	1	2
				Client Sample ID.:		WLS01-0.8-2	WLS02-0.4-1	WLS02-1.2-2
				Sample Location:		WLS01C	WLS02	WLS02
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.80	0.40	1.20
				Date Sampled:		24-Feb-2025	24-Feb-2025	24-Feb-2025
				Time Sampled:		11:11		
				Asbestos Lab:		DURHAM	DURHAM	DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
VOC TIC		N	2760	µg/kg	N/A		[B] None Detected	

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1945535	8	RBH02-2.7-8	RBH02	##########	B	Amber Glass 250ml
1945535	8	RBH02-2.7-8	RBH02	##########	B	Plastic Tub 500g
1945537	2	RBH08-0.6-2	RBH08	##########	B	Amber Glass 250ml
1945537	2	RBH08-0.6-2	RBH08	##########	B	Plastic Tub 500g
1945549	2	WLS01-0.8-2	WLS01C	##########	B	Amber Glass 250ml
1945549	2	WLS01-0.8-2	WLS01C	##########	B	Plastic Tub 500g
1945550	1	WLS02-0.4-1	WLS02	##########	B	Amber Glass 250ml
1945550	1	WLS02-0.4-1	WLS02	##########	B	Plastic Tub 500g
1945551	2	WLS02-1.2-2	WLS02	##########	B	Amber Glass 250ml
1945551	2	WLS02-1.2-2	WLS02	##########	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.	
2425	Extractable Ammonium in soils	Ammonium	Extraction with potassium chloride solution / analysis by 'Aquakem 600' Discrete Analyser using sodium salicylate and sodium dichloroisocyanurate.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS	
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.
Any comments or interpretations are outside the scope of UKAS accreditation.
The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.
Uncertainty of measurement for the determinands tested are available upon request .
None of the results in this report have been recovery corrected.
All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at ≤ 30°C prior to analysis.
All Asbestos testing is performed at the indicated laboratory .
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - The required amount of sample for analysis was not received
H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.
All water samples will be retained for 14 days from the date of receipt.
Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

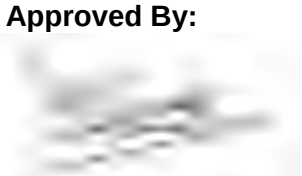
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	25-10886-1
Initial Date of Issue:	25-Apr-2025
Re-Issue Details:	
Client	Soiltechnics Limited
Client Address:	1st Floor Unit 9 Westpoint Enterprise Park Clarence Avenue Trafford Park Manchester M17 1QS
Contact(s):	Admin
Project	STX6912 Albert Bridge House

Quotation No.:		**Date Received:**	31-Mar-2025
Order No.:	POR021994	**Date Instructed:**	31-Mar-2025
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	04-Apr-2025
Date Approved:	25-Apr-2025		

Approved By:



Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Water

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-10886	25-10886	25-10886	25-10886	25-10886
Quotation No.:				**Chemtest Sample ID.:**		1954612	1954613	1954614	1954615	1954616
Order No.: POR021994				Client Sample Ref.:		24	34	15	1	1
				Client Sample ID.:		RBH01-10-24	RBH02-13-34	RBH06D-13-15	SW01-0-1	SW02-0-1
				Sample Location:		RBH01	RBH02	RBH06D	SW01	SW02
				Sample Type:		WATER	WATER	WATER	WATER	WATER
				Sample Sub Type:						
				Top Depth (m):		10.00	13.00	13.00	0.00	0.00
				Bottom Depth (m):					0.00	0.00
				Date Sampled:		27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025
				Time Sampled:		0:00	0:00	0:00	0:00	0:00
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**					
pH at 20C		U	1010		4.0	8.3	8.5	7.7	7.9	8.1
Ammoniacal Nitrogen		U	1220	mg/l	0.050	0.70	6.8	2.8	0.86	0.86
Nitrate as NO3		U	1220	mg/l	0.50	6.1	1.0	< 0.50	24	22
Sulphate		U	1220	mg/l	1.0	78	150	300	87	85
Cyanide (Total)		U	1300	mg/l	0.050	< 0.050	0.060	< 0.050	< 0.050	< 0.050
Cyanide (Free)		U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Calcium (Dissolved)		U	1455	mg/l	2.00				40	
Total Hardness as CaCO3		U	1270	mg/l	15				130	
Arsenic (Dissolved)		U	1455	µg/l	0.20	1.7	4.2	2.4	0.98	0.96
Boron (Dissolved)		U	1455	µg/l	10.0	61	210	290	56	54
Barium (Dissolved)		U	1455	µg/l	5.00	7.3	25	130	43	37
Beryllium (Dissolved)		U	1455	µg/l	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)		U	1455	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (Dissolved)		U	1455	µg/l	0.50	0.72	< 0.50	< 0.50	1.0	1.5
Copper (Dissolved)		U	1455	µg/l	0.50	1.7	5.5	1.3	3.4	3.4
Mercury (Dissolved)		U	1455	µg/l	0.05	< 0.05	0.26	< 0.05	< 0.05	< 0.05
Manganese (Dissolved)		U	1455	µg/l	0.50	1.4	140	740	18	21
Molybdenum (Dissolved)		U	1455	µg/l	0.20	3.8	13	4.4	1.2	1.3
Nickel (Dissolved)		U	1455	µg/l	0.50	0.58	8.5	< 0.50	3.7	3.4
Lead (Dissolved)		U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Antimony (Dissolved)		U	1455	µg/l	0.50	< 0.50	0.60	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)		U	1455	µg/l	0.50	0.71	0.85	< 0.50	< 0.50	< 0.50
Vanadium (Dissolved)		U	1455	µg/l	0.50	0.71	1.4	< 0.50	< 0.50	< 0.50
Zinc (Dissolved)		U	1455	µg/l	2.5	3.8	6.3	6.0	16	14
Chromium (Hexavalent)		U	1490	µg/l	20	[B] < 20	[B] < 20	[B] < 20	[B] < 20	[B] < 20
Dissolved Organic Carbon		U	1610	mg/l	2.0				9.7	
Aliphatic TPH >C5-C6	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	EH_2D_AL_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-10886	25-10886	25-10886	25-10886	25-10886
Quotation No.:				**Chemtest Sample ID.:**		1954612	1954613	1954614	1954615	1954616
Order No.: POR021994				Client Sample Ref.:		24	34	15	1	1
				Client Sample ID.:		RBH01-10-24	RBH02-13-34	RBH06D-13-15	SW01-0-1	SW02-0-1
				Sample Location:		RBH01	RBH02	RBH06D	SW01	SW02
				Sample Type:		WATER	WATER	WATER	WATER	WATER
				Sample Sub Type:						
				Top Depth (m):		10.00	13.00	13.00	0.00	0.00
				Bottom Depth (m):					0.00	0.00
				Date Sampled:		27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025
				Time Sampled:		0:00	0:00	0:00	0:00	0:00
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**					
Total Aliphatic Hydrocarbons	EH_2D_AL_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	EH_2D_AR_#1	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	EH_2D_AR_#1	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	EH_2D_Total_#1	N	1675	µg/l	10	< 10	< 10	< 10	< 10	< 10
Dichlorodifluoromethane		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane		U	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5
Chloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichlorofluoromethane		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans 1,2-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis 1,2-Dichloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane		U	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5
Trichloromethane		U	1760	µg/l	1.0	21	5.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene		U	1760	µg/l	1.0	< 1.0	16	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Trichloroethene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane		U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10
Bromodichloromethane		U	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5
cis-1,3-Dichloropropene		N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10
Toluene		U	1760	µg/l	1.0	< 1.0	2.8	< 1.0	< 1.0	< 1.0

Results - Water

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-10886	25-10886	25-10886	25-10886	25-10886
Quotation No.:				**Chemtest Sample ID.:**		1954612	1954613	1954614	1954615	1954616
Order No.: POR021994				Client Sample Ref.:		24	34	15	1	1
				Client Sample ID.:		RBH01-10-24	RBH02-13-34	RBH06D-13-15	SW01-0-1	SW02-0-1
				Sample Location:		RBH01	RBH02	RBH06D	SW01	SW02
				Sample Type:		WATER	WATER	WATER	WATER	WATER
				Sample Sub Type:						
				Top Depth (m):		10.00	13.00	13.00	0.00	0.00
				Bottom Depth (m):					0.00	0.00
				Date Sampled:		27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025
				Time Sampled:		0:00	0:00	0:00	0:00	0:00
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**					
Trans-1,3-Dichloropropene		N	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10
1,1,2-Trichloroethane		U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10
Tetrachloroethene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dibromochloromethane		U	1760	µg/l	10	< 10	< 10	< 10	< 10	< 10
1,2-Dibromoethane		U	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5
Chlorobenzene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Ethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene		U	1760	µg/l	1.0	< 1.0	6.2	< 1.0	< 1.0	< 1.0
Styrene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane		N	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50
N-Propylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tert-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sec-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Butylbenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-Chloropropane		N	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50
1,2,4-Trichlorobenzene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene		U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene		U	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Methyl Tert-Butyl Ether		N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
N-Nitrosodimethylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-10886	25-10886	25-10886	25-10886	25-10886
Quotation No.:				**Chemtest Sample ID.:**		1954612	1954613	1954614	1954615	1954616
Order No.: POR021994				Client Sample Ref.:		24	34	15	1	1
				Client Sample ID.:		RBH01-10-24	RBH02-13-34	RBH06D-13-15	SW01-0-1	SW02-0-1
				Sample Location:		RBH01	RBH02	RBH06D	SW01	SW02
				Sample Type:		WATER	WATER	WATER	WATER	WATER
				Sample Sub Type:						
				Top Depth (m):		10.00	13.00	13.00	0.00	0.00
				Bottom Depth (m):					0.00	0.00
				Date Sampled:		27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025
				Time Sampled:		0:00	0:00	0:00	0:00	0:00
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**					
Phenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis-(2-Chloroethyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,3-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,4-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2-Dichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methylphenol (o-Cresol)		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroisopropyl)Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachloroethane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Isophorone		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Chloroethoxy)Methane		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
1,2,4-Trichlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-Methylphenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4,5-Trichlorophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dimethylphthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenylphenylether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Diethyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Results - Water

Project: STX6912 Albert Bridge House

Client: Soiltechnics Limited				**Chemtest Job No.:**		25-10886	25-10886	25-10886	25-10886	25-10886
Quotation No.:				**Chemtest Sample ID.:**		1954612	1954613	1954614	1954615	1954616
Order No.: POR021994				Client Sample Ref.:		24	34	15	1	1
				Client Sample ID.:		RBH01-10-24	RBH02-13-34	RBH06D-13-15	SW01-0-1	SW02-0-1
				Sample Location:		RBH01	RBH02	RBH06D	SW01	SW02
				Sample Type:		WATER	WATER	WATER	WATER	WATER
				Sample Sub Type:						
				Top Depth (m):		10.00	13.00	13.00	0.00	0.00
				Bottom Depth (m):					0.00	0.00
				Date Sampled:		27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025	27-Mar-2025
				Time Sampled:		0:00	0:00	0:00	0:00	0:00
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**					
2-Methyl-4,6-Dinitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Azobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Bromophenylphenyl Ether		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Carbazole		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Di-N-Butyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Butylbenzyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Bis(2-Ethylhexyl)Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Di-N-Octyl Phthalate		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol		N	1790	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Naphthalene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene		U	1800	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's		U	1800	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Total Phenols		U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030
SVOC TIC		N	1790	µg/l	N/A	None Detected	None Detected	None Detected	None Detected	None Detected
VOC TIC		N	1760	µg/l	N/A	None Detected	None Detected	None Detected	None Detected	None Detected

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1954612	24	RBH01-10-24	RBH01	27-Mar-2025	B	Coloured Winchester 1000ml
1954612	24	RBH01-10-24	RBH01	27-Mar-2025	B	EPA Vial 40ml
1954612	24	RBH01-10-24	RBH01	27-Mar-2025	B	Plastic Bottle 1000ml
1954613	34	RBH02-13-34	RBH02	27-Mar-2025	B	Coloured Winchester 1000ml
1954613	34	RBH02-13-34	RBH02	27-Mar-2025	B	EPA Vial 40ml
1954613	34	RBH02-13-34	RBH02	27-Mar-2025	B	Plastic Bottle 1000ml
1954614	15	RBH06D-13-15	RBH06D	27-Mar-2025	B	Coloured Winchester 1000ml
1954614	15	RBH06D-13-15	RBH06D	27-Mar-2025	B	EPA Vial 40ml
1954614	15	RBH06D-13-15	RBH06D	27-Mar-2025	B	Plastic Bottle 1000ml
1954615	1	SW01-0-1	SW01	27-Mar-2025	B	Coloured Winchester 1000ml
1954615	1	SW01-0-1	SW01	27-Mar-2025	B	EPA Vial 40ml
1954615	1	SW01-0-1	SW01	27-Mar-2025	B	Plastic Bottle 1000ml
1954616	1	SW02-0-1	SW02	27-Mar-2025	B	Coloured Winchester 1000ml
1954616	1	SW02-0-1	SW02	27-Mar-2025	B	EPA Vial 40ml
1954616	1	SW02-0-1	SW02	27-Mar-2025	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1010	pH Value of Waters	pH at 20°C	pH Meter	RE PW TE TS PL DW GW
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.	RE PW PL SW DW GW
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.	GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	PL GW
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation	PL SW GW
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection	
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.	PL GW
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection	
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection	PL GW SW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	PL GW

Report Information

Key	
U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.
Any comments or interpretations are outside the scope of UKAS accreditation.
The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.
Uncertainty of measurement for the determinands tested are available upon request .
None of the results in this report have been recovery corrected.
All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at ≤ 30°C prior to analysis.
All Asbestos testing is performed at the indicated laboratory .
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

NEW_ASB	Eurofins Chemtest Limited, 11 Depot Road, Newmarket, CB8 0AL
DURHAM	Eurofins Chemtest Limited, Unit A North Wing, Prospect Business Park, Crookhall Lane, Consett, Co Durham, DH8 7PW

Sample Deviation Codes

As a result of any of the below deviations applying, the test results may be unreliable

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - The required amount of sample for analysis was not received
H - Appropriate cooling measures were not taken for sample transportation

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.
All water samples will be retained for 14 days from the date of receipt.
Charges may apply to extended sample storage.

Report Information

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable
PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

Asbestos Tests LOD = LOQ

Limit of Detection = Limit of Quantification for asbestos results only

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

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Appendix K Contamination Assessment Screening

GQRA Screening

Assessments	Status	Date	Created by	Reviewed By
Acute human health risk - Soils	Complete	13.05.2025	MOH	SCD
Chronic human health risk - Soils	x2 scenarios completed	13.05.2025	MOH	SCD
Chronic human health risk - Groundwater vapour	Complete	13.05.2025	MOH	SCD
Controlled waters risk - Surface water	Complete	13.05.2025	MOH	SCD
Controlled waters risk - Drinking water	*Not undertaken*			
Controlled waters - Free phase indicator	*Not undertaken*			
Phytotoxicity	*Not undertaken*			
Ecotoxicity	*Not undertaken*			

Key

Assessment	Abbr.	GQRA Source (in order of preference)	Last Update
All	NGA	No guideline value available	-
Acute human health risk - Soils	AGAC	Acute Generic Assessment Criteria (SoBRA)	April 2019
	sat.	Contaminant poses a low acute risk unless the soil saturation limit is exceeded and a free oil phase is present.	April 2019
Chronic human health risk - Soils	C4SL	Category 4 Screening Levels (DEFRA)	May 2021
	S4UL	Suitable 4 Use Levels (LQM)	August 2015
	ATK	Atrisk Soil Screening Values (Atkins)	June 2017
	CL:AIRE	Generic Assessment Criteria (CL:AIRE)	Jan 2010
Chronic human health risk - Groundwater vapour	GAC_{gwvap}	Generic Assessment Criteria for Assessing Vapour Risks from Volatile Contaminants in Groundwater (SoBRA)	April 2019
Controlled waters risk - Surface water	PNEC	Predicted no effect concentration. Derived from the Metals Bioavaibiltiy Assessment Tools (M-BAT) (UK TAG)	Nov. 2013 (Cu,Ni,Mn,Zn) March 2015 (Pb)
	AA-EQS	Environmental Quality Standards AA = Annual average (Environment Agency)	August 2021
	EA	Petroleum Hydrocarbons in Groundwater: Supplementary Guidance for Hydrogeological Risk Assessment (Environment Agency)	April 2009
	MAC-EQS	Environmental Quality Standards MAC = Maximum Allowable Concentration (Environment Agency)	August 2021
Controlled waters risk - Drinking water	UK DWS	National drinking water requirements (The Water Supply (Water Quality) Regulations 2018)	June 2018
	Int. DWS	Guidelines for Drinking Water Quality (World Health Organisation)	April 2017
	WHO	Petroleum Products in Drinking Water (World Health Organisation)	June 2008

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential without homegrown produce
SOM	2.50%
GAC Preference	C4SLs over S4ULs
Unspeciated TPH GAC	Worst-case aliphatic/aromatic

Contaminant	Guideline source	Guideline value (mg/kg)	Max value (mg/kg)	Location	RBH02	RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03	TP04	TP04	TP05	TP06	TP07	TP07	TP08	WLS01C	WLS02	WLS02
				Depth (m)	5.10	2.70	3.00	0.60	0.30	0.70	0.60	0.30	0.25	3.80	0.50	1.00	0.90	1.90	0.80	0.80	0.40	1.20
				Date	20/02/25	19/02/25	05/03/25	25/02/25	03/03/25	03/03/25	03/03/25	03/03/25	03/03/25	03/03/25	04/03/25	04/03/25	04/03/25	04/03/25	04/03/25	24/02/25	24/02/25	24/02/25
Inorganics - Metals																						
Arsenic	C4SL	40	200		4.9	18	48	20	25		12	26	27		15	14	25	16	33	20	12	200
Beryllium	S4UL	1.7	1.3		< 0.5												1.3	< 0.5			0.9	
Boron	S4UL	11000	0.63		< 0.40												0.55	0.63			< 0.40	
Cadmium	C4SL	150	4.6		0.1	0.19	0.2	0.65	0.45		0.18	0.44	0.47		1.6	0.92	1.7	4.6	1.4	4.1	0.53	1.3
Chromium (III)	S4UL	910	85		4.5	35	41	20	61		34	20	25		18	13	20	20	43	11	36	85
Chromium (VI)	C4SL	21	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Copper	S4UL	7100	4500		6.2	44	140	55	110		34	230	71		260	330	4500	1800	600	97	110	340
Cyanide - Free	ATK	34	<LoD		< 0.50												< 0.50	< 0.50			< 0.50	
Lead	C4SL	310	20000		42	86	460	20000	310		32	200	130		730	280	17000	17000	450	340	390	3300
Mercury	S4UL	56	3.3		0.07	0.34	1.3	0.11	1.2		0.05	0.28	0.19		0.78	0.8	0.59	0.24	3.3	1.5	0.4	0.88
Nickel	S4UL	180	200		5.4	35	65	19	36		42	39	42		27	18	39	200	42	18	20	58
Selenium	S4UL	430	2		< 0.25	1.2	0.64	0.25	1.1		0.87	1	1.6		0.66	0.67	0.52	0.32	2	1.2	0.39	1.1
Vanadium	S4UL	1200	45		5.4												45	28			25	
Zinc	S4UL	40000	3800		21	81	90	100	130		68	180	140		570	250	1000	3800	320	2000	280	1100
Inorganics - Asbestos																						
Asbestos Type		N/A				-	-	-	-		-	-	-		-	-	-	-	-	-	-	Fibres/Clumps
Asbestos Screen		N/A				No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	Chrysotile
Asbestos Quantification (%)		N/A	0.002																			0.002
Inorganics - Soil Parameters																						
Organic matter		N/A			1.1	1.9	2.8	2.6	8.6		1.6	45	15		6.7	24	11	5.7	12	9.3	4.1	4.1
Organics - PAH & Phenol																						
Acenaphthene	S4UL	4700	57		9.6	< 0.10	< 0.10	7.6	4.7	57	< 0.10	4.9	12	0.75	13	15	0.16	< 0.10	0.4	30	< 0.10	0.2
Acenaphthylene	S4UL	4600	22		22	< 0.10	< 0.10	< 0.10	0.7	16	< 0.10	0.65	0.83	2.7	0.89	5.4	< 0.10	< 0.10	0.4	0.51	< 0.10	0.22
Anthracene	S4UL	35000	47		21	< 0.10	< 0.10	20	9.3	47	< 0.10	9.4	28	8.8	20	28	0.31	< 0.10	1.4	41	0.34	0.48
Benzo(a)anthracene	S4UL	14	70		14	0.29	0.14	26	24	36	0.64	27	56	13	39	53	0.72	0.2	2.8	70	0.81	1.3
Benzo(a)pyrene	C4SL	5.3	59		9.3	0.32	< 0.10	21	25	29	0.76	28	51	12	38	55	0.72	< 0.10	2.6	59	0.96	1.3
Benzo(b)fluoranthene	S4UL	4	75		9.3	0.31	< 0.10	28	29	39	0.98	34	63	10	48	65	0.94	< 0.10	3.2	75	1.1	1.7
Benzo(ghi)perylene	S4UL	360	38		4.8	0.24	< 0.10	13	13	20	0.68	16	30	4.4	24	31	0.54	< 0.10	1.5	38	0.6	0.88
Benzo(k)fluoranthene	S4UL	110	30		5	0.13	< 0.10	11	11	14	0.35	13	25	3.6	18	23	0.43	< 0.10	1.2	30	0.46	0.54
Chrysene	S4UL	31	71		15	0.3	0.16	27	25	39	0.8	28	60	11	45	59	0.76	0.19	3	71	0.84	1.5
Dibenz(a,h)anthracene	S4UL	0.32	7.3		2.1	< 0.10	< 0.10	2.3	2.6	< 0.10	< 0.10	3.1	5.5	1.4	5.3	6.7	< 0.10	< 0.10	0.35	7.3	< 0.10	< 0.10
Fluoranthene	S4UL	1600	180		23	0.33	0.22	91	66	140	0.85	68	170	18	110	130	1.9	0.37	6.3	180	1.9	2.9
Fluorene	S4UL	3800	39		31	< 0.10	< 0.10	5.6	2.7	39	< 0.10	3.4	8.7	4	8.6	19	0.14	< 0.10	0.78	19	< 0.10	0.26
Indeno(1,2,3-cd)pyrene	S4UL	46	37		3.5	0.17	< 0.10	13	13	18	0.51	16	29	3.9	23	30	0.49	< 0.10	1.4	37	0.67	0.72
Naphthalene	C4SL	36	200		15	0.3	0.42	< 0.10	0.87	200	0.15	1.6	0.97	0.58	4.5	28	0.24	0.17	0.73	12	0.13	0.19
Phenanthrene	S4UL	1500	190		55	0.25	0.19	69	24	190	0.5	34	99	22	72	110	0.97	0.32	6.3	170	1.1	1.9
Phenol	S4UL	690	4.2		< 0.50					4.2				< 0.50			< 0.50	< 0.10			< 0.50	
Pyrene	S4UL	3800	150		34	0.44	0.24	74	58	100	1.2	57	140	24	89	120	1.6	0.41	6.5	150	1.7	3
Organics - TPH CWG and BTEX																						
Benzene	C4SL	3.3	0.043		0.002					0.043				< 0.001			< 0.001	< 0.001			< 0.001	
Toluene	S4UL	1900	0.25		0.22					0.25				< 0.001			< 0.001	< 0.001			< 0.001	
Ethylbenzene	S4UL	190	2.6		2.6					0.28				< 0.001			< 0.001	< 0.001			< 0.001	
o-Xylene	S4UL	210	>10		>10					0.28				< 0.001			< 0.001	< 0.001			< 0.001	
m & p-xylene	S4UL	180	18		18					0.46				< 0.001			< 0.001	< 0.001			< 0.001	
Xylenes (sum of)	S4UL	180	>28		>28					0.74				< LoD			< LoD	< LoD			< LoD	
EC05 - EC06 Aliphatic	S4UL	78	<LoD		< 0.010					< 0.010				< 0.010			< 0.010	< 0.010			< 0.010	
EC>06 - EC08 Aliphatic	S4UL	230	0.13		< 0.010					0.13				< 0.010			< 0.010	< 0.010			< 0.010	
EC>08 - EC10 Aliphatic	S4UL	65	0.21		0.18					0.21				< 0.010			< 0.010	< 0.010			< 0.010	
EC>10 - EC12 Aliphatic	S4UL	330	4		1.9					u/s				4			< 1.0	< 1.0			< 1.0	
EC>12 - EC16 Aliphatic	S4UL	2400	60		26					u/s				60			< 2.0	< 2.0			< 2.0	
EC>16 - EC21 Aliphatic	S4UL	92000	81		28					u/s				81			< 8.0	< 8.0			< 8.0	
EC5 - EC7 (benzene)	S4UL	690	1.4		< 0.010					1.4				< 0.010			< 0.010	< 0.010			< 0.010	
EC7 - >EC8 (toluene)	S4UL	1900	7.5		< 0.010					7.5				< 0.010			< 0.010	< 0.010			< 0.010	
EC>08 - EC10 Aromatic	S4UL	110	28		1					28				< 0.020			< 0.020	< 0.020			< 0.020	
EC>10 - EC12 Aromatic	S4UL	590	13		13					u/s				5.1			< 1.0	1.4			< 1.0	
EC>12 - EC16 Aromatic	S4UL	2300	210		210					u/s				100			5.3	< 2.0			< 2.0	
EC>16 - EC21 Aromatic	S4UL	1900	390		310					u/s				390			20	< 10			< 10	
EC>21 - EC35 Aromatic	S4UL	1900	420		290					u/s				420			26	< 10			11	
Organics - Banded TPH (unspeciated)																						
EC >6-EC10 (unspeciated)	S4UL	65	8.6			8.6	5.6	5.1	< 1.0		< 1.0	3	< 1.0		< 1.0	2.3			< 1.0	< 1.0		1
EC >10-EC21 (unspeciated)	S4UL	330	250			5.9	< 0.50	83	250		1.5	54	75		63	99			4.7	75		36
EC >21-EC40 (unspeciated)	S4UL	1900	340			1.5	1.5	140	340		< 1.0	84	120		150	180			3.7	160		40

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential without homegrown produce
SOM	2.50%
GAC Preference	C4SLs over S4ULs
Unspeciated TPH GAC	Worst-case aliphatic/aromatic

Contaminant	Guideline source	Guideline value	Max value	Location	RBH02	RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03	TP04	TP04	TP05	TP06	TP07	TP07	TP08	WLS01C	WLS02	WLS02
				Depth (m)	5.10	2.70	3.00	0.60	0.30	0.70	0.60	0.30	0.25	3.80	0.50	1.00	0.90	1.90	0.80	0.80	0.40	1.20
Organics - Volatile Organic Compounds (VOCs)																						
1,1,1,2-Tetrachloroethane	S4UL	3.5	< LoD		< 0.002									< 0.002			< 0.002	< 0.002			< 0.002	
1,1,1-Trichloroethane	S4UL	18	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
1,1,2-Trichloroethane	CL:AIRE	1.8	< LoD		< 0.01									< 0.01			< 0.01	< 0.01			< 0.01	
1,1-Dichloroethane	CL:AIRE	4.1	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
1,1-Dichloroethene	CL:AIRE	0.41	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
1,1-Dichloropropene	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
1,2,3-Trichloropropane	*NGA*	*NGA*	< LoD		< 0.05									< 0.05			< 0.05	< 0.05			< 0.05	
1,2,4-Trimethylbenzene	CL:AIRE	0.99	> 10		> 10									< 0.001			< 0.001	< 0.001			< 0.001	
1,2-Dibromo-3-chloropropane	*NGA*	*NGA*	< LoD		< 0.05									< 0.05			< 0.05	< 0.05			< 0.05	
1,2-Dibromoethane	*NGA*	*NGA*	< LoD		< 0.005									< 0.005			< 0.005	< 0.005			< 0.005	
1,2-Dichloroethane	C4SL	0.24	< LoD		< 0.002									< 0.002			< 0.002	< 0.002			< 0.002	
1,2-Dichloropropane	CL:AIRE	0.042	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
1,3,5-Trimethylbenzene	*NGA*	*NGA*	6.3		6.3									< 0.001			< 0.001	< 0.001			< 0.001	
1,3-Dichloropropane	*NGA*	*NGA*	< LoD		< 0.002									< 0.002			< 0.002	< 0.002			< 0.002	
2-Chlorotoluene	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
4-Chlorotoluene	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Bromobenzene	CL:AIRE	2.1	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Bromochloromethane	*NGA*	*NGA*	< LoD		< 0.005									< 0.005			< 0.005	< 0.005			< 0.005	
Bromodichloromethane	CL:AIRE	0.034	< LoD		< 0.005									< 0.005			< 0.005	< 0.005			< 0.005	
Bromoform	CL:AIRE	11	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Bromomethane	*NGA*	*NGA*	< LoD		< 0.02									< 0.02			< 0.02	< 0.02			< 0.02	
Carbon Tetrachloride	S4UL	0.056	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Chlorobenzene	S4UL	1	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Chloroethane	CL:AIRE	11	< LoD		< 0.002									< 0.002			< 0.002	< 0.002			< 0.002	
Chloroform	S4UL	2.1	0.001		0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Chloromethane	CL:AIRE	0.0099	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
cis-1,2-Dichloroethene	CL:AIRE	0.2	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
cis-1,3-Dichloropropene	*NGA*	*NGA*	< LoD		< 0.01									< 0.01			< 0.01	< 0.01			< 0.01	
Dibromochloromethane	ATK	0.0935	< LoD		< 0.01									< 0.01			< 0.01	< 0.01			< 0.01	
Dibromomethane	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Dichlorodifluoromethane	*NGA*	*NGA*	0.001		0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Isopropylbenzene	CL:AIRE	28	0.028		0.028									< 0.001			< 0.001	< 0.001			< 0.001	
MTBE	CL:AIRE	120	< LoD		< 0.001					< 0.005				< 0.001			< 0.001	< 0.001			< 0.001	
n-Butylbenzene	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
n-Propylbenzene	CL:AIRE	97	0.053		0.053									< 0.001			< 0.001	< 0.001			< 0.001	
p-Isopropyltoluene	*NGA*	*NGA*	0.028		0.028									< 0.001			< 0.001	< 0.001			< 0.001	
sec-Butylbenzene	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Styrene	CL:AIRE	78	3.9		3.9									< 0.001			< 0.001	< 0.001			< 0.001	
tert-Butylbenzene	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Tetrachloroethene	C4SL	0.71	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
trans-1,2-Dichloroethene	CL:AIRE	0.35	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
trans-1,3-Dichloropropene	*NGA*	*NGA*	< LoD		< 0.01									< 0.01			< 0.01	< 0.01			< 0.01	
Trichloroethene	C4SL	0.02	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Trichlorofluoromethane	*NGA*	*NGA*	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
Vinyl Chloride	C4SL	0.019	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	

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Chronic human health risk (soils)

Scenario	
End user	Proposed site user
Receptor	Residential without homegrown produce
SOM	2.50%
GAC Preference	C4SLs over S4ULs
Unspeciated TPH GAC	Worst-case aliphatic/aromatic

Contaminant	Guideline source	Guideline value	Max value	Location	RBH02	RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03	TP04	TP04	TP05	TP06	TP07	TP07	TP08	WLS01C	WLS02	WLS02
				Depth (m)	5.10	2.70	3.00	0.60	0.30	0.70	0.60	0.30	0.25	3.80	0.50	1.00	0.90	1.90	0.80	0.80	0.40	1.20
Organics - Semi-Volatile Organic Compounds (SVOCs)																						
Chlorophenols (sum of)	S4UL	150	< LoD		< LoD									< LoD			< LoD				< LoD	
Cresols (sum of)	CL:AIRE	5400	< LoD		< LoD									< LoD			< LoD				< LoD	
o-Cresol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
1,2,4-Trichlorobenzene	S4UL	6.4	< LoD		< 0.50									< 0.001			< 0.001	< 0.001			< 0.001	
1,2-Dichlorobenzene	S4UL	57	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
1,3-Dichlorobenzene	S4UL	1.1	< LoD		< 0.001									< 0.001			< 0.001	< 0.001			< 0.001	
1,4-Dichlorobenzene	S4UL	150	< LoD		< 0.50									< 0.001			< 0.001	< 0.001			< 0.001	
2,4,5-Trichlorophenol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2,4,6-Trichlorophenol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2,4-Dichlorophenol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2,4-Dimethylphenol	CL:AIRE	410	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2,4-Dinitrotoluene	CL:AIRE	170	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2,6-Dinitrotoluene	CL:AIRE	84	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2-Chloronaphthalene	CL:AIRE	9.3	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2-Chlorophenol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2-Methylnaphthalene	*NGA*	*NGA*	52		52									< 0.50			< 0.50				< 0.50	
2-Nitroaniline	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
2-Nitrophenol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
3-Nitroaniline	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
4-Bromophenyl phenyl ether	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
4-Chloro-3-methylphenol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
4-Chloroaniline	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
4-Chlorophenyl phenyl ether	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
4-Nitroaniline	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
4-Nitrophenol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Azobenzene	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Benzyl butyl phthalate	CL:AIRE	44000	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
bis(2-chloroethoxy)methane	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
bis(2-chloroethyl)ether	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
bis(2-ethylhexyl)phthalate	CL:AIRE	2800	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Carbazole	*NGA*	*NGA*	5.5		5.5									< 0.50			< 0.50				< 0.50	
Dibenzofuran	*NGA*	*NGA*	12		12									< 0.50			< 0.50				< 0.50	
Dibutyl phthalate	CL:AIRE	450	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Diethyl phthalate	CL:AIRE	3500	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Dimethyl phthalate	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Di-n-octyl phthalate	CL:AIRE	3400	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Hexachlorobenzene	S4UL	5.7	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Hexachlorobutadiene	S4UL	0.78	< LoD		< 0.50									< 0.001			< 0.001	< 0.001			< 0.001	
Hexachloroethane	CL:AIRE	0.54	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Isophorone	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
Nitrobenzene	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	
p-Cresol	*NGA*	*NGA*	< LoD		< 0.50									< 0.50			< 0.50				< 0.50	

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Acute human health risk (soils)

Scenario	Occupational exposure (construction worker)
Critical receptor	Adult female worker
Oral exposure	Ingestion of soil and dusts over a single working day
Demal exposure	Soil being left on the skin for several hours, assumed no PPE worn
Inhalation exposure	30 mins exposure - worker standing adjacent to active excavation (assumed no RPE)

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	RBH02	RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03	TP04	TP04	TP05	TP06	TP07	TP07	TP08	WLS01C	WLS02	WLS02
					Depth (m)	5.10	2.70	3.00	0.60	0.30	0.70	0.60	0.30	0.25	3.80	0.50	1.00	0.90	1.90	0.80	0.80	0.40	1.20
					Date	20/02/25	19/02/25	05/03/25	25/02/25	03/03/25	03/03/25	03/03/25	03/03/25	03/03/25	03/03/25	04/03/25	04/03/25	04/03/25	04/03/25	04/03/25	24/02/25	24/02/25	24/02/25
Inorganics																							
Arsenic	AGAC	Oral	7,000	200		4.9	18	48	20	25		12	26	27		15	14	25	16	33	20	12	200
Cadmium	AGAC	Oral	12,000	4.6		0.1	0.19	0.2	0.65	0.45		0.18	0.44	0.47		1.6	0.92	1.7	4.6	1.4	4.1	0.53	1.3
Cyanide - Free	AGAC	Oral & Inhalation	1,400	<LoD		*< 0.50*												*< 0.50*	*< 0.50*			*< 0.50*	
Organics																							
Benzene	AGAC	Inhalation	240	0.043		0.002					0.043				*< 0.001*			*< 0.001*	*< 0.001*			*< 0.001*	
Phenol	AGAC	**sat.**	**sat.**	4.2		*< 0.50*					4.2				*< 0.50*			*< 0.50*	*< 0.10*			*< 0.50*	
Trichloroethene	AGAC	Inhalation	16,000	<LoD		*< 0.001*									*< 0.001*			*< 0.001*	*< 0.001*			*< 0.001*	
Vinyl Chloride	AGAC	Inhalation	220	<LoD		*< 0.001*									*< 0.001*			*< 0.001*	*< 0.001*			*< 0.001*	

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Acute human health risk (soils)

Scenario	Off-site public exposure
Critical receptor	Young female child (1 to 2 years old)
Oral exposure	N/A
Demal exposure	N/A
Inhalation exposure	30 mins exposure to a child off-site, from dusts and vapours generated during excavation

Contaminant	Guideline source	Principal pathway	Guideline value (mg/kg)	Max value (mg/kg)	Location	RBH02	RBH02	RBH06D	RBH08	TP01	TP01	TP02	TP03	TP04	TP04	TP05	TP06	TP07	TP07	TP08	WLS01C	WLS02	WLS02
					Depth (m)	5.10	2.70	3.00	0.60	0.30	0.70	0.60	0.30	0.25	3.80	0.50	1.00	0.90	1.90	0.80	0.80	0.40	1.20
					Date	20/02/25	19/02/25	05/03/25	25/02/25	03/03/25	03/03/25	03/03/25	03/03/25	03/03/25	03/03/25	04/03/25	04/03/25	04/03/25	04/03/25	04/03/25	24/02/25	24/02/25	24/02/25
Inorganics																							
Arsenic	AGAC	Inhalation	7,000,000	200		4.9	18	48	20	25		12	26	27		15	14	25	16	33	20	12	200
Cadmium	AGAC	Inhalation	1,800,000	4.6		0.1	0.19	0.2	0.65	0.45		0.18	0.44	0.47		1.6	0.92	1.7	4.6	1.4	4.1	0.53	1.3
Cyanide - Free	AGAC	Inhalation	380	<LoD		*< 0.50*												*< 0.50*	*< 0.50*			*< 0.50*	
Organics																							
Benzene	AGAC	Inhalation	120	0.043		0.002					0.043				*< 0.001*			*< 0.001*	*< 0.001*			*< 0.001*	
Phenol	AGAC	**sat.**	**sat.**	4.2		*< 0.50*					4.2				*< 0.50*			*< 0.50*	*< 0.10*			*< 0.50*	
Trichloroethene	AGAC	Inhalation	8,000	<LoD		*< 0.001*									*< 0.001*			*< 0.001*	*< 0.001*			*< 0.001*	
Vinyl Chloride	AGAC	Inhalation	98	<LoD		*< 0.001*									*< 0.001*			*< 0.001*	*< 0.001*			*< 0.001*	

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Chronic human health risk - Groundwater vapour

Site specific factors	Scenario	GAC factor
Land use scenario	Residential	-
Source depth (m)	0.3	0.58
Unsaturated soil type	Sand	1
Building type	Detached	1.4

PHC vertical and horizontal screening assessment	
Are PHCs the only contaminants of concern?	Yes
Is LNAPL considered present?	No
Is dissolved phase depth <1.8m of foundations?	Yes
Is building <9.1m from edge of source?	Yes
Is a suspended floor slab proposed?	No

Chemical	Guideline value (µg/l)	Aqueous solubility (µg/l)	Max value (µg/l)	Location	RBH01	RBH02	RBH06D	SW01	SW02
				Depth (m)	10.00	13.00	13.00	0.00 - 0.00	0.00 - 0.00
				Date	27/03/25	27/03/25	27/03/25	27/03/25	27/03/25
Petroleum Hydrocarbons									
1,2,4-Trimethylbenzene	19	559,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	171	1,780,000	16		< 1.0	16	< 1.0	< 1.0	< 1.0
Ethylbenzene	8,120	180,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	690	56,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	2,192	54,100	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	7,146	290,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	186,760	590,000	2.8		< 1.0	2.8	< 1.0	< 1.0	< 1.0
EC05 - EC06 Aliphatic	1,543	35,900	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>06 - EC08 Aliphatic	1,218	5,370	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>08 - EC10 Aliphatic	46	427	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>10 - EC12 Aliphatic	30	34	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC5 - EC7 (benzene)	170,520	1,780,000	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC7 - >EC8 (toluene)	178,640	590,000	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>08 - EC10 Aromatic	1,543	64,600	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>10 - EC12 Aromatic	5,522	24,500	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>12 - EC16 Aromatic	31,668	5,750	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
o-Xylene	9,744	173,000	6.2		< 1.0	6.2	< 1.0	< 1.0	< 1.0
m & p-xylene	7,714	200,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Polycyclic Aromatic Hydrocarbons (PAH)									
Acenaphthene	138,040	4,110	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	178,640	7,950	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	170,520	1,860	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	179	19,000	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

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Chronic human health risk - Groundwater vapour

Site specific factors	Scenario	GAC factor
Land use scenario	Residential	-
Source depth (m)	0.3	0.58
Unsaturated soil type	Sand	1
Building type	Detached	1.4

PHC vertical and horizontal screening assessment	
Are PHCs the only contaminants of concern?	Yes
Is LNAPL considered present?	No
Is dissolved phase depth <1.8m of foundations?	Yes
Is building <9.1m from edge of source?	Yes
Is a suspended floor slab proposed?	No

Chemical	Guideline value	Aqueous solubility	Max value (ug/l)	Location	RBH01	RBH02	RBH06D	SW01	SW02
				Depth (m)	10.00	13.00	13.00	0.00 - 0.00	0.00 - 0.00
Halogenated Organics									
1,1,1,2-Tetrachloroethane	195	1,110,000	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane	2,436	1,300,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	422	4,491,000	<LoD		< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethane	2,192	3,666,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	130	3,100,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	28	21,000	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2,4-Trichlorobenzene	55	41,400	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	1,624	133,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	7.2268	8,680,000	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2-Dichloropropane	18	2,050,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	25	103,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	4,060	51,200	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	179	388,040	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	14	3,000,000	<LoD		< 5	< 5	< 5	< 5	< 5
Bromoform	2,517	3,000,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	80	387,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	8,120	5,742,000	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Vinyl Chloride	0.50344	2,760,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	11	5,350,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	106	7,550,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobenzene	13	10	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	1.3804	4,800	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachloroethane	6.902	49,900	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Tetrachloroethene	28	225,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Carbon Tetrachloride	4.3036	846,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	130	5,250,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	4.6284	1,370,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	641	8,950,000	21		21	5	< 1.0	< 1.0	< 1.0
Others (organic and inorganic)									
2-Chloronaphthalene	130	11,700	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Mercury	0.8932	56	0.26		< 0.05	0.26	< 0.05	< 0.05	< 0.05
MTBE	67,396	48,000,000	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Controlled waters risk

Scenario	
Receptor	Surface water - Inland freshwater
Hydrometric area	English and Welsh freshwaters
Are bioavailability parameters known?	Yes
Hardness (mg $CaCO_3$/l)	130
DOC (mg/l)	9.7
pH	7.9
Calcium (mg Ca/l)	40

Contaminant	Guideline source	Guideline value (µg/l)	Max value (µg/l)	Location	RBH01	RBH02	RBH06D	SW01	SW02
				Depth (m)	10.00	13.00	13.00	0.00 - 0.00	0.00 - 0.00
				Type	W	W	W	W	W
				Date	27/03/25	27/03/25	27/03/25	27/03/25	27/03/25
Inorganics - Metals									
Arsenic	AA-EQS	50	4.2		1.7	4.2	2.4	0.98	0.96
Boron	AA-EQS	2000	290		61	210	290	56	54
Cadmium	AA-EQS	0.15	<LoD		< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (total)	NGA	NGA	1.5		0.72	<LoD	<LoD	1	1.5
Chromium (III)	AA-EQS	4.7	1.5		0.72	< 0.50	< 0.50	1	1.5
Chromium (VI)	AA-EQS	3.4	<LoD		< 20	< 20	< 20	< 20	< 20
Copper	PNEC	33	5.5		1.7	5.5	1.3	3.4	3.4
Lead	PNEC	11	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Manganese	PNEC	266	740		1.4	140	740	18	21
Mercury	MAC-EQS	0.07	0.26		< 0.05	0.26	< 0.05	< 0.05	< 0.05
Nickel	PNEC	17	8.5		0.58	8.5	< 0.50	3.7	3.4
Selenium	NGA	NGA	0.85		0.71	0.85	< 0.50	< 0.50	< 0.50
Vanadium	AA-EQS	20	1.4		0.71	1.4	< 0.50	< 0.50	< 0.50
Zinc	PNEC	44	16		3.8	6.3	6	16	14
Inorganics - Miscellaneous									
pH	NGA	NGA	8.5		8.3	8.5	7.7	7.9	8.1
Cyanide - Total	NGA	NGA	60		< 50	60	< 50	< 50	< 50
Cyanide - Free	AA-EQS	1	<LoD		< 50	< 50	< 50	< 50	< 50
Ammonia (as N)	NGA	NGA	6800		700	6800	2800	860	860
Nitrate (as NO3)	NGA	NGA	24000		6100	1000	< 500	24000	22000
Sulphate	AA-EQS	400000	300000		78000	150000	300000	87000	85000
Organics - PAH & Phenol									
Naphthalene	AA-EQS	2	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	AA-EQS	0.1	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	AA-EQS	0.0063	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(b)fluoranthene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	AA-EQS	0.00017	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	NGA	NGA	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
PAH (sum of 4)	NGA	NGA	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD
Phenol	AA-EQS	7.7	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

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Controlled waters risk

Scenario	
Receptor	Surface water - Inland freshwater
Hydrometric area	English and Welsh freshwaters
Are bioavailability parameters known?	Yes
Hardness (mg $CaCO_3$/l)	130
DOC (mg/l)	9.7
pH	7.9
Calcium (mg Ca/l)	40

Contaminant	Guideline source	Guideline value (µg/l)	Max value (µg/l)	Location	RBH01	RBH02	RBH06D	SW01	SW02
				Depth (m)	10.00	13.00	13.00	0.00 - 0.00	0.00 - 0.00
				Type	W	W	W	W	W
				Date	27/03/25	27/03/25	27/03/25	27/03/25	27/03/25
Organics - BTEX & MTBE									
Benzene	AA-EQS	10	16		< 1.0	16	< 1.0	< 1.0	< 1.0
Toluene	AA-EQS	74	2.8		< 1.0	2.8	< 1.0	< 1.0	< 1.0
Ethylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene (m and p, o)	AA-EQS	30	6.2		<LoD	6.2	<LoD	<LoD	<LoD
o-Xylene	NGA	NGA	6.2		< 1.0	6.2	< 1.0	< 1.0	< 1.0
m & p-xylene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Organics - TPH CWG									
EC05 - EC06 Aliphatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>06 - EC08 Aliphatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>08 - EC10 Aliphatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>10 - EC12 Aliphatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>12 - EC16 Aliphatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>16 - EC21 Aliphatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>21 - EC35 Aliphatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>35 - EC44 Aliphatic	EA	10			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC5 - EC7 (benzene)	AA-EQS	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC7 - >EC8 (toluene)	AA-EQS	74	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>08 - EC10 Aromatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>10 - EC12 Aromatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>12 - EC16 Aromatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>16 - EC21 Aromatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>21 - EC35 Aromatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
EC>35 - EC44 Aromatic	EA	10	<LoD		< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

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				Depth (m)	10.00	13.00	13.00	0.00 - 0.00	0.00 - 0.00
				Type	W	W	W	W	W
				Date	27/03/25	27/03/25	27/03/25	27/03/25	27/03/25
Organics - VOCs									
PCE & TCE (sum of)	NGA	NGA	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD
Trihalomethanes (sum of)	NGA	NGA	21		21	5	<LoD	<LoD	<LoD
1,1,1,2-Tetrachloroethane	AA-EQS	140	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,1-Trichloroethane	AA-EQS	100	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	AA-EQS	400	<LoD		< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethane	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	NGA	NGA	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2,3-Trichloropropane	NGA	NGA	<LoD		< 50	< 50	< 50	< 50	< 50
1,2,4-Trimethylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	NGA	NGA	<LoD		< 50	< 50	< 50	< 50	< 50
1,2-Dibromoethane	NGA	NGA	<LoD		< 5	< 5	< 5	< 5	< 5
1,2-Dichlorobenzene	AA-EQS	20	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	AA-EQS	10	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2-Dichloropropane	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	AA-EQS	20	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	NGA	NGA	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,4-Dichlorobenzene	AA-EQS	20	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	AA-EQS	10	16		< 1.0	16	< 1.0	< 1.0	< 1.0
Bromobenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromochloromethane	NGA	NGA	<LoD		< 5	< 5	< 5	< 5	< 5
Bromodichloromethane	NGA	NGA	<LoD		< 5	< 5	< 5	< 5	< 5
Bromoform	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	NGA	NGA	<LoD		< 5	< 5	< 5	< 5	< 5
Carbon Tetrachloride	AA-EQS	12	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	NGA	NGA	<LoD		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	AA-EQS	2.5	21		21	5	< 1.0	< 1.0	< 1.0
Chloromethane	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	NGA	NGA	<LoD		< 10	< 10	< 10	< 10	< 10
Dibromochloromethane	NGA	NGA	<LoD		< 10	< 10	< 10	< 10	< 10
Dibromomethane	NGA	NGA	<LoD		< 10	< 10	< 10	< 10	< 10
Dichlorodifluoromethane	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	MAC-EQS	0.6	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-xylene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Butylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	NGA	NGA	6.2		< 1.0	6.2	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	AA-EQS	50	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	AA-EQS	10	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	AA-EQS	74	2.8		< 1.0	2.8	< 1.0	< 1.0	< 1.0
trans-1,2-Dichloroethene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	NGA	NGA	<LoD		< 10	< 10	< 10	< 10	< 10
Trichloroethene	AA-EQS	10	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Controlled waters risk

Scenario	
Receptor	Surface water - Inland freshwater
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Are bioavailability parameters known?	Yes
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				Depth (m)	10.00	13.00	13.00	0.00 - 0.00	0.00 - 0.00
				Type	W	W	W	W	W
				Date	27/03/25	27/03/25	27/03/25	27/03/25	27/03/25
Organics - SVOCs									
Dichlorobenzenes (sum of)	AA-EQS	20	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD
Trichlorobenzenes (sum of)	AA-EQS	0.4	<LoD		<LoD	<LoD	<LoD	<LoD	<LoD
1,2,4-Trichlorobenzene	NGA	NGA	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	AA-EQS	20	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	AA-EQS	20	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	AA-EQS	20	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,4,5-Trichlorophenol	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4,6-Trichlorophenol	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dichlorophenol	AA-EQS	4.2	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dimethylphenol	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,4-Dinitrotoluene	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2,6-Dinitrotoluene	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chloronaphthalene	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Chlorophenol	AA-EQS	50	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Methylnaphthalene	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitroaniline	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
2-Nitrophenol	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
3-Nitroaniline	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Bromophenyl phenyl ether	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloro-3-methylphenol	AA-EQS	40	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chloroaniline	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Chlorophenyl phenyl ether	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitroaniline	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
4-Nitrophenol	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Azobenzene	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Benzyl butyl phthalate	AA-EQS	7.5	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
bis(2-chloroethoxy)methane	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
bis(2-chloroethyl)ether	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
bis(2-Chloroisopropyl)ether	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
bis(2-ethylhexyl)phthalate	AA-EQS	1.3	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Carbazole	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibenzofuran	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dibutyl phthalate	AA-EQS	8	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Diethyl phthalate	AA-EQS	200	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Dimethyl phthalate	AA-EQS	800	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Di-n-octyl phthalate	AA-EQS	20	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobenzene	MAC-EQS	0.05	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Hexachlorobutadiene	MAC-EQS	0.6	<LoD		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachloroethane	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Isophorone	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodimethylamine	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
N-Nitrosodi-n-propylamine	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Nitrobenzene	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
o-Cresol	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
p-Cresol	NGA	NGA	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Phenol	AA-EQS	7.7	<LoD		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

JIWG

Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Project Reference	STX6912
Site Name	Alber Bridge House
Client	Oval Properties 1801 Limited
Run by	OH
Date	25-Apr-25
Scenario details	Risk of fibres to contruction workers

Decision Support Tool for CAR2012 Work Categories

Stage 1

Hazard Factors

		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Free dispersed fibres/fibre bundles	2
Extent of degradation of ACMs at outset of work	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not linked in any matrix (free dispersed fibres/fibre bundles)	4
Distribution of Visible Asbestos Across Affected Area	No visible ACMs/fibre bundles	0
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Very Low quantities - <0.001 to 0.01 %wt/wt	1
Sub-total		**11**

Note: the asbestos licensing regime is unaffected by the type of asbestos fibre present in ACMs

Hazard ranking **Medium**

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Version 2, July 2016

Stage 2

Exposure Factors

			Score
Anticipated airborne fibre concentration - Control Limit or SALI?	<0.01 fibres/ml		1
Anticipated duration of exposure to asbestos	< 2 hours in a 7 day period for all persons involved (e.g. Short Duration Work)		1
Activity type and effect on deterioration of ACMs during work	Sampling, manual or mechanical (significant deterioration expected)		2
Best description of primary host material matrix (soil/made ground)	Coarse to Fine Gravel		3
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Low		2
Sub-total			**9**
Exposure ranking			Low
Combined hazard and exposure ranking		**20**	Low

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Stage 3

Risk Assessment Outputs

Probable Licensing Status	Non-Licensed Work
RPE*	EN149 type FFP3 disposable
Dust Suppression**	Manual/localised dust suppression
Hygiene/Decontamination***	Localised and basic personal decontamination facilities

*Where RPE has to be worn continuously for long periods (e.g. more than 1-hour), then powered RPE may be necessary.
**Reduction in control measures possible if natural mitigation factors are present (e.g. raining, wet ground)
***Guide only; suitability of selected personal hygiene measures may be reviewed on a site/contamination-specific basis

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Joint Industry Working Group

Asbestos in Soil and Construction & Demolition Materials

Decision Support Tool for Receptor Risk Ranking

Stage 1

Hazard Identification		Score
Select ACM type (run model for each type to generate 'Worst Case' output)	Free dispersed fibres/fibre bundles	2
Extent of degradation of ACMs	Disaggregated (dominated by loose fibrous material; extreme degradation in ACM and/or free asbestos fibres/fibre bundles)	4
Friability and degree of bonding by matrix (ACM matrix, not ground materials)	Friable ACM or ACM with fibres not firmly linked in a matrix	2
Distribution of Visible Asbestos Across Affected Area	No visible ACMs/fibre bundles	0
Asbestos fibre type	Chrysotile alone	0
Sub-total		**8**
Hazard ranking		**Low**

No warranty, expressed or implied, or reliance, is provided in relation to the use of this tool.
It is contingent on users to satisfy themselves that the output from the tool is relevant and appropriate to the assessment being made.

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Stage 2

Emission Factors		Score
Amount of asbestos fibre in selected ACM/fibre type as % of host material	Very Low quantities - 0.001 to 0.01 %wt/wt	1
Respirable fibre index for ACM - RIVM report 711701034 (2003)	Low	2
Activity type and effect on deterioration of ACMs	Moderate disturbance, slight deterioration expected	3
Best description of primary host material matrix	Coarse to Fine Gravel	3
Sub-total		**9**
Exposure ranking		**Low**

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Stage 3

Pathway and Receptor Sensitivity		Score	
Receptor category	Residential	No score required	
Age of Receptor	Infant (under 5)	4	
Duration of exposure/site occupancy	< 1 hour in any single day (e.g. frequent but short exposure event)	1	
Receptor ranking		**5**	**Medium**
Combined hazard, exposure and receptor ranking			**Low**
Pathway: Distance of Receptor from Source	>10m of edge of area of disturbance	3	
Pathway: Depth to impacted material	Material buried at shallow depth, potential to be disturbed by excavation	C	
Pathway ranking		3C	**Low**
Overall ranking			**Very Low**

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Project Reference	STX6912

Site Name	Albert Bridge House, Manchester
Client	Oval Properties 1801 Lyd

Run by	OH
Date	25-Apr-25
Reviewed by	SCD

Characterisation of scenario being evaluated	Adjacent site users

Interpretation of scenario ranking by DST	Very Low risk during the construction phase.

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Appendix L Waste Characterisation Analysis

Waste Classification Assessment Summary

Waste population	Made Ground
Hazard assessment	Hazardous waste*
List of waste code	17-05-03*
List of waste description	Soil and stones containing hazardous substances

Hazard property	Assessment
HP1 - Explosive	Not hazardous by HP1
HP2 - Oxidising	Not hazardous by HP2
HP3 - Flammable	Not hazardous by HP3
HP4 - Irritant	Not hazardous by HP4
HP5 - STOT & aspiration toxicity	Hazardous by HP5
HP6 - Acute toxicity	Not hazardous by HP6
HP7 - Carcinogenic	Hazardous by HP7
HP8 - Corrosive	Not hazardous by HP8
HP9 - Infectious	Not hazardous by HP9
HP10 - Toxic for reproduction	Hazardous by HP10
HP11 - Mutagenic	Not hazardous by HP11
HP12 - Release of an acute toxic gas	Not hazardous by HP12
HP13 - Sensitising	Not hazardous by HP13
HP14 - Ecotoxic	Hazardous by HP14

Waste classification

Overall assessment	
Waste population	Made Ground
Hazard assessment	Hazardous waste*
List of Waste code	17-05-03*
List of waste description	Soil and stones containing hazardous substances
Is the statistical approach non-parametric method B utilised?	No
Moisture content correction factor	No correction made

Asbestos assessment		
Query	Value	Assessment
Are bulk ACMs visually identifiable?	No	Non-hazardous
Have free fibres been detected?	Yes	See below
What is the free fibre concentration (%)?	0.002%	Non-hazardous

Flammability assessment	
Comment	Assessment
The waste is not considered flammable as it is a solid waste without a free draining liquid phase, and the TPH concentration and composition is not consdiered to present a likely flammable hazard.	Non-hazardous

Hydrocarbon assessment	
Query	Assessment
Is the origin of the oil contamination known?	Unknown oil
B(a)P : TPH ratio (%)	Not required
B(a)P marker assessment	Not required

pH assessment		
Query	Value	Assessment
Are all substances present in the waste known?	No	See pH assessment below
pH - Min	7.60	Non-hazardous
pH - Max	10.00	Non-hazardous

Oxidising assessment	
Comment	Assessment
Cr (VI) is the only compound with an oxidising hazard statement (H271). On review, the concentration is considered too low to present a viable oxidising hazard in a waste soil	Non-hazardous

Ecotoxic assessment			
Equation	Sum	Criteria	Assessment
WM3. Eq. 2	3.49%	25%	Non-hazardous
WM3 Eq. 3	405.66%	25%	HP14
WM3 Eq. 4	4.06%	25%	Non-hazardous

Compound hazard assessments

					Hazard Property Description	Irritant			Specific Target Organ Toxicity / Aspiration Toxicity			
					Hazard Property	HP4			HP5			
					Hazard Statement	H314	H315 and/or H319	H318	H304	H335	H372	H373
Contaminant	Max. concentration (mg/kg)	Realistic worst case compound	Mass conversion factor	MC applied?	Hazard Class / Compound concentration (%)	Skin Corr.1A	Skin Irrit.2 Eye Irrit.2	Eye Dam.1	Asp.Tox.1	STOT SE.3	STOT RE.1	STOT RE.2
Cyanide - Total	12.0	Salts of hydrogen cyanide, using sodium cyanide	1.88	N/A	0.002							
Arsenic	200.0	Nickel diarsenide	1.78	N	0.036						0.036	
Arsenic (secondary)	200.0	Arsenic trioxide	1.32	N	0.026	0.026						
Beryllium	1.3	Beryllium oxide	2.78	N	0.000		0.000			0.000	0.000	
Cadmium	4.6	Cadmium sulfide	1.29	N	0.001						See specific assessment	See specific assessment
Cadmium (secondary)	4.6	Cadmium oxide	1.14	N	0.001							
Chromium (III)	85.0	Chromium (III) oxide	1.46	N	0.012		0.012					
Chromium (VI)	0.5	Chromium (VI) trioxide	1.92	N/A	0.000	0.000				See specific assessment	0.000	
Copper	4500.0	Copper (I) oxide	1.25	N	0.563							
Copper (secondary)	4500.0	Copper(II) oxide	1.13	N	0.507			0.507				
Lead	20000.0	Lead compounds, using lead sulphate	1.46	N	2.927							See specific assessment
Mercury	3.3	Mercury dichloride	1.35	N	0.000	0.000					0.000	
Nickel	200.0	Nickel carbonate	2.02	N	0.040		0.040				0.040	
Selenium	2.0	Selenium compounds, using selenium dioxide	1.41	N	0.000							0.000
Zinc	3800.0	Zinc sulphide	1.49	N	0.566		0.566					
Vanadium	45.0	Vanadium pentoxide	1.79	N	0.008					0.008	0.008	
Naphthalene	200.0	Naphthalene	1	N/A	0.020							
Acenaphthylene	22.0	Acenaphthylene	1	N/A	0.002		0.002			0.002		
Acenaphthene	57.0	Acenaphthene	1	N/A	0.006		0.006					
Fluorene	39.0	Fluorene	1	N/A	0.004		0.004			0.004		
Phenanthrene	190.0	Phenanthrene	1	N/A	0.019							
Anthracene	47.0	Anthracene	1	N/A	0.005		0.005			0.005		
Fluoranthene	180.0	Fluoranthene	1	N/A	0.018		0.018					
Pyrene	150.0	Pyrene	1	N/A	0.015		0.015			0.015		
Benzo(a)anthracene	70.0	Benzo(a)anthracene	1	N/A	0.007							
Chrysene	71.0	Chrysene	1	N/A	0.007							
Benzo(b)fluoranthene	75.0	Benzo(b)fluoranthene	1	N/A	0.008							
Benzo(k)fluoranthene	30.0	Benzo(k)fluoranthene	1	N/A	0.003							
Benzo(a)pyrene	59.0	Benzo(a)pyrene	1	N/A	0.006							
Indeno(1,2,3-cd)pyrene	37.0	Indeno(1,2,3-cd)pyrene	1	N/A	0.004							
Dibenz(a,h)anthracene	7.3	Dibenz(a,h)anthracene	1	N/A	0.001							
Benzo(ghi)perylene	38.0	Benzo(ghi)perylene	1	N/A	0.004							
Total TPH	560.0	Unknown oil	1	N/A	0.056				0.056			0.056
Benzene	1.4	Benzene	1	N/A	0.000		0.000		0.000		0.000	
Toluene	7.5	Toluene	1	N/A	0.001		0.001		0.001			0.001
Ethylbenzene	6.1	Ethylbenzene	1	N/A	0.001				0.001			0.001
Xylenes	28.00	Xylenes	1	N/A	0.003		0.003					
Note:												
					Cut-off value (%)	1%	1%	1%	N/A	N/A	N/A	N/A
					Total (or greatest)	**0.00%**	**0.00%**	**0.00%**	**0.06%**	**(0.02%)**	**(0.04%)**	**(0.06%)**
					Hazard threshold	1%	20%	10%	10%	20%	1%	10%
					Hazardous	N	N	N	N	N	N	N

Hazard Property Description	Acute Toxicity									
Hazard Property	HP6									
Hazard Statement	H300	H301	H302	H310	H311	H312	H330	H330	H331	H332
Contaminant	Acute Tox.2 (Oral)	Acute Tox.3 (Oral)	Acute Tox.4 (Oral)	Acute Tox.1 (Dermal)	Acute Tox.3 (Dermal)	Acute Tox.4 (Dermal)	Acute Tox.1 (Inhal.)	Acute Tox.2 (Inhal)	Acute Tox.3 (Inhal)	Acute Tox.4 (Inhal)
Cyanide - Total	0.002			0.002			0.002	0.002		
Arsenic										
Arsenic (secondary)	0.026									
Beryllium		0.000					0.000	0.000		
Cadmium			0.001							
Cadmium (secondary)							0.001	0.001		
Chromium (III)			0.012							
Chromium (VI)		0.000			0.000		0.000	0.000		
Copper										
Copper (secondary)			0.507							0.507
Lead			2.927							2.927
Mercury	0.000									
Nickel			0.040							0.040
Selenium		0.000							0.000	
Zinc										
Vanadium			0.008							0.008
Naphthalene			0.020							
Acenaphthylene			0.002	0.002			0.002	0.002		
Acenaphthene										
Fluorene										
Phenanthrene			0.019							
Anthracene										
Fluoranthene			0.018							
Pyrene										
Benzo(a)anthracene										
Chrysene										
Benzo(b)fluoranthene										
Benzo(k)fluoranthene										
Benzo(a)pyrene										
Indeno(1,2,3-cd)pyrene										
Dibenz(a,h)anthracene										
Benzo(ghi)perylene										
Total TPH										
Benzene										
Toluene										
Ethylbenzene										0.001
Xylenes						0.003				0.003
Cut-off value (%)	0.1%	0.1%	1%	0.1%	0.1%	1%	0.1%	0.1%	0.1%	1%
Total (or greatest)	**0.00%**	**0.00%**	**2.93%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**	**2.93%**
Hazard threshold	0.25%	5%	25%	0.25%	15%	55%	0.1%	0.5%	3.5%	22.5%
Hazardous	N	N	N	N	N	N	N	N	N	N

Hazard Property Description	Carcinogenic		Corrosive	Toxic for reproduction		Mutagenic		Sensitising		Ecotoxic			
Hazard Property	HP7		HP8	HP10		HP11		HP13		HP14			
Hazard Statement	H350	H351	H314	H360	H361	H340	H341	H317	H334	H400	H410	H411	H413
Contaminant	Carc.1A Carc.1B	Carc.2	Skin Corr.1A Skin Corr.1B	Repr.1A Repr.1B	Repr.2	Muta.1A Muta.1B	Muta 2.	Skin Sens.1	Resp. Sens. 1	Aquatic Acute.1	Aquatic Chronic.1	Aquatic Chronic.2	Aquatic Chronic.4
Cyanide - Total										0.002	0.002		
Arsenic	0.036							0.036		0.036	0.036		
Arsenic (secondary)			0.026										
Beryllium	0.000							0.000					
Cadmium	0.001				0.001		0.001						0.001
Cadmium (secondary)										0.001	0.001		
Chromium (III)				0.012				0.012	0.012				0.012
Chromium (VI)	0.000		0.000		0.000	0.000		0.000	0.000	0.000	0.000		
Copper										0.563	0.563		
Copper (secondary)													
Lead		2.927		2.927	See specific assessment					2.927	2.927		
Mercury			0.000		0.000		0.000			0.000	0.000		
Nickel	0.040			0.040			0.040	0.040	0.040	0.040	0.040		
Selenium										0.000	0.000		
Zinc								0.566	0.566		0.566		
Vanadium					0.008		0.008					0.008	
Naphthalene		0.020								0.020	0.020		
Acenaphthylene													
Acenaphthene										0.006	0.006		
Fluorene										0.004	0.004		
Phenanthrene										0.019	0.019		
Anthracene								0.005		0.005	0.005		
Fluoranthene										0.018	0.018		
Pyrene										0.015	0.015		
Benzo(a)anthracene	0.007									0.007	0.007		
Chrysene	0.007						0.007			0.007	0.007		
Benzo(b)fluoranthene	0.008									0.008	0.008		
Benzo(k)fluoranthene	0.003									0.003	0.003		
Benzo(a)pyrene	See specific assessment			0.006		0.006		0.006		0.006	0.006		
Indeno(1,2,3-cd)pyrene		0.004											
Dibenz(a,h)anthracene	See specific assessment									0.001	0.001		
Benzo(ghi)perylene										0.004	0.004		
Total TPH	See specific assessment				0.056	See specific assessment						0.056	
Benzene	0.000					0.000							
Toluene					0.001								
Ethylbenzene													
Xylenes													
Cut-off value (%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.1%	0.1%	1%	1%
Total (or greatest)	**(0.04%)**	**(2.93%)**	**0.03%**	**(2.93%)**	**(0.06%)**	**(0.01%)**	**(0.04%)**	**(0.57%)**	**(0.57%)**	**3.49%**	**4.06%**	**0.00%**	**0.00%**
Hazard threshold	0.1%	1%	5%	0.3%	3%	0.1%	1%	10%	10%	WM3 eq.2	WM3 eq.3 & eq.4		WM3 eq.4
Hazardous	N	HP7	N	HP10	N	N	N	N	N	N	HP14		N

Substance specific concentration limits						
Hazard Property Description	STOT				Carc.	Repr.
Hazard Property	HP5				HP7	HP10
Hazard Statement	H335 (CrO3)	H372 (CdS)	H373 (CdS)	H373 (PbSO4)	H350 (BaP) (Da,hA)	H361 (PbSO4)
Contaminant	STOT SE.3	STOT RE.1	STOT RE.2	STOT RE.2	Carc.1B	Repr.2
Cyanide - Total						
Arsenic						
Arsenic (secondary)						
Beryllium						
Cadmium		0.001	0.001			
Cadmium (secondary)						
Chromium (III)						
Chromium (VI)	0.000					
Copper						
Copper (secondary)						
Lead				2.927		2.927
Mercury						
Nickel						
Selenium						
Zinc						
Vanadium						
Naphthalene						
Acenaphthylene						
Acenaphthene						
Fluorene						
Phenanthrene						
Anthracene						
Fluoranthene						
Pyrene						
Benzo(a)anthracene						
Chrysene						
Benzo(b)fluoranthene						
Benzo(k)fluoranthene						
Benzo(a)pyrene					0.006	
Indeno(1,2,3-cd)pyrene						
Dibenz(a,h)anthracene					0.001	
Benzo(ghi)perylene						
Total TPH						
Benzene						
Toluene						
Ethylbenzene						
Xylenes						
Cut-off value (%)	N/A	N/A	N/A	N/A	N/A	N/A
Total (or greatest)	**(0%)**	**(0%)**	**(0%)**	**(2.93%)**	**(0.006%)**	**(2.93%)**
Hazard threshold	1.0%	10.0%	0.1%	0.5%	0.01%	2.5%
Hazardous	N	N	N	HP5	N	HP5

Waste acceptance

Parameter	Inert waste landfill	Stable non-reactive hazardous waste in a non-hazardous landfill cell (SNRHW)	Hazardous waste landfill	Location	CS01	CS02	CS03
				Depth (m)	0.00	0.00	0.00
				Date	05/03/25	05/03/25	05/03/25
Parameters determined on the waste							
Total organic carbon	3	5	6		4.8	7.2	12
Loss on ignition			10		8.3	9.3	7.1
BTEX	6				< 0.010	< 0.010	< 0.010
PCBs (7 congeners)	1				< 0.10	< 0.10	< 0.10
Mineral oil	500				500	320	370
PAH (17 congeners)	100				270	200	440
pH		6			8.3	7.6	8
Acid neutralisation capacity (pH 6)		To be evaluated	To be evaluated		0.02	0.011	0.012
Limit values (mg kg^{-1}) for compliance test using BN 12457-3 at L/S 10 l							
Arsenic	0.5	2	25		0.011	0.018	0.0065
Barium	20	100	300		0.42	0.39	0.5
Cadmium	0.04	1	5		< 0.00011	< 0.00011	< 0.00011
Chromium (III)	0.5	10	70		0.12	0.006	0.047
Copper	2	50	100		0.028	0.0024	0.038
Mercury	0.01	0.2	2		< 0.00005	< 0.00005	< 0.00005
Molybdenum	0.5	10	30		0.15	0.093	0.12
Nickel	0.4	10	40		0.0063	0.0096	0.002
Lead	0.5	10	50		0.0013	< 0.0005	0.0014
Antimony	0.06	0.7	5		0.41	0.0082	0.28
Selenium	0.1	0.5	7		0.017	0.014	0.015
Zinc	4	50	200		0.005	0.095	0.024
Chloride	800	15,000	25,000		65	48	46
Fluoride	10	150	500		3.9	5	3.1
Sulphate	1,000	20,000	50,000		340	580	480
Total dissolved solids	4,000	60,000	100,000		3500	1400	5000
Phenol	1				< 0.50	< 0.50	< 0.50
Dissolved organic carbon	500	800	1000		< 50	< 50	75
Classifications							
Waste classification					**Hazardous**	**Hazardous**	**Hazardous**
Landfill type					SNRHW	Exceeds hazardous - requires treatment	Exceeds hazardous - requires treatment

Key Notes:

1) The values for total dissolved solids (TDS) can be used alternatively to the values for sulphate and chloride.

2) Soils with TOC values over the limit value may still be accepted provided the DOC value falls are below it's respective limit value.

3) In a hazardous waste, either the TOC or LOI must be used.

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Appendix M UXO Risk Assessment

DETAILED UNEXPLODED ORDNANCE RISK ASSESSMENT

Albert Bridge House
1 Bridge Street, Manchester, M60 9AF

Prepared for: Soiltechnics Ltd

Project Number: 9237

Version: 1.0

Dated: 04/02/2025

DISTRIBUTION

Project Number: 9237

Version: Issue version 1.0

Dated: 04/02/2025

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Annexes:

A. 1. Site Mapping
2. WWII Bomb Strikes
3. WWII Bombing Damage
4. Risk Zoning

B. UXO Safety Information

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WO Defence Arrangements 1939-45

News Reports Witness Accounts 1939-45

Latest News Reports

Project Information

Site and project information was provided by Soiltechnics Ltd.

TERMS AND DEFINITIONS

Anti Aircraft Ammunition (AAA)
High Explosive shells ranging from 30mm to 155mm used by air defence batteries to attack or deter enemy air attack.

Air Dropped Munition
A bomb or container dropped from an aircraft which is designed to detonate at a pre determined altitude, on impact or using a delay mechanism; after impact.

Air Dropped Sub-Munitions (Bomblet)
Small sub-munitions dispensed from a larger carrier which may be fixed to the aircraft or dropped as a single container munition which was designed to open above the target spreading its contents over a large area. Some designs are extremely dangerous and fitted with anti-handling devices.

Area Clearance
This is the term used for the systematic clearance of explosive ordnance from land, including military property, firing and bombing ranges, airfields and training areas. When the land is a former wartime battle ground, the term used is Battle Area Clearance (BAC)

Blast Zone
This term refers to the area around an explosive detonation where the explosive overpressure (Blast) can cause damage, injury or death.

Explosive Ordnance (EO)
All manufactured or improvised items designed to contain explosive, propellant, pyrotechnic and fissionable material or biological or chemical agents or pre-cursers which when coupled with an initiation or dispersal system are designed to cause damage, injury or death.

Explosive Ordnance Disposal (EOD)
A series of recognised procedures and protocols which are used by specialists in the detection, identification, evaluation, risk assessment, render safe, recovery and disposal of any item of explosive ordnance or improvised explosive device.

Fragmentation Zone
This is the term which refers to the danger area in which a piece of an item of explosive ordnance will travel on detonation. This zone is normally greater than the blast zone.

Geophysical Survey
The use of magnetometers, ground penetrating radar or other geophysical data gathering systems, which is then used for evaluation, risk assessment and to quantify further mitigation requirements.

High Explosive (HE)
High explosives react/detonate at a rate of around 9,000 metres per second, to all intents and purposes, instantaneously.

Imperial War Museum (IWM)
Wartime records source based in Lambeth Road London.

Incendiary Bomb (IB)

Incendiary bombs ranged from 1kg in size to 500kg the larger sizes were designated as Oil Bombs. Fills range from Thermite mixtures, Phosphorus, Kerosene or other pyrotechnic mixtures.

Intrusive Search

This term refers to the process of introducing a specialist magnetometer by pushing or drilling the sensor in to the ground to a pre determined depth, thus allowing construction activities such as: piling, soil testing and deep intrusive ground works to be conducted safety.

Land Service Ammunition (LSA)

LSA is a term that refers to all items containing explosives, pyrotechnic or noxious compounds which are placed, thrown or projected during land battles.

Local Records Office (LRO)

Wartime records source charged with maintaining the records for the Region, County, Borough or City.

National Archive (NA)

Wartime records source housed in Kew Gardens London.

Oil Bomb (OB)

Large airdropped bomb or modified ordnance container containing flammable material and accelerant, these weapons normally range in weight from 250 – 500kg.

Parachute Mine (PM)

Air-dropped mine designed to detonate at a pre set altitude above the ground. Essentially a large blast bomb with an explosive content of 1600 kg commonly fitted with anti-handling or anti-removal fuzes.

Unexploded Bomb (UXB)

Any air dropped bomb that has failed to function as designed.

Unexploded Ordnance (UXO)

Explosive ordnance that has been primed, fused, armed or otherwise prepared for use or used. It may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other cause.

War Office (WO)

This was the United Kingdom Government department responsible for defence of the realm, forerunner of the Ministry of Defence (MoD).

White Phosphorus (WP)

Munitions filled with WP_4 are designed for signalling, screening and incendiary purposes. They achieve their effect by dispersing WP, which burns on contact with the air.

World War One or Two (WWI or WW2)

Period of multi-national conflict, specifically: WW1; 1914-1918 or WWII; 1939-1945.

1 INTRODUCTION

1.1 Instruction & Scope

MACC International Ltd was commissioned by the Soiltechnics Ltd to conduct a Detailed Unexploded Ordnance (UXO) Risk Assessment for Albert Bridge House, 1 Bridge Street, Manchester, M60 9AF (See Annex 'A-1'). The scope of the assessment is to determine the likelihood of an encounter with UXO within the context of the execution of ground investigations and subsequent development works.

1.2 Methodology & Purpose

The methodology used in the assessment complies with the United Nations (IMAS) standards for UXO/Mine Level 1 Survey (Desk Top Study), the CIRIA C681 "Unexploded Ordnance (UXO) – A guide for the Construction Industry" and the recognised best practice advocated by the Health and Safety Executive (HSE). The quality and environmental aspects of the assessment comply with UKAS Accredited ISO 9001:2015 and ISO 14001:2015 standards. The purpose of the assessment is that of evaluation and to provide an aid in decision making by our client.

2 DETERMINING THE LIKELIHOOD OF ENCOUNTER

2.1 Aim, Research Restrictions & Indemnity

This risk assessment has drawn upon archive records which are within the public domain; however, these are acknowledged to be incomplete. Consequently, some incidents may have occurred where the records no longer exist or could not be located. The Secretary of State of the United Kingdom and MACC International Ltd does not accept responsibility for the accuracy or completeness of the information contained within the records. Some records regarding the UXO situation on some sites may not yet be within the public domain. Consequently, such information was not available for evaluation by MACC International Ltd. Research of the site history, regarding military usage, bombing raids and bomb impacts has been undertaken to establish the following:

- Frequency and location of enemy bombing raids and damage sustained to the site.
- The potential for UXO to remain on the site.
- Records of UXO removal activities and encounters.

2.2 Relevant Publications & Credible Internet Information

Published sources of information used in the compilation of this assessment are listed within the reference section including those provided by the client. Additional information was provided through credible internet sites; their assistance is credited where appropriate and details are listed within the reference section of this report.

3 THE SITE

The site footprint is located at Bridge Street, Manchester and is centred at approximate grid reference 383442, 398372. The site is located on the southern bank of the River Irwell and is bound by Bridge Street to the south and St Mary's Parsonage to the south-east. The site is currently occupied by buildings collectively known as The New Crown Buildings which were constructed in 1958. The main building at the centre of the site is 18 storeys in height, with two further structures of three and six storeys respectively arranged around a central courtyard. A single storey building occupies the north of the site on the riverbank with hardstanding parking areas located at the west and south-east of the site.

Manchester City Centre suffered extensive enemy bombing during WWII. During this period, the site footprint was occupied by mixed commercial and residential properties including a Printing Works at the north of the site at Albert Street, residential properties within the central and southern areas of the site at Gas Street, King Street West and Bridge Street, and a commercial garage at the eastern outskirts of the site at King Street West. Enemy bombing sustained is this area was so significant that the vast majority of buildings within the site footprint were totally destroyed and subsequently cleared. Areas of the site footprint have undergone significant post-war development through construction of the existing buildings during the late 1950s.

4 FUTURE INTENTIONS

Future intentions are understood to include the demolition of existing structures followed by the construction of three new buildings over a shared basement. Two buildings will be residential towers ranging between 38-50 storeys with the third building being a commercial office development amounting to 20 storeys in height. It is known that Geo-environmental investigations will be conducted prior to the commencement of subsequent development works.

5 HISTORICAL INFORMATION

5.1 British Archives

Prior to 1942 the United Kingdom did not operate a national recording system for EO/UXO incidents or military use of land. The records compiled during 1939-1942 were conducted under local arrangements and were only as detailed and accurate as the availability of time, personnel and the ease of access to information would allow. In April 1942, the Ministry of Home Security instigated a training programme for all personnel maintaining bomb census records, these standardised national records and greatly improved the accuracy of the information. Lack of exact bomb strike positions were most common where bombs fell on open ground well away from structures or buildings.

5.2 Manned Air Raids & Unmanned Rocket Attack Reports

WWI: No records were found to confirm a bomb strike within the site footprint or general surrounding area during WWI. Consequently, this source of UXO contamination is considered to be highly unlikely.

WWII: The City of Manchester suffered a high level of enemy bombing during WWII, primarily during the 'Manchester Blitz' of 1940. The City's industrial premises and railway infrastructure were key targets for the enemy. Likely bombing targets within the immediate surrounding area of the site footprint included a Gasworks at William Street approximately 320m north-west of the site and Manchester Central Station and Goods Station approximately 500m to the south-east.

Manchester Bomb Damage Mapping was found to indicate extensive damage within the immediate surrounding area. Three HE bombs were recorded to have struck the site footprint at Albert Street at the west, Dock Street West within the central area of the site and at the eastern outskirts of the site footprint (see Annex A-2 WWII Bomb Strikes). Incendiary bombs were also recorded within the south-western outskirts of the site footprint at Bridge Street and in the surrounding area of the site to the south.

Further records sourced from Manchester Libraries confirms significant damage on 22nd/23rd December 1940 at Albert Street and King Street West within the site footprint, as well as at Bridge Street adjacent to the south of the site and at St Mary's Parsonage formerly located approximately 50m east of the site. In the immediate surrounding area of the site, numerous further HE bombs were recorded with large developed areas completely demolished.

Bomb Damage Mapping indicates that the vast majority of properties within the site footprint at Albert Road, Gas Street, Dock Road West and Bridge Street were totally destroyed as a result of the level of bombing sustained. The exceptions included two residential properties at the southern outskirts of the site at Bridge Street and a garage at the eastern outskirts of the site at Dock Street West which were all recorded as partially damaged structures (see Annex A-3 WWII Bombing Damage). A comparison of pre and post-war mapping was further found to show that much of the site footprint was cleared post-war due to the scale of the damage sustained. Despite most buildings being marked as totally destroyed within bomb damage mapping, a few properties remain visible on site post-war with one property at Albert Street at the north, a garage at the east and several residential properties at Bridge Street remaining. Aerial imagery of the site dated August 1945 also shows the heavily damaged areas of the site to be cleared by this time.

Significant bombing damage increases the likelihood of any subsequent UXB falling unnoticed or unrecorded. There is the potential for a UXB to have fallen within bomb damaged property and 'J curved' to rest below the adjacent, lesser damaged properties that remained on site post-war. There is also the potential for a UXB to have fallen unrecorded within the River Irwell and 'J curved' to rest within the northern area of the site. Consequently, this source of UXO contamination is considered to be credible within areas of serious bombing damage, plus a 10m safety 'buffer zone' to account for any potential 'J curve' effect (See Annex A-4 Risk Zoning).

5.3 Airdropped Sub-Munitions' Reports

Records indicate that the general area suffered significant enemy cluster/incendiary bombing during WWII. Bomb Damage Mapping confirms that incendiary bombs struck the immediate surrounding area to the south of the site, as well as within the south-western outskirts of the site footprint at Bridge Street, likely contributing to the level of damage sustained within the site footprint and adjacent land. However, whilst considering the relatively low ground penetration potential for such weapons and the significant level of post-war development that has taken place within areas of the site, this source of UXO contamination is on balance considered to be unlikely, but cannot be ruled out entirely.

5.4 Anti-Aircraft Ammunition (AAA) Reports

Local fixed and mobile Anti-Aircraft batteries were located in the area during WWII to defend against air attack, the nearest of which included Heavy Anti-Aircraft Batteries approximately 1.5km north-west and 2.3km north-east of the site footprint, as well as a 'Z' Battery approximately 1.0km north-west. Combat engagements with enemy aircraft did take place during this period.

The significant level of bombing damage sustained across much of the site footprint is considered to increase the potential for subsequent shells to have fallen unrecorded. Consequently, this source of UXO contamination is considered to be credible.

5.5 **Abandoned Bomb Reports**

No records were found to confirm or otherwise indicate that an unexploded bomb was abandoned within the site footprint.

5.6 **Bombing Decoys**

There were no bombing decoys located in the immediate area of the site during WWII with the nearest located approximately 8.8km to the south-east. Consequently, these are not considered to be a credible source of additional UXO contamination.

5.7 **Migration of UXO**

It is considered possible; albeit unlikely, that a bomb was imported onto the site from other bomb sites. Additionally, where land ground levels have been increased or in-filled using Marine Dredged Aggregates there is a high potential for the aggregate to contain items of UXO. Consequently, these must be considered to have the potential to represent an additional source of UXO contamination.

5.8 **Military Use**

Although there was a wartime military presence and local Home Guard Units in operation in the general area during WWII, no records were found to confirm any significant military use of the site footprint or immediately adjacent land considered likely to have resulted in UXO contamination. Consequently, UXO contamination as a result of military activity is considered to be unlikely.

5.9 **Downed / Crashed Military Aircraft**

No records were found to indicate that an armed aircraft crashed within the site footprint.

6 DETERMINING THE NATURE OF RISK

6.1 General

While HE warheads are very unlikely to detonate if left undisturbed they remain inherently dangerous and may function if subjected to suitable stimuli. The most common of these stimuli is shock, friction or heat which may cause the fuze to function or unstable explosive materials such as Picric Acid (2-4-6 Trinitrophenol (TNP)) to explode. However, in the case of incendiary bombs containing White Phosphorus (WP_4) exposure of the WP to the oxygen in the air will result in its violent ignition and combustion which may cause any HE content within the munition to detonate.

6.2 German Bombing Tactics

The tactics employed by the German Air Force during WWII show that they had a wide variety of bombs at their disposal. The most common ranged in weight from 50 kg through to 500 kg. Some models in this range of bombs were designed to be “carrier” bombs. These containers could hold potentially hundreds of smaller sub-munitions (anti personnel or incendiary bomblets). Although dropped in lesser quantities, the German arsenal also included larger bombs and parachute mines up to 1,400 kg in weight. Unmanned attacks were also mounted by the Germans using V1 Rockets and V2 Missiles, each with a warhead around 1,000 kg in weight.

6.3 Bomb Trajectory & Ground Penetration

During WWII, the Ministry of Home Security undertook a major study on bomb penetration depths using 1,328 actual bomb impact events to provide statistical analysis of penetration potential. As a result, they determined the expected behaviour of a range of bomb weights through different geological strata around the Capital. Their findings remain the only empirical gained figures to have been gathered to date for England. A summary of their findings can be found in Table 1 of this study. A number of factors will influence the behaviour of a bomb on impact with the target and its trajectory through the ground. Relevant factors include: Height and speed of release of the bomb, aerodynamic qualities of the bomb, the angle of flight and impact and the nature of impact surface and sub soil.

6.3.1 In determining the potential bomb penetration depths into the ground, using the historic geotechnical information, other factors considered were: Release height 4,545 metres (15,000 ft). Most common GP Bomb used of 500 kg in weight and an impact Angle Range of 90° (tail vertical) to 0° (tail horizontal).

6.3.2 Table 1. Extract of Ministry of Home Security Bomb Penetration Study

	Bomb Weights			
Sub Soil Type	50kg	250kg	500kg	1000kg
Soft Rock or Made Ground	2.442	5.016	6.006	7.062
Gravel	2.442	5.016	6.006	7.062
Dry Clay	3.7	7.6	9.1	10.7
Average Offset (m)	0.8-1.6	1.6-3.7	3-4.5	3.4-5.3

6.3.3 Bombs on penetration of the surface do not tend to follow a straight line trajectory, due to a number of factors, shape, angle of entry, weight and speed; they tend to arc or curve; known as a “J” curve. With the horizontal distance from the entry point to the resting point known as the offset. The typical offset is generally taken to be $^{1}/_{3}^{rd}$ of the penetration depth. However, this distance can vary greatly if the bomb strikes an obstacle just below the surface. With this mechanism of offset, it is therefore a possibility that a bomb could enter the ground outside a building and come to rest within its footprint. Having reviewed the bomb penetration information and having provided a reasonable safety factor it is considered that:

- The maximum bomb penetration depth is estimated at 10.5 metres from the 1941 ground level. The expected offset from impact point is estimated to be 3.5 metres.
- The maximum ground penetration for an AA Artillery Shell is estimated at 1.5 metre below the 1941 ground level.

7 ENVIRONMENTAL IMPACT FROM UXO

7.1 Ground Contamination & Health Risk vectors

The amount of explosive material within the most common bombs is not considered sufficient to pose a significant widespread environmental risk. Nevertheless, it should be noted that the following components are commonly used in the manufacture of a high explosive bomb and may pose a localised contamination risk to health:

- Lead (Pb)
- Zinc (Zn)
- Copper (Cu)
- Iron (Fe)
- Mercury (Hg)
- Silver Fulminate (AgCNO)
- Aluminium (Al)
- Trinitrophenol ($C_6H_3N_3O_7$)
- Trinitrotoluene ($C_7H_5N_3O_6$)
- Trimethylene ($N(CH_3)_3$)
- Trinitramine ($C_3H_6N_6O_6$)
- Ammonium (NH_4)
- Sodium Nitrate ($NaNO_3$)
- Nitro-glycerine ($C_3H_5N_3O_9$)
- White Phosphorus (WP_4). This chemical may pose a significant immediate risk of spontaneously combusting when exposed to the oxygen in the air. WP will generate large quantities of toxic white smoke when ignited.

7.2 It is recommended that specialist environmental and medical advice be sought to identify any health or other risks posed by these and other chemical compounds.

8 RISK ASSESSMENT

8.1 Risk Source

Records indicate that the site footprint sustained significant enemy bombing during WWII resulting in the total destruction of the majority of structures within the site. Records are acknowledged to be incomplete and include errors; the possibility that items of UXO may have found their way onto the site and remain to the present day is considered credible.

8.2 Risk Pathway

The risk pathway is considered to be ground intrusive investigations and earth works.

8.3 Consequence

The consequences of a UXB detonation on site during construction works are considered to be a factor of the size of the blast and the proximity of assets and individuals to the point of detonation. These will include potential to kill or seriously injure personnel destroy or damage high value site assets, nearby public and private property and infrastructure.

8.4 Risk Rating

H = A figure derived from assessing the history of the site weighing up factors such as recorded bomb damage, threat weapon type, military use and the scope of any post conflict development.

W = A figure derived from assessing the type of the process to be undertaken without putting in place any UXO mitigation measures. A low figure is assigned where the process is relatively non aggressive (minimal ground or point shock). A high figure is used where the work is considered aggressive (significant ground or point shock).

L = A figure derived by multiplying figures H and W to provide an overall likelihood of an encounter with UXO.

S = A figure derived by assessing the scope or extent of the works; a low figure is assigned where the volume of risk material is limited. A high figure is used where for example the volume of risk material is considerable such as “bulk digs” or shafting.

P = A Figure derived from assessing the result of an explosion, including primary and secondary risk pathways and receptors. A high figure is attributed for example in a gas works while a low figure is applied to a remote, rural open space.

C = A figure derived by multiplying figures S and P to provide an overall consequence of an encounter with UXO.

8.5 Table 2 Risk Level – From all potential UXO contamination sources

UXO RISK RATING (Post War Worked Ground)			
Activity	Likelihood (H x W = L)	Consequence (S x P = C)	Risk Rating (L x C = R)
Hand dug excavations or demolition to ground level	2 x 1 = 2	1 x 5 = 5	2 x 5 = 10
Limited mechanical excavations or trenching	2 x 2 = 4	2 x 5 = 10	4 x 10 = 40
Drilling, sampling, bulk excavations or piling	2 x 3 = 6	3 x 5 = 15	6 x 15 = 90
UXO RISK RATING (Post War Un-Worked Ground)			
Activity	Likelihood (H x W = L)	Consequence (S x P = C)	Risk Rating (L x C = R)
Hand dug excavations or demolition to ground level	4 x 1 = 4	1 x 5 = 5	4 x 5 = 20
Limited mechanical excavations or trenching	4 x 2 = 8	2 x 5 = 10	8 x 10 = 80
Drilling, sampling, bulk excavations or piling	4 x 3 = 12	3 x 5 = 15	12 x 15 = 180
1= Minimal 5=significant	LOW 0-100	MEDIUM 100-200	HIGH 200-

9 STUDY FINDINGS

9.1 Risk Levels

The risk assessment has determined the UXO risk within the site boundary. The UXO risk is considered to be lowest within post war worked ground, increasing within post war un-worked ground for some processes. When viewed from likelihood versus consequence standpoint; it is considered prudent to recommend a suitable degree of UXO mitigation to permit the work to proceed in the safest “acceptable” manner in compliance with current legislation and best practices.

9.2 Determining Acceptable Level of Risk

The meaning of the term “acceptable” in the context of this assessment is considered to be in keeping with the Health & Safety Executive directive which identifies the acceptable level as that which is; “As Low as Reasonably Practicable” (ALARP) to achieve.

10 RECOMMENDATIONS FOR RISK MITIGATION

All Risk Levels

- Risk Communication & Safety Planning: Stakeholders should be made aware that the risk of encounter is considered to vary from low increasing to medium for some activities. Consequently, the possible impact on the project may be significant and therefore a UXO Safety Plan should be drawn up and included within the overall project safety planning.

- Safety Training: In keeping with CDM Regulations concerning all sub-surface hazards, UXO Safety Induction Training should be provided to everyone working or visiting the site. The training should be commensurate with the individual's responsibilities and duties on site. The training should be provided by a competent individual (preferably a trained EOD Engineer) and delivered as a separate module of the Site Safety Induction Course or as a Toolbox Talk.

Additional mitigation requirements for the medium risk activities within post war un-worked ground:

- Drilling, Sampling & Bulk Excavations: These should be checked for UXO by an EOD Engineer equipped with specialist magnetometers ahead of the drilling/sampling bits. A UXO safety 'watching brief' should be in place during excavations.

- Piling: All positions should be tested using a specialist 'Mag Cone' and be UXO safety certified prior to the commencement of piling.

11 POST MITIGATION RISK

11.1 Overview

Prudent execution of the recommended risk mitigation strategy will reduce the risk however, it is emphasised that zero risk is not achievable given the possible variables. The assessment has confirmed the UXO risk level based on the nature of the work to be undertaken and has recommended suitable mitigation. An effective risk mitigation strategy will require detailed scoping to achieve its desired results in providing an acceptable level of risk. For further information concerning any part of this assessment please contact MACC International Ltd.

11.2 Intent & Use

This document has been produced in the United Kingdom by MACC International Limited and meets the requirements of CIRIA C681 “Unexploded Ordnance (UXO) – A guide for the Construction Industry”. It has been provided solely for the purpose of assessment and evaluation. It is not intended to be used by any person for any purpose other than that specified. Any liability arising out of use by a third party of this document for purposes not wholly connected with the above shall be the responsibility of that party, who shall indemnify MACC International Limited against all claims, costs, damages and losses arising out of such use.

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IP10 0EU

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Email: macc@macc-eod.com

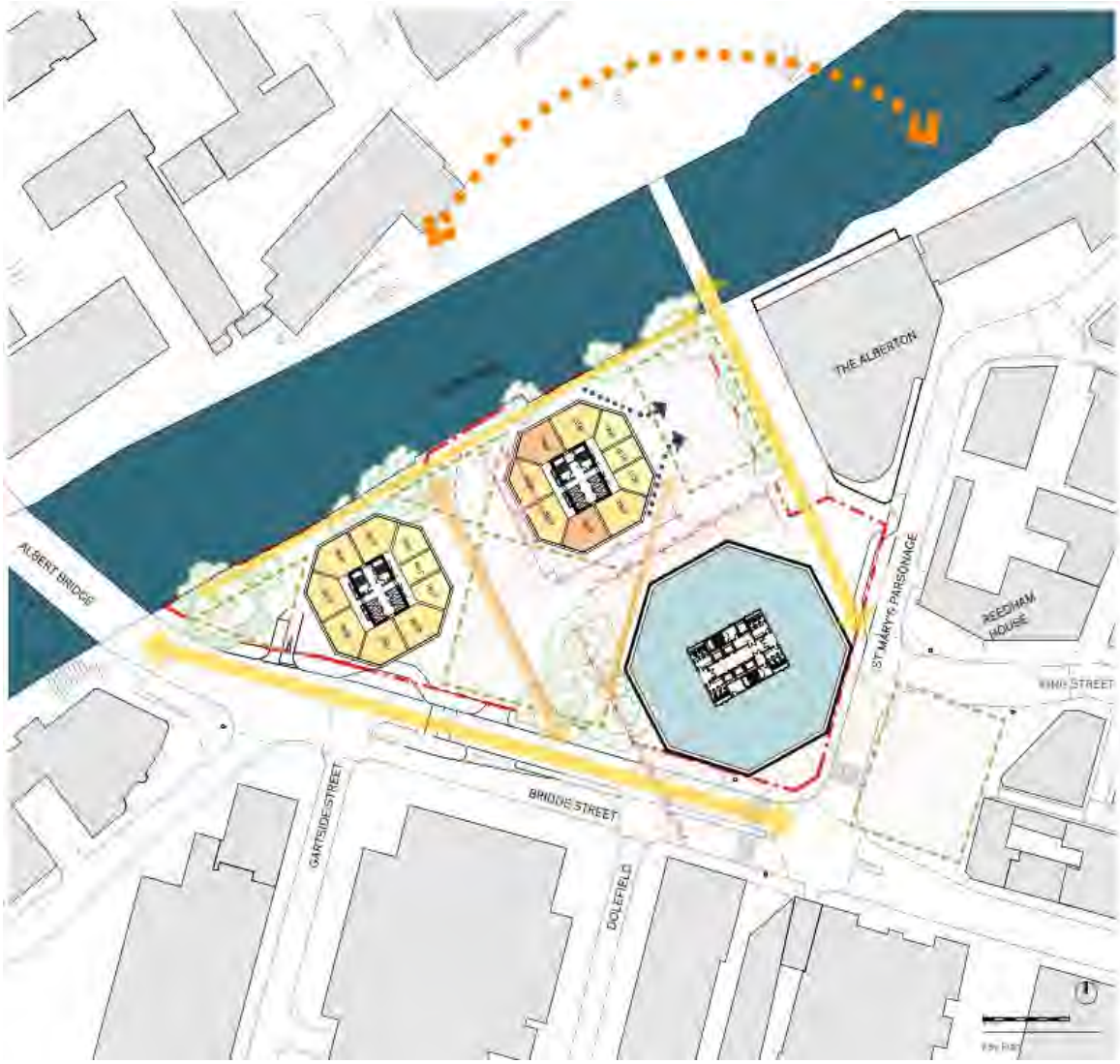
Registered in England Company Registration Number 3014471

Annex A

SITE MAPPING

Annex A-1 Site Location

Site Boundary



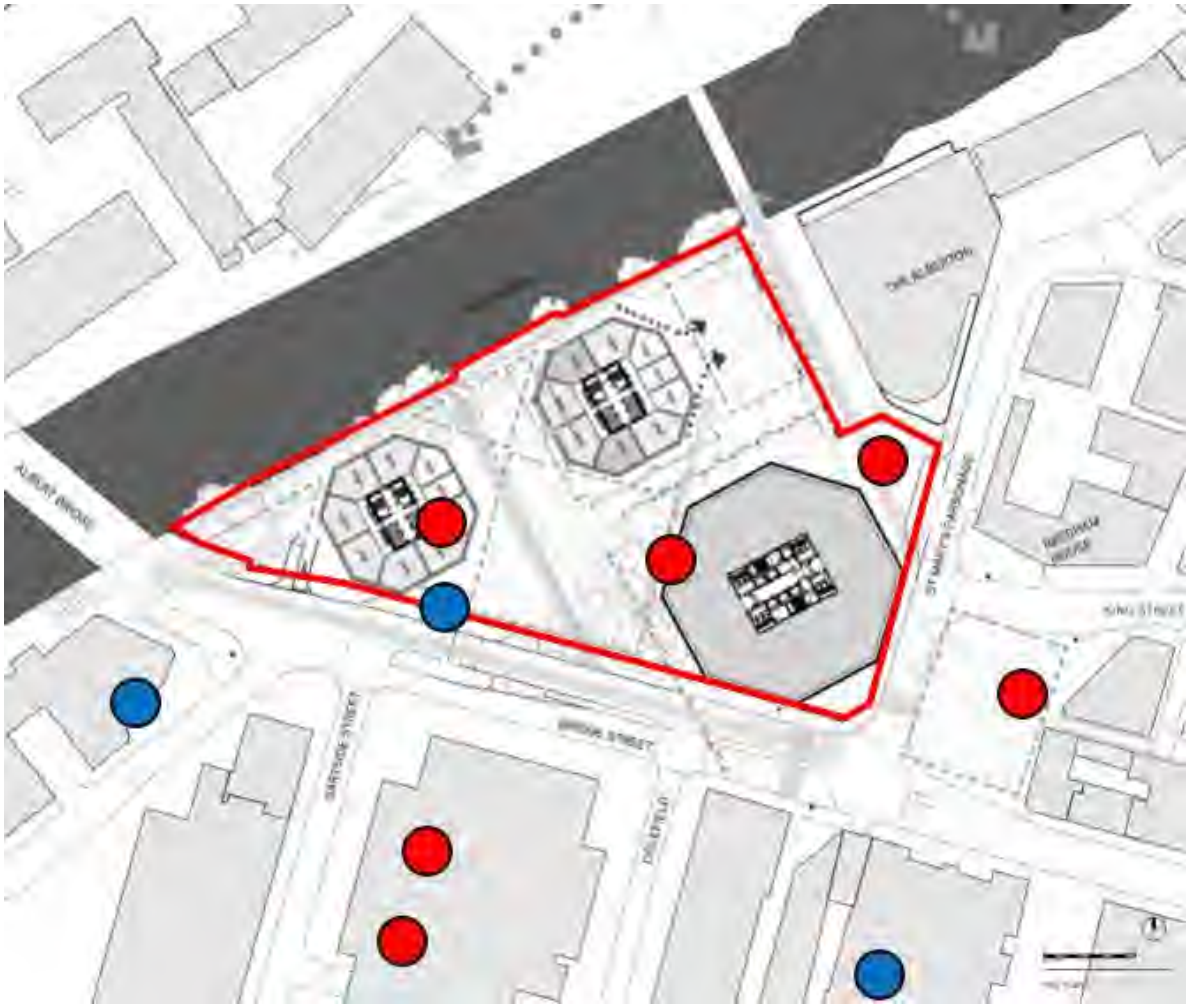
Provided by Soiltechnics Ltd.

Annex A-2 WWII Bomb Strikes

Site Boundary

Approximate HE Bomb Strike

Approximate Incendiary Bomb Strike

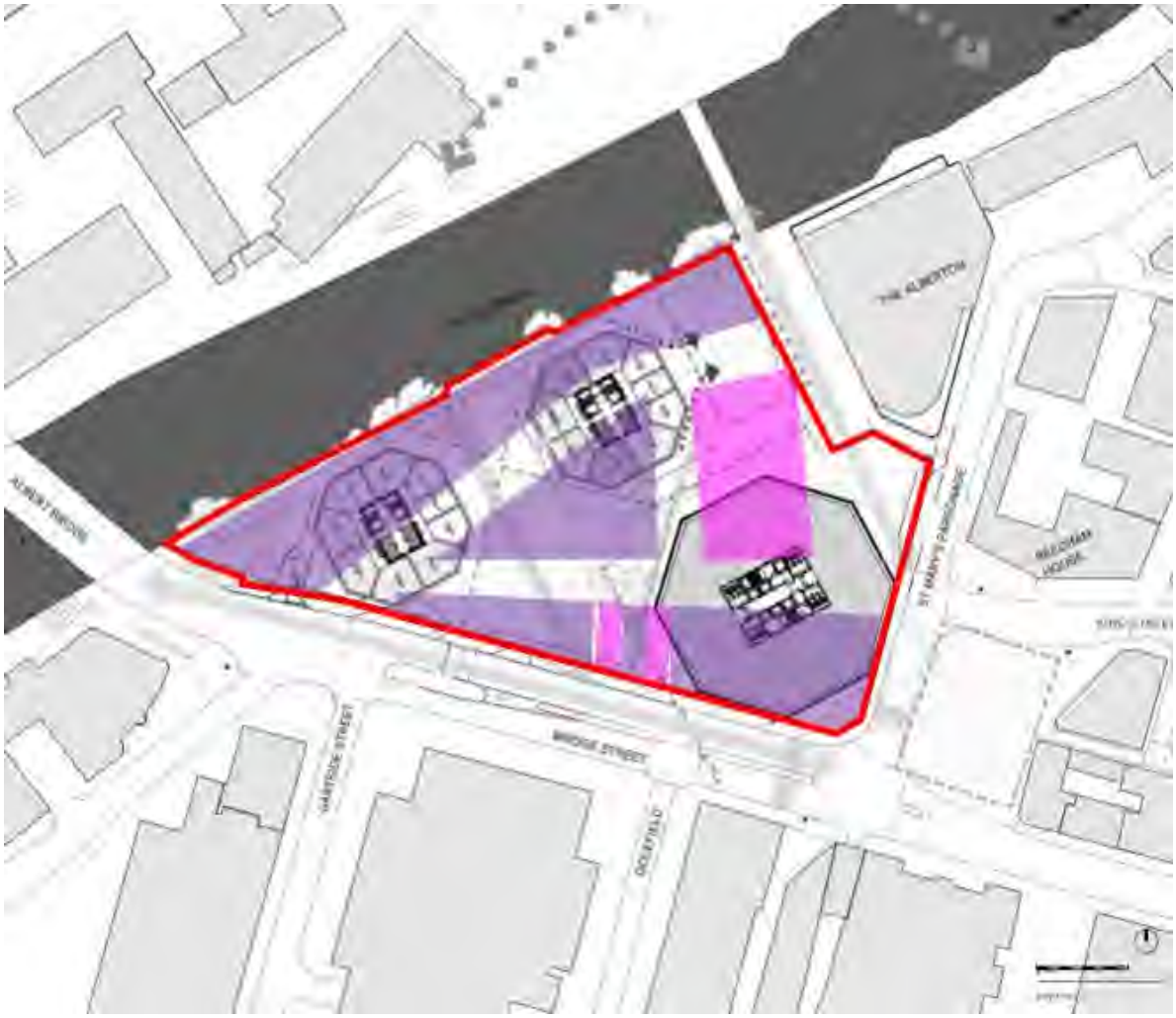


Annex A-3 WWII Bombing Damage

Site Boundary

Approximate area of demolished buildings

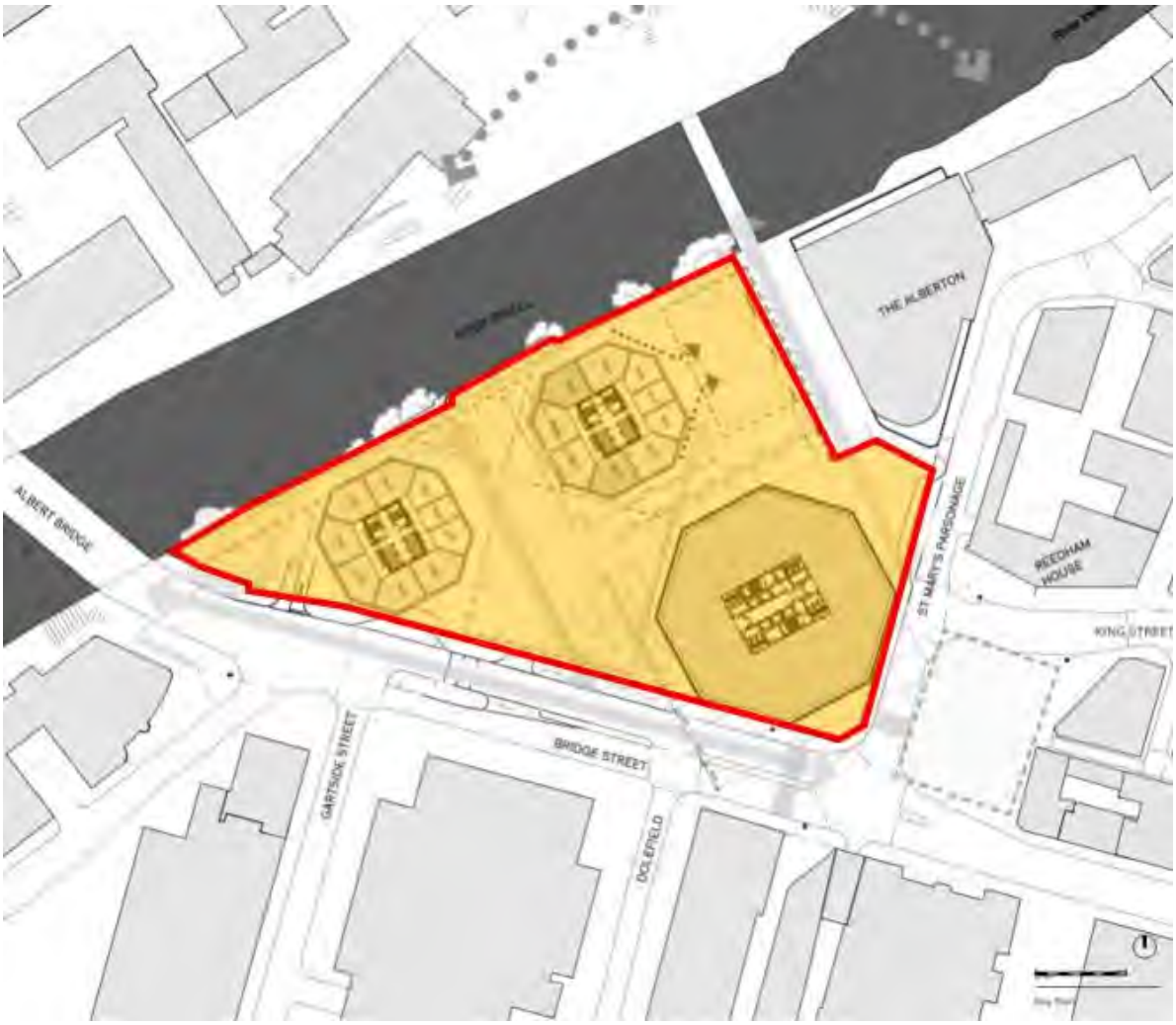
Approximate area of partially damaged structures



Annex A-4 Risk Zoning

Site Boundary

Medium Risk Zone (areas of serious bombing damage plus 10m safety 'buffer zone')



Annex B

EXPLOSIVE ORDNANCE SAFETY INFORMATION

1 UNEXPLODED ORDNANCE

Since WWII the number of incidents in the UK where EO has detonated has been minimal, though a significant number of bombs have been discovered and safely disposed of without serious consequences. More commonly on mainland Europe (France, Germany and Belgium) incidents have occurred where ground workers have been killed or injured as a result of striking buried UXO or mishandling items of UXO found during excavation and piling work.

The threat to any proposed investigation or development on the site may arise from the effects of a partial or full detonation of a bomb or item of ordnance. The major effects are typically; ground shock, blast, heat and fragmentation. For example, the detonation of a 50kg buried bomb could damage brick/concrete structures up to 16m away and unprotected personnel on the surface up to 70m away from the blast. Larger ordnance is obviously more destructive. Table B-1 shows the MOD's recommended safe distance for UXO. However, it should be noted that the danger posed by primary and secondary fragmentation may be significantly greater. Almost 60% of civilian casualties sustained in London during the blitz were the result of flying glass.

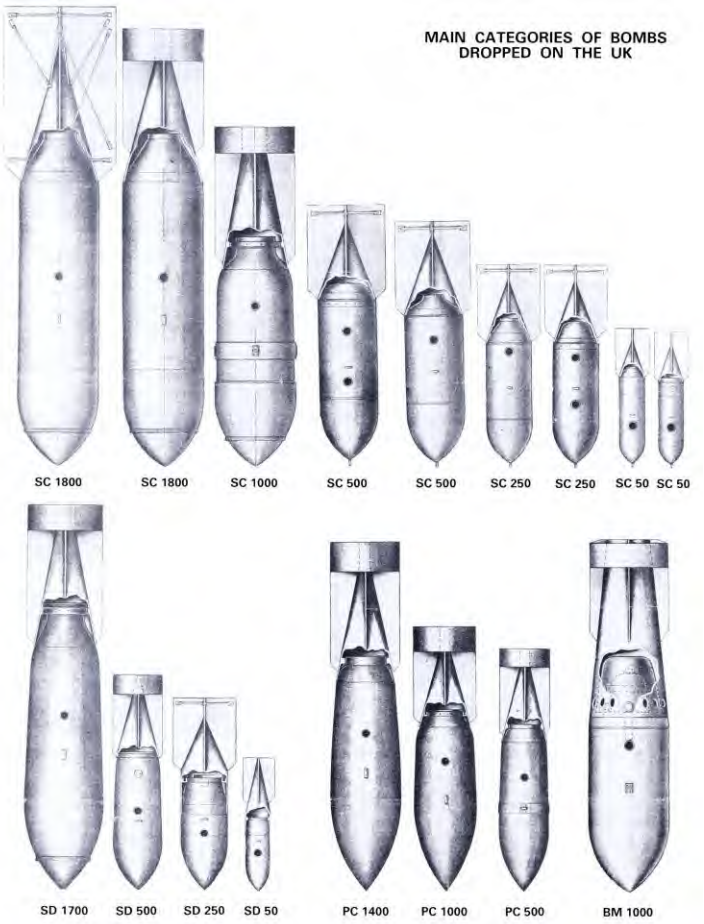
TABLE B-1 SAFETY DISTANCES FOR PERSONNEL

	Safety Distances (m)			
	Surface UXO		Buried UXO	
UXO (Kg)	Protected	Unprotected	Protected	Unprotected
2	20	200	10	20
10	50	400	20	50
50	70	900	40	70
250	185	1100	120	185
500	200	1250	140	200
1000	275	1375	185	275
3000	450	1750	300	450
5000	575	1850	400	575

Explosives rarely become inert or lose effectiveness with age. Over time some explosive materials can become more sensitive and therefore more prone to detonation. This applies equally to items that have been submersed in water or embedded in silt, clay, peat or similar materials.

2 TYPES OF GERMAN AIRDROPPED BOMBS & MINES

2.1 HE Bombs



German 250kg Bomb found by MACC below a pre-war cellar floor in Bethnal Green London 10 August 2015



2.2 Incendiary, Anti-Personnel Bombs & Parachute Landmines



1kg incendiary Bomblet (Top as found today)



Flam c500, c250 & c50 Oil Bombs



SD1 Anti-Personnel Bomblets



SD1 Container Bomb





Parachute Mines

2.3 British Anti-Aircraft Shells & Rockets

Examples of British Anti-Aircraft shells, rockets and components can be seen below.





Typical shell and rocket fuzes (Above left Proximity Fuzes found by MACC in 2017)





Typical shells (Above left 3.7” Shell found by MACC in 2017)







Typical rockets

3 UXO ENCOUNTER SAFETY PROCEDURE

3.1 All site personnel should be instructed on what action to take if they find an unidentified item which they suspect may be unexploded ordnance. The following actions are recommended until expert advice can be sought:

- **Stop Work**
- **Do not Touch**
- **Alert those around you and Evacuate the vicinity**
- **Call the UXO Specialist or Police (Dial 999)**

3.2 Where appropriate safety posters can be used to remind personnel of the safety procedure, an example can be seen below.



3.3 Where an item of UXO is found on site all work should be suspended until the UXO risk has been reassessed and if appropriate, suitable mitigation measures put in place.

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix N Utility Service Plans

United Utilities
Water for the North West

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Your Ref: STX6912
Our Ref: UUPS-ORD-628292
Date: 31/01/2025

Soiltechnics

Soiltechnics
Cedar Barn,
Walgrave,
NN6 9PY

FAO:

Dear Sirs

Location: Albert Bridge House Manchester

I acknowledge with thanks your request dated 24/01/2025 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

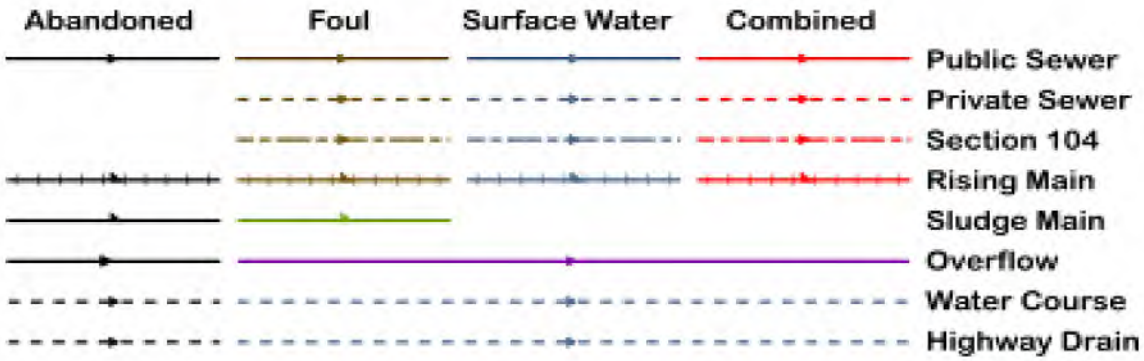
TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

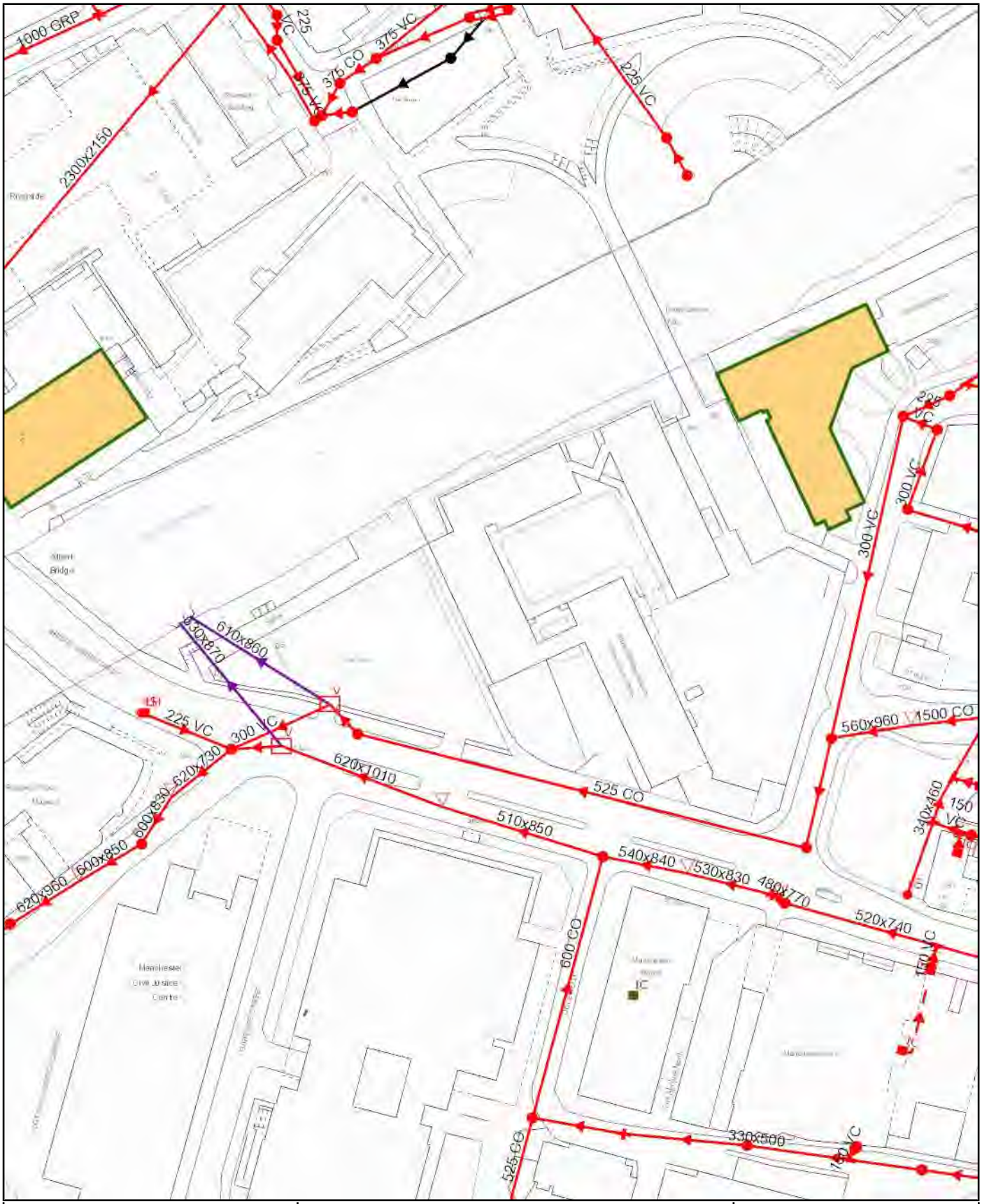
United Utilities
Water for the North West

Wastewater Symbology



All point assets follow the standard colour convention: red – combined, brown - foul, blue – surface water, purple - overflow

- Manhole
- HS Head of System
- ES Extent of Survey
- RE Rodding Eye
- IN Inlet
- DP Discharge Point
- HY Vortex
- PE Penstock
- WO Washout Chamber
- VA Valve
- AV Air Valve
- NRV Non Return Valve
- SO Soakaway
- GU Gully
- CA Cascade
- FM Flow Meter
- HA Hatch Box
- OI Oil Interceptor
- SM Summit
- DS Drop Shaft
- OP Orifice Plate
- Side Entry Manhole
- Outfall
- Screen Chamber
- IC Inspection Chamber
- Bifurcation Chamber
- LH Lamp Hole
- T Junction / Saddle
- CA Catchpit
- Valve Chamber
- Vent Column
- Vortex Chamber
- Penstock Chamber
- T Network Storage Tank
- V Sewer Overflow
- WwTW Ww Treatment Works
- Ww Pumping Station
- Septic Tank
- CK Control Kiosk
- DNM Network Monitoring Point
- Change of Characteristic



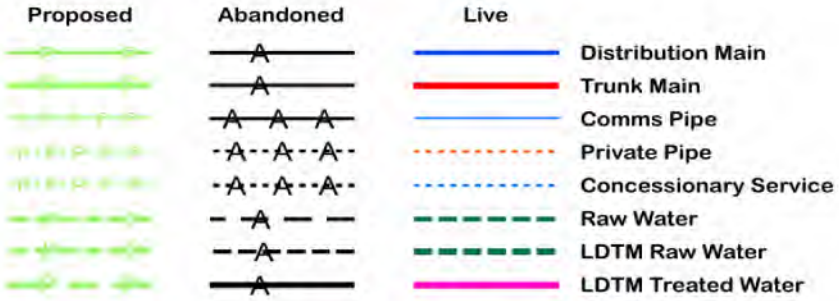
Scale:	1:1250	**SEWER RECORDS**	United Utilities Water for the North West
Date:	31/01/2025		
Address or Site Reference:	Albert Bridge House Manchester		
Printed by:	Property Searches		

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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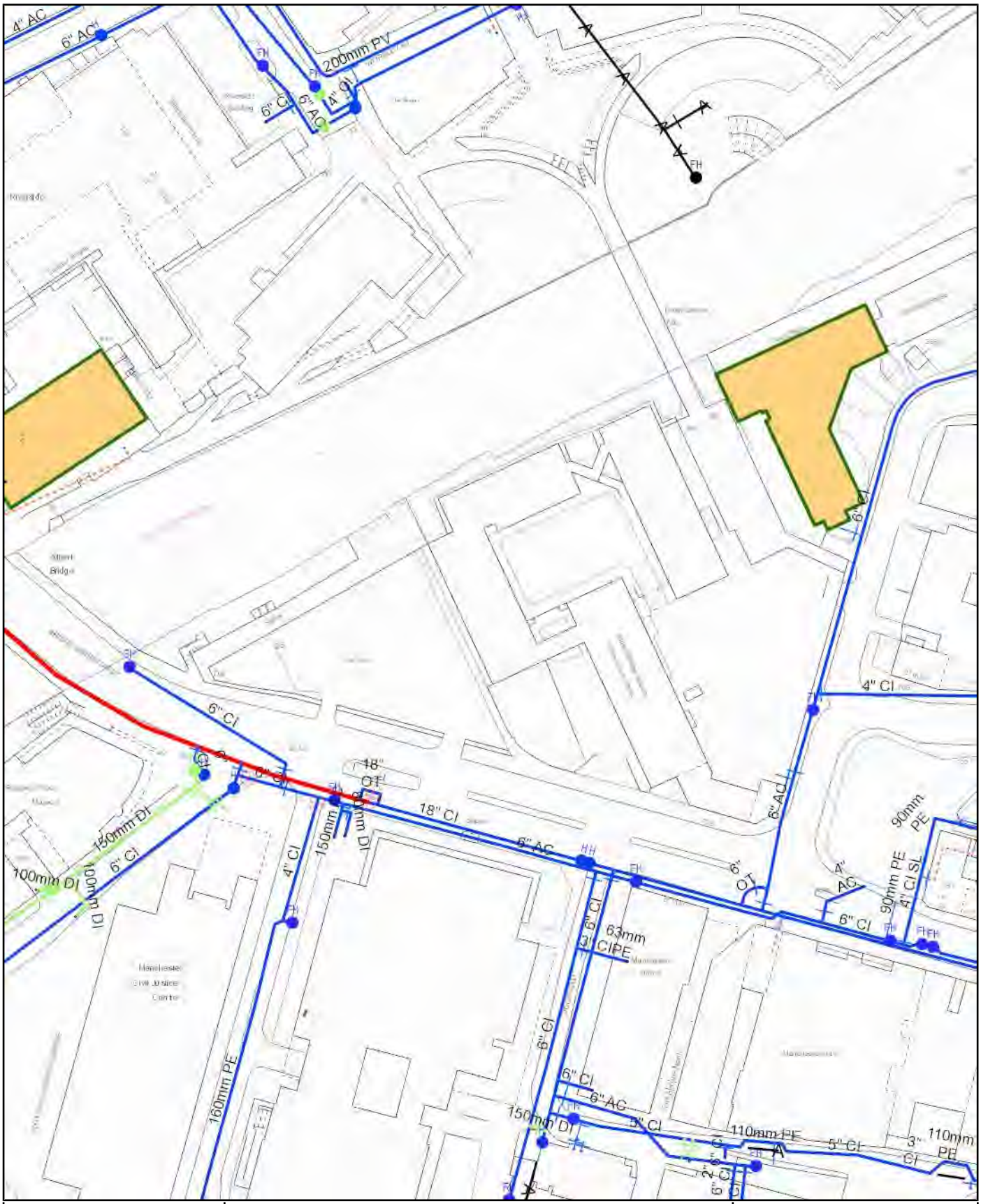
United Utilities
Water for the North West

Clean Water Symbology





Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black



Scale: 1:1250
Date: 31/01/2025

WATER MAINS RECORDS

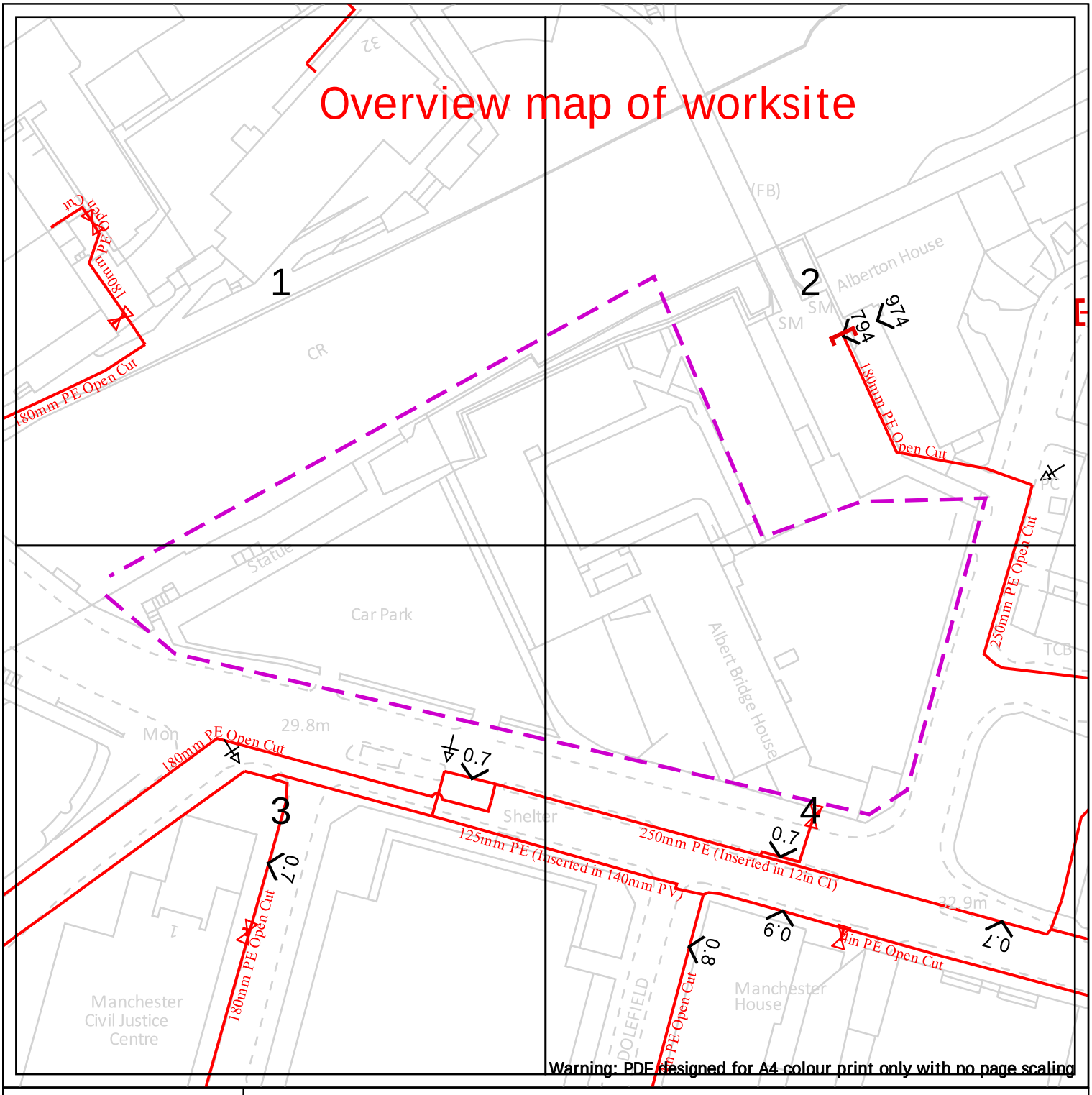
United Utilities
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Overview map of worksite



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Cadent
Your Gas Network

Dig Sites Area: Line:

LP Mains
MP Mains
IP Mains
LHP Mains

Valve
Depth of cover
Syphon

Diameter Change
Material Change
Out of Standard Service

Where an out-of-standard service is present please contact plant protection 0800 688 588 for further information.
Out-of-standard service symbology may be used to indicate one or more of the following:
- Identification of shallow services
- Identification of dual services
- Recording of non-perpendicular services

A perpendicular service/connection is laid in a straight line from the entry point at the property to the connection at the main – this includes a pipe that has a perpendicular connection and is not straight but does not deviate more than 1m off centre line.

Date Requested: 24/01/2025
Job Reference: 36081905
Site Location: 383455 398377
Requested by: Miss Lauren Wenham
Your Scheme/Reference: STX6912

View extent: 100m, 100m

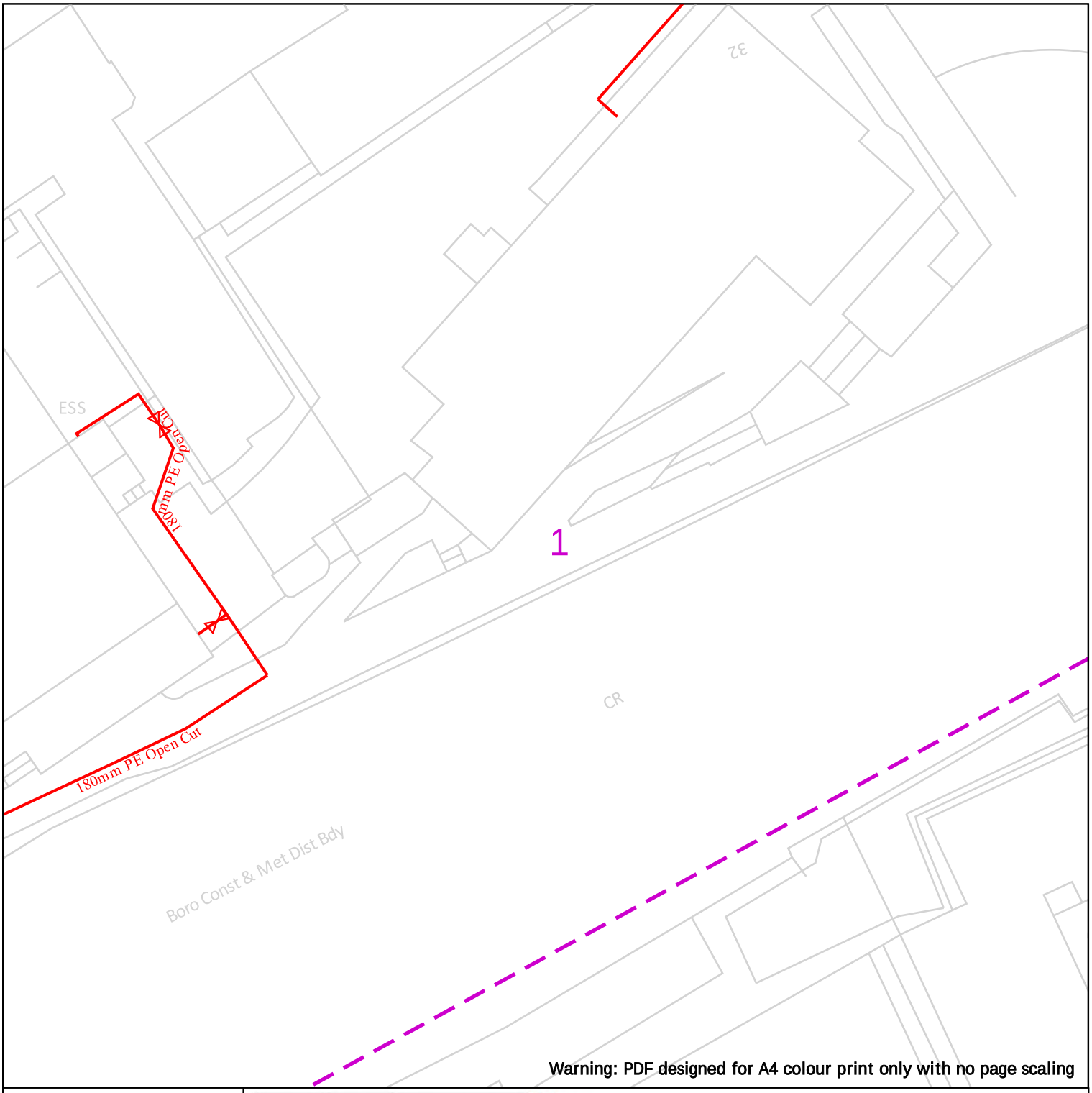
Scale: 1:1025 (When plotted at A4)

IMPORTANT NOTICES

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In case of emergency call - 0800 111 999

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25m

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Valve
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Syphon

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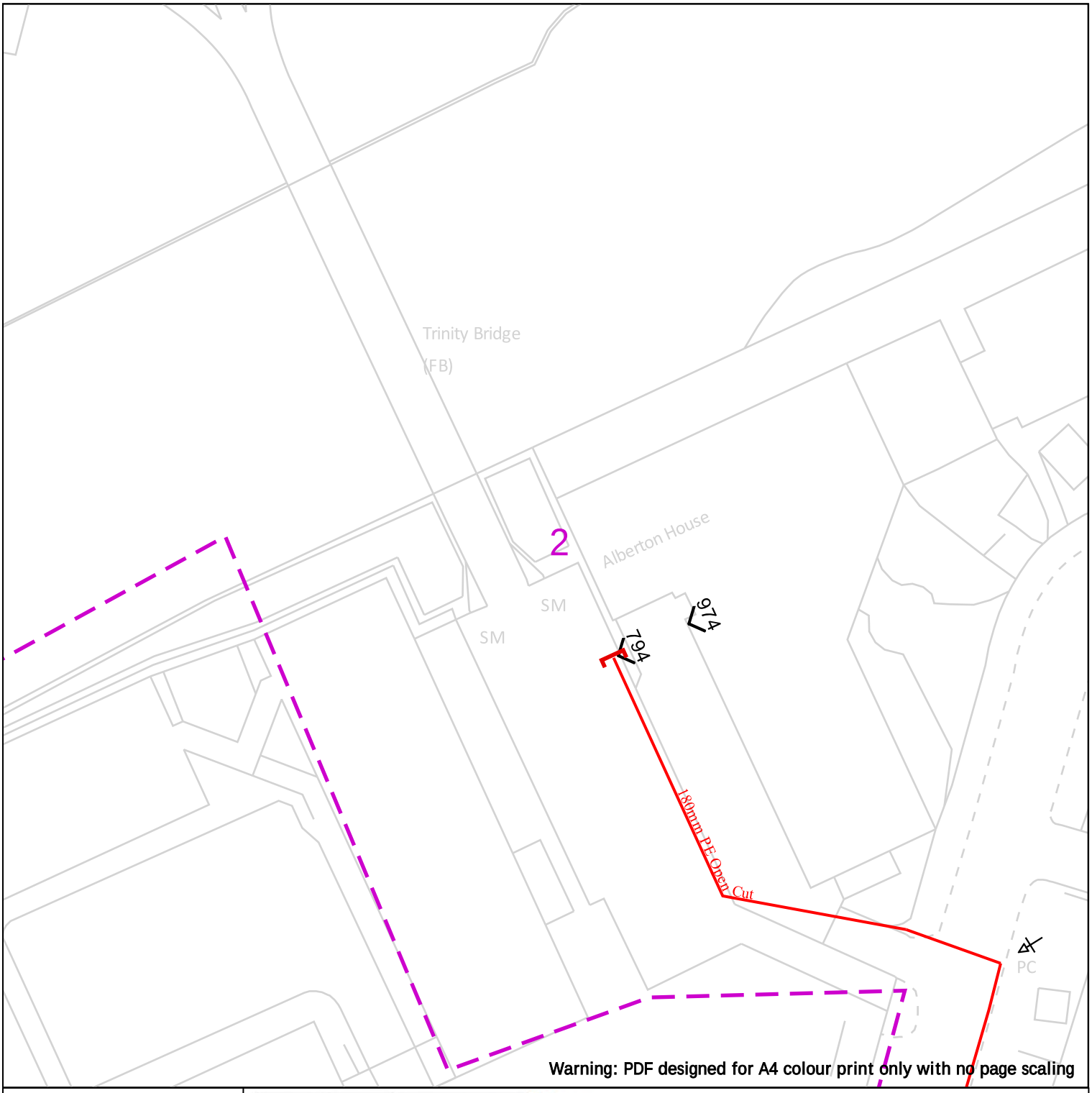
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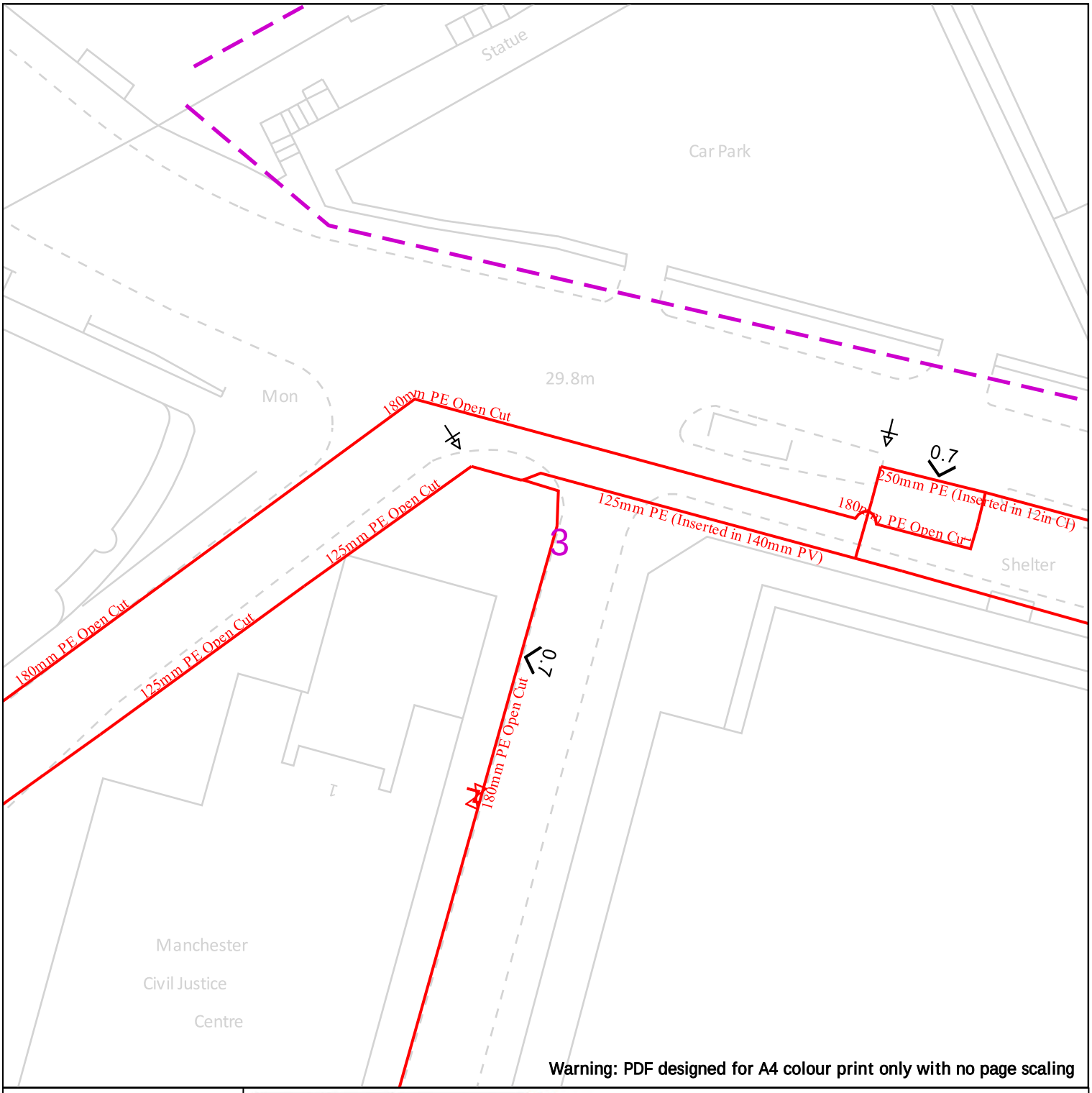
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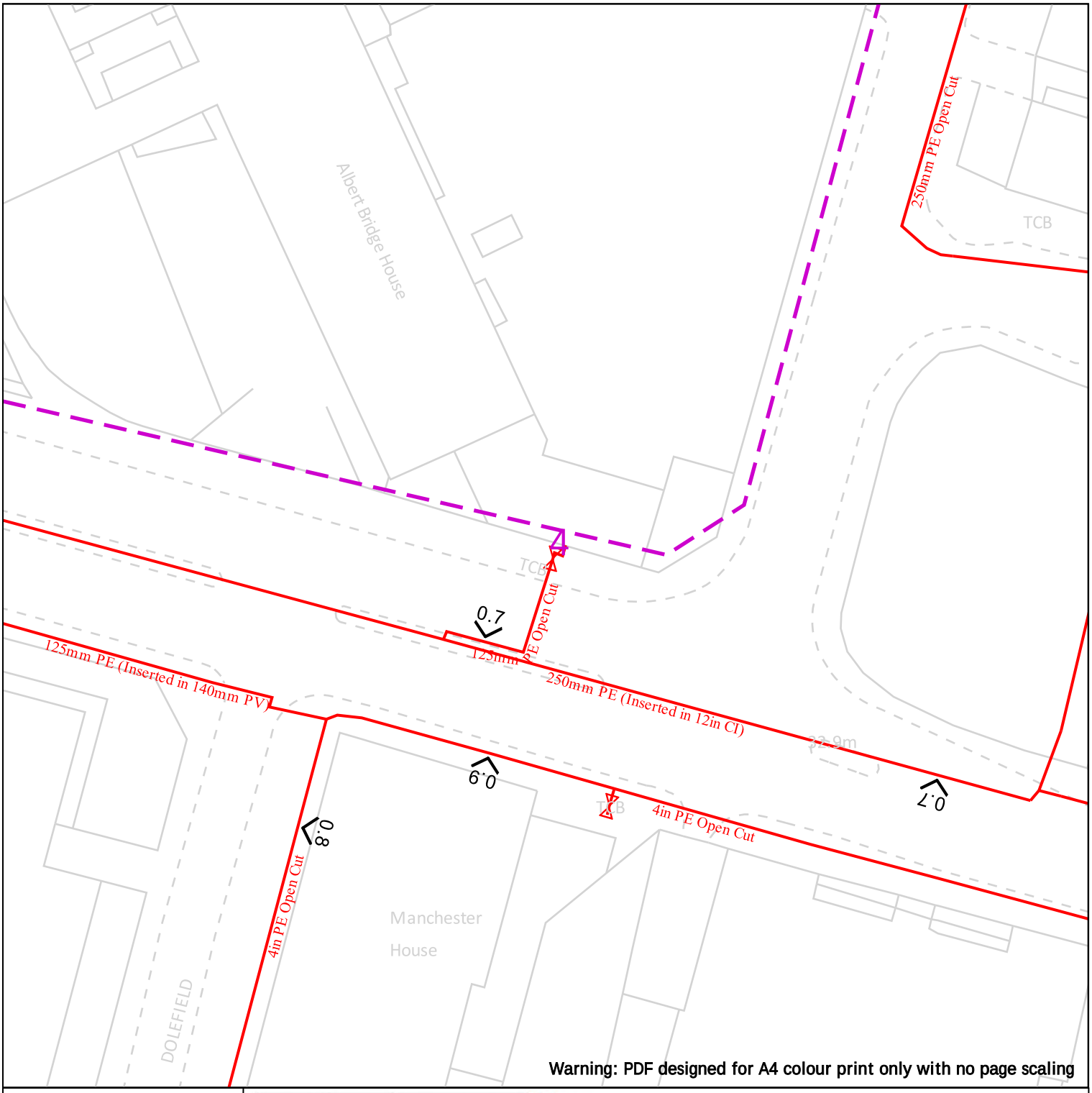
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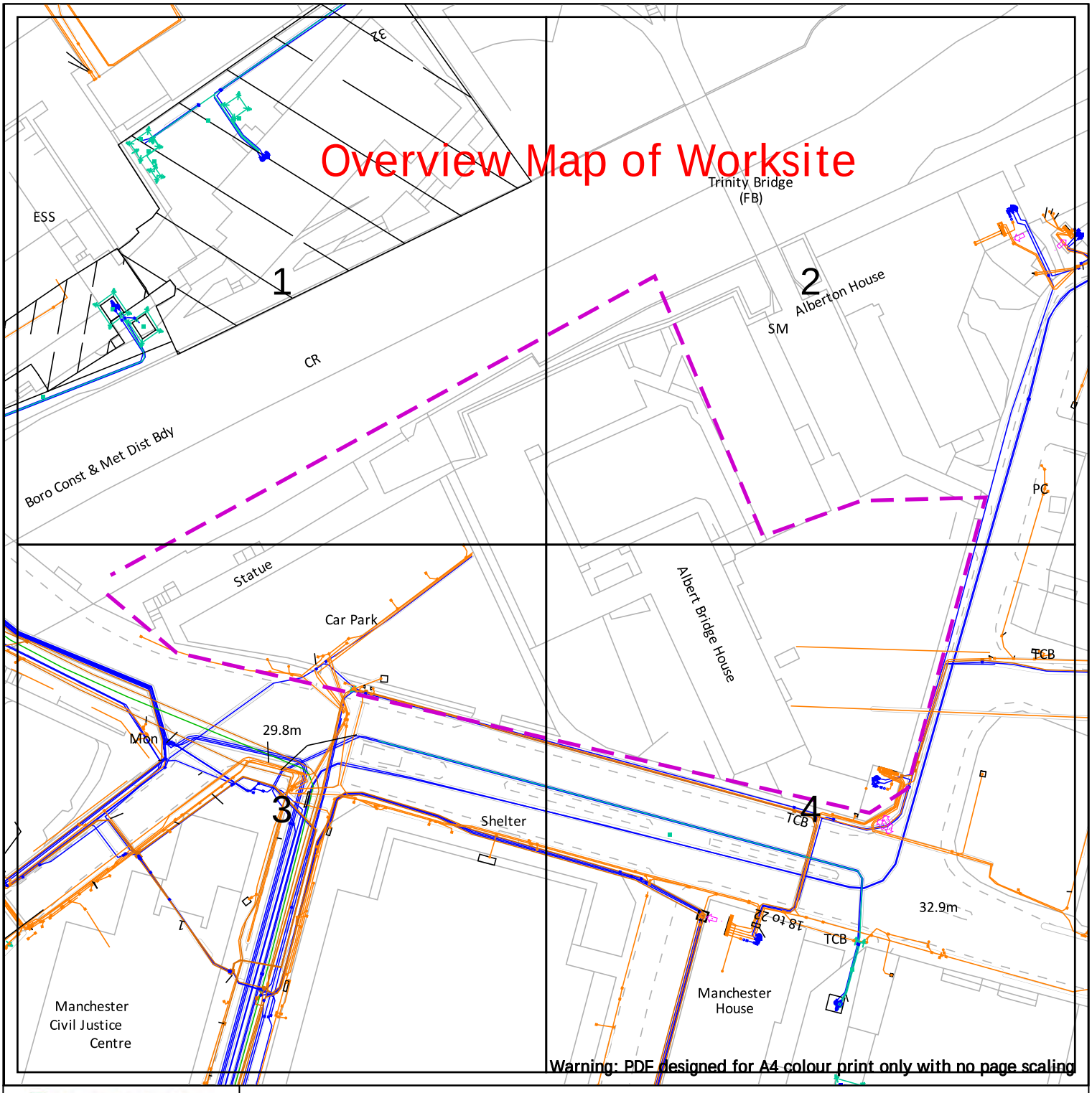
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Overview Map of Worksite



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Electricity North West
Borron Street
Portwood, Stockport
Cheshire, SK1 2 JD
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 24/01/2025
Job Reference: 36081905
Site Location: 383455 398377
Requested by: Miss Lauren Wenham

Your Scheme/Reference: STX6912

Scale: 1:1025 (When plotted at A4)

Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

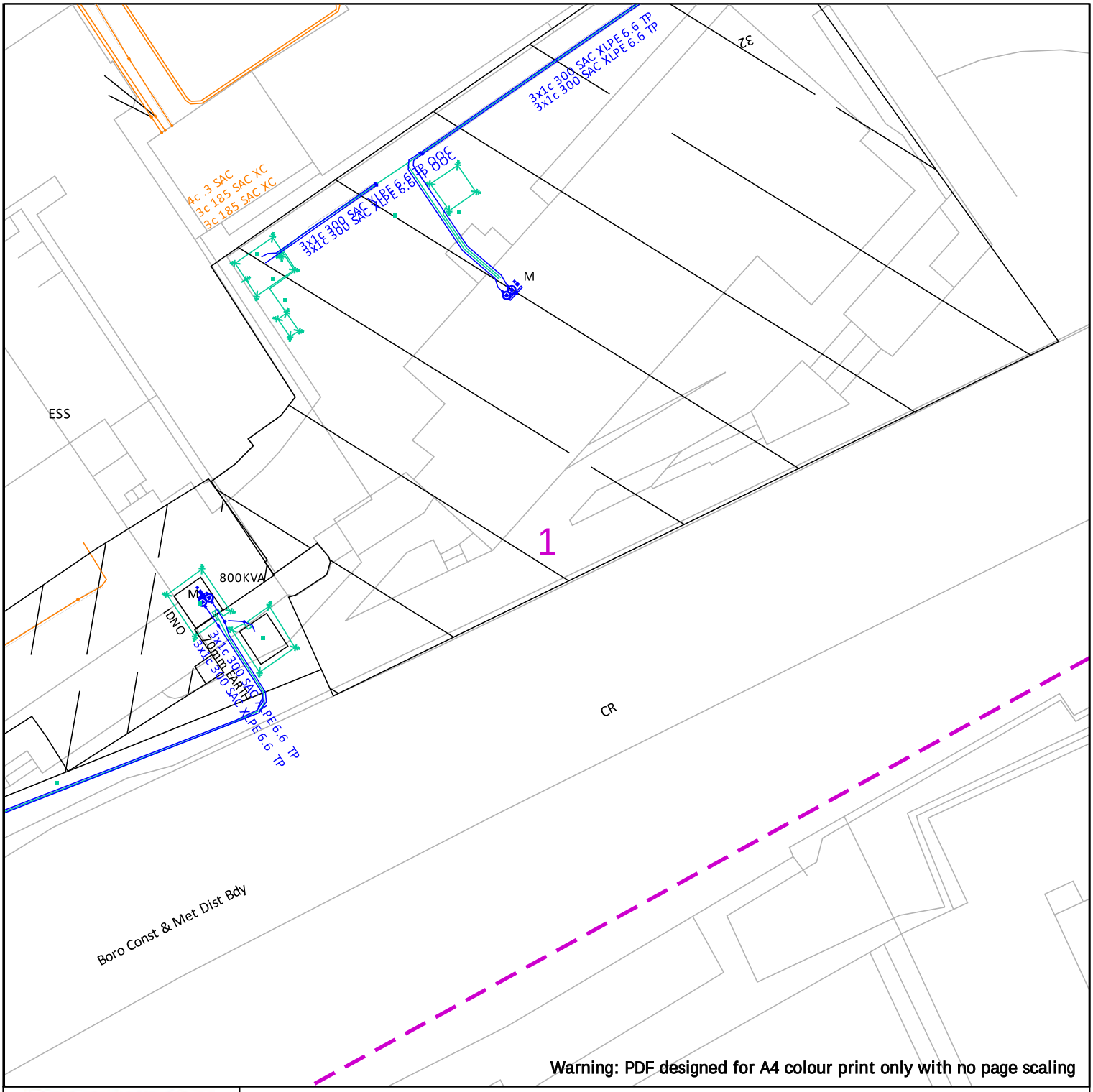
In an emergency call 105, 24 hours a day

Dig Sites
Line:
Area:

IMPORTANT INFO

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Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoiding Danger from Overhead Power Lines".
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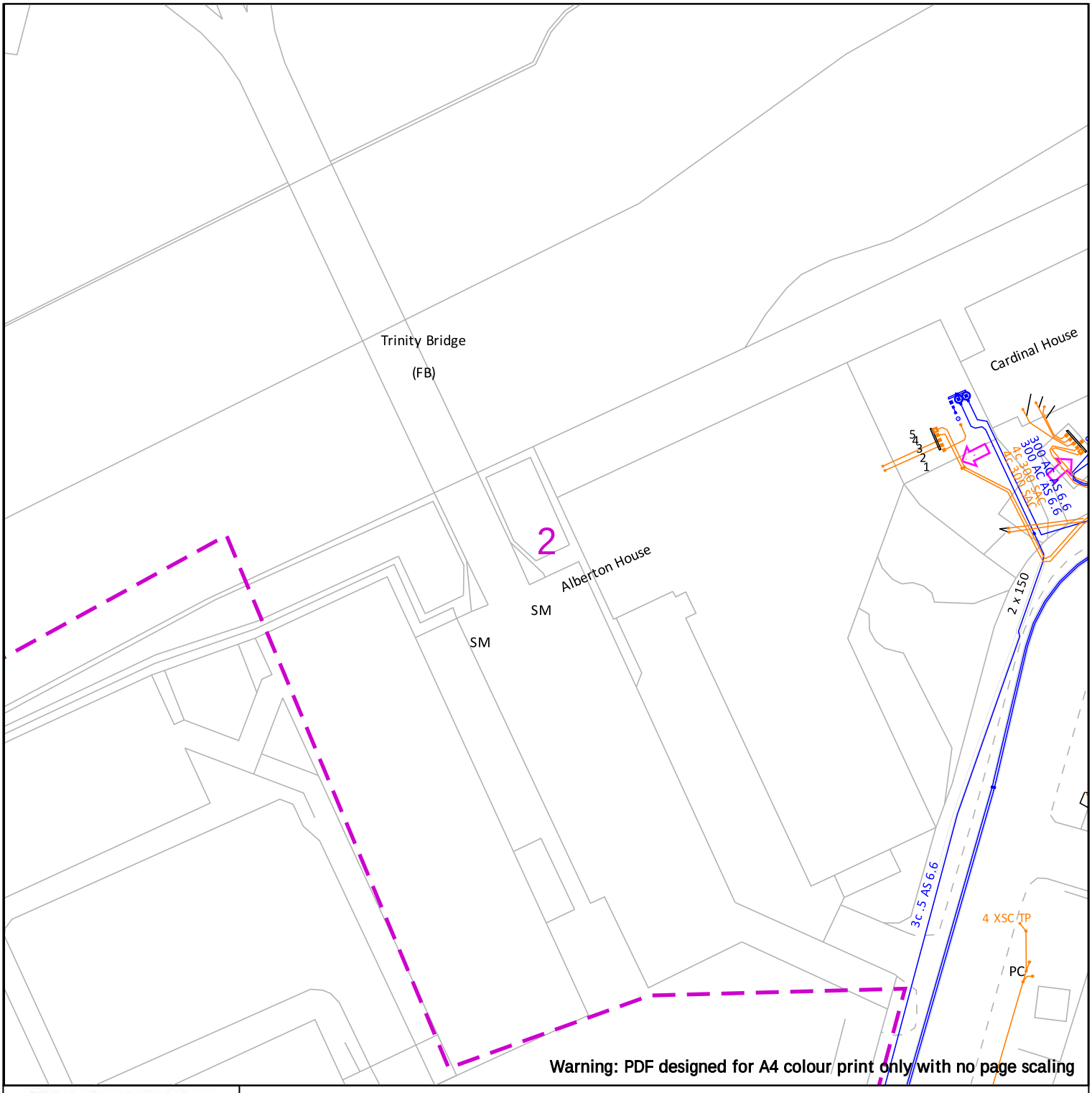
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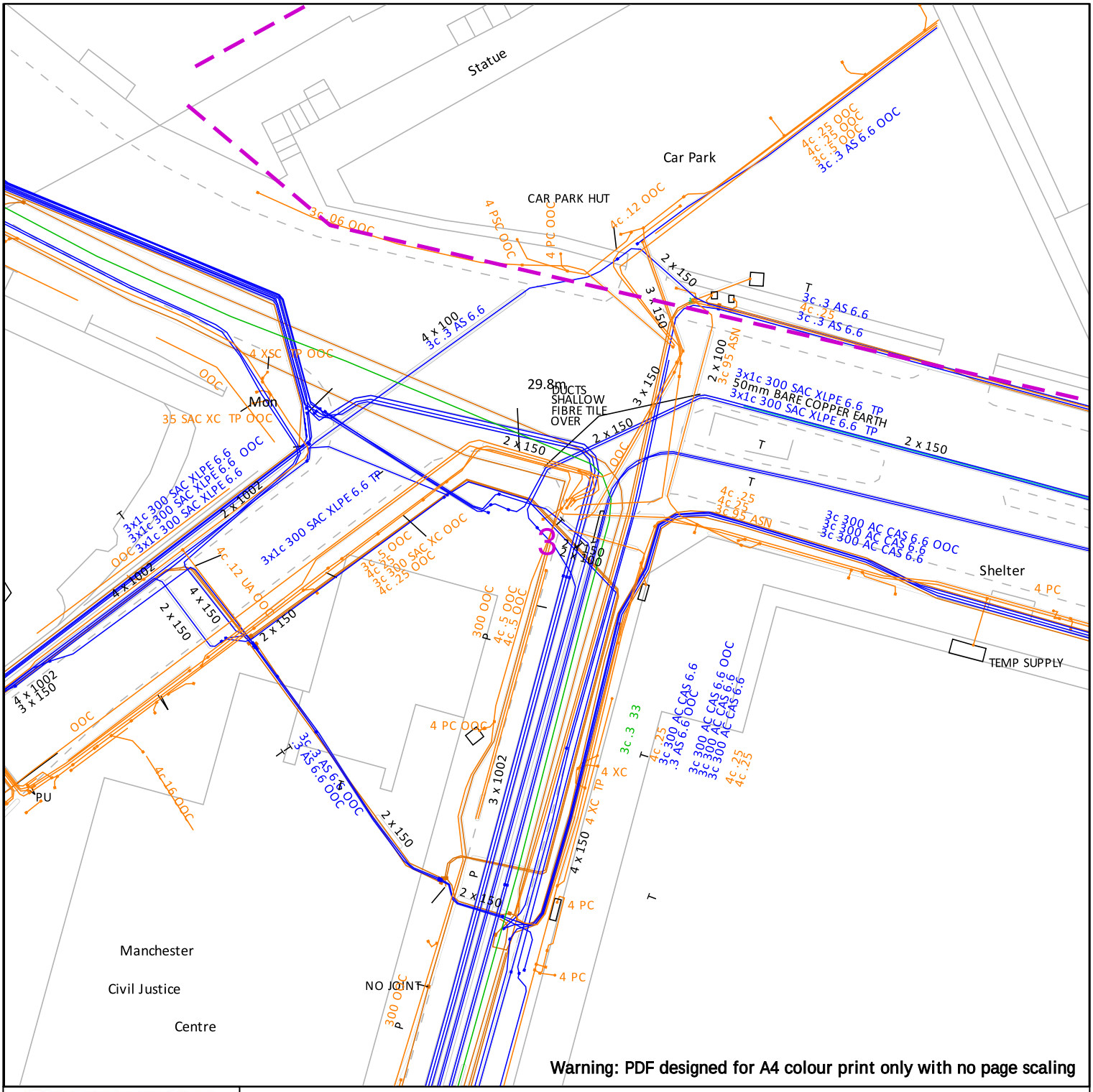
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11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

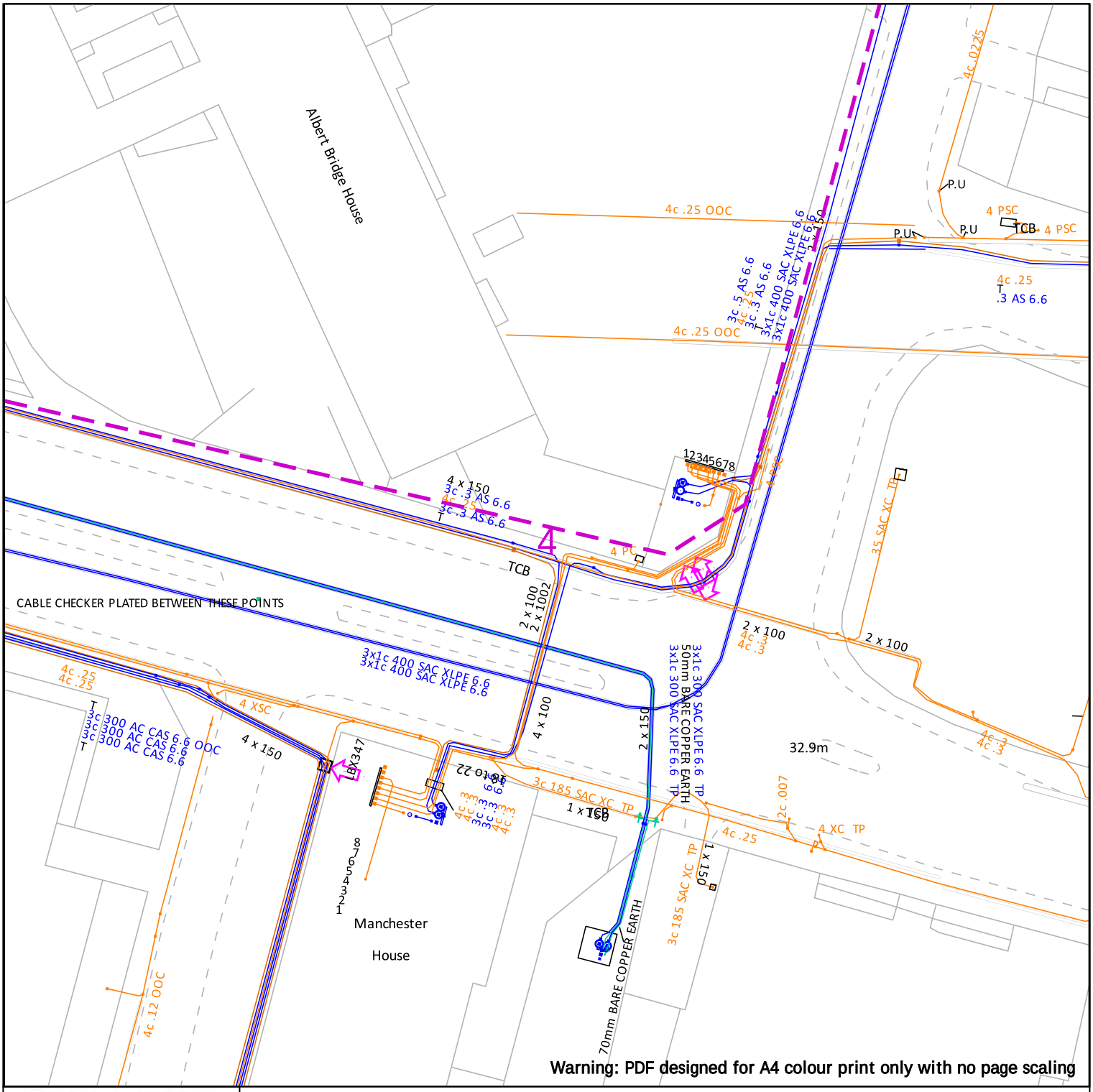
In an emergency call 105, 24 hours a day

Dig Sites
Line:
Area:

IMPORTANT INFO

Unless otherwise indicated the depth of Electricity North West Limited cables are in accordance with NJUG (450mm for Low Voltage & 600mm for 11kV cables) 33kV and 132kV cables are laid at depths as marked. The depth and positions of Electricity North West Limited equipment was accurate as shown when the equipment was installed. However third parties may have altered the level & other reference data. Therefore Electricity North West Limited accept no responsibility for the position of Electricity North West Limited equipment being different from shown. No person, body or company, shall be relieved from liability for damage caused to Electricity North West Limited equipment by reason of being located differently to the indications on this drawing or from any regulatory loss of income or incentive, or expense, which may be suffered by Electricity North West Limited and which is caused or contributed to by any loss of supply as a result of any damage caused to Electricity North West Limited's equipment. Service cables are not necessarily shown but must be assumed to exist to all premises, streetlights and signs. There may be other Electricity North West Limited apparatus in the vicinity which is not indicated on the cable records. Other apparatus may also be present which is owned by a third party other than Electricity North West Limited.
Reference should be made to HSE Guidance, HS(G)47 "Avoiding Danger from Underground Services" and GS6 "Avoiding Danger from Overhead Power Lines".
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electricity north west
Bringing energy to your door

Electricity North West
Borron Street
Portwood, Stockport
Cheshire, SK1 2 JD
Phone: 0800 195 4141
Email: planrequest@enwl.co.uk

Date Requested: 24/01/2025
Job Reference: 36081905
Site Location: 383455 398377
Requested by: Miss Lauren Wenham

Your Scheme/Reference: STX6912

Scale: 1:500 (When plotted at A4)

Operating Voltage	Colour Code	Line Colour
132kV	Black	
33kV	Green	
22kV-25kV	Yellow	
11kV	Red	
6kV-6.6kV	Blue	
1kV-6kV	Violet	
LV	Orange	
Unknown Voltage	Brown	

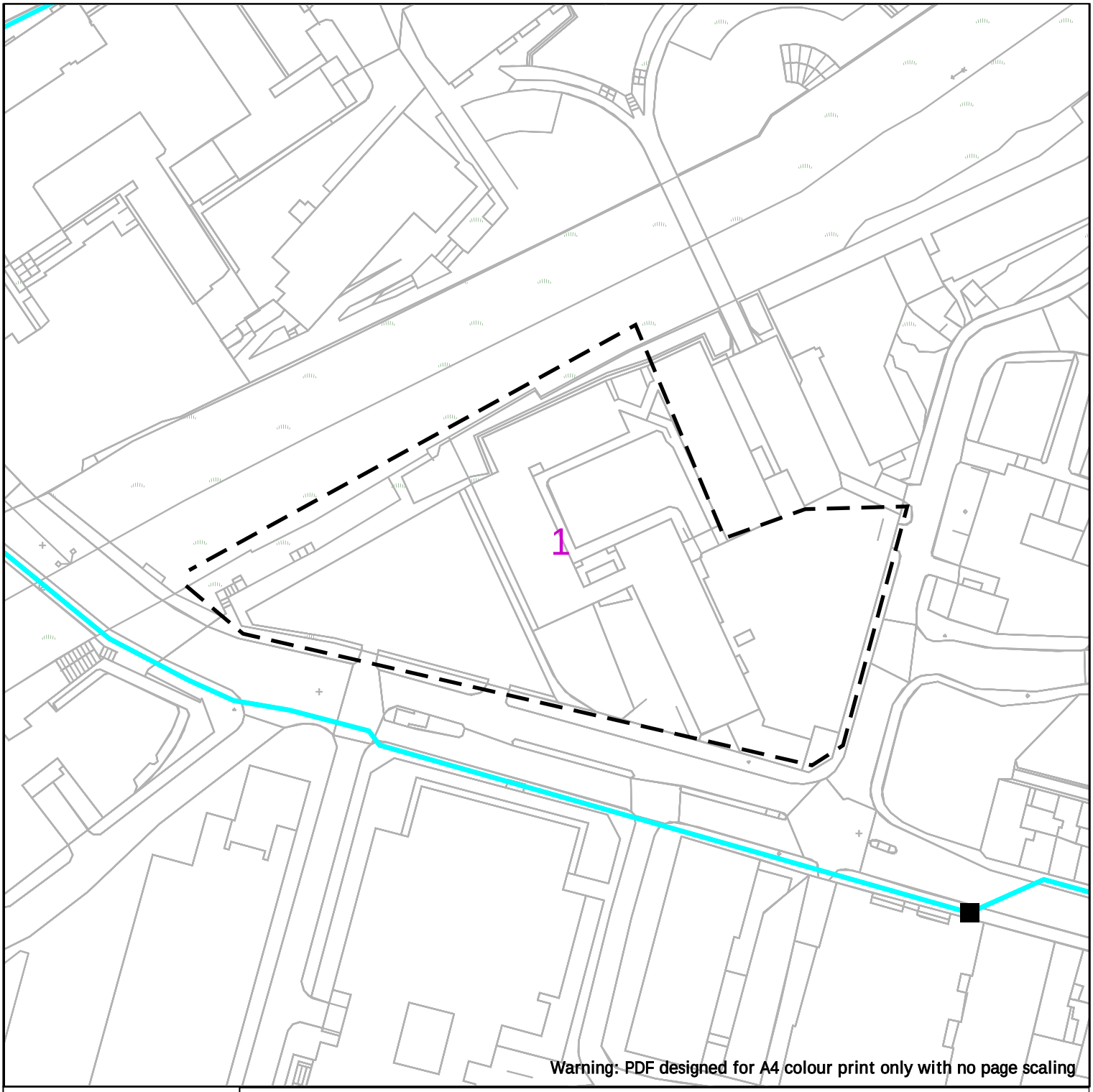
In an emergency call 105, 24 hours a day

Dig Sites
Line:
Area:

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eunetworks

100m Dig Sites Line: Area:

Key

Duct Long-haul (LHN) Duct Chamber Location

Contact us:

plantprotection@eunetworks.com

Date Requested: 24/01/2025
Job Reference: 36081905
Site Location: 383455 398377
Requested by: Miss Lauren Wenham

Your Scheme/Reference: STX6912

Scale: 1:1250 (When plotted at A4)

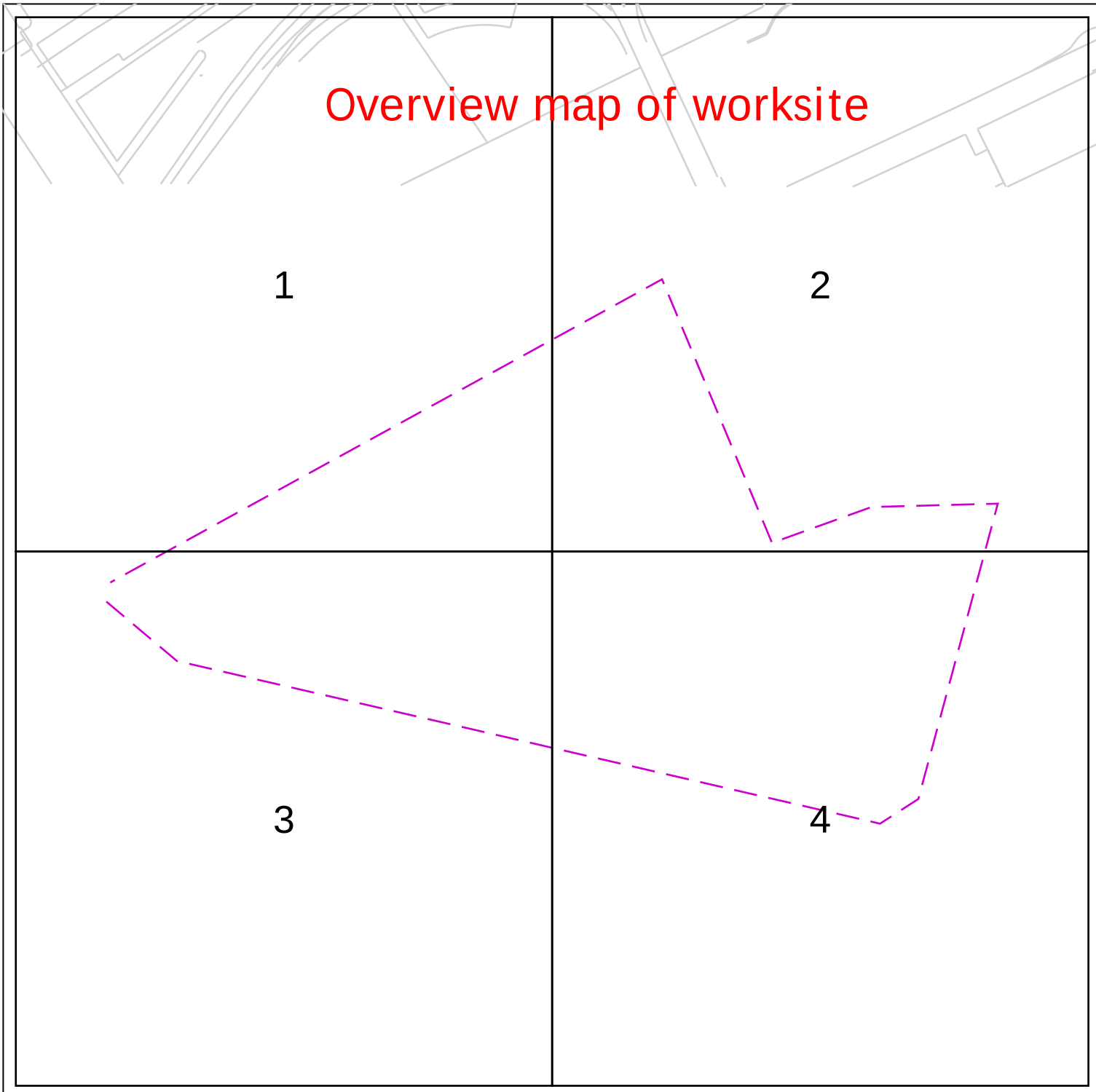
IMPORTANT WARNING

The information supplied is given in good faith as a guide to locating underground apparatus. Its accuracy cannot be guaranteed, nor does it include comprehensive information about the existence or location of service pipes or cables to individual premises. The responsibility for locating and avoiding damage to apparatus on site shall be that of the persons proposing to excavate in the street shall be liable to the apparatus owner and any third party who may be affected in any way for any loss or damage caused by their failure to do so.

IF IN DOUBT PLEASE ASK!
PHONE: 07896 087585

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Overview map of worksite



Last Mile Asset Management Limited
Fenick House, Lister Way
Hamilton International Technology Park
Glasgow G72 0FT
Telephone 03300 587 443

Date Requested: 24/01/2025
Job Reference: 36081905
Site Location: 383455 398377
Requested by: Miss Lauren Wenham

Your Scheme/Reference: STX6912

Scale: 1:1025 (When plotted at A4)

ELECTRIC KEY

- PROPOSED LV SERVICE
- PROPOSED LV
- PROPOSED HV
- PROPOSED EHV (UG)
- EXISTING/AS LAID LV SERVICE
- EXISTING/AS LAID LV (UG)
- EXISTING/AS LAID HV (UG)
- EXISTING/AS LAID EHV (UG)
- EXISTING LV OVERHEAD
- EXISTING HV OVERHEAD
- EXISTING EHV OVERHEAD
- PROPOSING DISCONNECTED
- LV STRAIGHT JOINT
- REACH JOINT
- TRAIGHT JOINT
- REACH JOINT
- STREET LIGHTING C.P
- MINI PILLAR
- LINK BOX
- EARTH SPIKE
- POT END
- SERVICE JOINT

Dig Sites

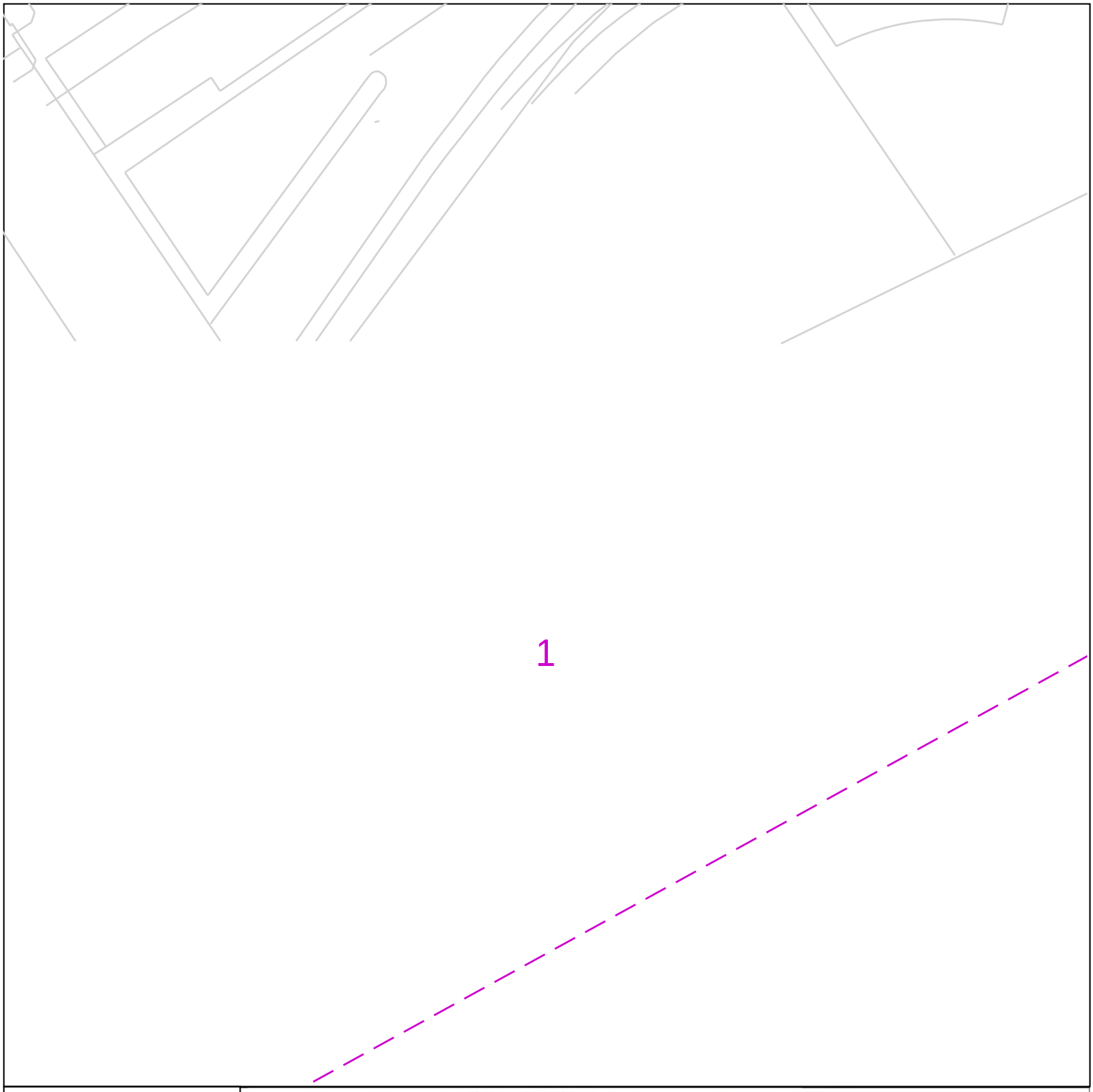
Line:

Area:

This plan shows cables owned by Last Mile Electricity Limited in their role as a Licensed Distributor (IDNO). Cables owned by other Distributors or privately owned cables (or, indeed, any other apparatus, equipment or infrastructure may also be present in the area. Information regarding such cables (or any such other apparatus, equipment, or infrastructure) should be obtained from the relevant owners.
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In an emergency call 105, 24 hours a day

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ELECTRIC KEY

PROPOSED LV SERVICE	LV STRAIGHT JOINT
PROPOSED LV	REACH JOINT
PROPOSED HV	TRAIGHT JOINT
PROPOSED EHV (UG)	REACH JOINT
EXISTING/AS LAID LV SERVICE	STREET LIGHTING C.P
EXISTING/AS LAID LV (UG)	MINI PILLAR
EXISTING/AS LAID HV (UG)	LINK BOX
EXISTING/AS LAID EHV (UG)	EARTH SPIKE
EXISTING LV OVERHEAD	POT END
EXISTING HV OVERHEAD	SERVICE JOINT
EXISTING EHV OVERHEAD	
PROPOSING DISCONNECTED	

Dig Sites

Line:

Area:

100m

Last Mile Asset Management Limited
Fenick House, Lister Way
Hamilton International Technology Park
Glasgow G72 0FT
Telephone 03300 587 443

Date Requested: 24/01/2025
Job Reference: 36081905
Site Location: 383455 398377
Requested by: Miss Lauren Wenham

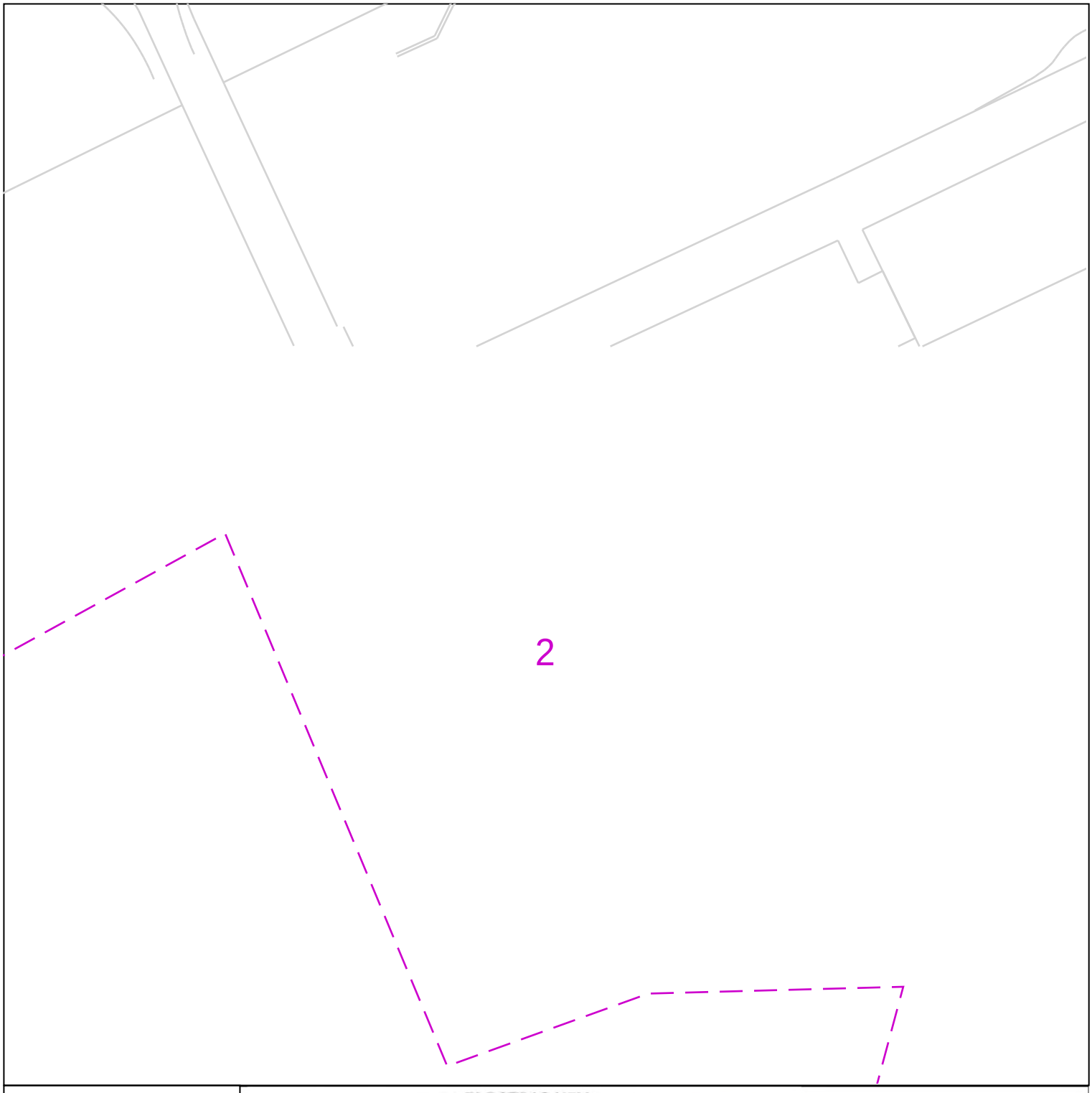
Your Scheme/Reference: STX6912

Scale: 1:500 (When plotted at A4)

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EXISTING LV OVERHEAD	POT END
EXISTING HV OVERHEAD	SERVICE JOINT
EXISTING EHV OVERHEAD	
PROPOSING DISCONNECTED	

Dig Sites

Line:

Area:

100m

Last Mile Asset Management Limited
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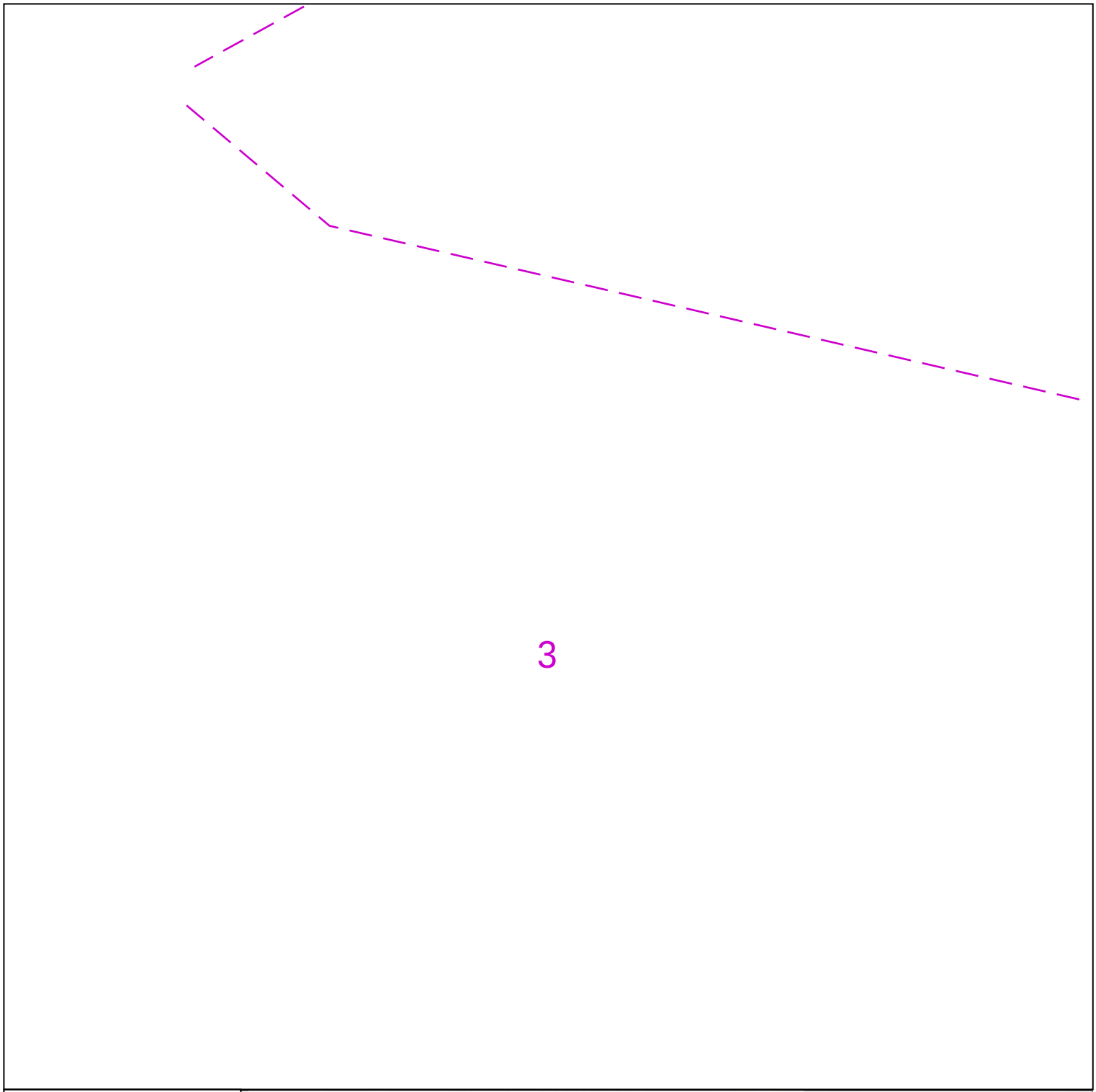
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PROPOSED LV	REACH JOINT
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EXISTING/AS LAID EHV (UG)	EARTH SPIKE
EXISTING LV OVERHEAD	POT END
EXISTING HV OVERHEAD	SERVICE JOINT
EXISTING EHV OVERHEAD	
PROPOSING DISCONNECTED	

Dig Sites

Line:

Area:

100m

Last Mile Asset Management Limited
Fenick House, Lister Way
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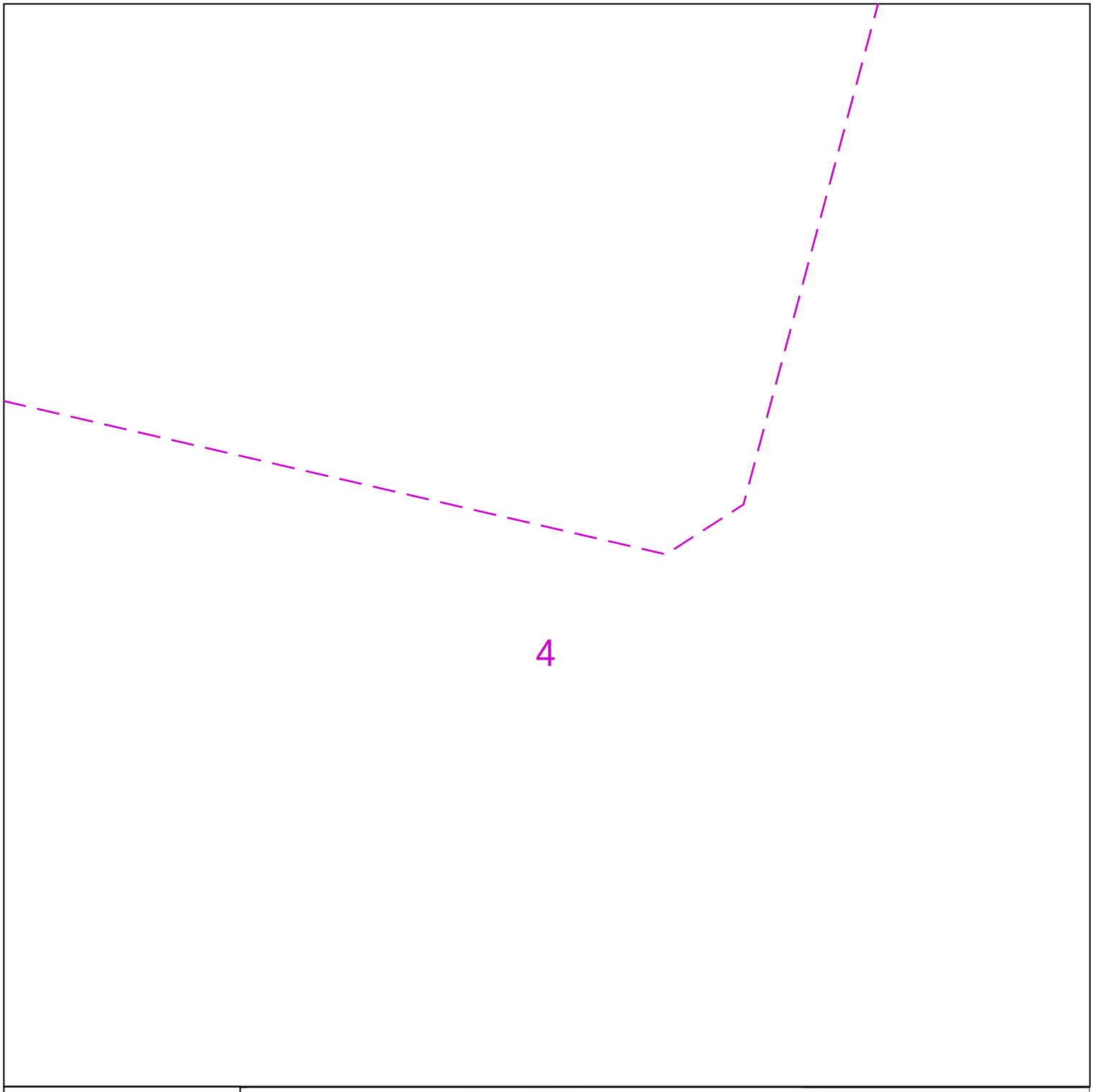
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EXISTING/AS LAID EHV (UG)	EARTH SPIKE
EXISTING LV OVERHEAD	POT END
EXISTING HV OVERHEAD	SERVICE JOINT
EXISTING EHV OVERHEAD	
PROPOSING DISCONNECTED	

Dig Sites

Line:

Area:

100m

Last Mile Asset Management Limited
Fenick House, Lister Way
Hamilton International Technology Park
Glasgow G72 0FT
Telephone 03300 587 443

Date Requested: 24/01/2025
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Site Location: 383455 398377
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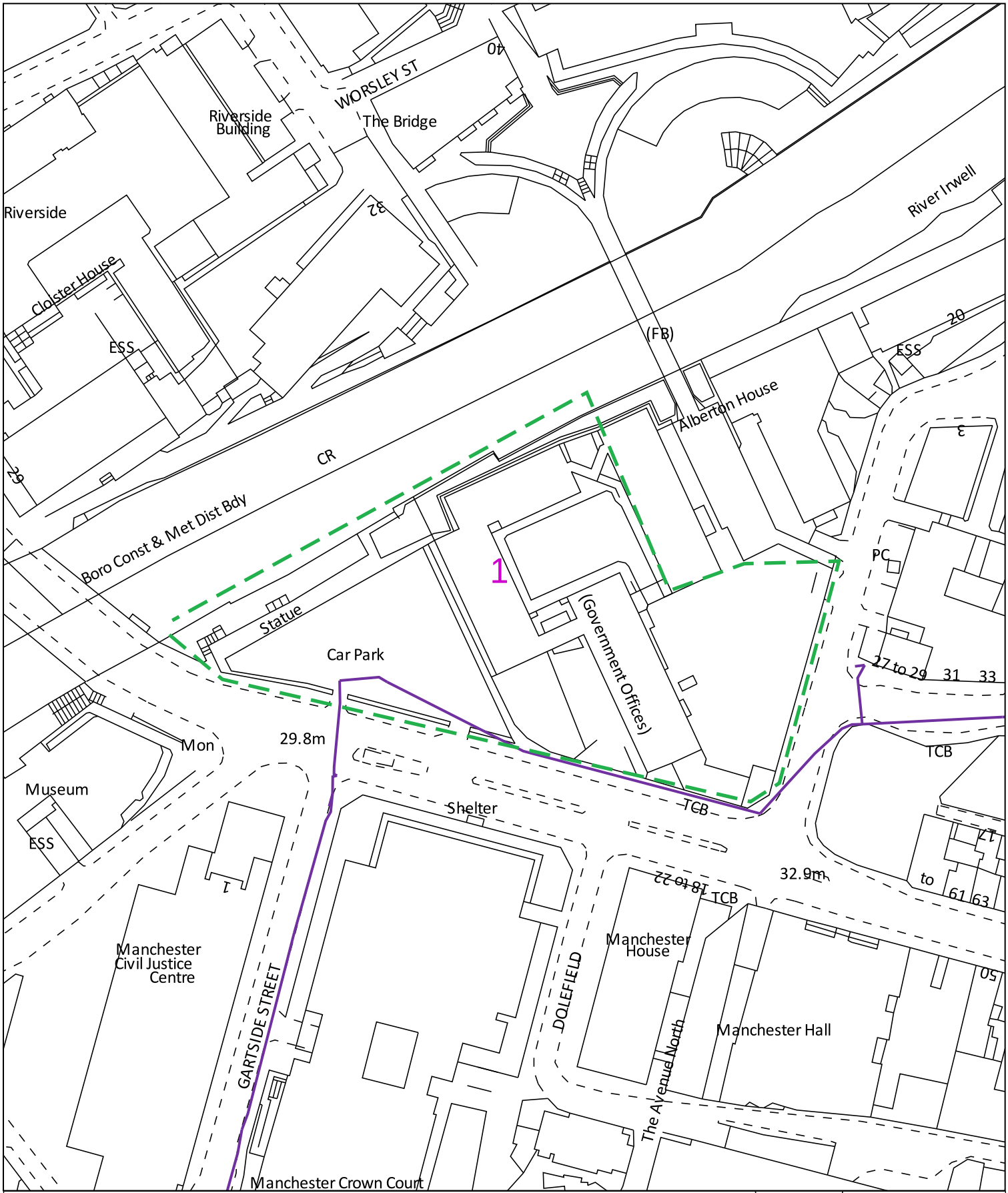
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0 50m Dig Sites Area: Line:

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Date Requested: 24/01/2025
Job Reference: 36081905
Site Location: 383455 398377

Requested by: Miss Lauren Wenham

Your Scheme/Reference: STX6912

Scale: 1:1250 (When plotted at A4)

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Neos Networks Underground Route **Emergency Number: 0345 305 3337**

Registered Office:
Inveralmond House,
200 Dunkeld Road,
Perth, PH1 3AQ

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Plans generated by DigSAFE Pro™ software provided by LinesearchbeforeUdig.

Searched on '383455,398377'. Map centred on 53.481602, -2.249342 (LAT,LONG).



Who	What	Where
United Utilities Plc United Utilities Property Searches, Haweswater House, Lingley Green Avenue, Great Sankey, WARRINGTON, WA5 3LP 0370 751 0101 https://propertysearches.unitedutilities.com/ propertysearches@uuplc.co.uk	Clean Water	Operate in your search area
Leep Networks (Water) Limited Level 2 Metro, 33 Trafford Road, MANCHESTER, M5 3NN 0345 122 6780 https://www.leeputilities.co.uk/developers water@leeputilities.co.uk	Clean Water	Operate near your search area
Icosa Water Services Ltd 27-35 Fleet Street, Swindon, Wiltshire, SN1 1RQ 0330 111 0780 https://www.icosawater.co.uk/household/contact/ customerservices@icosawater.co.uk	Clean Water	Operate near your search area
Matrix Water Limited Eleanor House, Newport Pagnell Road, Northampton, Northamptonshire, NN4 7JJ https://matrixwater.co.uk	Clean Water	Operate near your search area
Independent Water Networks Driscoll 2, Ellen Street, CARDIFF, CF10 4BP 02920 028 711 https://www.iwnl.co.uk/contact-us/ enquiries@iwnl.co.uk	Clean Water	Operate near your search area

ESP Water Limited Bluebird House, Mole Business Park, Leatherhead, Surrey, KT22 7BA 0330 123 4201 https://espug.com/householder/water/ generalenquiries@espwater.co.uk	Clean Water	Operate near your search area
United Utilities Plc United Utilities Property Searches, Haweswater House, Lingley Green Avenue, Great Sankey, WARRINGTON, WA5 3LP 0370 751 0101 https://propertysearches.unitedutilities.com/ propertysearches@uuplc.co.uk	Wastewater	Operate in your search area
Leep Networks (Water) Limited Level 2 Metro, 33 Trafford Road, MANCHESTER, M5 3NN 0345 122 6780 https://www.leeputilities.co.uk/developers water@leeputilities.co.uk	Wastewater	Operate near your search area
Icosa Water Services Ltd 27-35 Fleet Street, Swindon, Wiltshire, SN1 1RQ 0330 111 0780 https://www.icosawater.co.uk/household/contact/ customerservices@icosawater.co.uk	Wastewater	Operate near your search area
Matrix Water Limited Eleanor House, Newport Pagnell Road, Northampton, Northamptonshire, NN4 7JJ https://matrixwater.co.uk	Wastewater	Operate near your search area
Independent Water Networks Driscoll 2, Ellen Street, CARDIFF, CF10 4BP 02920 028 711 https://www.iwnl.co.uk/contact-us/ enquiries@iwnl.co.uk	Wastewater	Operate near your search area
ESP Water Limited Bluebird House, Mole Business Park, Leatherhead, Surrey, KT22 7BA 0330 123 4201 https://espug.com/householder/water/ generalenquiries@espwater.co.uk	Wastewater	Operate near your search area
BT (BT Group Plc) 0800 169 3849 https://www.openreach.com/building-developers-and-projects/locating-our-network maps.by.email@openreach.co.uk Asset maps available via Online Web Access https://www.swns.bt.com/pls/mbe	Telecoms	Operate in your search area
Virgin Media Ltd National Plant Enquiries Team, Mayfair Business Park, Broad Lane, BRADFORD , BD4 8PW 0870 888 3116 https://www.virginmedia.com/help plant.enquiries.team@virginmedia.co.uk Asset maps available via Online Web Access https://utilities.digdat.co.uk/	Telecoms	Operate in your search area
Glide Fibre Ltd Glide House, Building 4 Windmill Road, Kenn, BS21 6UJ 08456 805 906 https://glide.co.uk/our-network/ enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Telecoms	Operate near your search area

Electricity North West Ltd 304 Bridgewater Place, Birchwood Park, WARRINGTON, Cheshire, 0800 195 4141 https://www.enwl.co.uk/advice-and-support/line-search-before-you-dig/ enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Electricity Distribution	Operate in your search area
Harlaxton Energy Networks Ltd Toll Bar Road, Marston, Grantham, NG32 2HT 0844 800 1813 http://www.harlaxtonenergynetworks.co.uk/ info@harlaxtonenergynetworks.com Asset maps available via Online Web Access https://utilities.digdat.co.uk/	Electricity Distribution	Operate near your search area
Cadent Gas Ltd Plant Protection, Brick Kiln Street, HINCKLEY, Leicestershire , LE10 0NA 0800 688 588 https://cadentgas.com/help-advice/digging-safely enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Gas	Operate in your search area
Manchester City Council Town Hall, Albert Square, Manchester, M60 2LA 0161 234 5000 http://www.manchester.gov.uk/	District Council	Operate in your search area
Salford City Council Civic Centre, Chorley Road, Swinton, Salford, Lancashire, M27 5DA 0161 794 4711 http://www.salford.gov.uk customercontact.centre@salford.gov.uk	District Council	Operate in your search area
Arqiva Ltd 01962 823 434 http://arqiva.com/contact-us/ enquiries@arqiva.com	Telecoms	Operate nationally
CenturyLink Ltd 230 Wharfedale Road, Winnersh Triangle, Wokingham, Berkshire, RG41 5TP 0207 400 5600 https://www.centurylink.com/aboutus.html	Telecoms	Operate nationally
CityFibre Networks Ltd https://cityfibre.com/about-us/infrastructure asset.team@cityfibre.com Asset maps available via Online Web Access https://plant.cityfibre.com/	Telecoms	Operate nationally
Colt Technology Service Group Ltd Colt House, 20 Great Eastern Street, LONDON, EC2A 3EH 020 7390 3900 https://www.colt.net/contact-us/ plantenquiries@catelecomuk.com	Telecoms	Operate nationally
EXA Infrastructure 0333 444 1018 https://exainfra.net enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Telecoms	Operate nationally
Gamma Telecoms Ltd 0333 014 0000 https://www.gammacommunicationsplc.com/about-us/#our-services enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Telecoms	Operate nationally

KCOM Group Plc Prospect House, (5th Floor), Prospect Street, HULL, HU2 8PU 01482 603455 http://www.kcom.com/ highwaysadmin@kcom.com & nraswa@kcom.com	Telecoms	Operate nationally
Mobile Broadband Network Ltd Sixth Floor, Thames Tower, Station Road, Reading, RG1 1LX 0118 9035580 https://mbnl.co.uk/ mbnl.plant.enquiries@turntown.com	Telecoms	Operate nationally
Neos Networks Neos Networks, 4 Penner Road, Havant, Hampshire, PO9 1QH 0345 305 3337 https://neosnetworks.com/our-network/ C2requests@neosnetworks.com Asset maps available via Online Web Access https://lsbud.co.uk/	Telecoms	Operate nationally
Sky UK Ltd 0207 032 3234 nrswa@sky.uk	Telecoms	Operate nationally
Tata 0330 055 8469 plantenquiries@mcnicholas.co.uk	Telecoms	Operate nationally
Verizon UK Ltd 01293 611 736 https://www.verizon.com/business/en-gb/ osp-team@uk.verizonbusiness.com	Telecoms	Operate nationally
Vodafone Ltd Atkins, PO Box 290, 500 Aztec West, Almondsbury, BRISTOL, BS32 4RZ 01454 662881 https://www.vodafone.com/ osm.enquiries@atkinsglobal.com	Telecoms	Operate nationally
Zayo 020 7220 3820 https://www.zayo.com/services/fiber-transport/ enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Telecoms	Operate nationally
ENGIE 01293 549944 https://www.engie.co.uk/help-and-support/contact-us NRSWA.UK.engie.com	Electricity Independent Distribution Network Operator	Operate nationally
ESP Utilities 01372 587500 https://espug.com/ enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Electricity Independent Distribution Network Operator	Operate nationally
Energetics Electricity Ltd Fenick House, Lister Way, Hamilton International Technology Park, GLASGOW, G72 0FT 03300 587 443 https://energetics-uk.com/ hello@energetics-uk.com	Electricity Independent Distribution Network Operator	Operate nationally

Independent Power Networks Ltd Synergy House, Woolpit Business Park, BURY ST EDMUNDS, Suffolk , IP30 9UP 01359 240 363 https://www.gtc-uk.co.uk/network-locations/ plant.enquiries@gtc-uk.co.uk Asset maps available via Online Web Access https://pe.gtc-uk.co.uk/Plant_Enquiry	Electricity Independent Distribution Network Operator	Operate nationally
The Electricity Network Company Ltd Synergy House, Woolpit Business Park, BURY ST EDMUNDS, Suffolk , IP30 9UP 01359 240 363 https://www.gtc-uk.co.uk/network-locations/ plant.enquiries@gtc-uk.co.uk Asset maps available via Online Web Access https://pe.gtc-uk.co.uk/Plant_Enquiry	Electricity Independent Distribution Network Operator	Operate nationally
Utility Assets Ltd 5 Brayford, London, E1 0SG https://utilityassets.co.uk/ assetrecords@utilityassets.co.uk	Electricity Independent Distribution Network Operator	Operate nationally
ESP Utilities 01372 587500 https://espug.com/ enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Independent Gas Transporter	Operate nationally
Energetics Gas Ltd Fenick House, Lister Way, Hamilton International Technology Park, GLASGOW, G72 0FT 03300 587 443 https://energetics-uk.com/ hello@energetics-uk.com	Independent Gas Transporter	Operate nationally
Fulcrum Pipelines Ltd 2 Europa View, Sheffield Business Park, SHEFFIELD, S9 1XH 03330 146455 https://www.fulcrum.co.uk/our-networks/key-information/ enquiries@lsbud.co.uk Asset maps available via Online Web Access https://lsbud.co.uk/	Independent Gas Transporter	Operate nationally
Gas Transportation Company (GTC) Pipelines Ltd Synergy House, Woolpit Business Park, BURY ST EDMUNDS, Suffolk , IP30 9UP 01359 240 363 https://www.gtc-uk.co.uk/network-locations/ plant.enquiries@gtc-uk.co.uk Asset maps available via Online Web Access https://pe.gtc-uk.co.uk/Plant_Enquiry	Independent Gas Transporter	Operate nationally
Independent Pipelines Ltd Synergy House, Woolpit Business Park, BURY ST EDMUNDS, Suffolk , IP30 9UP 01359 240 363 https://www.gtc-uk.co.uk/network-locations/ plant.enquiries@gtc-uk.co.uk Asset maps available via Online Web Access https://pe.gtc-uk.co.uk/Plant_Enquiry	Independent Gas Transporter	Operate nationally
Quadrant Pipelines Ltd Synergy House, Woolpit Business Park, BURY ST EDMUNDS, Suffolk , IP30 9UP 01359 240 363 https://www.gtc-uk.co.uk/network-locations/ plant.enquiries@gtc-uk.co.uk Asset maps available via Online Web Access https://pe.gtc-uk.co.uk/Plant_Enquiry	Independent Gas Transporter	Operate nationally

SSE Utility Solutions (trading name of SSE Pipelines Ltd) SSE Mapping Services, PO Box 6206, BASINGSTOKE, Hampshire, RG24 8BW 0345 076 7649 https://www.sseenergysolutions.co.uk/distributed-energy-infrastructure enquiries@sseenterprise.co.uk	Independent Gas Transporter	Operate nationally

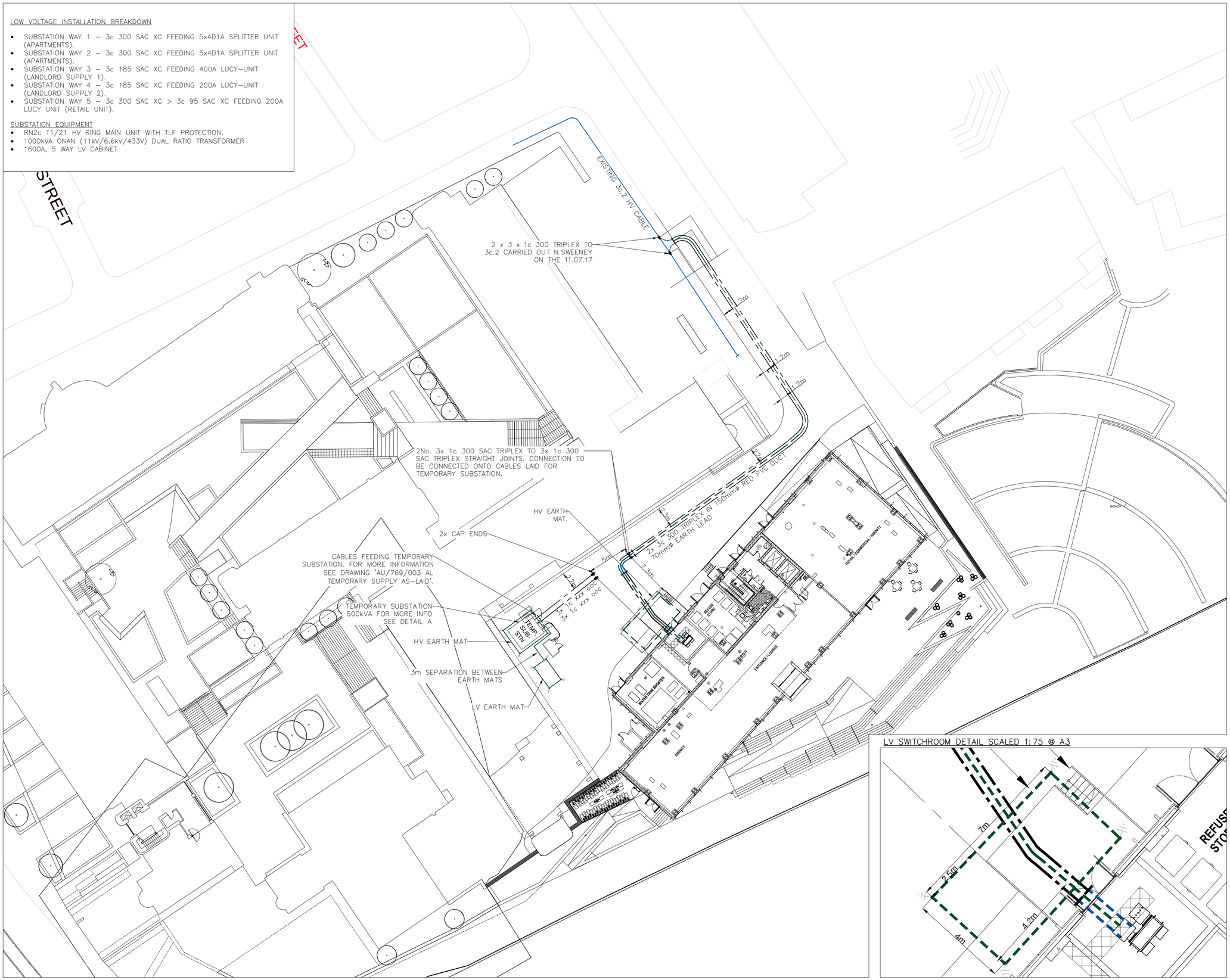
NOTES:
All dimensions must be checked on site and not

LOW VOLTAGE INSTALLATION BREAKDOWN

- SUBSTATION WAY 1 – 3c 300 SAC XC FEEDING 5x4D1A SPLITTER UNIT (APARTMENTS).
- SUBSTATION WAY 2 – 3c 300 SAC XC FEEDING 5x4D1A SPLITTER UNIT (APARTMENTS).
- SUBSTATION WAY 3 – 3c 185 SAC XC FEEDING 400A LUCY–UNIT (LANDLORD SUPPLY 1).
- SUBSTATION WAY 4 – 3c 185 SAC XC FEEDING 200A LUCY–UNIT (LANDLORD SUPPLY 2).
- SUBSTATION WAY 5 – 3c 300 SAC XC > 3c 95 SAC XC FEEDING 200A LUCY UNIT (RETAIL UNIT).

SUBSTATION EQUIPMENT

- RN2c T1/21 HV RING MAIN UNIT WITH TLF PROTECTION.
- 1000kVA ONAN (11kV/6.6kV/433V) DUAL RATIO TRANSFORMER
- 1600A, 5 WAY LV CABINET



LV SWITCHROOM DETAIL SCALED 1:75 @ A3

REVIEW OK YES/NO
REVIEWED BY
APPROVED BY
DATE

SERVICE ROUTES
ALL SERVICE ROUTES ARE INDICATIVE ONLY AND MUST BE CONFIRMED ON SITE BY THE AMEON UTILITIES REPRESENTATIVE. IT IS THE RESPONSIBILITY OF THE CUSTOMER TO ENSURE THAT ALL SERVICE ROUTES ARE WITHIN THE DEMISE OF THE PROPERTY BEING SUPPLIED AND THE EXACT LOCATION OF DUCTS ARE CLEARLY IDENTIFIED.

Planning Drawing Only
Obtain up-to-date utility records from asset owner before commencing work.

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CONTACT:

ELECTRICITY NORTH WEST	0800 195 4141 (24/7)
UNITED UTILITIES WATER	0800 33 0033
NATIONAL GRID GAS	0800 111 999

Electric Key

HV 6.6kV EXISTING	
HV 6.6kV PROPOSED	
HV 11kV EXISTING	
HV 11kV PROPOSED	
HV 33kV EXISTING	
HV 33kV PROPOSED	
HV ONSITE MADE LIVE	
LV EXISTING	
LV PROPOSED	
LV ON SITE MADE LIVE	
SERVICE IN 32mm DUCT	
ROAD CROSSING DUCT	
LIGHTING COLUMN	
BOTTLE END & EARTH ROD	

All single phase domestic services to be 2c.35.sac.pc and all domestic electricity meters to be installed in external meter boxes. Contractor to install cable marker tape.

Phase Colours

L1 BROWN
L2 BLACK
L3 GREY

New Phase Colour Markings

Single Phase
Red / Brown
Black / Blue

Three Phase
Red – L1 – N – Brown
Yellow – L2 – N – Black
Blue – L3 – N – Grey
Black – N – N – Blue

DANGER
HIGH VOLTAGE
CABLES MAY BE PRESENT
EXPOSE ALL CABLES
BEFORE JOINTING

Ref.	Date	Revisions
AL	07.10.19	Submitted For Comments

Client

SIR ROBERT Mc ALPINE

ameon
Building Services Engineering
Ameon Utilities
Unit 9-10 Olympic Court, Boardmans Way,
Whitehills Business Park, Blackpool, FY4 5GU
Tel: 01253 760160
Fax: 01253 760150
E-mail: info@ameon.co.uk

Job Title

TRINITY RIVERSIDE

Drawing Title

INCOMING HV SUPPLY AS–LAID

Scale
1:250 @ A1

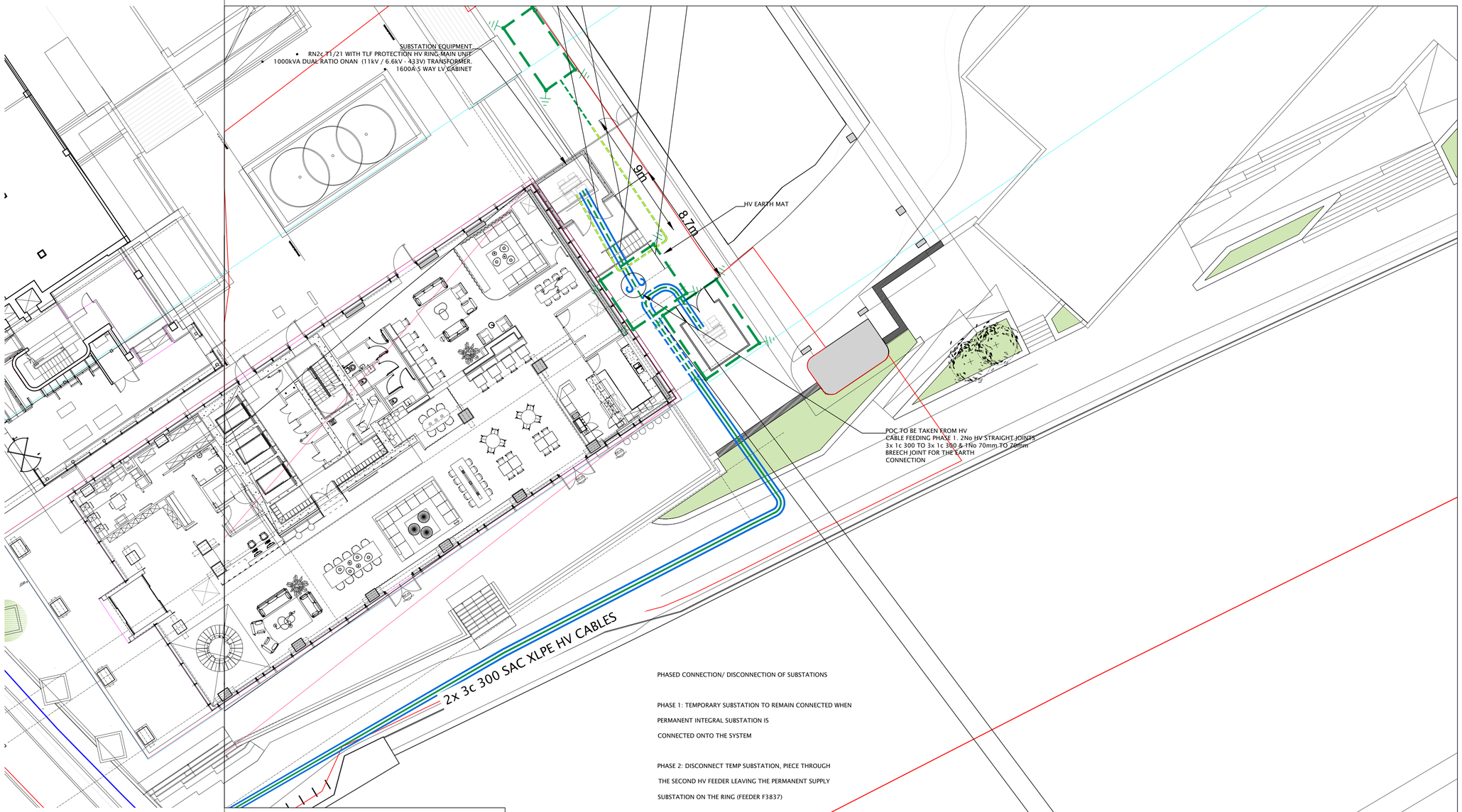
Date
OCT 2019

Drawn by
O.H.

Drawing Number
AU/769/015

Revision
AL

NOTES:
All dimensions must be checked on site and not scaled from this drawing.

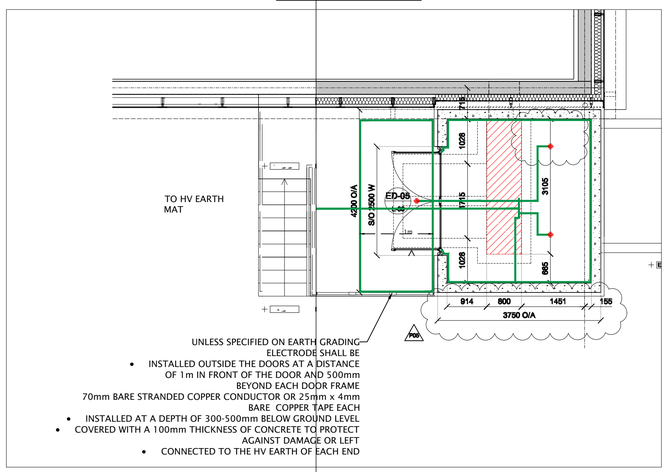


PHASED CONNECTION/ DISCONNECTION OF SUBSTATIONS

PHASE 1: TEMPORARY SUBSTATION TO REMAIN CONNECTED WHEN PERMANENT INTEGRAL SUBSTATION IS CONNECTED ONTO THE SYSTEM

PHASE 2: DISCONNECT TEMP SUBSTATION, PIECE THROUGH THE SECOND HV FEEDER LEAVING THE PERMANENT SUPPLY SUBSTATION ON THE RING (FEEDER F3837)

SUBSTATION EARTHING



UNLESS SPECIFIED ON EARTH GRADING ELECTRODE SHALL BE
- INSTALLED OUTSIDE THE DOORS AT A DISTANCE OF 1m IN FRONT OF THE DOOR AND 500mm BEYOND EACH DOOR FRAME
- 70mm BARE STRANDED COPPER CONDUCTOR OR 25mm x 4mm BARE COPPER TAPE EACH
- INSTALLED AT A DEPTH OF 300-500mm BELOW GROUND LEVEL
- COVERED WITH A 100mm THICKNESS OF CONCRETE TO PROTECT AGAINST DAMAGE OR LEFT
- CONNECTED TO THE HV EARTH OF EACH END

REVIEW OK	YES/NO
REVIEWED BY	
APPROVED BY	
DATE	

****SERVICE ROUTES****
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HV 33kV EXISTING	
HV 33kV PROPOSED	
HV ONSITE MADE LIVE	
LV EXISTING	
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LV ON SITE MADE LIVE	
SERVICE IN 32mm DUCT	
ROAD CROSSING DUCT	
LIGHTING COLUMN	
BOTTLE END & EARTH ROD	

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L2 BLACK
L3 GREY

New Phase Colour Markings

Single Phase
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Black / Blue

Three Phase
Red / Brown
Yellow / Black
Blue / Grey
Black / Blue

DANGER
HIGH VOLTAGE
CABLES MAY BE PRESENT
EXPOSE ALL CABLES
BEFORE JOINTING

Ref.	Date	Revisions
AL	06.10.20	Issued For Comments

Client
RENAKER BUILD LTD

ameon
Utilities Engineering
Ameon Utilities
Unit 9-10 Olympic Court, Boardmans Way,
Whitehills Business Park, Blackpool, FY4 5GU
Tel: 01253 760160
Fax: 01253 760150
E-mail: info@ameon.co.uk

Job Title
RIVERVIEW

Drawing Title
INCOMING HV SUPPLY
AS-LAID PHASE 2

Scale
1:250 @ A1

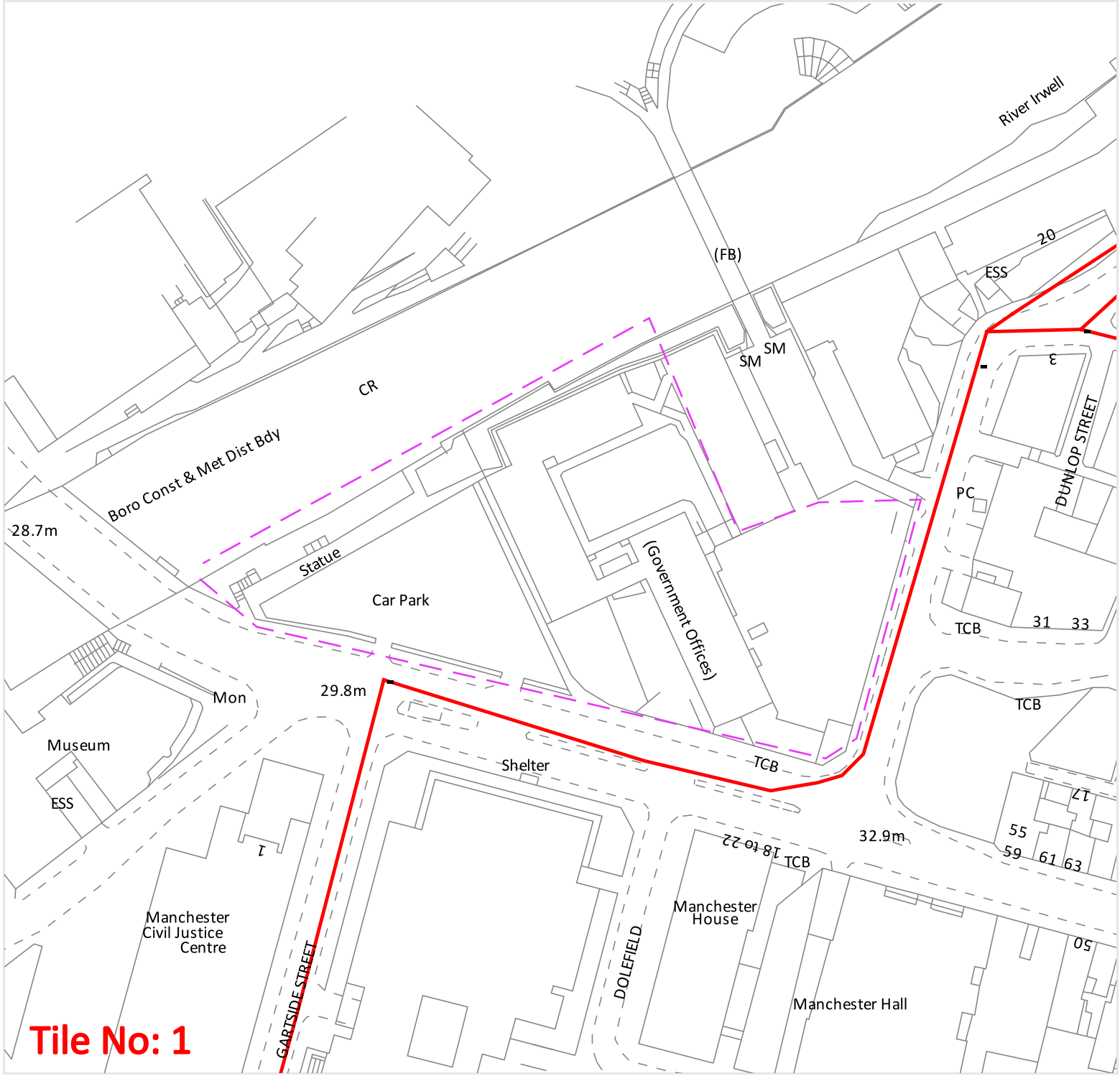
Date
OCT 2020

Drawn by
O.H.

Asite Ref
Z3-AMN-G532-De-Grd-002

Drawing Number
AU/774/013

Revision
AL



Zayo Group UK Ltd
4th Floor Harmsworth House
13-15 Bouverie Street
London, EC4Y 8DP

JSM Group Ltd
Sterling House
Mutton Lane, Potters Bar
Hertfordshre, EN6 3AR
T: 01992 655 919
zayoplantenquiries@jsmgroup.com

Legend

- Zayo Duct
- Zayo Chamber
- Enquiry Area

Date requested:	24 Jan 2025
Requested by:	Miss Lauren Wenham
Company:	Soiltechnics Ltd
Job reference:	36081905
Your reference:	STX6912

Scale on A4 paper: 1:1250

Warning: PDF designed for colour print only with no page scaling. This Information is given as a guide only and its accuracy cannot be guaranteed.

N

The information on this document is proprietary and shall not be used, copied, reporduced or disclosed in whole or in part without written consent of Zayo Group UK Ltd. Approximate location only is shown. To determine exact location a trial hole must be dug with a Zayo Group UK Ltd Supervisor present. Zayo Group UK Ltd accept no liability for any errors or omissions.

Protecting Lives, Cables & Pipes

In Emergency Only and if Zayo Plant or Cables damaged call: 0800 169 1646

CROWN COPYRIGHT © All Rights Reserved. Ordnance Survey Licence number: 100040487

Enquiry Confirmation

LSBUD Ref: 36081905

Date of enquiry: 24/01/2025
Time of enquiry: 14:32

Enquirer

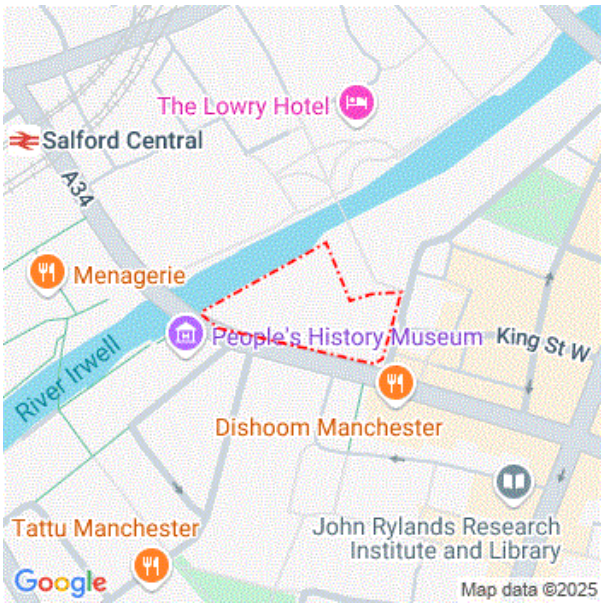
Name	Miss Lauren Wenham	Phone	01604 781877
Company	Soiltechnics Ltd	Mobile	Not Supplied
Address	Cedar Barn White Lodge Walgrave NTH NN6 9PY		
Email	admin@soiltechnics.net		

Enquiry Details

Enquiry type	Planned Works
Work category	Development Projects
Work type	Piling
Work type buffer*	150 metres
Start date	25/01/2025
End date	25/01/2025
Scheme/Reference	STX6912
Search location	M609AF
Confirmed location	383455 398377
Site size	0 metres square
Site Contact Name	Soiltechnics Limited
Site Phone No.	01604781877
Description of Works	NA

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen.

Site Map



Please note that the above map only displays the location of the proposed work site and will not display any of the Members' pipes and cables. It is imperative that this area accurately reflects the proposed work site.

Affected LSBUD members

(LSBUD Members who have assets registered on LSBUD within the vicinity of your search area.)

Do not proceed until all Members listed below have confirmed that your works can continue.

Asset Owner	Phone/Email	Emergency Only	Status
Cadent Gas	0800688588	0800111999	Await response
Electricity North West Limited	08001954141	08001954141	Await response
ESP Utilities Group	01372227560	01372227560	Await response
EUNetworks Fiber UK Limited	02031788003	02031788003	Await response
Fulcrum Pipelines Limited	03330146455	0800111999	Await response
Last Mile	plantenquiries@lastmile-uk.com	0800111999	Await response
Neos Networks	03453053337	03453053337	Await response
Zayo Group UK Ltd c/o JSM Group Ltd	01992 655 919	0800 169 1646	Await response

Status explanation

Await Response means that the asset owner will contact you. This is typically by sending the plan response but they may ask for further information before being able to do so, particularly if any payments or authorisations are required.

Email Additional Info means that the asset owner needs further information about your works to assess your enquiry before providing a response. Please provide any details you have available including plans, method statements etc. if available.

Enquiry Confirmation
LSBUD Ref: 36081905

Date of enquiry: 24/01/2025
Time of enquiry: 14:32

Important notices

It is very important that you correctly understand what the service does and the procedures in order for you to work safely. Please refer to the LSBUD Support Page (www.lsbud.co.uk/linesearchbeforeudig-support) for further guidance.
This information includes how to provide additional information to the LSBUD Members who request it to provide a response to your enquiry.
Validity and search criteria. The results of this enquiry are based on the confirmed information you entered and are valid only as at the date and time of the enquiry. It is your responsibility to ensure that the Enquiry Details are correct, and LinesearchbeforeUdig (LSBUD) accepts no responsibility for any errors or omissions in the Enquiry Details or any consequences thereof. LSBUD Members update their asset information on a regular basis so you are advised to consider this when undertaking any works. It is your responsibility to choose the period of time after which you need to resubmit any enquiry but the maximum time (after which your enquiry will no longer be dealt with by the LSBUD Helpdesk and LSBUD Members) is 28 days. If any details of the enquiry change, particularly including, but not limited to, the location of the work, then a further enquiry must be made.
Terms and Conditions. Please note that this enquiry is subject always to our standard terms and conditions available at www.lsbud.co.uk ("Terms of Use") and the disclaimer at the end of this document. Please note that in the event of any conflict or ambiguity between the terms of this Enquiry Confirmation and the Terms of Use, the Terms of Use shall take precedence.

List of not affected LSBUD members
(LSBUD Members who do not have assets registered on the LSBUD service within the vicinity of your search area.)

AllPoints Fibre	Angus Energy	AWE Pipeline
B & D Energy Limited	Balfour Beatty Investments Limited	BOC Limited (A Member of the Linde Group)
Box Broadband	BP Exploration Operating Company Limited	BPA
Cambridge Water	Cambridgeshire County Council Climate Change and Energy Services	CATS Pipeline c/o Wood Group PSN
Cemex	Centrica Storage Ltd	CNG Services Ltd
Concept Solutions People Ltd	ConocoPhillips (UK) Teesside Operator Ltd	D.S.Smith
Diamond Transmission Corporation	DIO (MOD Live Pipelines)	Drax Power Limited
EDF Energy Renewables Ltd	EET Fuels	EirGrid
Eleclink Limited	Energy Assets Networks	ENI & Himor c/o Penspen Ltd
EnQuest NNS Limited	EP Langage Limited	ESB CCGT Power station (Carrington Gas Pipeline)
Esso Petroleum Company Limited	EXA Infrastructure	Exolum Pipeline System
Fulcrum Electricity Assets Limited	G.Network Communication Ltd c/o JSM Group Ltd	Gamma
Gas Networks Ireland (UK)	Gateshead Energy Company	Gigaclear Ltd
Greenlink Interconnector Ltd	Harbour Energy	Heathrow Airport LTD
Humbly Grove Energy	IGas Energy	INEOS FPS Pipelines
INEOS Manufacturing (Scotland and TSEP)	INOVYN ChlorVinyls Limited	INOVYN Enterprises Limited
Intergen (Coryton Energy or Spalding Energy)	Kensa Utilities	Liverpool City Region Connect
Mainline Pipelines Limited	Manchester Jetline Limited	Manx Cable Company
Marchwood Power Ltd (Gas Pipeline)	Melbourn Solar Limited	MUA Group Limited
National Gas Transmission	National Grid Electricity Distribution	National Grid Electricity Transmission
National Grid Ventures	Northern Gas Networks Limited	Northumbrian Water Group
NPower CHP Pipelines	NTT Global Data Centers EMEA UK Ltd	NYnet Ltd
Ogi	Oikos Storage Limited	Ørsted
Palm Paper Ltd	Perenco UK Limited (Purbeck Southampton Pipeline)	Petroineos
Phillips 66	Portsmouth Water	Premier Transmission Ltd (SNIP)
Redundant Pipelines - LPDA	RWE - Great Yarmouth Pipeline (Bacton to Great Yarmouth Power Station)	RWEnpower (Little Barford and South Haven)
SABIC UK Petrochemicals	SAS Utility Services Ltd	Scottish and Southern Electricity Networks
Scottish Power Generation	Seabank Power Ltd	SES Water
SGN	Shell	Shell NOP
South Staffs Water	SP Energy Networks	Spring Fibre Limited
Squire Energy Networks	SSE Generation Ltd	SSE Transmission

Enquiry Confirmation
LSBUD Ref: 36081905

Date of enquiry: 24/01/2025
Time of enquiry: 14:32

SSE Utility Solutions Limited	Storengy	Tata Communications (c/o JSM Construction Ltd)
TfL – London Underground HV Cables (Road & Track Side Cables)	toob Limited	Total (Colnbrook) c/o Penspen
Total Finaline Pipelines	Transmission Capital	Trojan Energy Limited
UK Power Networks	Uniper UK Ltd	University of Cambridge Granta Backbone Network
Vattenfall	Veolia ES SELCHP Limited	Veolia ES Sheffield Ltd
Voneus Limited	VPI Power Limited	Wales and West Utilities
Welsh Power	West of Duddon Sands Transmission Ltd	West Sussex OpenNetwork (Cooperative National Infrastructure)
Westminster City Council	Winnington CHP Ltd	

Non-LSBUD members (Asset owners not registered on LSBUD)
(The following Non-LSBUD Members may have assets in your search area. It is YOUR RESPONSIBILITY to contact them before proceeding.
Please be aware this list is not exhaustive and it is your responsibility to identify and contact all asset owners within your search area.)

Asset Owner	Preferred contact method	Phone	Status
Arelion UK Ltd	check-network@arelion.com		Not Notified
Bring Energy	nrswa@bringenergy.com	0800 130 3600	Not Notified
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08000232023	Not Notified
CityFibre	asset.team@cityfibre.com	033 3150 7282	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
Lumen Technologies	plantenquiries@ocugroup.com	02087314613	Not Notified
Manchester City Council	https://www.manchester.gov.uk		Not Notified
Mobile Broadband Network Limited	mbnl.plant.enquiries@turntown.com	01212 621 100	Not Notified
Sky UK Limited	nrswa@sky.uk	02070323234	Not Notified
Sota	sota.plantenquiries@ocugroup.com		Not Notified
United Utilities	WastewaterDeveloperServices@uuplc.co.uk	08707510101	Not Notified
Utility assets Ltd	assetrecords@utilityassets.co.uk		Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified

Disclaimer
Please refer to LSBUD's Terms of Use for full terms of use available at www.lsbud.co.uk
The results of this Enquiry are personal to the Enquirer and shall not be shared with or relied upon by any other party. The asset information on which the Enquiry results are based has been provided by LSBUD Members, therefore LSBUD will provide no guarantee that such information is accurate or reliable nor does it monitor such asset information for accuracy and reliability going forward. There may also be asset owners which do not participate in the enquiry service operated by LSBUD, including but not exclusively those set out above. Therefore, LSBUD cannot make any representation or give any guarantee or warranty as to the completeness of the information contained in the enquiry results or accept any responsibility for the accuracy of the mapping images used. LSBUD and its employees, agents and consultants accept no liability (save that nothing in this Enquiry Confirmation excludes or limits our liability for death or personal injury arising from our negligence, or our fraud or fraudulent misrepresentation, or any other liability that cannot be excluded or limited by English law) arising in respect thereof or in any other way for errors or omissions including responsibility to any person by reason of negligence.



P1	15/11/2024	FOR SI INFORMATION	AS	SS
REV	DATE	DESCRIPTION	BY	CHECKED

akt II

PROJECT	ALBERT BRIDGE HOUSE	TITLE	GEOTECHNICAL AND GEOENVIRONMENTAL SITE INVESTIGATION: TOPOGRAPHICAL SURVEY OF THE SITE
DATE	15/11/2024	SCALE	NTS
CAD FILENAME	-	STATUS	STATUS
DRAWN	AS	CHECKED	SS
PROJECT No.	5222M	DRAWING No.	5222-S-HSK-SI01E
REV	00		