RoC CONSULTING

PHASE 2 SITE INVESTIGATION

Plots O + N, Mayfield

for

Mayfield Partnership Ltd

CIVIL | STRUCTURAL | GEOTECHNICAL | GEO-ENVIRONMENTAL ENGINEERING SERVICES

COMPLEX CHALLENGES ...
MADE SIMPLE

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DESCRIPTION	DATE	AUTHOR	REVIEWED BY	APPROVED BY
Phase 2 Site Investigation Report	01/10/20	Elizabeth Stewart	**Liam Daley**	**Alex Smiles**

REVISION	DESCRIPTION	DATE	AUTHOR	APPROVED BY
R1	Groundwater RA and asbestos quantification update	26/10/20	**Elizabeth Stewart**	**Alex Smiles**
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R3	Groundwater RA	18/12/2020	**Elizabeth Stewart**	

COMPLEX CHALLENGES ...
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1.0 Introduction

1.1 Background

1.1.1 RoC Consulting has been appointed by Mayfield Partnership Ltd to conduct a Phase 2 Site Investigation across Plots O & N (the site), part of the wider Mayfield SRF. It is understood that the site is to be redeveloped for commercial end use comprising:

- Plot O / *The Poulton*: an 8-storey office block, in accordance with Bennetts Associates' drawing 1811-BA-XX-00-MP-A-20-0001_B (Appendix A).
- Plot N / *MSCP*: A 13-storey car park, in accordance with SEW's drawing 0344-SEW-ZZ-ZZ-DR-A-001001 (Appendix A).

1.1.2 The following assessment has been completed to support design and planning requirements for the site's redevelopment and follows on from a number of site investigations relating to the development site, specifically:

1) Phase 1 Desktop Study completed by Buro Happold dated August 2017 (ref: 035548)

2) Phase 2 Geo-environmental and Geotechnical Assessment completed by REC dated April 2019 (ref: 106841P2R0)

1.1.3 It is recommended reference be made to the abovementioned report(s) when reviewing the current assessment.

1.1.4 The scope of the report and its assessment has been based around the site's redevelopment proposals as outlined in the aforementioned architect's plans. It should be noted that any subsequent revision of the proposed redevelopment or site boundary away from the above-mentioned drawing may result in the full or partial re-interpretation of this report and assessment.

1.2 Terms of Reference

1.2.1 The Phase 2 Site Investigation was carried out following receipt of an instruction from Tim Brown of Wates Construction on behalf of the client, Mayfield Partnership Ltd.

1.3 Objectives

1.3.1 The scope of works has been tailored to meet both planning and design requirements to assist with the site's redevelopment. These considerations include:

1) Design a programme of site investigation works to establish ground conditions beneath the site, delineate the extent of the historical former baths and target known or suspected sources of contamination (as revealed by the Phase 1 desktop study).

2) Completion of site investigation field works including the formation of x6 boreholes with rotary coring into the bedrock, and x10 trial pit excavations to establish the site's geology and historical development footprint.

3) Completion of geo-environmental and geotechnical laboratory analysis of soil / rock samples to determine physical and chemical characteristics.

4) Completion of a detailed geotechnical assessment of site conditions to inform new building foundation and retaining wall design. The scope of this assessment will also include reference to the findings and result of previous site investigation works.

5) Completion of a geo-environmental assessment utilising information provided by both the current and previous phases of site investigation works sufficient in its scope to assist with the discharge of contaminated land related planning conditions.

2.0 Limitations of Study Assessment

2.0.1 The report has been produced by RoC Consulting for the client solely for the purposes of a review of information for the above-mentioned site. It may not be used by any person for any other purpose other than that specified without the express written permission of RoC Consulting. Any liability arising out of its use by a third party for purposes not wholly connected with the above shall be the responsibility of that party who shall indemnify RoC Consulting against all claims, costs, damages and losses arising out of such use.

2.0.2 This report is written in the context of an agreed scope of work and should not be used in a different context. The report should be read in its entirety. Furthermore, new information, improved practices and changes in legislation may require re-interpretation of this report in whole or in part after its original issue. RoC Consulting reserves the right to alter their conclusions and recommendations in the light of further information that may become available.

2.0.3 Ground conditions can change rapidly, especially in areas of made ground, however, it is assumed that the ground conditions observed are typical and representative of the site as a whole. The ground conditions have been determined from a limited number of exploratory holes formed across the property, therefore, only a small percentage of the total area of the property has been investigated. Interpolation between exploratory holes has enabled a general picture of the subsurface conditions to be produced.

2.0.4 Conclusions drawn from the ground investigation should be read in this context. RoC Consulting cannot accept responsibility for any situations resulting from locally unforeseen ground conditions occurring between exploratory holes.

3.0 Background Information

3.0.1 The overview below outlines the most salient points / considerations and it is recommended reference be made to the complete findings of previous site investigation reports for additional information / clarification.

3.1 Site Description

3.1.1 The site is located across Plots O and N of the wider Mayfield SRF development and currently comprises a vacant plot of land currently used as a hardstanding car park, bordered by a grassed area with a retaining wall forming the northern boundary (with an approximate 6m drop in elevation to the River Medlock beyond). This area predominantly forms Plot O. To the south of the hardstanding is a bowl-shaped area covered by demolition fill at surface and a slope up to street level at the southern extents. Between site inspection and mobilising to site, a stockpile of material was deposited on site from the wider Mayfield site. This area forms Plot N.

3.1.2 The site is bordered by Bond Street to the south, Baring Street to the west, the River Medlock to the north and by further vacant plots of land to the east (Plot M; Mayfield SRF) and Nether Street.

3.2 Geological Characteristics

3.2.1 Review of publicly available BGS geological map records indicate the site is underlain by the following:

Drift Geology: Alluvium / Glacial Till

Solid Geology: Chester Sandstone Formation

3.2.2 With reference to the Phase 1 Desktop Study completed by Buro Happold, the wider Mayfield SRF site is “located within the specified search area of an identified mining are”. A Coal Authority Report was obtained for the site.

3.2.3 The Coal Authority report states the following:

- The wider Mayfield SRF site is within the likely zone of influence from workings in x2 coal seams at 1050m and 1100m depth last worked in 1958.
- There are no recorded mine entries within the wider Mayfield site, no past or present open cast mining activity within the wider Mayfield site and no subsidence relating to coal mining within the wider Mayfield SRF site.

3.2.4 With reference to the above, the risk arising from former coal mining operations was considered to be low.

3.3 Site History and Environmental Characteristics

3.3.1 Earliest records dated 1848 indicate the site to comprise vacant land with an unknown building shown at the south west corner of the site. The wider area is shown to be relatively developed with numerous large buildings and possible terraced style residential housing surrounding the site. The River Medlock is shown in its current configuration to the north of the site.

3.3.2 Maps dated 1891 show the Mayfield Baths at the north of the site with residential housing at the south and extending beyond the south and western boundaries. Numerous large buildings are shown across the wider Mayfield site and the River Medlock is shown to have been partially culverted. Ardwick Tannery is shown to the east of the southern extents, with a Water Meter Works shown to the south east. Records provided by the project archaeologists (Salford Archaeology) indicate Mayfield Baths was constructed in 1857.

3.3.3 In 1908, part of the residential housing at the south of the site are replaced by Ice Works (later referred to as Ice Factory). In 1948, the remain residential housing / buildings surrounding the Ice Factory appear to be demolished. Maps dated 1950 show the former Mayfield Baths as having been demolished.

3.3.4 In 1968 the configuration of the site appears to change. The Baths and buildings to the south of the site appear to be replaced by “works” which are shown to occupy the central portion of the wider Mayfield site. In 1980, the configuration of buildings appears to change again; with buildings to the north of the site appearing to have been demolished. In 1999, the remaining building at the south of the site are indicated as “factory”.

3.3.5 It is understood that the building at the south of the site was demolished to ground level in 2019.

3.3.6 It is understood that the drift geology is classified as a Secondary (undifferentiated) aquifer with the underlying sandstone bedrock classed as a Principal aquifer. The site is not said to be located within any Environment Agency Source Protection Zones or close proximity to any sensitive water abstraction points (e.g. potable water supply well).

3.3.7 The nearest surface water feature is indicated at the northern boundary of the site in the form of the River Medlock which flows east to west across the wider Mayfield site.

3.3.8 The site is located within a Flood Zone 2 and has a medium probability of flooding from rivers or the sea. A small area at the centre of the site is indicated to be at a low risk of flooding from surface water whilst the remaining area of the site is said to be at a very low risk of flooding from surface water.

3.3.9 The site was previously affected by bombing in WW2. A preliminary Unexploded Ordnance (UXO) report was completed and included within the abovementioned Phase 1 Desk Study, completed by Buro Happold. There is a requirement for UXO clearance prior to intrusive works being undertaken.

3.4 Previous Site Investigation

REC Ltd 2019 Phase 2 Geo-environmental and Geotechnical Assessment

3.4.1 A previous site investigation was undertaken by REC Ltd across the study site in March 2019. Site investigation works comprised the formation of four window sampler boreholes to depths of up to 5.00mbgl, six trial pits to depths of up to 2.10mbgl and eight cable tool boreholes with rotary follow-on at select locations to depths of up to 25.00mbgl. It is noted that this report does not provide co-ordinates for the exploratory locations and therefore used as a reference only.

3.4.2 Made Ground was reported across the site to a maximum depth of 5.50mbgl and was generally reported as asphalt overlying gravelly sand or gravelly clay with gravels of concrete, limestone and brick.

3.4.3 Natural strata underlying Made Ground was reported as either sandy clay, sandy gravel or fine to medium sand. The sandstone bedrock was reported at depths between 2.80 and 5.50mbgl. At shallow depths the bedrock was recovered as red sand becoming reddish brown gravel of sandstone. At depths greater than approximately 7.00m the sandstone bedrock was reported as very weak to weak becoming medium strong orangish red sandstone. Frequent bands of destructured rock were recovered as reddish-brown gravel of sandstone and core recovery was typically very low.

3.4.4 A total of 6 foundation exposure pits were completed to investigate existing buildings and to further investigate relic foundations identified on-site. A small raft foundation was reported within TP01 at 0.08mbgl and a strip foundation (0.30m thick) was reported at 0.85mbgl.

3.4.5 Geotechnical testing of superficial clay deposits indicate the clay to be of low strength and low to intermediate plastic nature.

3.4.6 UCS testing, diametric and axial point load testing was undertaken on samples of sandstone bedrock. UCS tests were undertaken on samples taken at depths between 13.70 and 20.12 with resulting values in the range 0.90 – 2.60MPa with a single value recorded as 10.60MPa. Diametric and axial point load tests were undertaken on samples obtained at depths between 7.70 and 24.63mbgl. Resulting values for diametric point load tests were in the range 0.20 – 1.80MPA and for Axial point loads in the range 0.20 – 1.40MPa.

3.4.7 Chemical analysis of site soils indicates an exceedance of screening levels for Arsenic and Benzo(a)pyrene within shallow Made Ground at two locations (CPBH04 and CPBH02 respectively).

3.4.8 A Photo-Ionization Detector was used to assess levels of volatile compounds within site soils. The highest value recorded was within CPBH02 at 0.20mbgl and recorded a concentration of 10.7ppm. It was noted that this is a relatively low value.

3.4.9 Ground gas monitoring results show a maximum CO2 concentration of 3.3% with maximum flow rates of 0.2l /hr. Depleted oxygen levels and an absence of CH4 was also recorded.

4.0 Site Investigation Design

General

4.0.1 The RoC intrusive investigation was designed and completed to further investigate geo-environmental issues identified during previous site investigations as well as provide geotechnical information to facilitate new building design.

4.0.2 The site investigation works comprised the formation of

- x6 Cable Percussion Boreholes with Rotary Core follow-on into the bedrock, with maximum depth of 25mbgl
- x5 Trial Pits to infill on ground condition data gaps post-demolition of the site
- x10 Trial Trenches to investigate and delineate the extent of the former Mayfield Baths

4.0.3 Exploratory hole placement was dictated by the findings of the previous site investigation undertaken pre-demolition and where current / previous industrial activity may have impacted soil quality. In addition, boreholes and trial pits were located within the footprint of the proposed new development to establish ground conditions and support foundation design

4.0.4 Due to the site previously being affected by bombing in WW2, a non-intrusive UXO clearance was undertaken at each of the exploratory locations. It was deemed there to be no risk at all locations scanned.

4.0.5 Samples of soil collected during the investigation works are to be analysed for a variety of determinants associated with the pattern of current / historic industrial activity across the site as outlined within the preliminary conceptual site model.

4.0.6 Table 4.0 provides location justification for each exploratory hole formed during the site investigation fieldworks. The purposes of this table are to illustrate the targeting of potential sources of contamination during the Phase 2 site investigation works.

Table 4.0: Borehole Locations & Justification

BH/WS ID	Reason for selection
TT01 – TT05	Placed within the footprint of the Mayfield Baths to delineate the extent of relic below ground features.
BH105 – BH108	Placed to obtain information on shallow and deep ground conditions to inform development foundation design
BH109 & BH110	Placed within the area of the proposed river wall to aid design
TP101 – TP105	Located within former building footprints to further assess ground conditions and contamination arising from historic development
TP106 – TP110	Formed within the footprint of the proposed Poulton office building to further assess depth to Sandstone bedrock.

4.0.7 Exploratory hole locations are shown on RoC Consulting drawing ES201 provided within Appendix A.

5.0 Site Investigation Fieldworks

5.0.1 Site investigation fieldworks were completed between the 10th and 18th of August 2020 by drilling contractors JB Site Investigation and Dynamic Sampling UK (Rotary Drilling). Boreholes were formed using a Dando 3000 (cable tool) and Commachio Geo rig (rotary follow-on) and trial pits / trenches were formed using a tracked excavator. A second phase of ground investigations were undertaken between the 9th and 10th of December 2020 comprising the formation of trail pits TP106-110 within the footprint of the proposed Poulton office building to further assess the depth to Sandstone bedrock.

5.0.2 In addition, an inspection of the on-site stockpile was undertaken to identify deleterious materials and soil samples were obtained for chemical analysis, the results of which are provided within Appendix C.

5.0.3 Information with respect to buried services was obtained from relevant providers prior to commencement of the investigation works, alongside GPR clearance of the site. To mitigate the risk of unexploded ordnance from WW2, all site investigations were cleared utilising non-intrusive survey methods, by the specialists Planit Surveys.

5.0.4 All exploratory hole locations were scanned with a Cable Avoidance Tool prior to the commencement of works. In addition, hand dug service pits were completed to a depth of 1.2mbgl at all borehole locations deemed to fall in close proximity to the suspected location of possible buried service runs / infrastructure.

5.0.5 A water supply pipe was uncovered at BH109 and TP105. The Borehole was relocated 1m away; however, TP105 could not be completed due to limited space between the service and the retaining river wall.

5.0.6 Below ground obstructions within superficial deposits were encountered, rotary open hole method was adopted to allow for coring into the bedrock.

5.0.7 To ensure no new sources of contamination were introduced to underlying soils / bedrock during the formation of each borehole, steel casing was used throughout as well as vegetable oil as a lubrication medium for all drilling apparatus. Sampling equipment was also cleaned between sampling to reduce cross-contamination risks.

5.0.8 Soil and rock core samples were collected for subsequent chemical and geotechnical laboratory analysis. Soil samples used for geotechnical analysis were collected in 500g plastic sample tubs, U100 wax sealed sample tubes and polythene “bulk” bags. Samples collected for chemical testing were collected in 300g glass jars and 500g plastic sample tubs. Samples were obtained from both made ground and natural strata to assess the overall quality of underlying soils. In situ soil strength was investigated using Standard Penetration Tests (SPT) within superficial deposits as well as to confirm rock head had been reached and when rock recovery was less than 90%.

5.0.9 The soils and rock encountered during construction of the boreholes were described and logged by a suitably qualified engineer in accordance with BS 5930: Code of Practice for Site Investigations (the log sheets for which have been provided within Appendix B).

5.0.10 A total of 5 ground gas and ground water monitoring wells were installed within cable tool / rotary follow-on boreholes. Installation details are provided within Table 5.0 below, copies of ground water and gas monitoring records are provided within Appendix E.

Table 5.1: Monitoring Well Installations

BH ID	Monitoring well depth	Response zone	Response zone strata
BH105	13.0m	7.0 – 13.0m	Sandstone bedrock
BH106	7.0m	2.0 – 7.0m	Made Ground (clay with brick)
BH107	6.0m	3.0 – 6.0m	Made Ground (demolition fill)
BH108	10.0m	5.0 – 10.0m	Glacial till and sandstone bedrock
BH110	13.0m	8.0 – 13.0m	Sandstone bedrock

6.0 Encountered Ground Conditions

6.0.1 The following ground conditions are summarised from the exploratory holes formed during the RºC Consulting site investigation. The following represents an overview of encountered ground conditions and it is recommended reference be made to the borehole and trial pit log sheets provided within Appendix B for a detailed strata description; all depths shown are given in metres below ground level (mbgl) unless otherwise stated).

6.1 Ground Conditions Overview

Made Ground and Below Ground Obstructions

6.1.1 Two phases of ground investigation works were completed across the site, the "main" phase of investigation works in late August 2020 followed by a supplementary program of trial pitting in December 2020. The majority of exploratory boreholes and trial pits were formed during the first phase of works following vacant possession of the site. These boreholes and trial pits were formed from the existing tarmac car park that formed part of the former TfGM depot operation that previously occupied the site. As such all holes were formed from at our around a level circa 35mAOD.

6.1.2 These investigations revealed numerous below ground structures and obstructions relating to the former bath houses, including tiled flooring, basement walls, drainage infrastructure and other related features. The investigation revealed the baths had been demolished into themselves, with demolition type fill material comprising an ashy Sand and Gravel of brick, slate, concrete, limestone and York stone paving noted in fill materials beneath the site. Anecdotal observations of Asbestos containing material was also noted and collected for laboratory analysis (further details of which are provided within Section 8.0 of the report.

6.1.3 The construction build up of the former swimming pools were also reported four locations (BH106, TT02, TT03 and TT05), tile flooring / suspected ceramic brick likely associated with the historic baths were encountered at depths between 1.80mbgl (33.30mAOD) and 2.50mbgl (32.71mAOD). At BH106 and TT02, where the relic tiled flooring was able to be broken through, the underlying strata comprised loose brick masonry overlying very compacted grey limestone and concrete gravel. At BH105, multiple obstructions were encountered interbedded with various strata.

6.1.4 Within TP103 a brick masonry wall was encountered from 0.80m resting on top of a concrete pad at 1.50m. At TT03, concrete with tiled fascia thought to be the edge of a relic swimming pool was revealed.

6.1.5 Following completion of the "Main" phase of ground investigations a program of intrusive archaeological investigations was instigated across the site by Salford Archaeology across the former baths site during which its entire footprint was excavated and recorded. These excavations revealed the majority of the old bath house structure, swimming pools, boiler room and associated pipe work was still largely insitu.

6.1.6 Figure 6.1 and 6.2 provided overleaf were taken in December 2020 following the complete exaction of the baths by Salford Archaeology.

Fig 6.1 : Looking south east from Baring Street across excavated Mayfield Baths site.

Fig 6.2 : Looking north west across Mayfield Baths former swimming pool.

6.1.7 As previously discussed, a program of additional ground investigation works was completed across the Mayfield Baths site (within the former Poulton Office footprint) to further assess ground conditions in this area. The works comprised the formation of x5 trial pits (TP106 to 110) within and around the baths to confirm ground conditions.

6.1.8 Made ground was reported at all exploratory locations comprising a mixture of demolition type fill material and the Victorian construction build up of the swimming pools (a detailed description of which is provided on TP107 log and accompanying photographs within Appendix B). The depth of made ground varied around the baths to depths between 30.0 and 32.9mAOD with some brick walls and structures found to extend to significant depths beneath the site (possible relating to old drainage infrastructure) e.g. brick wall noted in TP108 that extended to a depth circa 28.8mAOD.

6.1.9 A detailed visual inspection of the site was completed by engineers from RoC Consulting once the bath houses had been revealed during which no visual or olfactory evidence of contamination was noted within relic structures or soils.

Plot N / Former Industrial Development

6.1.10 Two trial pits (TP101 & TP102) and two boreholes (BH107 & BH108) were formed within the footprint of the former industrial buildings at the southern area of the site. Ground conditions typically comprised a demolition fill reported as dark brown gravel of brick and concrete with slate, glass, rebar and timber at some locations to depths between 0.60 and 5.70mbgl.

6.1.11 At BH108 a concrete obstruction was reported at 0.60 – 0.70m underlain by slightly gravelly clay with gravels of brick and concrete to 1.70mbgl. At TP102, a tiled floor overlying concrete screed was reported at 1.50 – 1.70mbgl overlying dark greyish brown coarse sand. This is associated to the recently demolished structures. It is noted the former basements in this area have been 'grubbed out'.

Natural Strata

6.1.12 Superficial deposits, chiefly of Alluvial origin relating to the nearby Medlock, were encountered within ten exploratory hole locations underlying Made Ground. Composition of the superficial deposits varied across the site. Across the northern and eastern of the site a light brown very silty organic rich sand was reported underlying made ground and subsequently proven to depths circa 33.67mAOD 31.12 mAOD. At BH109A, BH110 and TP106 a sandy gravel was reported from depths ranging between underlying these silty alluvial sands 30.39 and 28.25mAOD

6.1.13 Toward the southern and western portion of the site, and particularly in the area beneath the former swimming pools, underlying natural soils comprised a very soft dark grey / black organic rich clay. The clay extended to depths circa 28.5mAOD (e.g., TP107 and TP108) and was underlain by weathered Sandstone. This stratum also corresponded with portions of the site where bedrock was at its deepest level beneath the site, indicating more significant erosional and deposition forces have taken places across the south and western portion of the site, increasing the depth of alluvial soils and subsequent depth to Sandstone bedrock.

Completely Weathered Bedrock

6.1.14 Bedrock was encountered at all borehole locations (BH105 – BH110) and trial pits TP106 to 110 at depths ranging between 27.64mAOD (BH107) and 32.38mAOD (REC BH02). The depth to bedrock varied markedly across the site, tending to dip from circa 31mAOD to the northern and eastern portion to circa 28mAOD to the south and west.

6.1.15 Bedrock was reported to be completely weathered recovered as reddish-brown sand. With increasing depth bedrock was generally reported as extremely weak reddish brown distinctly weathered sandstone.

Intact Bedrock

6.1.16 Underlying the completely weathered section, ranging from depths from 27.47maOD (north), 25.09mAOD (centre) and 25.08mAOD (South) across the site. The strength of the rock is noted to be Very Weak and becoming more competent. From 18.5mbgl (16.65mAOD) in BH105, the strength of the sandstone changes to Weak. However, from 11.20 (24.14mAOD) in BH110, it is noted the rock becomes completely weathered to an unproven depth (17.84mAOD)

6.1.17 A programme of geotechnical testing was completed on rock samples obtained from site investigation works copies of which are located within Appendix D.

6.2 Groundwater & Contamination Observations

6.2.1 Within TT02 at 1.50m a bitumen odour was noted upon exposing a concrete obstruction. No further olfactory evidence of contamination was noted. Suspected asbestos cement was noted within three locations (BH105, TT03 and TT01) within Made Ground deposits. Subsequent analysis confirms the material to be chrysotile cement.

6.2.2 Groundwater strikes were reported within two boreholes. Groundwater strikes were observed in BH108 at 6.00m rising to 5.50mbgl (29.2mAOD) and in BH109A at 6.00m rising to 5.40mbgl (30.05mAOD).

6.2.3 Resting groundwater monitoring results (as revealed from borehole standpipes) indicate a groundwater table within the Made Ground, superficial and sandstone bedrock deposits at depths ranging between 3.57m and 5.40m. Full details of monitoring results have been provided within Appendix E.

Table 6.2: Groundwater Strike Information

BH ID	Water Strike Depth		Resting Water Level		Strata
	mbgl	mAOD	mbgl	mAOD	
REC BH03A			5.40	30.10	Sandstone bedrock
REC BH04B			4.96	30.30	Made Ground (gravel)
REC WS04			4.92	30.28	Superficial deposits (gravel)
BH105			5.06	30.09	Made Ground (gravel)
BH106			5.58	29.52	Made Ground (clay)
BH107			3.57	29.77	Made Ground (gravel)
BH108	6.00	28.72	4.78	29.94	Superficial deposits (clay)
BH109A	6.00	29.45	5.30	30.15	Superficial deposits (gravel)
BH110			4.96	30.38	Made Ground (gravel)
TP106	2.90	30.69			Confined at depth
TP108	5.20	28.80			

6.2.4 A programme of insitu ground water level monitoring was instigated by RoC Consulting between the 1st and 29th of October 2020 at monitoring wells BH105 (within basement footprint) and BH110 (located to the north adjacent the River Medlock wall). The insitu monitoring equipment will record resting water levels at hourly intervals over the period with a view to determining what alterations in resting water level occur during periods of increased rainfall and flow within the adjacent River Medlock.

6.2.5 Results of in-situ monitoring, undertaken indicates that groundwater levels within the wells are very responsive to recent rainfall: with spikes in groundwater levels correlating with periods of rainfall after a short lag-time. Groundwater levels are shown to steadily decrease following rainfall events, which is indicative of the groundwater infiltrating into the surrounding strata. It is noted that following a spike in groundwater levels after particularly heavy rainfall, the groundwater settled at higher levels than previous, as shown by the trend lines in red on the graph provided within Appendix E.

6.2.6 Water levels within BH105 (located at the centre of the site) are approximately 0.20m lower than the water levels within BH110 (located adjacent the river). Compared to monitoring data, the water level trend shows a gradual increase in depth towards the south-southwest of the site to a depth circa 29.7mAOD.

6.2.7 In addition to these investigations a groundwater pumping test was undertaken in September 2020 by specialist contractors OGI Ltd. The results from these tests, which utilised existing monitoring wells to measure changes within the groundwater table, as well as complete three pump test borehole wells (PW1a, PW1b and PW6) installed by their own drilling contractors, indicate the resting groundwater table beneath the site occurs at a depth circa 30.15mAOD (based on pump test results).

7.0 Laboratory Testing

7.0.1 To establish the physical and chemical properties of underlying soils, a programme of laboratory analysis was completed utilising samples obtained during site investigation works. This analysis comprised the testing of soil samples to assist with the estimation of risks posed by contaminated land related concerns.

Chemical Testing

7.0.2 RoC Consulting submitted a total of 34 soil samples, 2 surface water and 5 groundwater samples to a UKAS accredited testing facility for analysis against a range of determinands synonymous with the site's former industrial activity.

Determinands	No. of Tests
Soils	
Toxic and phytotoxic metals and metalloids	32
Total & Speciated Polycyclic Aromatic Hydrocarbons (PAH)	32
Other inorganic substances (e.g. Sulphate, Cyanide etc)	32
Total Petroleum Hydrocarbons (TWG CWG)	14
Asbestos ID	34
Waste Acceptance Criteria	6
Water Soluble Sulphate & pH	32
Groundwater / Surface water	
Water Soluble Sulphate & pH	7
Hardness as $CaCO_3$	7
Toxic and phytotoxic metals and metalloids	7
Total & Speciated Polycyclic Aromatic Hydrocarbons (PAH)	7
Mono aromatics and oxygenates	7
Petroleum Hydrocarbons	7

7.0.3 Copies of chemical testing results have been provided within Appendix C.

Geotechnical Testing

7.0.4 A programme of geotechnical laboratory analysis was also completed on tub and undisturbed soil samples obtained during site investigation works. Results from geotechnical laboratory testing have been provided within Appendix D.

Plasticity Index

7.0.5 A total of x2 soil samples from BH108 were tested for the determination of the plasticity index. The depth range of samples tested were 3.0 and 5.0 mbgl. The plasticity index was 9.0% / 11.0% respectively. These results indicate the silty material to be of a Low plastic nature.

Particle Size Distribution

7.0.6 A total of x5 bulk samples of Made Ground were subject to particle size distribution testing to confirm their principal constituent parts. Results from these tests indicate granular deposits are between 26 to 81% gravels and 11 to 49% sand with the remaining fractions comprising silt/clay.

7.0.7 A total of x3 bulk samples of sand (weathered bedrock) were subject to particle size distribution testing to confirm their principal constituent parts. Results from these tests indicate granular deposits are between 90 and 96% sand with the remaining fractions comprising silt and rare gravels.

Unconsolidated Undrained Triaxial

7.0.8 A total of 2 samples were tested for the determination of undrained shear strength from depths at 3.0 and 5.0mbgl (BH108). Shear strength results vary between 57 and 42kPa respectively. These results indicate strengths for this strata is Medium.

Rock Strength Testing

7.0.9 A total of x46 point load tests were completed on rock core samples obtained from rotary boreholes. The point load test can be carried out as:

- Axial, the load applied along the core axis, normal to the observed bedding
- Diametral, the load is applied across the core, parallel to the observed bedding

7.0.10 For assessment purposes the measured Is_{50} values for the Axial Point Load Index results have been corrected using a conversion factor of 24 for Sandstone to establish the approximate UCS values. Samples which were deemed "irregular" were disregarded from calculations. The results are presented on Table 7.1 below.

Table 7.1: Overview to Point Load Testing Results

Borehole ID	Orientation	Is50		Interpreted UCS		
		Min (MPa)	Max (MPa)	Min (MPa)	Max (MPa)	Average (MPa)
BH105	Axial	0.05	0.16	1.2	3.84	2.32
BH106	Axial	0.09	0.15	2.16	3.6	2.88
BH107	Axial	0.02	0.16	0.48	3.84	2.16
BH108	Axial	0.06	0.15	1.44	3.6	2.28
BH110	Axial	0.14	0.35	3.36	8.4	5.52

UCS Testing

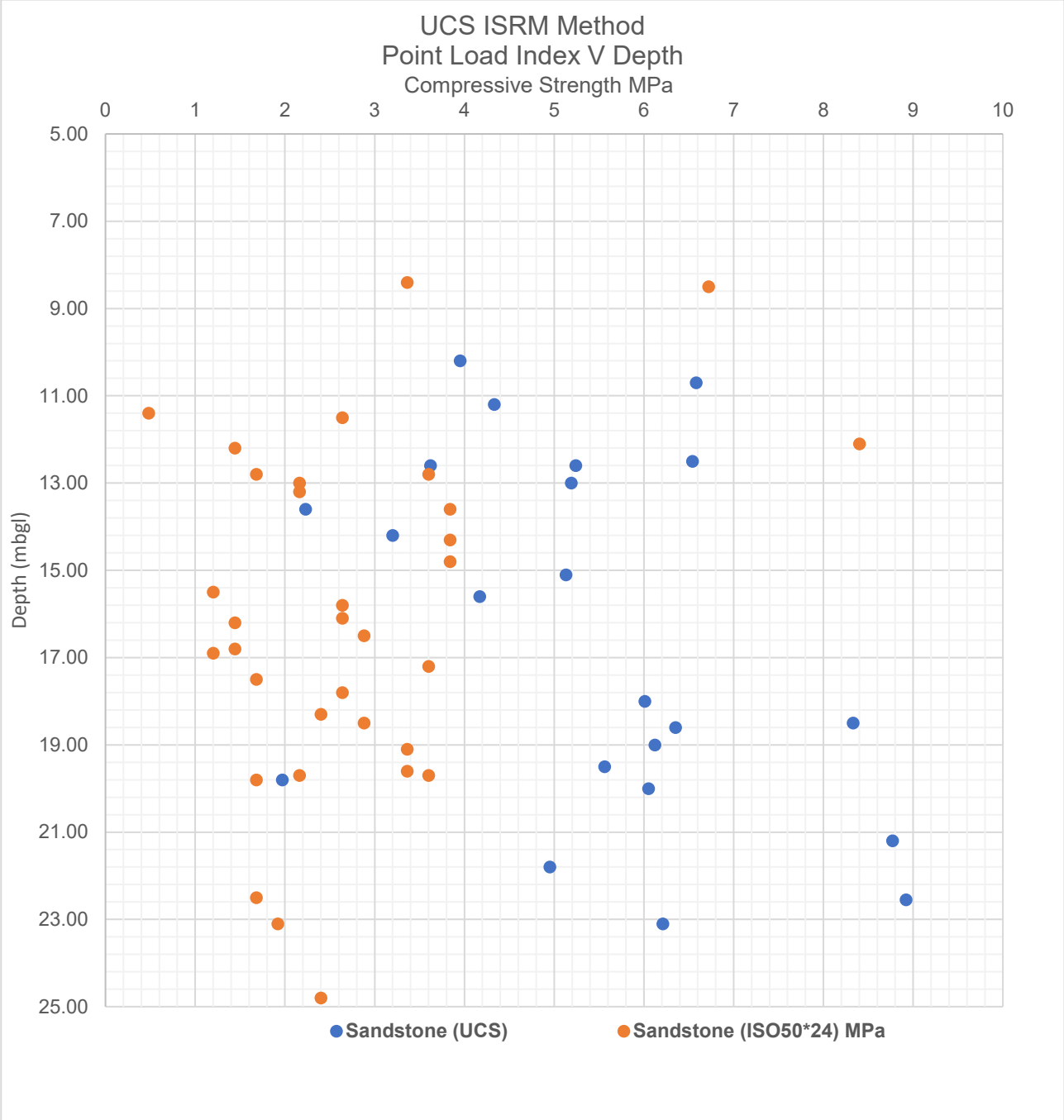
7.0.11 A total of x22 Unconfined Compressive Strength Tests were completed on rock core samples obtained from rotary boreholes at depths ranging between 10.20 and 23.10mbgl. Results are indicated in Table 7.2 below.

Table 7.2: Overview to UCS Strength Testing Results

Borehole ID	No. Tests	Depth Top (mbgl)	UCS (MPa) Min	UCS (MPa) Max	UCS (MPa) Mean
BH105	5	12.50 – 19.00	2.23	8.33	5.28
BH106	4	10.20 – 19.50	3.95	5.56	4.90
BH107	1	19.80	1.97	1.97	1.97
BH108	10	12.60 – 23.10	4.17	8.92	6.18
BH110	3	10.70 – 12.60	3.62	6.58	4.84

7.0.12 The Uniaxial Compressive Strength and Interpreted UCS (from the Point Load Index (Is50) test (Figure7.1 overleaf) results indicate the upper portion of the sandstone (underlying the completely weathered section from 29.32-27.64mAOD) to be very weak. In the interval below 16.65mAOD (Plot O) the results indicate the sandstone to generally be Weak. The classification of rock strength is given in the table alongside Figure 7.1.

FIGURE 7.1: Uniaxial Compressive Strength and Interpreted UCS



Strength Table 2 BSEN 14689:2018

Term for use in field or based on measurement	Definition for field use	Definition based on Unconfined Compressive strength.(MN/m²)
Extremely weak	Can be indented by thumbnail. Gravel sized lumps crush between finger and thumb.	0.6 – 1.0
Very Weak	Crumbles under firm blows with point of geological hammer. Can be peeled by a pocketknife	1.0-5 .
Weak	Can be peeled by a pocketknife with difficulty. Shallow indentations made by a firm blow with the point of a geological hammer	5-12.5

8.0 Geo-Environmental Assessment

8.0.1 The information obtained during the desk-based study has been reviewed to establish the Preliminary Conceptual Model for the site. This model is based around the Source / Pathway / Receptor methodology as outlined in Figure 8.0.

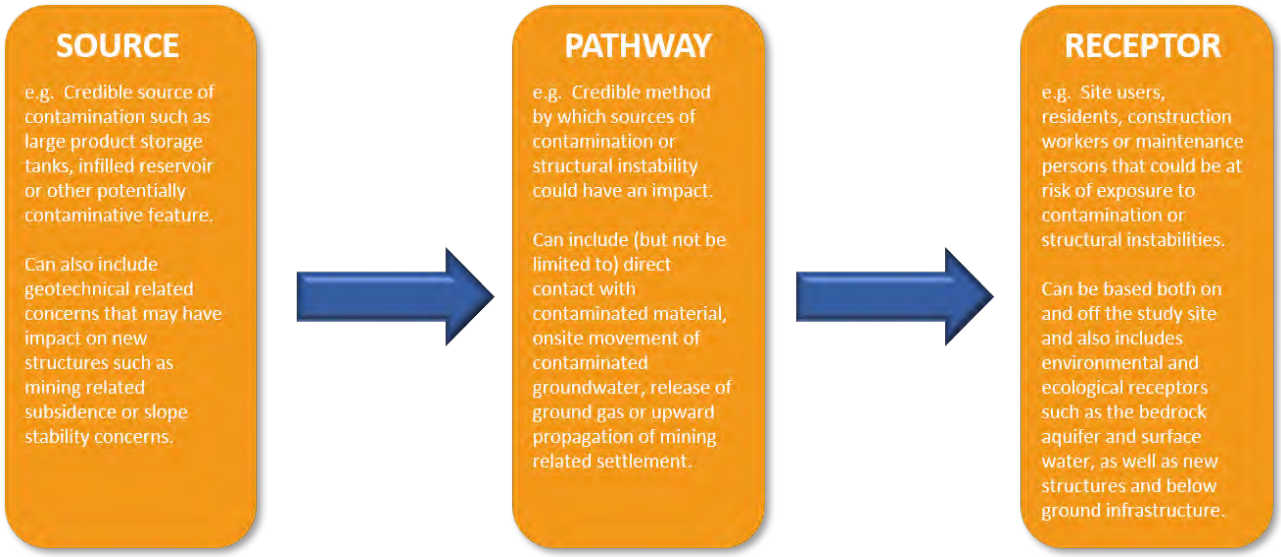


Figure 8.0 Source Pathway Receptor Diagram

8.0.2 Risk assessment is the process of collating known information on a hazard or set hazards in order to establish actual or potential risks to receptors. The receptor may be human health, controlled waters, a sensitive local ecosystem or even construction materials. Receptors can be connected with the hazard under consideration via one or several exposure pathways (e.g. the pathway of direct skin contact and oral exposure).

8.0.3 Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there is deemed to be no risk. In other words, the mere presence of a hazard at a site does not mean that there will necessarily be risks.

8.0.4 A CLEA CLR 8 provides a selection of contaminants that may be relevant for the assessment of contaminated land, based on site usage, because they are likely to be found on a large number of industrial sites in the UK and have the potential to affect human health and the environment. The CLEA CLR 8 documentation, along with other relevant guidance, forms the basis against which the site has been assessed.

8.0.5 A Preliminary desk-based risk assessment has been completed for the site utilising the current and historical environmental information available (refer to REC Consulting report ref: 106841P2R0). This report formed the basis from which the current programme of ground investigations was designed and undertaken.

8.0.6 The results from these intrusive site investigations have allowed a geo-environmental risk assessment to be completed in accordance with the guidelines and principals of the Environment Agency CLEA Methodology and with reference to the guidance outlined within CIRIA 552 "Contaminated land risk assessment. A good practise guide". This risk assessment methodology considers the potential consequence / severity of risks that may be present within soils in comparison with the likelihood of exposure to or and occurrence of said risk.

8.0.7 A range of risk classifications are provided within CIRIA 552 further details of which are provided in Table 8.0 below.

Table 8.0: Definition of Risk Class and Consequence

Risk Class	Definition	Example
Minor	Potential for harm, although not significant, which may result in financial loss to resolve. Ground conditions where the use of PPE would readily mitigate risks posed to human health.	Low level contamination hotspots within made ground / demolition fill materials. Stunted or impeded plant growth due to poor soil quality.
Mild	Pollution of non-sensitive water resources or damage to crops, plant growth, below ground utilities or structures.	Perched groundwater contamination overlying low permeability aquifer or aggressive sulphate concentrations in soils.
Medium	Sources of contamination identified on site have the potential to cause both long and short term health effects on site residents / users. Alternatively (or in conjunction with) sources of contamination may have the potential to impact surface or groundwater quality or impede vegetation growth	Elevated concentrations of hydrocarbon contamination reported within topsoil tested within residential gardens as a result of inadequate or incomplete previous remediation works. Movement of contaminated groundwater from leaking below ground storage tank into adjacent surface water course.
Severe	Sources of contamination pose a credible and acute risk to human health with potential for "Significant Harm" occurring as defined by the Part IIA of the Environmental Protection Act (1990). Alternatively (or in conjunction with risks posed to human health) sources of contamination may pose an immediate risk to controlled water resources or ecosystems.	Grossly contaminated soils are encountered or disturbed during excavation works, causing an immediate release of toxic soil vapour and leachate / contaminated groundwater flow across adjacent land.

8.0.8 As previously discussed the contaminated land risk assessment model evaluates both the severity of risks that may be present within soils / groundwaters in the context of threats posed to identified receptors before deriving the actual risk rating based on the probability of occurrence. Table 8.1 (provided overleaf) outlines the range likelihood of risk.

Table 8.1: Probability Assessment

Classification	Definition
High likelihood	A credible pollutant linkage has been identified and it is very likely contaminants will impact identified receptors in both the short or long term (or is already actively doing so). The potential for harm to be caused is thus highly likely.
Likely	Pollutant linkages between the sources of contamination and identified receptors are present and it is considered likely they will become active given the right set of circumstances (e.g. contaminants currently buried below ground that are likely to be exposed or disturbed during construction / excavation works. The circumstances are such that an event is not inevitable, however, it is possible in the short term and likely over the longer term.
Low likelihood	A theoretical pollutant linkage has been identified that has the potential to exposure receptors to contaminates under the correct circumstances. However, the likelihood of such an event occurring is not a certainty, even in the long term
Unlikely	There is no / minimal likelihood a pollutant linkage would occur, even over the long term.

8.0.9 The risk assessment process is a combination of probability and consequence, recognising that it may be possible to have a significant source of contamination beneath a site (such as a large below ground chemical storage tank) that may only present a relatively moderate to low risk (owing to the fact it may be contained within a secure concrete bund). Table 8.2 indicates how the actual nature of risk is established with Table 8.3 illustrating how the risk is interpreted in the context of contaminated land risk assessment.

Table 8.2: Risk Definition

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
	Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	

Table 8.3: Description of risks posed

Risk Definition	Description
Very High	Active pollutant linkages between a significant source of contamination and identified receptors have been establish and there is a high likelihood of severe harm occurring to said receptors unless immediate investigation and remediation action is not taken.
High Risk	Harm is likely to arise to receptors from an identified hazard in the short and long term. Urgent investigation of the contaminant issue will be required, and remedial treatment is likely.
Moderate Risk	The possibility of harm has been identified toward receptors under the right circumstances, although the severity of harm would be relatively mild. Further investigation of identified issues would be prudent and possible need for remedial measures in the long term.
Low Risk	It is possible harm could arise to a designated receptor from identified hazard, but it is likely (if realised) any harm would be (at worst) mild.
Very Low Risk	No significant pollutant linkages have been identified and the possibly of harm occurring to receptors is low.

8.0.10 A geo-environmental risk assessment has been completed to quantify the risks posed to identified receptors (as outlined in the preliminary site conceptual model) using the information obtained during site investigation fieldworks. Broadly speaking, this risk assessment process can be divided based on the receptor group in question between:

1) Risks posed to human health by soil contamination (both construction persons and future site users).

2) Risks posed to human health by hazardous ground gas ingress (both construction persons and future site users).

3) Risks posed to controlled waters by soil or groundwater contamination (both surface water features and bedrock aquifers).

4) Risks posed to new building construction by aggressive ground conditions (namely elevated sulphate concentrations).

8.0.11 It is noted the site is being developed for commercial office use and multi-storey carparking with associated soft landscaping (in public realm and riverbank settings).

8.0.12 Appropriate assessment have been completed for each of the above utilising the latest statutory and non-statutory guidance documents; for details of risks posed to human health refer to Section 8.1 (soils) and Section 8.2 (ground gas), for details of risks posed to controlled waters refer to Section 8.3 and risks posed to new structures refer to Section 8.4.

8.1 Assessment of Soil Contamination

8.1.1 In order to estimate the risks posed to human health from soil contamination, a quantitative risk assessment has been completed utilising the latest Environment Agency CLEA methodology. The assessment utilises the chemical testing results obtained during the site investigation fieldworks to characterise site conditions and facilitate the completion of the risk assessment process.

8.1.2 The assessment is based on the comparison of soil chemical testing results with published Environment Agency Category Four Screening Levels (C4SL's) under the proposed end use scenario to determine the sites suitability for use. C4SL values represent the highest acceptable values for contaminants within site soils under the proposed end use and are derived using the Environment Agency CLEA risk assessment methodology. A result in exceedance of a C4SL level may indicate the presence of contaminants within site soils and require further assessment.

8.1.3 It is noted only a limited number of C4SL values have been derived by the Environment Agency for use and reference has been made to LQM/CIEH Suitable For Use Values (S4UL's) for a wider range of other contaminants (Heavy Metals, Poly Aromatic Hydrocarbons, TPH, SVOC and VOC's) to increase the depth and robustness of our assessment.

8.1.4 Chemical testing results are compared against C4SL and S4UL values for each determinant with any results reported in exceedance of screening criteria identified and their significance reviewed. When determining the significance of any exceedances within the dataset the magnitude and frequency of the exceedance need to be taken into account, for example, a single exceedance of a screening value may be considered a localised hotspot whereas consistently elevated levels of a substance at multiple locations across the site may indicate a more prevalent contamination issue.

8.1.5 In addition to this assessment, an Asbestos Identification test (via the visual inspection method) has been completed on all samples of made ground obtained during the investigation to determine risks posed. Any positive occurrences of Asbestos will be subject to quantification analysis to further assess the extent and significance of risks posed.

8.1.6 As required, for each exceedance reference will be made to the Conceptual Site Model to establish the most likely source of contaminants and initial commentary given as to the likely scope of remedial measures. In addition, reference will also be made to the assumptions used to derive generic assessment criteria (C4SL and S4UL values) to determine their comparability with the proposed end use.

8.1.7 For the purposes of this assessment we have assumed a "Commercial" end use scenario when reviewing chemical testing data against C4SL / S4UL values; a "worst case" Soil Organic Matter content value of 1% has been assumed for the initial assessment.

Summary and Assessment of Risks Posed by Soil Contamination

8.1.8 Results from chemical testing analysis indicate the following sources of contamination within site soils:

- An exceedance of the screening value for lead within TP102 at 0.80m, TP103 at 1.20m and BH109A at 1.00m
- An exceedance of Benzo(a)pyrene at two locations as identified during the REC investigation
- Asbestos reported as loose chrysotile fibres at 5 locations within TT03 at 0.80m (quantified at 0.048%) and 1.80m (quantified at 0.014%), within TT02 at 0.60m (quantified at 0.003%) and 2.00m (quantified at 0.001%) and within BH109A at 1.00m (quantified at <0.001%).
- Asbestos reported as woven chrysotile at SP1 at 0.40m (quantified at 0.140%).
- Asbestos reported as chrysotile cement (quantified at 15%) at two locations within TT01 at 1.80m and TT03 at 1.50m

8.1.9 Exceedances of the screening value for lead were noted within Made Ground deposits at three locations spread across the site. Elevated lead levels are likely localised hotspots relating to demolition fill / Made Ground deposits arising from multiple phases of activity at the site.

8.1.10 Asbestos containing material was noted at a total of 7 exploratory hole locations and reported as either loose fibres or as cement. Asbestos containing material is likely a result of demolition fill / Made Ground arising from historic development at the site.

8.1.11 Asbestos was also reported within a sample obtained from the stockpile located on the site in the form of woven chrysotile (SP1). Visual inspections of the mound found rare asbestos containing cement. It is recommended that asbestos monitoring is conducted on the stockpile.

8.1.12 Elevated levels of TPH were identified within Made Ground deposits across the site at thirteen locations between depths of 0.50 and 3.00m. However, levels were not found to be in exceedance of relevant screening criteria.

8.1.13 The findings of the above have been used to update the Refined Conceptual Site Model (provided within Section 9.0) as well as inform the scope of any further investigation or remedial works deemed necessary to support the sites development.

8.2 Ground Gas Risk Assessment

8.2.1 The Preliminary Conceptual Site model identified the Made Ground as being a potential source of ground gas generation. The site is not said to be located within in an area at risk from Radon gas ingress.

8.2.2 It is considered the most probable exposure pathways are likely to be limited to construction workers during the sites redevelopment and future site users occupying buildings across the site.

8.2.3 To estimate the risks posed by ground gas generation a total of five exploratory holes were installed with gas monitoring wells (BH105, BH106, BH107, BH108 and BH110). In addition, wells installed by REC during a previous site investigation were also included within monitoring works (BH03A, BH04B and WS04). The purpose of these standpipes is to investigate ground gas generation potential of shallow and at depth soils and the associated implications this may have for new building design.

8.2.4 At total of 4 ground gas monitoring visits have been completed on site (refer to Appendix E for further information). The results from these monitoring works revealed a maximum Carbon Dioxide concentration of 5.1% with gas flow rates ranging between 0.0 and 0.2/hr. The results also indicated depleted oxygen levels within monitoring wells and an absence of methane, carbon monoxide and hydrogen sulphide gases.

8.2.5 The principal source of ground gas generation is considered to be Made Ground.

8.2.6 With reference to guidance provided in CIRIA C665 "*Assessing risks posed by hazardous ground gases to buildings*" and assuming the development comprises multistory offices and carparking; the above-mentioned worst case gas levels and borehole flow rates equate to a gas screening value of 0.01l/hr. This value equates to a Characteristic 1 Situation however it is noted that a marginal exceedance of 5.0% CO_2 was noted at a single borehole which in line with CIRIA C665 requires a Characteristic Situation 2 with some remedial measures required.

8.2.7 The above assumes the new office development will be constructed at or around existing ground level, however the proposed basement structure occupying the office footprint will require the removal of made ground deposits (and by extension associated sources of ground gas generation). As such the need for gas protection measures is not considered necessary in this building, although should any element be constructed on Made Ground protection measures will be required.

8.2.8 The proposed multi-storey car park will be designed to have ventilation to control vehicle fumes and any potential gas mitigation measures will be limited to stairwells and lift pits, however gas monitoring has shown the site to be a Characteristic 1 Situation, with no protection measures necessary.

8.3 Controlled Waters

8.3.1 It is understood the site is underlain by a Principal Aquifer and is not said to be located within any Environment Agency Zone source protection zones or in close proximity to sensitive groundwater abstraction boreholes. The nearest surface water feature is indicated at the northern boundary of the site and is considered to be at risk of contaminant migration from the study site.

8.3.2 While the River Medlock is located within close proximity to the study site and may be at risk of contaminant migration from the site, given the relatively low levels of contaminants present within site soils mobilisation of contaminants is considered unlikely.

8.3.3 It is noted that groundwater has been identified at depths between 3.57 and 5.58mbgl within the Made Ground, which directly overlies the weathered bedrock at most locations across the site, or granular river deposits in locations close to the River Medlock. As such this presents a potential pathway for mobilised contaminants within groundwater to migrate towards the bedrock aquifer, due to the extent and permeability of the granular deposits. The proposed hardstanding may continue to limit the effect, however, wider site proposals of developing a park area may also facilitate this movement.

8.3.4 A program of surface and groundwater sampling was completed by RoC Consulting. Results of chemical testing analysis have been compared against a number of available water quality screening values including the UK Drinking Water Standards (UK DWS), Environmental Quality Standards (EQS) in freshwater and WHO Health synonymous with previous operations as well as those likely to pose a risk to controlled waters. The identified exceedances of these values are provided below.

Table 8.1: Exceedances within groundwater analysis

Monitoring Well ID	Response Zone Depth (m)	Response Zone Strata	Determinant(s) Exceeded	Range of values recorded
BH105	7.0 – 13.0m	Shallow sandstone bedrock	Arsenic (EQS Freshwater, 50)	60.8 – 60.8
			Mercury (EQS Freshwater, 0.07)	<0.05 – 0.12
BH106	2.0 – 7.0m	Made Ground	Mercury (EQS Freshwater, 0.07)	0.35
BH107	3.0 – 6.0m	Made Ground	Fluoranthene (EQS Freshwater, 0.0063)	<0.01 – 0.61
			Benzo(a)pyrene (EQS Freshwater, 0.00017)	<0.01 – 0.25
			Sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and Indeno(123-cd)pyrene (EQS Freshwater, 0.1)	<0.01 – 0.76
BH108	5.0 – 10.0m	Glacial till and sandstone bedrock	Cadmium (EQS Freshwater, 0.25)	0.14 – 0.33
			Mercury (EQS Freshwater, 0.07)	<0.05 – 0.12

BH110	8.0 – 13.0m	Sandstone bedrock	Arsenic (EQS Freshwater, 50)	535 - 597
			Fluoranthene (EQS Freshwater, 0.0063)	>0.01 – 0.41

8.3.5 The results indicate exceedances of screening values for Arsenic, Mercury and PAHs including fluoranthene, benzo(a)pyrene and the sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and Indeno(123-cd)pyrene in groundwater samples obtained from wells sealed into both Made Ground and the shallow sandstone bedrock.

8.3.6 Elevated levels of contaminants within groundwater samples obtained from underlying glacial till and bedrock deposits are present and it is likely that contaminants within Made Ground have migrated downward into the bedrock. However, it is noted that concentrations of contaminants, with the exception of arsenic at a single location, are relatively low in comparison to the screening values. As such, the risk of PAH, cadmium and mercury within Made Ground on the bedrock aquifer or surface water is considered to be low.

8.3.7 Significantly elevated levels of arsenic were noted within groundwater obtained from BH110 with a response zone sealed into the sandstone bedrock. Elevated levels of Arsenic were noted within soil samples obtained from this area and the mobilisation of contaminants is likely impacting the groundwater. This borehole was formed immediately adjacent to the River Medlock wall and indicates soils in close proximity to the water course have the potential to impact surface water quality.

8.3.8 While no exceedances of any of the screening values were noted within surface water samples obtained both upstream and downstream of the site, it is recommended that source removal of Made Ground soils from BH110 is undertaken to ensure protection of the surface water feature.

8.3.9 It is understood that during the site's redevelopment, Made Ground deposits within the footprint of the proposed office building will be excavated and either disposed of from site / processed for re-use across the wider Mayfield site or disposed of off-site. Remediation works will be required with respect to soil contamination in the proximity of the river wall (specifically BH110) due to potential linkage with the River Medlock. Of particular concern will be short term risks to construction workers during any river wall repair works.

8.4 Below Ground Concrete Construction

8.4.1 Peak potential sulphate concentrations range between 15 and 1420mg/l with soil pH values ranging between 7.25 and 11.8. Based on these results, it is considered that well compacted buried concrete should be designed in accordance with Class DS-2 AC1s requirements as specified in BRE Digest Special Digest 1:2005 *Concrete in aggressive ground: Version 3*.

8.5 Below Ground Utilities and Service Runs

8.5.1 Given the presence of Made Ground across the site with elevated levels of heavy metals, PAH and hydrocarbons it is recommended that a United Utilities Risk Assessment is undertaken on soil samples along the proposed route of any potable water supply runs to confirm requirements for protective barrier pipes.

9.0 Refined Conceptual Site Model

9.0.1 The Environmental Protection Act Part IIA: 1990, defines contamination as land containing levels of contamination which form a risk to human health, controlled waters or other ecosystems. Therefore, contamination in exceedance of the relevant screening values is considered a source. Table 9.0 assesses and summarises the sources, pathways and receptors that may exist at the site;

Table 9.0: Refined Conceptual Site Model

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
On Site	Contaminants within Made Ground deposits arising from historical development at the site	Dermal contact and / or ingestion; inhalation of vapours / dusts	Current Site Users	Medium	Unlikely	Low	Site investigations undertaken to date indicate localised areas of elevated contaminants, specifically lead and PAH, within Made Ground deposits. However, given the site's current use and presence of hardstanding across the site the risk to current suite users is low.
			Construction workers	Medium	Likely	Moderate	Elevated levels of contaminants have been identified within site soils (Arsenic) and presence of asbestos in the form of loose fibres and as asbestos cement has been identified. It is considered the risks posed to construction personnel, be sources of contamination, can be adequately mitigated against via the use of full PPE including suitably fitted respiratory protection and the adoption of good hygiene and site practices.* Appropriate personal ground gas detection equipment should be deployed by all site operatives when working in below ground or confined spaces.
			Future Site Users	Medium	Unlikely	Low	It is noted that contaminants including arsenic, lead, PAH and asbestos containing materials are present within site soils that may pose a risk to future site users through direct contact and / or inhalation and ingestion.

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
							However, it is noted that site development proposals comprise hardstanding across the site thus breaking the exposure pathway. As such future site users are considered to be at a low risk. It is recommended that clean soil capping layers are used in areas of soft landscaping (if any) to break exposure pathways.
			Ecological [Plant Uptake]	Minor	Unlikely	Very Low	Elevated levels of contaminants are present which may pose a risk to any areas of plants in soft landscaping. It is recommended that clean soil capping layers are used for soft landscaping to suitable depths to prevent poor plant growth and to break exposure pathways to future site users as detailed above.
On site	Contaminants within Made Ground deposits arising from historical development at the site	Leaching of contaminated soil & impact beneath site	Controlled Waters: Aquifer and Surface Water Feature	Medium	Likely	Moderate	It is noted that the River Medlock is located at the northern boundary of the site and that the underlying bedrock aquifer is classified as Principal Aquifer. Testing identified elevated levels of contaminants directly overlying the aquifer within made ground, which presents a potential pathway for downward migration of contaminants towards the bedrock aquifer and towards the surface water feature. Elevated levels of contaminants also have been recorded underlying bedrock deposits. Surface water analysis found only very slight increase in elevations of metals. Monitoring identified the flow of groundwater dipping to the Southwest; it is likely the mobilisation of low levels of contaminants has impacted the natural, permeable alluvium and sandstone bedrock. However, it is considered unlikely that contaminants from the site will significantly impact adjacent sites via contaminant migration. Source removal of impacted Made Ground soils in the area of BH110 is recommended to improve local groundwater quality.
			Adjacent Sites	Medium	Low	Low to Moderate	

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
		Below ground service runs	Below ground infrastructure & construction	Medium	Likely	Moderate	Due to presence of Made Ground with elevated levels of contaminants it is recommended that a United Utilities Risk Assessment is undertaken on soil samples obtained from the proposed route of any potable water supply pipes to confirm requirement for protective barrier pipes. All below ground concrete structures to be designed in accordance with a Class DS-2 AC-1s requirements as specified in BRE Digest Special Digest 1:2005 Concrete in aggressive ground: Version 3.
	Ground Gas Generation	Migration / Accumulation	Current Site Users	Severe	Unlikely	Low - Moderate	Given the current site use and lack of enclosed spaces current site users are not considered at risk.
			Construction workers	Severe	Unlikely	Low - Moderate	Suitable personal gas detection equipment should be utilised by construction personnel particularly when working in below ground or enclosed spaces.
			Future Site Users	Severe	Unlikely	Low – Moderate	Ground gas monitoring has indicated the site may be classified as Characteristic Situation 1, with exception to REC WS104 which is situation 2 with some remedial measures required. Removal of this area during development reduces this risk. Any construction on top of made ground materials will require this to be reassessed.
Off site	Potentially Contaminative Sources Located Off-Site	Leaching of contaminated soil onto site	Controlled Waters: Aquifer	Medium	Likely	Moderate	Increases in the water table and rises in the River Medlock during rainfall events may mobilise contaminants. The wider Mayfield site has been subject to multiple phases of industrial development. As such, elevated levels of contaminants may be present off-site however, composition and levels are likely to be similar to those encountered within the site.
			Controlled Waters: Surface Water	Mild	Likely	Low to Moderate	
		Ground gas Migration / Accumulation	Construction workers	Severe	Unlikely	Low - Moderate	It is considered the risks posed to construction personnel, be it sources of contamination, can be adequately mitigated against via the use of full PPE and the adoption of good hygiene and site practises.

Table 9.0		Refined Conceptual Site Model					
Source		Pathway	Receptor	Severity	Probability	Risk definition	Comments
							Appropriate personal ground gas detection equipment should be deployed by all site operatives when working in below ground or confined spaces.
			Future Site Users	Severe	Unlikely	Low - Moderate	No significant sources of ground gas generation have been identified over and above those identified on-site.
			Proposed development	Severe	Unlikely	Low – Moderate	

*Any sources of contamination uncovered during site development works should be brought to the immediate attention of RoC Consulting for consideration and comment.

9.0.2 Re-appraisal and reassessment of the conceptual site model (following completion of investigation works) has revealed any specific sources of contamination that could require specific remedial measures. Elevated levels of heavy metals comprising lead and PAH have been identified within Made Ground deposits. In addition, asbestos has been identified within Made Ground in the form of loose fibres and asbestos cement.

9.0.3 With reference to the development proposals it is noted a basement structure is to be formed beneath the proposed Poulton Office building (to the north of the site and within the footprint of the former Mayfield Baths). This basement construction will see excavations extended to depth circa 30.0mAOD (roughly 5m below existing ground level). As such it is likely the majority of made ground materials are likely to require removal and disposal from site as part of basement excavation works. These excavations should expose the weathered fraction of the Sandstone bedrock which is not considered a source (or having been significantly impacted by contamination in upper levels).

9.0.4 The excavation of these demolition type fill materials will require due care and attention by contractors owing to the aforementioned sources of contamination and asbestos containing material. Where possible these materials should be excavated and sorted into contaminated and non-contaminated spoil (with the use of appropriate sheeting and covering to prevent any liquid or dust release into the wider environment).

9.0.5 A programme of waste acceptance criteria testing was completed on these soils the results from which are provided within Appendix C. These tests indicate the made ground deposits are likely to attain either an inert or non-hazardous classification, although a single sample (TP103 at 1.2m located within the former baths footprint) exceeded the non-hazardous criteria for Lead.

9.0.6 Sources of leachable contamination have been identified in soils with potential exposure pathways identified toward the nearby River Medlock and underlying bedrock aquifer. It is considered the long term risk posed toward the underlying bedrock aquifer will be reduced by a combination of made ground removal (in areas of basement construction) and the introduction of building / hard standing across the site (and associated reduction in rain fall infiltration rates).

9.0.7 However, the quality of materials along the River Medlock will require further consideration with respect to potential on going impacts that may be occurring in the river, as well as potential exposure / release during any future repair works. It is understood further investigations of soil / groundwater quality are proposed along the River Medlock to assess risks posed.

9.0.8 It is understood further archaeological investigation works are proposed to take place across the site and the specialists undertaking such works should be provided a complete copy of this Phase 2 Site Investigation report for their review. Adequate consideration of ground contamination related risks highlighted in this report should be given by these consultants when designing any future exploratory works.

9.0.9 A detailed Phase 3a remediation strategy will be required for the development, however for initial review purposes (and in addition to the above) it is recommended all construction contractors take reasonable precautions to control environmental impacts that may occur as a result of redevelopment works with respect of soil and groundwater quality. These measures should include (and not be limited to):

1) Any sources of contamination uncovered during site development works should be brought to the immediate attention of RoC Consulting for consideration and comment. As required, the findings and recommendations of the current assessment may require amendment to reflect changes in site condition.

2) The operation of plant, refuelling facilities and general basement excavation works should include appropriate provision to reduce the risk of leakage / spillage, particularly into the site's groundwater table or exposed natural soils.
3) Appropriate dust mitigation measures should be deployed during basement excavation works, particularly when handling and excavating made ground deposits.

4) All excavated materials stockpiled should be periodically dampened down to control dust release. Similarly, the disposal of any material from site should be completed using covered wagons.

5) The proximity of the River Medlock should be given adequate consideration and mitigation during any construction works, particularly where excavations or site operations have the potential to allow the run-off of contaminated or sediment rich into the water course. These should include the positioning of refuelling stations away from the water course or drainage networks and general management of temporary site drainage, particularly during bulk exaction works. Similar levels of protection should also be afforded to the Sandstone bedrock aquifer (where exposed during construction works) as it is also a potential receptor to construction contaminants.

10.0 Geotechnical & Foundation Design Assessment

10.0.1 It is understood the site is to be redeveloped to comprise an 8-storey office development and 13 storey car park. The maximum column loadings associated with these developments are to be confirmed at the time of writing.

10.0.2 The Office development (*The Poulton*) occupies the development plot to the north of the site immediately adjacent the River Medlock and roughly in and around the footprint of the former Mayfield Baths. This structure has a basement proposed beneath the majority of its footprint the proposed floor slab of which is set at a level circa 30mAOD. The multi storey car park is proposed to the south of the site and will be constructed at or around existing ground level with no basement element.

10.0.3 Site investigations report Made Ground to depths up to 5m comprising predominantly gravel of brick and concrete with medium to high cobble content. Multiple obstructions were reported within exploratory holes, particularly within the footprint of the Mayfield Baths, comprising relic flooring, foundations and walls. Superficial deposits comprising either sand, clay at gravel was report underlying Made Ground at select locations. The weathered bedrock was reported directly underlying Made Ground deposits at the majority of locations reported as reddish-brown gravelly sand.

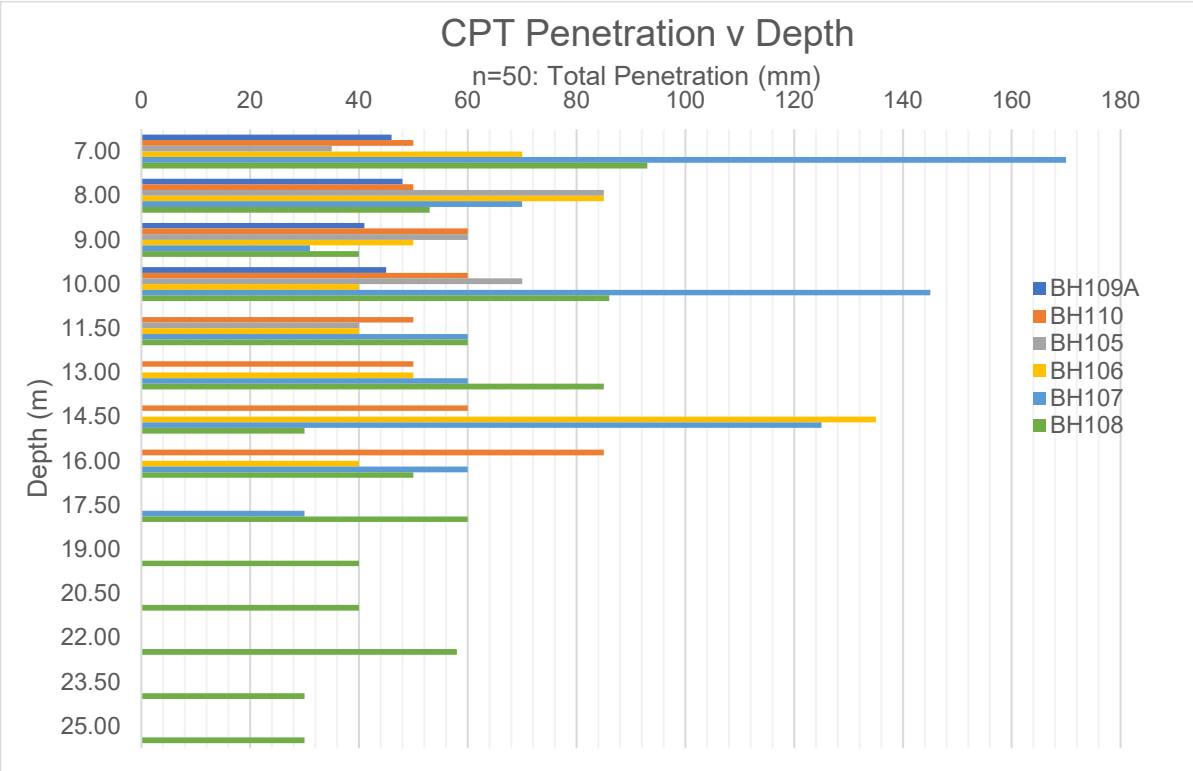
10.0.4 The natural strata is comprises a mixture of alluvial deposits including organic rich sand, silts and clays overlying extremely weak completely weathered sandstone bedrock encountered at depths ranging between 6.6m (28.74mAOD) by the northern retaining wall and 7.0mbgl (28.15mAOD) in the centre of the site. At the southern extent bedrock was encountered at depth between 27.64mAOD (BH107) and 29.32 (BH108), recovered as fine to coarse gravelly sand. SPT N values at this depth are 50+ (refusal); with total penetration shown in the chart below.

10.0.5 A local deepening was noted to the central and south western portion of the proposed Poulton office building which appears to possibly relate to historical erosional forces within the Medlock (and subsequent deposition of organic rich material). This increased thickening of alluvial soils results in a change bedrock level beneath the proposed basement footprint circa 4.10m between the shallowest depth to bedrock (TP110) and deepest (TP108).

10.0.6 Underlying the completely weathered section, ranging from depths from 27.47maOD (north), 25.09mAOD (centre) and 25.08mAOD (South) across the site. The strength of the rock is noted to be Very Weak and becoming more competent. From 18.5mbgl (16.65mAOD) in BH105, the strength of the sandstone changes to Weak. However, from 11.20 (24.14mAOD) in BH110, it is noted the rock becomes completely weathered to an unproven depth (17.84mAOD).

10.0.7 The mechanical logging has shown: Total Core Recovery in the range 0-97% : Rock Quality Designation was in the range 0-65% more typically less than 30%. The mechanical log can reflect the incipient rock mass condition (natural rock mass parameters) and from drilling related / induced issues. The SPTN values (incomplete tests) are shown in the bar chart overleaf, with the table included within Appendix B.

10.0.8 The rock core (photographic evidence of which is provided within Appendix B) included frequent zones of non-intact, weathered or total core loss with depth with strengths reported as extremely weak to very weak to weak (refer to UCS and Point Load testing results on core specimens provided within Appendix D. The broken nature of bedrock beneath the site could potentially be related to historic ground movement associated with a nearby geological fault line.



10.0.9 As noted in Section 3.2, Manchester City Centre and the site is located in an area underlain by the Triassic Age Chester Formation. The formation comprises conglomerates and reddish brown, cross-bedded, pebbly sandstones with subordinate beds of red-brown mudstone. The conglomerates have a reddish-brown sandy matrix and consist mainly of pebbles of brown or purple quartzite, with quartz conglomerate and vein quartz. In these areas, the formation is generally fines upwards, from dominantly conglomerates at the base, to interbedded conglomerates and sandstones, with sandstone and pebbly sandstone predominant in the upper part, with rare mudstones.

10.0.10 As discussed in Section 7.0, laboratory testing, Uniaxial Compressive Strength and Point Load Index (Is_{50}) testing was undertaken on suitable rock core samples. The results of the UCS and the estimated UCS from Point Load Index (UCS=Is_{50} x 24) are present in Figure 7.1

10.0.11 The rock strength tests of the 2019 across adjacent Plot M boreholes show: Uniaxial Compressive Strength max 9.14MPa – min 1.90MPa. Estimated UCS Point Load Index (Is_{50}) max 4.08MPa - min 0.24MPa. This indicates that the adjacent site's geology is very similar to the study site.

10.1 New Building Foundation Design

10.1.1 An initial review of ground conditions in the context of possible foundation design for the proposed Poulton Office and Multi Storey Car Park is provided below. At the time of writing no specific information regarding the structural layout or initial foundation design have been provided, as such the below represents an initial appraise of possible foundation solutions for each development.

Proposed Office Development

10.1.2 With reference to the proposed development and level arrangement provided it is noted the basement structure occupies the entire Poulton Office footprint the deepest level of which is indicated as being 30.15mAOD. With reference to the results of site investigations anticipated ground conditions at this depth are likely to comprise made ground materials associated with the former Mayfield Baths swimming pools (the overall build-up of which is circa 1.2m including the relic tiled floor, sandstone flags, brick, concrete and hard core).

10.1.3 This made ground layer will be underlain predominantly by an organic rich clay (to the central and western extent) and River Terrace gravels (to the east). The thickness of this alluvium (and subsequent depth to weathered Sandstone bedrock) varied between 0.9m (32.2mAOD) to the east of the proposed office, and 5-6m to the southern and western portion (28.5mAOD).

10.1.4 A groundwater table was reported beneath the site at depths ranging between 31.93 and 30.15mAOD. insitu groundwater monitoring indicated water levels, particularly in the short-term during periods of high flow / flood in the adjacent River Medlock (see preliminary hydrograph provided within Appendix E). These monitoring results show the underlying groundwater table is subject to both long and short terms alteration depending on water levels within the adjacent river.

10.1.5 With respect to the foundation solution for the proposed office, an aspiration to adopt a raft-based solution has been indicated. With reference to the above ground model, and depending on the thickness of said raft, the founding strata will likely comprise either poorly compacted alluvial deposits (beneath the majority of the footprint) or the completely weathered fraction of Sandstone bedrock (to the eastern extent).

10.1.6 It is not recommended any new raft foundation is constructed within made ground or alluvial deposits, owing to the variable composition of these materials as well as levels of compaction. Any raft foundation will need to be formed within the weathered fraction of Sandstone bedrock and excavations beyond the underside of the raft base may be required until such strata is encountered.

10.1.7 The strength and physical properties of the Sandstone at this level are more akin to a very dense Sand than more competent intact bedrock. At depth the Sandstone strength was found to vary between extremely weak and very weak (based on laboratory derived rock core strength tests) although in situ SPT tests within this strata have consistently reported N values >50 within the first 25 to 50mm penetration.

10.1.8 As such the ground bearing capacity of the founding stratum should be considered more akin to that encountered within very dense sand / completely weathered Sandstone bedrock (allowable bearing capacity circa 500kN/m^2), rather than those values normally ascribed to competent Triassic Sandstone within the central Manchester area (which typically reports values circa 600-1000kN/m^2). The depth to the weathered bedrock varies by circa 3-4m relative to the underside of the proposed basement foundation; as such excavations to reach competent strata will need to be locally extended and returned to the underside of any raft foundation in either well compacted engineered fill or lean mix concrete.

10.1.9 The effects of groundwater ingress will need to be considered as part of both raft design and temporary works construction, as the bearing capacity can be significantly reduced in saturated sands. Groundwater will also likely exhort an uplift pressure on the base of the raft slab which will need due consideration in the design process such that it is able to resist. In addition, given the potential depth to bedrock from the sites surface along the Baring Street elevation the need for temporary or permanent support for excavations will also be required, particularly where excavations fall in close proximity to the existing highway / footpath (and any live utility runs contained therein)

Proposed Multistorey Car Park

10.1.10 The proposed multi storey car park is to be constructed at or around existing ground level with no basement element. The ground model in the area of the car park was found to comprise similar conditions to that noted beneath the office, with locally deep deposits of demolition type fill material (up to 5.7m) overlying granular river terrace type sands and gravels. The weathered fraction of the Sandstone bedrock was reported at a similar level to the adjacent office (circa 7-9mbgl).

10.1.11 It is considered the proposed car park will require a pile foundation solution, owing to the variable and locally significant depths of made ground material known to be present beneath the site. Discussions should be held with piling contractors to determine pile design and carrying capacities. The results from the current ground should be provided to support pile design.

10.1.12 Evidence of relic building foundations, floor slabs and basement structures were noted across the site and may cause obstructions to piling rigs. As such it is recommended a programme of soil turn over / grubbing out is undertaken to reduce the likelihood of obstructions during piling works. Alternatively, dynamic probing of all proposed pile locations could be completed in advance of piling works and any potential obstructions locally broken out. A suitable piling mat will also be required across the site in advance of piling works.

10.2 General Comments

10.2.1 It is not recommended new building foundations be constructed on top of made ground deposits (even lightly loaded or ancillary buildings). The variable composition and in situ strength of these materials is such that unacceptable levels of total and differential settlement will occur as a result.

10.2.2 Peak potential sulphate concentrations range between 15 and 1420mg/l with soil pH values ranging between 7.25 and 11.8. Based on these results, it is considered that well compacted buried concrete should be designed in accordance with Class DS-2 AC1s requirements as specified in BRE Digest Special Digest 1:2005 Concrete in aggressive ground: Version 3.

10.2.3 No entry should be permitted into excavations exceeding 1.2m depth without appropriate risk assessments, shoring and support.

10.2.4 The site has been deemed to be at risk of encountering UXO's associated with WW2 bombing raids. A UXO Threat Assessment and mitigation strategy has been prepared for the site by specialist consultants Planit Ltd and should be reviewed in conjunction with the design of all earth and foundation construction works. Appropriate mitigation measures should be deployed throughout these works in accordance with the findings and recommendations of the Planit Ltd assessment.

11.0 Conclusions & Recommendations

11.0.1 The site is to be redeveloped for use as an 8-storey office building, referred to as The Poulton; and a 13-storey car park (*MSCP*). Site investigations have revealed Made Ground to depths up to 7.00mbgl comprising predominantly gravel of brick and concrete with medium to high cobble content. Multiple obstructions were reported within exploratory holes, particularly within the footprint of the Mayfield Baths, comprising relic tiled flooring, foundations and walls. A concrete pad and associated masonry overlying the Baths is attributed to the site's redevelopment in the 1960's (and later demolished in 1980's, raising site levels to the current car park level).

11.0.2 Superficial alluvial deposits comprising either sand, clay at gravel was report underlying Made Ground at select locations. The weathered bedrock was reported directly underlying Made Ground deposits at the majority of locations reported as reddish-brown gravelly sand. Competent bedrock reported as extremely weak to very weak distinctly weathered sandstone was encountered at depths between 7.87 and 10.34mbgl.

11.0.3 Chemical assessment of site soils has revealed sources of soil contamination when compared against a *"commercial"* end use scenario comprising lead and PAH. In addition, asbestos was identified within site soils as both loose fibres and as asbestos cement. Hardstanding and / or a suitable soil capping layer will be required across all areas of the site to break exposure pathways between site soils and future site users. Due care and attention should be taken at all times when excavating site soils and any suspected sources of contamination identified brought to the immediate attention of RoC Consulting.

11.0.4 A potential contaminant pathway has been identified between contaminants present within Made Ground deposits and the underlying bedrock aquifer via downward migration of mobilised contaminants. A programme of groundwater sampling indicates groundwater has been impacted by downward migration of contaminants within site soils. It is understood that during the site's redevelopment, Made Ground deposits within building footprints will be excavated and processed for re-use across the wider Mayfield site or disposed of off-site.

11.0.5 Remediation works will be required with respect to hotspots of soil contamination (specifically BH110) in the proximity of the river wall due to potential linkage with the River Medlock and to ensure the protection of the bedrock. Of particular concern will be short term risks to construction workers during any river wall repair works and residual risk to the principal aquifer. It is understood further investigation of soil quality and potential impacts on the Medlock are being considered as part of wider ground investigations associated with the adjacent Mayfield Park development.

11.0.6 Initial ground gas monitoring indicates the site is classified as a Characteristic Situation 2 owing to slightly elevated levels of CO_2 above 5.0% in REC WS04. However, proposed basement construction and removal of source material from the area of the proposed office building will likely alter the sites gas regime which reduces the classification to Situation 1. As such the need for remedial measures to control gas ingress may only apply to enclosed spaces within the proposed multi storey car park (e.g. stair wells and lift pits).

11.0.7 The proposed office building includes the formation of a basement structure extending to depths circa 30mAOD beneath the site. With reference to the results of ground investigations the anticipated ground model in this area comprises the relic structure of the Mayfield Swimming Baths (backfilled with demolition arisings from the clearance of the baths buildings); and the completely weathered fraction of the Triassic Sandstone bedrock (reported as a very dense Sand formation). More competent intact Sandstone is not noted within the upper 10-12m from the surface, possibly as a result of historic tectonic movement from a nearby geological fault or historic erosion by the River Medlock.

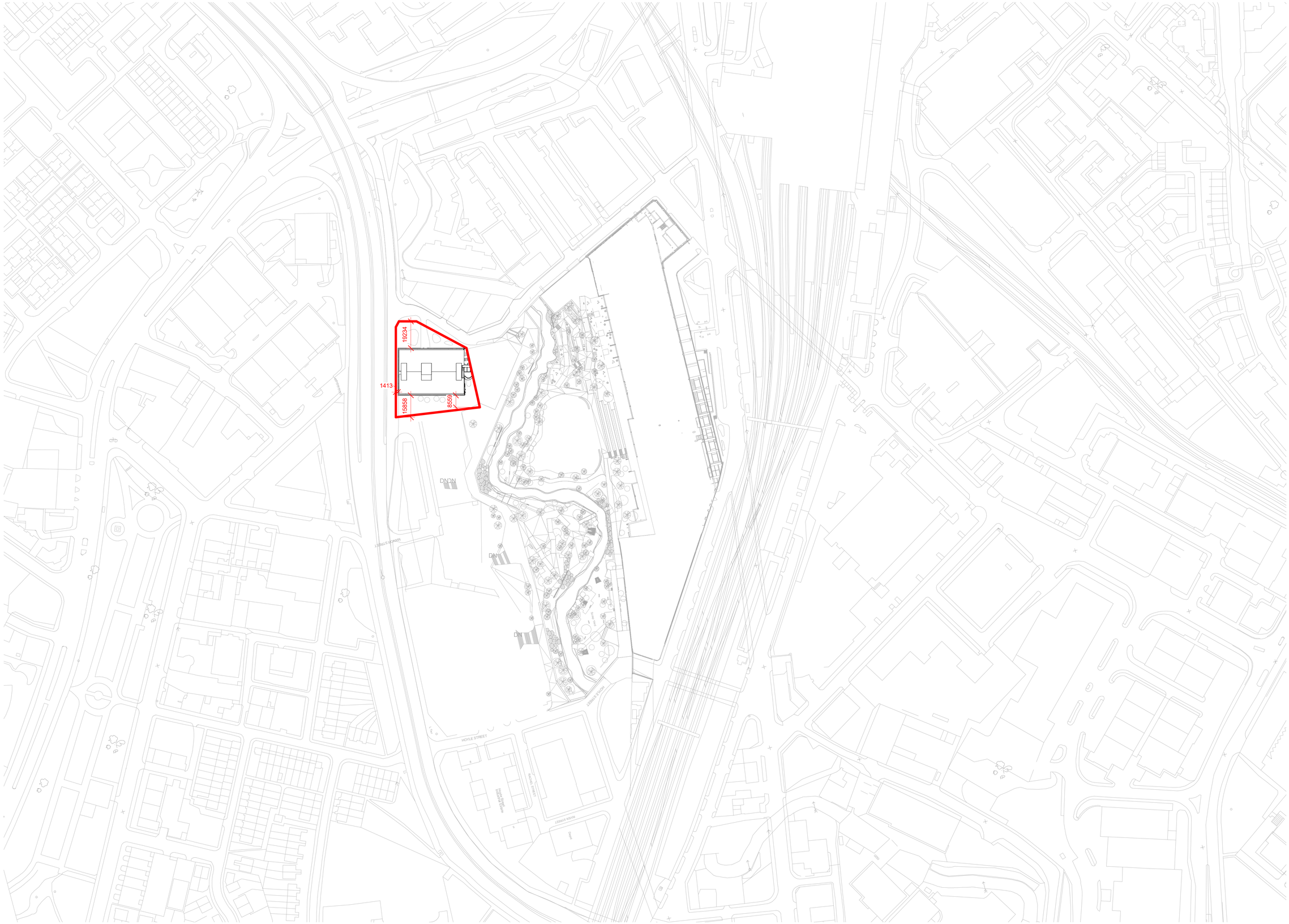
11.0.8 The adoption of a raft foundation solution for this building is possible, although excavations will need to be extended until the reddish brown very dense Sand formation that makes up the weathered bedrock is reported. A reduced allowable bearing capacity for this weathered Sandstone stratum of 500kN/m^2 should be assumed with confirmatory testing completed on site during excavation works to establish strength at the formation level. Where excavations extend beyond the base of the raft foundation to reach this founding stratum levels should be returned using well compacted granular fill. The effect of groundwater should be anticipated beneath the site, both during construction / excavation works and as uplift forces acting beneath the proposed raft; as well as the temporary / permeant support for excavations.

11.0.9 As the proposed multi story car park does not include a basement it is recommended that a piled foundation solution be adopted for this development. Discussions should be held with a suitably qualified piling contractor to confirm pile design. It is noted that multiple obstructions are present below ground at the site associated with historic development. Obstructions and Made Ground will require excavation to facilitate proposed development.

11.0.10 A Phase 3a Remediation Strategy will be required to outline the remedial requirements associated with the proposed development. In addition, and as required, any suspected sources of contamination discovered during the site development (outside those discussed in this report) should be brought to the attention of RoC Consulting and their implications assessed. Depending on the extent and severity, the findings and assessment of the current study may require re-interpretation and a remediation strategy proposed to support the sites development.

11.0.11 Copies of the current report, along with the aforementioned previous reports, should be submitted to the local planning authority for consideration and comment. As required, any feedback received from the local authority should be passed back to RoC Consulting for review

APPENDIX A – SITE DRAWINGS



1 **Proposed - Site Plan**
1 : 1250

General Notes

No implied licence exists. This drawing should not be used to calculate areas for sale or letting purposes.
Do not scale this drawing for construction purposes. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility.
All work must comply with relevant British Standards and Building Regulations requirements. Drawing errors and omissions to be reported to the architect.

Notes

Rev	Date	Reason for Issue	CH
T0	17.04.20	FINAL Stage 3 Tender	

Keyplan

Scale Bar
0 50mm
@ 1:1

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3 Brewhouse Yard
London
EC1V 4JQ
0207 549 1730
hello@egretwest.com
egretwest.com

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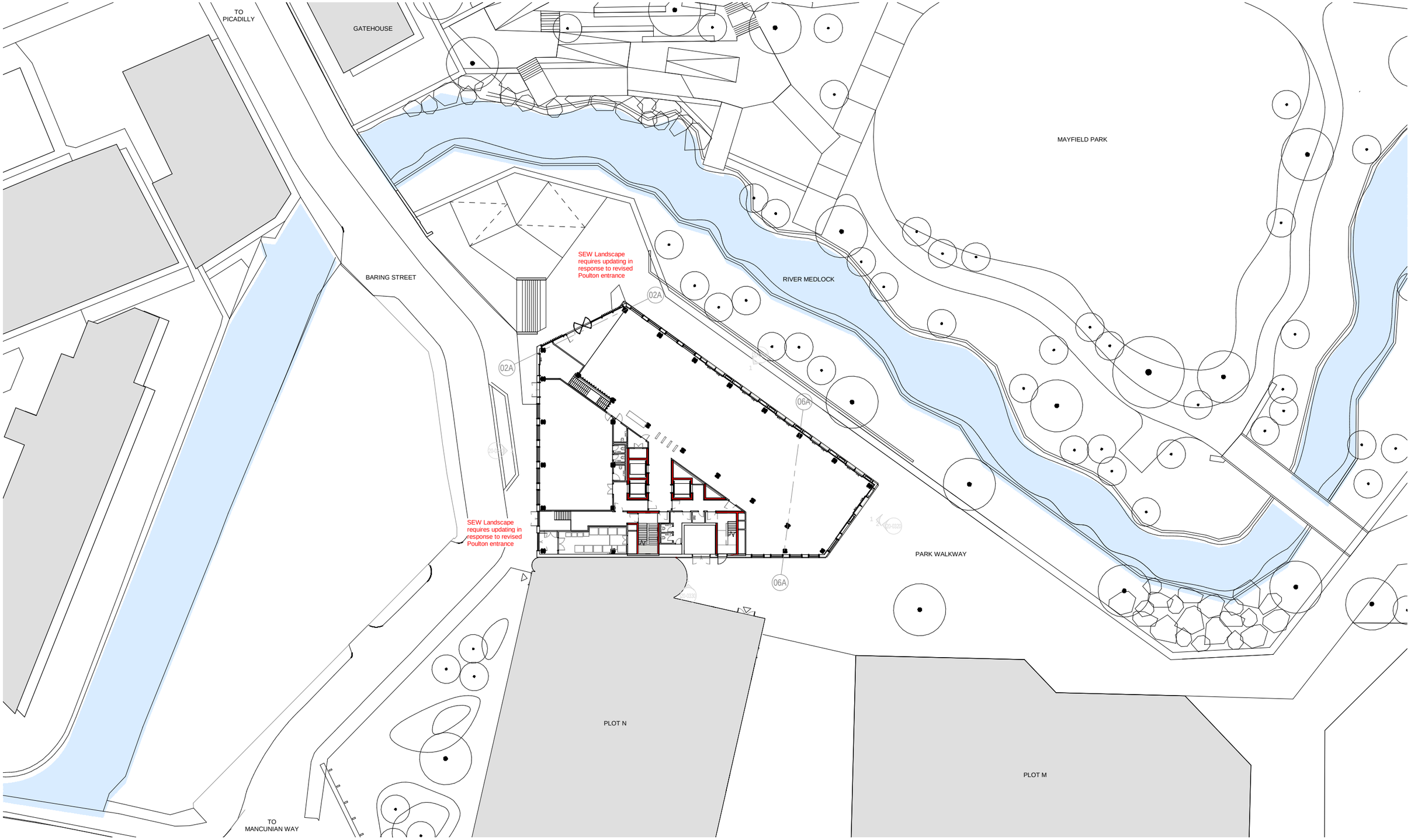
Client
The Mayfield Partnership

Project
0344 Mayfield Car Park

Drawing Title
Proposed - GA Site Plan (Phase 1)

Project Number	Status
0344	**TENDER**
Scale at A1	Date
1 : 1250	**03/04/20**
Drawn by	Checked by
FK	**JC**

Drawing Number	Revision
0344-SEW-ZZ-ZZ-DR-A-001001	**T0**



Rev	Date	Revision	By	Chk
\	190917	First issue RIBA 3 WIP	KC	SG
A	200407	GA Design Freeze Issue	OB	AL
B	200417	ER drawing issue	KC	AL

Notes

ALL WALLS HIGHLIGHTED IN RED ARE REINFORCED CONCRETE AS SHOWN IN STRUCUTRAL ENGINEERS MODEL.

N

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Project
Mayfield - The Poulton
Mayfield Partnership

Project No. 1811

Drawing Title
General arrangement
Site plan

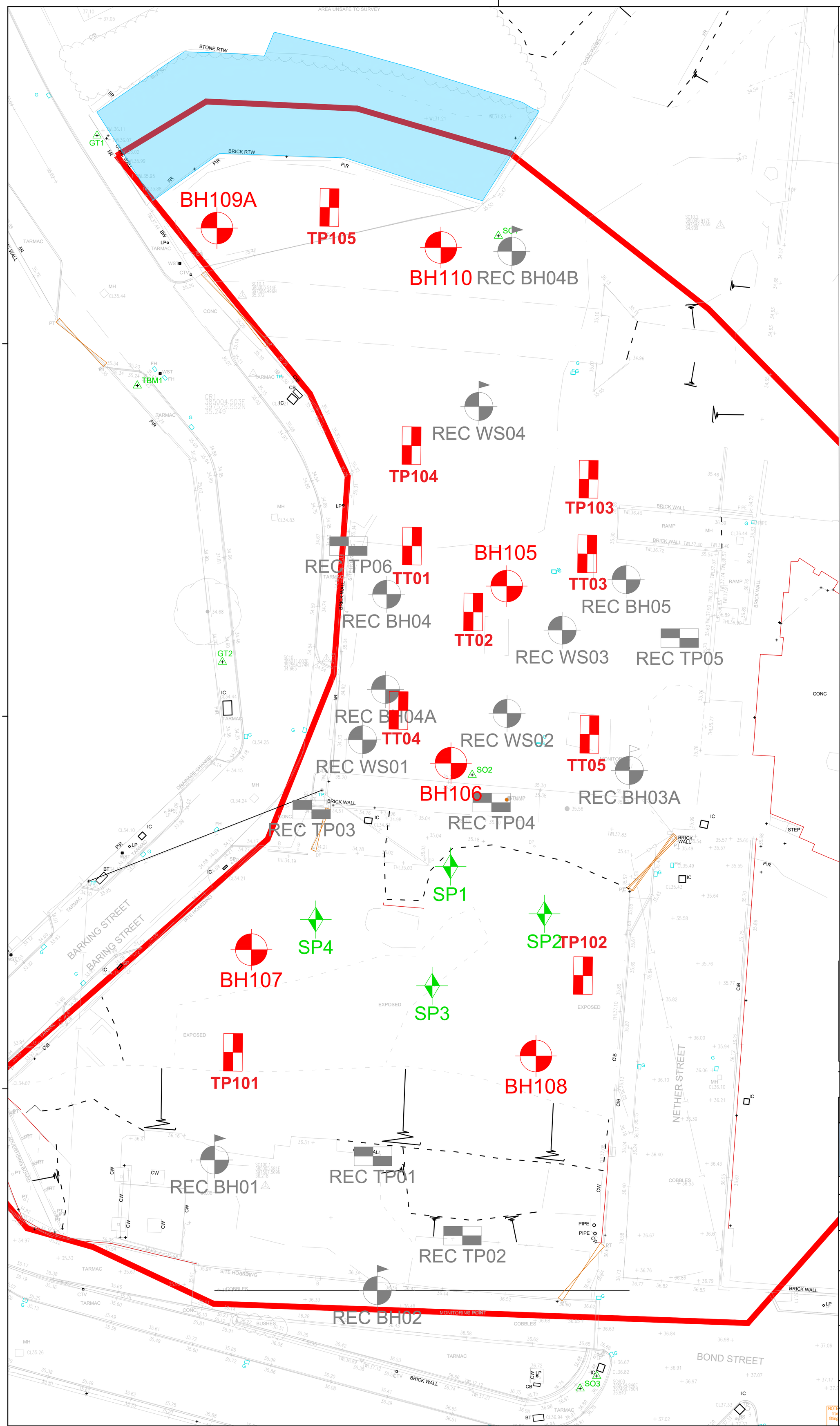
Drawing Number
1811-BA-XX-00-MP-A-20-0001

Revision/Suitability
B

Scale @ A3

Scale @ A1
1 : 250

Revision Date
200417
YY MM DD



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NOTES

- APPROX SITE BOUNDARY
- APPROX HISTORICAL BATHS EXTENT
- PROP PLOTS O & N EXTENTS & CORES
- ROC 2020 BOREHOLE LOCATION
- ROC 2020 TRIAL EXCAVATION LOCATION
- DEPTH TO WEATHERED SANDSTONE BEDROCK
- ROC 2019 SI LOCATION: PLOT M
- REC 2019 HISTORIC SI LOCATION: PLOT O&N
- ROC 2018 SI LOCATION: PLOT G&H

DRAWING NOTES

1) EXPLORATORY HOLE LOCATIONS PLOTTED TO OS CO-ORDINATES.

2) PROPOSED DEVELOPMENT ARRANGEMENT TAKEN FROM BARRETTS AND SEW PLANS AND MAY BE SUBJECT TO AMENDMENT OR REVIEW.

3) HISTORICAL BATHS EXTERNAL EXTENT PLOTTED FROM HISTORICAL MAPPING. INTERNAL POOL EXTENT PRESUMED FROM FINDINGS OF 2020 SITE INVESTIGATION

4) ROC CONSULTING ACCEPTS NOT RESPONSIBILITY FOR ANY DAMAGES OR LOSS ARISING AS A RESULT OF THE USE OF THIS DRAWING

5) EXPLORATORY HOLE LOCATIONS CONJECTURED FROM THE FOLLOWING REPORTS :

- REC LTD PLOT O & N PHASE 2 SITE INVESTIGATION DATED 2019

6) PLEASE REFER TO ROC CONSULTING PHASE 2 SITE INVESTIGATION REPORT DATED SEPT 2020 (REF:ROCP/LD/AS/4134/P2_4134) FOR FINDINGS OF SITE INVESTIGATION WORKS.

REV.	DATE	DETAILS	DRN.	CHK.

DRAWING STATUS
INFORMATION

RIBA STAGE

RoC CONSULTING
Commercial Wharf
6 Commercial Street
Manchester M15 4PZ
T 0161 214 5390
W rocconsulting.com

DRAWN	DATE	SCALES
LD	SEP 20	1.500
CHECKED	DATE	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE --DO NOT SCALE--
AS	SEP 20	
APPRVD.	DATE	EMAIL FOR DRAWINGS
AS	SEP 20	info@rocconsulting.com

CLIENT
MAYFIELD PARTNERSHIP LTD

PROJECT TITLE
PLOTS O + N
THE POULTON / MSCP

DRAWING TITLE
PLOT O + N
SITE INVESTIGATION
LAYOUT PLAN

PROJECT No.	DRAWING No.	REV.
4134	ES201	R2

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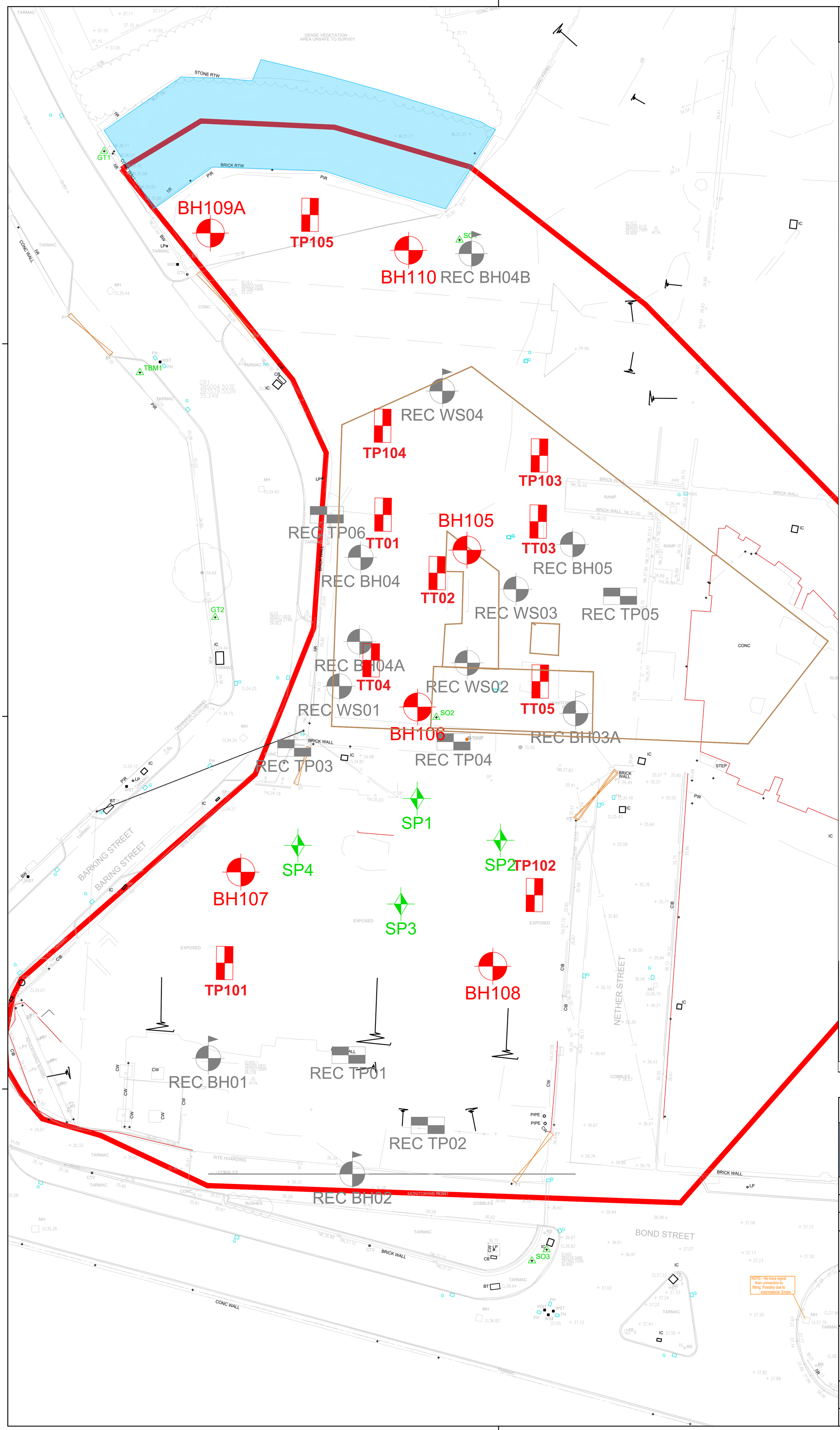

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REV.	DATE	DETAILS	DRN.	CHK.

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DRAWN	DATE	SCALES
LD	SEP 20	1.500
CHECKED	DATE	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE --DO NOT SCALE--
AS	SEP 20	
APPRVD.	DATE	EMAIL FOR DRAWINGS
AS	SEP 20	info@rocconsulting.com

CLIENT
MAYFIELD PARTNERSHIP LTD

PROJECT TITLE
PLOTS O + N
THE POULTON / MSCP

DRAWING TITLE
PLOT O + N
PROPOSED
LAYOUT PLAN

PROJECT No.	DRAWING No.	REV.
4134	ES202	R2

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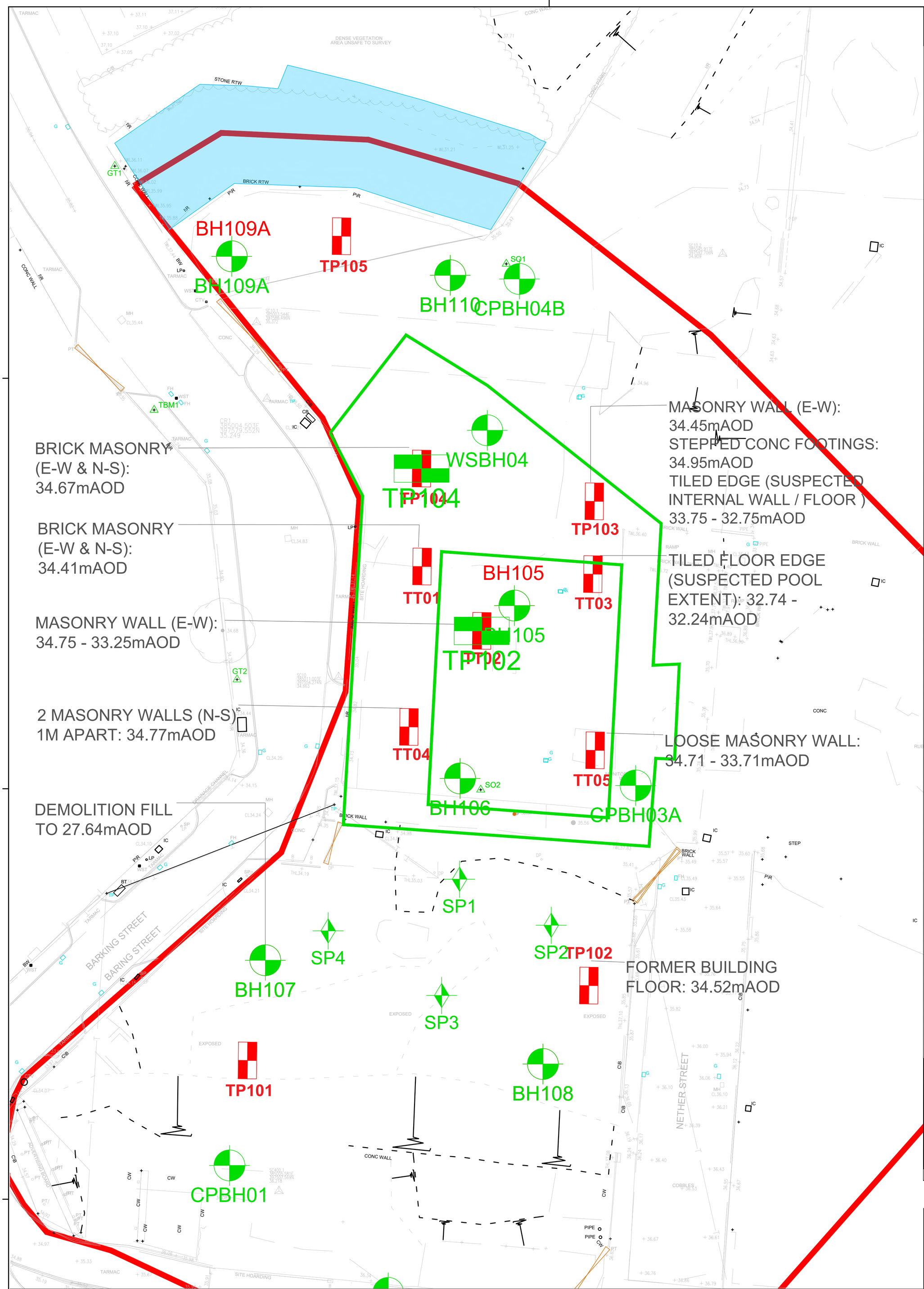

Reduced Level

BELOW GROUND OBSTRUCTIONS (mAOD)				
BH ID	Surface Level	CONCRETE (1960'S DEVELOPMENT)	TILED FLOOR (FORMER BATHS)	BEDROCK ENCOUNTERED
TP103	35.25	33.55	32.75	-
TP104	35.17	-	-	-
TT01	35.17	33.47	-	-
BH105	35.15	33.4	32.35	24.65
TT02	35.25	33.55	33.15	-
TT03	35.24	33.49	32.64	-
BH106	35.1	-	33.3	25.33
TT05	35.31	35.31	32.71	-
BH107	33.34	-	-	23
BH108	34.72	34.02	-	25.08
TP102	35.02	33.32	-	31.72

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NOTES

- APPROX SITE BOUNDARY
- APPROX HISTORICAL BATHS EXTENT
- PROP PLOTS O & N EXTENTS & CORES
- ROC 2020 BOREHOLE LOCATION
- ROC 2020 TRIAL EXCAVATION LOCATION
- DEPTH TO WEATHERED SANDSTONE BEDROCK
- ROC 2019 SI LOCATION: PLOT M
- REC 2019 HISTORIC SI LOCATION: PLOT O&N
- ROC 2018 SI LOCATION: PLOT G&H

DRAWING NOTES

1) EXPLORATORY HOLE LOCATIONS PLOTTED TO OS CO-ORDINATES.

2) PROPOSED DEVELOPMENT ARRANGEMENT TAKEN FROM BARRETTS AND SEW PLANS AND MAY BE SUBJECT TO AMENDMENT OR REVIEW.

3) HISTORICAL BATHS EXTERNAL EXTENT PLOTTED FROM HISTORICAL MAPPING. INTERNAL POOL EXTENT PRESUMED FROM FINDINGS OF 2020 SITE INVESTIGATION

4) ROC CONSULTING ACCEPTS NOT RESPONSIBILITY FOR ANY DAMAGES OR LOSS ARISING AS A RESULT OF THE USE OF THIS DRAWING

5) EXPLORATORY HOLE LOCATIONS CONJECTURED FROM THE FOLLOWING REPORTS :

- REC LTD PLOT O & N PHASE 2 SITE INVESTIGATION DATED 2019

6) PLEASE REFER TO ROC CONSULTING PHASE 2 SITE INVESTIGATION REPORT DATED SEPT 2020 (REF:ROCP/LD/AS/4134/P2_4134) FOR FINDINGS OF SITE INVESTIGATION WORKS.

REV.	DATE	DETAILS	DRN.	CHK.

DRAWING STATUS
INFORMATION

RIBA STAGE

RoC CONSULTING
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W rocconsulting.com

DRAWN	DATE	SCALES
AS	SEP 20	1.500
CHECKED LD	DATE SEP 20	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE --DO NOT SCALE--
APPRVD. AS	DATE SEP 20	EMAIL FOR DRAWINGS info@rocconsulting.com

CLIENT
MAYFIELD PARTNERSHIP LTD

PROJECT TITLE
PLOTS O + N
THE POULTON / MSCP

DRAWING TITLE
PLOT O + N
BELOW GROUND OBSTRUCTIONS

PROJECT No.	DRAWING No.	REV.
4134	ES203	R2

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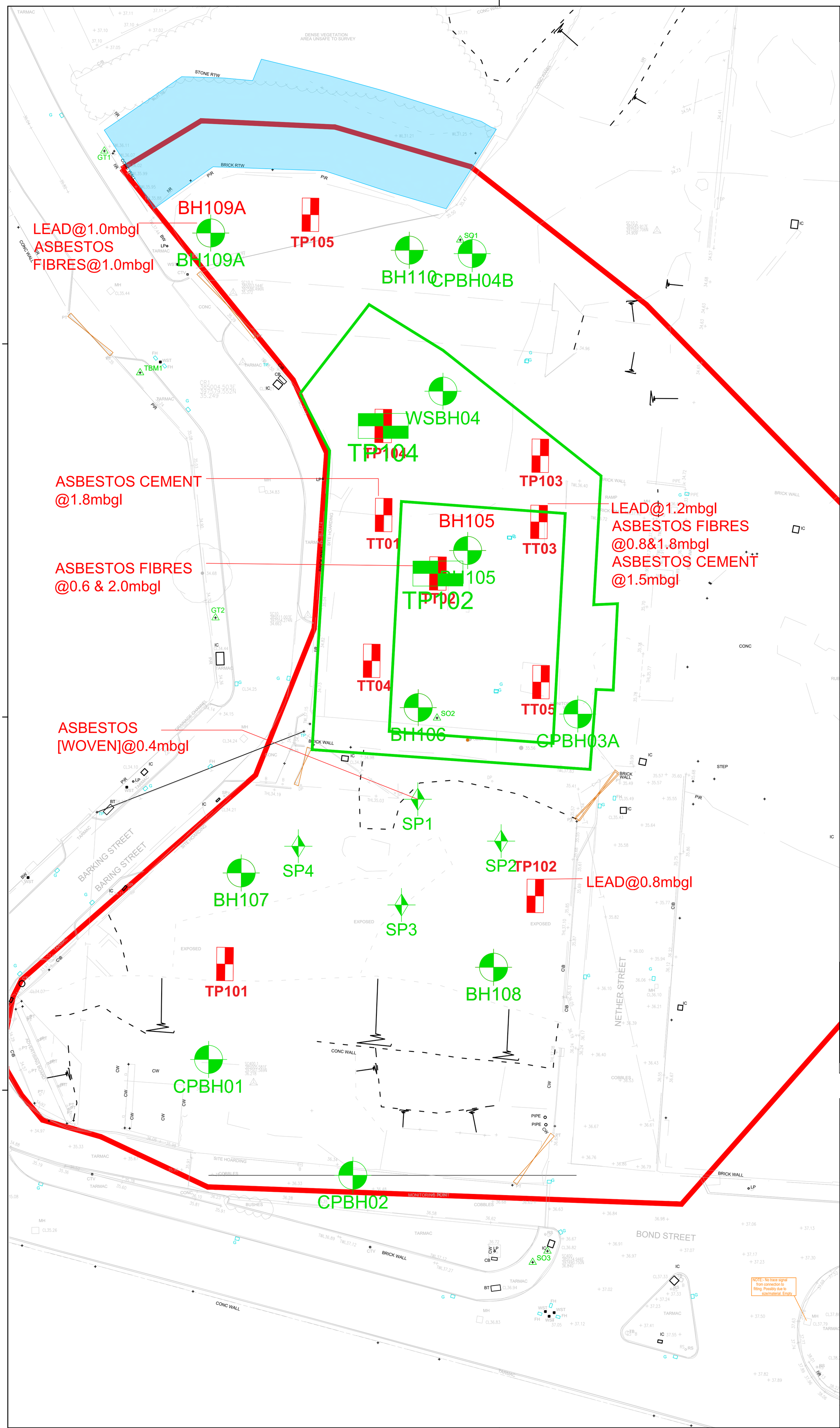

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NOTES

- APPROX SITE BOUNDARY
- APPROX HISTORICAL BATHS EXTENT
- PROP PLOTS O & N EXTENTS & CORES
- ROC 2020 BOREHOLE LOCATION
- ROC 2020 TRIAL EXCAVATION LOCATION
- DEPTH TO WEATHERED SANDSTONE BEDROCK
- ROC 2019 SI LOCATION: PLOT M
- REC 2019 HISTORIC SI LOCATION: PLOT O&N
- ROC 2018 SI LOCATION: PLOT G&H

DRAWING NOTES

1) EXPLORATORY HOLE LOCATIONS PLOTTED TO OS CO-ORDINATES.

2) PROPOSED DEVELOPMENT ARRANGEMENT TAKEN FROM BARRETTS AND SEW PLANS AND MAY BE SUBJECT TO AMENDMENT OR REVIEW.

3) HISTORICAL BATHS EXTERNAL EXTENT PLOTTED FROM HISTORICAL MAPPING. INTERNAL POOL EXTENT PRESUMED FROM FINDINGS OF 2020 SITE INVESTIGATION

4) ROC CONSULTING ACCEPTS NOT RESPONSIBILITY FOR ANY DAMAGES OR LOSS ARISING AS A RESULT OF THE USE OF THIS DRAWING

5) EXPLORATORY HOLE LOCATIONS CONJECTURED FROM THE FOLLOWING REPORTS :

- REC LTD PLOT O & N PHASE 2 SITE INVESTIGATION DATED 2019

6) PLEASE REFER TO ROC CONSULTING PHASE 2 SITE INVESTIGATION REPORT DATED SEPT 2020 (REF:ROCP/LD/AS/4134/PZ_4134) FOR FINDINGS OF SITE INVESTIGATION WORKS.

REV.	DATE	DETAILS	DRN.	CHK.

DRAWING STATUS
INFORMATION

RIBA STAGE

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Commercial Wharf
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DRAWN	DATE	SCALES
LD	SEP 20	1.500
CHECKED	DATE	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE --DO NOT SCALE--
AS	SEP 20	
APPRVD.	DATE	EMAIL FOR DRAWINGS
AS	SEPT 20	info@rocconsulting.com

CLIENT
MAYFIELD PARTNERSHIP LTD

PROJECT TITLE
PLOTS O + N
THE POULTON / MSCP

DRAWING TITLE
PLOT O + N
CONTAMINATION EXCEEDANCES

PROJECT No.	DRAWING No.	REV.
4134	ES204	R2

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APPENDIX B – EXPLORATORY HOLE LOG SHEETS

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 18/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385026.73 N397561.59
Project No. : 4134	Crew Name: G. Clay	Drilling Equipment: Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH105	CP+RC	35.15m AoD	LD	1:27	Sheet 1 of 4

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
					0.10	35.05		Asphalt (MADE GROUND)	
								Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)	
					0.70	34.45		Dark greyish brown slightly clayey sandy angular fine to coarse brick and concrete GRAVEL / COBBLES including ceramic bricks, ash and rare clinker and fragments of asbestos cement board(MADE GROUND)	1
					1.60	33.55		Concrete (MADE GROUND)	
					1.75	33.40		Dark greyish brown slightly silty angular brick and concrete GRAVEL / COBBLES with occasional rebar, clinker, ash and slate (MADE GROUND; demolition fill)	2
					2.60	32.55		Ceramic blocks** (MADE GROUND)	
					2.80	32.35		Brick fill** (MADE GROUND)	
					3.00	32.15		Suspected Concrete** (MADE GROUND)	3
					3.40	31.75		Compacted limestone, brick and concrete GRAVEL** (MADE GROUND)	
		4.00	SPT	N=42 (15,5/7,10,11,14)					4
									5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
19.50	97	19.50	97					0.00	20.00		

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Due to adjacent obstructions in trial pits, rotary open hole was commenced to a depth of 7.5mbgl, followed on by rotary coring. 3. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 7.0 to 13mbgl

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 18/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385026.73 N397561.59
Project No. : 4134	Crew Name: G. Clay	Drilling Equipment: Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH105	CP+RC	35.15m AoD	LD	1:27	Sheet 2 of 4

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results				Depth (m)	Level (m)	Legend	Stratum Description	
											Compacted limestone, brick and concrete GRAVEL** (MADE GROUND)	6
								7.00	28.15		Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand within drilling flush (CHESTER SANDSTONE FORMATION)	7
		7.50	SPT	50 (25 for 95mm/50 for 85mm)			(50) 97mm					
		7.50 - 9.00	0 0 0	0	0	0						8
							(50)					9
		9.00 - 10.50	4 5 6	29	11	0						
			Type/Fl	TCR	SCR	RQD						10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
19.50	97	19.50	97					0.00	20.00		

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Due to adjacent obstructions in trial pits, rotary open hole was commenced to a depth of 7.5mbgl, followed on by rotary coring. 3. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 7.0 to 13mbgl

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 18/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385026.73 N397561.59
Project No. : 4134	Crew Name: G. Clay	Drilling Equipment: Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH105	CP+RC	35.15m AoD	LD	1:27	Sheet 3 of 4

Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Stratum Description
						10.06	25.09	Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION)
								…between 10.06 and 10.10mbgl: Drilling Induced Fractures (D.I.F)
					(50)			*…between 10.16 and 10.38mbgl: D.I.F*
								…between 10.50 and 11.24mbgl: Assumed Zone of Core Loss (A.Z.C.L)
10.50 - 12.00	8 11 13	51	21	16				*…between 11.35 and 11.60mbgl: D.I.F*
								…between 11.68 and 11.82mbgl: D.I.F
					(50)			*…between 12.00 and 12.08mbgl: A.C.Z.L*
12.00 - 13.50	6 11 16	95	79	64				*…at 12.61mbgl: sand filled fracture*
								...between 12.93 and 13.02mbgl: D.I.F
								...between 13.13 and 13.18mbgl: D.I.F
								...between 13.50 and 13.55mbgl: A.Z.C.L
13.50 - 15.00	5 12 20	97	82	59				*...between 14.50 and 14.66mbgl: D.I.F*

Legend: 11, 12, 13, 14, 15

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter	Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool	Inclination and Orientation Depth Top	Inclination and Orientation Depth Base	Inclination	Orientation	Drilling Flush Depth Top	Drilling Flush Depth Base	Drilling Flush Type	Drilling Flush Colour	Drilling Flush Min (%)	Drilling Flush Max (%)
19.50	97	19.50	97					0.00	20.00			7.50	9.00	Polymer			30
												9.00	10.50	Polymer			30
												10.50	12.00	Polymer			30
												12.00	13.50	Polymer			30
												13.50	15.00	Polymer			30

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Due to adjacent obstructions in trial pits, rotary open hole was commenced to a depth of 7.5mbgl, followed on by rotary coring. 3. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 7.0 to 13mbgl

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 18/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385026.73 N397561.59
Project No. : 4134	Crew Name: G. Clay	Drilling Equipment: Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH105	CP+RC	35.15m AoD	LD	1:27	Sheet 4 of 4

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
		15.00 - 16.50	2 8 13	80	49	15	(50)				Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) ...between 15.00 and 15.30mbgl: A.Z.C.L ...at 15.46mbgl: sand filled fracture ...at 15.61mbgl: sand filled fracture ...between 15.75 and 15.91mbgl: D.I.F ...between 15.98 and 16.09mbgl: D.I.F ...at 16.17mbgl: sand filled fracture	16
		16.50 - 18.00	7 12 15	80	61	45					...between 16.50 and 16.80mbgl: A.Z.C.L ...at 16.96mbgl: sand filled fracture	17
		18.00 - 19.50	8 15 39	87	71	47					...between 18.00 and 18.20mbgl: A.Z.C.L ...between 18.20 and 18.30mbgl: D.I.F	18
								18.50	16.65		Weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) ...between 19.19 and 19.29mbgl: D.I.F	19
		19.50 - 20.00	5 7 11	88	74	22	(50)				...between 19.50 and 19.56mbgl: A.Z.C.L	
								20.00	15.15		End of Borehole at 20.000m	20

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter
19.50	97	19.50	97

Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool

Inclination and Orientation Depth Top	Depth Base	Inclination	Orientation
0.00	20.00		

Drilling Flush Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
7.50	9.00	Polymer			30
9.00	10.50	Polymer			30
10.50	12.00	Polymer			30
12.00	13.50	Polymer			30
13.50	15.00	Polymer			30

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Due to adjacent obstructions in trial pits, rotary open hole was commenced to a depth of 7.5mbgl, followed on by rotary coring. 3. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 7.0 to 13mbgl

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385022.70 N397545.14
Project No. : 4134	Crew Name: C.Jobson+G. Clay	Drilling Equipment: Dando 3000+Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH106	CP+RC	35.10m AoD	LD	1:27	Sheet 1 of 4

Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Stratum Description
0.10 - 0.40	B		0.10	35.00	Asphalt (MADE GROUND)
					Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
0.40	D		0.40	34.70	Firm brown slightly sandy gravelly CLAY. Gravel is angular fine to coarse brick and concrete with rare slate. Obstruction at 1.8mbgl.
0.40 - 1.20	B				
1.00	ES				
1.20 - 1.65	D				
1.20 - 1.70	B				
1.20	SPT	N=9 (3,1/2,4,1,2)			
1.80	D		1.80	33.30	Suspected ceramic brick** (MADE GROUND; floor of former baths)
1.80	SPT	50 (25 for 21mm/50 for 0mm)			
			2.00	33.10	*…at 1.8mbgl: Obstruction. Continued with Rotary Open Hole methods*
					Loose brick masonry (MADE GROUND)
			2.20	32.90	Suspected compacted limestone, concrete and brick GRAVEL** (MADE GROUND; victorian-era sub-base)
			2.60	32.50	Loose brick in a matrix of dark brown CLAY** (MADE GROUND)
5.00	SPT	N=48 (8,11/12,12,12,12)			

Well: 1 2 3 4 5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.80	150	1.80	150	1.80	1.80			0.00	20.00		
20.00	97	20.00	97								

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Obstruction encountered at 1.8mbgl; suspected floor of former baths. 3. Rotary open hole commenced from 1.8mbgl. 4. Rotary coring commenced from 7.5mbgl. 5. Upon completion exploratory hole installed with 50mm diameter standpipe, with a response zone of 2.0 to 7.0mbgl

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385022.70 N397545.14
Project No. : 4134	Crew Name: C.Jobson+G. Clay	Drilling Equipment: Dando 3000+Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH106	CP+RC	35.10m AoD	LD	1:27	Sheet 2 of 4

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results				Depth (m)	Level (m)	Legend	Stratum Description	
		6.00	SPT	N=43 (10,13/8,11,12,12)							Loose brick in a matrix of dark brown CLAY** (MADE GROUND)	6
												7
								7.30	27.80		Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand within drilling flush (CHESTER SANDSTONE FORMATION)	
		7.50	SPT	50 (16,9/50 for 145mm)			(50)					
		7.50 - 9.00	0 0 0	0	0	0						8
							(50)					9
		9.00 - 10.50	8 12 16	49	23	18		9.77	25.33		Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping	
			Type/Fl	TCR	SCR	RQD						10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
1.80 20.00	150 97	1.80 20.00	150 97	1.80	1.80			0.00	20.00		

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Obstruction encountered at 1.8mbgl; suspected floor of former baths. 3. Rotary open hole commenced from 1.8mbgl. 4. Rotary coring commenced from 7.5mbgl. 5. Upon completion exploratory hole installed with 50mm diameter standpipe, with a response zone of 2.0 to 7.0mbgl

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385022.70 N397545.14
Project No. : 4134	Crew Name: C.Jobson+G. Clay	Drilling Equipment: Dando 3000+Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH106	CP+RC	35.10m AoD	LD	1:27	Sheet 3 of 4

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
											Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) *…between 9.77 and 10.12mbgl: Destructured*	
		10.50 - 12.00	6 8 10	31	27	7	(50)				*…between 10.50 and 11.54mbgl: Assumed Zone of Core Loss (A.Z.C.L)* *…at 11.87mbgl: sand filled fracture*	11
		12.00 - 13.50	5 10 15	49	34	31	(50)				*…at 11.96mbgl: Sand filled fracture* *…between 12.0 and 12.77mbgl: A.Z.C.L* *…between 12.77 and 12.85mbgl: Destructured* *…at 13.21mbgl: Sand filled fracture*	12 13
		13.50 - 15.00	4 9 12	47	34	15	(50)				*…between 13.50 and 14.30mbgl: A.Z.C.L* *…between 14.42 and 14.50mbgl: Drilling Induced Fractures (D.I.F)* *…at 14.68mbgl: sand filled fracture*	14
							(50)					15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
1.80	150	1.80	150	1.80	1.80			0.00	20.00			7.50	9.00	Polymer			40
20.00	97	20.00	97									9.00	10.50	Polymer			40
												10.50	12.00	Polymer			40
												12.00	13.50	Polymer			40
												13.50	15.00	Polymer			40

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Obstruction encountered at 1.8mbgl; suspected floor of former baths. 3. Rotary open hole commenced from 1.8mbgl. 4. Rotary coring commenced from 7.5mbgl. 5. Upon completion exploratory hole installed with 50mm diameter standpipe, with a response zone of 2.0 to 7.0mbgl

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385022.70 N397545.14
Project No. : 4134	Crew Name: C.Jobson+G. Clay	Drilling Equipment: Dando 3000+Comacchio Geo

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH106	CP+RC	35.10m AoD	LD	1:27	Sheet 4 of 4

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
		15.00 - 16.50	3 8 15	47	32	24					Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) *…between 15.0 and 15.80mbgl: A.Z.C.L* *…between 15.80 and 15.90mbgl: Destructured* *…at 16.16mbgl: sand filled fracture* *…at 16.38mbgl: sand filled fracture*	16
		16.50 - 18.00	3 8 12	60	25	15	(50)				*…between 16.50 and 17.10mbgl: A.Z.C.L* *…between 17.10 and 17.17mbgl: Destructured* *…between 17.39 and 17.44mbgl: D.I.F* *…between 17.52 and 17.83mbgl: D.I.F*	17
		18.00 - 19.50	6 8 10	51	41	7	(50)				*…between 18.0 and 18.74mbgl: A.Z.C.L* *…between 18.74 and 18.86mbgl: Destructured*	18 19
		19.50 - 20.00	3 8 12	70	64	24	(50)				*…between 19.50 and 19.65mbgl: A.Z.C.L*	
								20.00	15.10		End of Borehole at 20.000m	20

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter	Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool	Inclination and Orientation Depth Top	Inclination and Orientation Depth Base	Inclination	Orientation	Drilling Flush Depth Top	Drilling Flush Depth Base	Drilling Flush Type	Drilling Flush Colour	Drilling Flush Min (%)	Drilling Flush Max (%)
1.80	150	1.80	150	1.80	1.80			0.00	20.00			7.50	9.00	Polymer			40
20.00	97	20.00	97									9.00	10.50	Polymer			40
												10.50	12.00	Polymer			40
												12.00	13.50	Polymer			40
												13.50	15.00	Polymer			40

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Obstruction encountered at 1.8mbgl; suspected floor of former baths. 3. Rotary open hole commenced from 1.8mbgl. 4. Rotary coring commenced from 7.5mbgl. 5. Upon completion exploratory hole installed with 50mm diameter standpipe, with a response zone of 2.0 to 7.0mbgl

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 13/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385002.69 N397528.26
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH107	CP+RC	33.34m AoD	LD	1:27	Sheet 1 of 4

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		0.10 - 0.50	B					Loose brown slightly clayey sandy angular fine to coarse brick and concrete GRAVEL with occasional slate and glass. High cobble content and occasional pockets of soft grey clay (MADE GROUND; demolition fill)	
		0.50	D						
		0.50 - 1.00	B						
		1.00	ES						1
		1.20 - 1.70	B						
		1.20	SPT	50 (25 for 134mm/50 for 221mm)					
		2.00 - 2.45	D						2
		2.00	SPT	50 (8,14/50 for 117mm)					
		2.50	D						
		3.00 - 3.45	D						3
		3.00	SPT	50 (25 for 118mm/50 for 142mm)					
		3.50	D						
		4.00 - 4.45	D						4
		4.00	SPT	50 (10,14/50 for 216mm)					
		4.50 - 5.00	B						
		5.00 - 5.50	B						5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
5.50	150	5.50	150	1.70	1.90			0.00	20.00		
20.00	97	20.00	97	2.60	3.00						
				3.30	3.60						
				6.50	7.00						

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater not observed. 3. Rotary coring commenced from 7.5mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 3.0 to 6.0

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 13/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385002.69 N397528.26
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH107	CP+RC	33.34m AoD	LD	1:27	Sheet 2 of 4

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results				Depth (m)	Level (m)	Legend	Stratum Description	
		5.00	SPT	N=33 (3,6/8,11,7,7)							Loose brown slightly clayey sandy angular fine to coarse brick and concrete GRAVEL with occasional slate and glass. High cobble content and occasional pockets of soft grey clay (MADE GROUND; demolition fill) *...from 5.0mbgl: very sandy*	
		5.70	D					5.70	27.64		Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand (CHESTER SANDSTONE FORMATION)	
		6.00 - 6.50	B									6
		6.00	SPT	16 (59 for 146mm/16 for 29mm)								
		7.00	SPT	50 (25 for 68mm/50 for 49mm)								7
		7.50	SPT	50 (25 for 95mm/50 for 165mm)				(50)				
		7.50 - 9.00	0 0 0	0	0	0						8
								(50)				9
		9.00 - 10.50	0 0 0	11	0	0					*..at 9.34 to 9.45mbgl: Marl*	
			Type/Fl	TCR	SCR	RQD						10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
5.50	150	5.50	150	1.70	1.90			0.00	20.00		
20.00	97	20.00	97	2.60	3.00						
				3.30	3.60						
				6.50	7.00						

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater not observed. 3. Rotary coring commenced from 7.5mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 3.0 to 6.0

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 13/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385002.69 N397528.26
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH107	CP+RC	33.34m AoD	LD	1:27	Sheet 3 of 4

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
								10.34	23.00		Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand (CHESTER SANDSTONE FORMATION)	
							(50)	10.50	22.84		Extremely weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION)	
		10.50 - 12.00	4 7 11	57	22	7					*...between 10.34 - 10.50mbgl: Destructured*	
											Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION)	11
											...between 10.50 and 11.14mbgl: Assumed Zone of Core Loss (A.Z.C.L)	
											...between 11.14 and 11.38mbgl: destructured	
											...between 11.57 and 11.72mbgl: Drilling Induced Fractures (D.I.F)	
							(50)				*...btween 12.0 and 13.20mbgl: A.Z.C.L*	12
		12.00 - 13.50	0 0 0	20	0	0						13
											...between 13.2 and 13.5: Destructured	
							(50)				*...between 13.5 and 14.45mbgl: A.Z.C.L*	
		13.50 - 15.00	5 10 15	37	21	17						14
											...between 14.63 and 14.72mbgl: D.I.F	
											...between 14.87 and 15.0mbgl: D.I.F	
							(50)					15

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter	Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool	Inclination and Orientation Depth Top	Inclination and Orientation Depth Base	Inclination	Orientation	Drilling Flush Depth Top	Drilling Flush Depth Base	Drilling Flush Type	Drilling Flush Colour	Drilling Flush Min (%)	Drilling Flush Max (%)
5.50	150	5.50	150	1.70	1.90			0.00	20.00			7.50	9.00	Polymer			60
20.00	97	20.00	97	2.60	3.00							9.00	10.50	Polymer			50
				3.30	3.60							10.50	12.00	Polymer			40
				6.50	7.00							12.00	13.50	Polymer			40
												13.50	15.00	Polymer			40

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater not observed. 3. Rotary coring commenced from 7.5mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 3.0 to 6.0

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 13/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385002.69 N397528.26
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH107	CP+RC	33.34m AoD	LD	1:27	Sheet 4 of 4

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
		15.00 - 16.50	6 9 10	48	23	13	(50)				Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) *...between 15.0 and 15.78mbgl: D.I.F* *...between 15.78 and 15.90mbgl: D.I.F* *...between 16.10 and 16.20mbgl: Destructured*	16
		16.50 - 18.00	2 5 9	24	9	7	(50)				*...between 16.50 and 17.64mbgl: A.Z.C.L* *...between 17.86 and 18mbgl: D.I.F*	17
		18.00 - 19.50	2 5 10	40	13	7	(50)				*...between 18.0 and 18.90mbgl: A.Z.C.L* *...between 18.90 and 19.02mbgl: Destructured* *...between 19.08 and 19.29mbgl: D.I.F*	18 19
		19.50 - 20.00	4 9 17	100	88	60	(50)					
								20.00	13.34		End of Borehole at 20.000m	20

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter	Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool	Inclination and Orientation Depth Top	Inclination and Orientation Depth Base	Inclination	Orientation	Drilling Flush Depth Top	Drilling Flush Depth Base	Drilling Flush Type	Drilling Flush Colour	Drilling Flush Min (%)	Drilling Flush Max (%)
5.50	150	5.50	150	1.70	1.90			0.00	20.00			7.50	9.00	Polymer			60
20.00	97	20.00	97	2.60	3.00							9.00	10.50	Polymer			50
				3.30	3.60							10.50	12.00	Polymer			40
				6.50	7.00							12.00	13.50	Polymer			40
												13.50	15.00	Polymer			40

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater not observed. 3. Rotary coring commenced from 7.5mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 3.0 to 6.0

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 14/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385029.61 N397519.36
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH108	CP+RC	34.72m AoD	LD	1:27	Sheet 1 of 5

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		0.00 - 0.30	B					Dark brown mixed grey slightly sandy slightly silty angular fine to coarse brick and concrete GRAVEL with high cobble content (MADE GROUND; demolition fill)	
		0.30	D		0.30	34.42			
		0.30 - 0.60	B					Dark brown slightly clayey sandy angular fine to coarse GRAVEL of brick, concrete, slate and rare timber (MADE GROUND; demolition fill)	
		0.60 - 0.70	B		0.60	34.12		Concrete (MADE GROUND)	
		0.70	D		0.70	34.02		Soft brown slightly gravelly sandy CLAY with occasional fragments of brick and concrete (MADE GROUND)	
		0.70 - 1.20	B						
		1.00	ES						1
		1.20	SPT	N=3 (1,0/1,1,0,1)					
		1.70 - 2.00	B		1.70	33.02		Soft brown slightly gravelly clayey silty SAND. Gravel is the subangular to rounded fine to medium various lithologies (ALLUVIUM)	
		2.00 - 2.45	D						2
		2.00	SPT	N=4 (1,0/0,1,1,2)					
		2.50	D						
		3.00 - 3.45	U	Ublow=27					3
		3.50	D						
		4.00 - 4.45	D						4
		4.00	SPT	N=8 (1,1/2,2,2,2)					
		5.00 - 5.45	U	Ublow=16					5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
9.00	150	9.00	150	8.50	9.00			0.00	25.00		
25.00	97	25.00	97								

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater observed at 6.0mbgl, rising to 5.5mbgl. 3. Rotary coring commenced from 9.0mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 5.0 to 10.0m

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 14/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385029.61 N397519.36
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH108	CP+RC	34.72m AoD	LD	1:27	Sheet 2 of 5

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
					5.40	29.32		Soft brown slightly gravelly clayey silty SAND. Gravel is the subangular to rounded fine to medium various lithologies (ALLUVIUM)	
		5.50	D					Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand (CHESTER SANDSTONE FORMATION)	
		6.00 - 6.50 6.00	B SPT	50 (8,13/50 for 159mm)					6
		7.00 - 7.50 7.00	B SPT	50 (25 for 99mm/50 for 93mm)					7
		8.00 - 8.50 8.00	B SPT	50 (25 for 61mm/50 for 53mm)					8
		9.00	SPT	50 (25 for 30mm/50 for 40mm) (50)					9
		9.00 - 10.00	6 7 8	36 14 0	9.64	25.08		Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION)	
			Type/FI	TCR SCR RQD (50)					10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
9.00 25.00	150 97	9.00 25.00	150 97	8.50	9.00			0.00	25.00		

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater observed at 6.0mbgl, rising to 5.5mbgl. 3. Rotary coring commenced from 9.0mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 5.0 to 10.0m

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 14/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385029.61 N397519.36
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH108	CP+RC	34.72m AoD	LD	1:27	Sheet 3 of 5

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
		10.00 - 11.50	8 9 10	19	12	7	(50)				Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) *…between 9.64 and 9.76mbgl: Destructured* *…at 9.8mbgl: sand filled fracture* *…between 10.0 and 11.21mbgl: Assumed Zone of Core Loss (A.Z.C.L)* *…between 11.21 and 11.32mbgl: Destructured*	11
		11.50 - 13.00	4 9 20	49	30	20	(50)				*…between 11.50 and 12.26mbgl: A.Z.C.L* *…between 12.26 and 12.53mbgl: Destructured*	12
		13.00 - 14.50	0 0 0	25	0	0	(50)				*…between 13.0 and 14.13mbgl: A.Z.C.L* *…between 14.13 and 14.50mbgl: Destructured* *…between 14.50 and 14.93mbgl: A.Z.C.L*	13 14 15

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter	Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool	Inclination and Orientation Depth Top	Inclination and Orientation Depth Base	Inclination	Orientation	Drilling Flush Depth Top	Drilling Flush Depth Base	Drilling Flush Type	Drilling Flush Colour	Drilling Flush Min (%)	Drilling Flush Max (%)
9.00	150	9.00	150	8.50	9.00			0.00	25.00			8.50	10.00	Polymer			20
25.00	97	25.00	97									10.00	11.50	Polymer			20
												11.50	13.00	Polymer			60
												13.00	14.50	Polymer			60
												14.50	16.00	Polymer			60

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater observed at 6.0mbgl, rising to 5.5mbgl. 3. Rotary coring commenced from 9.0mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 5.0 to 10.0m

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 14/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385029.61 N397519.36
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH108	CP+RC	34.72m AoD	LD	1:27	Sheet 4 of 5

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
		14.50 - 16.00	5 12 21	71	41	38	(50)				Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) *...between 14.93 and 15.05mbgl: Destructured* *...between 15.29 and 15.35mbgl: Drilling Induced Fractures (D.I.F)* *...between 15.40 and 15.54mbgl: Destructured*	
		16.00 - 17.50	5 8 11	75	43	15	(50)				*...between 16.0 and 16.38mbgl: A.Z.C.L* *...between 16.38 and 16.58mbgl: Destructured* *...at 16.84mbgl: sand filled fracture* *...between 17.05 and 17.13mbgl: D.I.F* *...between 17.22 and 17.32mbgl: D.I.F*	16 17
		17.50 - 19.00	2 12 24	77	54	43	(50)				*...between 17.50 and 17.84mbgl: A.Z.C.L* *...between 17.84 and 18.03mbgl: Destructured* *...at 18.5mbgl: sand filled fracture*	18
		19.00 - 20.50	4 9 15	70	50	26					*...between 19.00 and 19.45mbgl: A.Z.C.L* *...between 19.45 and 19.66mbgl: Destructured*	19 20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
9.00	150	9.00	150	8.50	9.00			0.00	25.00			8.50	10.00	Polymer			20
25.00	97	25.00	97									10.00	11.50	Polymer			20
												11.50	13.00	Polymer			60
												13.00	14.50	Polymer			60
												14.50	16.00	Polymer			60

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater observed at 6.0mbgl, rising to 5.5mbgl. 3. Rotary coring commenced from 9.0mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 5.0 to 10.0m

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 14/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385029.61 N397519.36
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH108	CP+RC	34.72m AoD	LD	1:27	Sheet 5 of 5

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
											Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION)	
											…at 20.24mbgl: sand filled fracture	
							(50)				*…between 20.50 and 20.70mbgl: A.Z.C.L*	
											…between 20.70 and 20.80mbgl: D.I.F	
											…between 20.94 and 20.99mbgl: D.I.F	21
		20.50 - 22.00	9 18 43	87	71	65						
											…at 21.74mbgl: sand filled fracture	
							(50)				*…between 22.0 and 22.15mbgl: A.Z.C.L*	22
											…between 22.36 and 22.5mbgl: D.I.F	
		22.00 - 23.50	7 13 26	90	69	49						
											…at 23.01mbgl: sand filled fracture	23
							(50)				*…between 23.50 and 24.13mbgl: A.Z.C.L*	
												24
		23.50 - 25.00	5 9 15	58	30	18					*…between 24.13 and 24.34mbgl: D.I.F*	
											…between 24.41 and 24.54mbgl: D.I.F	
							(50)	25.00	9.72		End of Borehole at 25.000m	25

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter	Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool	Inclination and Orientation Depth Top	Inclination and Orientation Depth Base	Inclination	Orientation	Drilling Flush Depth Top	Drilling Flush Depth Base	Drilling Flush Type	Drilling Flush Colour	Drilling Flush Min (%)	Drilling Flush Max (%)
9.00	150	9.00	150	8.50	9.00			0.00	25.00			8.50	10.00	Polymer			20
25.00	97	25.00	97									10.00	11.50	Polymer			20
												11.50	13.00	Polymer			60
												13.00	14.50	Polymer			60
												14.50	16.00	Polymer			60

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater observed at 6.0mbgl, rising to 5.5mbgl. 3. Rotary coring commenced from 9.0mbgl. 4. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of 5.0 to 10.0m

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 10/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385001.47 N397592.56
Project No. : 4134	Crew Name: C.Jobson	Drilling Equipment: Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH109	CP	35.43m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.20	35.23		Grass over brown slightly gravelly sandy organic CLAY with rootlets. Gravel is fine subrounded mudstone. (TOPSOIL)
					0.30	35.13		Dark brown slightly silty slightly sandy angular to subangular fine to coarse brick, concrete GRAVEL (MADE GROUND)
								End of Borehole at 0.400m

1
2
3
4
5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
0.40	300							0.00	0.40		

Remarks

1. Inspection Pit hand excavated to 0.4mbgl; uncovering 'WATER' service warning. 2. Hole terminated and moved.

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 10/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385001.30 N397592.49
Project No. : 4134	Crew Name: C.Jobson	Drilling Equipment: Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH109A	CP+RC	35.45m AoD	LD	1:27	Sheet 1 of 3

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		0.00 - 0.20	B					Grass over brown slightly gravelly sandy organic CLAY with rootlets. Gravel is fine subrounded mudstone. (TOPSOIL)	
		0.20	D		0.20	35.25		Dark brown slightly silty slightly sandy angular to subangular fine to coarse brick, concrete GRAVEL (MADE GROUND)	
		0.20 - 0.70	B						
		0.70	D		0.70	34.75		Dark greyish brown slightly clayey sandy angular to rounded fine to coarse GRAVEL of brick, concrete, ceramics, coal, clinker with ash. (MADE GROUND)	
		0.70 - 1.20	B						
		1.00	ES						1
		1.20 - 1.70	B						
		1.20	SPT	N=2 (1,1/1,1,0,0)					
		2.00 - 2.45	D						2
		2.00	SPT	N=5 (1,0/0,1,2,2)					
		2.50	D						
					2.80	32.65		Orangish brown slightly clayey slightly silty gravelly fine to coarse SAND. Gravel is angular fine to coarse brick, sandstone and quartz and rare glass (MADE GROUND)	
		3.00	ES						3
		3.00 - 3.45	D						
		3.00	SPT	N=6 (2,4/3,1,1,1)					
		3.50	D						
		4.00 - 4.45	D						4
		4.00	SPT	N=5 (1,1/1,0,2,2)					
					4.30	31.15		Dark greyish brown slightly gravelly silty organic fine to coarse SAND with rare brick fragments. (MADE GROUND; suspected relict river bank deposits)	
		4.50 - 5.00	B						
		5.00 - 5.45	B						5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
10.00	150	10.00	150	6.80	7.00			0.00	10.45		

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater was observed from 6.0mbgl, rising to 5.4mbgl after 20min. 3. Obstruction encountered at 10mbgl during Rotary Coring; unable to progress casing.

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 10/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385001.30 N397592.49
Project No. : 4134	Crew Name: C.Jobson	Drilling Equipment: Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH109A	CP+RC	35.45m AoD	LD	1:27	Sheet 2 of 3

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		5.00	SPT	N=45 (3,4/5,12,14,14)				Dark greyish brown slightly gravelly silty organic fine to coarse SAND with rare brick fragments. (MADE GROUND; suspected relict river bank deposits)	
					5.20	30.25		Brown slightly silty sandy sub angular to rounded fine to coarse GRAVEL of various lithologies (ALLUVIUM; river deposits)	
		5.50 - 6.00	B						
		6.00 - 6.50	B						6
		6.00	SPT	N=26 (8,7/5,7,7,7)					
		7.00	SPT	50 (25 for 103mm/50 for 46mm)					7
					7.20	28.25		Very dense reddish orangish brown very gravelly SAND. Gravel is fine to coarse angular sandstone. (SHERWOOD SANDSTONE; Extremely weak)	
		7.50 - 8.00	B						
		8.00	SPT	50 (25 for 43mm/50 for 48mm)					8
		8.50 - 9.00	B						
		9.00	SPT	50 (25 for 58mm/50 for 41mm)					9
		10.00	D						10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
10.00	150	10.00	150	6.80	7.00			0.00	10.45		

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater was observed from 6.0mbgl, rising to 5.4mbgl after 20min. 3. Obstruction encountered at 10mbgl during Rotary Coring; unable to progress casing.

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 10/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385001.30 N397592.49
Project No. : 4134	Crew Name: C.Jobson	Drilling Equipment: Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH109A	CP+RC	35.45m AoD	LD	1:27	Sheet 3 of 3

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.00	SPT	50 (25 for 49mm/50 for 45mm)				Very dense reddish orangish brown very gravelly SAND. Gravel is fine to coarse angular sandstone. (SHERWOOD SANDSTONE; Extremely weak) *...at 10mbgl: Rotary core unable to progress hole due to metal obstruction at base of hole.*
					10.45	25.00		End of Borehole at 10.450m

11
12
13
14
15

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
10.00	150	10.00	150	6.80	7.00			0.00	10.45		

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater was observed from 6.0mbgl, rising to 5.4mbgl after 20min. 3. Obstruction encountered at 10mbgl during Rotary Coring; unable to progress casing.

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 11/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385020.73 N397590.89
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH110	CP+RC	35.34m AoD	LD	1:27	Sheet 1 of 4

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description	
		0.10	D					Asphalt (MADE GROUND)	
		0.10 - 0.30	B		0.15	35.19		Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)	
		0.30	D		0.30	35.04		Dark greyish brown slightly clayey sandy angular to rounded fine to coarse GRAVEL of brick, concrete and clinker with ash. (MADE GROUND)	
		0.30 - 0.40	B						
		0.40	D						
		0.40 - 0.70	B						
		0.50	ES						
		0.70 - 1.20	B		0.70	34.64		Dark brown clayey gravelly fine to coarse SAND. Gravel is fine to coarse angular brick and ash (MADE GROUND)	1
		1.20	D		1.20	34.14		Dark greyish brown slightly clayey fine to coarse SAND & GRAVEL. Gravel is angular to subangular fine to coarse brick, concrete with rare ash and clinker (MADE GROUND	
		1.20 - 1.70	B						
		1.20	SPT	N=5 (1,1/2,1,1,1)					
		1.50	ES						
		2.00 - 2.45	D						2
		2.00	SPT	N=2 (1,0/1,0,1,0)					
		2.50	D						
		3.00 - 3.45	D						3
		3.00	SPT	N=6 (1,1/2,1,2,1)					
		3.50	D						
		4.00 - 4.45	D						4
		4.00	SPT	N=6 (1,2/2,1,2,1)					
		4.50	D		4.50	30.84		Dark Brown mixed orangish brown slightly clayey slightly angular fine to coarse brick, sandstone and concrete (MADE GROUND)	
		4.50 - 5.00	B						
		5.00 - 5.45	D						5

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
5.20	150	5.20	150	4.50	5.00			0.00	17.50		
17.50	97	17.50	97	5.00	5.20						

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater was not observed. 3. Obstruction encountered at 5.2mbgl; unable to progress hole using CP method. 4. Rotary open hole undertaken from 5.2. 5. Rotary Coring commenced from 7.0mbgl. 6. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of XX to XX.

Percussion Drilling Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 11/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385020.73 N397590.89
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH110	CP+RC	35.34m AoD	LD	1:27	Sheet 2 of 4

Sample and In Situ Testing: Depth (m)	Type	Results				Depth (m)	Level (m)	Stratum Description
5.00	SPT	50 (25 for 145mm/50 for 12mm)						Dark Brown mixed orangish brown slightly clayey slightly angular fine to coarse brick, sandstone and concrete (MADE GROUND)
5.20	D					5.20	30.14	Suspected concrete block**
5.20	SPT	50 (25 for 125mm/50 for 21mm)						*…at 5.2mbgl: Obstruction. Continued with Rotary methods*
						5.50	29.84	GRAVEL of various lithologies** (ALLUVIUM; river deposits)
						6.60	28.74	Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand within drilling flush (CHESTER SANDSTONE FORMATION)
7.00	SPT	50 (25 for 30mm/50 for 50mm)			(50)			
7.00 - 8.50	6 9 12	42	40	15		7.87	27.47	Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION)
								…between 7.87 and 8.00mbgl: Destructured
					(50)			*…between 8.50 and 9.50mbgl: Assumed Zone of Core Loss (A.Z.C.L)*
8.50 - 10.00	5 6 7	33	8	0				*…between 9.50 and 9.78mbgl: Destructured*
								…between 9.90 and 10.00mbgl: Drilling Induced
	Type/Fl	TCR	SCR	RQD	(50)			

Well: 6, 7, 8, 9, 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation
5.20	150	5.20	150	4.50	5.00			0.00	17.50		
17.50	97	17.50	97	5.00	5.20						

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater was not observed. 3. Obstruction encountered at 5.2mbgl; unable to progress hole using CP method. 4. Rotary open hole undertaken from 5.2. 5. Rotary Coring commenced from 7.0mbgl. 6. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of XX to XX.

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 11/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385020.73 N397590.89
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH110	CP+RC	35.34m AoD	LD	1:27	Sheet 3 of 4

Well	Water	Depth (m)	Type /Fl	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
		10.00 - 11.50	7 14 20	53	37	27					Very weak reddish brown SANDSTONE. Distinctly weathered. Joints are rough dipping 10-20degrees, thinly bedded. (CHESTER SANDSTONE FORMATION) *…between 9.90 and 10.00mbgl: Drilling Induced Fractures (D.I.F)* *…between 10.00 and 10.70mbgl: A.Z.C.L* *…between 10.70 and 10.82mbgl: D.I.F*	11
								11.20	24.14		*…at 11.17mbgl: sand filled fracture* Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand (CHESTER SANDSTONE FORMATION) *…between 11.38 and 11.50mbgl: D.I.F / Destructured* *…between 11.50 and 11.98mbgl: A.Z.C.L*	
		11.50 - 13.00	3 8 20	68	62	29	(50)				*…at 12.73mbgl: sand filled fracture*	12
		13.00 - 14.50	4 8 11	47	21	7	(50)				*…between 13.00 and 13.80mbgl: A.Z.C.L* *…between 13.89 and 14.01mbgl: D.I.F / Destructured* *…between 14.05 and 14.27mbgl: D.I.F / Destructured*	13 14
							(50)					15

Hole Diameter Depth Base	Hole Diameter Diameter	Casing Diameter Depth Base	Casing Diameter Diameter	Chiselling Depth Top	Chiselling Depth Base	Chiselling Duration	Chiselling Tool	Inclination and Orientation Depth Top	Inclination and Orientation Depth Base	Inclination	Orientation	Drilling Flush Depth Top	Drilling Flush Depth Base	Drilling Flush Type	Drilling Flush Colour	Drilling Flush Min (%)	Drilling Flush Max (%)
5.20	150	5.20	150	4.50	5.00			0.00	17.50			7.00	8.50	Polymer			40
17.50	97	17.50	97	5.00	5.20							10.00	11.50	Polymer			40
												11.50	13.00	Polymer			40
												13.00	14.50	Polymer			40
												14.50	16.00	Polymer			40

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater was not observed. 3. Obstruction encountered at 5.2mbgl; unable to progress hole using CP method. 4. Rotary open hole undertaken from 5.2. 5. Rotary Coring commenced from 7.0mbgl. 6. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of XX to XX.

Rotary Core Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 11/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385020.73 N397590.89
Project No. : 4134	Crew Name: G. Clay+C.Jobson	Drilling Equipment: Comacchio Geo+Dando 3000

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
BH110	CP+RC	35.34m AoD	LD	1:27	Sheet 4 of 4

Well	Water	Depth (m)	Type /FI	Coring TCR	Coring SCR	Coring RQD	Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
[redacted]		14.50 - 16.00	0 0 0	0	0	0	(50)				Extremely weak reddish brown SANDSTONE, completely weathered, recovered as sand (CHESTER SANDSTONE FORMATION)	16
		16.00 - 17.50	0 0 0	0	0	0	(50)					17
								17.50	17.84		End of Borehole at 17.500m	18
												19
												20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
5.20	150	5.20	150	4.50	5.00			0.00	17.50			7.00	8.50	Polymer			40
17.50	97	17.50	97	5.00	5.20							10.00	11.50	Polymer			40
												11.50	13.00	Polymer			40
												13.00	14.50	Polymer			40
												14.50	16.00	Polymer			40

Remarks

1. Inspection Pit hand excavated to 1.2mbgl prior to drilling. 2. Groundwater was not observed. 3. Obstruction encountered at 5.2mbgl; unable to progress hole using CP method. 4. Rotary open hole undertaken from 5.2. 5. Rotary Coring commenced from 7.0mbgl. 6. Upon completion, exploratory hole installed with 50mm diameter standpipe, with a response zone of XX to XX.

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 11/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385002.17 N397517.16
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP101	TP	33.20m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.20 - 0.70	B		0.20	33.00		Loose bricks (MADE GROUND; demolition fill)
		0.50	ES					Dark brown mixed grey slightly sandy slightly silty angular fine to coarse brick and concrete GRAVEL with high cobble content. Occasional metal piping, slate, glass and rebar (MADE GROUND; demolition fill)
		1.20	ES					
		1.80 - 2.30	B					*...from 1.8mbgl: Pit unstable*
		2.50	ES					
					3.20	30.00		End of Borehole at 3.200m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.00	1.50		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability from 2.0mbgl. 3. Excavation backfilled due to pit instability.

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 11/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385034.03 N397526.21
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP102	TP	35.02m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.50	ES		0.50	34.52		Dark brown mixed grey slightly sandy slightly silty angular fine to coarse brick and concrete GRAVEL with high cobble content (MADE GROUND; demolition fill)
		0.80	ES					Dark brownish grey slightly sandy angular fine to coarse brick and concrete GRAVEL with high cobble content. Occasional metal piping, slate, glass and rebar (MADE GROUND; demolition fill)
					1.50	33.52		Tiled floor overlying concrete screed (MADE GROUND; Former building floor)
					1.70	33.32		Dark greyish brown slightly clayey gravelly coarse SAND. Gravel is fine to coarse limestone and quartz with rare concrete (MADE GROUND)
		1.80	ES		1.90	33.12		Orangish brown slightly silty gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse sandstone. (Suspected weathered bedrock)
		2.00	D					
		2.50	ES					
		2.50 - 3.00	B					
					3.30	31.72		End of Borehole at 3.300m

1
2
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Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.00	1.50		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit Stable. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385017.14 N397575.03
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP103	TP	35.25m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05	35.20		Asphalt (MADE GROUND)
								Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
					0.30	34.95		Dark greyish brown slightly clayey sandy angular fine to coarse brick and concrete GRAVEL / COBBLES including ceramic bricks, ash and rare clinker (MADE GROUND)
		0.50	ES					
								at 0.8mbgl: intact masonry wall running east west through northern pit face. Situated ontop of concrete pad
		1.20	ES					
					1.50	33.75		Concrete (MADE GROUND)
					1.70	33.55		*...at 1.5mbgl: Concrete step extending down to 1.8m (southern pit face); suspected footings of external extent of former Baths*
								...between 1.6 and 1.8mbgl: Concrete pad
								Dark greyish brown slightly clayey sandy angular fine to coarse brick and concrete GRAVEL / COBBLES including rare metal piping (MADE GROUND)
								...at 1.8mbgl: Concrete step extending down to 2.5m (centre of pit); suspected footings of external extent of former Baths
		2.50	ES		2.50	32.75		End of Borehole at 2.500m

1 2 3 4 5

Dimensions: Pit Length	Pit Width	Trench Support and Comment: Pit Stability	Shoring Used	Remarks	Pumping Data: Date	Rate	Remarks
3.00	1.50		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385035.19 N397573.23
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP104	TP	35.17m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.10	35.07		Asphalt (MADE GROUND)
					0.30	34.87		Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
		0.80	ES					Dark greyish brown slightly clayey sandy angular fine to coarse brick and concrete GRAVEL / COBBLES including ceramic bricks, ash and rare clinker (MADE GROUND) *…at 0.5mbgl: Large concrete blocks (suspected fascia of former baths)* *…from 0.5mbgl: intact masonry wall in east pit face. At 1.5mbgl, becomes loose masonry to a depth of 2.5mbgl.*
		1.50	ES		1.50	33.67		Greyish brown slightly clayey very sandy angular fine to coarse brick, concrete and limestone GRAVEL with occasional pockets of soft clay. (MADE GROUND) *…from 2.0mbgl: pockets of soft grey clay*
		2.20	ES					
					2.90	32.27		Orangish brown slightly silty gravelly fine to coarse SAND. Gravel is subangular to rounded fine to coarse sandstone and rare quartz (ALLUVIUM)
					3.20	31.97		End of Borehole at 3.200m

Dimensions: Pit Length	Pit Width	Trench Support and Comment: Pit Stability	Shoring Used	Remarks	Pumping Data: Date	Rate	Remarks
3.00	1.50		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 10/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385011.16 N397594.07
Project No. : 4134	Crew Name:	Equipment: Hand Excavated

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP105	TP	35.55m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.20	35.35		Grass over brown slightly gravelly sandy organic CLAY with rootlets. Gravel is fine subrounded mudstone. (TOPSOIL)
					0.35	35.20		Dark brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse brick, concrete (MADE GROUND)
								…at 0.3mbgl: Plastic 'Water' service warning at southern pit extent. Location terminated due to space constraints between service and river wall
								End of Borehole at 0.400m

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4
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Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
0.30	0.30		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 11/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385018.68 N397566.74
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TT01	TP	35.21m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05	35.16		Asphalt (MADE GROUND)
								Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
					0.30	34.91		Dark grey slightly sandy angular brick and concrete GRAVEL / COBBLES with occasional rebar, piping and occasional concrete blocks (MADE GROUND; demolition fill)
		0.50	ES					
		0.50 - 1.00	B					
								…at 0.8mbgl: Intact masonry wall running north south through pit; joining masonry wall running east west at northern pit face.
		1.20	ES					
					1.50	33.71		Concrete (MADE GROUND)
								…from 1.8mbgl at southern pit extent to 2.9mbgl toward the north: sloping concrete
					1.70	33.51		Greyish brown slightly gravelly very clayey SAND compacted between masonry wall and concrete (MADE GROUND)
								…at 1.8mbgl: Asbestos Cement
		2.20	ES					
		2.50 - 2.80	B					
					3.50	31.71		End of Borehole at 3.500m

Dimensions: Pit Length	Dimensions: Pit Width	Trench Support and Comment: Pit Stability	Shoring Used	Remarks	Pumping Data: Date	Rate	Remarks
4.00	2.00		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385024.68 N397558.92
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TT02	TP	35.25m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05	35.20		Asphalt (MADE GROUND)
								Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
					0.40	34.85		Dark brown slightly silty sandy angular fine to coarse brick and concrete GRAVEL with rare metal scrap, slate. Medium cobble content. (MADE GROUND)
		0.60	ES					*…from 0.5mbgl: intact masonry wall running east west across south pit face, concrete footing at 2.0mbgl*
		1.40	ES					
					1.50	33.75		Concrete with thin wood coating (MADE GROUND)
					1.70	33.55		Dark greyish brown slightly silty angular brick and concrete GRAVEL / COBBLES with occasional rebar, clinker, ash and slate (MADE GROUND; demolition fill)
		2.00	ES					
					2.10	33.15		Tiled floor with mortar overlying sandstone paving (MADE GROUND; former building floor)
					2.35	32.90		Loose brick masonry (MADE GROUND)
					2.45	32.80		Very compacted grey angular fine to coarse limestone and concrete GRAVEL (MADE GROUND; Victorian-era sub-base)
					2.80	32.45		End of Borehole at 2.800m

Dimensions: Pit Length	Pit Width	Trench Support and Comment: Pit Stability	Shoring Used	Remarks	Pumping Data: Date	Rate	Remarks
4.00	2.00		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 12/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385034.29 N397564.73
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TT03	TP	35.24m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.10	35.14		Asphalt (MADE GROUND)
								Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
					0.70	34.54		Dark greyish brown slightly clayey sandy angular fine to coarse brick and concrete GRAVEL / COBBLES including ceramic bricks, ash and rare clinker and fragments of asbestos cement board(MADE GROUND)
		0.80	ES					
		1.20	ES					
		1.50	ES					
					1.60	33.64		Concrete (MADE GROUND)
		1.80	ES		1.75	33.49		Dark greyish brown slightly silty angular brick and concrete GRAVEL / COBBLES with occasional rebar, clinker, ash and slate (MADE GROUND; demolition fill)
					2.00	33.24		Brown gravelly brick and concrete COBBLES / GRAVEL with occasional tiles (MADE GROUND; demolition fill)
								…at 2.0mbgl: concrete extends from north pit face to pit centre, dropping down to 2.5m with ceramic tiled fascia exposed (suspected edge of former swimming pool)
					2.50	32.74		
					2.50	32.74		Ceramic Tiled floor (MADE GROUND; Former baths)
								End of Borehole at 2.900m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
4.00	2.00		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 13/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385018.27 N397553.82
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TT04	TP	35.17m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05	35.12		Asphalt (MADE GROUND)
								Light greyish brown angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
					0.30	34.87		Dark greyish brown slightly clayey sandy angular fine to coarse brick, concrete GRAVEL with occasional tiles. Medium cobble content (MADE GROUND)
					0.40	34.77		Intact masonry wall recovered with reworked sandy gravelly clay (MADE GROUND)
		0.50	ES					*…at 0.4mbgl: Concrete boulder [1.4x0.4x0.8m]*
								…at 0.8mbgl: intact masonry walls running north south through pit approx 1.2m apart
								…at 0.8mbgl: block of masonry with stone sewer pipe encased
								..at 1.2mbgl in between the two walls: Very compacted granular fill (subbase). Difficult to excavate.
		1.50	ES					
		2.50	ES					
					3.70	31.47		End of Borehole at 3.700m

Dimensions: Pit Length	Dimensions: Pit Width	Trench Support and Comment: Pit Stability	Shoring Used	Remarks	Pumping Data: Date	Rate	Remarks
4.00	2.00		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 13/08/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385032.72 N397550.45
Project No. : 4134	Crew Name:	Equipment: Tracked Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TT05	TP	35.31m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.05	35.26		Asphalt (MADE GROUND)
								Light greyish brown sandy angular fine to coarse limestone GRAVEL (MADE GROUND; sub-base)
					0.70	34.61		*…from 0.6mbgl: intact masonry wall running east west across northern pit face. Situated on conrete footing at 1.6mbgl*
		0.80	ES					Dark greyish brown slightly clayey slightly sandy angular fine to coarse brick, ceramic tiles, concrete and slate GRAVEL with occasional ash. High cobble content. (MADE GROUND
								…0.7mbgl: Loose masonry along east face
								…0.9mbgl: concrete 0.15m thick exposed in west pit face
		1.50	ES					
		2.50	ES					
					2.60	32.71		Tiled floor (MADE GROUND; former baths)
					2.60	32.71		End of Borehole at 2.600m

1 2 3 4 5

Dimensions: Pit Length	Pit Width	Trench Support and Comment: Pit Stability	Shoring Used	Remarks	Pumping Data: Date	Rate	Remarks
4.00	2.00		None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Groundwater not observed. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 09/12/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385021.64 N397575.89
Project No. : 4134	Crew Name:	Equipment: Volvo EC210

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP106	TP	33.59m AoD	AS	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
								Loose dark brown mottled black and grey very clayey gravelly SAND. Gravel is fine to coarse and subangular to angular of brick, slate, clinker, limestone and other mixed lithologies. Occasional black ashy pocket inclusions also noted. (MADE GROUND : Demolition type fill material)
					1.20	32.39		Light brown very loose very silty SAND with frequent root traces and organic matter inclusions (ALLUVIM)
					2.90	30.69		Light brown sandy GRAVEL. Gravel is rounded to subrounded of river terrace type origin. (RIVER TERRACE DEPOSITS)
					3.10	30.49		*…moderate groundwater strike reported from within River Terrace gravels, filling pit bottom*
					3.20	30.39		Pinkish orange fine to coarse gravelly SAND of Sandstone. (WEATHERED BEDROCK)
								End of Borehole at 3.200m

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.50	1.00	Poor within Alluviual soils	None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability from 1.2 to 2. 9. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 09/12/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385031.05 N397557.88
Project No. : 4134	Crew Name:	Equipment: Volvo EC210

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP107	TP	32.88m AoD	AS	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.07	32.81		Ceramic pool tile overlying grey screed (MADE GROUND)
								Mid brown SANDSTONE rock slabs overly a single course of brickwork (MADE GROUND)
					0.40	32.48		Well compact Victorian era CONCRETE with frequent subrounded Gravel inclusions. (MADE GROUND)
					0.80	32.08		Light brown SAND & GRAVEL of Limestone, Victorian era sub base. (MADE GROUND)
					1.20	31.68		Firm light brown gravelly CLAY. Gravel is fine to medium of mixed lithology including rare brick traces. Possible made ground relating to historic site levelling / reprofiling operations. (MADE GROUND)
					2.00	30.88		Soft, locally very soft, dark brown and black, very silty highly plastic organic rich CLAY. (ALLUVIUM)
					4.40	28.48		Pinkish orange fine to coarse gravelly SAND of Sandstone. (WEATHERED BEDROCK)
					4.50	28.38		End of Borehole at 4.500m

1 2 3 4 5

Dimensions: Pit Length	Dimensions: Pit Width	Trench Support and Comment: Pit Stability	Shoring Used	Remarks	Pumping Data: Date	Rate	Remarks
2.50	1.00	Poor within Alluviual soils	None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability from 2.0 to 4.4m. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 09/12/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385018.67 N397546.74
Project No. : 4134	Crew Name:	Equipment: Volvo EC210

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP108	TP	34.00m AoD	AS	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
								Loose dark brown mottled black and grey very clayey gravelly SAND. Gravel is fine to coarse and subangular to angular of brick, slate, clinker, limestone and other mixed lithologies. Occasional black ashy pocket inclusions also noted. (MADE GROUND : Demolition type fill material)
					2.20	31.80		Soft, locally very soft, dark grey and brown, very silty highly plastic organic rich CLAY. (ALLUVIUM)

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.50	1.00	Poor within Alluviual soils	None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability from 2.2 to 5.4m. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 09/12/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385018.67 N397546.74
Project No. : 4134	Crew Name:	Equipment: Volvo EC210

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP108	TP	34.00m AoD	AS	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
								Soft, locally very soft, dark grey and brown, very silty highly plastic organic rich CLAY. (ALLUVIUM)
								…significant groundwater strike reported (possible relic swimming pool drainage), filling pit bottom
					5.40	28.60		Pinkish orange fine to coarse gravelly SAND of Sandstone. (WEATHERED BEDROCK)
					5.50	28.50		End of Borehole at 5.500m

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.50	1.00	Poor within Alluviual soils	None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability from 2.2 to 5.4m. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 09/12/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385041.50 N397545.65
Project No. : 4134	Crew Name:	Equipment: Volvo EC210

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP109	TP	34.22m AoD	AS	1:25	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Loose dark brown mottled black and grey very clayey gravelly SAND. Gravel is fine to coarse and subangular to angular of brick, slate, clinker, limestone and other mixed lithologies. Occasional black ashy pocket inclusions also noted. (MADE GROUND : Demolition type fill material)
					2.20	32.02		Soft, locally very soft, dark grey and brown, very silty highly plastic organic rich CLAY. (ALLUVIUM)

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.50	1.00	Poor within Alluviual soils	None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability from 2.2 to 5.4m. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 09/12/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385041.50 N397545.65
Project No. : 4134	Crew Name:	Equipment: Volvo EC210

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP109	TP	34.22m AoD	AS	1:25	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Soft, locally very soft, dark grey and brown, very silty highly plastic organic rich CLAY. (ALLUVIUM)
					5.40	28.82		
					5.50	28.72		Pinkish orange fine to coarse gravelly SAND of Sandstone. (WEATHERED BEDROCK)
								End of Borehole at 5.500m

6
7
8
9
10

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.50	1.00	Poor within Alluviual soils	None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability from 2.2 to 5.4m. 3. Upon completion excavation backfilled with arisings

Trial Pit Log

Project Name: Plots O + N	Client: Mayfield Partnership Ltd	Date: 09/12/2020
Location: Mayfield	Contractor: JB Site Investigation	Co-ords: E385056.50 N397550.34
Project No. : 4134	Crew Name:	Equipment: Volvo EC210

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP110	TP	33.12m AoD	LD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
					0.15	32.97		Steel reinforced CONCRETE floor slab. (MADE GROUND)
					0.20	32.92		Reddish brown SAND & GRAVEL of Brick and Concrete. (MADE GROUND : Sub base)
					0.50	32.62		Light brown sandy GRAVEL. Gravel is rounded to subrounded of river terrace type origin. (RIVER TERRACE DEPOSITS)
					0.90	32.22		Pinkish orange fine to coarse gravelly SAND of Sandstone. (WEATHERED BEDROCK)
								End of Borehole at 0.900m

1 2 3 4 5

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
2.00	1.00	Fair	None				

Remarks

1. Location cleared for services and UXO prior to excavation. 2. Pit instability reasonable throught. 3. Upon completion excavation backfilled with arisings

Table 10.0 :Bedrock CPT Penetration

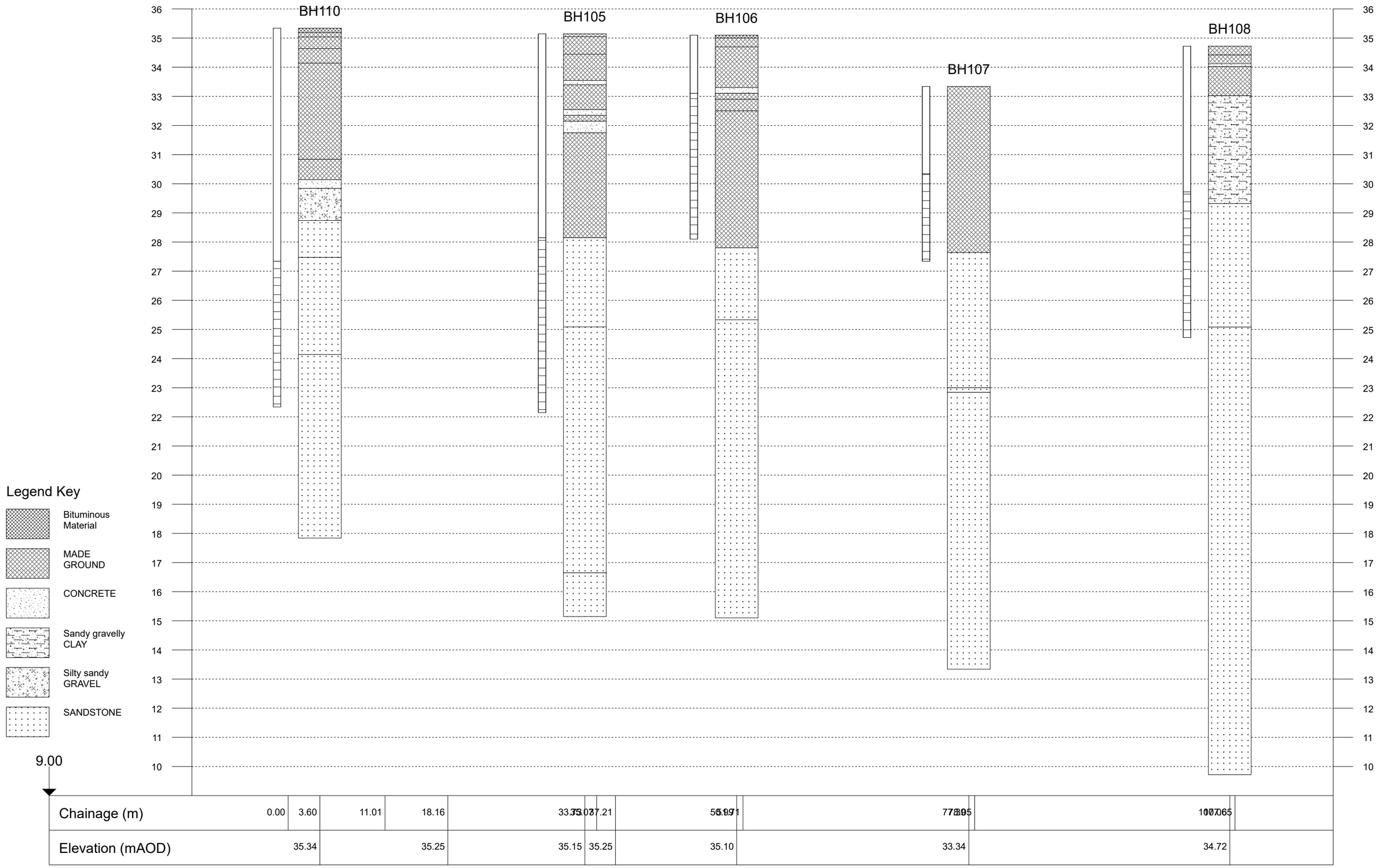
ID	Depth of Test	Reported N Value	Total Penetration (mm)
BH109A	7.00	50	46
	8.00		48
	9.00		41
	10.00		45
BH110	7.00	50	50
	8.50		50
	10.00		60
	11.50		60
	13.00		50
	14.50		50
	16.00		60
	17.50		85
BH105	9.00	50	35
	10.50		85
	12.00		60
	16.50		70
	19.50		40
BH106	9.00	50	70
	10.50		85
	12.00		50
	13.50		40
	15.00		40
	16.50		50
	18.00		135
	19.50		40
BH107	7.50	50	170
	9.00		70
	10.50		31
	12.00		145
	13.50		60
	15.00		60
	16.50		125
	18.00		60
	19.50		30
BH108	7.00	50	93
	8.00		53
	9.00		40
	10.00		86
	11.50		60
	13.00		85
	14.50		30
	16.00		50
	17.50		60
	19.00		40
	20.50		40
	22.00		58
	23.50		30
	25.00		30

Project Id: 4134	Title: N-S Geological Cross Section
Project Title: Plots O + N	Vertical Scale: 1:143
Location: Mayfield	Horizontal Scale: 1:502
Client: Mayfield Partnership Ltd	Engineer: L. Daley

Chainage (m)	0.00	22.95	23.83	31.69	39.97	47.08	49.20	60.62	61.65	63.31	71.12	85.35	85.85	96.34	117.59	123.07	124.84
Offset (m)	0.49	0.38				1.04		1.27		1.63	0.21	0.38		0.39	5.68	0.35	
Elevation (mAOD)	35.34	35.17				35.21		35.25		35.15	35.24	35.31		35.10	35.02	34.72	

Project Id: 4134
Project Title: Plots O + N
Location: Mayfield
Client: Mayfield Partnership Ltd

Title: Monitoring Well Cross Section
Vertical Scale: 1:122
Horizontal Scale: 1:404
Engineer: L. Daley



BH105 Box 1
CORE RUN 1 AND 2
7.5m – 10.5m

BH105 Box 2
CORE RUN 3 AND 4
10.5m – 13.5m

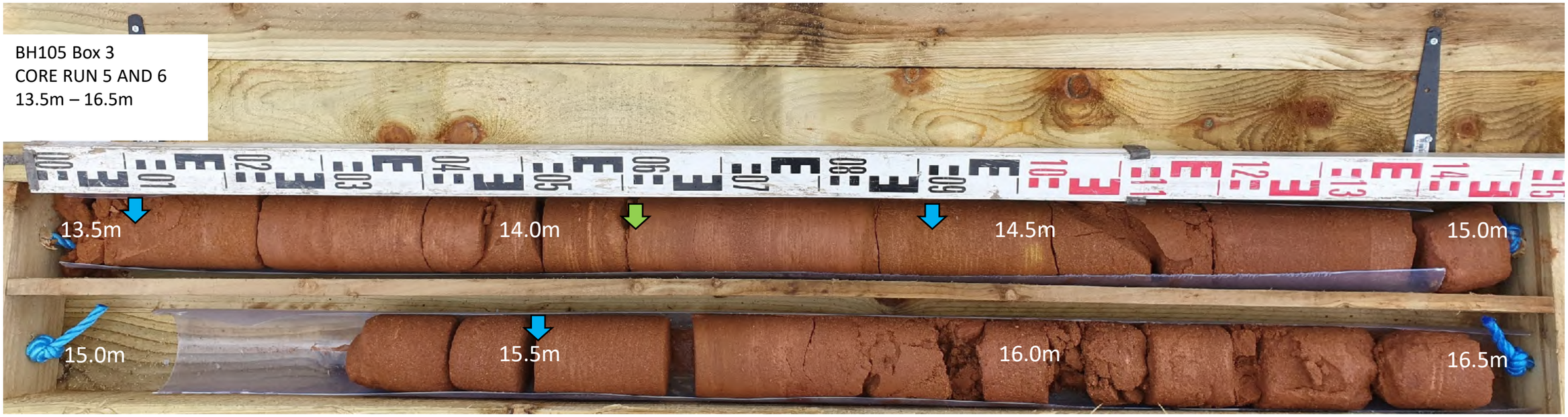
UCS Strength Testing Sample

Point Load Strength Testing Sample

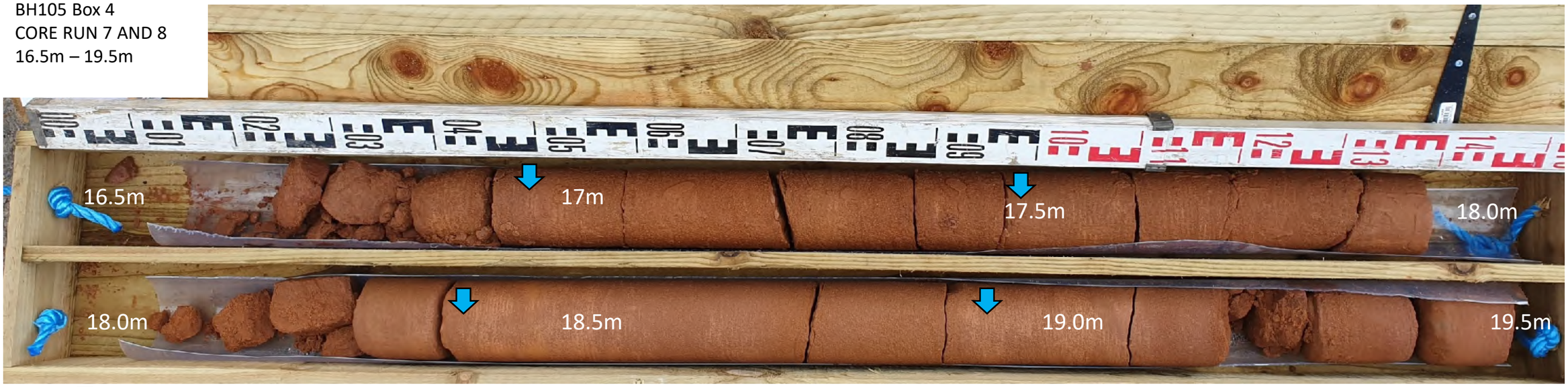
RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH105	DRAWN BY
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 1, 2, 3 and 4	

COMPLEX CHALLENGES ... MADE SIMPLE

BH105 Box 3
CORE RUN 5 AND 6
13.5m – 16.5m



BH105 Box 4
CORE RUN 7 AND 8
16.5m – 19.5m



UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH105	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 5, 6, 7 and 8	

COMPLEX CHALLENGES ... MADE SIMPLE

UCS Strength Testing Sample

Point Load Strength Testing Sample

JOB NO	4134	BOREHOLE ID	BH105	DRAWN BY AS
PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 9	

COMPLEX CHALLENGES ... MADE SIMPLE

UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH106	DRAWN BY
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 1, 2, 3 and 4	

COMPLEX CHALLENGES ... MADE SIMPLE

UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH106	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 5, 6, 7 and 8	

COMPLEX CHALLENGES ... MADE SIMPLE

BH106 Box 5
CORE RUN 9
19.5m – 20.0m

UCS Strength Testing Sample

Point Load Strength Testing Sample

JOB NO	4134	BOREHOLE ID	BH106	DRAWN BY AS
PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 9	

COMPLEX CHALLENGES ... MADE SIMPLE

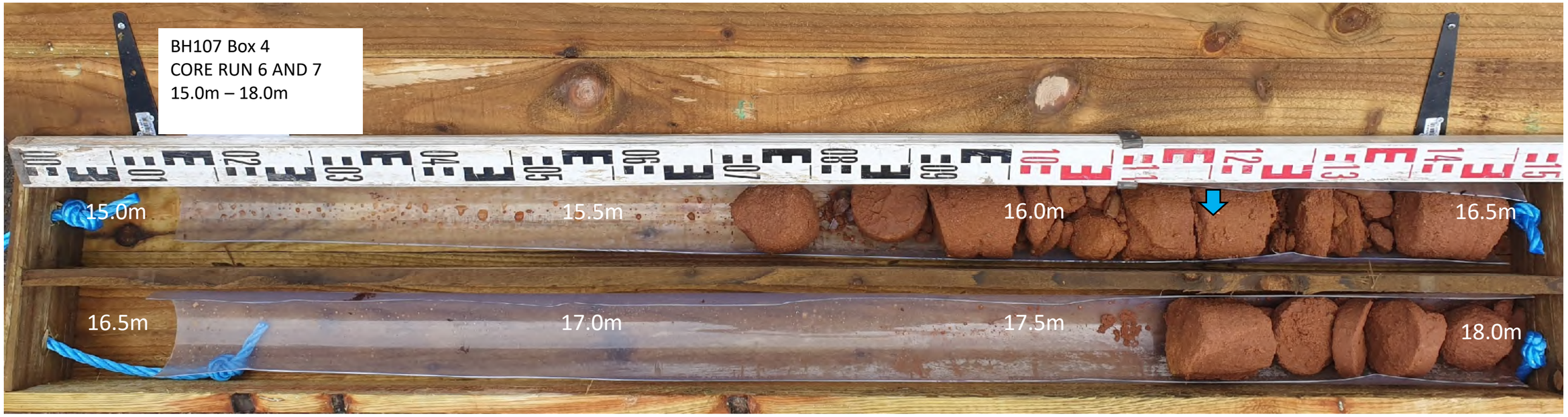
BH107 Box 1
CORE RUN 1 7.5m – 9.0M

UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH107	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 1, 2 and 3.	

COMPLEX CHALLENGES ... MADE SIMPLE

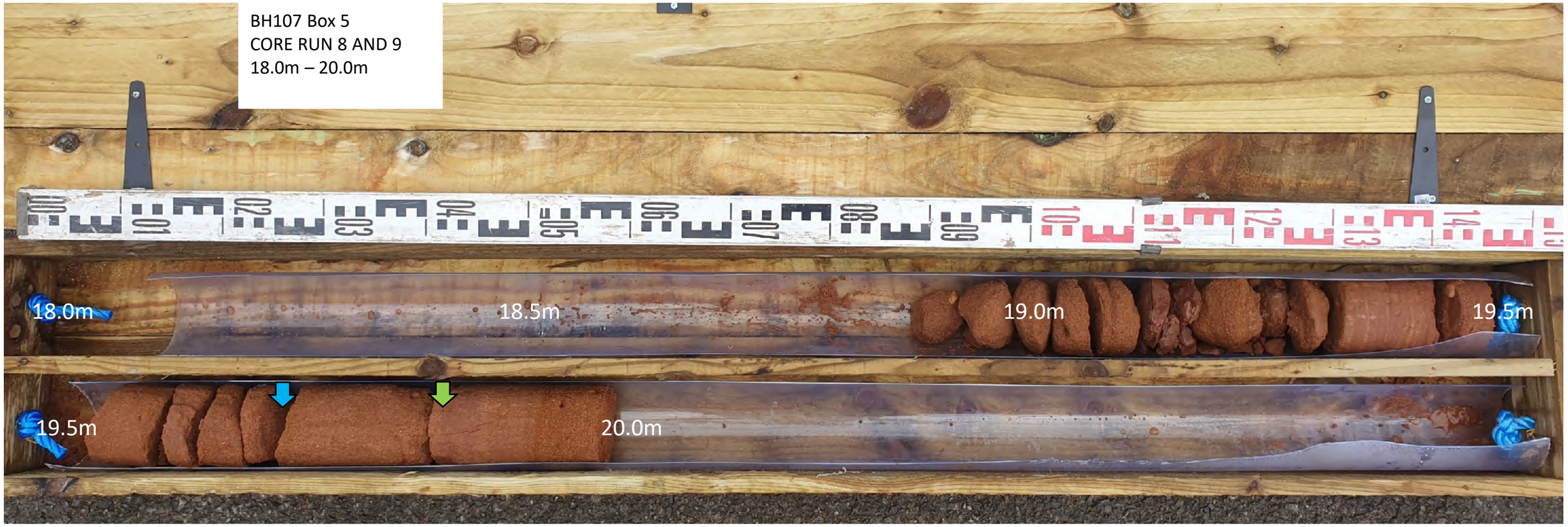


UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH107	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 4, 5, 6, and 7	

COMPLEX CHALLENGES ... MADE SIMPLE



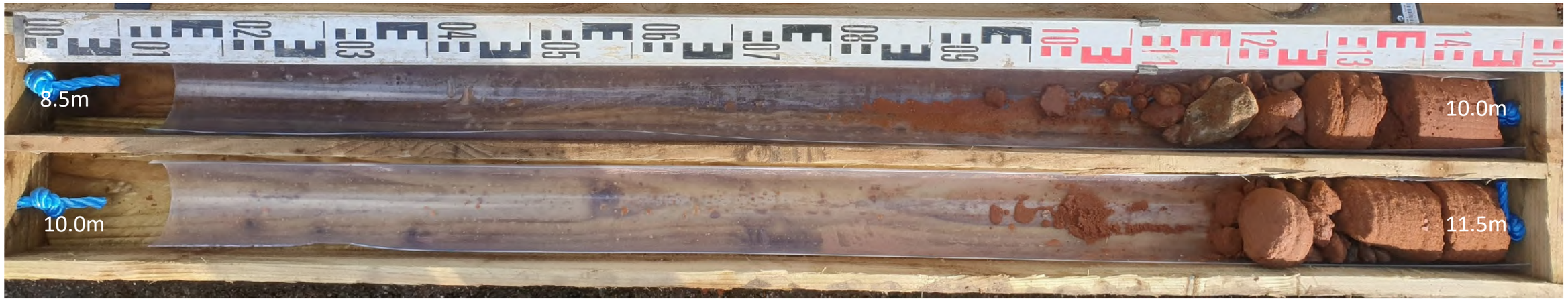
UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH107	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 8 & 9	

COMPLEX CHALLENGES ... MADE SIMPLE

BH108 Box 1
CORE RUN 1 AND 2
8.5m – 11.5m



BH108 Box 2
CORE RUN 3 AND 4
11.5m – 14.5m

UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH108	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 1, 2, 3 and 4	

COMPLEX CHALLENGES ... MADE SIMPLE

UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH108	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 5, 6, 7 and 8	

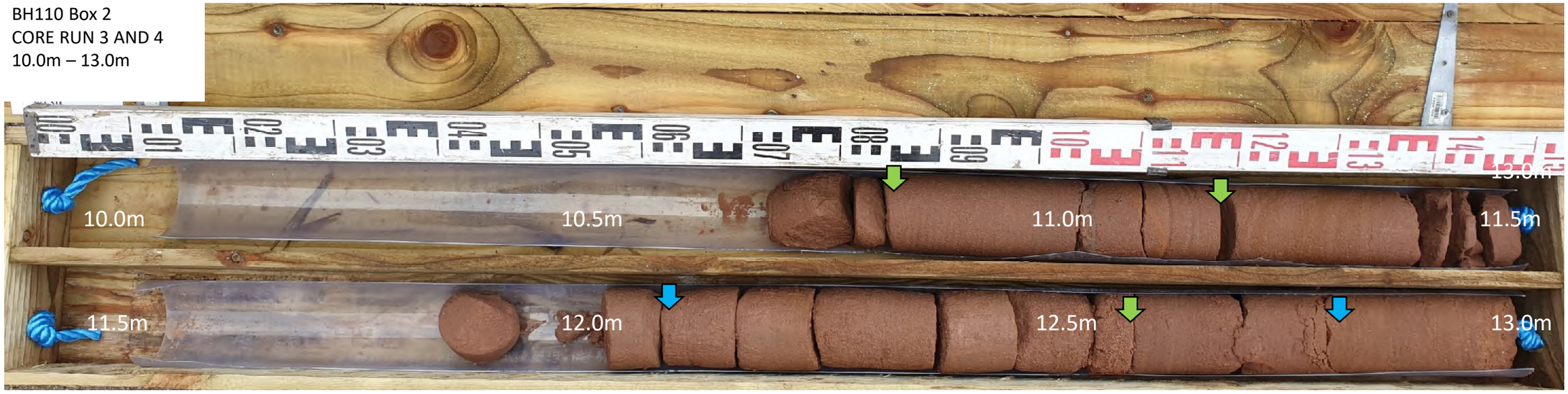
COMPLEX CHALLENGES ... MADE SIMPLE

UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH108	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 9, Run 10 and Run 11	

COMPLEX CHALLENGES ... MADE SIMPLE



UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH110	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 1, 2, 3 and 4	

COMPLEX CHALLENGES ... MADE SIMPLE

BH110 Box 3
CORE RUN 5 AND 6
13.0m – 16.0m

BH110 Box 4
CORE RUN 7
16.0m – 17.5m

UCS Strength Testing Sample

Point Load Strength Testing Sample

RoC CONSULTING	JOB NO	4134	BOREHOLE ID	BH110	DRAWN BY AS
	PROJECT TITLE	Mayfield Plots O+N	SKETCH TITLE	Rock Core Photographs, Run 5, 6 and 7	

COMPLEX CHALLENGES ... MADE SIMPLE

Fig 1.0 TP106

5m ranging staff for scale

Fig 1.1 TP107

5m ranging staff for scale

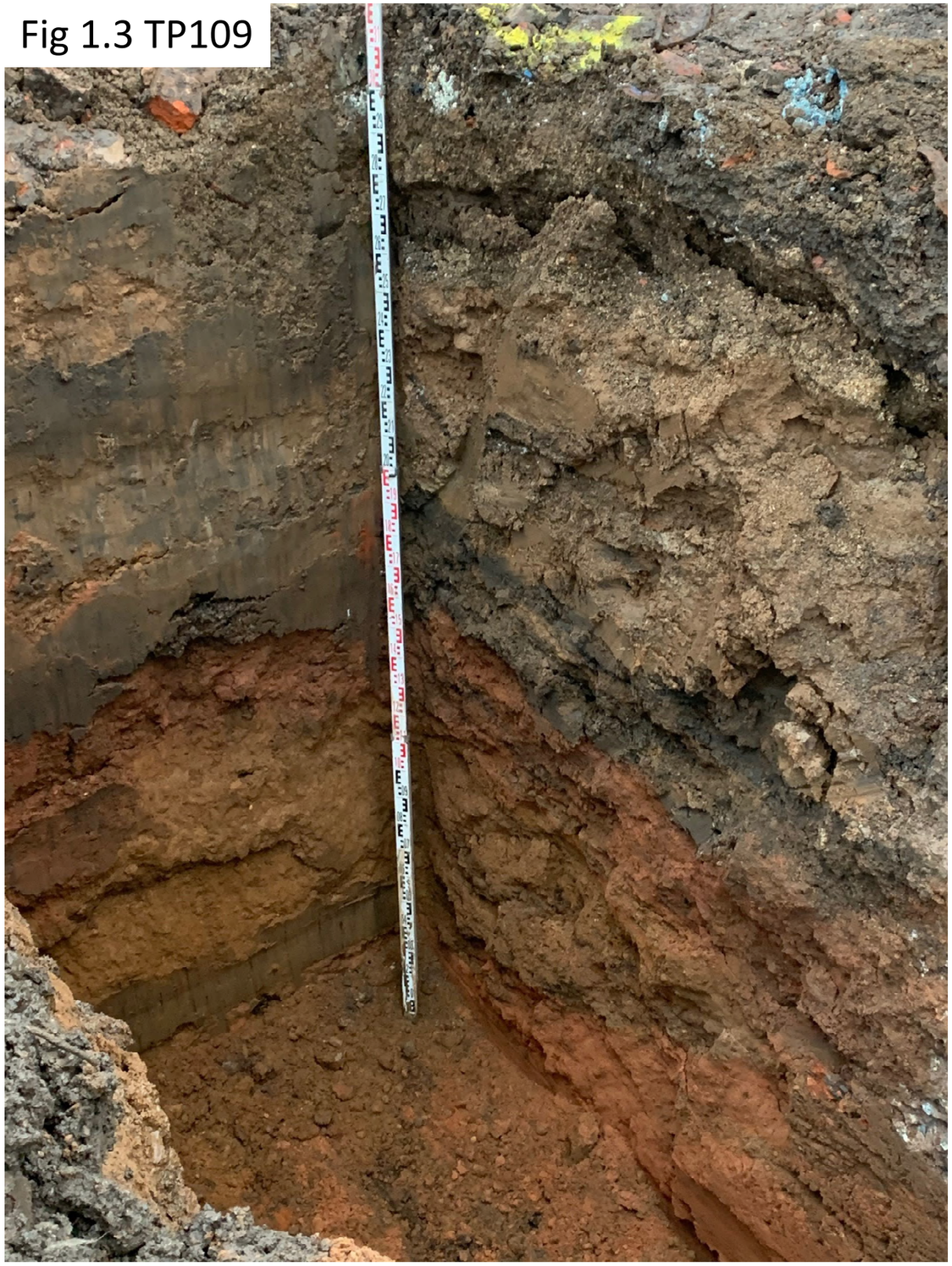
RoC CONSULTING	JOB NO	4134	SKETCH NO	TP101	DRAWN BY : AS 09 12 2020
	PROJECT TITLE	Poulton Additional Trial Holes	SKETCH TITLE	Trial Hole Photographs TP106 and TP107	

COMPLEX CHALLENGES ... MADE SIMPLE

Fig 1.2 TP108

5m ranging staff for scale

Fig 1.3 TP109

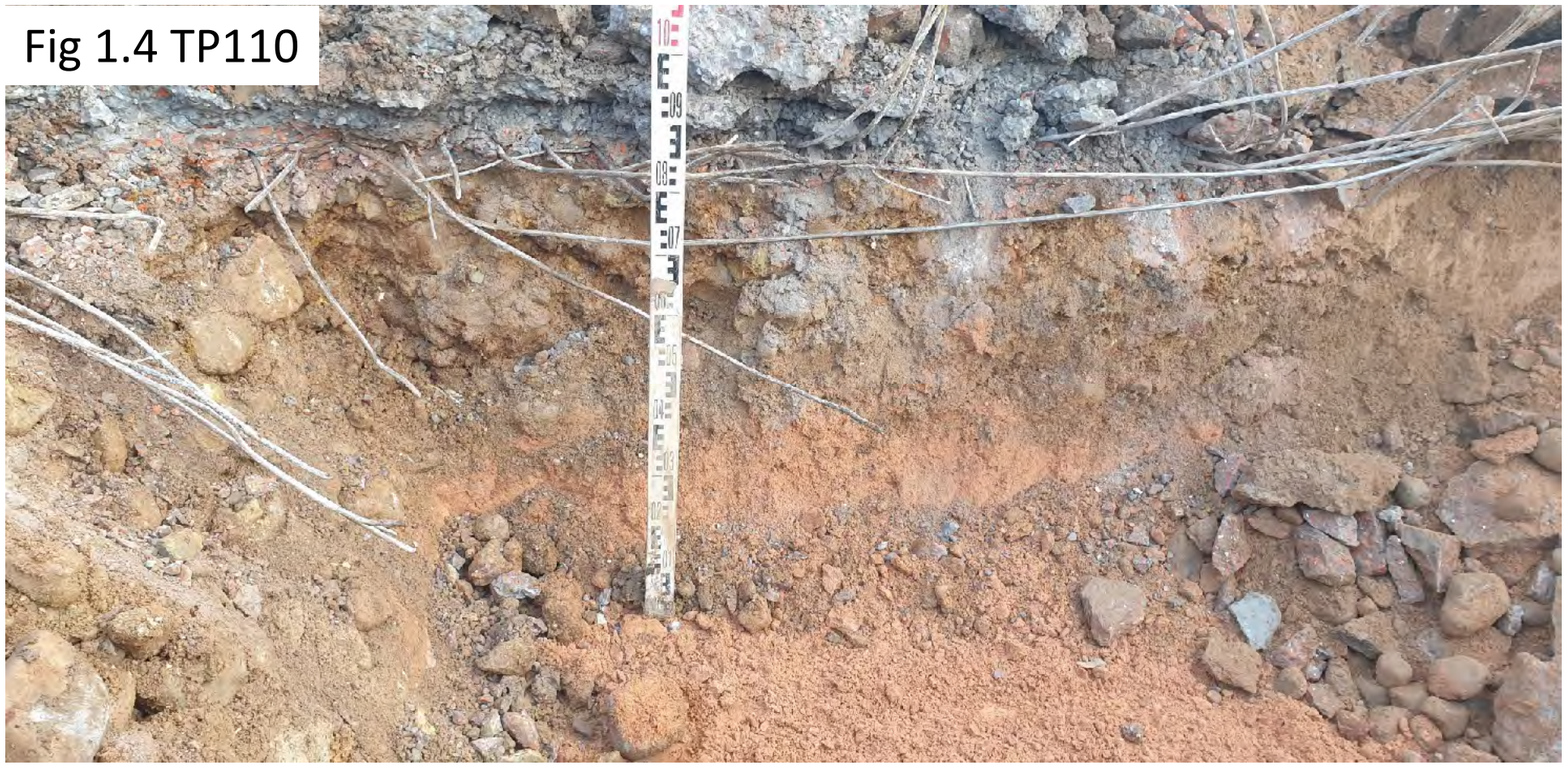


5m ranging staff for scale

RoC CONSULTING	JOB NO	4134	SKETCH NO	TP101	DRAWN BY : AS 09 12 2020
	PROJECT TITLE	Poulton Additional Trial Holes	SKETCH TITLE	Trial Hole Photographs TP108 and TP109	

COMPLEX CHALLENGES ... MADE SIMPLE

Fig 1.4 TP110

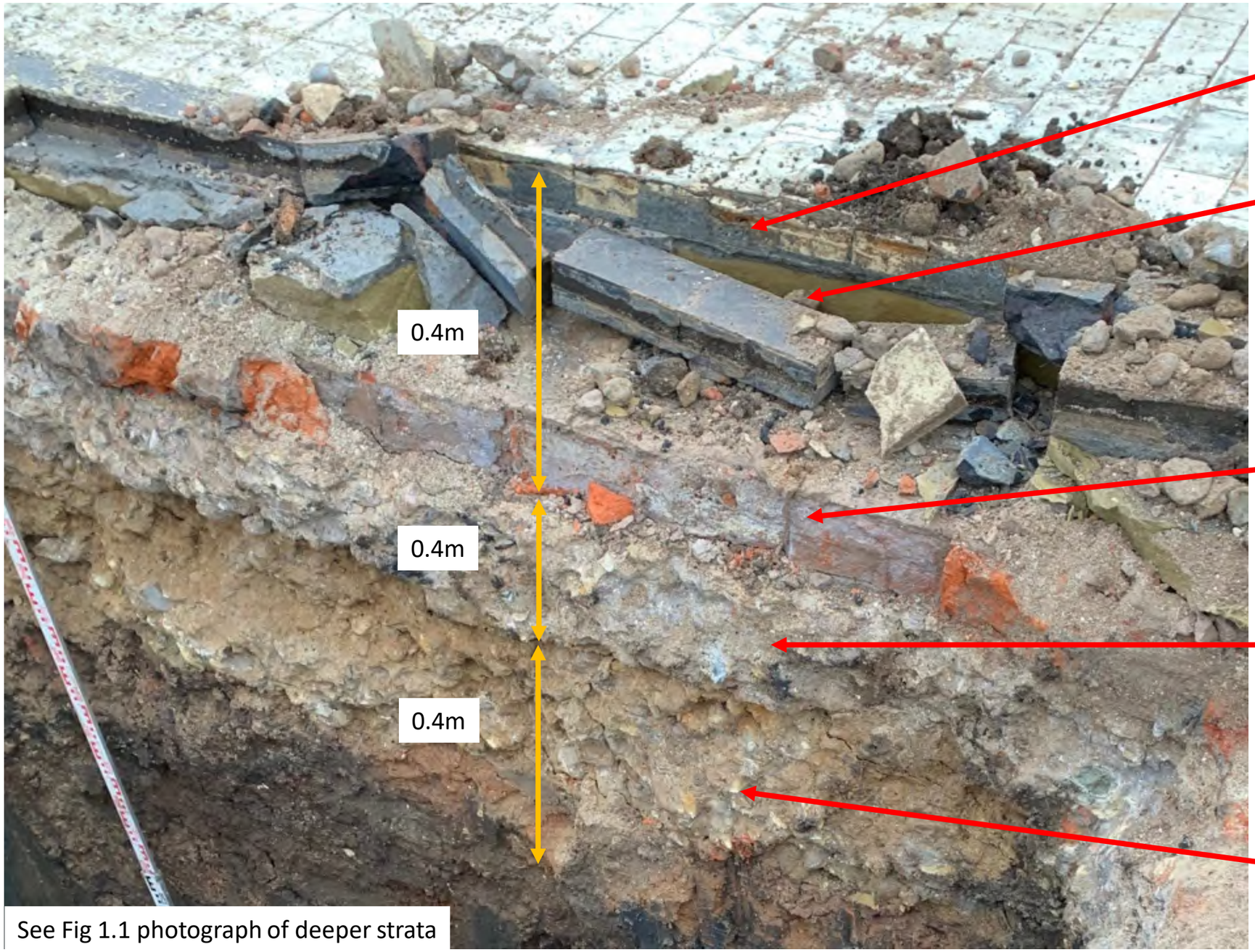


TP107 Arisings

Organic rich clay

RoC CONSULTING	JOB NO	4134	SKETCH NO	TP101	DRAWN BY : AS 09 12 2020
	PROJECT TITLE	Poulton Additional Trial Holes	SKETCH TITLE	Trial Hole Photographs TP110, TP107 Arisings	

COMPLEX CHALLENGES ... MADE SIMPLE



Swimming pool floor tiles bonded to brick

York stone style paving slabs

Single coarse of brick work

Concrete with much gravel

Dense Limestone Sand and Gravel

RoC CONSULTING	JOB NO	4134	SKETCH NO	TP101	DRAWN BY : AS 09 12 2020
	PROJECT TITLE	Poulton Additional Trial Holes	SKETCH TITLE	Section through ladies swimming pool	

COMPLEX CHALLENGES ... MADE SIMPLE

Photo No. 1: TP101

Photo No. 2: TP101 Arisings

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

ROC CONSULTING

Photo No. 3: TP102

Photo No. 4: TP102 – Made Ground / natural horizon

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

RoC CONSULTING

Photo No. 5: TP103

Photo No. 6: TP103

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

RoC CONSULTING

Photo No. 7: TP104

Photo No. 8: TP104

Client:	Mayfield Partnership Ltd	Commercial Wharf, 6 Commercial Street, Manchester, M15 4PZ **T** 0161 214 5390 **W** rocconsulting.com
Project Name:	Plots O + N, Mayfield	
Project No.:	4134	

RoC CONSULTING

Photo No. 9: TP104

Photo No. 10: TP104 Arisings

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

ROC CONSULTING

Photo No. 11: TT01

Photo No. 12: TT01

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

ROC CONSULTING

Photo No. 13: TT01

Photo No. 14: TT01

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

ROC CONSULTING

Photo No. 15: TT02

Photo No. 16: TT02

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

RoC CONSULTING

Photo No. 17: TT02

Photo No. 18: TT02

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

RoC CONSULTING

Photo No. 19: TT02

Photo No. 20: TT02

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

RoC CONSULTING

Photo No. 21: TT02

Photo No. 22: TT02

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

ROC CONSULTING

Photo No. 23: TT03

Photo No. 24: TT03

Client:	Mayfield Partnership Ltd	Commercial Wharf, 6 Commercial Street, Manchester, M15 4PZ **T** 0161 214 5390 **W** rocconsulting.com
Project Name:	Plots O + N, Mayfield	
Project No.:	4134	

RoC CONSULTING

Photo No. 25: TT03

Photo No. 26: TT03

Client:	Mayfield Partnership Ltd	Commercial Wharf, 6 Commercial Street, Manchester, M15 4PZ **T** 0161 214 5390 **W** rocconsulting.com
Project Name:	Plots O + N, Mayfield	
Project No.:	4134	

RoC CONSULTING

Photo No. 27: TT04

Photo No. 28: TT04

Client:	Mayfield Partnership Ltd	Commercial Wharf, 6 Commercial Street, Manchester, M15 4PZ **T** 0161 214 5390 **W** rocconsulting.com
Project Name:	Plots O + N, Mayfield	
Project No.:	4134	

RoC CONSULTING

Photo No. 29: TT04

Photo No. 30: TT04

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

RoC CONSULTING

Photo No. 31: TT04

Photo No. 32: TT04

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
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W rocconsulting.com

RoC CONSULTING

Photo No. 33: TT05

Photo No. 34: TT05

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

RoC CONSULTING

Photo No. 35: TT05

Photo No. 36: TT05

Client:	Mayfield Partnership Ltd
Project Name:	Plots O + N, Mayfield
Project No.:	4134

Commercial Wharf,
6 Commercial Street,
Manchester,
M15 4PZ
T 0161 214 5390
W rocconsulting.com

ROC CONSULTING

APPENDIX C – CHEMICAL TESTING RESULTS

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 20/06419/2

Amendments: Request for Additional Analysis

Envirolab Job Number: 20/06419
Issue Number: 3 **Date:** 22 October, 2020

Client: ROCP LIMITED
Commercial Wharf 6 Commercial Street
Castlefield
Manchester
M15 4PZ

Project Manager: Liam Daley
Project Name: Plots O + N
Project Ref: 4134
Order No: 1553
Date Samples Received: 31/07/20
Date Instructions Received: 04/08/20
Date Analysis Completed: 22/10/20

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Sophie France
Client Service Manager

Envirolab Job Number: 20/06419

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06419/1	20/06419/2	20/06419/3	20/06419/4				Units	Limit of Detection	Method ref
Client Sample No	SP1	SP2	SP3	SP4						
Client Sample ID										
Depth to Top	0.40	0.40	0.40	0.40						
Depth To Bottom										
Date Sampled	30-Jul-20	30-Jul-20	30-Jul-20	30-Jul-20						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6ABE	6ABDE	6ABE	6AE						
% Stones >10mm$_{A}$	<0.1	22.8	13.8	28.8				% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	8.66	9.36	8.41	8.55				pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_{D}^{M\#}$	44	80	53	69				mg/l	10	A-T-026s
Cyanide (total)$_{A}^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_{A}$	<0.2	<0.2	<0.2	<0.2				mg/kg	0.2	A-T-050s
Fraction of organic carbon$_{D}^{\#}$	0.2371	0.0822	0.0515	0.0461				N/A	0.0003	A-T-032 FOC
Antimony$_{D}$	7	12	12	13				mg/kg	5	A-T-024s
Arsenic$_{D}^{M\#}$	27	16	134	103				mg/kg	1	A-T-024s
Barium$_{D}$	410	452	497	562				mg/kg	1	A-T-024s
Beryllium$_{D}^{\#}$	3.4	1.2	2.0	1.1				mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}$	<1.0	1.1	<1.0	<1.0				mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	1.7	1.5	2.2	1.7				mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	221	137	189	125				mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	19	29	40	27				mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1	<1	<1				mg/kg	1	A-T-040s
Chromium (trivalent)	19	29	40	27				mg/kg	1	Calc
Lead$_{D}^{M\#}$	805	538	965	646				mg/kg	1	A-T-024s
Mercury$_{D}$	2.65	1.66	2.01	1.98				mg/kg	0.17	A-T-024s
Molybdenum$_{D}^{M\#}$	9	2	3	1				mg/kg	1	A-T-024s
Nickel$_{D}^{M\#}$	50	29	47	27				mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	2	2	2	1				mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	56	33	42	26				mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	281	402	669	624				mg/kg	5	A-T-024s

Envirolab Job Number: 20/06419

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06419/1	20/06419/2	20/06419/3	20/06419/4				Units	Limit of Detection	Method ref
Client Sample No	SP1	SP2	SP3	SP4						
Client Sample ID										
Depth to Top	0.40	0.40	0.40	0.40						
Depth To Bottom										
Date Sampled	30-Jul-20	30-Jul-20	30-Jul-20	30-Jul-20						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6ABE	6ABDE	6ABE	6AE						
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	Chrysotile	NAD	NAD	NAD						A-T-045
Asbestos Matrix (visual)$_{D}$	Woven	-	-	-						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A						A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing)$_{D}$	0.140	-	-	-				% w/w	0.001	A-T-054

Envirolab Job Number: 20/06419

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06419/1	20/06419/2	20/06419/3	20/06419/4				Units	Limit of Detection	Method ref
Client Sample No	SP1	SP2	SP3	SP4						
Client Sample ID										
Depth to Top	0.40	0.40	0.40	0.40						
Depth To Bottom										
Date Sampled	30-Jul-20	30-Jul-20	30-Jul-20	30-Jul-20						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6ABE	6ABDE	6ABE	6AE						
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	3.87	0.93	0.83	1.52				mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	<0.10	0.07	0.06	0.07				mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	4.99	1.54	1.53	2.30				mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	8.15	4.65	5.23	5.42				mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	6.47	3.55	4.26	3.87				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	8.11	3.95	4.64	4.27				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	2.88	1.65	1.92	1.86				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	3.38	1.45	1.79	1.50				mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	10.4	4.20	4.93	5.08				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	0.88	0.41	0.51	0.48				mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	22.2	8.93	10.7	12				mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	2.72	0.59	0.58	1.24				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	3.20	2.03	2.38	2.11				mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	1.98	0.51	0.22	0.70				mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	24.5	6.10	6.72	10.3				mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	18.6	7.90	9.78	10.4				mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	122	48.5	56.1	63.1				mg/kg	0.01	A-T-019s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: ROCP LIMITED, Commercial Wharf 6 Commercial Street, Castlefield, Manchester, M15 4PZ

Project: Plots O + N

Clients Project No: 4134

Project No: 20/06419

Date Received: 04/08/2020 (am)

Cool Box Temperatures (°C): 20.9

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 20/06682
Issue Number: 1 **Date:** 24 August, 2020

Client: ROCP LIMITED
Commercial Wharf 6 Commercial Street
Castlefield
Manchester
M15 4PZ

Project Manager: Liam Daley
Project Name: Plots O + N
Project Ref: 4134
Order No: 1573
Date Samples Received: 12/08/20
Date Instructions Received: 13/08/20
Date Analysis Completed: 24/08/20

Prepared by:

Danielle Brierley
Client Manager

Approved by:

Richard Wong
Client Manager

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/1	20/06682/2	20/06682/3	20/06682/4	20/06682/5	20/06682/6	20/06682/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP101	TP101	TP101	TP102	TP102	TP102	TT01			
Depth to Top	0.50	1.20	2.50	0.80	1.80	2.50	0.50			
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE	6ABE	4A	7			
% Stones >10mm$_{A}$	47.2	29.0	14.5	39.8	16.1	5.6	<0.1	% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	8.11	8.14	8.10	8.12	7.54	7.30	11.80	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_{D}^{M\#}$	956	1240	1390	933	1420	147	96	mg/l	10	A-T-026s
Cyanide (total)$_{A}^{M\#}$	<1	<1	<1	<1	17	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_{A}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Fraction of organic carbon$_{D}^{\#}$	0.0437	0.0361	0.0410	0.0281	0.0211	0.0017	0.0102	N/A	0.0003	A-T-032 FOC
Antimony$_{D}$	<5	<5	<5	<5	5	<5	<5	mg/kg	5	A-T-024s
Arsenic$_{D}^{M\#}$	7	9	10	15	37	3	25	mg/kg	1	A-T-024s
Barium$_{D}$	91	165	203	178	107	17	199	mg/kg	1	A-T-024s
Beryllium$_{D}^{\#}$	0.8	1.1	1.1	0.8	1.9	<0.5	0.6	mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}$	2.4	3.5	2.0	1.1	<1.0	<1.0	1.5	mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	0.8	0.9	1.0	0.8	0.8	<0.5	0.7	mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	52	44	66	84	926	8	33	mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	14	21	29	16	95	6	22	mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	14	21	29	16	95	6	22	mg/kg	1	Calc
Lead$_{D}^{M\#}$	64	118	127	270	4090	16	124	mg/kg	1	A-T-024s
Mercury$_{D}$	0.45	1.17	1.24	0.70	15.6	<0.17	1.97	mg/kg	0.17	A-T-024s
Molybdenum$_{D}^{M\#}$	1	1	2	1	3	<1	<1	mg/kg	1	A-T-024s
Nickel$_{D}^{M\#}$	21	18	22	15	26	6	20	mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	25	30	33	19	15	8	17	mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	130	135	183	137	114	17	148	mg/kg	5	A-T-024s

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/1	20/06682/2	20/06682/3	20/06682/4	20/06682/5	20/06682/6	20/06682/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP101	TP101	TP101	TP102	TP102	TP102	TT01			
Depth to Top	0.50	1.20	2.50	0.80	1.80	2.50	0.50			
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE	6ABE	4A	7			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/1	20/06682/2	20/06682/3	20/06682/4	20/06682/5	20/06682/6	20/06682/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP101	TP101	TP101	TP102	TP102	TP102	TT01			
Depth to Top	0.50	1.20	2.50	0.80	1.80	2.50	0.50			
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE	6ABE	4A	7			
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	0.24	0.15	0.21	0.10	<0.01	<0.01	0.41	mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.08	mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	0.24	0.23	0.30	0.18	<0.02	<0.02	0.70	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	0.48	0.65	0.73	0.65	<0.04	<0.04	1.68	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	0.43	0.60	0.69	0.62	<0.04	<0.04	1.59	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	0.49	0.68	0.76	0.74	<0.05	<0.05	1.78	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	0.30	0.43	0.49	0.43	<0.05	<0.05	1.03	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	0.18	0.24	0.27	0.25	<0.07	<0.07	0.65	mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	0.58	0.68	0.82	0.72	<0.06	<0.06	1.88	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	0.06	0.10	0.10	0.08	<0.04	<0.04	0.21	mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	1.11	1.33	1.59	1.44	<0.08	<0.08	3.85	mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	0.19	0.11	0.16	0.07	<0.01	<0.01	0.39	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	0.29	0.45	0.50	0.46	<0.03	<0.03	1.07	mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	0.86	0.10	0.28	0.05	<0.03	<0.03	0.55	mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	1.36	1.17	1.58	0.80	<0.03	<0.03	3.99	mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	1.07	1.19	1.45	1.33	<0.07	<0.07	3.88	mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	7.88	8.11	9.93	7.93	<0.08	<0.08	23.7	mg/kg	0.01	A-T-019s

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/1	20/06682/2	20/06682/3	20/06682/4	20/06682/5	20/06682/6	20/06682/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP101	TP101	TP101	TP102	TP102	TP102	TT01			
Depth to Top	0.50	1.20	2.50	0.80	1.80	2.50	0.50			
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20	11-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid			
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE	6ABE	4A	7			
TPH UKCWG										
Ali >C5-C6$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_{A}$	-	<5	-	<1	-	-	<1	mg/kg	1	A-T-055s
Ali >C10-C12$_{A}^{M\#}$	-	<5	-	<1	-	-	<1	mg/kg	1	A-T-055s
Ali >C12-C16$_{A}^{M\#}$	-	<5	-	<1	-	-	2	mg/kg	1	A-T-055s
Ali >C16-C21$_{A}^{M\#}$	-	8	-	1	-	-	3	mg/kg	1	A-T-055s
Ali >C21-C35$_{A}$	-	239	-	17	-	-	34	mg/kg	1	A-T-055s
Ali >C35-C44$_{A}$	-	264	-	7	-	-	12	mg/kg	1	A-T-055s
Total Aliphatics$_{A}$	-	511	-	25	-	-	51	mg/kg	1	A-T-055s
Aro >C5-C7$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_{A}$	-	<5	-	<1	-	-	4	mg/kg	1	A-T-055s
Aro >C10-C12$_{A}^{M\#}$	-	<5	-	<1	-	-	3	mg/kg	1	A-T-055s
Aro >C12-C16$_{A}$	-	7	-	1	-	-	11	mg/kg	1	A-T-055s
Aro >C16-C21$_{A}^{M\#}$	-	23	-	4	-	-	41	mg/kg	1	A-T-055s
Aro >C21-C35$_{A}^{M\#}$	-	248	-	33	-	-	163	mg/kg	1	A-T-055s
Aro >C35-C44$_{A}$	-	335	-	54	-	-	11	mg/kg	1	A-T-055s
Total Aromatics$_{A}$	-	613	-	93	-	-	235	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44)$_{A}$	-	1130	-	118	-	-	286	mg/kg	1	A-T-055s
BTEX - Benzene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/8	20/06682/9	20/06682/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT01	TT01	TT01							
Depth to Top	1.20	2.20	1.80							
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20							
Sample Type	Soil - ES	Soil - ES	Solid - Fragment / Tile							
Sample Matrix Code	6ABE	5AB	8							
% Stones >10mm$_{A}$	52.9	17.0	-					% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	10.19	8.54	-					pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_{D}^{M\#}$	77	15	-					mg/l	10	A-T-026s
Cyanide (total)$_{A}^{M\#}$	<1	<1	-					mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_{A}$	<0.2	<0.2	-					mg/kg	0.2	A-T-050s
Fraction of organic carbon$_{D}^{\#}$	0.0109	0.0256	-					N/A	0.0003	A-T-032 FOC
Antimony$_{D}$	<5	<5	-					mg/kg	5	A-T-024s
Arsenic$_{D}^{M\#}$	13	12	-					mg/kg	1	A-T-024s
Barium$_{D}$	152	100	-					mg/kg	1	A-T-024s
Beryllium$_{D}^{\#}$	0.6	0.9	-					mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}$	<1.0	<1.0	-					mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	0.5	0.8	-					mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	33	112	-					mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	11	23	-					mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1	-					mg/kg	1	A-T-040s
Chromium (trivalent)	11	23	-					mg/kg	1	Calc
Lead$_{D}^{M\#}$	138	276	-					mg/kg	1	A-T-024s
Mercury$_{D}$	1.23	0.41	-					mg/kg	0.17	A-T-024s
Molybdenum$_{D}^{M\#}$	<1	<1	-					mg/kg	1	A-T-024s
Nickel$_{D}^{M\#}$	9	19	-					mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	<1	<1	-					mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	15	18	-					mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	64	63	-					mg/kg	5	A-T-024s

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/8	20/06682/9	20/06682/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT01	TT01	TT01							
Depth to Top	1.20	2.20	1.80							
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20							
Sample Type	Soil - ES	Soil - ES	Solid - Fragment / Tile							
Sample Matrix Code	6ABE	5AB	8							
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	-							A-T-045
Bulk Fibre ID (inc. matrix) ^										
Bulk Fibre Identification$_{D}^{\#}$	-	-	Chrysotile							A-T-045
Bulk Fibre Identification Matrix (visual)$_{D}$	-	-	Cement							A-T-045
Bulk Fibre Identification - Suitable for Water Absorption Test?$_{D}$	-	-	Yes							Gravimetry
Bulk Fibre Quantification % Asbestos in ACM										
Bulk Fibre - % Asbestos in ACM (HSG264)$_{D}$	-	-	15					% w/w	0.001	A-T-054

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/8	20/06682/9	20/06682/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT01	TT01	TT01							
Depth to Top	1.20	2.20	1.80							
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20							
Sample Type	Soil - ES	Soil - ES	Solid - Fragment / Tile							
Sample Matrix Code	6ABE	5AB	8							
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	0.10	<0.01	-					mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	0.02	<0.01	-					mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	0.15	<0.02	-					mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	0.51	<0.04	-					mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	0.45	<0.04	-					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	0.53	<0.05	-					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	0.28	<0.05	-					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	0.19	<0.07	-					mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	0.54	<0.06	-					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	0.06	<0.04	-					mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	1.04	<0.08	-					mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	0.09	<0.01	-					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	0.30	<0.03	-					mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	0.11	<0.03	-					mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	0.80	<0.03	-					mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	1.03	<0.07	-					mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	6.20	<0.08	-					mg/kg	0.01	A-T-019s

Envirolab Job Number: 20/06682

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06682/8	20/06682/9	20/06682/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT01	TT01	TT01							
Depth to Top	1.20	2.20	1.80							
Depth To Bottom										
Date Sampled	11-Aug-20	11-Aug-20	11-Aug-20							
Sample Type	Soil - ES	Soil - ES	Solid - Fragment / Tile							
Sample Matrix Code	6ABE	5AB	8							
TPH UKCWG										
Ali >C5-C6$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
Ali >C6-C8$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
Ali >C8-C10$_{A}$	<1	-	-					mg/kg	1	A-T-055s
Ali >C10-C12$_{A}^{M\#}$	<1	-	-					mg/kg	1	A-T-055s
Ali >C12-C16$_{A}^{M\#}$	<1	-	-					mg/kg	1	A-T-055s
Ali >C16-C21$_{A}^{M\#}$	1	-	-					mg/kg	1	A-T-055s
Ali >C21-C35$_{A}$	5	-	-					mg/kg	1	A-T-055s
Ali >C35-C44$_{A}$	2	-	-					mg/kg	1	A-T-055s
Total Aliphatics$_{A}$	8	-	-					mg/kg	1	A-T-055s
Aro >C5-C7$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
Aro >C7-C8$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
Aro >C8-C10$_{A}$	1	-	-					mg/kg	1	A-T-055s
Aro >C10-C12$_{A}^{M\#}$	1	-	-					mg/kg	1	A-T-055s
Aro >C12-C16$_{A}$	3	-	-					mg/kg	1	A-T-055s
Aro >C16-C21$_{A}^{M\#}$	10	-	-					mg/kg	1	A-T-055s
Aro >C21-C35$_{A}^{M\#}$	37	-	-					mg/kg	1	A-T-055s
Aro >C35-C44$_{A}$	2	-	-					mg/kg	1	A-T-055s
Total Aromatics$_{A}$	54	-	-					mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44)$_{A}$	62	-	-					mg/kg	1	A-T-055s
BTEX - Benzene$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	<0.01	-	-					mg/kg	0.01	A-T-022s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

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Client: ROCP LIMITED, Commercial Wharf 6 Commercial Street, Castlefield, Manchester, M15 4PZ

Project: Plots O + N

Clients Project No: 4134

Project No: 20/06682

Date Received: 13/08/2020 (am)

Cool Box Temperatures (°C): 25.4

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 20/06795
Issue Number: 1 **Date:** 27 August, 2020

Client: ROCP LIMITED
Commercial Wharf 6 Commercial Street
Castlefield
Manchester
M15 4PZ

Project Manager: Liam Daley
Project Name: Plots O + N
Project Ref: 4134
Order No: TBC
Date Samples Received: 14/08/20
Date Instructions Received: 17/08/20
Date Analysis Completed: 26/08/20

Prepared by:

MMarshall

Melanie Marshall
Laboratory Coordinator

Approved by:

Richard Wong
Client Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING
1247

Envirolab Job Number: 20/06795

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06795/1	20/06795/2	20/06795/4	20/06795/5	20/06795/7	20/06795/8	20/06795/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP104	TP104	TP103	TP103	TT03	TT03	TT03			
Depth to Top	0.80	1.50	0.50	1.20	0.80	1.20	1.50			
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid - Fragment / Tile			
Sample Matrix Code	6ABE	6AE	6ABE	4ABE	6ABE	6ABE	8			
% Stones >10mm$_{A}$	5.4	19.9	28.9	38.1	<0.1	18.6	-	% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	8.48	8.49	8.71	9.53	10.04	9.13	-	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_{D}^{M\#}$	16	18	36	93	116	1290	-	mg/l	10	A-T-026s
Cyanide (total)$_{A}^{M\#}$	<1	<1	<1	<1	<1	<1	-	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_{A}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	mg/kg	0.2	A-T-050s
Fraction of organic carbon$_{D}^{\#}$	0.0367	0.0296	0.0513	0.0299	0.0500	0.0390	-	N/A	0.0003	A-T-032 FOC
Antimony$_{D}$	<5	<5	15	<5	<5	<5	-	mg/kg	5	A-T-024s
Arsenic$_{D}^{M\#}$	21	15	90	73	26	48	-	mg/kg	1	A-T-024s
Barium$_{D}$	97	174	491	634	219	370	-	mg/kg	1	A-T-024s
Beryllium$_{D}^{\#}$	1.3	1.1	4.4	1.2	1.1	1.9	-	mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}$	<1.0	<1.0	<1.0	<1.0	2.1	2.6	-	mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	0.6	<0.5	1.2	1.0	0.5	0.7	-	mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	63	63	137	95	34	76	-	mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	19	17	25	26	16	23	-	mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1	<1	<1	<1	<1	-	mg/kg	1	A-T-040s
Chromium (trivalent)	19	17	25	26	16	23	-	mg/kg	1	Calc
Lead$_{D}^{M\#}$	123	208	703	1490	106	392	-	mg/kg	1	A-T-024s
Mercury$_{D}$	1.05	1.22	1.54	1.29	1.82	1.81	-	mg/kg	0.17	A-T-024s
Molybdenum$_{D}^{M\#}$	<1	<1	7	3	<1	2	-	mg/kg	1	A-T-024s
Nickel$_{D}^{M\#}$	22	20	50	25	16	28	-	mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	<1	<1	<1	<1	<1	<1	-	mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	24	22	66	41	21	34	-	mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	68	83	379	375	157	204	-	mg/kg	5	A-T-024s

Envirolab Job Number: 20/06795

Client Project Name: Plots O + N

Client Project Ref: 4134

Lab Sample ID	20/06795/1	20/06795/2	20/06795/4	20/06795/5	20/06795/7	20/06795/8	20/06795/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP104	TP104	TP103	TP103	TT03	TT03	TT03			
Depth to Top	0.80	1.50	0.50	1.20	0.80	1.20	1.50			
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid - Fragment / Tile			
Sample Matrix Code	6ABE	6AE	6ABE	4ABE	6ABE	6ABE	8			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	Chrysotile	NAD	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	Loose Fibres	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	-			A-T-045
Bulk Fibre ID (inc. matrix) ^										
Bulk Fibre Identification$_{D}^{\#}$	-	-	-	-	-	-	Chrysotile			A-T-045
Bulk Fibre Identification Matrix (visual)$_{D}$	-	-	-	-	-	-	Cement			A-T-045
Bulk Fibre Identification - Suitable for Water Absorption Test?$_{D}$	-	-	-	-	-	-	Yes			Gravimetry
Bulk Fibre Quantification % Asbestos in ACM										
Bulk Fibre - % Asbestos in ACM (HSG264)$_{D}$	-	-	-	-	-	-	15	% w/w	0.001	A-T-054

Envirolab Job Number: 20/06795

Client Project Name: Plots O + N

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Lab Sample ID	20/06795/1	20/06795/2	20/06795/4	20/06795/5	20/06795/7	20/06795/8	20/06795/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP104	TP104	TP103	TP103	TT03	TT03	TT03			
Depth to Top	0.80	1.50	0.50	1.20	0.80	1.20	1.50			
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid - Fragment / Tile			
Sample Matrix Code	6ABE	6AE	6ABE	4ABE	6ABE	6ABE	8			
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	<0.01	0.07	0.11	0.10	0.73	0.19	-	mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	<0.01	0.06	0.02	0.02	0.04	0.04	-	mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	<0.02	0.15	0.30	0.20	1.46	0.40	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	0.09	0.39	1.49	1.01	6.99	1.70	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	0.09	0.43	1.68	1.14	7.17	1.92	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	0.12	0.48	1.95	1.39	8.03	2.10	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	0.07	0.30	1.15	0.83	4.47	1.48	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	<0.07	0.17	0.71	0.46	2.96	0.73	-	mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	0.14	0.51	1.61	1.12	6.38	1.81	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	<0.04	0.06	0.20	0.14	0.84	0.27	-	mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	0.12	0.76	3.07	2.05	11.8	2.99	-	mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	<0.01	0.08	0.07	0.06	0.50	0.15	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	0.07	0.31	1.17	0.80	5.04	1.57	-	mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	<0.03	0.15	0.04	0.06	0.22	0.17	-	mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	0.13	0.90	1.40	0.99	5.50	1.70	-	mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	0.13	0.81	2.94	2.04	13.8	3.42	-	mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	0.96	5.63	17.9	12.4	75.9	20.6	-	mg/kg	0.01	A-T-019s

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Lab Sample ID	20/06795/1	20/06795/2	20/06795/4	20/06795/5	20/06795/7	20/06795/8	20/06795/9	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP104	TP104	TP103	TP103	TT03	TT03	TT03			
Depth to Top	0.80	1.50	0.50	1.20	0.80	1.20	1.50			
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Solid - Fragment / Tile			
Sample Matrix Code	6ABE	6AE	6ABE	4ABE	6ABE	6ABE	8			
TPH UKCWG										
Ali >C5-C6$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
Ali >C6-C8$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
Ali >C8-C10$_{A}$	-	<1	-	<1	-	-	-	mg/kg	1	A-T-055s
Ali >C10-C12$_{A}^{M\#}$	-	<1	-	<1	-	-	-	mg/kg	1	A-T-055s
Ali >C12-C16$_{A}^{M\#}$	-	<1	-	2	-	-	-	mg/kg	1	A-T-055s
Ali >C16-C21$_{A}^{M\#}$	-	2	-	3	-	-	-	mg/kg	1	A-T-055s
Ali >C21-C35$_{A}$	-	3	-	21	-	-	-	mg/kg	1	A-T-055s
Ali >C35-C44$_{A}$	-	<1	-	6	-	-	-	mg/kg	1	A-T-055s
Total Aliphatics$_{A}$	-	6	-	32	-	-	-	mg/kg	1	A-T-055s
Aro >C5-C7$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
Aro >C7-C8$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
Aro >C8-C10$_{A}$	-	<1	-	1	-	-	-	mg/kg	1	A-T-055s
Aro >C10-C12$_{A}^{M\#}$	-	<1	-	2	-	-	-	mg/kg	1	A-T-055s
Aro >C12-C16$_{A}$	-	5	-	9	-	-	-	mg/kg	1	A-T-055s
Aro >C16-C21$_{A}^{M\#}$	-	16	-	34	-	-	-	mg/kg	1	A-T-055s
Aro >C21-C35$_{A}^{M\#}$	-	36	-	105	-	-	-	mg/kg	1	A-T-055s
Aro >C35-C44$_{A}$	-	<1	-	6	-	-	-	mg/kg	1	A-T-055s
Total Aromatics$_{A}$	-	58	-	159	-	-	-	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44)$_{A}$	-	64	-	191	-	-	-	mg/kg	1	A-T-055s
BTEX - Benzene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	-	<0.01	-	<0.01	-	-	-	mg/kg	0.01	A-T-022s

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Lab Sample ID	20/06795/10	20/06795/11	20/06795/12	20/06795/13				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT03	TT02	TT02	TT02						
Depth to Top	1.80	0.60	1.40	2.00						
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE						
% Stones >10mm$_{A}$	<0.1	<0.1	31.0	<0.1				% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	9.47	8.87	9.93	11.18				pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_{D}^{M\#}$	55	18	88	66				mg/l	10	A-T-026s
Cyanide (total)$_{A}^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_{A}$	<0.2	<0.2	<0.2	<0.2				mg/kg	0.2	A-T-050s
Fraction of organic carbon$_{D}^{\#}$	0.0538	0.0351	0.0257	0.0303				N/A	0.0003	A-T-032 FOC
Antimony$_{D}$	<5	<5	<5	8				mg/kg	5	A-T-024s
Arsenic$_{D}^{M\#}$	73	255	27	40				mg/kg	1	A-T-024s
Barium$_{D}$	375	850	375	306				mg/kg	1	A-T-024s
Beryllium$_{D}^{\#}$	2.3	1.7	1.5	1.3				mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}$	1.5	<1.0	<1.0	<1.0				mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	1.0	0.7	0.6	0.6				mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	108	47	60	48				mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	30	16	16	14				mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1	<1	<1				mg/kg	1	A-T-040s
Chromium (trivalent)	30	16	16	14				mg/kg	1	Calc
Lead$_{D}^{M\#}$	263	219	389	287				mg/kg	1	A-T-024s
Mercury$_{D}$	1.18	2.39	1.41	1.50				mg/kg	0.17	A-T-024s
Molybdenum$_{D}^{M\#}$	4	<1	1	1				mg/kg	1	A-T-024s
Nickel$_{D}^{M\#}$	43	25	19	16				mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	<1	<1	<1	<1				mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	43	42	29	25				mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	350	207	166	130				mg/kg	5	A-T-024s

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Lab Sample ID	20/06795/10	20/06795/11	20/06795/12	20/06795/13				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT03	TT02	TT02	TT02						
Depth to Top	1.80	0.60	1.40	2.00						
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE						
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	Chrysotile	Chrysotile	NAD	Chrysotile						A-T-045
Asbestos Matrix (microscope)$_{D}$	Loose Fibres	Loose Fibres	-	Loose Fibres						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A						A-T-045

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Lab Sample ID	20/06795/10	20/06795/11	20/06795/12	20/06795/13				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT03	TT02	TT02	TT02						
Depth to Top	1.80	0.60	1.40	2.00						
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE						
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	0.33	0.24	0.17	0.27				mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	0.03	0.04	0.02	0.02				mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	0.53	0.52	0.33	0.49				mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	2.21	2.45	1.20	1.64				mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	2.38	2.96	1.34	1.60				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	2.82	3.39	1.47	1.84				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	1.56	2.01	0.90	1.02				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	0.97	1.17	0.55	0.67				mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	2.43	2.65	1.29	1.70				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	0.29	0.38	0.17	0.19				mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	4.27	5.03	2.53	3.77				mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	0.23	0.22	0.13	0.17				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	1.71	2.22	0.98	1.13				mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	0.10	0.35	0.10	0.07				mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	2.42	2.49	1.48	2.22				mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	4.44	5.00	2.47	3.37				mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	26.7	31.1	15.1	20.2				mg/kg	0.01	A-T-019s

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Lab Sample ID	20/06795/10	20/06795/11	20/06795/12	20/06795/13				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT03	TT02	TT02	TT02						
Depth to Top	1.80	0.60	1.40	2.00						
Depth To Bottom										
Date Sampled	12-Aug-20	12-Aug-20	12-Aug-20	12-Aug-20						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6ABE	6ABE	6ABE	6ABE						
TPH UKCWG										
Ali >C5-C6$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10$_{A}$	2	-	-	<1				mg/kg	1	A-T-055s
Ali >C10-C12$_{A}^{M\#}$	2	-	-	<1				mg/kg	1	A-T-055s
Ali >C12-C16$_{A}^{M\#}$	6	-	-	3				mg/kg	1	A-T-055s
Ali >C16-C21$_{A}^{M\#}$	10	-	-	6				mg/kg	1	A-T-055s
Ali >C21-C35$_{A}$	29	-	-	29				mg/kg	1	A-T-055s
Ali >C35-C44$_{A}$	8	-	-	9				mg/kg	1	A-T-055s
Total Aliphatics$_{A}$	58	-	-	48				mg/kg	1	A-T-055s
Aro >C5-C7$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10$_{A}$	9	-	-	2				mg/kg	1	A-T-055s
Aro >C10-C12$_{A}^{M\#}$	3	-	-	2				mg/kg	1	A-T-055s
Aro >C12-C16$_{A}$	17	-	-	12				mg/kg	1	A-T-055s
Aro >C16-C21$_{A}^{M\#}$	71	-	-	37				mg/kg	1	A-T-055s
Aro >C21-C35$_{A}^{M\#}$	280	-	-	115				mg/kg	1	A-T-055s
Aro >C35-C44$_{A}$	9	-	-	9				mg/kg	1	A-T-055s
Total Aromatics$_{A}$	391	-	-	178				mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44)$_{A}$	448	-	-	226				mg/kg	1	A-T-055s
BTEX - Benzene$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	<0.01	-	-	<0.01				mg/kg	0.01	A-T-022s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: ROCP LIMITED, Commercial Wharf 6 Commercial Street, Castlefield, Manchester, M15 4PZ

Project: Plots O + N

Clients Project No: 4134

Project No: 20/06795

Date Received: 17/08/2020 (am)

Cool Box Temperatures (°C): 20.1 & 20.4

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT
SUPPLEMENT TO TEST REPORT 20/06845/1

Amendments: Request for Additional Analysis

Envirolab Job Number: 20/06845
Issue Number: 2 **Date:** 22 October, 2020

Client: ROCP LIMITED
Commercial Wharf 6 Commercial Street
Castlefield
Manchester
M15 4PZ

Project Manager: Liam Daley
Project Name: Plots O+N
Project Ref: 4134
Order No: 1573
Date Samples Received: 17/08/20
Date Instructions Received: 18/08/20
Date Analysis Completed: 22/10/20

Prepared by:

MMarshall

Melanie Marshall
Laboratory Coordinator

Approved by:

SFrance

Sophie France
Client Service Manager

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

UKAS TESTING 1247

Envirolab Job Number: 20/06845

Client Project Name: Plots O+N

Client Project Ref: 4134

Lab Sample ID	20/06845/4	20/06845/5	20/06845/6	20/06845/7	20/06845/8	20/06845/9	20/06845/10	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT05	TT05	TT05	BH109A	BH109A	BH110	BH106			
Depth to Top	0.80	1.50	2.50	1.00	3.00	1.50	1.00			
Depth To Bottom										
Date Sampled	13-Aug-20	13-Aug-20	13-Aug-20	10-Aug-20	10-Aug-20	11-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6ABE	6AE	6AE	6AE	5A	6A	6AE			
% Stones >10mm$_{A}$	6.6	10.8	17.4	<0.1	<0.1	24.9	20.0	% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	8.28	7.78	7.71	8.23	7.25	8.25	8.00	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_{D}^{M\#}$	37	1290	1250	27	344	41	410	mg/l	10	A-T-026s
Cyanide (total)$_{A}^{M\#}$	<1	<1	<1	3	<1	4	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_{A}$	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Fraction of organic carbon$_{D}^{\#}$	0.0438	0.0184	0.0358	0.3163	0.0271	0.0400	0.0728	N/A	0.0003	A-T-032 FOC
Antimony$_{D}$	<5	<5	<5	15	<5	<5	<5	mg/kg	5	A-T-024s
Arsenic$_{D}^{M\#}$	25	15	17	57	10	364	20	mg/kg	1	A-T-024s
Barium$_{D}$	344	350	306	427	74	138	286	mg/kg	1	A-T-024s
Beryllium$_{D}^{\#}$	1.4	0.9	1.0	1.7	0.8	1.7	1.7	mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}$	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	1.2	1.4	1.1	2.3	0.6	1.1	1.4	mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	75	65	62	3240	33	120	100	mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	19	17	15	29	17	28	17	mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<2	<2	<1	<1	<1	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	19	17	15	29	17	28	17	mg/kg	1	Calc
Lead$_{D}^{M\#}$	333	407	395	1150	62	280	495	mg/kg	1	A-T-024s
Mercury$_{D}$	2.12	2.02	2.38	4.24	<0.17	1.25	2.90	mg/kg	0.17	A-T-024s
Molybdenum$_{D}^{M\#}$	3	2	2	4	<1	3	5	mg/kg	1	A-T-024s
Nickel$_{D}^{M\#}$	24	17	18	67	16	29	30	mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	33	22	23	33	21	26	28	mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	272	330	178	627	54	83	230	mg/kg	5	A-T-024s

Envirolab Job Number: 20/06845

Client Project Name: Plots O+N

Client Project Ref: 4134

Lab Sample ID	20/06845/4	20/06845/5	20/06845/6	20/06845/7	20/06845/8	20/06845/9	20/06845/10	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT05	TT05	TT05	BH109A	BH109A	BH110	BH106			
Depth to Top	0.80	1.50	2.50	1.00	3.00	1.50	1.00			
Depth To Bottom										
Date Sampled	13-Aug-20	13-Aug-20	13-Aug-20	10-Aug-20	10-Aug-20	11-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6ABE	6AE	6AE	6AE	5A	6A	6AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}$#	NAD	NAD	NAD	Chrysotile	NAD	NAD	NAD			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	Loose Fibres	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing)$_{D}$	-	-	-	<0.001	-	-	-	% w/w	0.001	A-T-054

Envirolab Job Number: 20/06845

Client Project Name: Plots O+N

Client Project Ref: 4134

Lab Sample ID	20/06845/4	20/06845/5	20/06845/6	20/06845/7	20/06845/8	20/06845/9	20/06845/10	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT05	TT05	TT05	BH109A	BH109A	BH110	BH106			
Depth to Top	0.80	1.50	2.50	1.00	3.00	1.50	1.00			
Depth To Bottom										
Date Sampled	13-Aug-20	13-Aug-20	13-Aug-20	10-Aug-20	10-Aug-20	11-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6ABE	6AE	6AE	6AE	5A	6A	6AE			
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	0.08	0.04	0.11	0.65	0.02	0.03	4.99	mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	0.01	<0.01	0.04	0.14	<0.01	<0.01	<0.10	mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	0.13	0.07	0.22	1.27	0.07	0.06	6.60	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	0.44	0.33	0.56	4.51	0.18	0.24	11.8	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	0.42	0.31	0.47	3.92	0.13	0.22	8.84	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	0.58	0.40	0.59	4.79	0.17	0.28	11.8	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	0.31	0.21	0.28	1.92	0.07	0.14	4.00	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	0.19	0.13	0.21	1.80	<0.07	0.10	4.53	mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	0.54	0.39	0.66	4.76	0.19	0.29	15.3	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	0.06	0.04	0.07	0.45	<0.04	<0.04	1.17	mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	0.90	0.65	1.24	9.70	0.27	0.47	31.3	mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	0.04	0.02	0.11	0.57	0.04	0.03	3.58	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	0.33	0.24	0.31	2.30	0.09	0.16	5.10	mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	0.04	<0.03	0.10	0.34	<0.03	0.03	1.62	mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	0.65	0.41	1.23	7.00	0.26	0.36	43	mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	0.84	0.63	1.20	9.06	0.27	0.47	26.4	mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	5.56	3.87	7.40	53.2	1.76	2.88	180	mg/kg	0.01	A-T-019s

Envirolab Job Number: 20/06845

Client Project Name: Plots O+N

Client Project Ref: 4134

Lab Sample ID	20/06845/4	20/06845/5	20/06845/6	20/06845/7	20/06845/8	20/06845/9	20/06845/10	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TT05	TT05	TT05	BH109A	BH109A	BH110	BH106			
Depth to Top	0.80	1.50	2.50	1.00	3.00	1.50	1.00			
Depth To Bottom										
Date Sampled	13-Aug-20	13-Aug-20	13-Aug-20	10-Aug-20	10-Aug-20	11-Aug-20	12-Aug-20			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	6ABE	6AE	6AE	6AE	5A	6A	6AE			
TPH UKCWG										
Ali >C5-C6$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_{A}$	-	<1	<1	-	<1	<1	<5	mg/kg	1	A-T-055s
Ali >C10-C12$_{A}^{M\#}$	-	<1	<1	-	<1	<1	<5	mg/kg	1	A-T-055s
Ali >C12-C16$_{A}^{M\#}$	-	<1	<1	-	1	<1	8	mg/kg	1	A-T-055s
Ali >C16-C21$_{A}^{M\#}$	-	2	2	-	1	<1	10	mg/kg	1	A-T-055s
Ali >C21-C35$_{A}$	-	7	9	-	4	9	84	mg/kg	1	A-T-055s
Ali >C35-C44$_{A}$	-	1	2	-	<1	3	17	mg/kg	1	A-T-055s
Total Aliphatics$_{A}$	-	11	14	-	6	13	118	mg/kg	1	A-T-055s
Aro >C5-C7$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_{A}$	-	1	<1	-	<1	<1	<5	mg/kg	1	A-T-055s
Aro >C10-C12$_{A}^{M\#}$	-	<1	<1	-	<1	<1	17	mg/kg	1	A-T-055s
Aro >C12-C16$_{A}$	-	3	3	-	2	3	115	mg/kg	1	A-T-055s
Aro >C16-C21$_{A}^{M\#}$	-	14	10	-	5	6	409	mg/kg	1	A-T-055s
Aro >C21-C35$_{A}^{M\#}$	-	45	48	-	19	17	902	mg/kg	1	A-T-055s
Aro >C35-C44$_{A}$	-	2	4	-	2	4	25	mg/kg	1	A-T-055s
Total Aromatics$_{A}$	-	65	66	-	29	33	1470	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44)$_{A}$	-	76	80	-	35	46	1580	mg/kg	1	A-T-055s
BTEX - Benzene$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE$_{A}^{\#}$	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 20/06845

Client Project Name: Plots O+N

Client Project Ref: 4134

Lab Sample ID	20/06845/11	20/06845/12						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH107	BH108								
Depth to Top	1.00	1.00								
Depth To Bottom										
Date Sampled	13-Aug-20	14-Aug-20								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	6ABE								
% Stones >10mm$_{A}$	17.9	8.3						% w/w	0.1	A-T-044
pH$_{D}^{M\#}$	9.55	9.47						pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_{D}^{M\#}$	197	338						mg/l	10	A-T-026s
Cyanide (total)$_{A}^{M\#}$	<1	<1						mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC$_{A}$	<0.2	<0.2						mg/kg	0.2	A-T-050s
Fraction of organic carbon$_{D}^{\#}$	0.0052	0.0352						N/A	0.0003	A-T-032 FOC
Antimony$_{D}$	<5	<5						mg/kg	5	A-T-024s
Arsenic$_{D}^{M\#}$	5	8						mg/kg	1	A-T-024s
Barium$_{D}$	95	138						mg/kg	1	A-T-024s
Beryllium$_{D}^{\#}$	<0.5	0.6						mg/kg	0.5	A-T-024s
Boron (water soluble)$_{D}$	<1.0	1.4						mg/kg	1	A-T-027s
Cadmium$_{D}^{M\#}$	0.7	0.6						mg/kg	0.5	A-T-024s
Copper$_{D}^{M\#}$	24	48						mg/kg	1	A-T-024s
Chromium$_{D}^{M\#}$	15	15						mg/kg	1	A-T-024s
Chromium (hexavalent)$_{D}$	<1	<1						mg/kg	1	A-T-040s
Chromium (trivalent)	15	15						mg/kg	1	Calc
Lead$_{D}^{M\#}$	34	143						mg/kg	1	A-T-024s
Mercury$_{D}$	0.95	2.06						mg/kg	0.17	A-T-024s
Molybdenum$_{D}^{M\#}$	<1	<1						mg/kg	1	A-T-024s
Nickel$_{D}^{M\#}$	10	13						mg/kg	1	A-T-024s
Selenium$_{D}^{M\#}$	<1	<1						mg/kg	1	A-T-024s
Vanadium$_{D}^{M\#}$	17	20						mg/kg	1	A-T-024s
Zinc$_{D}^{M\#}$	89	82						mg/kg	5	A-T-024s

Envirolab Job Number: 20/06845

Client Project Name: Plots O+N

Client Project Ref: 4134

Lab Sample ID	20/06845/11	20/06845/12						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH107	BH108								
Depth to Top	1.00	1.00								
Depth To Bottom										
Date Sampled	13-Aug-20	14-Aug-20								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	6ABE								
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD								A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A								A-T-045

Envirolab Job Number: 20/06845

Client Project Name: Plots O+N

Client Project Ref: 4134

Lab Sample ID	20/06845/11	20/06845/12						Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BH107	BH108								
Depth to Top	1.00	1.00								
Depth To Bottom										
Date Sampled	13-Aug-20	14-Aug-20								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	4A	6ABE								
PAH-16MS										
Acenaphthene$_{A}^{M\#}$	0.02	0.07						mg/kg	0.01	A-T-019s
Acenaphthylene$_{A}^{M\#}$	<0.01	<0.01						mg/kg	0.01	A-T-019s
Anthracene$_{A}^{M\#}$	0.03	0.09						mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_{A}^{M\#}$	0.06	0.19						mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_{A}^{M\#}$	<0.04	0.15						mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_{A}^{M\#}$	0.06	0.21						mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_{A}^{M\#}$	<0.05	0.12						mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_{A}^{M\#}$	<0.07	<0.07						mg/kg	0.07	A-T-019s
Chrysene$_{A}^{M\#}$	0.07	0.23						mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_{A}^{M\#}$	<0.04	<0.04						mg/kg	0.04	A-T-019s
Fluoranthene$_{A}^{M\#}$	0.12	0.39						mg/kg	0.08	A-T-019s
Fluorene$_{A}^{M\#}$	<0.01	0.05						mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_{A}^{M\#}$	0.04	0.12						mg/kg	0.03	A-T-019s
Naphthalene $_{A}^{M\#}$	<0.03	0.12						mg/kg	0.03	A-T-019s
Phenanthrene$_{A}^{M\#}$	0.14	0.47						mg/kg	0.03	A-T-019s
Pyrene$_{A}^{M\#}$	0.10	0.39						mg/kg	0.07	A-T-019s
Total PAH-16MS$_{A}^{M\#}$	0.64	2.60						mg/kg	0.01	A-T-019s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: ROCP LIMITED, Commercial Wharf 6 Commercial Street, Castlefield, Manchester, M15 4PZ

Project: Plots O+N

Clients Project No: 4134

Project No: 20/06845

Date Received: 18/08/2020 (am)

Cool Box Temperatures (°C): 19.9 & 20.1

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

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Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	20/06795		
Issue Number:	1	Date:	27-Aug-20
Client:	ROCP LIMITED Commercial Wharf 6 Commercial Street Castlefield Manchester M15 4PZ		
Project Manager:	Liam Daley		
Project Name:	Plots O + N		
Project Ref:	4134		
Order No:	1573		
Date Samples Received:	14-Aug-20		
Date Instructions Received:	17-Aug-20		
Date Analysis Completed:	26-Aug-20		

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

MMarshall

Melanie Marshall
Laboratory Coordinator

Approved by:

Richard Wong
Client Manager

envirolab

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/06795/5				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP103				
Depth to Top				1.2				
Depth to Bottom								
Date Sampled				12/08/2020				
Sample Type				Soil - ES				
Sample Matrix Code				4ABE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**9.53**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.69**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.04**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**4.6**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**2.99**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**12.6**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**74**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**0.091**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.099	**0.990**	0.5	2	25
Barium	A-T-025	N	N	0.188	**1.880**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.019	**0.190**	0.5	10	70
Copper	A-T-025	N	N	0.058	**0.580**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.002	**0.020**	0.5	10	30
Nickel	A-T-025	N	N	0.002	**0.020**	0.4	10	40
Lead	A-T-025	N	N	2.731	**27.310**	0.5	10	50
Antimony	A-T-025	N	N	0.005	**0.050**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.233	**2.330**	4	50	200
Chloride	A-T-026	N	N	10	**96**	800	15000	25000
Fluoride	A-T-026	N	N	1.2	**12.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	<1.00	**<10**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	52	**520**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	9.4				
Conductivity (µS/cm)	A-T-037	N	N	105				
Mass Sample (kg)				0.215				
Dry Matter (%)	A-T-044	N	N	81.3				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

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Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	20/06845		
Issue Number:	1	Date:	27-Aug-20
Client:	ROCP LIMITED Commercial Wharf 6 Commercial Street Castlefield Manchester M15 4PZ		
Project Manager:	Liam Daley		
Project Name:	Plots O+N		
Project Ref:	4134		
Order No:	1573		
Date Samples Received:	17-Aug-20		
Date Instructions Received:	18-Aug-20		
Date Analysis Completed:	27-Aug-20		

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

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Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

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Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

MMarshall

Melanie Marshall
Laboratory Coordinator

Approved by:

Richard Wong
Client Manager

envirolab

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/06845/6				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TT05				
Depth to Top				2.5				
Depth to Bottom								
Date Sampled				13/08/2020				
Sample Type				Soil - ES				
Sample Matrix Code				6AE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**7.71**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**1.42**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.16**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**6**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**3.58**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**7.46**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**30**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using**		
				mg/l	**mg/kg**	**BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
Arsenic	A-T-025	N	N	0.003	**0.030**	0.5	2	25
Barium	A-T-025	N	N	0.041	**0.410**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.004	**0.040**	0.5	10	70
Copper	A-T-025	N	N	0.004	**0.040**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.006	**0.060**	0.5	10	30
Nickel	A-T-025	N	N	0.001	**0.010**	0.4	10	40
Lead	A-T-025	N	N	0.007	**0.070**	0.5	10	50
Antimony	A-T-025	N	N	0.002	**0.020**	0.06	0.7	5
Selenium	A-T-025	N	N	0.001	**0.010**	0.1	0.5	7
Zinc	A-T-025	N	N	0.011	**0.110**	4	50	200
Chloride	A-T-026	N	N	<1.00	**<10**	800	15000	25000
Fluoride	A-T-026	N	N	0.2	**2.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	970	**9700**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	721	**7210**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	8.0				
Conductivity (µS/cm)	A-T-037	N	N	1441				
Mass Sample (kg)				0.206				
Dry Matter (%)	A-T-044	N	N	85.1				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

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Units 7 & 8, Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

Final Test Report

Envirolab Job Number:	20/06682		
Issue Number:	1	Date:	2-Sep-20
Client:	ROCP LIMITED Commercial Wharf 6 Commercial Street Castlefield Manchester M15 4PZ		
Project Manager:	Liam Daley		
Project Name:	Plots O + N		
Project Ref:	4134		
Order No:	1573		
Date Samples Received:	12-Aug-20		
Date Instructions Received:	13-Aug-20		
Date Analysis Completed:	24-Aug-20		

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

MMarshall

Melanie Marshall
Laboratory Coordinator

Approved by:

DBrierley

Danielle Brierley
Client Manager

envirolab

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/06682/2				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP101				
Depth to Top				1.2				
Depth to Bottom								
Date Sampled				11/08/2020				
Sample Type				Soil - ES				
Sample Matrix Code				6ABE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**8.14**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.7**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.06**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**8.4**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**3.61**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**8.23**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**210**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
				mg/l	**mg/kg**			
Arsenic	A-T-025	N	N	0.004	**0.040**	0.5	2	25
Barium	A-T-025	N	N	0.031	**0.310**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.002	**0.020**	0.5	10	70
Copper	A-T-025	N	N	0.005	**0.050**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.006	**0.060**	0.5	10	30
Nickel	A-T-025	N	N	0.001	**0.010**	0.4	10	40
Lead	A-T-025	N	N	<0.001	**<0.01**	0.5	10	50
Antimony	A-T-025	N	N	0.005	**0.050**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.011	**0.110**	4	50	200
Chloride	A-T-026	N	N	2	**17**	800	15000	25000
Fluoride	A-T-026	N	N	0.4	**4.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	1180	**11800**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	1005	**10050**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	7.7				
Conductivity (µS/cm)	A-T-037	N	N	2010				
Mass Sample (kg)				0.199				
Dry Matter (%)	A-T-044	N	N	87.9				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

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Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/06682/4				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP102				
Depth to Top				0.8				
Depth to Bottom								
Date Sampled				11/08/2020				
Sample Type				Soil - ES				
Sample Matrix Code				6ABE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**8.12**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.55**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.05**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**4.8**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**2.81**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**8.03**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**490**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
				mg/l	**mg/kg**			
Arsenic	A-T-025	N	N	0.003	**0.030**	0.5	2	25
Barium	A-T-025	N	N	0.045	**0.450**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.016	**0.160**	0.5	10	70
Copper	A-T-025	N	N	0.008	**0.080**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.029	**0.290**	0.5	10	30
Nickel	A-T-025	N	N	0.001	**0.010**	0.4	10	40
Lead	A-T-025	N	N	0.002	**0.020**	0.5	10	50
Antimony	A-T-025	N	N	0.003	**0.030**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.012	**0.120**	4	50	200
Chloride	A-T-026	N	N	16	**156**	800	15000	25000
Fluoride	A-T-026	N	N	0.3	**3.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	544	**5444**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	592	**5920**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	7.7				
Conductivity (µS/cm)	A-T-037	N	N	1183				
Mass Sample (kg)				0.221				
Dry Matter (%)	A-T-044	N	N	79				

Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation

Landfill WAC analysis must not be used for hazardous waste classification purposes. This analysis is only applicable for landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Sample Details						Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	20/06682/8				
Client Sample Number						Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TT01				
Depth to Top				1.2				
Depth to Bottom								
Date Sampled				11/08/2020				
Sample Type				Soil - ES				
Sample Matrix Code				6ABE				
Solid Waste Analysis								
pH (pH Units)$_D$	A-T-031	N	N	**10.19**		-	>6	-
ANC to pH 4 (mol/kg)$_D$	A-T-ANC	N	N	**0.6**		-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg)$_D$	A-T-ANC	N	N	**0.16**		-	to be evaluated	to be evaluated
Loss on Ignition (%)$_D$	A-T-030	N	N	**3.3**		-	-	10
Total Organic Carbon (%)$_D$	A-T-032	N	N	**1.09**		3	5	6
PAH Sum of 17 (mg/kg) $_A$	A-T-019	N	N	**6.24**		100	-	-
Mineral Oil (mg/kg)$_A$	A-T-007	N	N	**58**		500	-	-
Sum of 7 PCBs (mg/kg)$_A$	A-T-004	N	N	**<0.007**		1	-	-
Sum of BTEX (mg/kg)$_A$	A-T-022	N	N	**<0.01**		6	-	-
Eluate Analysis				**10:1**	**10:1**	**Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)**		
				mg/l	**mg/kg**			
Arsenic	A-T-025	N	N	0.008	**0.080**	0.5	2	25
Barium	A-T-025	N	N	0.043	**0.430**	20	100	300
Cadmium	A-T-025	N	N	<0.001	**<0.01**	0.04	1	5
Chromium	A-T-025	N	N	0.006	**0.060**	0.5	10	70
Copper	A-T-025	N	N	0.011	**0.110**	2	50	100
Mercury	A-T-025	N	N	<0.0005	**<0.005**	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.003	**0.030**	0.5	10	30
Nickel	A-T-025	N	N	0.001	**0.010**	0.4	10	40
Lead	A-T-025	N	N	0.002	**0.020**	0.5	10	50
Antimony	A-T-025	N	N	0.002	**0.020**	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	**<0.01**	0.1	0.5	7
Zinc	A-T-025	N	N	0.004	**0.040**	4	50	200
Chloride	A-T-026	N	N	3	**35**	800	15000	25000
Fluoride	A-T-026	N	N	0.3	**3.0**	10	150	500
Sulphate as SO_4	A-T-026	N	N	13	**130**	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	164	**1640**	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	**<0.1**	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	**<200**	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	N	11.4				
Conductivity (µS/cm)	A-T-037	N	N	328				
Mass Sample (kg)				0.225				
Dry Matter (%)	A-T-044	N	N	77.7				

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UKAS TESTING 4041

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Analytical Report Number : 20-43977

Project / Site name:	Mayfield Park	**Samples received on:**	27/11/2020
Your job number:	4153	**Samples instructed on/ Analysis started on:**	30/11/2020
Your order number:	1593	**Analysis completed by:**	03/12/2020
Report Issue Number:	1	**Report issued on:**	03/12/2020
Samples Analysed:	10 water samples		

Signed: Karolina Marek

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699061	1699062	1699063	1699064
Sample Reference				SW01	SW02	SW03	SW04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	8	8	8.1	8.1
Sulphate as SO4	mg/l	0.045	ISO 17025	59.1	59.1	59	65.9
Hardness - Total	mgCaCO3/l	1	ISO 17025	191	196	190	205
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids							
Calcium (dissolved)	mg/l	0.012	ISO 17025	57	58	56	63
Magnesium (dissolved)	mg/l	0.005	ISO 17025	12	12	12	12
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.14	1.21	1.09	1.2
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.02	0.02	0.02	0.03
Chromium (dissolved)	µg/l	0.2	ISO 17025	2	1.9	1.9	1.8
Copper (dissolved)	µg/l	0.5	ISO 17025	6.1	6.2	9.8	7.2
Lead (dissolved)	µg/l	0.2	ISO 17025	1.8	1.1	1	2.4
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.6	2.7	7.2	2.8
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6	< 0.6	< 0.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	8.8	10	14	6
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699061	1699062	1699063	1699064
Sample Reference				SW01	SW02	SW03	SW04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10
VOCs							
Chloromethane	µg/l	1	ISO 17025	-	-	-	-
Chloroethane	µg/l	1	ISO 17025	-	-	-	-
Bromomethane	µg/l	1	ISO 17025	-	-	-	-
Vinyl Chloride	µg/l	1	NONE	-	-	-	-
Trichlorofluoromethane	µg/l	1	NONE	-	-	-	-
1,1-Dichloroethene	µg/l	1	ISO 17025	-	-	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	-	-	-	-
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	-	-	-	-
1,1-Dichloroethane	µg/l	1	ISO 17025	-	-	-	-
2,2-Dichloropropane	µg/l	1	ISO 17025	-	-	-	-
Trichloromethane	µg/l	1	ISO 17025	-	-	-	-
1,1,1-Trichloroethane	µg/l	1	ISO 17025	-	-	-	-
1,2-Dichloroethane	µg/l	1	ISO 17025	-	-	-	-
1,1-Dichloropropene	µg/l	1	ISO 17025	-	-	-	-
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	-	-	-	-
Benzene	µg/l	1	ISO 17025	-	-	-	-
Tetrachloromethane	µg/l	1	ISO 17025	-	-	-	-
1,2-Dichloropropane	µg/l	1	ISO 17025	-	-	-	-
Trichloroethene	µg/l	1	ISO 17025	-	-	-	-
Dibromomethane	µg/l	1	ISO 17025	-	-	-	-
Bromodichloromethane	µg/l	1	ISO 17025	-	-	-	-
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	-	-	-	-
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	-	-	-	-
Toluene	µg/l	1	ISO 17025	-	-	-	-
1,1,2-Trichloroethane	µg/l	1	ISO 17025	-	-	-	-
1,3-Dichloropropane	µg/l	1	ISO 17025	-	-	-	-
Dibromochloromethane	µg/l	1	ISO 17025	-	-	-	-
Tetrachloroethene	µg/l	1	ISO 17025	-	-	-	-
1,2-Dibromoethane	µg/l	1	ISO 17025	-	-	-	-
Chlorobenzene	µg/l	1	ISO 17025	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	-	-	-	-
Ethylbenzene	µg/l	1	ISO 17025	-	-	-	-
p & m-Xylene	µg/l	1	ISO 17025	-	-	-	-

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699061	1699062	1699063	1699064
Sample Reference				SW01	SW02	SW03	SW04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Styrene	µg/l	1	ISO 17025	-	-	-	-
Tribromomethane	µg/l	1	ISO 17025	-	-	-	-
o-Xylene	µg/l	1	ISO 17025	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	-	-	-	-
Isopropylbenzene	µg/l	1	ISO 17025	-	-	-	-
Bromobenzene	µg/l	1	ISO 17025	-	-	-	-
n-Propylbenzene	µg/l	1	ISO 17025	-	-	-	-
2-Chlorotoluene	µg/l	1	ISO 17025	-	-	-	-
4-Chlorotoluene	µg/l	1	ISO 17025	-	-	-	-
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	-	-	-	-
tert-Butylbenzene	µg/l	1	ISO 17025	-	-	-	-
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	-	-	-	-
sec-Butylbenzene	µg/l	1	ISO 17025	-	-	-	-
1,3-Dichlorobenzene	µg/l	1	ISO 17025	-	-	-	-
p-Isopropyltoluene	µg/l	1	ISO 17025	-	-	-	-
1,2-Dichlorobenzene	µg/l	1	ISO 17025	-	-	-	-
1,4-Dichlorobenzene	µg/l	1	ISO 17025	-	-	-	-
Butylbenzene	µg/l	1	ISO 17025	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	-	-	-	-
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	-	-	-	-
Hexachlorobutadiene	µg/l	1	ISO 17025	-	-	-	-
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	-	-	-	-

SVOCs

Aniline	µg/l	0.05	NONE	-	-	-	-
Phenol	µg/l	0.05	NONE	-	-	-	-
2-Chlorophenol	µg/l	0.05	NONE	-	-	-	-
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	-	-	-	-
1,3-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	-
1,2-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	-
1,4-Dichlorobenzene	µg/l	0.05	NONE	-	-	-	-
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	-	-	-	-
2-Methylphenol	µg/l	0.05	NONE	-	-	-	-
Hexachloroethane	µg/l	0.05	NONE	-	-	-	-
Nitrobenzene	µg/l	0.05	NONE	-	-	-	-
4-Methylphenol	µg/l	0.05	NONE	-	-	-	-
Isophorone	µg/l	0.05	NONE	-	-	-	-
2-Nitrophenol	µg/l	0.05	NONE	-	-	-	-
2,4-Dimethylphenol	µg/l	0.05	NONE	-	-	-	-
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	-	-	-	-
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	-	-	-	-
Naphthalene	µg/l	0.01	ISO 17025	-	-	-	-
2,4-Dichlorophenol	µg/l	0.05	NONE	-	-	-	-
4-Chloroaniline	µg/l	0.05	NONE	-	-	-	-
Hexachlorobutadiene	µg/l	0.05	NONE	-	-	-	-
4-Chloro-3-methylphenol	µg/l	0.05	NONE	-	-	-	-
2,4,6-Trichlorophenol	µg/l	0.05	NONE	-	-	-	-
2,4,5-Trichlorophenol	µg/l	0.05	NONE	-	-	-	-
2-Methylnaphthalene	µg/l	0.05	NONE	-	-	-	-
2-Chloronaphthalene	µg/l	0.05	NONE	-	-	-	-
Dimethylphthalate	µg/l	0.05	NONE	-	-	-	-
2,6-Dinitrotoluene	µg/l	0.05	NONE	-	-	-	-
Acenaphthylene	µg/l	0.01	ISO 17025	-	-	-	-
Acenaphthene	µg/l	0.01	ISO 17025	-	-	-	-

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699061	1699062	1699063	1699064
Sample Reference				SW01	SW02	SW03	SW04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
2,4-Dinitrotoluene	µg/l	0.05	NONE	-	-	-	-
Dibenzofuran	µg/l	0.05	NONE	-	-	-	-
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	-	-	-	-
Diethyl phthalate	µg/l	0.05	NONE	-	-	-	-
4-Nitroaniline	µg/l	0.05	NONE	-	-	-	-
Fluorene	µg/l	0.01	ISO 17025	-	-	-	-
Azobenzene	µg/l	0.05	NONE	-	-	-	-
Bromophenyl phenyl ether	µg/l	0.05	NONE	-	-	-	-
Hexachlorobenzene	µg/l	0.05	NONE	-	-	-	-
Phenanthrene	µg/l	0.01	ISO 17025	-	-	-	-
Anthracene	µg/l	0.01	ISO 17025	-	-	-	-
Carbazole	µg/l	0.05	NONE	-	-	-	-
Dibutyl phthalate	µg/l	0.05	NONE	-	-	-	-
Anthraquinone	µg/l	0.05	NONE	-	-	-	-
Fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-
Pyrene	µg/l	0.01	ISO 17025	-	-	-	-
Butyl benzyl phthalate	µg/l	0.05	NONE	-	-	-	-
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	-	-	-
Chrysene	µg/l	0.01	ISO 17025	-	-	-	-
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	-	-	-
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-	-	-	-
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-	-	-	-
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-	-	-	-

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

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699065	1699066	1699067	1699068
Sample Reference				BH102	BH105	BH107	BH108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	7.3	7.3	7.6	6.9
Sulphate as SO4	mg/l	0.045	ISO 17025	73.1	193	617	481
Hardness - Total	mgCaCO3/l	1	ISO 17025	168	357	1020	746
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids							
Calcium (dissolved)	mg/l	0.012	ISO 17025	53	110	340	220
Magnesium (dissolved)	mg/l	0.005	ISO 17025	8.9	17	38	47
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.88	60.8	8.13	1.01
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.04	0.06	0.14
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.5	2.2	5.3	4.7
Copper (dissolved)	µg/l	0.5	ISO 17025	5	5.2	9.8	17
Lead (dissolved)	µg/l	0.2	ISO 17025	0.2	1	0.5	5.9
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.7	5.6	5.2	5
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.6	2	7.2	3.1
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.3	20	7.9	18
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699065	1699066	1699067	1699068
Sample Reference				BH102	BH105	BH107	BH108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10
VOCs							
Chloromethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Chloroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Bromomethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Vinyl Chloride	µg/l	1	NONE	< 1.0	-	-	-
Trichlorofluoromethane	µg/l	1	NONE	< 1.0	-	-	-
1,1-Dichloroethene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	-	-	-
1,1-Dichloroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
2,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	-	-	-
Trichloromethane	µg/l	1	ISO 17025	< 1.0	-	-	-
1,1,1-Trichloroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2-Dichloroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
1,1-Dichloropropene	µg/l	1	ISO 17025	< 1.0	-	-	-
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	< 1.0	-	-	-
Benzene	µg/l	1	ISO 17025	< 1.0	-	-	-
Tetrachloromethane	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2-Dichloropropane	µg/l	1	ISO 17025	< 1.0	-	-	-
Trichloroethene	µg/l	1	ISO 17025	< 1.0	-	-	-
Dibromomethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Bromodichloromethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	-	-	-
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	< 1.0	-	-	-
Toluene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,1,2-Trichloroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
1,3-Dichloropropane	µg/l	1	ISO 17025	< 1.0	-	-	-
Dibromochloromethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Tetrachloroethene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2-Dibromoethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Chlorobenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
p & m-Xylene	µg/l	1	ISO 17025	< 1.0	-	-	-

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699065	1699066	1699067	1699068
Sample Reference				BH102	BH105	BH107	BH108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Styrene	µg/l	1	ISO 17025	< 1.0	-	-	-
Tribromomethane	µg/l	1	ISO 17025	< 1.0	-	-	-
o-Xylene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	< 1.0	-	-	-
Isopropylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
Bromobenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
n-Propylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
2-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	-	-	-
4-Chlorotoluene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
tert-Butylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
sec-Butylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,3-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
p-Isopropyltoluene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,4-Dichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
Butylbenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	-	-
Hexachlorobutadiene	µg/l	1	ISO 17025	< 1.0	-	-	-
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	< 1.0	-	-	-

SVOCs

Aniline	µg/l	0.05	NONE	< 0.05	-	-	-
Phenol	µg/l	0.05	NONE	< 0.05	-	-	-
2-Chlorophenol	µg/l	0.05	NONE	< 0.05	-	-	-
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	< 0.05	-	-	-
1,3-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	-	-	-
1,2-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	-	-	-
1,4-Dichlorobenzene	µg/l	0.05	NONE	< 0.05	-	-	-
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	< 0.05	-	-	-
2-Methylphenol	µg/l	0.05	NONE	< 0.05	-	-	-
Hexachloroethane	µg/l	0.05	NONE	< 0.05	-	-	-
Nitrobenzene	µg/l	0.05	NONE	< 0.05	-	-	-
4-Methylphenol	µg/l	0.05	NONE	< 0.05	-	-	-
Isophorone	µg/l	0.05	NONE	< 0.05	-	-	-
2-Nitrophenol	µg/l	0.05	NONE	< 0.05	-	-	-
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05	-	-	-
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	< 0.05	-	-	-
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	< 0.05	-	-	-
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05	-	-	-
4-Chloroaniline	µg/l	0.05	NONE	< 0.05	-	-	-
Hexachlorobutadiene	µg/l	0.05	NONE	< 0.05	-	-	-
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05	-	-	-
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05	-	-	-
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05	-	-	-
2-Methylnaphthalene	µg/l	0.05	NONE	< 0.05	-	-	-
2-Chloronaphthalene	µg/l	0.05	NONE	< 0.05	-	-	-
Dimethylphthalate	µg/l	0.05	NONE	< 0.05	-	-	-
2,6-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	-	-	-
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	-	-	-

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699065	1699066	1699067	1699068
Sample Reference				BH102	BH105	BH107	BH108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020	26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
2,4-Dinitrotoluene	µg/l	0.05	NONE	< 0.05	-	-	-
Dibenzofuran	µg/l	0.05	NONE	< 0.05	-	-	-
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	-	-	-
Diethyl phthalate	µg/l	0.05	NONE	< 0.05	-	-	-
4-Nitroaniline	µg/l	0.05	NONE	< 0.05	-	-	-
Fluorene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Azobenzene	µg/l	0.05	NONE	< 0.05	-	-	-
Bromophenyl phenyl ether	µg/l	0.05	NONE	< 0.05	-	-	-
Hexachlorobenzene	µg/l	0.05	NONE	< 0.05	-	-	-
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Anthracene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Carbazole	µg/l	0.05	NONE	< 0.05	-	-	-
Dibutyl phthalate	µg/l	0.05	NONE	< 0.05	-	-	-
Anthraquinone	µg/l	0.05	NONE	< 0.05	-	-	-
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Pyrene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Butyl benzyl phthalate	µg/l	0.05	NONE	< 0.05	-	-	-
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Chrysene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	-	-	-
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	-	-	-

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

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699069	1699070
Sample Reference				BH110	WS328
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH	pH Units	N/A	ISO 17025	7.6	7.4
Sulphate as SO4	mg/l	0.045	ISO 17025	37.8	216
Hardness - Total	mgCaCO3/l	1	ISO 17025	221	328
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	1.98
Fluorene	µg/l	0.01	ISO 17025	< 0.01	4.89
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	1.18
Anthracene	µg/l	0.01	ISO 17025	< 0.01	1.34
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	2.5
Pyrene	µg/l	0.01	ISO 17025	< 0.01	4.94
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	1.7
Chrysene	µg/l	0.01	ISO 17025	< 0.01	2.12
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	1.88
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	0.72
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	1.49
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	0.93
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	0.33
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	1.47
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	27.5
Heavy Metals / Metalloids					
Calcium (dissolved)	mg/l	0.012	ISO 17025	70	110
Magnesium (dissolved)	mg/l	0.005	ISO 17025	11	12
Arsenic (dissolved)	µg/l	0.15	ISO 17025	597	2.83
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.04
Chromium (dissolved)	µg/l	0.2	ISO 17025	2.2	2.8
Copper (dissolved)	µg/l	0.5	ISO 17025	0.9	1.5
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4	1.5
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	1.5	4
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.4	3.8
Monoaromatics & Oxygenates					
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0

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

Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699069	1699070
Sample Reference				BH110	WS328
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	3400
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	12000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	14000
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	6800
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	36000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	1100
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	5400
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	11000
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	2500
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	20000
VOCs					
Chloromethane	µg/l	1	ISO 17025	-	< 1.0
Chloroethane	µg/l	1	ISO 17025	-	< 1.0
Bromomethane	µg/l	1	ISO 17025	-	< 1.0
Vinyl Chloride	µg/l	1	NONE	-	< 1.0
Trichlorofluoromethane	µg/l	1	NONE	-	< 1.0
1,1-Dichloroethene	µg/l	1	ISO 17025	-	< 1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	µg/l	1	ISO 17025	-	< 1.0
Cis-1,2-dichloroethene	µg/l	1	ISO 17025	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	-	< 1.0
1,1-Dichloroethane	µg/l	1	ISO 17025	-	< 1.0
2,2-Dichloropropane	µg/l	1	ISO 17025	-	< 1.0
Trichloromethane	µg/l	1	ISO 17025	-	< 1.0
1,1,1-Trichloroethane	µg/l	1	ISO 17025	-	< 1.0
1,2-Dichloroethane	µg/l	1	ISO 17025	-	< 1.0
1,1-Dichloropropene	µg/l	1	ISO 17025	-	< 1.0
Trans-1,2-dichloroethene	µg/l	1	ISO 17025	-	< 1.0
Benzene	µg/l	1	ISO 17025	-	< 1.0
Tetrachloromethane	µg/l	1	ISO 17025	-	< 1.0
1,2-Dichloropropane	µg/l	1	ISO 17025	-	< 1.0
Trichloroethene	µg/l	1	ISO 17025	-	< 1.0
Dibromomethane	µg/l	1	ISO 17025	-	< 1.0
Bromodichloromethane	µg/l	1	ISO 17025	-	< 1.0
Cis-1,3-dichloropropene	µg/l	1	ISO 17025	-	< 1.0
Trans-1,3-dichloropropene	µg/l	1	ISO 17025	-	< 1.0
Toluene	µg/l	1	ISO 17025	-	< 1.0
1,1,2-Trichloroethane	µg/l	1	ISO 17025	-	< 1.0
1,3-Dichloropropane	µg/l	1	ISO 17025	-	< 1.0
Dibromochloromethane	µg/l	1	ISO 17025	-	< 1.0
Tetrachloroethene	µg/l	1	ISO 17025	-	< 1.0
1,2-Dibromoethane	µg/l	1	ISO 17025	-	< 1.0
Chlorobenzene	µg/l	1	ISO 17025	-	< 1.0
1,1,1,2-Tetrachloroethane	µg/l	1	ISO 17025	-	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	-	< 1.0
p & m-Xylene	µg/l	1	ISO 17025	-	< 1.0

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699069	1699070
Sample Reference				BH110	WS328
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Styrene	µg/l	1	ISO 17025	-	< 1.0
Tribromomethane	µg/l	1	ISO 17025	-	< 1.0
o-Xylene	µg/l	1	ISO 17025	-	< 1.0
1,1,2,2-Tetrachloroethane	µg/l	1	ISO 17025	-	< 1.0
Isopropylbenzene	µg/l	1	ISO 17025	-	< 1.0
Bromobenzene	µg/l	1	ISO 17025	-	< 1.0
n-Propylbenzene	µg/l	1	ISO 17025	-	< 1.0
2-Chlorotoluene	µg/l	1	ISO 17025	-	< 1.0
4-Chlorotoluene	µg/l	1	ISO 17025	-	< 1.0
1,3,5-Trimethylbenzene	µg/l	1	ISO 17025	-	< 1.0
tert-Butylbenzene	µg/l	1	ISO 17025	-	< 1.0
1,2,4-Trimethylbenzene	µg/l	1	ISO 17025	-	< 1.0
sec-Butylbenzene	µg/l	1	ISO 17025	-	< 1.0
1,3-Dichlorobenzene	µg/l	1	ISO 17025	-	< 1.0
p-Isopropyltoluene	µg/l	1	ISO 17025	-	< 1.0
1,2-Dichlorobenzene	µg/l	1	ISO 17025	-	< 1.0
1,4-Dichlorobenzene	µg/l	1	ISO 17025	-	< 1.0
Butylbenzene	µg/l	1	ISO 17025	-	< 1.0
1,2-Dibromo-3-chloropropane	µg/l	1	ISO 17025	-	< 1.0
1,2,4-Trichlorobenzene	µg/l	1	ISO 17025	-	< 1.0
Hexachlorobutadiene	µg/l	1	ISO 17025	-	< 1.0
1,2,3-Trichlorobenzene	µg/l	1	ISO 17025	-	< 1.0

SVOCs

Aniline	µg/l	0.05	NONE	-	< 0.05
Phenol	µg/l	0.05	NONE	-	< 0.05
2-Chlorophenol	µg/l	0.05	NONE	-	< 0.05
Bis(2-chloroethyl)ether	µg/l	0.05	NONE	-	< 0.05
1,3-Dichlorobenzene	µg/l	0.05	NONE	-	< 0.05
1,2-Dichlorobenzene	µg/l	0.05	NONE	-	< 0.05
1,4-Dichlorobenzene	µg/l	0.05	NONE	-	< 0.05
Bis(2-chloroisopropyl)ether	µg/l	0.05	NONE	-	< 0.05
2-Methylphenol	µg/l	0.05	NONE	-	< 0.05
Hexachloroethane	µg/l	0.05	NONE	-	< 0.05
Nitrobenzene	µg/l	0.05	NONE	-	< 0.05
4-Methylphenol	µg/l	0.05	NONE	-	< 0.05
Isophorone	µg/l	0.05	NONE	-	< 0.05
2-Nitrophenol	µg/l	0.05	NONE	-	< 0.05
2,4-Dimethylphenol	µg/l	0.05	NONE	-	< 0.05
Bis(2-chloroethoxy)methane	µg/l	0.05	NONE	-	< 0.05
1,2,4-Trichlorobenzene	µg/l	0.05	NONE	-	< 0.05
Naphthalene	µg/l	0.01	ISO 17025	-	< 0.01
2,4-Dichlorophenol	µg/l	0.05	NONE	-	< 0.05
4-Chloroaniline	µg/l	0.05	NONE	-	< 0.05
Hexachlorobutadiene	µg/l	0.05	NONE	-	< 0.05
4-Chloro-3-methylphenol	µg/l	0.05	NONE	-	< 0.05
2,4,6-Trichlorophenol	µg/l	0.05	NONE	-	< 0.05
2,4,5-Trichlorophenol	µg/l	0.05	NONE	-	< 0.05
2-Methylnaphthalene	µg/l	0.05	NONE	-	< 0.05
2-Chloronaphthalene	µg/l	0.05	NONE	-	< 0.05
Dimethylphthalate	µg/l	0.05	NONE	-	< 0.05
2,6-Dinitrotoluene	µg/l	0.05	NONE	-	< 0.05
Acenaphthylene	µg/l	0.01	ISO 17025	-	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	-	2

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Analytical Report Number: 20-43977
Project / Site name: Mayfield Park

Your Order No: 1593

Lab Sample Number				1699069	1699070
Sample Reference				BH110	WS328
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				26/11/2020	26/11/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
2,4-Dinitrotoluene	µg/l	0.05	NONE	-	< 0.05
Dibenzofuran	µg/l	0.05	NONE	-	< 0.05
4-Chlorophenyl phenyl ether	µg/l	0.05	NONE	-	< 0.05
Diethyl phthalate	µg/l	0.05	NONE	-	< 0.05
4-Nitroaniline	µg/l	0.05	NONE	-	< 0.05
Fluorene	µg/l	0.01	ISO 17025	-	4.9
Azobenzene	µg/l	0.05	NONE	-	< 0.05
Bromophenyl phenyl ether	µg/l	0.05	NONE	-	< 0.05
Hexachlorobenzene	µg/l	0.05	NONE	-	< 0.05
Phenanthrene	µg/l	0.01	ISO 17025	-	1.2
Anthracene	µg/l	0.01	ISO 17025	-	1.3
Carbazole	µg/l	0.05	NONE	-	< 0.05
Dibutyl phthalate	µg/l	0.05	NONE	-	< 0.05
Anthraquinone	µg/l	0.05	NONE	-	< 0.05
Fluoranthene	µg/l	0.01	ISO 17025	-	2.5
Pyrene	µg/l	0.01	ISO 17025	-	4.9
Butyl benzyl phthalate	µg/l	0.05	NONE	-	< 0.05
Benzo(a)anthracene	µg/l	0.01	ISO 17025	-	1.7
Chrysene	µg/l	0.01	ISO 17025	-	2.1
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	-	1.9
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	-	0.72
Benzo(a)pyrene	µg/l	0.01	ISO 17025	-	1.5
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	-	0.93
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	-	0.33
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	-	1.5

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

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Analytical Report Number : 20-43977
Project / Site name: Mayfield Park

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds in leachate by extraction in dichloromethane followed by GC-MS.	In-house method based on USEPA 8270	L102B-PL	W	NONE
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
Volatile organic compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report

Analytical Report Number : 20-43977
Project / Site name: Mayfield Park

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH102	None Supplied	W	1699065	c	pH at 20oC in water (automated)	L099-PL	c
BH105	None Supplied	W	1699066	c	pH at 20oC in water (automated)	L099-PL	c
BH107	None Supplied	W	1699067	c	pH at 20oC in water (automated)	L099-PL	c
BH108	None Supplied	W	1699068	c	pH at 20oC in water (automated)	L099-PL	c
BH110	None Supplied	W	1699069	c	pH at 20oC in water (automated)	L099-PL	c
SW01	None Supplied	W	1699061	c	pH at 20oC in water (automated)	L099-PL	c
SW02	None Supplied	W	1699062	c	pH at 20oC in water (automated)	L099-PL	c
SW03	None Supplied	W	1699063	c	pH at 20oC in water (automated)	L099-PL	c
SW04	None Supplied	W	1699064	c	pH at 20oC in water (automated)	L099-PL	c
WS328	None Supplied	W	1699070	c	pH at 20oC in water (automated)	L099-PL	c

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

4041

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Analytical Report Number : 20-31886

Project / Site name:	Plot O+N	**Samples received on:**	24/09/2020
Your job number:	4143	**Samples instructed on/ Analysis started on:**	25/09/2020
Your order number:	1587	**Analysis completed by:**	05/10/2020
Report Issue Number:	1	**Report issued on:**	05/10/2020
Samples Analysed:	7 water samples		

Signed: Karolina Marek

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 20-31886
Project / Site name: Plot O+N

Your Order No: 1587

Lab Sample Number				1629992	1629993	1629994	1629995
Sample Reference				BH105	BH106	BH107	BH108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/09/2020	23/09/2020	23/09/2020	23/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
General Inorganics							
pH	pH Units	N/A	ISO 17025	7.9	10.3	8	7
Sulphate as SO4	mg/l	0.045	ISO 17025	309	925	863	751
Hardness - Total	mgCaCO3/l	1	ISO 17025	433	850	1430	1230
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.28	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.61	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.62	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.3	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.26	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.35	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.12	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.25	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.13	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.16	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	3.08	< 0.16
Heavy Metals / Metalloids							
Calcium (dissolved)	mg/l	0.012	ISO 17025	140	340	480	390
Magnesium (dissolved)	mg/l	0.005	ISO 17025	21	2.2	58	62
Arsenic (dissolved)	µg/l	0.15	ISO 17025	50.8	11	10.7	2.56
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05	0.11	0.06	0.33
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.8	0.7	5.6	3.8
Copper (dissolved)	µg/l	0.5	ISO 17025	4.3	15	12	26
Lead (dissolved)	µg/l	0.2	ISO 17025	0.5	0.3	0.7	9.5
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.12	0.35	0.25	0.12
Nickel (dissolved)	µg/l	0.5	ISO 17025	5.8	12	9.5	11
Selenium (dissolved)	µg/l	0.6	ISO 17025	2.4	10	5.7	3.4
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.1	9.7	13	28
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 20-31886
Project / Site name: Plot O+N

Your Order No: 1587

Lab Sample Number				1629992	1629993	1629994	1629995
Sample Reference				BH105	BH106	BH107	BH108
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/09/2020	23/09/2020	23/09/2020	23/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10

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

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Analytical Report Number: 20-31886
Project / Site name: Plot O+N

Your Order No: 1587

Lab Sample Number				1629996	1629997	1629998
Sample Reference				BH110	SW01	SW02
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				23/09/2020	23/09/2020	23/09/2020
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			

General Inorganics

pH	pH Units	N/A	ISO 17025	7.6	7.7	7.8
Sulphate as SO4	mg/l	0.045	ISO 17025	48.5	94.4	92.2
Hardness - Total	mgCaCO3/l	1	ISO 17025	274	226	228

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	0.29	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.41	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	0.39	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	0.17	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	0.15	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	1.41	< 0.16	< 0.16

Heavy Metals / Metalloids

Calcium (dissolved)	mg/l	0.012	ISO 17025	90	64	63
Magnesium (dissolved)	mg/l	0.005	ISO 17025	12	16	17
Arsenic (dissolved)	µg/l	0.15	ISO 17025	535	2.46	4.12
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	0.02	0.03
Chromium (dissolved)	µg/l	0.2	ISO 17025	3	2.1	2.5
Copper (dissolved)	µg/l	0.5	ISO 17025	5.3	6	7.5
Lead (dissolved)	µg/l	0.2	ISO 17025	0.2	1.8	1.5
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.6	2.9	3.9
Selenium (dissolved)	µg/l	0.6	ISO 17025	2.3	< 0.6	< 0.6
Zinc (dissolved)	µg/l	0.5	ISO 17025	65	24	28

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 20-31886
Project / Site name: Plot O+N

Your Order No: 1587

Lab Sample Number				1629996	1629997	1629998
Sample Reference				BH110	SW01	SW02
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				23/09/2020	23/09/2020	23/09/2020
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Petroleum Hydrocarbons						
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10

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

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Analytical Report Number : 20-31886
Project / Site name: Plot O+N

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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

APPENDIX D – GEOTECHNICAL TESTING RESULTS

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
BH107	1.20		B	Reddish brown silty SAND and GRAVEL. Gravel includes brick fragments.															Particle Size Distribution
BH107	5.00		B	Reddish brown sandy gravel sized BRICK.															Particle Size Distribution
BH107	6.00		B	Orangish brown slightly silty SAND.															Particle Size Distribution
BH108	3.00		U	Medium dense brown and reddish brown gravelly clayey silty SAND.	22.1	28	19	9.0	65	1.99	1.63	Undisturbed	60	113	57				
BH108	5.00		U	Medium dense reddish brown mottled brown slightly clayey gravelly silty SAND. Gravel includes clinker, brick and concrete.	29.3	36	25	11	58	2.00	1.55	Undisturbed	100	83	42				
BH108	7.00		B	Orangish brown silty SAND.															Particle Size Distribution
BH109A	5.00		B	Dark brown and dark grey slightly clayey silty SAND and GRAVEL.															Particle Size Distribution
BH109A	8.50		B	Brown SAND.															Particle Size Distribution
BH110	0.10		B	Greyish brown slightly clayey silty sandy GRAVEL.															Particle Size Distribution
BH110	1.20		B	Dark brown clayey silty very gravelly SAND. Gravel includes clinker, clay pipe, brick and concrete fragments.															Particle Size Distribution

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed)

Checked and Approved by

J Sturges - Operations Manager
01/10/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-12 : 2018

SUMMARY OF LIQUID AND PLASTIC LIMIT TESTS

Location	Depth m	Sample Ref	Sample Type	Description	Water Content BS EN ISO 17892-1 : 2014 %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Percentage Passing 425µm %	Atterberg Classification	Test Type	Sample Condition
BH108	3.00		U	Medium dense brown and reddish brown gravelly clayey silty SAND.	22.1	28	19	9	65	CL	2	3
BH108	5.00		U	Medium dense reddish brown mottled brown slightly clayey gravelly silty SAND. Gravel includes clinker, brick and concrete.	29.3	36	25	11	58	MI	2	3

Test Type:
1 - 1 point 80g / 30° fall cone method.
2 - 4 point 80g / 30° fall cone method.
3 - Non plastic determination.

Sample condition:
1 - As Received
2 - Air Dried
3 - Washed & Air Dried

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J Sturges - Operations Manager
01/10/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

BS EN ISO 17892-8 : 2018

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location	BH108
Depth (m)	3.00
Sample Type	U

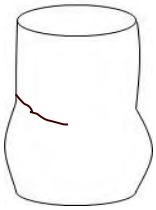
Description:

Medium dense brown and reddish brown gravelly clayey silty SAND.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.5
Diameter	(mm)	101.7
Moisture content	(%)	22.1
Bulk density	(Mg/m³)	1.99
Dry density	(Mg/m³)	1.63
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	201.4
Membrane correction	(kPa)	0.9
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	60
Strain at failure	(%)	14.9
Maximum deviator stress	(kPa)	113
Shear Stress Cu	(kPa)	57

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	90

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J Sturges - Operations Manager
01/10/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

BS EN ISO 17892-8 : 2018

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location	BH108
Depth (m)	5.00
Sample Type	U

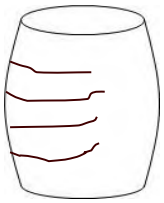
Description:

Medium dense reddish brown mottled brown slightly clayey gravelly silty SAND. Gravel includes clinker, brick and concrete.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	197.9
Diameter	(mm)	101.7
Moisture content	(%)	29.3
Bulk density	(Mg/m³)	2.00
Dry density	(Mg/m³)	1.55
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	197.9
Membrane correction	(kPa)	1.1
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	100
Strain at failure	(%)	20.2
Maximum deviator stress	(kPa)	83
Shear Stress Cu	(kPa)	42

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	94

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01/10/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

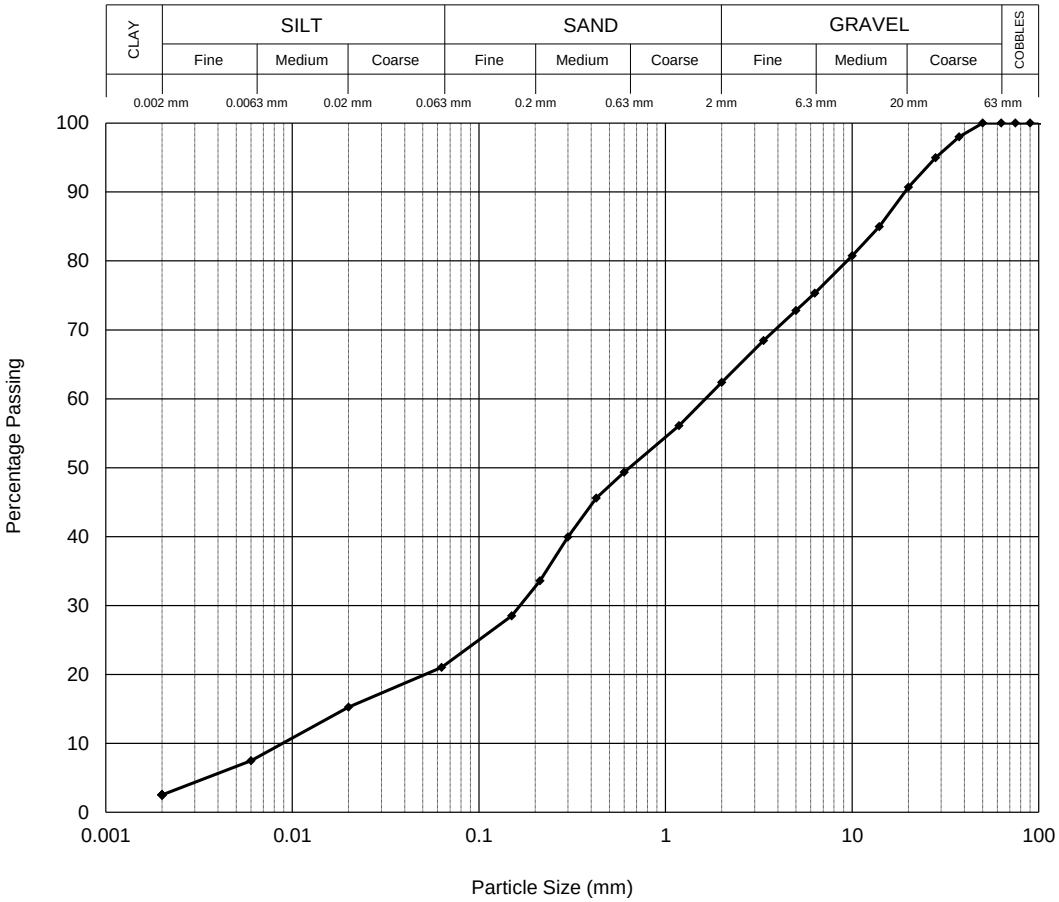
Location	BH107
Depth (m)	1.20
Sample Type	B

Description

Reddish brown silty SAND and GRAVEL. Gravel includes brick fragments.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	98
28.0 mm	95
20.0 mm	91
14.0 mm	85
10.0 mm	81
6.30 mm	75
5.00 mm	73
3.35 mm	68
2.00 mm	62
1.18 mm	56
600 µm	49
425 µm	46
300 µm	40
212 µm	34
150 µm	29
63 µm	21



Sedimentation	
No Pre-treatment used	
Temp (°C)	25
Size	% Pass
20 µm	15
6 µm	7
2 µm	3
Particle Density 2.70(A) Mg/m³	

Particle Proportions	
Cobbles	0.0
Gravel	37.6
Sand	41.3
Silt	18.5
Clay	2.6

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Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

Location	BH107
Depth (m)	5.00
Sample Type	B

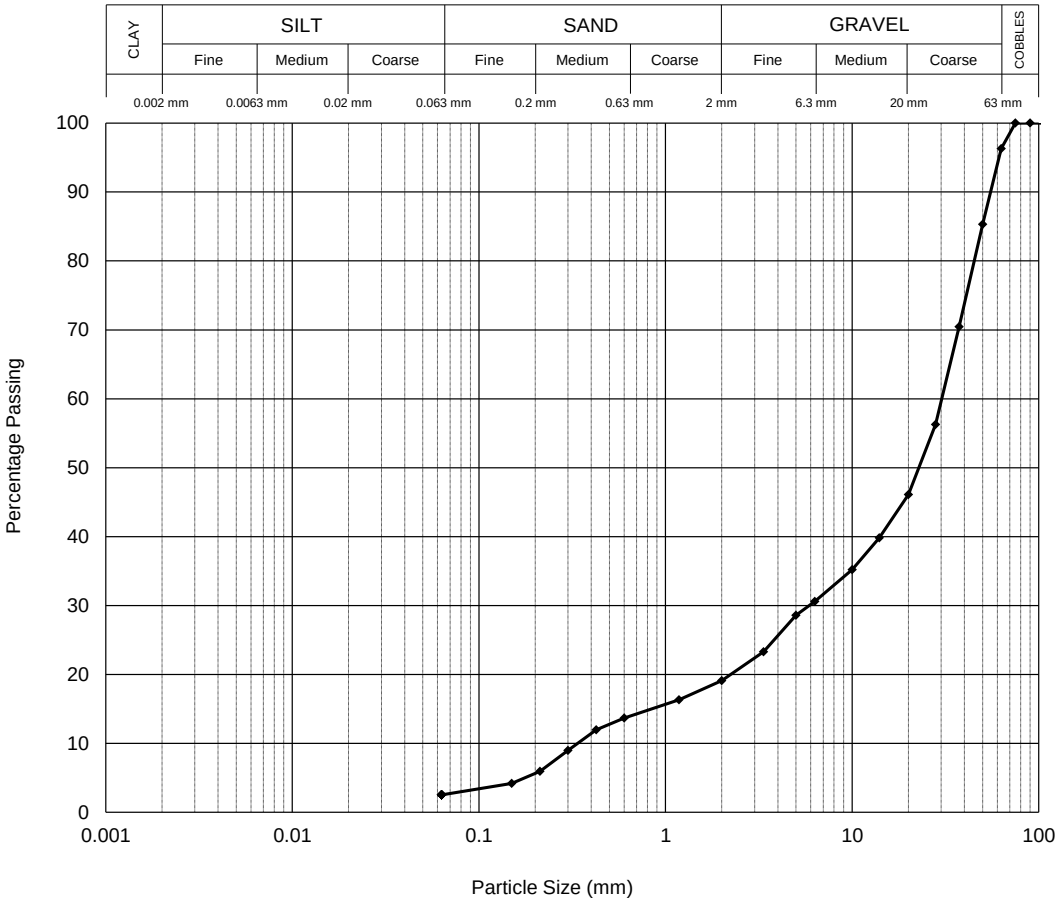
Description

Reddish brown sandy gravel sized BRICK.

Remarks: Insuffcient sample supplied to comply with BS EN ISO 17892-4 : 2016 minimum mass requirements

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	96
50.0 mm	85
37.5 mm	70
28.0 mm	56
20.0 mm	46
14.0 mm	40
10.0 mm	35
6.30 mm	31
5.00 mm	29
3.35 mm	23
2.00 mm	19
1.18 mm	16
600 µm	14
425 µm	12
300 µm	9
212 µm	6
150 µm	4
63 µm	3



Particle Proportions	
Cobbles	3.7
Gravel	77.2
Sand	16.6
Silt & Clay	2.5

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30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

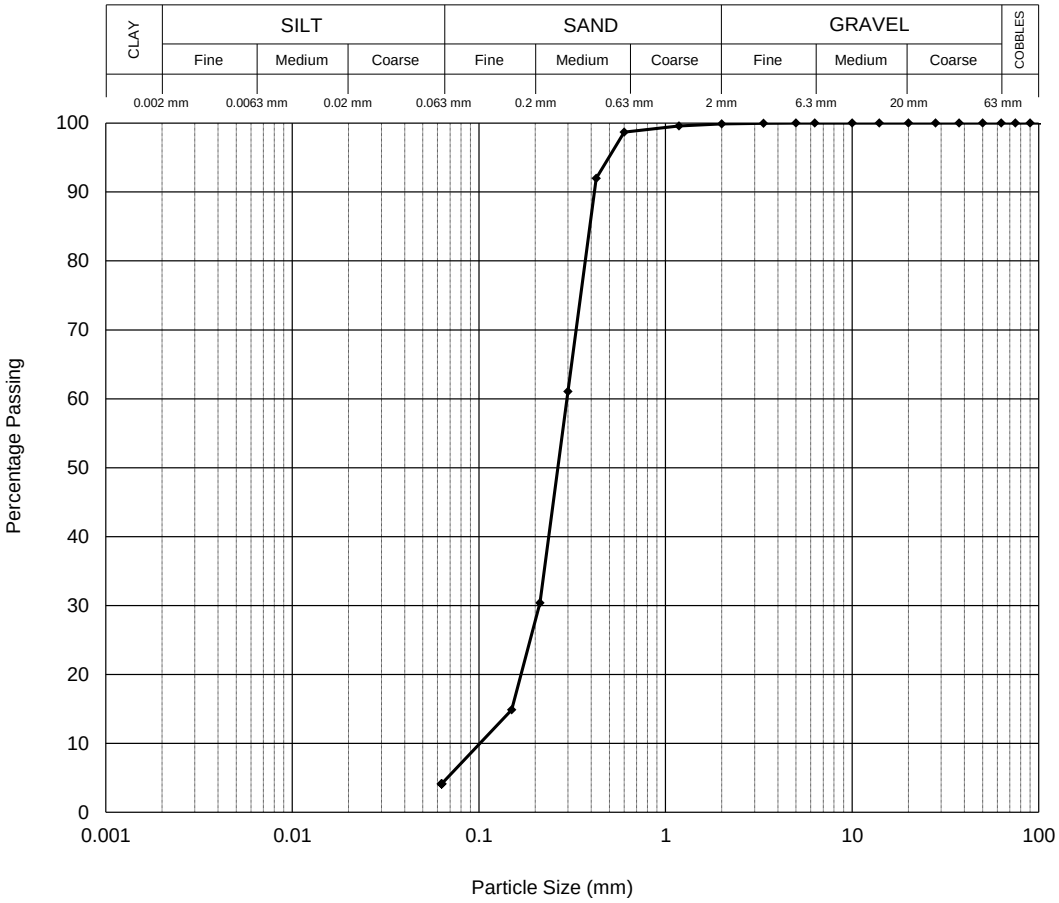
Location	BH107
Depth (m)	6.00
Sample Type	B

Description

Orangish brown slightly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	100
600 µm	99
425 µm	92
300 µm	61
212 µm	30
150 µm	15
63 µm	4



Particle Proportions	
Cobbles	0.0
Gravel	0.1
Sand	95.8
Silt & Clay	4.1

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30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

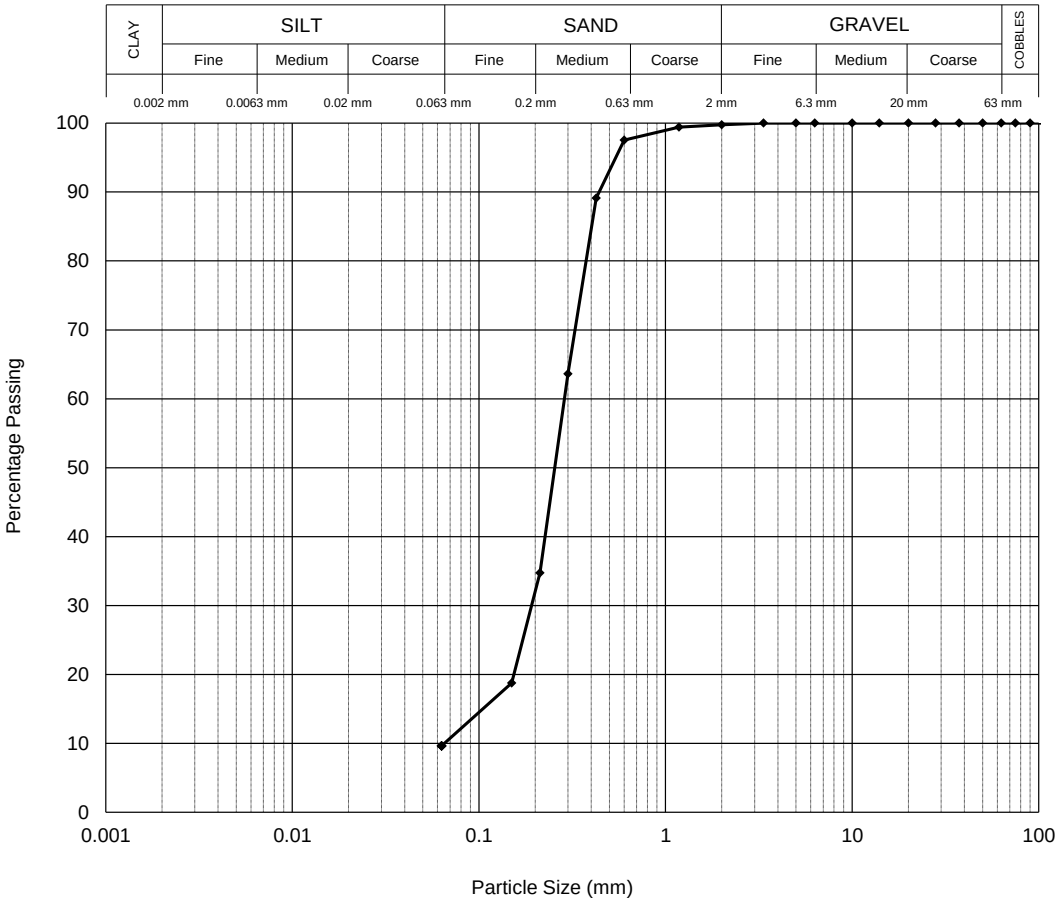
Location	BH108
Depth (m)	7.00
Sample Type	B

Description

Orangish brown silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	100
1.18 mm	99
600 µm	98
425 µm	89
300 µm	64
212 µm	35
150 µm	19
63 µm	10



Particle Proportions	
Cobbles	0.0
Gravel	0.2
Sand	90.1
Silt & Clay	9.7

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J Sturges - Operations Manager
30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

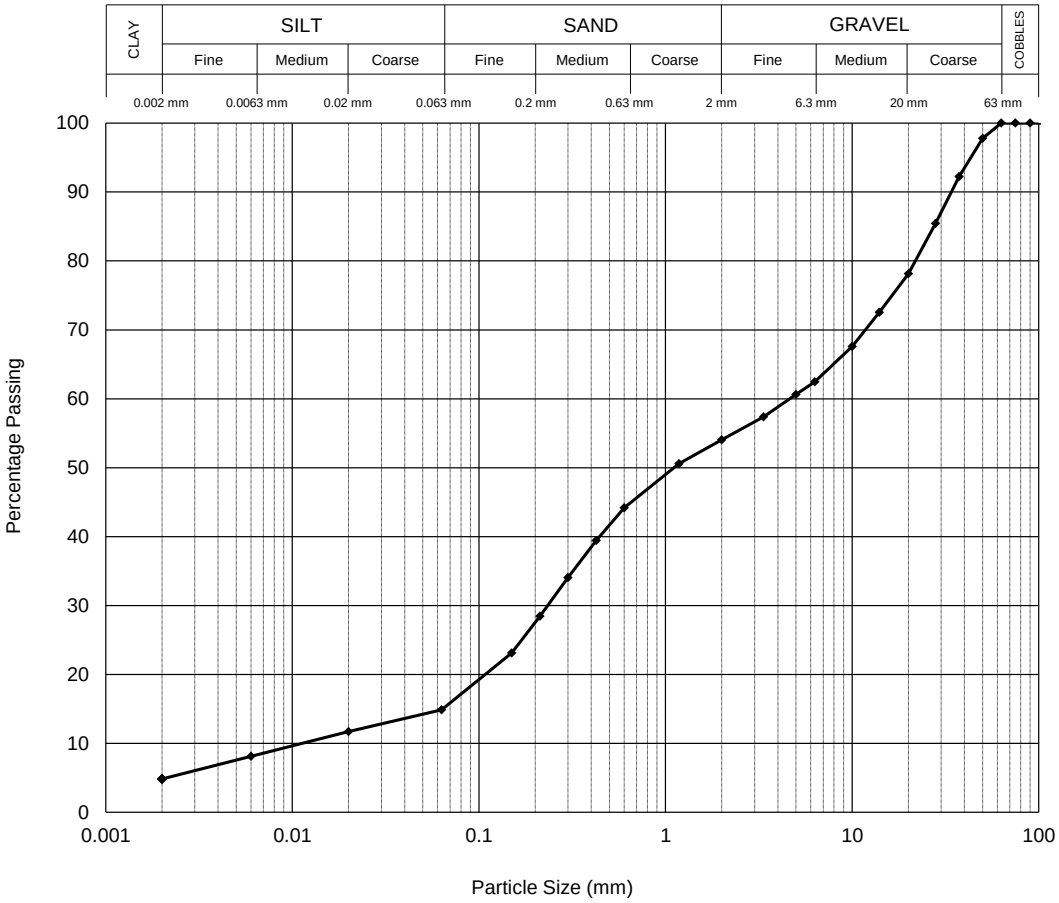
Location	BH109A
Depth (m)	5.00
Sample Type	B

Description

Dark brown and dark grey slightly clayey silty SAND and GRAVEL.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	98
37.5 mm	92
28.0 mm	85
20.0 mm	78
14.0 mm	73
10.0 mm	68
6.30 mm	62
5.00 mm	61
3.35 mm	57
2.00 mm	54
1.18 mm	51
600 µm	44
425 µm	39
300 µm	34
212 µm	28
150 µm	23
63 µm	15



Sedimentation	
No Pre-treatment used	
Temp (°C)	25
Size	% Pass
20 µm	12
6 µm	8
2 µm	5
Particle Density 2.70(A) Mg/m³	

Particle Proportions	
Cobbles	0.0
Gravel	45.9
Sand	39.2
Silt	10.1
Clay	4.8

Processed by CC
Checked and Approved by

J Sturges - Operations Manager
30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

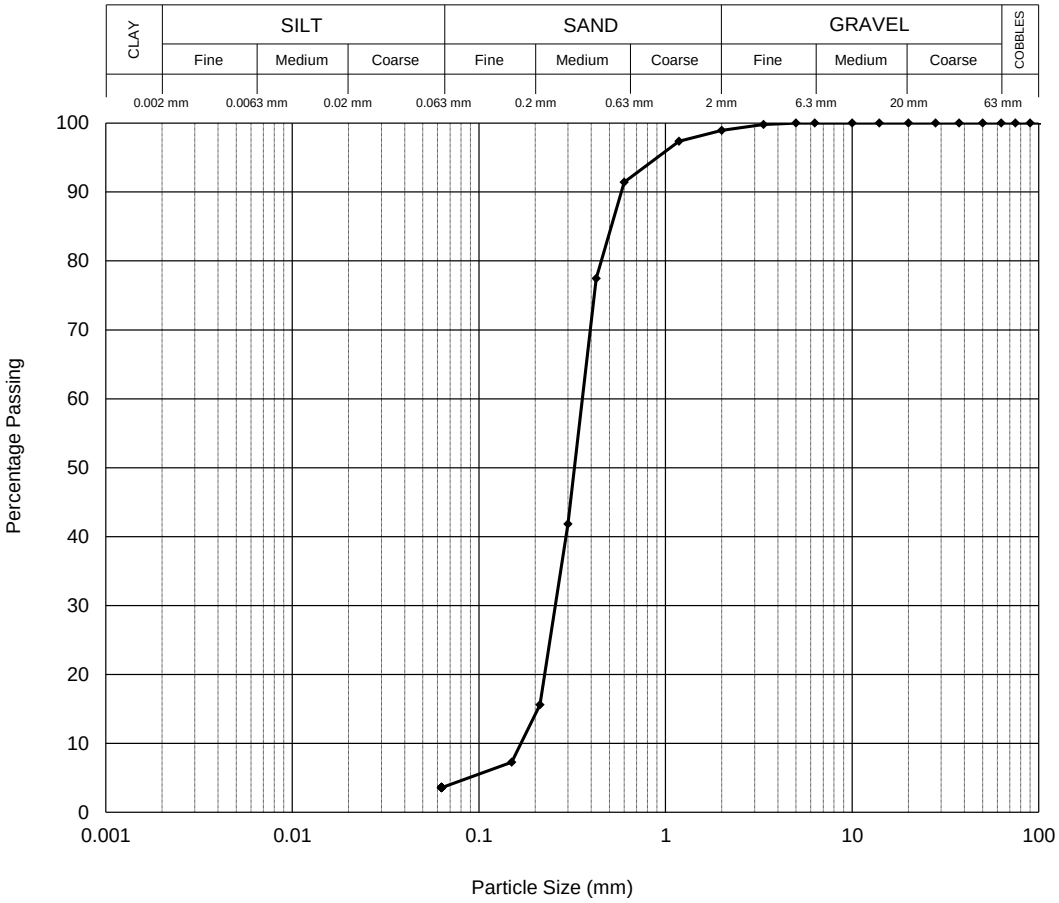
Location	BH109A
Depth (m)	8.50
Sample Type	B

Description

Brown SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	97
600 µm	91
425 µm	77
300 µm	42
212 µm	16
150 µm	7
63 µm	4



Particle Proportions	
Cobbles	0.0
Gravel	1.0
Sand	95.4
Silt & Clay	3.6

Processed by CC
Checked and Approved by

J Sturges - Operations Manager
30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

Location	BH110
Depth (m)	0.10
Sample Type	B

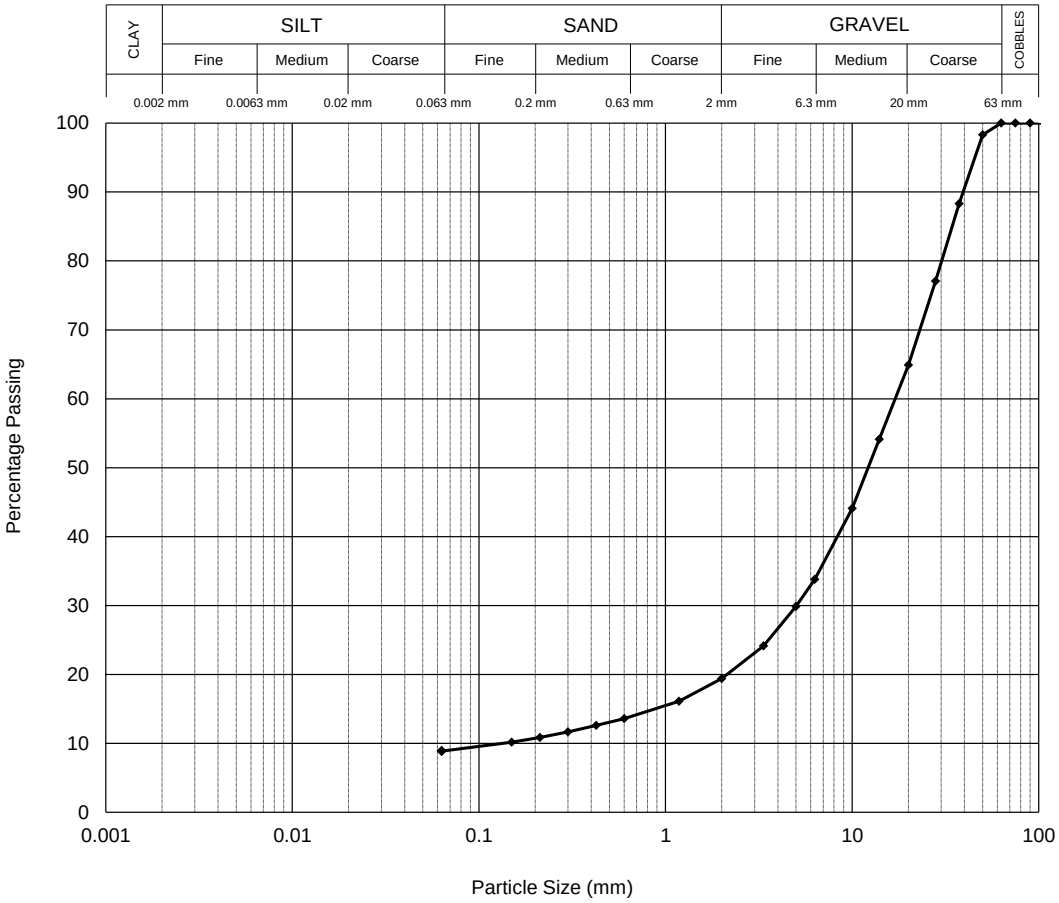
Description

Greyish brown slightly clayey silty sandy GRAVEL.

Remarks: Insuffcient sample supplied to comply with BS EN ISO 17892-4 : 2016 minimum mass requirements

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	98
37.5 mm	88
28.0 mm	77
20.0 mm	65
14.0 mm	54
10.0 mm	44
6.30 mm	34
5.00 mm	30
3.35 mm	24
2.00 mm	19
1.18 mm	16
600 µm	14
425 µm	13
300 µm	12
212 µm	11
150 µm	10
63 µm	9



Particle Proportions	
Cobbles	0.0
Gravel	80.6
Sand	10.6
Silt & Clay	8.8

Processed by CC
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Project Number:

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Project Name:

MAYFIELD PLOTS O+N

GEOLABS

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

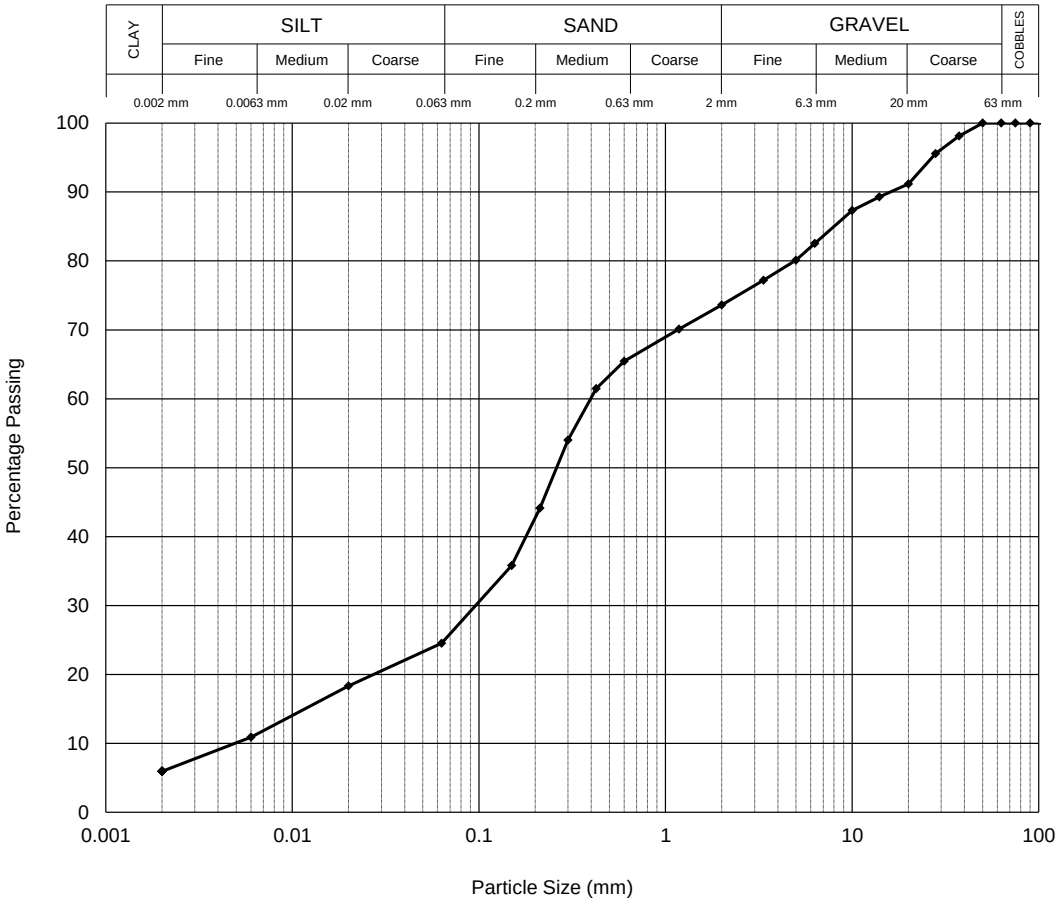
Location	BH110
Depth (m)	1.20
Sample Type	B

Description

Dark brown clayey silty very gravelly SAND. Gravel includes clinker, clay pipe, brick and concrete fragments.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	98
28.0 mm	96
20.0 mm	91
14.0 mm	89
10.0 mm	87
6.30 mm	83
5.00 mm	80
3.35 mm	77
2.00 mm	74
1.18 mm	70
600 µm	65
425 µm	61
300 µm	54
212 µm	44
150 µm	36
63 µm	25



Sedimentation	
Pre-treatment used	
Temp (°C)	25
Size	% Pass
20 µm	18
6 µm	11
2 µm	6
Particle Density 2.70(A) Mg/m³	

Particle Proportions	
Cobbles	0.0
Gravel	26.4
Sand	49.1
Silt	18.6
Clay	5.9

Processed by CC
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GEOLABS

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details						Density		Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep. Diameter (mm)	Mean after prep. Height (mm)	H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
BH105		12.50	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	12	62.9	2.10	1.88	84.30	171.20	2.0	36.5	6.54		22/09/20	
BH105		13.60	Very weak to Extremely weak reddish brown fine grained SANDSTONE. Highly to completely weathered	16	79.9	2.12	1.82	86.40	173.50	2.0	13.1	2.23		22/09/20	
BH105		14.20	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	15	75.4	2.10	1.82	86.20	182.50	2.1	18.7	3.2		22/09/20	
BH105		18.50	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	13	72.7	2.17	1.92	84.50	237.60	2.8	46.7	8.33		22/09/20	
BH105		19.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	13	74.1	2.16	1.90	83.50	174.60	2.1	33.5	6.12		22/09/20	
BH106		10.20	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	15	74.5	2.12	1.85	85.50	209.20	2.4	22.7	3.95		22/09/20	
BH106		13.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	15	75.4	2.11	1.83	86.20	174.20	2.0	30.3	5.19		22/09/20	
BH106		19.50	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	13	60.9	2.02	1.79	82.20	167.20	2.0	29.5	5.56		22/09/20	
BH107		19.80	Very weak to Extremely weak reddish brown fine grained SANDSTONE. Highly to completely weathered	15	62.6	1.98	1.73	85.50	174.20	2.0	11.3	1.97		22/09/20	
BH108		12.60	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	12	60.1	2.05	1.82	86.40	174.40	2.0	30.7	5.24		22/09/20	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

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UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details						Density		Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep. Diameter (mm)	Mean after prep. Height (mm)	H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
BH108		15.10	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	13	71.3	2.16	1.92	85.30	173.20	2.0	29.3	5.13		22/09/20	
BH108		15.60	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	11	60.9	2.10	1.88	85.60	173.20	2.0	24.0	4.17		22/09/20	
BH108		18.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	10.0	55.2	2.09	1.90	85.60	173.70	2.0	34.6	6.01		22/09/20	
BH108		18.60	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	7.2	40.4	2.05	1.91	85.80	231.50	2.7	36.7	6.35		22/09/20	
BH108		20.00	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	13	68.5	2.10	1.86	84.50	175.60	2.1	33.9	6.05		22/09/20	
BH108		21.20	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	11	58.1	2.07	1.86	86.20	241.20	2.8	51.2	8.77		22/09/20	
BH108		21.8	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	9.6	52.1	2.07	1.89	83.80	173.30	2.1	27.3	4.95		22/09/20	
BH108		22.55	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	12	68.0	2.16	1.93	85.80	204.70	2.4	51.6	8.92		22/09/20	
BH108		23.10	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	9.5	47.6	2.01	1.84	84.60	201.40	2.4	34.9	6.21		22/09/20	
BH110		10.70	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	11	56.1	2.04	1.83	86.30	179.80	2.1	38.5	6.58		22/09/20	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

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UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details						Density		Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep. Diameter (mm)	Mean after prep. Height (mm)	H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
BH110		11.20	Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered	11	56.1	2.04	1.84	85.60	179.40	2.1	24.9	4.33		22/09/20	
BH110		12.60	Very weak to Extremely weak reddish brown fine grained SANDSTONE. Highly to completely weathered	3.1	17.8	1.99	1.94	83.40	172.40	2.1	19.8	3.62		22/09/20	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH105
Sample Ref.:	-
Depth (m):	12.50

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

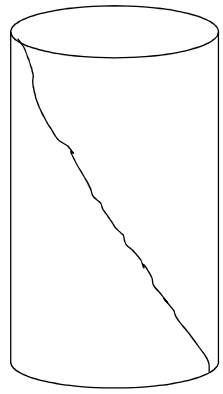
LF0879C (1000kN) compression frame used

Diameter	84.30 mm
Height	171.20 mm
Bulk Density	2.10 Mg/m³
Dry Density	1.88 Mg/m³
Water Content	12 %

Degree of Saturation: 62.9 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	6.54 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

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Project Name:

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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH105
Sample Ref.:	-
Depth (m):	13.60

Description:
Very weak to Extremely weak reddish brown fine grained SANDSTONE. Highly to completely weathered

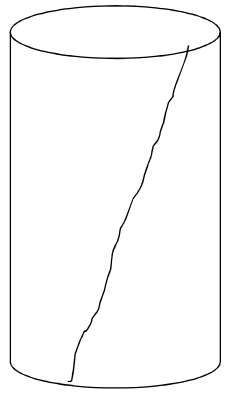
Diameter	86.40 mm
Height	173.50 mm
Bulk Density	2.12 Mg/m³
Dry Density	1.82 Mg/m³
Water Content	16 %

Degree of Saturation: 79.9 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 22/09/2020

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	**C**

Test results

Unconfined Compressive Strength	2.23 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

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UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH105
Sample Ref.:	-
Depth (m):	14.20

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

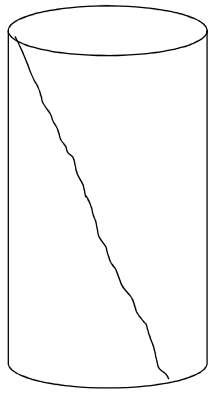
LF0879C (1000kN) compression frame used

Diameter	86.20 mm
Height	182.50 mm
Bulk Density	2.10 Mg/m³
Dry Density	1.82 Mg/m³
Water Content	15 %

Degree of Saturation: 75.4 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 65°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	3.2 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

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UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH105
Sample Ref.:	-
Depth (m):	18.50

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

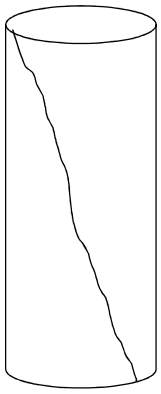
LF0879C (1000kN) compression frame used

Diameter	84.50 mm
Height	237.60 mm
Bulk Density	2.17 Mg/m³
Dry Density	1.92 Mg/m³
Water Content	13 %

Degree of Saturation: 72.7 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	8.33 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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CC

C Clergeaud (Snr. Geologist)

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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH105
Sample Ref.:	-
Depth (m):	19.00

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

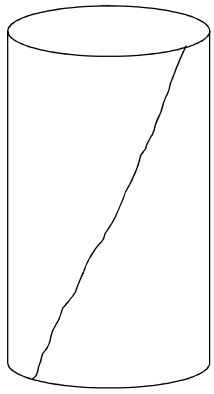
LF0879C (1000kN) compression frame used

Diameter	83.50 mm
Height	174.60 mm
Bulk Density	2.16 Mg/m³
Dry Density	1.90 Mg/m³
Water Content	13 %

Degree of Saturation: 74.1 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 115°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	6.12 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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C Clergeaud (Snr. Geologist)

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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH106
Sample Ref.:	-
Depth (m):	10.20

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

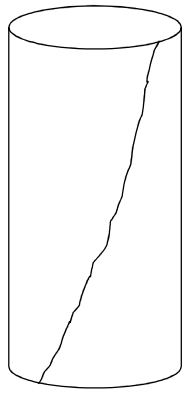
LF0879C (1000kN) compression frame used

Diameter	85.50 mm
Height	209.20 mm
Bulk Density	2.12 Mg/m³
Dry Density	1.85 Mg/m³
Water Content	15 %

Degree of Saturation: 74.5 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 115°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	3.95 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

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Date: 25/09/2020

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Project Name:

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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH106
Sample Ref.:	-
Depth (m):	13.00

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

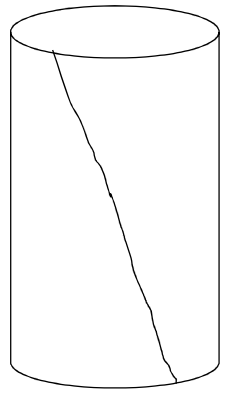
LF0879C (1000kN) compression frame used

Diameter	86.20 mm
Height	174.20 mm
Bulk Density	2.11 Mg/m³
Dry Density	1.83 Mg/m³
Water Content	15 %

Degree of Saturation: 75.4 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 75°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	5.19 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

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UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH106
Sample Ref.:	-
Depth (m):	19.50

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

LF0879C (1000kN) compression frame used

Diameter	82.20 mm
Height	167.20 mm
Bulk Density	2.02 Mg/m³
Dry Density	1.79 Mg/m³
Water Content	13 %

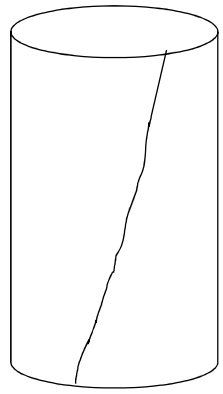
Degree of Saturation: 60.9 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Test results

Unconfined Compressive Strength	5.56 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	**C**

Date tested: 22/09/2020

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

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Project Name:

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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH107
Sample Ref.:	-
Depth (m):	19.80

Description:
Very weak to Extremely weak reddish brown fine grained SANDSTONE. Highly to completely weathered

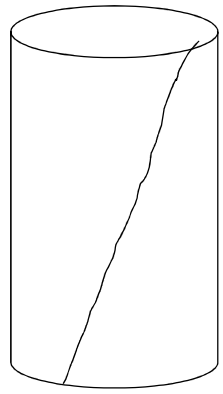
Diameter	85.50 mm
Height	174.20 mm
Bulk Density	1.98 Mg/m³
Dry Density	1.73 Mg/m³
Water Content	15 %

Degree of Saturation: 62.6 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	1.97 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

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Project Name:

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	12.60

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

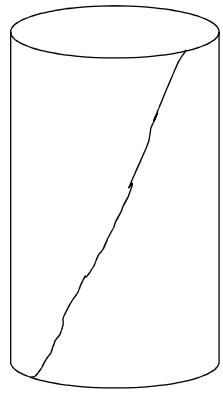
LF0879C (1000kN) compression frame used

Diameter	86.40 mm
Height	174.40 mm
Bulk Density	2.05 Mg/m³
Dry Density	1.82 Mg/m³
Water Content	12 %

Degree of Saturation: 60.1 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 110º

Sample type	C

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	5.24 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

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Date: 25/09/2020

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	15.10

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

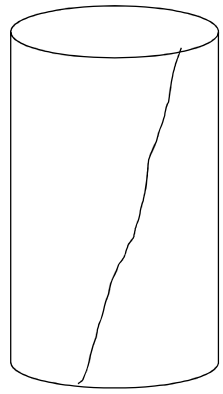
LF0879C (1000kN) compression frame used

Diameter	85.30 mm
Height	173.20 mm
Bulk Density	2.16 Mg/m³
Dry Density	1.92 Mg/m³
Water Content	13 %

Degree of Saturation: 71.3 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	5.13 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	15.60

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

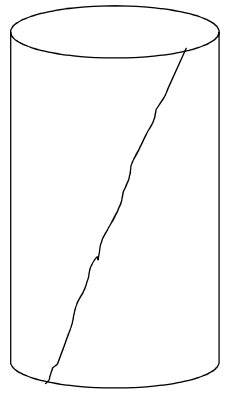
LF0879C (1000kN) compression frame used

Diameter	85.60 mm
Height	173.20 mm
Bulk Density	2.10 Mg/m³
Dry Density	1.88 Mg/m³
Water Content	11 %

Degree of Saturation: 60.9 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 110º

Sample type	**C**

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	4.17 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	18.00

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

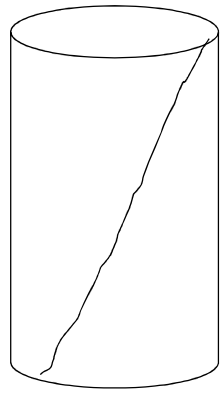
LF0879C (1000kN) compression frame used

Diameter	85.60 mm
Height	173.70 mm
Bulk Density	2.09 Mg/m³
Dry Density	1.90 Mg/m³
Water Content	10.0 %

Degree of Saturation: 55.2 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 115°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	6.01 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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C Clergeaud (Snr. Geologist)

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	18.60

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

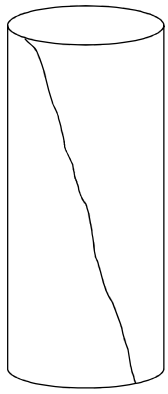
LF0879C (1000kN) compression frame used

Diameter	85.80 mm
Height	231.50 mm
Bulk Density	2.05 Mg/m³
Dry Density	1.91 Mg/m³
Water Content	7.2 %

Degree of Saturation: 40.4 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	6.35 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

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Project Name:

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	20.00

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

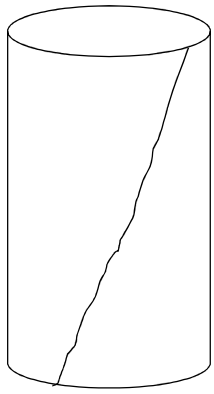
LF0879C (1000kN) compression frame used

Diameter	84.50 mm
Height	175.60 mm
Bulk Density	2.10 Mg/m³
Dry Density	1.86 Mg/m³
Water Content	13 %

Degree of Saturation: 68.5 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	6.05 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	21.20

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

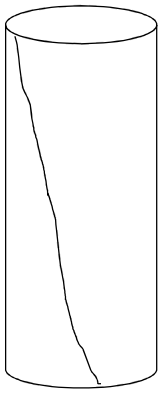
Diameter	86.20 mm
Height	241.20 mm
Bulk Density	2.07 Mg/m³
Dry Density	1.86 Mg/m³
Water Content	11 %

Degree of Saturation: 58.1 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 22/09/2020

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type	**C**

Test results

Unconfined Compressive Strength	8.77 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	21.8

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

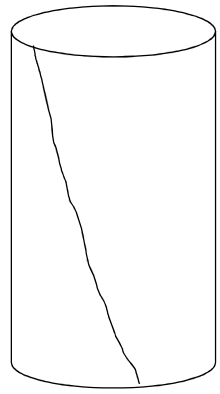
Diameter	83.80 mm
Height	173.30 mm
Bulk Density	2.07 Mg/m³
Dry Density	1.89 Mg/m³
Water Content	9.6 %

Degree of Saturation: 52.1 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 22/09/2020

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type	**C**

Test results

Unconfined Compressive Strength	4.95 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

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C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

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Project Name:

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	22.55

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

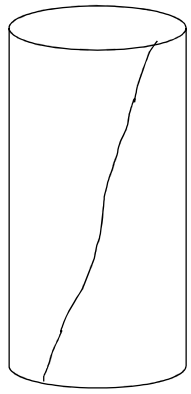
LF0879C (1000kN) compression frame used

Diameter	85.80 mm
Height	204.70 mm
Bulk Density	2.16 Mg/m³
Dry Density	1.93 Mg/m³
Water Content	12 %

Degree of Saturation: 68.0 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 110º

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	8.92 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH108
Sample Ref.:	-
Depth (m):	23.10

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

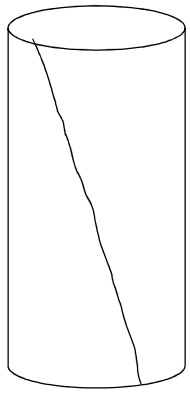
Diameter	84.60 mm
Height	201.40 mm
Bulk Density	2.01 Mg/m³
Dry Density	1.84 Mg/m³
Water Content	9.5 %

Degree of Saturation: 47.6 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	6.21 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH110
Sample Ref.:	-
Depth (m):	10.70

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered

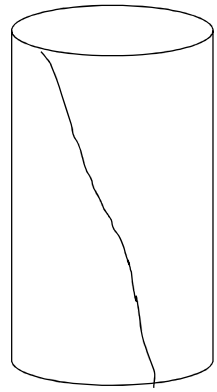
Diameter	86.30 mm
Height	179.80 mm
Bulk Density	2.04 Mg/m³
Dry Density	1.83 Mg/m³
Water Content	11 %

Degree of Saturation: 56.1 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	6.58 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Sample type	**C**

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH110
Sample Ref.:	-
Depth (m):	11.20

Description:
Very weak thinly laminated reddish brown fine grained SANDSTONE. Highly weathered

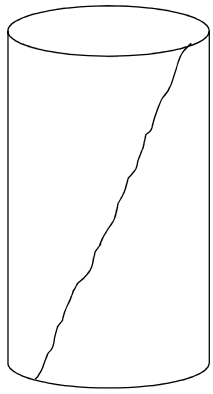
LF0879C (1000kN) compression frame used

Diameter	85.60 mm
Height	179.40 mm
Bulk Density	2.04 Mg/m³
Dry Density	1.84 Mg/m³
Water Content	11 %

Degree of Saturation: 56.1 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 115°

Sample type	C

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	4.33 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS®

UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH110
Sample Ref.:	-
Depth (m):	12.60

Description:
Very weak to Extremely weak reddish brown fine grained SANDSTONE. Highly to completely weathered

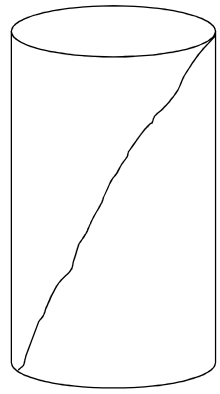
LF0879C (1000kN) compression frame used

Diameter	83.40 mm
Height	172.40 mm
Bulk Density	1.99 Mg/m³
Dry Density	1.94 Mg/m³
Water Content	3.1 %

Degree of Saturation: 17.8 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 120º

Sample type	**C**

Date tested: 22/09/2020

Test results

Unconfined Compressive Strength	3.62 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

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C Clergeaud (Snr. Geologist)

Date: 25/09/2020

Project Number:

GEO / 31729

Project Name:

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UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006 In-house Technical Procedure TP35

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm) Start D	Platen separation (mm) End D'	Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De² (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
BH105		12.20	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	84.7	68.2	64.3	-	83.3	0.33	0.05	1.26	0.06
BH105		13.60	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	85.7	48.3	43.9	-	69.2	0.68	0.14	1.16	0.16
BH105		14.30	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	83.8	83.2	80.1	-	81.6	0.40	0.06	1.25	0.07
			Determination 2	24/09/20	A	Pd	83.4	55.5	52.0	-	74.3	0.71	0.13	1.20	0.16
BH105		15.50	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	82.4	74.7	70.2	-	85.8	0.26	0.04	1.28	0.05
BH105		16.90	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	76.0	74.9	70.8	-	72.8	0.12	0.02	1.18	0.02
			Determination 2	24/09/20	A	Pd	75.2	39.3	36.4	-	59.0	0.19	0.05	1.08	0.05
BH105		17.50	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	84.7	84.4	80.3	-	82.3	0.18	0.03	1.25	0.04*
			Determination 2	24/09/20	A	Pd	85.5	49.2	46.9	-	71.5	0.30	0.06	1.17	0.07
BH105		17.80	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	85.8	84.9	80.0	-	82.4	0.34	0.05	1.25	0.06

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **L** - Irregular lump **Pd** - Perpendicular to planes of weakness **R** - Random or unknown orientation **Pl** - Parallel to planes of weakness

Checked and Approved by

CC

C Clergeaud (Snr. Geologist)

Date: 30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS®

UKAS TESTING 1982

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006 In-house Technical Procedure TP35

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm) Start D	Platen separation (mm) End D'	Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De² (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
BH105		17.80	Determination 2	24/09/20	A	Pd	85.9	59.5	55.4	-	77.8	0.56	0.09	1.22	0.11
BH105		18.50	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	24/09/20	D	Pl	83.6	83.7	80.3	-	82.0	0.35	0.05	1.25	0.06*
			Determination 2	24/09/20	A	Pd	83.4	64.0	60.1	-	79.9	0.62	0.10	1.23	0.12
BH105		19.70	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	83.8	44.0	41.7	-	66.7	0.36	0.08	1.14	0.09
BH106		10.50	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	84.7	85.5	82.7	-	84.1	0.33	0.05	1.26	0.06*
BH106		11.50	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	81.7	81.1	77.4	-	79.2	0.25	0.04	1.23	0.05*
			Determination 2	24/09/20	A	Pd	80.8	51.3	48.5	-	70.6	0.44	0.09	1.17	0.11
BH106		13.20	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	84.7	66.0	60.4	-	80.7	0.48	0.07	1.24	0.09
BH106		16.10	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	84.9	33.1	30.3	-	57.2	0.34	0.10	1.06	0.11
BH106		17.20	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	74.7	52.6	45.5	-	65.8	0.55	0.13	1.13	0.15

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **L** - Irregular lump **Pd** - Perpendicular to planes of weakness **R** - Random or unknown orientation **Pl** - Parallel to planes of weakness

Checked and Approved by

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C Clergeaud (Snr. Geologist)

Date: 30/09/2020

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Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De² (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
								Start D	End D'						
BH106		19.10	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	83.9	57.8	52.7	-	75.0	0.66	0.12	1.20	0.14
BH107		11.40	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	84.5	84.4	80.3	-	82.3	0.10	0.01	1.25	0.01
			Determination 2	24/09/20	A	Pd	80.3	53.0	50.4	-	71.8	0.13	0.02	1.18	0.02
BH107		14.80	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	85.1	66.0	62.6	-	82.4	0.89	0.13	1.25	0.16
BH107		16.20	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	85.7	75.6	70.8	-	87.9	0.36	0.05	1.29	0.06
BH107		19.60	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	72.7	36.3	30.8	-	53.4	0.39	0.14	1.03	0.14
BH107		19.80	Very weak to Extremely weak reddish brown fine grained SANDSTONE. Highly to completely weathered	24/09/20	A	Pd	82.3	42.0	39.8	-	64.6	0.24	0.06	1.12	0.07
BH108		12.80	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	84.9	54.0	51.3	-	74.5	0.36	0.06	1.20	0.07
BH108		13.00	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	69.6	32.3	28.9	-	50.6	0.23	0.09	1.01	0.09
BH108		15.80	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	82.6	62.8	57.3	-	77.6	0.56	0.09	1.22	0.11

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **L** - Irregular lump **Pd** - Perpendicular to planes of weakness **R** - Random or unknown orientation **Pl** - Parallel to planes of weakness

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DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm) Start D	Platen separation (mm) End D'	Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De² (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
BH108		16.50	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	84.6	83.2	80.4	-	81.8	0.35	0.05	1.25	0.06
			Determination 2	24/09/20	A	Pd	80.7	52.7	48.6	-	70.7	0.50	0.10	1.17	0.12*
BH108		16.80	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	84.3	51.0	47.4	-	71.3	0.28	0.05	1.17	0.06
BH108		18.30	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	84.6	57.9	53.1	-	75.6	0.45	0.08	1.20	0.1
BH108		19.70	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	81.1	46.0	41.5	-	65.5	0.57	0.13	1.13	0.15
BH108		22.50	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	85.2	55.9	51.4	-	74.7	0.33	0.06	1.20	0.07
BH108		23.10	Very weak thinly laminated reddish brown fine grained SANDSTONE. Moderately to highly weathered	24/09/20	D	Pl	85.0	83.1	80.6	-	81.8	0.26	0.04	1.25	0.05
			Determination 2	24/09/20	A	Pd	85.0	50.6	44.5	-	69.4	0.32	0.07	1.16	0.08
BH108		24.80	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	84.5	59.7	55.5	-	77.3	0.50	0.08	1.22	0.1
BH110		8.40	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	83.3	85.1	80.5	-	82.8	0.29	0.04	1.25	0.05*

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **L** - Irregular lump **Pd** - Perpendicular to planes of weakness **R** - Random or unknown orientation **Pl** - Parallel to planes of weakness

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DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm)		Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De² (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
								Start D	End D'						
BH110		8.40	Determination 2	24/09/20	A	Pd	84.6	55.8	50.9	-	74.0	0.67	0.12	1.19	0.14
BH110		8.50	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	84.1	83.7	79.0	-	81.3	0.96	0.15	1.24	0.19
			Determination 2	24/09/20	A	Pd	83.1	56.3	52.4	-	74.5	1.25	0.23	1.20	0.28
BH110		12.10	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	A	Pd	83.0	58.3	52.0	-	74.1	1.61	0.29	1.19	0.35
BH110		12.80	Very weak thinly laminated reddish brown fine to coarse grained SANDSTONE. Highly weathered	24/09/20	D	Pl	85.9	85.3	81.8	-	83.5	0.57	0.08	1.26	0.1
			Determination 2	24/09/20	A	Pd	85.7	52.0	48.1	-	72.4	0.67	0.13	1.18	0.15

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **L** - Irregular lump **Pd** - Perpendicular to planes of weakness **R** - Random or unknown orientation **Pl** - Parallel to planes of weakness

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Date: 30/09/2020

Project Number:

GEO / 31729

Project Name:

MAYFIELD PLOTS O+N

GEOLABS®

UKAS TESTING 1982

APPENDIX E – GROUND GAS / WATER MONITORING RESULTS

Civil, Structural & Environmental Engineers Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4134	**Site:** Plots O + N
	Date:	11/09/2020	**Client:** Mayfield Partnership Ltd
	Engineer:	L. Daley	**Equipment:** GFM 435

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Overcast	Sunny	Dry and sunny
Barometric Pressure Trend:	Steady	Rising	Steady
Surface Ground Conditions:	Dry		

VISIT ONE	**Start**		**Finish**
Time:	10.20	**Time:**	11.45
Barometric Pressure:	1010	**Barometric Pressure:**	1009
Background Oxygen:	20.8	**Background Oxygen:**	20.5

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
BH110	**0.2**	**<0.1**	**0.2**	**19.6**	**<<<<**	**0/0**	**0.2**	**<0.1**	**0.2**	**19.6**	**<<<<**	**0/0**	**4.96**	**12.8**	**7.84**	*
REC BH04B	**0**	**<0.1**	**0.1**	**19.5**	**<<<<**	**0/0**	**0**	**<0.1**	**0.1**	**19.5**	**<<<<**	**0/0**	**4.96**	**18.1**	**13.14**	
REC WS04	**0**	**<0.1**	**5.1**	**19.4**	**<<<<**	**0/0**	**0**	**<0.1**	**5.1**	**19.4**	**<<<<**	**0/0**	**4.92**	**5.04**	**0.12**	
BH105	**0**	**<0.1**	**0.2**	**19.6**	**<<<<**	**0/0**	**0**	**<0.1**	**0.2**	**19.6**	**<<<<**	**0/0**	**5.06**	**11.55**	**6.49**	
BH106	**0**	**<0.1**	**<0.1**	**19.7**	**<<<<**	**0/0**	**0**	**<0.1**	**<0.1**	**19.7**	**<<<<**	**0/0**	**5.58**	**6.95**	**1.37**	*
BH107	**0**	**<0.1**	**0.1**	**19.7**	**<<<<**	**0/0**	**0**	**<0.1**	**0.1**	**19.7**	**<<<<**	**0/0**	**3.57**	**5**	**1.43**	*
BH108	**0.1**	**<0.1**	**1.6**	**16.8**	**<<<<**	**0/0**	**0.1**	**<0.1**	**1.6**	**16.8**	**<<<<**	**0/0**	**4.78**	**9.76**	**4.98**	
REC BH03A	**0**	**<0.1**	**0.1**	**19.7**	**<<<<**	**0/0**	**0**	**<0.1**	**0.1**	**19.7**	**<<<<**	**0/0**	**5.4**	**19.5**	**14.1**	

Comments: *** = Bung / Gas tap not replaced from Pump Tests, 1 hour wait for gas accumulation before monitoring**

Civil, Structural & Environmental Engineers Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4134	**Site:** Plots O + N
	Date:	23/09/2020	**Client:** Mayfield Partnership Ltd
	Engineer:	E. Stewart	**Equipment:** GFM 435

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:			Rain
Barometric Pressure Trend:			
Surface Ground Conditions:	Wet		

VISIT TWO	**Start**	**Finish**	
Time:	9.40	**Time:**	10.30
Barometric Pressure:	994	**Barometric Pressure:**	993
Background Oxygen:	20.8	**Background Oxygen:**	20.7

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
BH110	0.0	0.0	0.0	20.7	<<<	0/0	0.0	0.0	0.0	20.7	<<<	0/0	5.02	12.81	7.79	
REC BH04B	0.0	0.0	0.1	20.7	<<<	0/0	0.0	0.0	0.1	20.7	<<<	0/0	4.98	17.7	12.72	
REC WS04	0.0	0.0	4.9	12.1	<<<	0/0	0.0	0.0	4.9	12.1	<<<	0/0	4.82	5	0.18	
BH105	0.0	0.0	0.2	20.6	<<<	0/0	0.0	0.0	0.2	20.6	<<<	0/0	5.1	11.56	6.46	
BH106	0.0	0.0	0.1	18.1	<<<	0/0	0.0	0.0	0.1	18.1	<<<	0/0	4.55	6.92	2.37	
BH107	0.0	0.0	0.5	20.2	<<<	0/0	0.0	0.0	0.5	20.2	<<<	0/0	3.58	4.95	1.37	
BH108	0.0	0.0	3.7	14.0	<<<	0/0	0.0	0.0	3.7	14.0	<<<	0/0	4.93	9.74	4.81	
REC BH03A	0.0	0.0	0.2	20.7	<<<	0/0	0.0	0.0	0.2	20.7	<<<	0/0	5.48	19.75	14.27	

Comments:

Civil, Structural & Environmental Engineers Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4134	**Site:** Plots O + N
	Date:	14/10/2020	**Client:** Mayfield Partnership Ltd
	Engineer:	RM	**Equipment:** GFM 435

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Rain/Cloud	Cloudy	Scattered Cloud
Barometric Pressure Trend:	Falling	Increasing	Increasing
Surface Ground Conditions:	Dry		

VISIT THREE	**Start**		**Finish**
Time:	13:15:00	**Time:**	17:45:00
Barometric Pressure:	1023	**Barometric Pressure:**	1021
Background Oxygen:	20.8	**Background Oxygen:**	20.6

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
BH110	0	0	0	20.7	<<<.<	0/0	0	0	0	20.7	<<<.<	0/0	4.99	12.98	7.99	
REC BH04B	0	0	0.3	20.4	<<<.<	0/0	0	0	0.1	20.6	<<<.<	0/0	5.04	17.55	12.51	
REC WS04	0	0	3.4	13.2	<<<.<	0/0	0	0	3.4	13.2	<<<.<	0/0	4.8	5.04	0.24	
BH105	0	0	0.2	19	<<<.<	0/0	0	0	0.2	19	<<<.<	0/0	4.88	11.43	6.55	
BH106	Submerged had to remove bung to drain.												4.56	6.94	2.38	
BH107	Bung not in place												3.3	5.06	1.76	
BH108	0	0	4.4	9.8	<<<.<	0/0	0	0	4.4	9.8	<<<.<	0/0	4.83	9.77	4.94	
REC BH03A	0	0	0.5	20.1	<<<.<	0/0	0	0	0.5	20.4	<<<.<	0/0	5.3	19.58	14.28	

Comments:

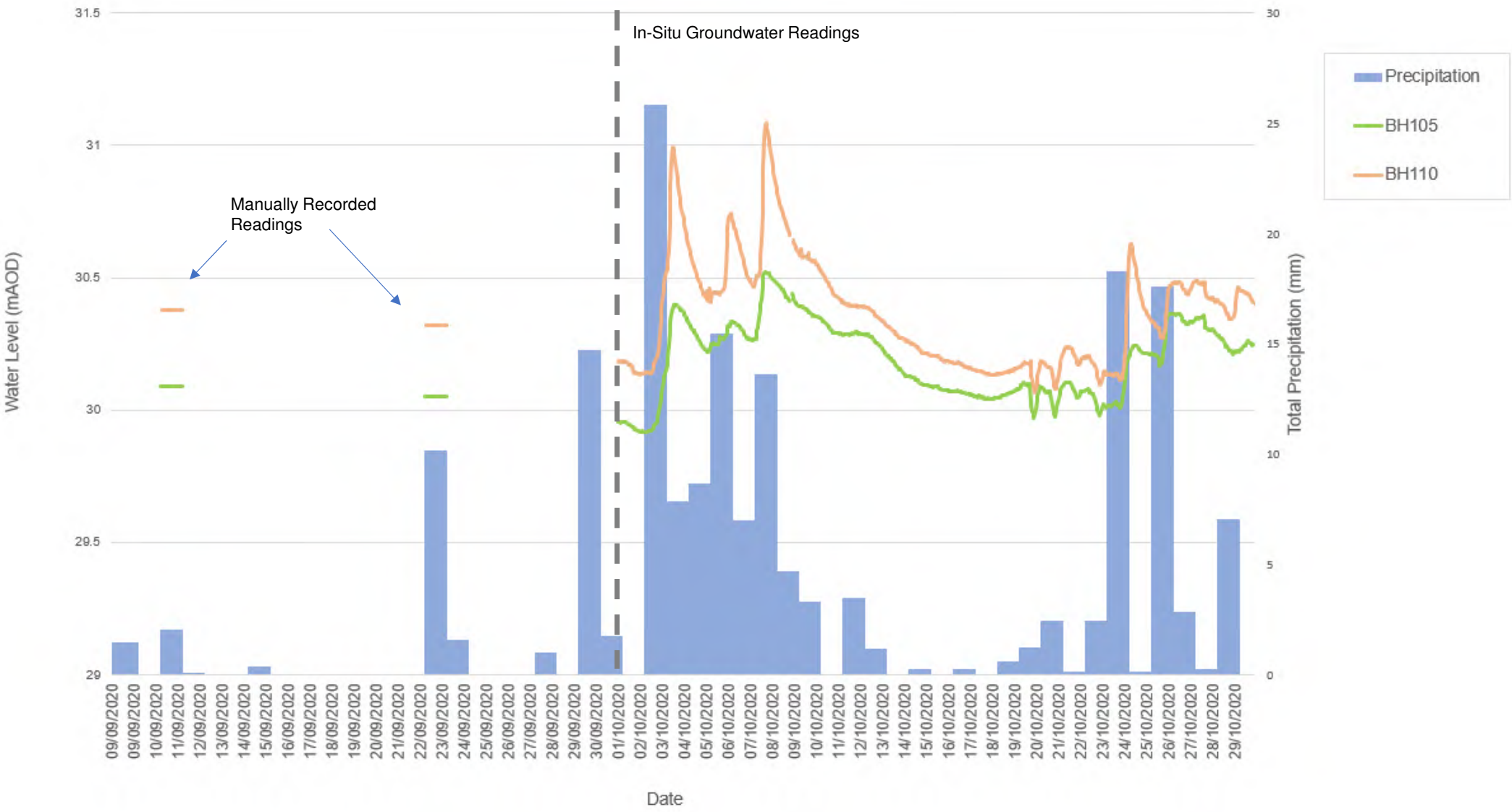
Civil, Structural & Environmental Engineers Commercial Wharf, 6 Commercial St, MCR, M15 4PZ	**Job No:**	4134	**Site:** Plots O + N
	Date:	20/10/2020	**Client:** Mayfield Partnership Ltd
	Engineer:	RM	**Equipment:** GFM 435

	2 Days Prior	1 Day Prior	On day of Monitoring
Weather Conditions:	Overcast	Scattered Clouds	Scattered Clouds
Barometric Pressure Trend:	Falling	Falling	Falling
Surface Ground Conditions:	Moist		

VISIT FOUR	**Start**		**Finish**
Time:	09:45:00	**Time:**	16:30:00
Barometric Pressure:	997	**Barometric Pressure:**	996
Background Oxygen:	21.0	**Background Oxygen:**	20.9

Monitoring Point	**Gas Concentration**												**Groundwater**			
		Peak						**Steady**								
BH N°	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Flow Rate (l/h)**	**CH_4 %**	**CO_2 %**	**O_2 %**	**LEL %**	**H2S/CO (ppm)**	**Depth to Water**	**Depth to Base**	**Head of water**	**Remarks**
BH110	**0**	**0**	**0**	**20.9**	**<<<.<**	**0/0**	**0**	**0**	**0**	**20.9**	**<<<.<**	**0/0**	**4.94**	**12.78**	**7.84**	
REC BH04B	**0**	**0**	**0.1**	**20.7**	**<<<.<**	**0/0**	**0**	**0**	**0.1**	**20.8**	**<<<.<**	**0/0**	**4.89**	**17.33**	**12.44**	
REC WS04	**3.3**	**0**	**4.4**	**11.8**	**<<<.<**	**0/0**	**0**	**0**	**4.4**	**11.8**	**<<<.<**	**0/0**	**4.88**	**5.01**	**0.13**	
BH105	**0**	**0**	**0.2**	**20.7**	**<<<.<**	**0/0**	**0**	**0**	**0.2**	**20.7**	**<<<.<**	**0/0**	**4.96**	**11.4**	**6.44**	
BH106	**0**	**0**	**0.6**	**18**	**<<<.<**	**0/0**	**0**	**0**	**0.6**	**18**	**<<<.<**	**0/0**	**4.65**	**6.93**	**2.28**	
BH107	**0**	**0**	**0.4**	**20.5**	**<<<.<**	**0/0**	**0**	**0**	**0.4**	**20.5**	**<<<.<**	**0/0**	**3.4**	**4.94**	**1.54**	
BH108	**0**	**0**	**2.4**	**15.7**	**<<<.<**	**0/0**	**0**	**0**	**2.4**	**15.7**	**<<<.<**	**0/0**	**4.02**	**9.78**	**5.76**	
REC BH03A	**0**	**0**	**0**	**20.8**	**<<<.<**	**0/0**	**0**	**0**	**0**	**20.8**	**<<<.<**	**0/0**	**5.4**	**19.5**	**14.1**	

Comments:


In-Situ Groundwater Readings
Manually Recorded Readings
Precipitation
BH105
BH110
Water Level (mAOD)
Total Precipitation (mm)
Date
31.5
31
30.5
30
29.5
29
30
25
20
15
10
5
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29/10/2020

Civil, Structural & Environmental Engineers Commercial Wharf, 6 Commercial St, MCR, M15 4PZ		**Job No:**	4134	**Site:**	O+N
		Date:	24/09/2020	**Client:**	Mayfield Partnership Ltd
		Engineer:	E. Stewart	**Equipment:**	Dedicated bailers

	Prior to monitoring	On day of Monitoring
Weather Conditions:	Showers	Rain
Surface Ground Conditions:	Sporadically wet	Wet

BH ID	Depth to Water (mbgl)	Depth to Base (mbgl)	Well Volume (Ltrs)	Litres Purged	Notes
BH105	5.10	11.56	12.71	26.00	Water initially clear becoming orangish brown cloudy
BH106	4.55	6.92	4.66	8.00	
BH107	3.58	4.95	2.69	5.00	
BH108	4.93	9.74	9.46	20.00	
BH110	5.02	12.81	15.32	30.00	
SW1	N/A	N/A	N/A	N/A	Taken from River Medlock: Upstream of site
SW2	N/A	N/A	N/A	N/A	Taken from River Medlock: Downstream of site

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