



**Prestwich North Car Park
Prestwich
Manchester
M25 1BT**

Supplementary Ground Investigation

The Prestwich Regeneration LLP

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J23254A
Rev 1





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Executive summary

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

Brief

This report describes the findings of a supplementary ground investigation carried out by Geotechnical and Environmental Associates Limited (GEA) on behalf of The Prestwich Regeneration LLP, with respect to the construction of a multi-storey car park as part of the wider Prestwich Regeneration project. The purpose of the investigation has been to provide supplementary information on the ground conditions, to provide an indication of the presence of contamination and to provide information to assist with the design of the piling mat.

A desk study and ground investigation covering the entire extent of the Prestwich Village Regeneration project has previously been conducted by GEA (report ref J23254, Rev 0, dated 23 January 2024). The investigation encountered Alluvium, consisting of soft clay and peat, within the centre of the site and a significant thickness of made ground and total PAH contamination within the northern part of the site. Additional investigations have been instructed to provide further information on the extent of the Alluvium and in respect of underground services. This report sets out the findings of this supplementary work and refines the previous recommendations in respect of site preparation.

The previous report is referred to in this document where appropriate.

Ground conditions

The investigation encountered a limited to significant thickness of made ground over Alluvium over Hummocky Glacial Deposits, which extend to the maximum depth of the investigation, of 5.35 m (89.51 m OD), with the Alluvium absent in the southernmost part of the site. The made ground initially comprised asphalt and subbase over sandy silty gravel, silty gravelly sand and gravelly sandy clay with fragments, cobbles and boulders of extraneous material including brick, concrete, asphalt, ash, ceramic, clinker, metal and glass and extended to depths of between 0.31 m and 2.10 m (93.30 m OD and 96.02 m OD). Obstructions in the form of remnant concrete slabs, cobbles sets and brick footings are present through the made ground.

The Alluvium comprised dark grey organic becoming very organic clay and silt over dark grey and brown fibrous and pseudo-fibrous peat to a depths of between 1.00 m and 2.90 m (92.91 m OD and 95.37 m OD). Hummocky Glacial Deposits comprised loose becoming medium dense orange-brown, grey and greyish brown silty sand and soft sandy silt are observed to depths of between 4.00 m and 4.50 m (90.00 m OD and 92.29 m OD) and inferred by probing to the maximum depth of the investigation of 5.35 m (89.51 m OD).

Groundwater was encountered within the made ground at depths of between 0.08 m and 1.00 m at three locations and is believed to represent perched groundwater. Groundwater was also encountered within the Hummocky Glacial Deposits at depths of between 1.30 m and 3.00 m (92.38 m OD and 93.60 m OD).

Recommendations

The surface of the car park is in relatively poor condition and it is therefore assumed that a tracked piling rig may cause the surface to move and crack. Additionally, loading of the significant thickness of highly compressible Alluvium directly beneath the made ground could lead to localised subsidence, which would further exacerbate the damage of the surface and affect the stability of the piling rig. It is recommended that the surface of the car park, the made ground and Alluvium be excavated and the piling mat be placed upon medium dense sand or firm clay or silt of the Hummocky Glacial Deposits. Made ground which shows no sign of contamination could be re-utilised and the surface of the car park and obstructions within the made ground could be crushed to the desired grading before being re-used as a granular fill material or within the construction of the piling mat.

Shallow excavations are anticipated to be feasible within the made ground and Alluvium.

Contamination testing has revealed the presence of asbestos and elevated concentrations of total organic carbon, sulphide and highly elevated concentrations of total PAH; more specifically benzo(a)anthracene, chrysene, benzo(b)fluoranthene, dibenz(a,h)anthracene, benzo(a)pyrene and indeno(1,2,3,cd)pyrene were present within the made ground and elevated concentrations of total organic carbon within the Alluvium. As this material is anticipated to be removed as part of the development, no further remedial actions in this respect are considered to be required.



Part 1: Investigation Report

This section of the report details the objectives of the investigation, the work that has been carried out to meet these objectives and the results of the investigation. Interpretation of the findings is presented in Part 2.

1.0 Introduction

Geotechnical and Environmental Associates Limited (GEA) has been commissioned by The Prestwich Regeneration LLP, to carry out a ground investigation at Prestwich North Car Park, Prestwich, Manchester, M25 1BT.

A desk study and ground investigation covering the entire extent of the Prestwich Village Regeneration project has previously been conducted by GEA (report ref J23254, Rev 0, dated 23 January 2024) and the ground conditions encountered within the Prestwich North Car Park can be summarised as follows:

- ☒ Alluvium, consisting of soft clay and peat, within a single borehole undertaken within the centre of the site to a depth of 2.50 m ;
- ☒ a significant thickness of made ground and total PAH contamination within a single borehole located within the northern part of the site to a depth of 3.00 m;

GEA has been commissioned to provide further information in the form of a supplementary ground investigation in order to provide further details on the extent of the soft clay and peat and contamination previously encountered. Additionally, investigations to provide further information on ground conditions and into the presence of underground services have also been instructed in order to refine the recommendations in respect of site preparation.

The previous report is referred to in this report where appropriate and should be read in conjunction with this report.

1.1 Proposed Development

It is understood that it is proposed to construct a multi-storey car park on the site as part of the wider Prestwich Regeneration Project. This report is specific to the proposed development and the advice herein should be reviewed if the development proposals are amended.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows:

- ☒ to provide guidance on the site preparation for the proposed piling mat;
- ☒ to provide supplementary information of the ground conditions and their engineering properties;
- ☒ to investigate the extent of the soft clay and peat within the Alluvium encountered as part of the previous investigation;
- ☒ to provide detailed information in respect of the presence of underground services within the site;
- ☒ to provide supplementary information on the degree of soil contamination present across the site; and
- ☒ to provide supplementary information on the degree of soil contamination surrounding an areas of contamination encountered as part of the previous investigation; and
- ☒ to assess the risk that any such contamination may pose to the proposed development, its users or the wider environment.

1.3 Scope of Work

In order to meet the above objectives, and following a review of the previous desk study and previous intrusive investigation, the following targeted intrusive ground investigations were carried out which comprised, in summary, the following activities:

General Investigation

- ☒ a total of 13 open-drive boreholes sampled to depths of between 0.60 m and 4.50 m and extended by continuous probing to a maximum depth of 5.35 m;
- ☒ standard penetration tests (SPTs) carried out at regular intervals within the boreholes to provide quantitative data on the strength of the soils;



- ✎ manual excavation of six trial pits to a maximum depth of 1.70 m to expose existing foundations;
- ✎ testing of selected soil samples for contamination and geotechnical purposes; and
- ✎ provision of interpreting the above data, together with our advice and recommendations with respect to the proposed development.

Soft Ground Investigation

- ✎ a total 17 open-drive boreholes sampled to depths of between 0.14 m and 3.00 m;
- ✎ a series of 15 window sample boreholes to depths of between 0.20 m and 3.00 m;
- ✎ testing of selected soil samples for contamination and geotechnical purposes; and
- ✎ provision of interpreting the above data, together with our advice and recommendations with respect to the proposed development.

Contamination Investigation

- ✎ a total of 14 open-drive boreholes undertaken surrounding an area of known contamination to a depth of 4.00 m in order provide an extent to the contamination;
- ✎ testing of selected soil samples for contamination purposes; and
- ✎ provision of interpreting the above data, together with our advice and recommendations with respect to the proposed development.

Service Location Investigation

- ✎ vacuum excavation of 12 trial trenches to a maximum depth of 2.00 m to expose underground services;
- ✎ testing of selected soil samples for contamination and geotechnical purposes; and
- ✎ provision of interpreting the above data, together with our advice and recommendations with respect to the proposed development.

This report includes a contaminated land assessment which has been undertaken by a suitably qualified and competent professional in accordance with the methodology presented by the Environment Agency in their Land contamination risk assessment (LCRM)¹ published 19 April 2021. This involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the United Kingdom. Risk management is divided into three stages; Risk Assessment, Options Appraisal and Remediation, and each stage comprises three tiers. The Risk Assessment stage includes preliminary risk assessment (PRA), generic quantitative risk assessment (GQRA) and detailed quantitative risk assessment (DQRA) and this report includes the PRA and GQRA.

The exploratory methods adopted in this investigation have been selected on the basis of the constraints of the site including but not limited to access and space limitations, together with any budgetary or timing constraints. Where it has not been possible to reasonably use an EC7 compliant investigation technique a practical alternative has been adopted to obtain indicative soil parameters and any interpretation is based upon engineering experience, local precedent where applicable and relevant published information.

¹ <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>



2.0 The Site

2.1 Site Description

The site is located in the town of Prestwich, approximately 100 m northwest of Prestwich Metrolink station and is bounded directly to the east by active Metrolink lines running approximately northwest-southeast, which are on a 2.0 m to 3.0 m high embankment surrounded by sporadic mature trees and separated from the site by a chain-link fence. To the south, the site is bounded by Fairfax Road, to the west by residential properties and a church, and to the north, a series of allotments are separated from the site by a small area of hardstanding and Highfield Place, a road which runs parallel with Fairfax Road. The site measures approximately 50 m northeast to southwest by 110 m northwest to southeast in its maximum dimensions, comprises an area of 0.55 Ha and its centre may be additionally located by National Grid Reference 381270, 404256.

The site is occupied by an irregular-shaped asphalt car park and is accessed from Fairfax Road to the south. The site slopes gently down from the north to the south at an approximate gradient of 1:40. Mature trees are present along the western and northern edges of the car park, and the car park is separated from the buildings to the west by a brick wall approximately 1.5 m to 2.0 m in height.

2.2 Geology

The British Geological Survey (BGS) map of the area indicated that the site is directly underlain by the Glaciofluvial Deposits (sands and gravels) over the Hummocky Glacial Deposits (clays, silts and sands). Beneath the superficial deposits, the Pennine Upper Coal Measures Formation is present, specifically the Worsley Delf Rock, which is expected beneath the majority of the site except the northernmost corner, where the Pennine Middle Coal Measures are present.

A search of the BGS borehole database had not identified any records of historic boreholes drilled on site, but four are located 300 m to the south. The boreholes encountered made ground to depths of between 0.35 m and 3.00 m (91.27 m OD and 96.77 m OD) underlain by Hummocky Glacial Deposits comprising silty clay and sand with fragments of coal were encountered to the maximum depth investigated of 11.50 m (85.80 m OD).

2.3 Hydrology and Hydrogeology

The Glaciofluvial Deposits, Hummocky Glacial Deposits and Pennine Upper Coal Measures Formation are classified by the Environment Agency as Secondary 'A' Aquifers, which refers to permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The aforementioned BGS boreholes encountered groundwater strikes locally within the Hummocky Glacial Deposits at depths of between 3.25 m and 4.20 m, standing at depths of between 3.00 m and 3.20 m and a seepage of 9.50 m. However, groundwater was not encountered within each borehole, suggesting that the groundwater table may not be continuous. The site is not located within a Groundwater Source Protection Zone and is located within an area with limited potential for groundwater flooding to occur.

The nearest surface water feature is Prestwich Bank, located 600 m to the south, although a water feature in the form of a water fountain was present in the western corner of the site.

The site is almost entirely covered by areas of concrete and tarmac hardstanding and infiltration of rainwater is generally restricted to surface water drains, such that the majority of surface runoff drains into the drainage system currently on site. The proposed development will result in no significant change in the amount of hard coverage and therefore will cause no change in the amount of runoff or volume of water received into the existing sewer system. There should not, therefore, be any requirement for any mitigation measures.

2.4 Previous Investigation

A part of the previous investigation, two deep boreholes (Borehole Nos 01 and 02) and three shallow boreholes (Borehole Nos 08, 08A and 09) were undertaken on site as part of the previous investigation and encountered made ground to depths of between 1.10 m and 3.00 m (93.25 m OD and 93.47 m OD) which was underlain by Hummocky Glacial Deposits consisting of loose becoming very dense silty sand and firm becoming very stiff gravelly sandy silty clay to a maximum depth of 20.39 m (74.91 m OD). Directly beneath the made ground within Borehole No 02, which was located in the centre of the site, Alluvium was encountered and comprised very soft dark grey and brown pseudo-fibrous peat over very soft grey slightly gravelly clay with rare pockets of brown peat to a depth of 2.50 m (92.80 m OD).



Borehole Nos 01 and 02 were installed within groundwater monitoring standpipes and two monitoring visits have been undertaken.

Additionally, a hydrocarbon odour was noted in Borehole No 01 at depths between 1.00 m and 3.00 m (93.47 m OD and 95.47 m OD), with the odour decreasing with depth. As part of the monitoring of the standpipe, soil vapour testing was undertaken within the standpipe using a Photo Ionisation Detector (PID), which showed minimal concentrations.

3.0 Exploratory Work

In order to meet the objectives of the investigations described in Section 1.2, the following has been undertaken

For the general investigation, 13 open-drive boreholes (Borehole Nos 101 to 107, 107A, 108, 108A, 108B, 109 and 110) were undertaken to depths of between 0.60 m and 4.50 m (90.00 m OD and 92.35 m OD) and extended by continuous probing to a maximum depth of 5.35 m (89.51 m OD and 91.00 m OD). Additionally, six hand dug trial pits were undertaken against the western and northern boundary walls and extended to depths of between 0.53 m and 1.70 m (93.08 m OD and 96.04 m OD).

For the soft ground investigation, 17 open-drive boreholes (Boreholes No 111, 125 to 134 and 138 to 142) were undertaken to depths of between 0.14 m and 3.00 m (92.30 m OD and 96.22 m OD) and 15 hand-held window sample boreholes (112 to 124 and 134 to 137 to depths of between 0.20 m and 3.00 m (92.17 m OD and 96.29 m OD). The boreholes were positioned in order to determine the depth and lateral extent of peat present on site.

For the contamination investigation, 14 open-drive boreholes (Boreholes No 201 to 214) were undertaken to a depth of 4.00 m (92.45 m OD and 92.55 m OD) and positioned to assess the extent of the contamination encountered in the previous investigation. Additionally, samples were screened with a Photo Ionisation Detector (PID) at regular intervals.

In order to physically expose underground services, 12 trial trenches (Service Trench Nos 01 to 12) were vacuum excavated to depths of between 0.30 m and 2.00 m (92.80 m OD and 96.42 m OD).

All of the aforementioned works were conducted under a licence provided by Bury Council.

During boring, disturbed samples were obtained from the boreholes, trial pits and trial trenches for subsequent laboratory examination and testing. Standard Penetration Tests (SPTs) were carried out at regular intervals to provide additional quantitative data on the strength of soils encountered. A selection of the samples recovered from the boreholes was submitted to a soil mechanics laboratory for a programme of geotechnical testing and an analytical laboratory for a programme of contamination testing.



All of the above work was carried out under the supervision of a geotechnical engineer from GEA. The borehole, trial pit and trial trench records are appended, together with a site plan indicating the exploratory positions. The Ordnance Datum (OD) levels on the borehole and trial pit records have been provided by Chroma Consulting labelled on a drawing detailing existing levels (46382_T_UG, dated 17 August 2023). The Ordnance Datum (OD) levels on the service trench records, as well as any services or remnant structures encountered have been measured by a surveyor from JWG Survey & Engineering utilising GPS equipment.

3.1 Sampling Strategy

The trial pit, trial trench and borehole locations were agreed with the consulting engineers, Civic Engineers, prior to the commencement of the siteworks.

A total of 16 samples of the made ground, three samples of Alluvium, two samples of Hummocky Glacial Deposits and a single sample of perched groundwater have been tested for the presence of contamination. The analytical suite of testing was selected to identify a range of typical industrial contaminants for the purposes of general coverage. The analytical suite for the soil included a range of metals, speciation of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. The analyses were carried out at an MCERTs accredited laboratory with the majority of the testing suite accredited to MCERTS standards. A summary of the MCERTs accreditation and test methods are included with the attached results and further details are available upon request.

In addition to the above analysis, 21 Waste Acceptance Criteria (WAC) tests were carried out; 16 within the made ground, three within the Alluvium and two within the Hummocky Glacial Deposits.

4.0 Ground Conditions

The investigation has generally confirmed the expected ground conditions in that, beneath a significant thickness of made ground, Alluvium over Hummocky Glacial Deposits were encountered. Glaciofluvial Deposits were not encountered.

4.1 Made Ground

The made ground was generally encountered to depths of between 0.31 m and 1.60 m (93.30 m OD and 96.02 m OD), however locally extended to a depth of 2.10 m (93.70 m OD). The made ground initially comprised asphalt and subbase over sandy silty gravel, very silty gravelly sand and slightly gravelly slightly sandy clay with fragments, cobbles and boulders of extraneous material including brick, concrete, asphalt, ash, ceramic, clinker, metal and glass.

Numerous borehole, trial pit and trial trench positions refused within these deposits upon obstructions such as remnant concrete slabs, cobbles sets and brick footings or due to the presence of services such as drainage and a disused inspection chamber.

During the excavation of the trenches, a number of underground services were encountered and are summarised in the table below:

Position No	Type of Service	Depth to top of service (m) [Level (m OD)]
TS01 West	Orange plastic duct – presumed street lighting	0.35 [93.45]
TS01 Central	200 mm diameter ceramic pipe – presumed drainage	0.70 [93.10]
TS01 Central	Black plastic duct – presumed low voltage electric	0.60 [93.20]
TS01 East	Metal pipe clad with timber – presumed gas pipe	0.50 [93.30]
TS03	Cast iron pipe – presumed gas or water	1.20 [95.13]
TS04	200 mm diameter ceramic pipe – presumed drainage	1.70 [94.37]
TS05	Orange plastic duct – presumed street lighting	0.33 [95.87]



Position No	Type of Service	Depth to top of service (m) [Level (m OD)]
TS05	Black plastic duct – presumed low voltage electric	0.90 [95.30]
TS10	Black plastic duct – presumed low voltage electric	1.00 [94.48]
TS10	Cast iron pipe – presumed gas or water	1.20 [94.28]
TS12	Black plastic duct – presumed BT	0.34 [93.86]
TS12	Orange plastic duct – presumed street lighting	0.40 [93.80]

Hydrocarbon odours were noted within the asphalt, subbase, shallow made ground and locally at the base of the made ground located in the northwestern corner of the site. A total of 16 samples of the made ground have been analysed for a range of contaminants as a precautionary measure and the results are detailed within Section 4.5.

4.2 Alluvium

Alluvium was encountered across the majority of the site beneath the made ground, and extended to depths of between 1.00 m and 2.90 m (92.91 m OD and 95.37 m OD). The material consisted of dark grey organic becoming very organic clay and silt over dark grey and brown fibrous and pseudo-fibrous peat. The organic clay was not present within the central and southern parts of the site and the peat is not present within the northwest. A plan outlining the estimated extent of the peat is detailed in Appendix A.

Atterberg testing of the peat has indicated a liquid limit of 321 %, plasticity limit of 178 %, a plasticity index of 143 % and a natural moisture content of 272 %.

4.3 Hummocky Glacial Deposits

Beneath the Alluvium and directly beneath the made ground in the southernmost parts of the site, Hummocky Glacial Deposits were encountered and consisted of loose becoming medium dense orange-brown, grey and greyish brown very silty sand and soft very sandy silt. These were observed to depths of between 4.00 m and 4.50 m (90.00 m OD and 92.29 m OD), and are inferred through continuous CPT testing to extend to maximum depth of the investigation, 5.35 m (89.51 m OD and 91.00 m OD).

Atterberg testing of the cohesive soils has indicated liquid limits of between 28 % and 43 %, plasticity limits of between 14 % and 26 % and plasticity indexes of between 14 % and 23 %, indicating a low volume change potential.

4.4 Groundwater

Groundwater was encountered within the made ground at depths of between 0.08 m and 1.00 m at three locations and is believed to represent perched groundwater. Groundwater was also encountered within the Hummocky Glacial Deposits at depths of between 1.30 m and 3.00 m (92.38 m OD and 93.60 m OD).

4.5 Soil Contamination

4.5.1 Made Ground

The two tables below set out the contaminant concentrations measured within the samples of made ground analysed. The first table outlines the results of 12 samples selected to provide general coverage of the site. All concentrations are in mg/kg unless otherwise stated.

Determinant	Maximum	Minimum	Number of samples below detection limit
pH	7.9	6.4	-
Arsenic	58	3.7	None
Cadmium	1.9	<0.20	Seven
Chromium (Hexavalent)	<1.8	<1.8	All
Lead	590	13	None
Mercury	3.2	<0.03	Eight
Selenium	1.4	<1.0	Ten
Copper	330	10	None
Nickel	50	9.4	None
Zinc	240	33	None
Total Cyanide	<1.0	<1.0	All
Total Phenols	1.5	<1.0	Eleven



Determinant	Maximum	Minimum	Number of samples below detection limit
Total PAH	442	0.93	None
Sulphide	130	<1.0	Two
Benzo(a)pyrene	37	<0.05	One
Naphthalene	23	<0.05	Two
EPH (C8-C40)	21000	<10	One
Total Organic Carbon %	15	1.1	None

The table below sets out the results the four samples selected in relation to the contamination investigation.

Determinant	Maximum	Minimum	Number of samples below detection limit
pH	7.9	7.5	-
Arsenic	25	12	None
Cadmium	0.70	<0.20	Two
Chromium (Hexavalent)	<1.8	<1.8	All
Lead	120	72	None
Mercury	<0.30	<0.30	All
Selenium	1.1	<1.0	Two
Copper	93	40	None
Nickel	25	18	None
Zinc	230	93	None
Total Cyanide	<1.0	<1.0	All
Total Phenols	1.7	<1.0	Three
Total PAH	19500	2700	None
Sulphide	67	30	None
Benzo(a)pyrene	1200	190	None
Naphthalene	400	22	Two

Determinant	Maximum	Minimum	Number of samples below detection limit
EPH (C8-C40)	16000	6300	None
Total Organic Carbon %	15	0.1	None

In addition, 16 samples of the made ground and a single piece of possible asbestos containing material have been screened for the presence of asbestos and the results are shown in the table below.

BH/TP ref	Sample depth (m)	Asbestos detected	Quantification; total asbestos in sample (%)	Potentially respirable fibres (fibres/g)
BH101	0.10	None	-	-
BH104	0.22	None	-	-
BH107A	0.80	None	-	-
BH108	0.40	Chrysotile – Loose Fibres	<0.001%	-
BH108A	0.60	Chrysotile – Asbestos Cement	-Bulk Sample	-
BH110	1.00	None	-	-
BH118	1.00	None	-	-
BH121	1.40	None	-	-
BH133	0.15	None	-	-
BH202	0.50	None	-	-
BH204	0.40	None	-	-
BH208	0.50	None	-	-
BH214	0.82	None	-	-
TS03	0.20	None	-	-
TS06	0.25	Chrysotile – Loose Fibres	<0.001%	-
TS09	0.55	None	-	-
TS11	0.80	Chrysotile – Loose Fibrous Debris	0.003%	-



4.5.2 Alluvium

The table below sets out the values measured within the three samples of Alluvium analysed; all concentrations are in mg/kg unless otherwise stated.

Determinant	BH105 1.50 m to 2.00 m	BH119 1.10 m	BH128 0.93 m
pH	n/a	7.1	5.3
Arsenic	33	18	7.1
Cadmium	3.0	<0.20	<0.20
Chromium (Hexavalent)	<1.8	<1.8	<1.8
Lead	9.1	48	13
Mercury	<0.30	<0.30	<0.30
Selenium	1.9	<1.0	<1.0
Copper	33	22	10
Nickel	19	14	5.9
Zinc	190	30	16
Total Cyanide	1.5	<1.0	1.7
Total Phenols	2.1	<1.0	1.4
Total PAH	450	1.61	77
Sulphide	42	14	<1.0
Benzo(a)pyrene	<0.05	<0.05	7.1
Naphthalene	260	<0.05	0.67
EPH (C8-C40)	1300	58	200
Total Organic Carbon %	21	16	22

In addition, the three samples of Alluvium have been screened for the presence of asbestos with none having been detected.

4.5.3 Hummocky Glacial Deposits

The table below lists the values measured within the two samples of the Hummock Glacial Deposits analysed; all concentrations are in mg/kg unless otherwise stated.

Determinant	BH213 2.00 m	BH214 0.93 m
pH	8.2	7.5
Arsenic	1.2	4.4
Cadmium	<0.20	<0.20
Chromium (Hexavalent)	<1.8	<1.8
Lead	3.4	10
Mercury	<0.30	<0.30
Selenium	<1.0	<1.8
Copper	6.8	8.3
Nickel	3.3	5.2
Zinc	9.8	21
Total Cyanide	<1.0	<1.0
Total Phenols	<1.0	<1.0
Total PAH	<0.80	9.7
Sulphide	<1.0	1.4
Benzo(a)pyrene	<0.05	0.69
Naphthalene	0.07	0.27
EPH (C8-C40)	<10	42
Total Organic Carbon %	0.10	1.4

In addition, the two samples of Hummocky Glacial Deposits have been screened for the presence of asbestos and none was detected.



4.5.4 Generic Quantitative Risk Assessment

The use of a risk-based approach has been adopted to provide an initial screening of the test results to assess the need for subsequent site-specific risk assessments. Contaminants of concern are those that have values in excess of generic human health risk-based guideline values, which are either the CLEA² Soil Guideline Values where available, the Suitable 4 Use Values³ (S4UL) produced by LQM/CIEH calculated using the CLEA UK Version 1.07⁴ software, or the DEFRA Category 4 Screening values⁵, assuming a commercial end use. The key generic assumptions for this end use are as follows:

- that groundwater will not be a critical risk receptor;
- that the critical receptor for human health will be a working female aged 16 to 65 years;
- that the exposure duration will be 49 years;
- that the critical exposure pathways will be direct soil and indoor dust ingestion, skin contact with soils and dust, and inhalation of dust and vapours; and
- that the building type equates to a three-storey office.

It is considered that these assumptions are acceptable for this generic assessment of this site. The tables of generic screening values derived by GEA and an explanation of how each value has been derived are included in the Appendix.

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of these generic screening values there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include;

- additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;

- site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

On the basis of the above, the presence of asbestos and elevated concentrations of total organic carbon, sulphide and highly elevated concentrations of total PAH; more specifically benzo(a)anthracene, chrysene, benzo(b)fluoranthene, dibenz(a,h)anthracene, benzo(a)pyrene and indeno(1,2,3,cd)pyrene were present within the made ground and elevated concentrations of total organic carbon.

The significance of the results is discussed in Part 2 of this report.

4.6 Soil Vapour Testing

As part of the investigation into the previous contamination encountered, samples taken from these boreholes were screened with a Photo Ionisation Detector (PID) at regular intervals. The results are summarised below.

Borehole No	Depth (m)	Concentration (ppm)
201	0.40	11.8
	1.00	1.6
	2.00	0.3
	3.00	0.6
	4.00	5.4
202	0.40	1.5
	1.00	1.0
	2.00	1.5

² Updated Technical Background to the CLEA Model (Science Report SC050021/SR3) Jan 2009 and Soil Guideline Value reports for specific contaminants; all DEFRA and Environment Agency.

³ The LQM/CIEH S4ULs for Human Health Risk Assessment S4UL3065 November 2014

⁴ Contaminated Land Exposure Assessment (CL|EA) Software Version 1.071 Environment Agency 2015

⁵ CL:AIRE (2013) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Final Project Report SP1010 and DEFRA (2014) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Policy Companion Document SP1010



Borehole No	Depth (m)	Concentration (ppm)
	3.00	1.9
	4.00	1.6
203	0.40	4.1
	1.00	0.9
	2.00	0.7
	3.00	1.4
	4.00	0.8
204	0.40	7.6
	1.00	3.7
	2.00	5.4
	3.00	1.6
	4.00	1.5
205	0.30	6.8
	1.00	4.2
	2.00	3.5
	3.00	1.5
	4.00	0.9
206	0.30	35.8
	1.00	3.2
	2.00	3.0
	3.00	2.1
	4.00	2.4
207	0.50	6.1
	1.00	8.6
	2.00	3.6
	3.00	9.6

Borehole No	Depth (m)	Concentration (ppm)
	4.00	7.1
208	0.50	15.1
	1.00	2.9
	2.00	2.0
	3.00	4.0
	4.00	3.5
209	0.40	4.8
	2.00	2.2
	3.00	1.1
	4.00	1.8
210	0.30	0.8
	1.00	1.2
	2.00	1.0
	3.00	0.2
211	4.00	0.2
	0.40	3.0
	1.00	1.7
	2.00	1.6
212	3.00	1.1
	4.00	1.5
	0.40	3.7
	1.00	3.1
213	2.00	1.8
	3.00	1.9
	4.00	3.3



Borehole No	Depth (m)	Concentration (ppm)
	1.00	3.4
	2.00	1.6
	3.00	2.3
	4.00	2.9
214	0.40	2.0
	1.00	1.4
	2.00	0.8
	3.00	0.9
	4.00	0.4

Hand Pit No	Structure	Foundation detail	Bearing Stratum
103	Western boundary wall within the centre of the site	Brick strip Top 70 mm Base not determined – excavated to 1700 mm Lateral projection 220 mm	Not determined.
104	Western boundary wall within the centre of the site	Stepped brick structure onto concrete strip Top of brick 660 mm Top of concrete 810 mm Base 990 mm Lateral projection 260 mm	Grey mottled orange-brown silty fine to medium SAND with pockets of grey clay.
105	Western boundary wall within the northwestern part of the site	Mass concrete strip Top 520 mm Base 710 mm Lateral projection 360 mm	MADE GROUND: (Brown slightly gravelly sandy silt with rare fragments of brick and concrete).
106	Wooden partition fence along the northern site boundary	Excavation undertaken to 570 mm. No structure encountered.	Not applicable.

4.7 Groundwater Contamination

A single sample of perched water encountered within the made ground has been tested for the presence of contamination, with the full results included in Appendix B. The results indicated no significant contamination within the perched water.

4.8 Existing Foundations

The findings of the trial pits are summarised in the table opposite. Sketches and photographs of each pit are included in the Appendix.

Hand Pit No	Structure	Foundation detail	Bearing Stratum
101	Western boundary wall within the south of the site	Stepped brick structure onto concrete strip Top of brick 960 mm Top of concrete 1080 mm Base 1250 mm Lateral projection 270 mm	Greyish brown silty SAND with possible fragments of decaying organic matter.
102	Western boundary wall within the centre of the site	Inconclusive. Layer of concrete and bricks encountered at 420 mm depth and locally broken out to 530 mm. The proximity of adjacent buried services resulted in the termination of the trial pit.	Not determined.



Part 2: Design Basis Report

This section of the report provides an interpretation of the findings detailed in Part 1, in the form of a ground model, and then provides advice and recommendations with respect to the proposed development.

5.0 Ground Model

It is understood that it is proposed to construct a multi-storey car park on site as part of the wider Prestwich Regeneration project. On the basis of the fieldwork, the ground conditions at this site can be characterised as follows:

-  below a limited to significant thickness of made ground, Alluvium was encountered over Hummocky Glacial Deposits, which extends to the maximum depth of the investigation, of 5.35 m (89.51 m OD), with the Alluvium absent in the southernmost part of the site;
-  the made ground initially comprises asphalt and subbase over sandy silty gravel, silty gravelly sand and gravelly sandy clay with fragments, cobbles and boulders of extraneous material including brick, concrete, asphalt, ash, ceramic, clinker, metal and glass and extends to depths of between 0.31 m and 2.10 m (93.30 m OD and 96.02 m OD);
-  obstructions such as remnant concrete slabs, cobbles, setts and brick footings are present through the made ground;
-  the Alluvium comprises dark grey organic becoming very organic clay and silt over dark grey and brown fibrous and pseudo-fibrous peat to a depths of between 1.00 m and 2.90 m (92.91 m OD and 95.37 m OD);
-  beneath the Alluvium, where present, or else beneath the made ground, Hummocky Glacial Deposits comprises loose becoming medium dense orange-brown, grey and greyish brown silty sand and soft sandy silt are observed to depths of between 4.00 m and 4.50 m (90.00 m OD and 92.29 m OD) and inferred to maximum depth of the investigation, 5.35 m (89.51 m OD);
-  perched water is present within the made ground at depths of 0.08 m and 1.00 m (93.47 m OD and 95.44 m OD) and groundwater is present within the Hummocky Glacial Deposits at depths of between 1.30 m to 3.00 m (92.38 m OD and 93.60 m OD); and
-  contamination testing has revealed the presence of asbestos and elevated concentrations of total organic carbon, sulphide and highly elevated concentrations of total PAH; more specifically benzo(a)anthracene, chrysene, benzo(b)fluoranthene, dibenz(a,h)anthracene, benzo(a)pyrene and indeno(1,2,3,cd)pyrene were present within the made ground and elevated concentrations of total organic carbon within the Alluvium.



6.0 Advice & Recommendations

Due to the significant thickness of made ground, soft clay and peat, shallow spread foundations are not deemed feasible, and therefore piled foundations will be required. A piling mat will be required to provide a working platform for tracked plant, and two options are currently under consideration for its construction:

-  the piling mat being placed on the existing car park surface; or
-  removing the existing surfacing and turning over the sub strata to provide a bearing stratum for the piling mat.

6.1 Site Preparation

At the time of the investigation, the surface of the car park was in relatively poor condition with various depressions and evidence of repairs. It is therefore considered unlikely that it could be used in its current form. Additionally, the presence of a significant thickness of highly compressible Alluvium including peat directly beneath the made ground could lead to localised settlement under rig loading which would exacerbate the damage of the surface further and affect the stability of the piling rig.

It is recommended that the surface of the car park be removed and separated as this material could be crushed and re-utilised in construction of the piling mat. The made ground and Alluvium are not deemed suitable material on which to construct the piling mat and therefore should be excavated and separated. Made ground showing no signs of contamination and any obstructions within the made ground can be crushed and re-utilised in the construction of the piling mat, however the contaminated made ground and peat and soft clay of the Alluvium will need to be removed from site. The piling mat will need to be placed upon the medium dense sand or firm clay or silt of the Hummocky Glacial Deposits. This material is anticipated to be encountered at depths of 1.00 m and 1.65 m within the southern and northern parts of the site respectively, but extended to a depth of 2.90 m within the central part of the site.

The thickness of the piling mat will need to be determined on the basis of details of the equipment to be used and pressure to be imposed, but at this stage it is anticipated that a working platform thickness in excess of 1.50 m in thickness may be required, and may need to be reinforced with geotextile or geogrid.

Numerous obstructions in the form of remnant concrete slabs and brick walls have been encountered within the made ground and these are likely to prevent piles being installed. will need to be removed. During the excavation of the site, these features could be crushed to the desired grading before being re-used as a granular fill material.

6.2 Shallow Excavations

On the basis of the trial trench, trial pit and borehole findings, it is considered that it will be generally feasible to form relatively shallow excavations terminating within the made ground, Alluvium and shallow Hummocky Glacial Deposits without the requirement for lateral support.

Significant inflows of groundwater into shallow excavations are not generally anticipated, although seepages may be encountered from perched water tables within the made ground, although such inflows should be suitably controlled by sump pumping.

If deeper excavations are considered or if excavations are to remain open for prolonged periods it is recommended that provision be made for battered side slopes or lateral support. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides considered in order to comply with normal safety requirements.

6.3 Effect of Sulphates

Chemical analyses of the made ground have revealed relatively low concentrations of soluble sulphate and pHs which range near neutral to near alkaline. The majority of the made ground has a Class DS-1, which shows that an ACEC Class of AC-1 is required for mobile water conditions. Four samples of made ground within the northern part of the site has revealed slightly higher concentrations of soluble sulphate, leading to Classes of DS-2 and DS-3, and therefore an ACEC Class of AC-3 is required for mobile water conditions.

Three samples of Alluvium have been tested, with two samples fall within Class DS-1 showing that an ACEC class of AC-1 for mobile water conditions, however a single sample shows slightly higher concentrations of soluble sulphate, leading to Classes of DS-2, and therefore an ACEC Class of AC-2 is required for mobile water conditions.

It is assumed that the made ground and Alluvium will be removed as part of site preparation and after removal a Class DS-1 can be considered appropriate.



Chemical analyses of the Hummocky Glacial Deposits have revealed relatively low concentrations of soluble sulphate and pHs which range near neutral to near alkaline. This shows that an ACEC Class of AC-1s is required for static water conditions.

The guidelines contained in the digest should be followed in the design of foundation concrete.

6.4 Contamination Risk Assessment

The results of the chemical analyses of the made ground indicated the presence of asbestos and elevated concentrations of total organic carbon, sulphide and highly elevated concentrations of total PAH; more specifically benzo(a)anthracene, chrysene, benzo(b)fluoranthene, dibenz(a,h)anthracene, benzo(a)pyrene and indeno(1,2,3,cd)pyrene and elevated concentrations of total organic carbon within the Alluvium and locally within the made ground.

The asbestos observed in the laboratory was microscopic in nature and therefore not identifiable to the naked eye. Quantification test results have measured concentrations at between less than the detectable limit of 0.001% and 0.003%. If fragments of asbestos are observed during the site preparation it is recommended that hand picking by a specialist should be undertaken and in any case such excavation and crushing of material for re-use should be subject to damping down with water spray.

The elevated concentrations of sulphide are likely to derive from ash and clinker rich material or fragments within the made ground but not all of the samples containing this material recorded elevated concentrations. An elevated concentration of sulphide is only of interest with respect to construction materials and does not pose a human health risk.

Elevated concentrations of total PAHs are likely to derive from coal tar material within the made ground, with fragments of coal tar rich material more commonly encountered within the north and northwestern parts of the site. It is assumed that this material will be removed from site as part of the site preparation and therefore removing the risk.

The elevated concentrations of TOC within the peat and locally within the made ground are likely to derive from fragments of decaying plant matter. The elevated concentrations of TOC is only of interest with respect to methanogenic potential and does not pose a human health risk.

It is understood that areas of soft landscaping do not form part of the multi-storey car park development, however if areas to be included, the contamination advice will need to be reviewed and these will probably need to be capped with clean imported subsoil and topsoil.

On the basis of the above and the hard coverage of the site, it is not considered likely that the redevelopment of the site will pose a risk to groundwater. In addition, surface water run-off may be controlled through attenuation and disposal to the main drainage system.

Limited remedial measures are therefore considered to be required in respect of the redevelopment, but consideration will need to be given to site workers as discussed below.

6.4.1 Site Workers

Apart from the physical hazards represented by the fill materials, concentrations of potentially carcinogenic PAHs have been measured within the made ground in northern part of the site. Site workers should be made aware of the contamination and a programme of working should be identified to protect workers handling any soil. The method of site working should be in accordance with guidelines set out by HSE and CIRIA and the requirements of the Local Authority Environmental Health Officer. Additionally even though minimal concentrations of asbestos were encountered, even the smallest levels of asbestos can pose a risk to human health so any future workers should be briefed on the possible risks. However, in any case, the method of site working should be in accordance with guidelines set out by HSE and CIRIA and the requirements of the Local Authority Environmental Health Officer.

6.5 Waste Disposal

Under the Waste Framework Directive, waste is classified as being either Hazardous or Non-Hazardous and landfills receiving waste are classified as accepting hazardous or non-hazardous wastes or the non-hazardous sub-category of inert waste in accordance with the Waste Directive. Waste classification is a staged process and this investigation represents the preliminary sampling exercise of that process. Once the extent and location of the waste that is to be removed has been defined, further sampling and testing may be necessary. The results from this ground investigation should be used to help define the sampling plan for such further testing, which could include WAC leaching tests where the totals analysis indicates the soil to be a hazardous waste or inert waste from a contaminated site. It should however be noted that the Environment Agency guidance



WM3⁶ states that landfill WAC analysis, specifically leaching test results, must not be used for waste classification purposes.

Any spoil arising from excavations or landscaping works, which is not to be re-used in accordance with the CL:AIRE⁷ guidance, will need to be disposed of to a licensed tip. Waste going to landfill is subject to landfill tax at either the standard rate of £103.70 per tonne (about £190.00 per m³) or at the lower rate of £3.30 per tonne (roughly £6.10 per m³). However, the classifications for tax purposes and disposal purposes differ and currently all made ground and topsoil is taxable at the 'standard' rate and only naturally occurring soil and stones, which are accurately described as such in terms of the 2011 Order, would qualify for the 'lower rate' of landfill tax.

Based on the technical guidance provided by the EA it is considered likely that the soils encountered during this ground investigation, as represented by the chemical analyses carried out, would be generally classified as follows.

Soil Type	Waste Classification (Waste Code)	WAC Testing Required Prior to Landfill Disposal?	Current applicable rate of Landfill Tax
Made Ground	Hazardous HP7, HP11 and HP14 - Borehole Nos 204, 208, 211 HP7 and HP11 - Borehole No 202 HP7 – Borehole No 133 (17 05 03)	Yes	£103.70/tonne (Standard rate)
Made Ground	Non-hazardous (17 05 04)	Should not be required but confirm with receiving landfill	£103.70/tonne (Standard rate)
Alluvium	Hazardous - Total Organic Carbon (17 05 03)	Yes	£103.70/tonne (Standard rate)
Hummocky Glacial Deposits	Inert non-hazardous (17 05 04)	No	£3.30 / tonne (Reduced rate for uncontaminated naturally occurring rocks and soils)

Consideration has been given to the re-use of the peat and organic clay encountered on site, however due to the relatively high concentrations of TPH and total PAHs present within samples of the Alluvium, it is not recommended that the Alluvium be repurposed, but instead removed from site.

Under the requirements of the Waste Directive all waste needs to be pre-treated prior to disposal. The pre-treatment process must be physical, thermal, chemical or biological, including sorting. It must change the characteristics of the waste in order to reduce its volume, hazardous nature, facilitate handling or enhance recovery. The waste producer can carry out the treatment but they will need to provide documentation to prove that this has been carried out. Alternatively, the treatment can be carried out by an approved contractor. The Environment Agency has issued a position paper⁸ which states that in certain circumstances, segregation at source may be considered as pre-treatment and thus excavated material may not have to be treated prior to landfilling if the soils can be segregated onsite prior to excavation by sufficiently characterising the soils insitu prior to excavation.

The above opinion with regard to the classification of the excavated soils is provided for guidance only and should be confirmed by the receiving landfill once the soils to be discarded have been identified. The local waste regulation department of the Environment Agency (EA) should be contacted to obtain details of tips that are licensed to accept the soil represented by the test results. The tips will be able to provide costs for disposing of this material but may require further testing.

6 Environment Agency 2015. *Guidance on the classification and assessment of waste*. Technical Guidance WM3 First Edition

7 CL:AIRE March 2011. *The Definition of Waste: Development Industry Code of Practice* Version 2

8 Environment Agency 23 Oct 2007 *Regulatory Position Statement Treating non-hazardous waste for landfill - Enforcing the new requirement*



7.0 Outstanding Risks & Issues

This section of the report aims to highlight areas where further work is required as a result of limitations on the scope of this investigation, or where issues have been identified by this investigation that warrant further consideration. The scope of risks and issues discussed in this section is by no means exhaustive, but covers the main areas where additional work may be required.

7.1 Site-Specific Risks

Monitoring of the standpipes should be continued to determine equilibrium groundwater levels and to establish any seasonal fluctuations. In addition, further groundwater sampling and testing using low-disturbance and speciated testing should be undertaken to establish the extent and greater detail in respect of the measured PAH and hydrocarbon contamination.

This investigation has identified the presence of contamination on site and a requirement for a separate remediation proposals report will need to be prepared to comply with planning requirements. The remediation will need to be supervised and verified by a geoenvironmental engineer and a completion or validation report will also probably be required to support the planning application.

7.2 General Risks

The ground is a heterogeneous natural material and variations will inevitably arise between the locations at which it is investigated. This report provides an assessment of the general ground conditions based on the discrete points at which the ground was sampled, but there may be ground conditions (including soil, rock, gas and groundwater) elsewhere on site that have not been revealed by this investigation and therefore could not have been taken into account in this report. The ground conditions should be subject to review as the development proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

The comments made regarding groundwater are based on observations made during the period the work has been carried out. Conditions may vary as a result of seasonal or other effects.

Where any conclusions and recommendations contained in this report have been based upon information provided by others, it has been assumed that all relevant information has been provided by those parties and that such information is accurate. Any such information has not been independently verified by GEA, unless otherwise stated in the report. GEA accepts no liability for any inaccurate conclusions, assumptions or actions taken resulting from any inaccurate information supplied to GEA from others.



Appendix

a. Field Work

Site Plan – All Works
Site Plan – Cross Section
Supplementary Investigation – Site Plan
Supplementary Investigation – Borehole Records
Supplementary Investigation – Borehole Photographs
Supplementary Investigation – Trial Pit Drawings
Supplementary Investigation – Trial Pit Photographs
Contamination Investigation – Site Plan
Contamination Investigation – Borehole Records
Contamination Investigation – Borehole Photographs
Soft Ground Investigation – Site Plan
Soft Ground Investigation – Peat Extent Plan
Soft Ground Investigation – Borehole Records
Soft Ground Investigation – Borehole Photographs
Service Trench Investigation – Site Plan
Service Trench Investigation – Trial Trench Records
Service Trench Investigation – Trial Pit Photographs

b. Lab Testing

Geotechnical Test Results
SPT & Depth Graph
Chemical Test Results
Generic Risk Based Screening Values
Generic Risk Based Groundwater Screening Values



appendix a

Field Work

Site Plan – All Works
Site Plan – Cross Section
Supplementary Investigation – Site Plan
Supplementary Investigation – Borehole Records
Supplementary Investigation – Borehole Photographs
Supplementary Investigation – Trial Pit Drawings
Supplementary Investigation – Trial Pit Photographs
Contamination Investigation – Site Plan
Contamination Investigation – Borehole Records
Contamination Investigation – Borehole Photographs
Soft Ground Investigation – Site Plan
Soft Ground Investigation – Peat Extent Plan
Soft Ground Investigation – Borehole Records
Soft Ground Investigation – Borehole Photographs
Service Trench Investigation – Site Plan
Service Trench Investigation – Trial Trench Records
Service Trench Investigation – Trial Pit Photographs



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Site Plan - All Works

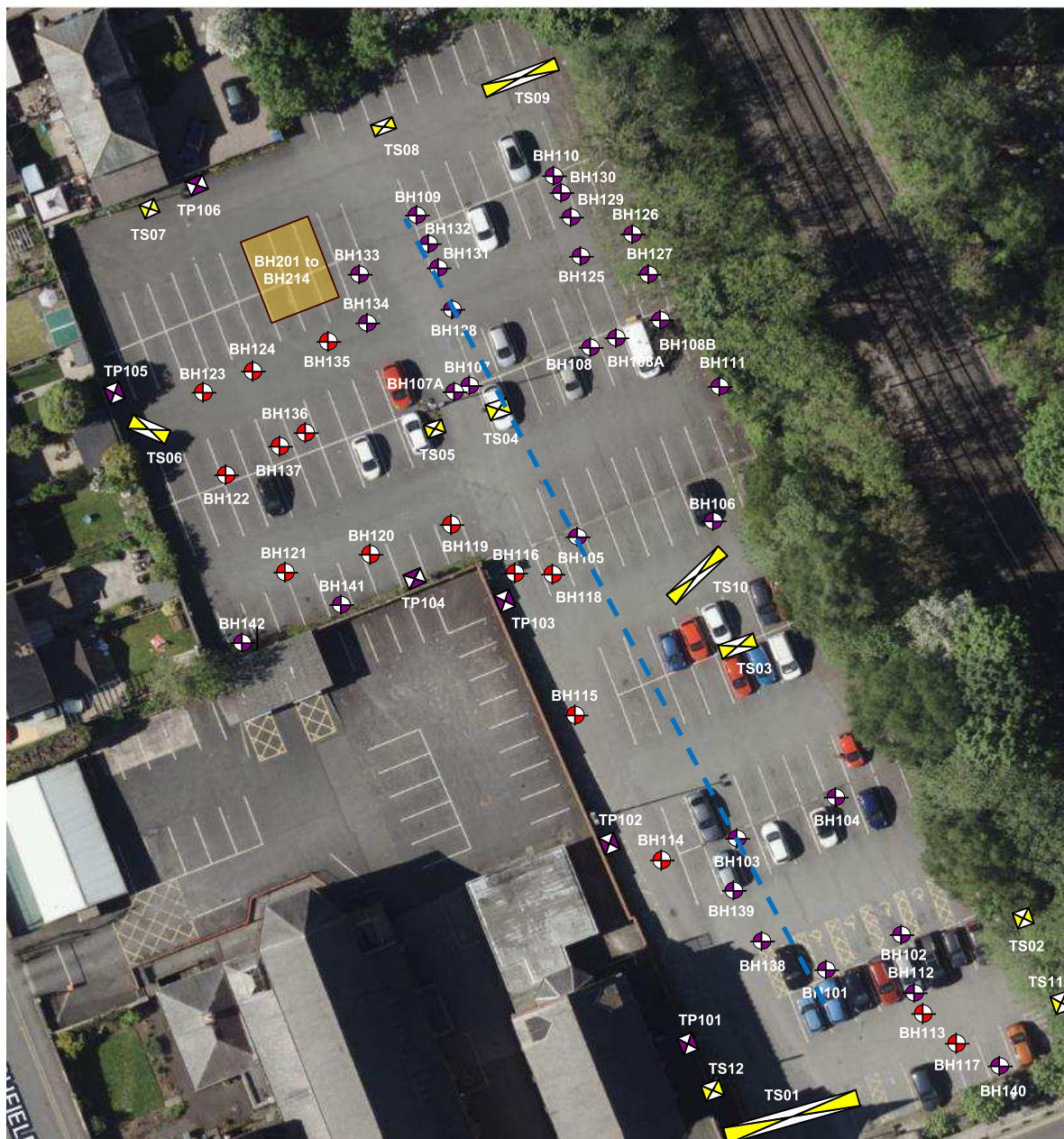
Site Prestwich North Car Park, Prestwich, Manchester, M25 1BT

Client The Prestwich Regeneration LLP

Engineer Civic Engineers

Job Number
J23254A

Sheet
1 / 1



Open-drive Sampling Borehole

Hand-dug Foundation Trial Pit

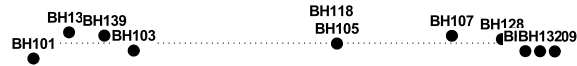
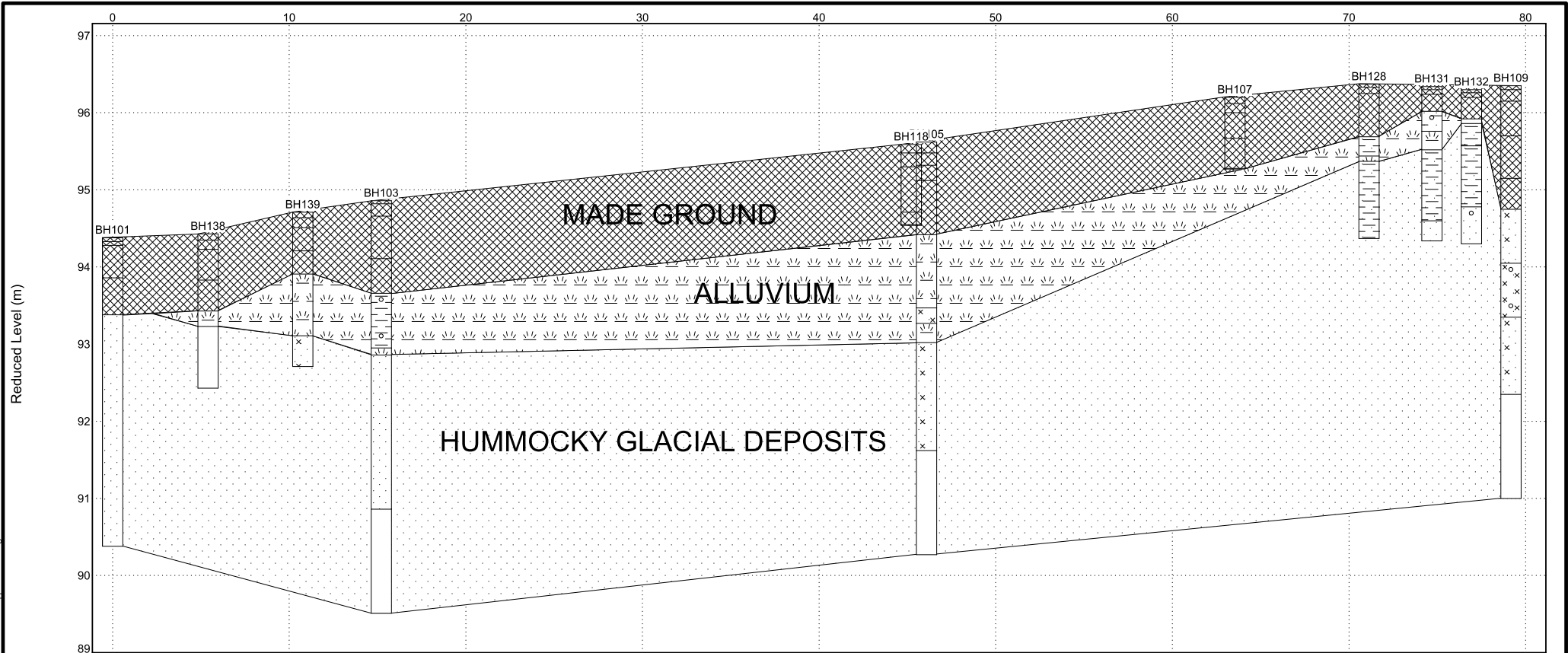
Hand-held Window Sampling Borehole

Contamination Investigation Area

Vacuum-excavated Service Trenches

Cross-section profile

Approximate scale in metres
0 15 30



LITHOLOGY GRAPHICS

MADE GROUND	SAND	Gravelly CLAY	PEAT	VOID
Sandy SILT	Silty SAND	Sandy gravelly SILT	Sandy CLAY	
Clayey gravelly SAND	Gravelly SAND			

SUBSURFACE SECTION

Client: The Prestwich Regeneration LLP

Project: Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25

Number: J23254A



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Site Plan - General Investigation

Site Prestwich Village, Prestwich, Manchester, M25 1AY

Client The Prestwich Regeneration LLP

Engineer Civic Engineers

Job Number
J23254A

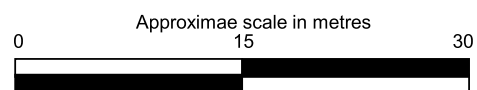
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Open-drive Sampling Borehole



Hand-dug Foundation Trial Pit





Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH101
Job No J23254A	Date 19-06-24 19-06-24	Ground Level (m OD) 94.38	Co-Ordinates () E 381,284.0 N 404,224.0	
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1

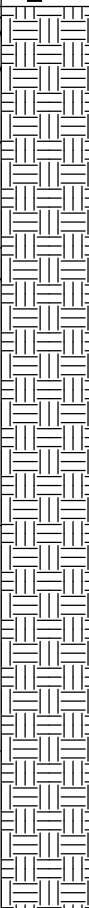
SAMPLES & TESTS			STRATA				Instrument / Backfill
Depth	Type No	Test Result	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
1.80	D	1,3/3,4,5,5 N60 = 22	94.33		0.05	MADE GROUND: (Black asphalt).	
			94.28		0.10	MADE GROUND: (Dark grey slightly sandy gravel with fragments of concrete and asphalt).	
			93.86		0.52	MADE GROUND: (Dark brown and brownish grey gravelly sand with fragments of brick, clinker, concrete, metal and asphalt).	
			93.38		1.00	MADE GROUND: (Light brown slightly gravelly sand with pockets of brown clay and rare fragments brick and clinker).	
3.80	D	2,1/2,2,2,2 N60 = 11			(0.42)	Dark grey and greyish brown fine to medium SAND.	
					(3.00)	1.28 ...becoming light brown and off-white mottled orange-brown	
3.80	D	1,2/1,2,2,2 N60 = 9			(3.00)	2.00 ...becoming dark brown with black speckling. Rare fine and medium gravel	
					(3.00)		
3.80	D	1,1/2,1,1,1 N60 = 7			4.00		

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Groundwater encountered as slow seepage at a depth of 2.00 m. 4. Borehole terminated at 4.00 m depth due to borehole collapsing. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By JSwindells
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH102	
Job No J23254A	Date 19-06-24 19-06-24	Ground Level (m OD) 94.50	Co-Ordinates () E 381,291.0 N 404,227.0		
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1	

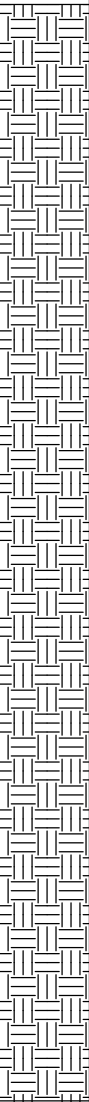
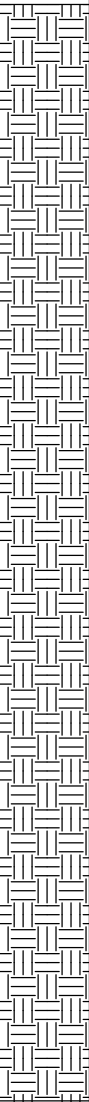
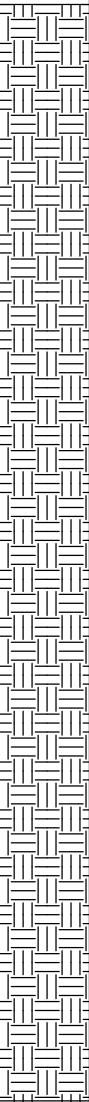
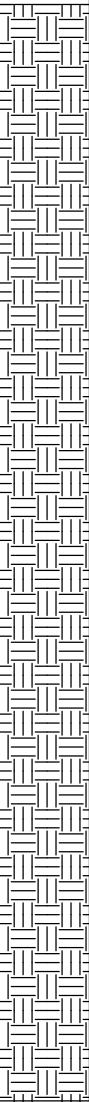
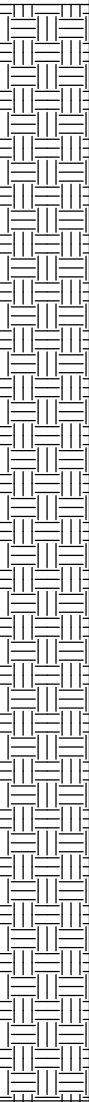
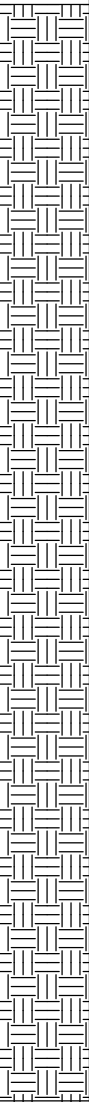
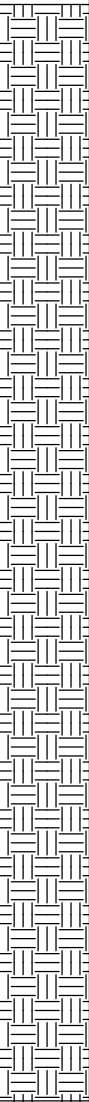
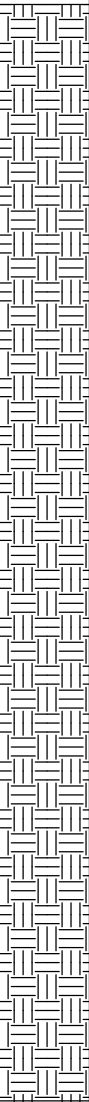
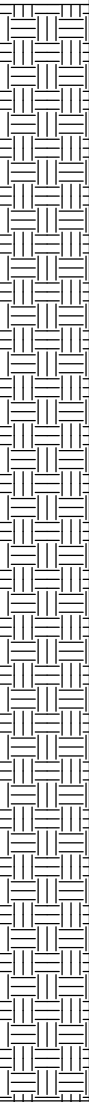
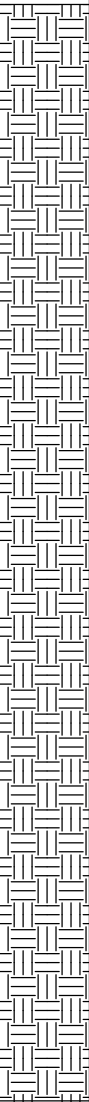
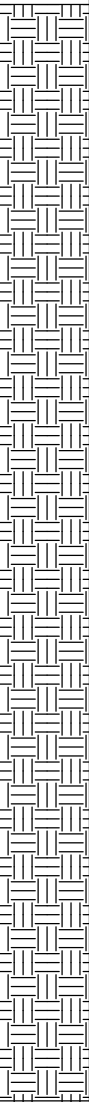
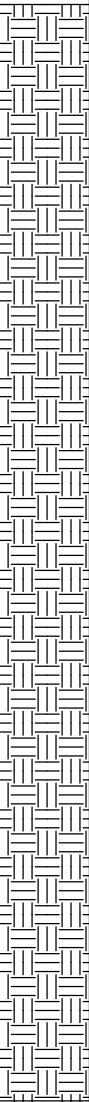
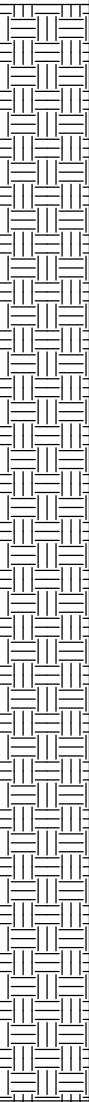
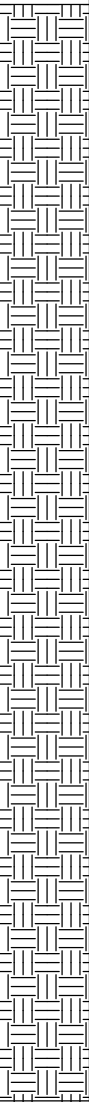
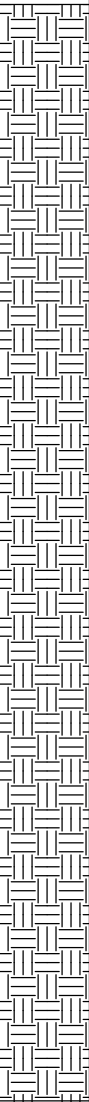
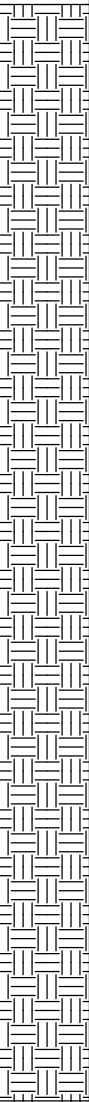
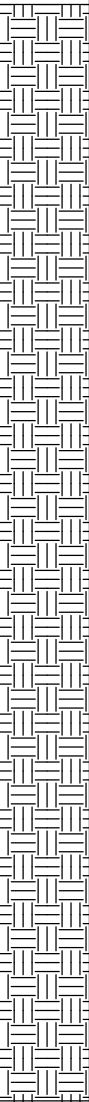
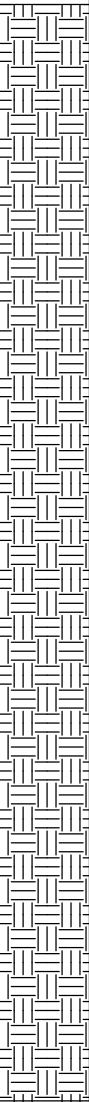
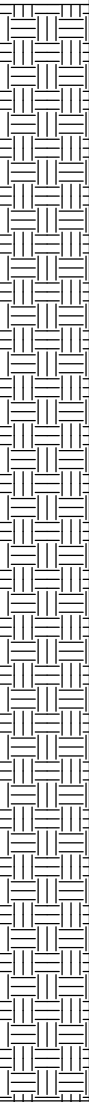
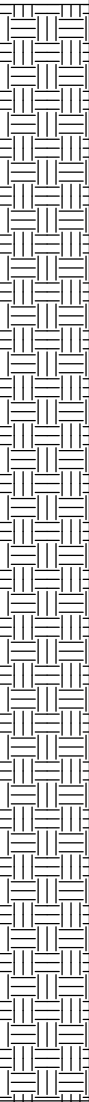
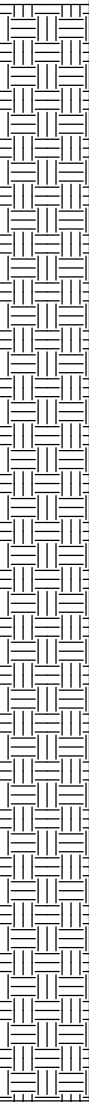
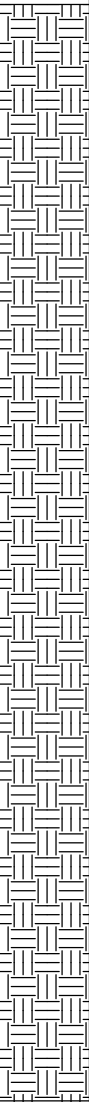
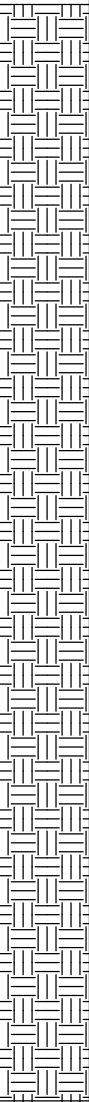
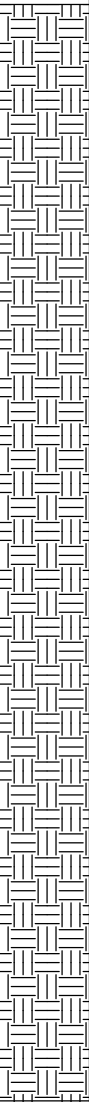
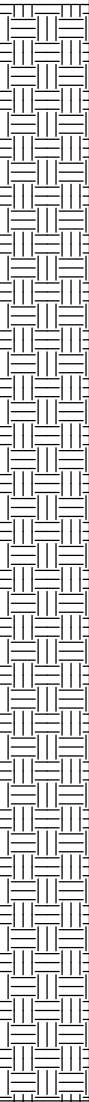
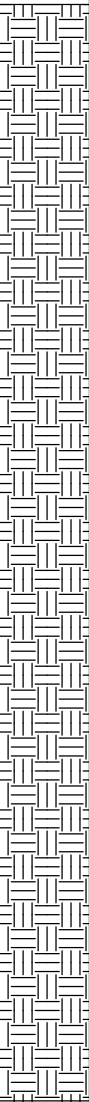
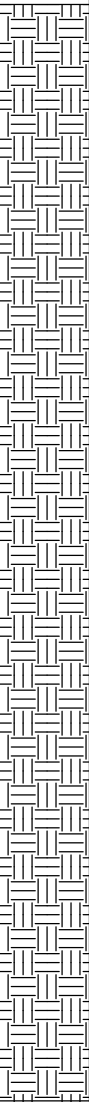
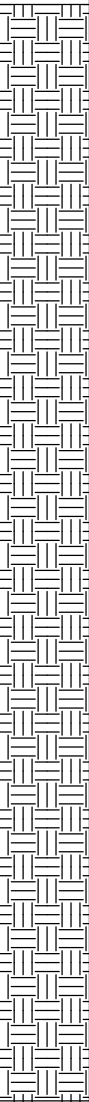
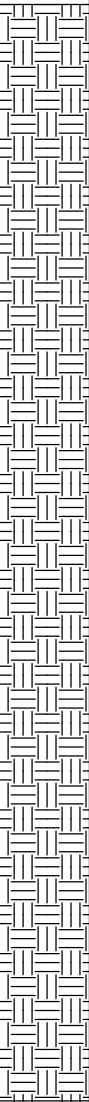
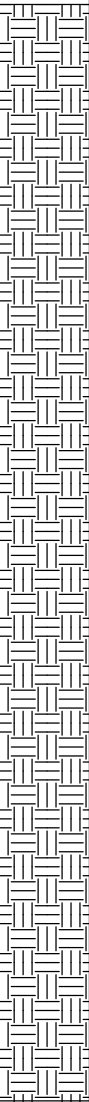
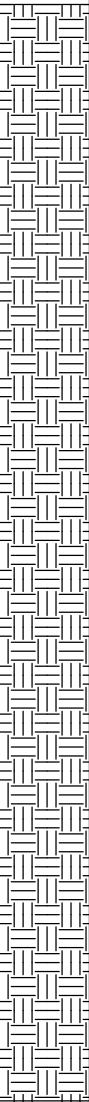
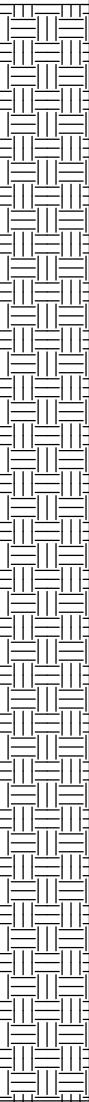
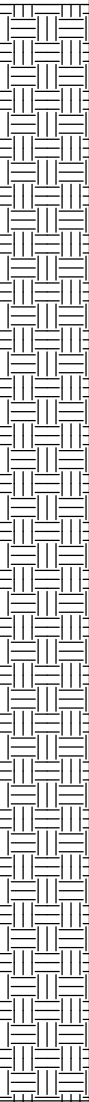
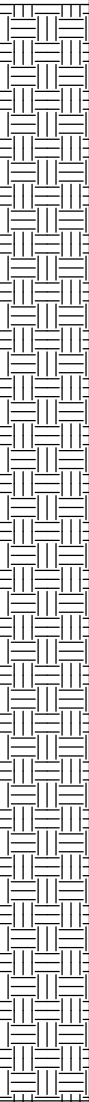
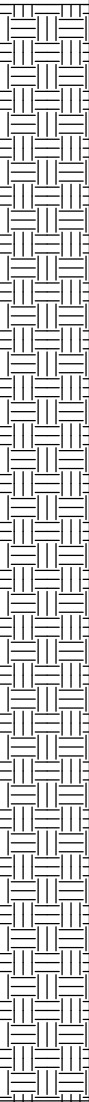
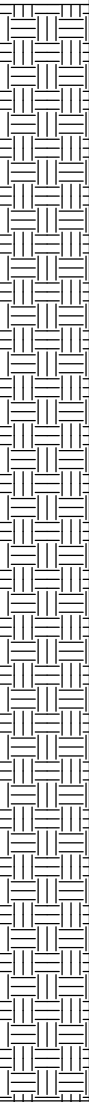
SAMPLES & TESTS			Water	STRATA			Instrument / Backfill		
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		DESCRIPTION	
0.30	ES	1,1/2,1,3,4 N60 = 13		94.45		0.05	MADE GROUND: (Black asphalt).		
				94.38		0.12	MADE GROUND: (Dark grey slightly sandy gravel with fragments of concrete and asphalt).		
				94.20		0.30	MADE GROUND: (Sandstone cobbles).		
0.67	ES					(0.37)	MADE GROUND: (Light grey and black gravelly sand with fragments of brick, concrete and clinker).		
						93.83	0.67		MADE GROUND: (Light brown gravelly sand with rare fragments of brick and clinker)
1.20	D			2,3/2,1,1,1 N60 = 7		(0.53)			
						93.30	1.20		
1.60	D					93.15	1.35		Dark brown fibrous PEAT with bands of light brown sand.
							(1.23)		Dark brown grey fine to medium SAND with rare gravel. Gravel is fine.
3.50	D			0,2/2,2,2,3 N60 = 12					
						91.92	2.58		Dark brown slightly sandy CLAY. Sand is fine and medium.
				1,2/2,3,2,3 N60 = 13		(1.12)	3.00 ...becoming slightly gravelly. Gravel is fine and medium		
						90.80	3.70		Dark brown speckled black fine and medium SAND.
					90.00	4.50			

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Groundwater encountered as slow seepage at a depth of 1.50 m. 4. Borehole terminated at 4.50 m depth due to borehole collapsing. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By JSwindells
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH103
Job No J23254A	Date 19-06-24 19-06-24	Ground Level (m OD) 94.86	Co-Ordinates () E 381,276.0 N 404,237.0	
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.12	ES	0,0/0,0,0,0 N60 = 0		94.82		0.04	MADE GROUND: (Black asphalt).	
				94.66		0.20	MADE GROUND: (Dark grey slightly sandy gravel with fragments of concrete and asphalt).	
						(0.55)	MADE GROUND: (Light grey gravelly sand with fragments of brick, slate, glass, metal and concrete).	
				94.11		0.75	MADE GROUND: (Dark grey and black sandy slightly gravelly clay with rare fragments of brick).	
0.75	ES	0,0/0,0,0,0 N60 = 0				(0.45)	MADE GROUND: (Dark grey and black sandy slightly gravelly clay with rare fragments of brick).	
				93.66		1.20	Dark grey and black mottled silty CLAY with rare gravel and fragments of peat.	
						(0.71)	1.55 ...fragments of wood	
				92.95		1.91	1.78 ...light brown sand	
1.40	D	1,2/2,3,3,3 N60 = 15		92.86		2.00	Dark grey and black mottled fibrous PEAT.	
							Light brown and dark grey mottled fine to medium SAND.	
						(2.00)		
				90.86		4.00	No recovery. Continous CPT undertaken to a depth of 5.35 m.	
2.50	D	0,2/1,2,2,1 N60 = 8						
3.50	D	2,2/2,2,1,1 N60 = 8						
		2,2/2,3,3,3 N60 = 15						
		2,1/2,2,3,2 N60 = 12						
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								
								



Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH104
Job No J23254A	Date 19-06-24 19-06-24	Ground Level (m OD) 94.98	Co-Ordinates () E 381,285.0 N 404,240.0	
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1

SAMPLES & TESTS			STRATA				Instrument / Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
0.22	ES			94.91		0.07	MADE GROUND: (Black asphalt).
				94.76		0.22	MADE GROUND: (Dark grey slightly sandy gravel with fragments of concrete and asphalt).
0.71	ES					(0.49)	MADE GROUND: (Dark grey and black gravelly sand with fragments of brick, concrete, ceramic, clinker and asphalt).
				94.27		0.71	Dark brown fibrous PEAT.
1.50	D	0,0/0,0,0,0 N60 = 0				(1.05)	
2.80	D	2,2/2,2,2,2 N60 = 11					
				93.22		1.76	Dark grey mottled dark brown fine and medium SAND.
				90.98		4.00	No recovery. Continous CPT undertaken to a depth of 5.35 m.
				89.63		5.35	

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Groundwater encountered as slow seepage at a depth of 2.00 m. 4. Borehole terminated at 4.00 m depth due to borehole collapsing and continued with a continous CPT to a depth of 5.35 m. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By JSwindells
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH105	
Job No J23254A	Date 20-06-24 20-06-24	Ground Level (m OD) 95.62	Co-Ordinates () E 381,261.0 N 404,264.0		
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1	

SAMPLES & TESTS			STRATA				Instrument / Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
0.60	ES1			95.48		0.14	MADE GROUND: (Black asphalt).
				95.32		0.30	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).
				95.12		0.50	MADE GROUND: (Grey concrete).
1.00-1.20	D2	0,0/0,0,0,1 N60 = 1		94.42		(0.70)	MADE GROUND: (Dark grey and dark brown mottled very clayey sandy gravel with fragments of brick, ash, clinker, ceramic and plastic).
1.30-1.50	D4						1.00 - 1.20 occasional pockets of dark grey peaty clay.
1.50-2.00	ES3					(0.95)	Dark brownish grey pseudofibrous PEAT.
2.60-2.80	D5	0,0/0,0,1,1 N60 = 3				93.47	2.15
						93.27	2.35
						93.02	2.60
3.70-4.00	D6	2,3/3,4,4,5 N60 = 21				(1.40)	Dark brownish grey pseudofibrous PEAT. Medium dense greyish brown silty SAND.
						91.62	4.00
						(1.35)	No recovery. Continous CPT undertaken to a depth of 5.35 m.
		4,4/4,3,4,5 N60 = 21					
		5,6/7,7,5,7 N60 = 34					
				90.27		5.35	

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Groundwater encountered at a depth of 3.00 m. 4. Borehole terminated at 4.00 m depth due to borehole collapsing and continued with a continous CPT to a depth of 5.35 m. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By LMontgomery
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH106	
Job No J23254A	Date 20-06-24 20-06-24	Ground Level (m OD) 95.60	Co-Ordinates () E 381,274.0 N 404,266.0		
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1	

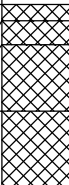
SAMPLES & TESTS			STRATA				Instrument / Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	
0.60	ES1			95.51		0.09	MADE GROUND: (Black asphalt).
				95.35		0.25	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).
						(0.74)	MADE GROUND: (Dark grey very sandy silty gravel with fragments of brick, ash, clinker, metal, plastic, sandstone and asphalt and a slightly organic odour). 0.65 fragments of geotextile membrane.
				94.61		0.99	
				94.60		1.00	MADE GROUND: (Grey concrete).

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.00 m. 3. Groundwater encountered at a depth of 1.00 m. 4. Borehole terminated at 1.00 m depth due to the presence of a flat concrete obstruction. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By LMontgomery
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH107
Job No J23254A	Date 20-06-24 20-06-24	Ground Level (m OD) 96.20	Co-Ordinates () E 381,252.0 N 404,279.0	
Client The Prestwich Regeneration LLP		Engineer Civic Engineers	Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Instrument / Backfill	
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)		DESCRIPTION
				96.12		0.08	MADE GROUND: (Black asphalt).	
				96.00		0.20	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).	
				95.67		(0.33) 0.53	MADE GROUND: (Dark grey and brownish grey mottled very sandy silty gravel with fragments of brick, ash and clinker).	
				95.28		(0.39) 0.92	MADE GROUND: (Orange-brown, brown and grey mottled silty sand with rare fragments of brick and sandstone).	
				95.27		0.93	MADE GROUND: (Grey hollow obstruction).	

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 0.93 m. 3. Groundwater not encountered. 4. Borehole terminated at 0.93 m depth due to the presence of a hollow concrete obstruction. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used	Open-drive Sampler - Dando Terrier	Logged By LMontgomery
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH107A	
Job No J23254A	Date 20-06-24 20-06-24	Ground Level (m OD) 96.20	Co-Ordinates () E 381,251.0 N 404,279.0		
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1	

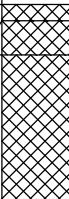
SAMPLES & TESTS			STRATA				
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION
0.80	ES1			96.12		0.08	MADE GROUND: (Black asphalt).
				96.00		0.20	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).
				95.82		0.38	MADE GROUND: (Dark grey and brownish grey mottled very sandy silty gravel with fragments of brick, ash and clinker).
						(0.54)	MADE GROUND: (Orange-brown, brown and grey mottled silty sand with rare fragments of brick and sandstone).
				95.28		0.92	MADE GROUND: (Grey hollow obstruction).
				95.27		0.93	

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 0.93 m. 3. Groundwater not encountered. 4. Borehole terminated at 0.93 m depth due to the presence of a hollow concrete obstruction. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By LMontgomery
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH108
Job No J23254A	Date 20-06-24 20-06-24	Ground Level (m OD) 96.24	Co-Ordinates () E 381,263.0 N 404,282.0	
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA			Instrument / Backfill	
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)		DESCRIPTION
0.40	ES1			96.16		0.08	MADE GROUND: (Black asphalt).	
				95.99		0.25	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).	
						(0.72)	MADE GROUND: (Brown very gravelly silty sand with fragments of sandstone, brick, ash, clinker and asphalt).	
				95.27		0.97		
				95.26		0.98	MADE GROUND: (Grey concrete).	

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 0.98 m. 3. Groundwater not encountered. 4. Borehole terminated at 0.98 m depth due to the presence of a flat concrete obstruction. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

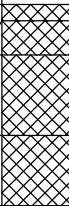
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT						BOREHOLE No BH108A	
Job No J23254A		Date 20-06-24 20-06-24		Ground Level (m OD) 96.24		Co-Ordinates () E 381,265.0 N 404,283.0	
Client The Prestwich Regeneration LLP				Engineer Civic Engineers		Sheet 1 of 1	
SAMPLES & TESTS			STRATA				
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION
0.60	ES1			96.16		0.08	MADE GROUND: (Black asphalt).
				95.99		0.25	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).
				95.64		(0.35)	MADE GROUND: (Brown very gravelly silty sand with fragments of sandstone, brick, ash, clinker and asphalt). fragments of possible asbestos containing material.
						0.60	
Boring Progress and Water Observations				GENERAL REMARKS			
Depth	Date	Time	Casing Depth	Dia. mm	Water Depth		
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 0.60 m. 3. Groundwater not encountered. 4. Borehole terminated at 0.60 m depth due to the presence of possible asbestos containing material. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.	
All dimensions in metres Scale 1:37.5			Method/ Plant Used Open-drive Sampler - Dando Terrier				Logged By LMontgomery



Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH108B
Job No J23254A	Date 20-06-24 20-06-24	Ground Level (m OD) 96.26	Co-Ordinates () E 381,269.0 N 404,285.0	
Client The Prestwich Regeneration LLP		Engineer Civic Engineers	Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA			Instrument / Backfill	
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)		DESCRIPTION
				96.18		0.08	MADE GROUND: (Black asphalt).	
				96.01		0.25	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).	
						(0.40)	MADE GROUND: (Brown very gravelly silty sand with cobbles and boulders of brick and concrete).	
				95.61		0.65	MADE GROUND: (Brown very gravelly silty sand with fragments of sandstone, brick, ash, clinker and asphalt).	
				95.26		1.00		
				95.25		1.01	MADE GROUND: (Grey concrete).	

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.01 m. 3. Groundwater not encountered. 4. Borehole terminated at 1.01 m depth due to the presence of a flat concrete obstruction. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

Report ID: CABLE PERCUSSION | Project: J23254A - PRESTWICH NORTH CAR PARK.GPJ | Library: GEA LIBRARY.GLB | Date: 17 July 2024



Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH109
Job No J23254A	Date 21-06-24 21-06-24	Ground Level (m OD) 96.35	Co-Ordinates () E 381,247.0 N 404,294.0	
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill					
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION						
0.50	ES1	0,1/1,2,2,2 N60 = 9		96.30		0.05	MADE GROUND: (Black asphalt).						
				96.15		0.20	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).						
				95.70		0.65	(0.45)		MADE GROUND: (Brown mottled dark grey very silty gravelly sand with fragments of brick, ash, clinker and sandstone and occasional pockets of peaty clay).				
							(0.55)		MADE GROUND: (Greyish brown slightly gravelly sandy silt with fragments of concrete and sandstone).				
95.15	1.20			(0.40)		MADE GROUND: (Brownish grey mottled greenish grey and reddish brown slightly sandy gravelly silty clay with fragments of sandstone).							
94.75	1.60					Orange-brown silty SAND.							
1.30-1.50	D2			2,2/3,2,3,2 N60 = 13			(0.70)		2.30	Brown slightly gravelly sandy SILT with pockets of orange-brown brown and brown sand.			
1.80-2.00	D3										93.35	3.00	Greyish brown silty locally very silty SAND.
2.80-3.00	D4												
											3.60-4.00	D5	(1.00)
1,1/2,2,2,4 N60 = 13	91.00	5.35											
5,6/6,6,6,5 N60 = 30													
5,6/7,8,8,8 N60 = 41													

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Groundwater encountered at a depth of 2.00 m. 4. Borehole terminated at 4.00 m depth due to borehole collapsing and continued with a continous CPT to a depth of 5.35 m. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By LMontgomery
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Project Prestwich Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				BOREHOLE No BH110	
Job No J23254A	Date 21-06-24 21-06-24	Ground Level (m OD) 96.29	Co-Ordinates () E 381,260.0 N 404,298.0		
Client The Prestwich Regeneration LLP		Engineer Civic Engineers		Sheet 1 of 1	

SAMPLES & TESTS			Water	STRATA				Instrument / Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thickness)	DESCRIPTION	
0.80 1.00 1.40-1.60 1.80-2.00 2.30-2.50 2.70-2.90 3.70-4.00	D1	0,0/0,0,0,2 N60 = 3	1	96.21		0.08	MADE GROUND: (Black asphalt).	
	ES2			96.13		0.16	MADE GROUND: (Dark grey slightly sandy gravel with fragments of sandstone and asphalt).	
				95.99		0.30	MADE GROUND: (Grey concrete with brick fragments). 0.22 5 mm diameter metal reinforcement bar.	
	D3			95.79		0.50	MADE GROUND: (Dark brown and grey mottled sandy organic silt with frequent roots and rootlets).	
				D4		1,1/1,1,1,2 N60 = 7		
	95.09	1.20			Soft grey mottled light grey and orange-brown silty CLAY with pockets of orange fine to medium sand.			
	D5	0,1/2,3,2,3 N60 = 13			(0.45)	Orange-brown silty SAND.		
					94.64		1.65	
	D6	4,3/4,5,8,9 N60 = 34			(0.65)	Greyish brown silty SAND with fragments of decaying plant matter.		
					93.99		2.30	
	D7	10,11/11,11,11,10 N60 = 57			(0.30)	Greyish brown slightly silty SAND.		
					93.69		2.60	
		9,10/11,12,13,14 N60 = 66			(0.80)	Greyish brown very gravelly silty SAND. Gravel is angular to subrounded of quartzite, sandstone and mudstone.		
					92.89		3.40	
					(0.60)	No recovery. Continous CPT undertaken to a depth of 5.35 m.		
			92.29	4.00				
					(1.35)			
					5.35			

Boring Progress and Water Observations						GENERAL REMARKS
Depth	Date	Time	Casing Depth	Casing Dia. mm	Water Depth	
						1. Position scanned with CAT and Genny prior to excavation. 2. Inspection pit hand dug to a depth of 1.20 m. 3. Groundwater encountered at a depth of 2.00 m. 4. Borehole terminated at 4.00 m depth due to borehole collapsing and continued with a continuous CPT to a depth of 5.35 m. 5. Borehole backfilled with arisings and reinstated with cold-lay asphalt upon completion.

All dimensions in metres Scale 1:37.5	Method/ Plant Used Open-drive Sampler - Dando Terrier	Logged By LMontgomery
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Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT

Client The Prestwich Regeneration LLP

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BH101 - Run 1 - 1.20 m to 2.00 m



BH101 - Run 2 - 2.00 m to 3.00 m





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No photograph available

BH101 - Run 3 - 3.00 m to 4.00 m





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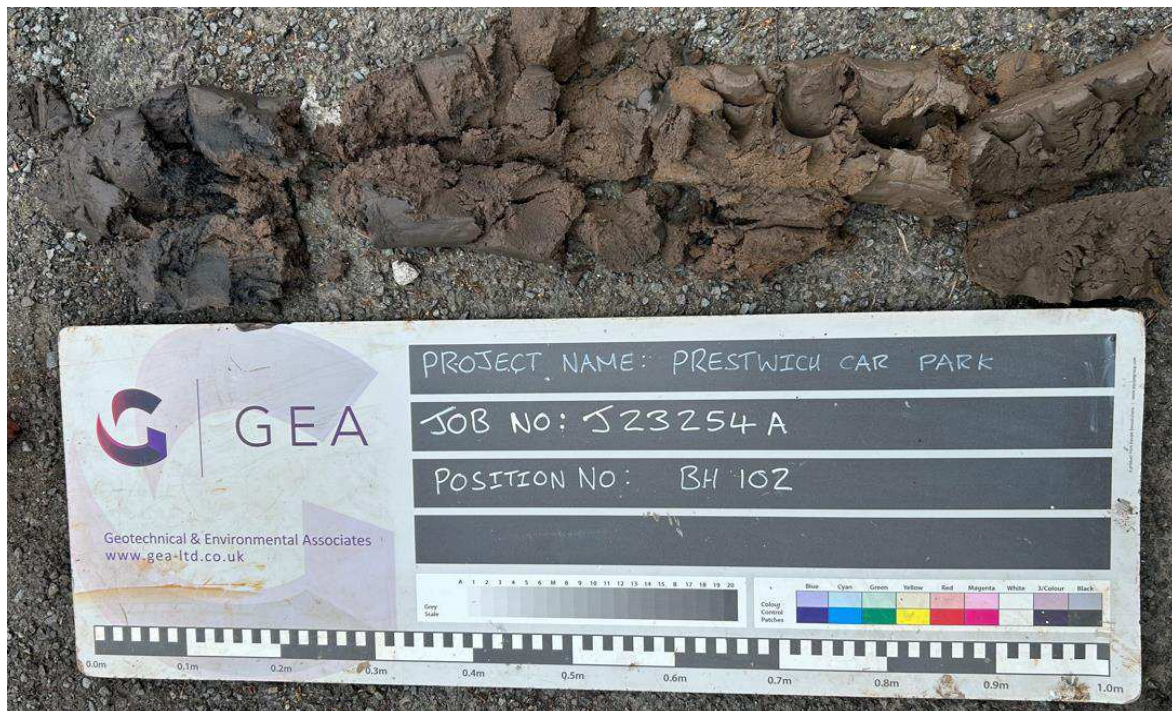
Engineer Civic Engineers

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BH102 - Run 1 - 1.20 m to 2.00 m



BH102 - Run 2 - 2.00 m to 3.00 m





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BH102 - Run 3 - 3.00 m to 4.00 m





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BH103 - Run 1 - 1.20 m to 2.00 m



BH103 - Run 2 - 2.00 m to 3.00 m





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BH103 - Run 3 - 3.00 m to 4.00 m





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BH104 - Run 1 - 1.20 m to 2.00 m



BH104 - Run 2 - 2.00 m to 3.00 m





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BH104 - Run 3 - 3.00 m to 4.00 m





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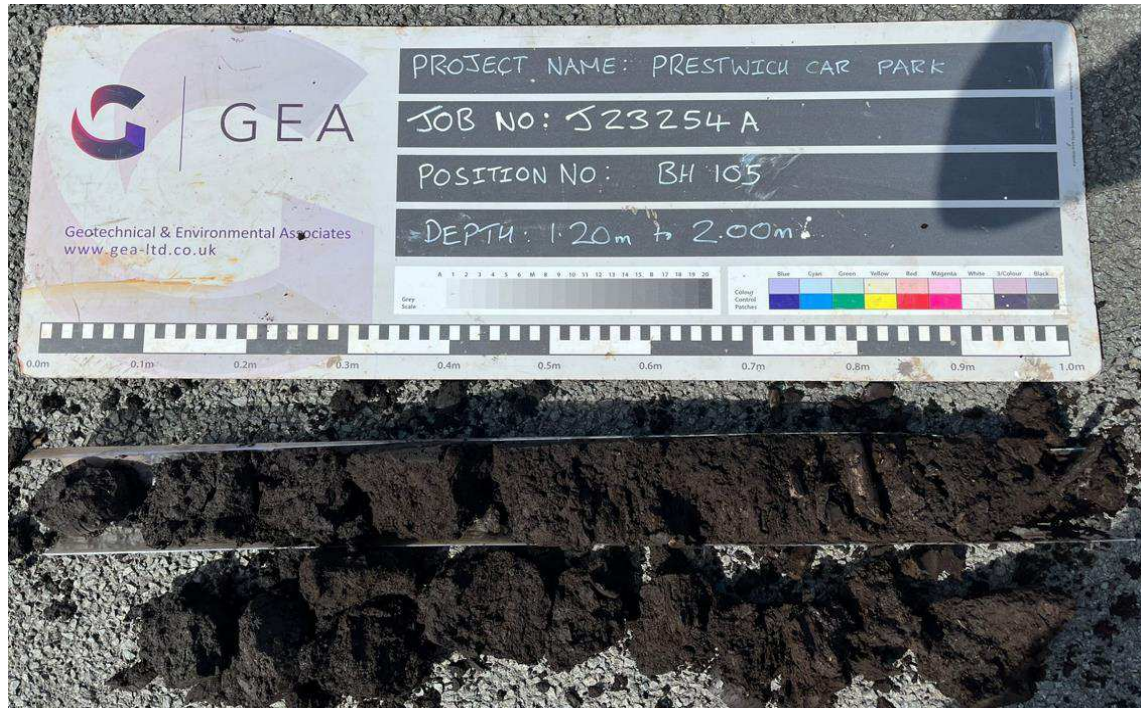
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BH105 - Run 1 - 1.20 m to 2.00 m



BH105 - Run 2 - 2.00 m to 3.00 m





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BH105 - Run 3 - 3.00 m to 4.00 m





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BH106 - terminated at a depth of 1.05 m on concrete obstruction



BH106 - perched water sitting on obstruction





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BH107 - terminated at a depth of 0.93 m on concrete obstruction



BH107 - Closer view of obstruction





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BH107A - terminated at a depth of 0.93 m on concrete obstruction



BH107A - Closer view of obstruction





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Engineer Civic Engineers



BH108 - terminated at a depth of 0.98 m on concrete obstruction



BH108A - terminated at a depth of 0.60 m due to the possible presence of asbestos





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BH108B - terminated at a depth of 1.01 m on concrete obstruction





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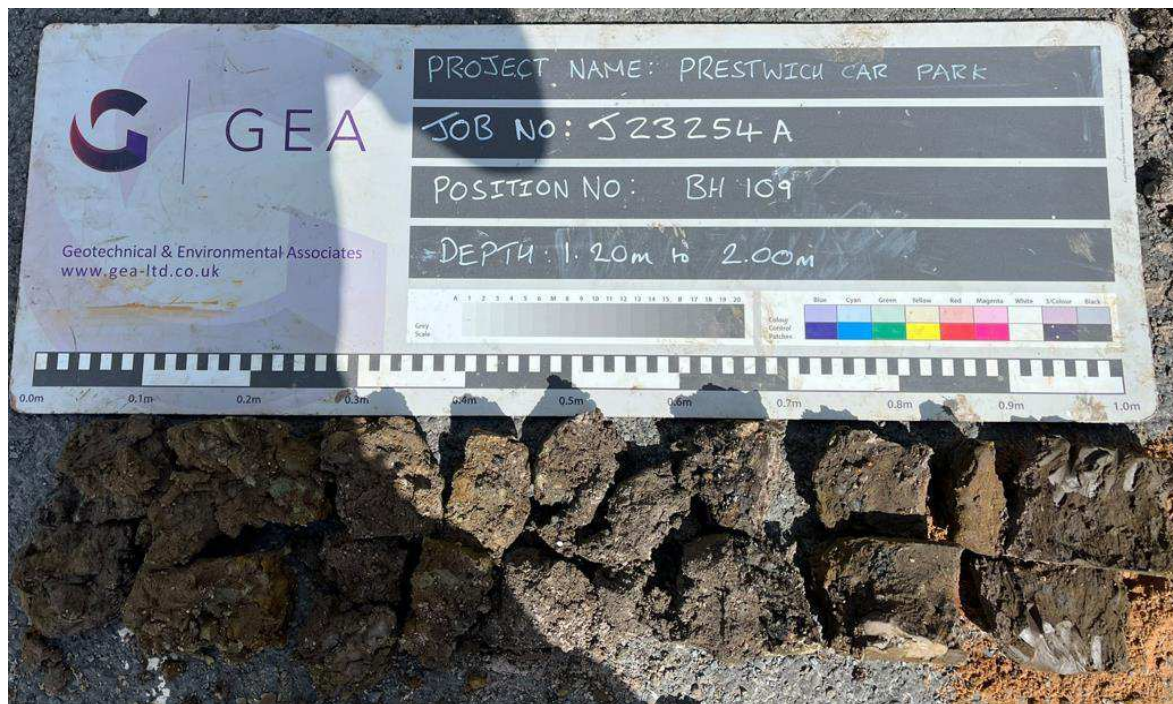
Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT

Client The Prestwich Regeneration LLP

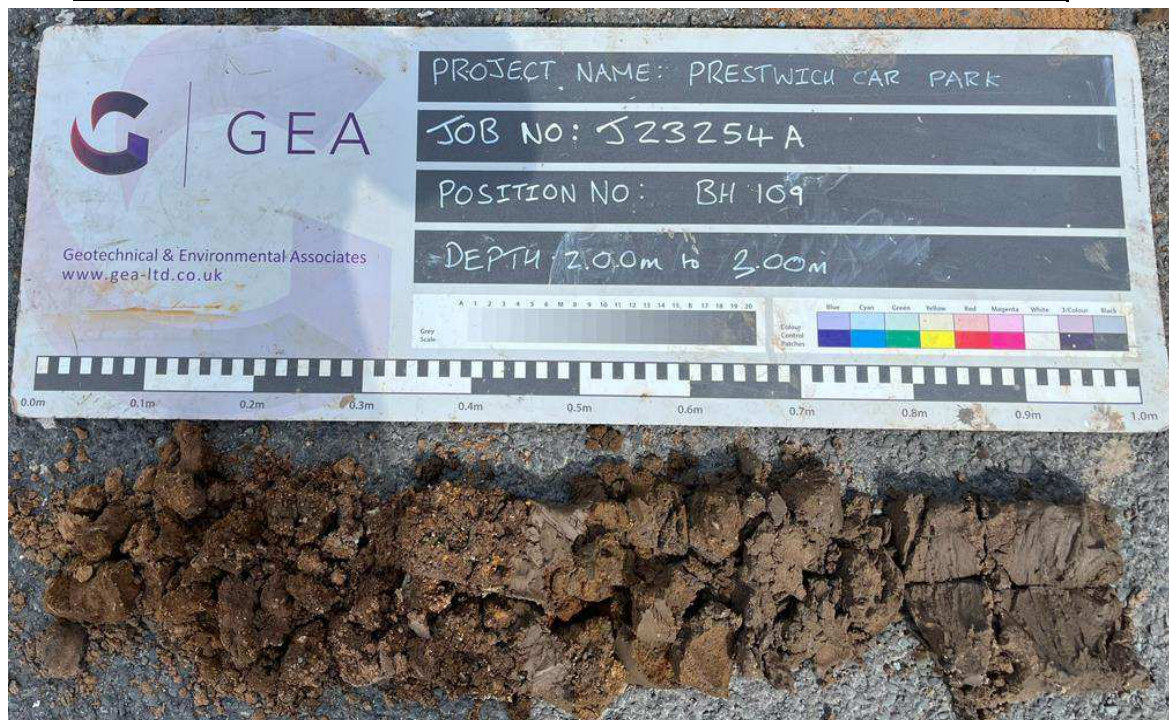
Engineer Civic Engineers

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BH109 - Run 1 - 1.20 m to 2.00 m



BH109 - Run 2 - 2.00 m to 3.00 m





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BH109 - Run 3 - 3.00 m to 4.00 m





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BH110 - Run 1 - 1.20 m to 2.00 m



BH110 - Run 2 - 2.00 m to 3.00 m





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Engineer Civic Engineers

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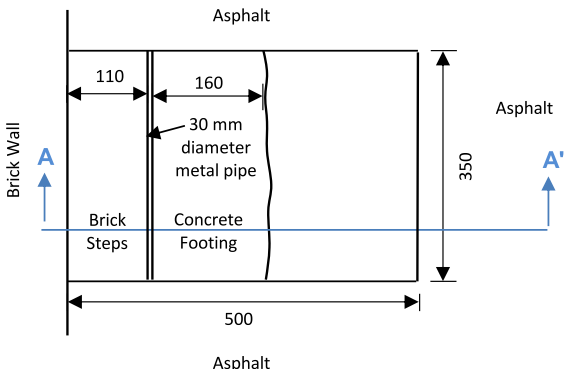


BH110 - Run 3 - 3.00 m to 4.00 m

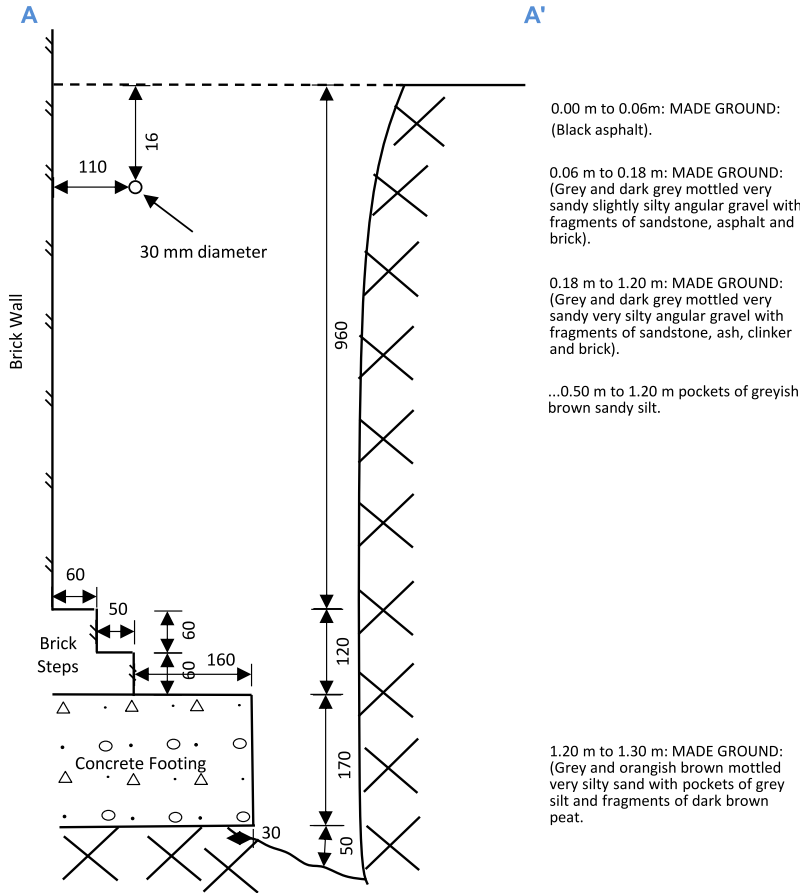


		www.gea-ltd.co.uk	Trial Pit No 101
Geotechnical and Environmental Associates			Job Number J23254A
Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT			Sheet 1 / 6
Client The Prestwich Regeneration LLP			Date 24/06/2024
Engineer Civic Engineers			
Excavation Method Breaker and Hand Tools	Dimensions 500 x 350 x 1300	Ground Level (mOD) 94.38	Location Located against the western wall within the southern part of the site

Plan: -



Section A - A': -



0.00 m to 0.06m: MADE GROUND:
(Black asphalt).

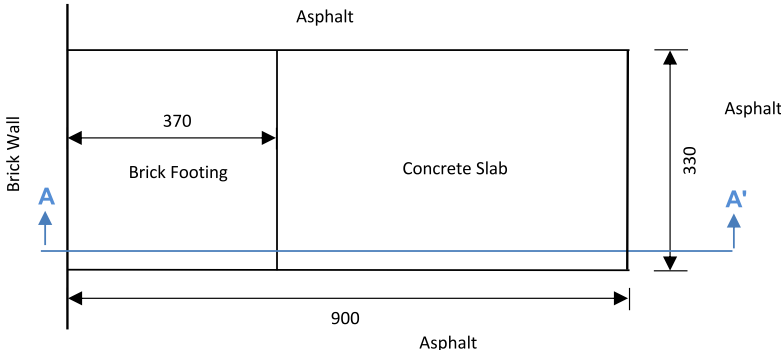
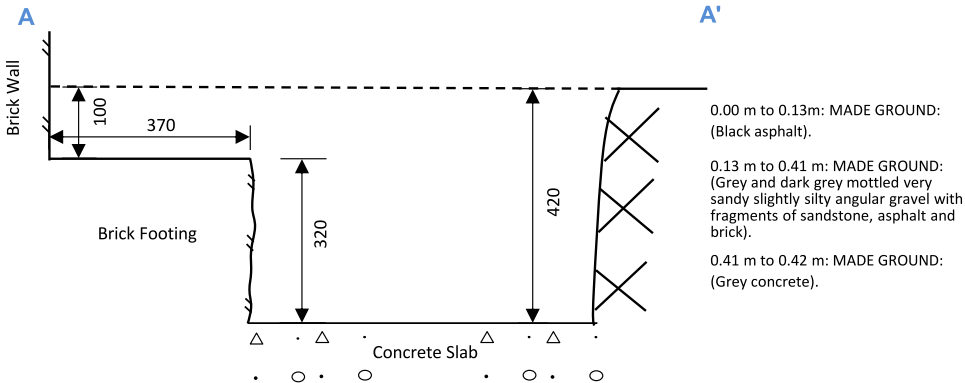
0.06 m to 0.18 m: MADE GROUND:
(Grey and dark grey mottled very sandy slightly silty angular gravel with fragments of sandstone, asphalt and brick).

0.18 m to 1.20 m: MADE GROUND:
(Grey and dark grey mottled very sandy very silty angular gravel with fragments of sandstone, ash, clinker and brick).

...0.50 m to 1.20 m pockets of greyish brown sandy silt.

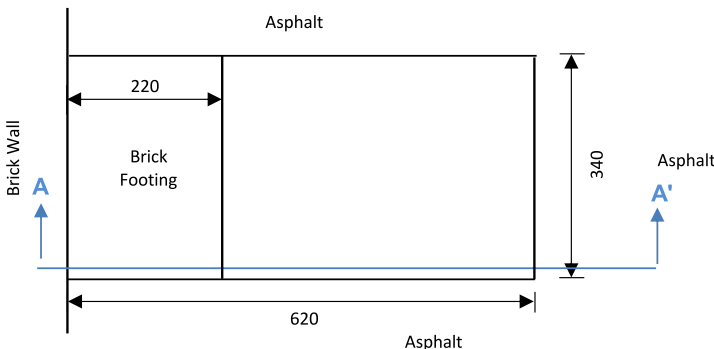
1.20 m to 1.30 m: MADE GROUND:
(Grey and orangish brown mottled very silty sand with pockets of grey silt and fragments of dark brown peat).

Remarks:		Scale: 1:15
1. All dimensions in millimetres		Logged by: LM
2. All sides of trial pit remained stable during excavation		
3. Groundwater not encountered		
4. Trial pit reinstated with cold-lay asphalt on completion.		

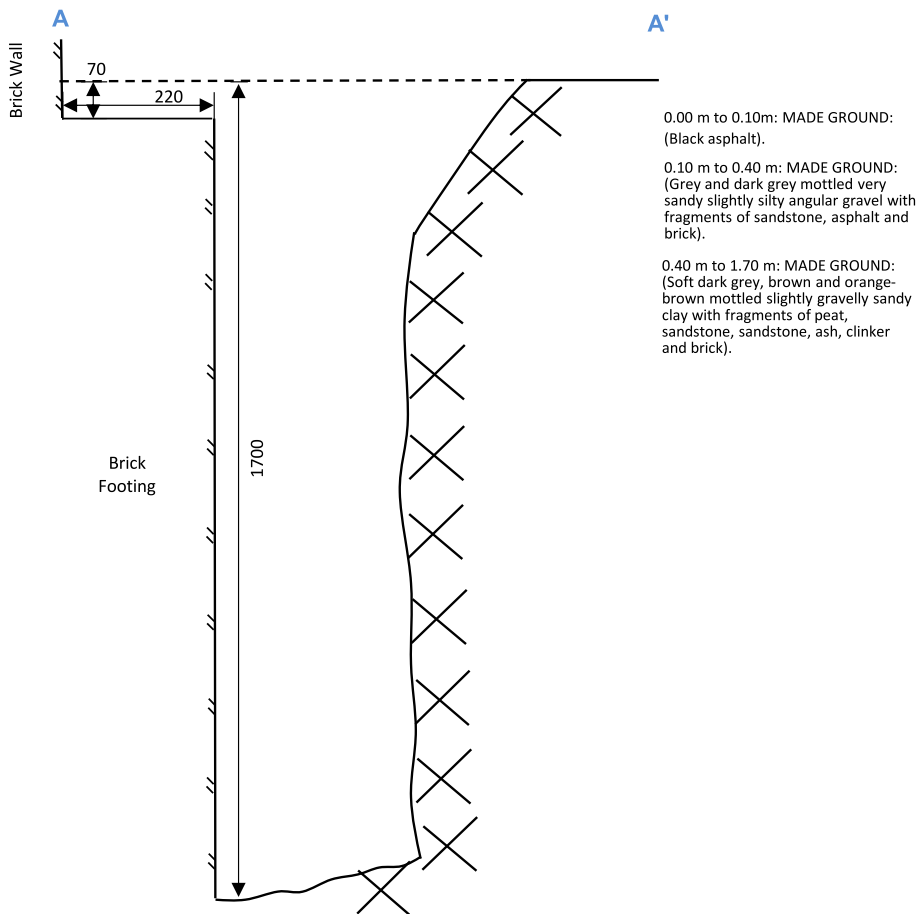
 www.gea-ltd.co.uk Geotechnical and Environmental Associates			Trial Pit No 102
Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT			Job Number J23254A
Client The Prestwich Regeneration LLP			Sheet 2 / 6
Engineer Civic Engineers			Date 24/06/2024
Excavation Method Breaker and Hand Tools	Dimensions 500 x 350 x 420	Ground Level (mOD) 94.81	Location Located against the western wall within the central part of the site
Plan: - 			
Section A - A': -  0.00 m to 0.13m: MADE GROUND: (Black asphalt). 0.13 m to 0.41 m: MADE GROUND: (Grey and dark grey mottled very sandy slightly silty angular gravel with fragments of sandstone, asphalt and brick). 0.41 m to 0.42 m: MADE GROUND: (Grey concrete).			
Remarks: 1. All dimensions in millimetres 2. All sides of trial pit remained stable during excavation 3. Groundwater not encountered 4. Trial pit reinstated with cold-lay asphalt on completion.			Scale: 1:15 Logged by: LM

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Geotechnical and Environmental Associates				103
Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				Job Number
Client The Prestwich Regeneration LLP				J23254A
Engineer Civic Engineers				Sheet
				3 / 6
				Date
				24/06/2024
Excavation Method	Dimensions	Ground Level (mOD)	Location	
Breaker and Hand Tools	620 x 340 x 1700	95.85	Located against the western wall within the southern part of the site	

Plan: -



Section A - A': -



0.00 m to 0.10m: MADE GROUND:
(Black asphalt).

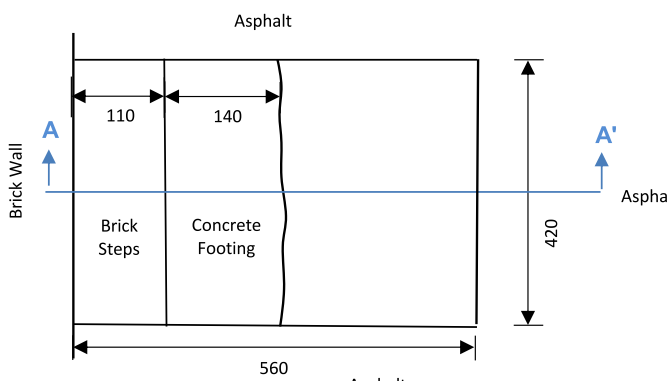
0.10 m to 0.40 m: MADE GROUND:
(Grey and dark grey mottled very sandy slightly silty angular gravel with fragments of sandstone, asphalt and brick).

0.40 m to 1.70 m: MADE GROUND:
(Soft dark grey, brown and orange-brown mottled slightly gravelly sandy clay with fragments of peat, sandstone, sandstone, ash, clinker and brick).

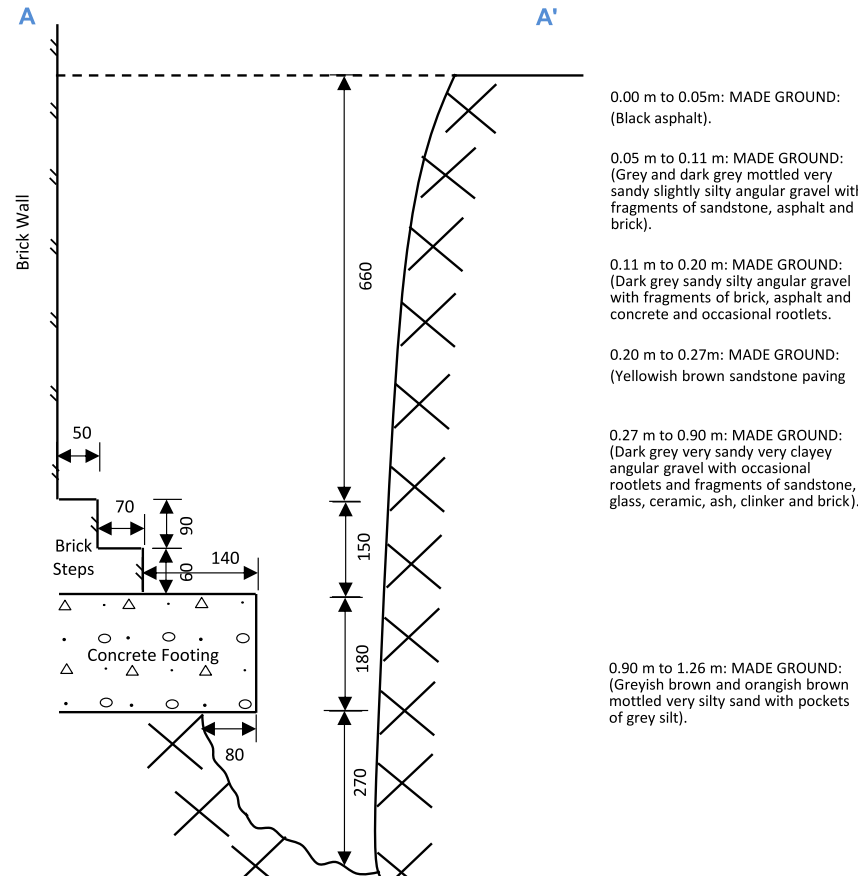
Remarks:		Scale:
1. All dimensions in millimetres	4. Trial pit reinstated with cold-lay asphalt on completion.	1:15
2. All sides of trial pit remained stable during excavation		Logged by:
3. Groundwater not encountered		LM

			www.gea-ltd.co.uk Geotechnical and Environmental Associates	Trial Pit No 104
Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				Job Number J23254A
Client The Prestwich Regeneration LLP				Sheet 4 / 6
Engineer Civic Engineers				Date 25/06/2024
Excavation Method Breaker and Hand Tools	Dimensions 560 x 420 x 1260	Ground Level (mOD) 96.11	Location Located against the western wall within the central part of the site	

Plan: -



Section A - A': -



0.00 m to 0.05m: MADE GROUND:
(Black asphalt).

0.05 m to 0.11 m: MADE GROUND:
(Grey and dark grey mottled very sandy slightly silty angular gravel with fragments of sandstone, asphalt and brick).

0.11 m to 0.20 m: MADE GROUND:
(Dark grey sandy silty angular gravel with fragments of brick, asphalt and concrete and occasional rootlets).

0.20 m to 0.27m: MADE GROUND:
(Yellowish brown sandstone paving

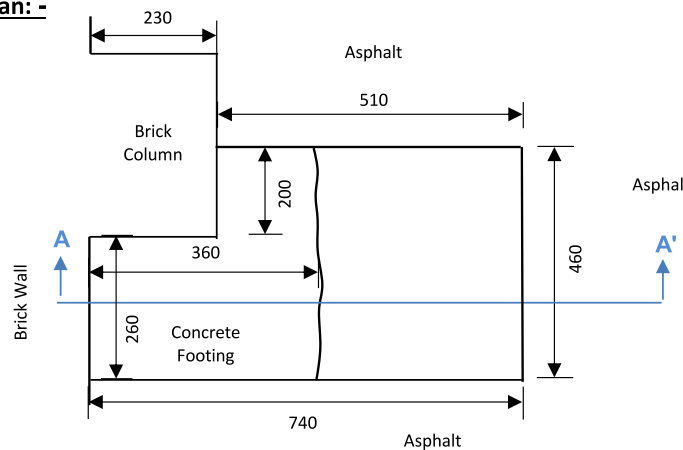
0.27 m to 0.90 m: MADE GROUND:
(Dark grey very sandy very clayey angular gravel with occasional rootlets and fragments of sandstone, glass, ceramic, ash, clinker and brick).

0.90 m to 1.26 m: MADE GROUND:
(Greyish brown and orangish brown mottled very silty sand with pockets of grey silt).

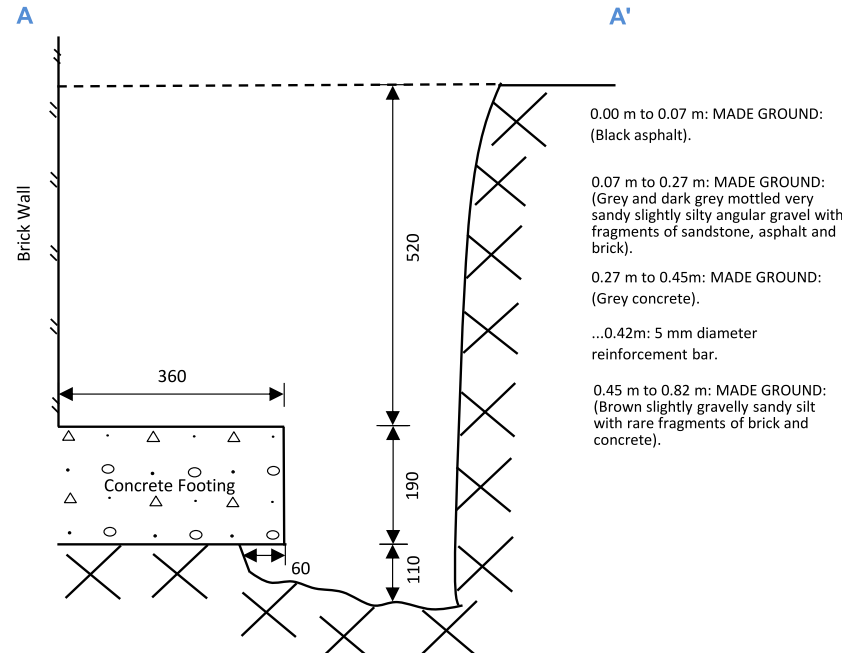
Remarks:		Scale: 1:15
1. All dimensions in millimetres		Logged by: LM
2. All sides of trial pit remained stable during excavation		
3. Groundwater not encountered		
4. Trial pit reinstated with cold-lay asphalt on completion.		

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Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				Job Number J23254A
Client The Prestwich Regeneration LLP				Sheet 5 / 6
Engineer Civic Engineers				Date 25/06/2024
Excavation Method Breaker and Hand Tools	Dimensions 740 x 460 x 820	Ground Level (mOD) 96.74	Location Located against the western wall within the northwestern part of the site	

Plan: -



Section A - A': -



0.00 m to 0.07 m: MADE GROUND:
(Black asphalt).

0.07 m to 0.27 m: MADE GROUND:
(Grey and dark grey mottled very sandy slightly silty angular gravel with fragments of sandstone, asphalt and brick).

0.27 m to 0.45m: MADE GROUND:
(Grey concrete).

...0.42m: 5 mm diameter reinforcement bar.

0.45 m to 0.82 m: MADE GROUND:
(Brown slightly gravelly sandy silt with rare fragments of brick and concrete).

Remarks:

1. All dimensions in millimetres

2. All sides of trial pit remained stable during excavation

3. Groundwater not encountered

4. Trial pit reinstated with cold-lay asphalt on completion.

Scale:

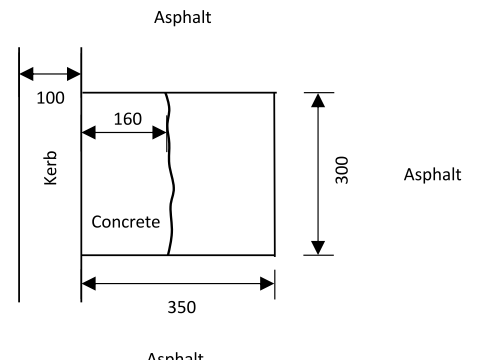
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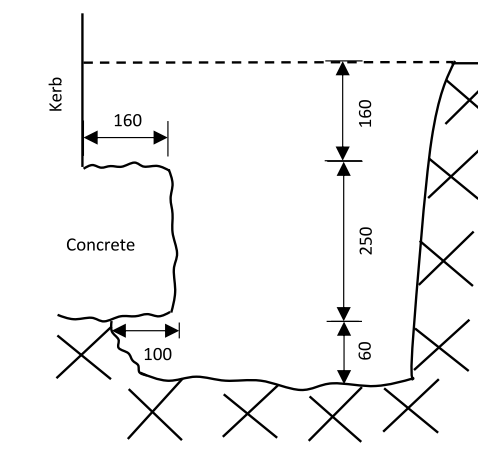
LM

		www.gea-ltd.co.uk		Trial Pit No	
		Geotechnical and Environmental Associates		106	
Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT				Job Number J23254A	
Client The Prestwich Regeneration LLP				Sheet 6 / 6	
Engineer Civic Engineers				Date 25/06/2024	
Excavation Method Breaker and Hand Tools		Dimensions 350 x 300 x 570	Ground Level (mOD) 96.5	Location Located against the wooden fence within the northern part of the site	

Plan: -



Section A - A': -



0.00 m to 0.15 m: MADE GROUND:
(Black asphalt).

0.15 m to 0.22 m: MADE GROUND:
(Grey and dark grey mottled very sandy slightly silty angular gravel with fragments of sandstone, asphalt and brick).

0.22 m to 0.57m: MADE GROUND:
(Dark grey slightly gravelly sandy silt with fragments of brick, ash, clinker and concrete).

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Remarks:				Scale:	
1. All dimensions in millimetres				1:15	
2. All sides of trial pit remained stable during excavation				Logged by:	
3. Groundwater not encountered				LM	
4. Trial pit reinstated with cold-lay asphalt on completion.					



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Foundation Trial Pit Photographs

Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT

Client The Prestwich Regeneration LLP

Engineer Civic Engineers

Job Number
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TP101 - Proposed location too close to telegraph pole to allow access. Position moved approximately 2.00 m north along the wall.



TP101 - Prior to excavation looking southwest.





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**Foundation Trial Pit
Photographs**

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Client The Prestwich Regeneration LLP

Engineer Civic Engineers

Job Number
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TP101 - Excavation to a depth of 1.30 m looking southwest



TP101 - Excavation to a depth of 1.30 m looking northwest





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**Foundation Trial Pit
Photographs**

Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT

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TP101 - Metal pipe encountered at a depth 0.16 m running parallel with the wall.



TP101 - Closer view of foundation





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Foundation Trial Pit
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Site Prestwich North Car Park, Fairfax Road, Prestwich, Manchester, M25 1BT

Client The Prestwich Regeneration LLP

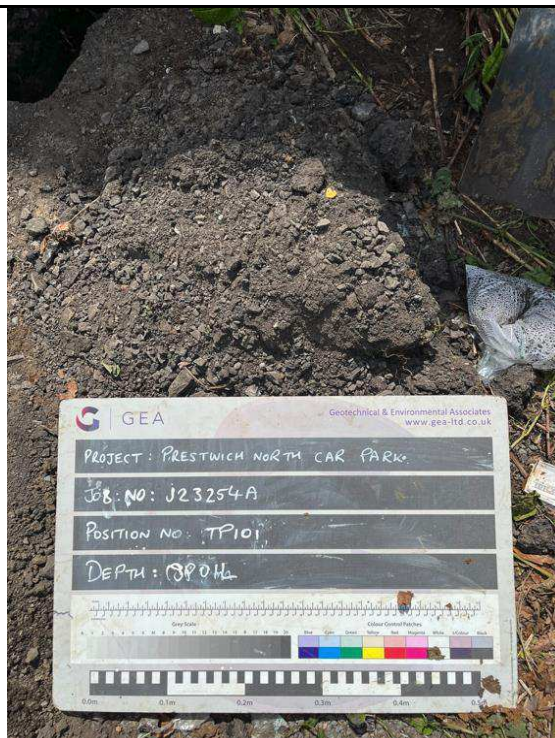
Engineer Civic Engineers

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TP101 - Spoil



TP101 - Spoil





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TP101 - Reinstated





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TP102 - Prior to excavation looking southwest.



TP102 - Excavation to a depth of 0.48 m looking southwest.





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TP102 - Excavation to a depth of 0.48 m looking northeast.



TP102 - View of footing





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TP102 - Closer view of concrete slab



TP102 - Spoil





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TP102 - Reinstated

