

LAND AT WYTHENSHAW TOWN TC, TIMPSON ROAD, WYTHENSHAW

Site Investigation & Ground Assessment





GEO-ENVIRONMENTAL CONSULTING

Project Quality Assurance Information Sheet

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GEO-ENVIRONMENTAL CONSULTING

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Site Investigation & Ground Assessment

PROJECT NO: 24072

REPORT REF: BEK-24072-2 Rev A

DATE: September 2024

REVISION STATUS / HISTORY

Rev	Date	Issue / Comment	Prepared	Checked
A	26/09/24	Update proposed development layout	MLM	MB

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1. INTRODUCTION

1.1 Appointment

1.1.1 BEK Enviro (BEK) has been commissioned by Padel and Pickle Ltd to carry out a site investigation for a parcel of land located at land located at Wythenshawe Town FC located off Timpson Road, Wythenshawe, Manchester, M23 9LL (hereafter referred to as 'the site'). The investigation will inform a quantitative risk assessment with respect to contamination at the site to support the proposed development, and provide recommendations for foundation design.

1.1.2 The site location and site layout are presented on BEK Drawing No 24072-1 and BEK Drawing No 24072-2, respectively. Copies of these drawings are presented in Appendix G.

1.2 Proposed Development

1.2.1 This report has been prepared to support a planning application for the construction of additional sports and leisure facilities comprising 1 x 5 a-side football pitch, 2 x tennis courts/multi-use courts, 6 x doubles padel courts, 1 x singles padel court and 5 x shipping container buildings (40ft), along with associated car parking, access and soft-landscaped areas at the site located to the south of Timpson Road, Wythenshawe

1.2.1 The proposed development is illustrated on LMP Architects Limited drawing entitled 'Proposed Site Layout' (Drawing No: 24/019/P01, dated 20/09/24), a copy of which is presented in Appendix G.

1.3 Objective & Scope of Work

1.3.1 The site investigation was undertaken by BEK during June 2024 in accordance with the recommendations detailed in the BEK Preliminary Risk Assessment (PRA) (Report Ref: 24072-1, dated June 2024).

1.3.2 This report has been prepared to provide a summary of the site details and ground conditions encountered as well as a quantitative assessment of the potential pollutant linkages identified within the PRA.

1.3.3 The PRA should be read in conjunction with this report.

1.4 Limitations

- 1.4.1 The conclusions and recommendations presented in this report are the result of our professional interpretation of the information currently available. BEK reserve the right to amend the conclusions and recommendations if further information becomes available.
- 1.4.2 However, it should be noted that much of the information has been derived from reports written by others and BEK takes no responsibility for the accuracy of that information. Notwithstanding the above, the reports reviewed have all been written by professional environmental consultants with a duty of care to provide relevant and accurate information.
- 1.4.3 The comments given in this report and the opinions expressed are based on review of reports provided to BEK, ground conditions encountered during site works and the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigations and therefore could not be taken into account.
- 1.4.4 Issues associated with invasive plant species are outside the remit of this report.

2. BACKGROUND INFORMATION

2.0.1 This section provides an overview of the findings and recommendations presented in the PRA which is summarised below.

2.1 Site Location, Layout & History

2.1.1 The site is located off Timpson Road and to the south of Wythenshawe Town FC within a mixed commercial and residential area of Wythenshawe, Manchester. The National Grid Reference for the site is SJ 80152 89181. The site occupies an area approximately 8100 m².

2.1.2 The site comprises an irregularly shaped plot of land which is largely occupied by the well-kempt grass of an existing football pitch. The northern, eastern and western peripheries of the site are lined with green metal mesh fencing, whilst the southern periphery of the site which borders a railway line is lined with steel palisade fencing. The entrance to the site was off Timpson Road via a gate in the north-east of the site

2.1.3 The site comprises an irregularly shaped plot of land of approximately 8100 m² which is largely occupied by the well-kempt grass of an existing football pitch. The northern, eastern and western peripheries of the site are lined with green metal mesh fencing, whilst the southern periphery of the site which borders a railway line is lined with steel palisade fencing.

2.1.4 An area of hardstanding tarmacadam off Timpson Road is present in the north-east of the site and was used as a car washing area at the time of visit. A portakabin type building was located to the south of this hardstanding area, with a shipping container present to the south of the portakabin building. The area around the shipping container and portakabin building was largely overgrown with vegetation and contained miscellaneous waste (possible fly tipping) including bricks, wood, plastic containers and bin bags.

2.1.5 A L-shaped building likely relating to the football pitch was present in the south-eastern corner of the site and was inaccessible due to a locked metal gate and concrete panel fencing which was partially lined with razor wire. Evidence from google maps satellite imagery suggests this fenced area contains a small courtyard area with additional smaller outbuildings.

2.1.6 An area to the west of the L-shaped building in the south-east of the site was fenced off but accessible and contained miscellaneous sports equipment, a ladder and a shopping trolley.

- 2.1.7 The south-western corner of the site was heavily vegetated with long grass, shrubs and semi-mature to mature trees. Two small dugouts atop concrete pads, one of which was collapsed, were present near the centre of the western edge of the football pitch on either side of the touchline. Several goal posts were present on the football pitch.
- 2.1.8 Based on the earliest available historical maps dating from 1876, the site was noted to be largely vacant and occupied by open fields. Tracks/roads appeared to infringe on the northern and southern peripheries of the site. The site then remained relatively unchanged until circa 1959-1960 when a rectangular building and several smaller outbuildings were noted to be present in the north-east of the site. An area of raised ground was also present along the southern site periphery at this time. The buildings in the north-east were noted to be absent circa 1972-1975 and the site was then vacant until circa 2009 when an area of hardstanding was noted to be present in the north-east of the site, becoming extended southwards circa 2016.

2.2 Environmental Setting

Geology

- 2.2.1 BEK has sought site investigation information from the BGS website. There are 20 published BGS exploratory records located within 250 m of the site, 7 of which are available to view.
- 2.2.2 BEK has summarised the strata for the borehole closest to the site, the details of which can be seen in Table 1 below.

Borehole Grid Ref	Location	Depth (m)	Strata
380330, 389270	144 m north-east	0 – 0.4	REINFORCED CONCRETE
		0.4 – 1.2	MADE GROUND: Grey silty sand
		1.2 – 1.5	MADE GROUND: Brick rubble, sand and stones
		1.5 – 2.0	Medium dense dark brown SAND
		2.0 – 3.8	Medium dense light brown medium SAND, becoming loose
		3.8 – 4.3	Completely weathered brown clayey KEUPER MARL
		4.3 – 6.0	Weathered red/brown KEUPER MARL

Table 1: Summary of Strata for the Closest Borehole to the Site.

- 2.2.3 There are no records of made ground within 500 m of the site.
- 2.2.4 Made ground within the off-site BGS borehole was encountered to a depth of 1.5 m and comprised an uppermost layer of reinforced concrete underlain by silty sand and brick rubble with sand and stones.

- 2.2.5 The underlying superficial geology comprises 'Devensian 'Glaciofluvial Sheet Deposits' generally described as 'sand and gravel'. This strata generally has a high to very high permeability.
- 2.2.6 Superficial deposits within the off-site BGS borehole were encountered to a depth of 3.8 m and comprised dark/light brown sand.
- 2.2.7 The underlying solid geology comprises the 'Bollin Mudstone Member' of the 'Sidmouth Mudstone Formation' generally describes as 'dominantly laminated reddish-brown and greenish-grey mudstone with siltstones'. This strata generally has a low permeability.
- 2.2.8 Bedrock described as 'Keuper Marl' was encountered at a depth of 3.8 m within the off-site BGS borehole
- 2.2.9 There are no faults or linear features located within 250 m of the site.

Mining and Ground Stability

- 2.2.10 The site is not located within an area which may have been affected by coal mining, further information from the Coal Authority Interactive map indicates that the site is not located within a coal mining reporting area. There are also no workings associated with mine activity present within 250 m of the site. As a result, BEK does not consider the risks from subsidence from historical coal mining activity to be in need of further consideration.
- 2.2.11 There is one recorded surface ground working within 250 m of the site. This working is located on site on the southern site periphery and refers to an 'Unspecified Ground Working' mapped in 1967.
- 2.2.12 The Enviro+GeoInsight Report provides hazard ratings associated with ground subsidence at the site, as summarised below:
- | | |
|-------------------------------|---------------------|
| Shrink-Swell Clay: | Negligible/Very Low |
| Landslides: | Very Low |
| Dissolution of Soluble Rocks: | Negligible |
| Compressible Deposits: | Negligible |
| Collapseable Deposits: | Very Low |
| Running Sands: | Very Low |
- 2.2.13 It can be seen from the above that the site is unlikely to be affected by natural ground instability.

Hydrogeology

- 2.2.14 The superficial deposits underlying the site (Glaciofluvial Sheet Deposits) are classified by the EA as 'Secondary A' aquifer which are described as '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'.
- 2.2.15 The bedrock underlying the site is classified by the EA as 'Secondary B' aquifer which are described as 'predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering'.
- 2.2.16 The site is not located within a groundwater source protection zone, although the superficial aquifer within the glaciofluvial sheet deposits is considered to be at 'high vulnerability' described as an area 'able to easily transmit pollution to groundwater' by the BGS and Environment Agency.
- 2.2.17 There are no groundwater or surface water abstraction licenses located within 250 m of the site.
- 2.2.18 The site is considered to be at 'low' risk from groundwater flooding

Hydrology

- 2.2.19 There are no surface water features or licensed discharge consents located on or within 250 m of the site.
- 2.2.20 The site is not located within an EA designated Flood Zone.

Contaminated Land and Landfill Activities

- 2.2.21 there are no historic landfill sites located within 250 m of the site, although a historic waste site is located some 179 m north-east of the site which refers to a historic planning application for a recycling facility at Tesco Stores Ltd, Altrincham. This is unlikely to have impacted on the site.
- 2.2.22 There are three waste exemptions located within 250 m of the site, the closest of which is located some 167 m east and refers to the treating of waste and use of waste at EDF Energy Wythenshawe. These are unlikely to have impacted on the site
- 2.2.23 There are no NIHHS or COMAH sites, recorded Part A(1), Part A(2) or IPPC Authorised Activities located within 250 m of the site

- 2.2.24 There is however 3 Part B installations located within 250 m of the site, the closest of which refers to a current permit located some 37 m north-east of the site for the 'unloading of petrol into storage at service stations' at Tesco Petrol Station Baguley.
- 2.2.25 There are no EA recorded pollution incidents located within 250 m of the site.
- 2.2.26 There is one record of a historical garage located some 167 m north of the site.
- 2.2.27 There are five historical energy features located within 250 m of the site, the closest of which is an electricity substation located circa 78 m east of the site. These are unlikely to have impacted on the site.
- 2.2.28 there are 11 historical potentially contaminative land uses located on or within 250 m of the site as summarised in the Table 2 below:

Location	Land Use	Dates Present
On site	Unspecified Depot	1975
On site	Railway Sidings	1907-1967
On site	Unspecified Ground Workings	1967
4 m south	Railway Sidings	1905-1938
23 m south-east	Unspecified Works/Commercial/Industrial/Warehouse	1967-1995
70 m south-east	Railway Sidings	1949-1989
107 m west	Railway Sidings	1949
165 m south	Nursery	1967-1975
224 m south	Railway Sidings	1975-1995
236 m east	Unspecified Commercial/Industrial/Warehouse	1975-1995
247 m south-west	Nursery	1949-1970

Table 2: Summary of Historical Potentially Contaminative Land Uses

- 2.2.29 The Enviro+GeolInsight Report states that there are no current/recent potentially contaminative land uses for the site.

Sensitive Land Use

- 2.2.30 The site is not affected by any of the ecological systems identified as a statutory receptor in the DETR Circular 01/2006.

Radon

- 2.2.31 The Enviro+GeoInsight Report indicates that 'less than 1% of homes are above the action trigger level' and that 'no radon protective measures are necessary in the construction of new dwellings or extensions'.

Unexploded Ordinance

- 2.2.32 The regional unexploded bomb risk map from Zetica indicates that the site is located within in an area of Greater Manchester considered to be at MODERATE risk from Unexploded Ordnance (UXO) resulting from the Second World War.
- 2.2.33 Further assessment may be required with respect to UXO.

2.3 Previous Site Investigation

- 2.3.1 Historically, the site has been subject to site investigation as part of the preparation of a geotechnical assessment.
- 2.3.2 BEK have not been provided with the previous geotechnical assessment and have instead been supplied with the exploratory borehole logs used within the assessment.
- 2.3.3 A total of 8No. window sample boreholes were drilled by 'Mini Bore Site Investigations' to a maximum depth of 4.0 m at various locations across the site. The locations of the exploratory locations have been inferred from the descriptions provided on the exploratory logs and are illustrated in the figure below. BEK takes no responsibility for the accuracy of the borehole locations inferred from the descriptions provided.

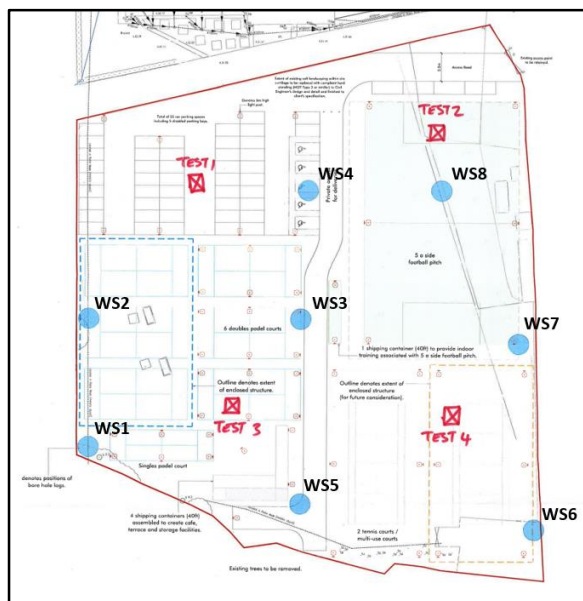


Figure 1: Exploratory Locations Undertaken by Mini Bore Site Investigations

2.3.4 The site investigation generally encountered topsoil at the surface of the exploratory locations, with generally shallow made ground encountered in 7 of the 8 exploratory locations. Made ground was encountered to a maximum depth of 3.4 m within Borehole WS2.

2.3.5 The made ground encountered at the site generally comprised the following subtypes:

'Topsoil with rare brick fragments' – This strata was encountered at the surface of Borehole WS1, WS2, WS3, WS4, WS5 & WS6 to a maximum depth of 0.8 m (WS3) and contained rare brick fragments within Borehole WS1, a single brick fragment within Borehole WS4, rare pottery fragments within Borehole WS5 and brown clay inclusions within Borehole WS6. This strata was noted to be gravelly within Borehole WS2 and was mixed with brown sand in Borehole WS3.

'Brown/brown & grey mottled sandy gravelly soily clay' – This strata was encountered within Borehole WS2 between 0.4 m and 3.4 m depth and was interpreted to be 'possibly reworked'.

'Brown clay with sandy topsoil & rare fragments of brick' – This strata was encountered within Borehole WS6 between 0.4 m and 2.4 m depth

'Gravel & sand' – This strata was encountered beneath topsoil in Borehole WS8 between 0.1 m and 0.2 m depth.

'Red brick rubble' – This strata was encountered within Borehole WS8 between 0.2 m and 0.55 m depth.

2.3.6 Natural strata was encountered beneath the made ground to a maximum proven depth of 4.0 m and generally comprised the following subtypes:

'Brown/reddish brown/grey CLAY' was encountered within all exploratory locations from depths varying from 1.4 m (WS1) to within excess of 4.0 m (WS2 & WS6) and was noted to contain rare rootlets to 1.7 m deep within WS1, inclusions of rotting vegetation at 2.7 m within Borehole WS4, as well as varying proportions of sands and gavels.

'Brown/dark brown/grey medium grained SAND' was encountered within Borehole WS3, WS4, WS5, WS7 & WS8 from a minimum depth of 0.6 m (WS4) to a maximum proven depth of 3.0 m (WS8). This strata was noted to contain peaty inclusions at 1.5 m depth within Borehole WS4 and small traces of peat around 2.9 m depth within Borehole WS8.

2.3.7 Groundwater was encountered within 7 of the 8 exploratory locations as summarised within the Table 3 below:

Borehole	Depth (m)	Description
WS1	1.0	Standing water
WS3	0.5	Standing water
WS4	0.5	Standing water
WS5	0.4	Standing water
WS6	1.1	Standing water
WS7	0.95	Standing water
WS8	0.8	Standing water

Table 3: Summary of Groundwater Levels

2.3.8 The site investigation works undertaken by Mini Bore provide a good initial overview of the ground conditions and groundwater regime anticipated for the site

2.3.9 However, no sampling of soil or chemical testing was undertaken and further investigation will be necessary to support a full quantitative risk assessment to comply with current guidance.

2.3.10 Based on the available background information and previous site investigation works, consideration has been given to the potential risks from ground gas due to the presence of a significant thickness of made ground (>3 m depth) and ground containing organic components described as 'peaty inclusions' and 'inclusions of rotting vegetation'.

2.4 Preliminary Conceptual Model

2.4.1 This section identifies the potential contaminants of concern, sources, pathways and receptors that may be associated with the site based on its known history and the current condition and with respect to the redevelopment of the site for residential use.

2.4.2 The preliminary conceptual model is summarised in the following Table 4:



Link	Source	Hazard	Transport Mechanism	Pathway	Medium of Exposure	Receptor	Risk Summary*
1	Contaminated soils	Direct contact /ingestion of soil or dust	Direct contact with contaminated soil	Dermal contact/ingestion of soil at surface	Soil	Humans (on-site/off-site)	Low
2	Contaminated soils	Particulate inhalation	Wind blown particulates	Inhalation of particulates	Air	Humans (on-site/off-site)	Low
3	Contaminated Soils	Inhalation of Ground Gas	Degradation of contaminants generating ground gas through unsaturated zone to soil leading to inhalation	Inhalation of Gases	Air	Humans (on-site/off-site)	Low
4	Contaminated Soils	Vapour Inhalation	Volatilisation of organic compounds through unsaturated zone of soil leading to inhalation	Inhalation of Vapours	Air	Humans (on-site/off-site)	Low
5	Contaminated Soils	Damage to structure/services	Direct contact of contaminants with building structures/services	Direct contact	Soil/Water	Flora, services	Low
6	Contaminated Soils	Pollution of underlying groundwater	Dissolution or suspension of contaminants into groundwaters (Superficial Principal Aquifer)	Dissolution or Suspension	Water	Groundwaters	Low

Table 4: Preliminary Conceptual Model

***Relative Risk Screening and Prioritisation for further Investigation & or Assessment**

High	Higher probability of occurrence and identification of primary sources of contamination with respect to most sensitive receptors.
Medium	Pollutant linkage generally dependent on the presence of other primary pollutant linkages and/or where pollutant linkage generally associated with less sensitive receptors.
Low	Lower probability of occurrence such as based on requirement for significant migration pathway or where pollutant linkage requires the presence of source contaminants at concentration likely to be much higher than other identified pollutant linkages.

3. SITE INVESTIGATION

3.1 General

- 3.1.1 This section provides a summary of the site investigation works undertaken by BEK during June 2024.
- 3.1.2 The site investigation has been designed to provide indicative information for the ground conditions across the site and to provide a quantitative assessment of potential risks associated with contamination.
- 3.1.3 All exploration locations were set out by the site engineer in order to establish representative conditions at the site. The exploratory locations are illustrated on BEK Drawing No 24072-3, presented in Appendix G.

3.2 Window Sample Boreholes

- 3.2.1 Six boreholes were drilled using a window sample borehole rig to a maximum depth of 5.45 m. In-situ testing (SPTs) were carried out in each of the boreholes.
- 3.2.2 Gas and groundwater monitoring wells were installed in three of the boreholes (Boreholes WS101, WS102 and WS103). These locations were selected based on location of proposed buildings, ground condition and possible sources of ground gas.
- 3.2.3 Representative samples were recovered for chemical testing in accordance with the potential contaminants of concern highlighted within the PRA.
- 3.2.4 The ground conditions were recorded by an engineer from BEK and copies of the borehole records are presented in Appendix A.

3.3 Machine Excavated Trial Pits

- 3.3.1 Eleven trial pits were excavated at the site to a maximum depth of 2.2 m to prove ground conditions and to facilitate infiltration testing. In-situ testing (shear vanes) were carried out where clay was encountered.
- 3.3.2 Representative samples were recovered for chemical testing in accordance with the potential contaminants of concern highlighted within the PRA.
- 3.3.3 The ground conditions were recorded by an engineer from BEK. Copies of the trial pit records are presented in Appendix A and photographs of the trial pits are presented in Appendix E.

3.4 Exploratory Locations Rationale

- 3.4.1 The site investigation was designed by BEK to confirm general ground conditions across the full site and quantify the nature and extent of any made ground.

3.5 Laboratory Testing

Soil Chemical Testing

- 3.5.1 Chemical laboratory testing was undertaken by the UKAS accredited laboratory of Envirolab. All testing was undertaken to MCERTS standard (where available). The following samples were submitted for chemical analysis:

- Six samples were tested for the standard BEK soil suite which includes: Arsenic (Total), Cadmium (Total), Copper (Total), Lead (Total), Nickel (Total), Zinc (Total), Chromium (Total), Selenium (Total), Mercury (Total), Boron (Soluble), Hexavalent Chromium, Cyanide (Total), pH, 16 EPA Poly-Aromatic Hydrocarbons (PAH), Total Phenols, Sulphate (acid soluble), Sulphate 2:1 extract and Soil Organic Matter
- Six samples were tested for Speciated Total Petroleum Hydrocarbons (TPH-CWG)
- Three samples were subjected to Total Sulphur
- One sample was subjected to SVOC and VOC testing
- Six samples were subjected to Asbestos ID testing

- 3.5.2 Copies of the chemical test results are presented in Appendix B.

Geotechnical Testing

- 3.5.3 Following a review of ground conditions, three natural clay bulk samples were submitted to the UKAS accredited laboratory of Murray Rix and tested for Plasticity Index and Moisture Content.

- 3.5.4 Copies of the geotechnical test results are presented in Appendix C.

3.6 Ground Conditions

Made Ground

- 3.6.1 Made ground was encountered at the surface of all exploratory locations to a maximum depth of 0.9 m. The made ground encountered was generally described as:

Tarmac – hardstanding was identified at the surface of Borehole WS106 to a depth of 0.1 m.

'Grass onto dark brown mottled black slightly clayey silty SAND with rare fine to medium gravels, rare broken bricks/ceramic/metal/plastic/concrete' - this strata was encountered at the surface of all exploratory locations with the exception of Borehole WS105 and WS106. A minimum thickness of 0.2 m was observed in Borehole WS104 and a maximum thickness was observed in Trial Pit TP107 to a depth of 0.7 m.

'Brown mottled red/orange slightly clayey sandy GRAVEL of broken bricks/concrete/wood' - this strata was encountered within Trial Pits TP103, TP104, TP105, TP106 and in Boreholes WS104 and WS106. A minimum depth of 0.3 m was observed in Trial Pit TP104 and a maximum depth of 0.8 m was encountered in Trial Pit TP106 and Borehole WS105. A maximum observed thickness of 0.6 m was observed in Borehole WS104. A slight hydrocarbon odour was encountered within the strata with Trial Pits TP103 and TP106.

'Black/dark brown slightly clayey silty SAND with rare fine to coarse gravels' - this strata was encountered within Trial Pit TP104 and Boreholes WS105 and WS106. A minimum depth of 0.2 m was observed in Borehole WS106 and a maximum depth of 0.9 m was encountered within Trial Pit TP104. A maximum observed thickness of 0.6 m was observed in Trial Pit TP104.

'Brown mottled red/grey very sandy CLAY with occasional fine to coarse gravels' – this strata was encountered within Trial Pit TP110 at 0.3 m to a maximum depth of 0.6 m.

'Black/dark brown ashy slightly clayey silty SAND with rare ash and clinker' – this strata was encountered within Borehole WS106 at 0.4 m to a maximum depth of 0.7 m.

Superficial Strata

3.6.2

Superficial strata was encountered in all exploratory locations and generally comprised of 'Brown SAND'. However this strata was generally underlain in all locations by strata described as 'Brown mottled grey very silty CLAY with rare organic material' with the exception of Trial Pits TP101, TP102, TP104, TP105, TP106, TP108 and Borehole WS105. A minimum depth of 1.1 m was encountered within Borehole WS103 and a maximum depth of 5.45 m was encountered within Borehole WS106. A maximum thickness of 1.85 m was observed in Borehole WS106.

- 3.6.3 At the base of the remaining exploratory locations strata described as 'Brown sandy slightly silty CLAY with fine to coarse gravels of mixed lithology's and traces of siltstone' was encountered in Boreholes WS101, WS102, WS103 and WS104. In Borehole WS101 there is a lens of sand between 2.5 m and 3.1 m that is situated in between the clay.

Bedrock

- 3.6.4 Bedrock was not encountered during the site investigation works.

Groundwater

- 3.6.5 A summary of groundwater encountered during the site investigation is presented in Table 5 below:

Location	Depth to Water (m) bgl	Depth to Base (m) bgl	Comment
WS102	1.5	4.45	Water strike
WS103	1.8	3.45	Water strike
WS104	1.0	3.8	Water strike
WS105	2.0	4.45	Water strike
WS106	2.0	5.45	Water strike
TP102	1.6	1.7	Water strike
TP105	1.6	2.15	Water strike
TP106	1.8	2.0	Water strike
TP107	1.3	1.5	Water strike
TP108	1.3	2.0	Water strike
TP109	1.3	1.85	Water strike

Table 5: Summary of Groundwater Encountered During Site Investigation

- 3.6.6 Ash and clinker was noted to be present within a number of the made ground subtypes.

3.7 Infiltration Testing

- 3.7.1 The site investigation works included infiltration tests to determine soil infiltration rates using the BRE 365 (2016) methodology to assess the viability of disposal of surface water from the site via infiltration.

- 3.7.2 Infiltration testing was undertaken in accordance with the requirements set out in BRE 365 (2016). Three infiltration tests were undertaken at the site at locations that were accessible and outside the extents of any buried services. The test locations are presented on BEK Drawing No 24072-3, a copy of which is presented in Appendix G.

3.7.3 In accordance with BRE 365 'Fill the pit and allow it to drain three times to near empty; each time record the water level and time filling. Calculate the soil infiltration rate from the time taken for the water to fall from 75% to 25% effective storage depth in the pit, using the lowest f value of the three test results for design.'

3.7.4 The infiltration test trial pits were excavated using a tracked excavator to a depth of 1.5 m with the sides trimmed square. Water was discharged into the pits using a towed water bowser. A selection of photographs of the test pit and infiltration test is included within Appendix E.

3.7.5 The test pit dimensions are as follows:

Test Pit No.	Length (m)	Width (m)	Depth (m)	Area (m ³)
TP101	1.70	0.60	1.50	1.53
TP102	1.70	0.60	1.50	1.53
TP103	1.60	0.60	1.50	1.44

Table 6: Infiltration test pit dimensions

3.7.6 The natural ground conditions underling the made ground were generally described as 'Brown SAND'. However 'Brown mottled grey very silty CLAY with rare organic matter' was encountered underlain the sands in Trial Pit TP103 at 1.3 m to 1.6 m. Water was discharged into the pit and the time taken for the water to infiltration into the soil was recorded.

3.7.7 After 4 hours of testing, the water within Trial Pits TP101, TP102 and TP103 was not infiltrating into the ground therefore the test is considered to have failed as the water did not reach 25% effective depth. As such disposal of surface water via infiltration is not considered viable at the proposed development site. The infiltration test results are presented in Appendix D.

3.8 Environmental Monitoring

3.8.1 Gas and groundwater monitoring is ongoing and the results will be assessed within an addendum report that will be completed when the gas monitoring programme has been completed.

Groundwater

3.8.2 Groundwater levels have been monitored on one occasion in the boreholes are summarised in the Table 7:

Borehole Location	Recorded Water Level (m bgl)
WS101	1.45
WS102	1.26
WS103	1.15

Table 7: Summary of Water Levels in Boreholes (to date)

3.8.3 Note that this is the result of one monitoring visit.

Gas Monitoring

3.8.4 The boreholes have been monitored for ground gas on six occasions to date and a summary of the gas monitoring results are presented in Table 8:

Location	Concentrations (% v/v)			Maximum Flow Rate (l/hr)
	Carbon Dioxide	Methane	Oxygen	
WS101	4.7 – 7.4	0	13.3 - 18.2	0
WS102	1.3 – 3.8	0	14.9 – 17.6	0
WS103	1.4 - 5.6	0	14.9 – 17.8	0

Table 8: Summary of Gas Monitoring Data

3.8.5 Based on the ground gas monitoring to date (6 monitoring visits), the risks from ground gas at the site are considered to be low.

3.8.6 Details of the gas monitoring program are presented in the Ground Gas Risk Assessment (Ref: BEK-240926-24072-SAAL) which should be read in conjunction with this report.

4. QUANTITATIVE RISK ASSESSMENT

4.1 Potentially Significant Pollutant Linkages

4.1.1 Potentially significant pollutant linkages identified within the preliminary conceptual model include:

- (i) Human Health - risks associated with contamination in the made ground and/or natural strata: via direct contact, ingestion of contaminated soils or via inhalation (asbestos and/or vapours)
- (ii) Human Health - risks associated with indoor inhalation of ground gas.
- (iii) Controlled Waters - risks associated with contamination in the made ground and/or natural strata affecting the quality of perched water. Risks are associated with dissolution of contamination into perched water and vertical/lateral migration to water receptors.
- (iv) Property (including services, flora and concrete) – risks associated contamination affecting concrete, flora and service pipes.

4.2 Risk Assessment: Human Health Risks from Exposure to Contaminated Soil

4.2.1 The risks to human health have been assessed by inspection of shallow soils for the presence of elevated contaminants based on the expected contaminant findings detailed in the conceptual model and completion of a quantitative risk assessment.

4.2.2 The soil contamination concentrations have initially been compared to a range of generic assessment criteria. These include the use of the Land Quality Management and Chartered Institute of Environmental Health assessment criteria (S4ULs), Category 4 Screening Levels (C4SLs) and the Contaminated Land: Applications in Real Environments assessment criteria (CL:AIRE).

4.2.3 These assessment criteria have been derived using the CLEA model and fully justified input parameters to be protective of risks to human health considering a public open space park. The initial assessment assumes a soil organic matter (SOM) of 1 % as a conservative approach.

4.2.4 The following table summarises the chemical test results for the samples tested and lists the relevant assessment criteria and the samples with a concentration in excess of the assessment criteria. Note that only determinands with a concentration above the laboratory limit of detection are presented in the Table 9 below:

Determinand	Range of Concentrations (mg/kg)	Assessment Criteria (mg/kg)	Samples Fail
Arsenic	4 - 39	640 ¹	---
Boron	<1 – 1.1	21000 ¹	---
Cadmium	<0.5 – 0.5	190 ¹	---
Chromium	17 - 23	8600 ¹	---
Copper	17 - 23	68000 ¹	---
Lead	29 – 183	6000 ²	---
Mercuray	<0.17 – 0.89	1100 ¹	---
Nickel	18 -25	980 ¹	---
Zinc	47 - 119	730000 ¹	---
Acenaphthene	<0.01 – 0.12	84000 ¹	---
Acenaphthylene	<0.01 – 0.12	83000 ¹	---
Anthracene	<0.02 – 0.46	520000 ¹	---
Benzo(a)anthracene	0.04 – 1.35	170 ¹	---
Benzo(a)pyrene	0.01 - 1.33	35 ¹	---
Benzo(b)fluoranthene	0.13 – 1.91	44 ¹	---
Benzo(ghi)perylene	<0.05 – 0.61	3900 ¹	---
Benzo(k)fluoranthene	<0.07 – 0.68	1200 ¹	---
Chrysene	0.09 – 0.13	3.5 ¹	---
Dibenzo(ah)anthracene	<0.04 – 0.18	350 ¹	---
Fluoranthene	0.21 – 3.05	23000 ¹	---
Fluorene	<0.01 – 0.18	63000 ¹	---
Indeno(123-cd)pyrene	0.06 – 0.76	500 ¹	---
Phenanthrene	0.07 – 1.82	22000 ¹	---
Pyrene	0.2 – 3.04	54000 ¹	---
Aliphatic Hydrocarbons >C12-C16	<1 – 4	59000 ¹	---
Aliphatic Hydrocarbons >C16-C21	<1 – 7	1600000 ¹	---
Aliphatic Hydrocarbons >C21-C35	13 -52	1600000 ¹	---
Aromatic Hydrocarbons >C10-C12	<1 – 1	16000 ¹	---
Aromatic Hydrocarbons >C12-C16	<1 – 29	36000 ¹	---
Aromatic Hydrocarbons >C16-C21	6 - 75	28000 ¹	---
Aromatic Hydrocarbons >C21-C35	12 - 196	28000 ¹	---
Perylene	0.190	35*	---
Asbestos ID	Non Detected		

Table 9: Summary of Contamination Assessment

Notes from Table

1 CIEH/LQM Derived Assessment Criteria (S4ULs based on 1% SOM)

2 Category 4 Screening Levels (C4SL)

NAD - No Asbestos Detected

*Given that WHO have assigned perylene as a class three carcinogen (not classifiable as to its carcinogenicity to humans due That further research being required) and in absence of any assessment criteria for perylene we have adopted the conservative assessment criteria for the structurally similar compound benzo(a)pyrene.

4.2.5 It can be seen from the above table that there are no elevated contaminants of concern above the commercial assessment criteria.

4.3 Risk Assessment: Human Health Risks from Exposure to Hazardous Gases

- 4.3.1 Based on the ground gas monitoring to date (one monitoring visit), the risks from ground gas at the site are considered to be low. However, it should be noted that the above is a result of a single monitoring visit and a Gas Risk Assessment will be prepared as a separate report on completion of the monitoring program

4.4 Risk Assessment: Controlled Waters

- 4.4.1 Potential risks to the quality of groundwater have been identified in the ground conceptual model.
- 4.4.2 Risks associated with contamination in the made ground and/or natural strata affecting water quality in the superficial Secondary A Aquifer present within the Glaciofluvial Sheet Deposits and bedrock Secondary B Aquifer (where Boulder Clay is absent).
- 4.4.3 Perched water was noted in the majority of exploratory locations as a 'water strike'.
- 4.4.4 The soil contaminant levels within all of the made ground overlying the site were below commercial thresholds. Given that the proposals will effectively cap the site with hard standing, the risk of water infiltration will be minimal and risks to controlled waters are therefore considered to be very low.

4.5 Risk Assessment: Buildings

- 4.5.1 Risks to buildings include the assessment of the aggressive nature of the shallow ground with respect to concrete, the risks to the degradation of water pipes and flora due to contamination.

Risk to Concrete

- 4.5.2 To assess the potential risks to concrete, BEK has followed the methodology presented in the BRE Special Digest 1: Concrete in Aggressive Ground.
- 4.5.3 Three water soluble sulphate tests and pH tests were carried out on soil samples. The water soluble sulphate content ranged between 0.04 and 0.16 g/l and the pH ranged from 6.91 and 7.62.
- 4.5.4 There total sulphur tests and sulphate (acid soluble) tests were also completed on the soil samples. Oxidisable sulphate calculations confirmed that pyrite was likely to be present at the site. The highest DS class for soil and groundwater was determined to be DS-3. The highest ACEC class for soil and water was AC-5 in the south-east of the site. However the remainder of the site ACEC class is AC-3.

4.5.5 A characteristic value for total potential sulphate was calculated and determined to be 0.85 %. The results were utilised to determine a concrete classification of sulphate class DS-3 and an Aggressive Chemical Environment for Concrete (ACEC) class of AC-5 for the south-east for the site while the remainder of the site is classified as AC-3. See concrete classification spread sheet in Appendix F.

4.5.6 The classifications are made on the basis that the site is classified as a 'Brownfield Location' and that mobile groundwater conditions may be present.

Risks to Services

4.5.4 Potable water supply pipes can be at risk from degradation if the shallow ground consists of specific organic contamination.

4.5.5 Guidance published by UKWIR includes a methodology for the site investigation and risk assessment to determine pipe specification.

4.5.6 On the basis of the ground conditions encountered, risks to water supply pipelines are considered to be very low, however it is recommended that consultation is undertaken with the water service supplier to confirm this.

4.6 Risk Assessment: Conclusions

4.6.1 The site is overlain by made ground to a maximum thickness of 0.9 m. The made ground generally comprised sands and gravels with fragments of brick. Also rarely found within the made ground was glass, ash and clinker

4.6.2 Superficial strata was encountered in all exploratory locations and generally comprised of 'Brown SAND'. However this strata was generally underlain in all locations by strata described as 'Brown mottled grey very silty CLAY with rare organic material' with the exception of Trial Pits TP101, TP102, TP104, TP105, TP106, TP108 and Borehole WS105. A minimum depth of 1.1 m was encountered within Borehole WS103 and a maximum depth of 5.45 m was encountered within Borehole WS1065. A maximum thickness of 1.85 m was observed in Borehole WS106. At the base of the remaining exploratory locations strata described as 'Brown sandy slightly silty CLAY with fine to coarse gravels of mixed lithology's and traces of siltstone' was encountered in Boreholes WS101, WS102, WS103 and WS104. In Borehole WS101 there is a lens of sand between 2.5 m and 3.1 m that is situated in between the clay.

4.6.3 The samples recovered from site investigation have been tested for a wide range of contaminants in accordance with the recommendations outlined within the PRA and based on the observations made during the site investigation. The chemical test results have been compared to relevant generic assessment criteria to identify potential contaminants of concern.

- 4.6.4 The chemical test results have been compared to relevant generic assessment criteria to identify potential contaminants of concern.
- 4.6.5 Based on the contamination assessment herein and with respect to the redevelopment of the site for commercial, there are no contaminants of concern identified.
- 4.6.6 The gas monitoring program is on-going and a full Gas Risk Assessment will be prepared as a separate report.
- 4.6.7 Risks to controlled water are considered to be very low.
- 4.6.8 Risks to concrete are considered to be medium to high and a concrete classification of sulphate class DS-3 and an Aggressive Chemical Environment for Concrete (ACEC) class of AC-5 for the south-east of the site while the remainder of the site is classified as AC-3.
- 4.6.9 Potential risks to the service pipes are considered to be low, but advice should be sought from the water supply provider if new water pipes are to be installed.

5. RECOMMENDATIONS

- 5.1 This report provides an assessment of the ground conditions based on the assessment of available site investigation information by quantifies the potential risks associated with contamination with consideration to the proposed re-development of the site for commercial use.

Contamination Assessment

- 5.2 Based on the results of the contamination risk assessment undertaken at the land at Wythenshawe Town FC with consideration to the environmental setting and the proposed redevelopment of the site for commercial use, no risk to human health, controlled waters or the environment have been identified.

- 5.3 However, the following measures are recommended.

- All groundworkers adopt standard PPE when on site and remain vigilant during ground excavations for the presence (or suspected presence) of contamination. If visual or olfactory evidence of contamination is encountered then works should cease and specialist advice sought
- Consideration should be given to the requirements of the water supply provider. They may require the UKWIR risk assessment to be completed to confirm the specification for the water pipes.
- The concrete classification suitable for the majority of the site is DS-3 AC-3, however an Aggressive Chemical Environment for Concrete (ACEC) class of AC-5 is recommended for the south-east of the site.

- 5.4 The ground conditions should be as anticipated during all excavations. Advice should be sought if ground conditions are significantly different or if visual/olfactory evidence of contamination is encountered.

Infiltration Rate

- 5.5 Infiltration testing to BRE365 indicates that the ground conditions appear to be relatively impermeable indicating infiltration is unlikely to be a viable means of disposing surface water at the proposed development site.

Waste Soil Management

- 5.6 Careful management of soils during the excavation works will ensure optimum utilisation of soil resources. Excavated soils which require off-site disposal are anticipated to be classified in accordance with the following document: Guidance on the Disposal of "Contaminated Soils" Version 3 (April 2001); produced by the Environment Agency.

- 5.7 In all cases where excess soils require off-site disposal, the materials needs to be managed under the appropriate legislation and consideration given to any remedial techniques that could be used to improve the soil.
- 5.8 If waste soils are to be re-used on site then a suitable permit exemption should be put in place (if appropriate) or a Material Management Plan (MMP) should be prepared as part of compliance with the CL:AIRE Definition of Waste:Code of Practice.

APPENDIX A

Exploratory Logs



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072

PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP101

SHEET 1/11

COMPLETION

COMMENTS Trial Pit Dry.

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.1	D=0.1 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick, rare ceramics	0.1
0.2							0.2
0.3							0.3
0.4							0.4
0.5							0.5
0.6							0.6
0.7	0.7	D=0.7 m				Brown SAND	0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6							1.6
1.7						Termination Depth at: 1.7 m	1.7



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PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP102

SHEET 2/11

COMPLETION

COMMENTS Slight water ingress at 1.6 m.

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1						Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick, rare ceramics	0.1
0.2	0.2	D=0.2 m					0.2
0.3							0.3
0.4							0.4
0.5							0.5
0.6						Brown SAND	0.6
0.7							0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6				∇			1.6
1.7						Termination Depth at: 1.7 m	1.7



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PROJECT NUMBER 24072

PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP103

SHEET 3/11

COMPLETION

COMMENTS Shear Vane at 1.5 m 53 KPa. Trial Pit Dry.

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.1	D=0.1 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick, rare ceramics, rare metal	0.1
0.2							0.2
0.3							0.3
0.4	0.45	D= 0.45 m				Brown mottled red/orange slightly clayey sandy GRAVEL of broken brick with rare wood, slight hydrocarbon odour	0.4
0.5						Brown SAND	0.5
0.6							0.6
0.7							0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3						Brown mottled grey very silty CLAY with rare organic matter	1.3
1.4	1.4	B= 1.4 m					1.4
1.5							1.5
1.6						Termination Depth at: 1.6 m	1.6



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CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP104

SHEET 4/11

COMPLETION

COMMENTS Trial Pit Dry.

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.1	D=0.1 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick	0.1
0.2						Brown mottled red/orange slightly clayey sandy GRAVEL of broken brick , occasional concrete gravels	0.2
0.3						Black/dark brown slightly clayey silty SAND, with rare fine to coarse gravel	0.3
0.4							0.4
0.5							0.5
0.6							0.6
0.7							0.7
0.8							0.8
0.9							0.9
1						Brown SAND	1
1.1							1.1
1.2							1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6							1.6
1.7							1.7
1.8							1.8
1.9							1.9
2							2
2.1							2.1
2.2						Termination Depth at: 2.2 m	2.2



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PROJECT NUMBER 24072

PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP105

SHEET 5/11

COMPLETION

COMMENTS Slight water ingress at 1.6 m

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.15	D=0.15 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick	0.1
0.2							0.2
0.3							0.3
0.4	0.4	D= 0.4 m				Brown mottled red/orange slightly clayey sandy GRAVEL of broken brick , occasional concrete gravels, rare ash and clinker, rare wood	0.4
0.5							0.5
0.6							0.6
0.7						Brown SAND	0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6				∇			1.6
1.7							1.7
1.8							1.8
1.9							1.9
2							2
2.1							2.1
2.2						Termination Depth at: 2.15 m	2.2



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PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP106

SHEET 6/11

COMPLETION

COMMENTS Slight water ingress at 1.8 m

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.1	D=0.1 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick, rare plastic, rare concrete cobble	0.1
0.2							0.2
0.3							0.3
0.4						Brown mottled red/orange slightly clayey sandy GRAVEL of broken brick , occasional concrete gravels, slight hydrocarbon odour	0.4
0.5							0.5
0.6	0.6	D= 0.6 m					0.6
0.7							0.7
0.8						Brown SAND	0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6							1.6
1.7							1.7
1.8				∇			1.8
1.9							1.9
2						Termination Depth at: 2.0 m	2



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PROJECT NUMBER 24072

PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP107

SHEET 7/11

COMPLETION

COMMENTS Shear Vane at 1.5 m 44 KPa. Slight water ingress at 1.3 m

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.1	D=0.1 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick, rare root	0.1
0.2							0.2
0.3							0.3
0.4							0.4
0.5							0.5
0.6							0.6
0.7						Brown SAND	0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3				∇			1.3
1.4	1.4	D= 1.4 m				Brown mottled grey very silty CLAY with rare organic matter	1.4
1.5							1.5
1.6							1.6
1.7							1.7
1.8							1.8
1.9						Termination Depth at: 1.85 m	1.9



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PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP108

SHEET 8/11

COMPLETION

COMMENTS Shear Vane at 1.5 m 44 KPa. Slight water ingress at 1.3 m

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1						Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick	0.1
0.2	0.2	D=0.2 m					0.2
0.3							0.3
0.4							0.4
0.5							0.5
0.6							0.6
0.7						Brown SAND	0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6							1.6
1.7							1.7
1.8				∇			1.8
1.9							1.9
2						Termination Depth at: 2.0 m	2



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PROJECT NUMBER 24072

PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP109

SHEET 9/11

COMPLETION

COMMENTS Shear Vane at 1.5 m 44 KPa. Slight water ingress at 1.3 m

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.1	D=0.1 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick	0.1
0.2							0.2
0.3							0.3
0.4							0.4
0.5						Brown SAND	0.5
0.6							0.6
0.7							0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3						Brown mottled grey very silty CLAY with rare organic matter	1.3
1.4	1.4	D= 1.4 m		∇			1.4
1.5							1.5
1.6							1.6
1.7							1.7
1.8							1.8
1.9						Termination Depth at: 1.85 m	1.9



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PROJECT NUMBER 24072

PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP110

SHEET 10/11

COMPLETION

COMMENTS Trial Pit Dry.

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1						Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick	0.1
0.2	0.2	D=0.2 m					0.2
0.3						Brown mottled red/grey very sandy CLAY with occasional fine to coarse gravels	0.3
0.4							0.4
0.5							0.5
0.6						Brown SAND	0.6
0.7							0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2							1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6							1.6
1.7						Termination Depth at: 1.7 m	1.7



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072

PROJ. NAME Wythenshawe Town FC

CLIENT Steve Abbott Associates LLP

DATE 12th June 2024

EXCAVATION METHOD Trial Pit

TRIAL PIT NO TP111

SHEET 11/11

COMPLETION

COMMENTS Shear Vane at 1.3 m 76 KPa. Trial Pit Dry

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Graphic Log	Material Description	Elevation (m)
0.1	0.15	D=0.15 m				Made ground: Grass onto dark brown/black slightly clayey silty SAND with rare fine to medium gravel, rare broken brick	0.1
0.2							0.2
0.3							0.3
0.4							0.4
0.5							0.5
0.6							0.6
0.7						Brown SAND	0.7
0.8							0.8
0.9							0.9
1							1
1.1							1.1
1.2						Brown mottled grey very silty CLAY with rare organic matter	1.2
1.3							1.3
1.4							1.4
1.5							1.5
1.6							1.6
1.7						Termination Depth at: 1.85 m	1.7



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072	DATE 11th June 2024
PROJECT NAME Wythenshawe Town FC	DRILLING METHOD Window Sample Borehole
CLIENT Steve Abbott Associates LLP	BOREHOLE NO WS101
	SHEET 1/6

COMPLETION	CASING uPVC	SCREEN uPVC Factory Slotted
COMMENTS Borehole Dry. Refusal on barrel at 3.5 m.		

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Well Instal.	Graphic Log	Material Description	Elevation (m)
0.2	0.2	D=0.2 m					Made ground: Grass onto dark brown slightly clayey silty SAND, with rare fine to medium gravels, rare broken brick, rare ceramics, occasional rootlets	0.2
0.4							Loose becoming medium brown SAND	0.4
0.6								0.6
0.8								0.8
1	1.0	D= 1.0 m						1
1.2	1.0 - 1.45	SPT (C) N=8	1,1/2,2,2,2					1.2
1.4								1.4
1.6								1.6
1.8								1.8
2	2.0 - 2.45	SPT (C) N=11	2,2/2,3,3,3					2
2.2	2.3	D= 2.3 m					Stiff brown mottled grey very silty CLAY with rare organic material	2.2
2.4								2.4
2.6							Medium brown SAND	2.6
2.8								2.8
3	3.00	D= 3.0 m						3
3.2	3.0 - 3.45	SPT (C) N=23	4,5/5,6,6,6				Very stiff brown sandy slightly silty clay with fine to coarse gravels of mixed lithologies and traces of siltstone.	3.2
3.4								3.4
3.6	3.5	D= 3.5 m					Termination Depth at: 3.5 m	3.6



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072	DATE 11th June 2024
PROJECT NAME Wythenshawe Town FC	DRILLING METHOD Window Sample Borehole
CLIENT Steve Abbott Associates LLP	BOREHOLE NO WS102
	SHEET 2/6

COMPLETION	CASING uPVC	SCREEN uPVC Factory Slotted
COMMENTS Water strike at 1.5 m		

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Well Instal.	Graphic Log	Material Description	Elevation (m)
0.2	0.15	D=0.15 m					Made ground: Grass onto dark brown slightly clayey silty SAND, with rare fine to medium gravels, rare broken brick	0.2
0.4	0.5	D= 0.5 m					Medium brown SAND	0.4
0.6								0.6
0.8								0.8
1	1.0 - 1.45	SPT (C) N=15	3,3/3,4,4,4					1
1.2								1.2
1.4	1.5	D= 1.5 m		∇			Medium dark brown SAND	1.4
1.6								1.6
1.8								1.8
2	2.0 - 2.45	SPT (C) N=14	3,3/3,3,4,4					2
2.2								2.2
2.4								2.4
2.6								2.6
2.8								2.8
3	3.0 - 3.45	SPT (C) N=11	2,2/2,3,3,3					3
3.2								3.2
3.4	3.5	D= 3.5 m					Stiff becoming very stiff brown sandy slightly silty CLAY with fine to coarse gravels of mixed lithologies	3.4
3.6								3.6
3.8								3.8
4	4.0 - 4.45	SPT (C) N=16	3,4/4,4,4,4					4
4.2								4.2
4.4							Termination Depth at: 4.45 m	4.4
4.6								4.6



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072	DATE 11th June 2024
PROJECT NAME Wythenshawe Town FC	DRILLING METHOD Window Sample Borehole
CLIENT Steve Abbott Associates LLP	BOREHOLE NO WS103
	SHEET 3/6

COMPLETION	CASING uPVC	SCREEN uPVC Factory Slotted
COMMENTS Water strike at 1.8 m. Hole collapsed after 3 m.		

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Well Instal.	Graphic Log	Material Description	Elevation (m)
0.2	0.2	D=0.2 m					Made ground: Grass onto dark brown slightly clayey silty SAND, with rare fine to medium gravels, rare broken brick, rare fine to coarse gravels of concrete	0.2
0.4	0.5	D= 0.5 m					Loose brown SAND	0.4
0.6								0.6
0.8								0.8
1	1.0 - 1.45	SPT (C) N=9	2,2/2,2,2,3					1
1.2							Stiff brown mottled grey very silty CLAY with rare organic material	1.2
1.4	1.5	D= 1.5 m						1.4
1.6								1.6
1.8				∇				1.8
2	2.0 - 2.45	SPT (C) N=9	3,3,3,2,2,2					2
2.2								2.2
2.4								2.4
2.6								2.6
2.8								2.8
3	3.00	D= 3.0 m					Stiff becoming very stiff brown sandy slightly silty CLAY with fine to coarse gravels of mixed lithologies and traces of siltstone.	3
3.2	3.0 - 3.45	SPT (C) N=30	4,5/6,8,8,8					3.2
3.4								3.4
3.6							Termination Depth at: 3.45 m	3.6



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072
PROJECT NAME Wythenshawe Town FC
CLIENT Steve Abbott Associates LLP

DATE 11th June 2024
DRILLING METHOD Window Sample Borehole
BOREHOLE NO WS104
SHEET 4/6

COMPLETION

CASING uPVC

SCREEN uPVC Factory Slotted

COMMENTS Sater strike at 1 m. No movement at 3.8 m.

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Well Instal.	Graphic Log	Material Description	Elevation (m)
0.2	0.1	D=0.1 m					Made ground: Grass onto dark brown slightly clayey silty SAND, with rare fine to medium gravels, rare broken brick, rare fine to coarse gravels of concrete	0.2
0.4	0.4	D= 0.4 m					Made ground: Brown mottled red/orange slightly clayey sandy GRAVEL of broken bricks, with occasional fine ton coarse gravels of concrete	0.4
1.0	1.0	D= 1.0 m					Medium brown SAND	1.0
1.2	1.0 - 1.45	SPT (C) N=15	1,2/2,3,3,3	▽				1.2
1.6								1.6
1.8							Stiff brown mottled grey very silty CLAY with rare organic material	1.8
2.0	2.0	D= 2.0 m						2.0
2.2	2.0 - 2.45	SPT (C) N=14	2,3/3,3,4,4					2.2
2.4							Stiff brown sandy slightly silty CLAY with fine to coarse gravels of mixed lithologies	2.4
2.6								2.6
2.8								2.8
3.0	3.0	D= 3.0 m						3.0
3.2	3.0 - 3.45	SPT (C) N=11	4,4/4,5,5,5					3.2
3.4								3.4
3.6								3.6
3.8							Termination Depth at: 3.8 m	3.8



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072	DATE 11th June 2024
PROJECT NAME Wythenshawe Town FC	DRILLING METHOD Window Sample Borehole
CLIENT Steve Abbott Associates LLP	BOREHOLE NO WS105
	SHEET 5/6

COMPLETION	CASING uPVC	SCREEN uPVC Factory Slotted
COMMENTS Water strike at 2 m.		

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Well Instal.	Graphic Log	Material Description	Elevation (m)
0.2	0.1	D=0.1 m					Made ground: Black/dark brown slightly clayey gravely SAND with rare coal fragment and occasional ash and clinker	0.2
0.4	0.5	D= 0.5 m					Medium brown SAND	0.4
0.6								0.6
0.8								0.8
1	1.0 - 1.45	SPT (C) N=12	2,2/3,3,3,3					1
1.2								1.2
1.4								1.4
1.6								1.6
1.8								1.8
2	2.0	D= 2.0 m		∇			Medium dark brown SAND	2
2.2	2.0 - 2.45	SPT (C) N=15	2,3/3,4,4,4					2.2
2.4								2.4
2.6								2.6
2.8								2.8
3	3.0 - 3.45	SPT (C) N=10	2,2/2,2,3,3					3
3.2								3.2
3.4								3.4
3.6								3.6
3.8								3.8
4	4.0 - 4.45	SPT (C) N=12	2,3/3,3,3,3					4
4.2								4.2
4.4								4.4
4.6							Termination Depth at: 4.45 m	4.6



GEO-ENVIRONMENTAL CONSULTANTS

GEO-ENVIRONMENTAL CONSULTING

PROJECT NUMBER 24072	DATE 11th June 2024
PROJECT NAME Wythenshawe Town FC	DRILLING METHOD Window Sample Borehole
CLIENT Steve Abbott Associates LLP	BOREHOLE NO WS106
	SHEET 6/6

COMPLETION	CASING uPVC	SCREEN uPVC Factory Slotted
COMMENTS Water strike at 2 m.		

Depth (m)	Depth (m)	Samples/ Test	Field Records	Water	Well Instal.	Graphic Log	Material Description	Elevation (m)
0.2	0.15	D=0.15 m					Made ground: Tarmac	0.2
0.4	0.3	D= 0.3 m					Made ground: Black/dark brown slightly clayey gravely SAND with rare coal fragment and occasional ash and clinker	0.4
0.6	0.5	D= 0.5 m					Made ground: Brown mottled red/orange slightly clayey sandy GRAVEL of broken bricks, with rare coal fragments	0.6
0.8							Made ground: Black/dark brown ashy slightly clayey silty SAND with rare ash and clinker	0.8
1	1.0 - 1.45	SPT (C) N=17	3,4/4,4,4,5				Medium becoming loose brown SAND	1
1.2								1.2
1.4								1.4
1.6	1.5	D= 1.5 m						1.6
1.8								1.8
2	2.0 - 2.45	SPT (C) N=19	2,3/3,4,5,7	✓				2
2.2								2.2
2.4								2.4
2.6								2.6
2.8								2.8
3	3.0 - 3.45	SPT (C) N=4	2,1/1,1,1,1					3
3.2								3.2
3.4								3.4
3.6							Stiff brown mottled grey very silty CLAY with rare organic material	3.6
3.8								3.8
4	4.0 - 4.45	SPT (C) N=22	2,2/3,5,6,8					4
4.2								4.2
4.4								4.4
4.6								4.6
4.8								4.8
5	5.0 - 5.45	SPT (C) N=17	2,3/3,4,5,5					5
5.2								5.2
5.4								5.4
5.6							Termination Depth at: 5.45 m	5.6

APPENDIX B

Chemical Test Results

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/05952
Issue Number: 1
Date: 28 June, 2024

Client: BEK Enviro Ltd
2 Landwick Court
Metcalf Drive
Altham Business Park
Altham
Lancashire
BB5 5GY

Project Manager: ** USE THIS Mick Buckley/James Mashiter
Project Name: Wythenshawe Town FC
Project Ref: Not specified
Order No: 8245-24072-MLM
Date Samples Received: 13/06/24
Date Instructions Received: 14/06/24
Date Analysis Completed: 28/06/24

Approved by:



Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	TP106	TP110	TP103	TP103			
Depth to Top	0.20	0.40	0.10	0.60	0.20	0.45	1.40			
Depth To Bottom										
Date Sampled	11-Jun-24	11-Jun-24	11-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AE	6AB	4A	4A	4AE	4AE	6A			
% Stones >10mm _A	<0.1	11.3	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD	NAD	NAD	-			A-T-045
Asbestos Matrix (visual) _D	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	-			A-T-045
pH _D ^{M#}	7.98	8.24	5.04	7.59	7.45	7.83	6.91	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.02	1.08	0.05	<0.01	0.03	0.14	g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200	470	4800	440	360	720	980	mg/kg	200	A-T-028s
Sulphur (total) _D	-	-	-	-	-	-	3000	mg/kg	50	A-T-024s
Cyanide (total) _A ^{M#}	<1	<1	4	<1	<1	<1	-	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	-	mg/kg	0.2	A-T-050s
Organic Matter _D ^{M#}	2.3	3.4	8.8	6.0	7.0	10.3	-	% w/w	0.1	A-T-032s
Arsenic _D ^{M#}	4	6	39	15	13	18	-	mg/kg	1	A-T-024s
Boron (water soluble) _D ^{M#}	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	-	mg/kg	1	A-T-027s
Cadmium _D ^{M#}	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	-	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	23	23	77	38	50	63	-	mg/kg	1	A-T-024s
Chromium _D ^{M#}	22	21	17	19	19	23	-	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	-	mg/kg	1	A-T-040s
Lead _D ^{M#}	29	49	105	91	105	183	-	mg/kg	1	A-T-024s
Magnesium _D	-	-	-	-	-	-	7420	mg/kg	50	A-T-024s
Mercury _D	0.38	<0.17	0.38	0.44	0.52	0.89	-	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	23	20	25	20	19	18	-	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	-	mg/kg	1	A-T-024s
Zinc _D ^{M#}	47	65	78	70	119	109	-	mg/kg	5	A-T-024s

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	TP106	TP110	TP103	TP103			
Depth to Top	0.20	0.40	0.10	0.60	0.20	0.45	1.40			
Depth To Bottom										
Date Sampled	11-Jun-24	11-Jun-24	11-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AE	6AB	4A	4A	4AE	4AE	6A			
PAH-16MS										
Acenaphthene _A ^{M#}	0.09	0.02	0.12	<0.01	0.12	0.05	-	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	0.02	<0.01	0.02	<0.01	0.12	0.01	-	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.19	0.04	0.25	<0.02	0.46	0.10	-	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.85	0.17	1.09	0.09	1.35	0.43	-	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.91	0.21	1.13	0.10	1.33	0.41	-	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	1.27	0.32	1.69	0.13	1.91	0.59	-	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.52	0.10	0.55	<0.05	0.61	0.23	-	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.46	0.10	0.58	<0.07	0.68	0.20	-	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.83	0.18	1.13	0.09	1.30	0.39	-	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.13	<0.04	0.14	<0.04	0.18	0.06	-	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	1.82	0.41	2.15	0.21	3.05	0.91	-	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.06	0.01	0.08	<0.01	0.18	0.04	-	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.60	0.12	0.64	0.06	0.76	0.27	-	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.74	0.15	1.04	0.07	1.82	0.40	-	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	1.64	0.39	1.84	0.20	3.04	0.73	-	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	10.1	2.22	12.4	0.95	16.9	4.82	-	mg/kg	0.01	A-T-019s

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	TP106	TP110	TP103	TP103			
Depth to Top	0.20	0.40	0.10	0.60	0.20	0.45	1.40			
Depth To Bottom										
Date Sampled	11-Jun-24	11-Jun-24	11-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AE	6AB	4A	4A	4AE	4AE	6A			
SVOC excluding PAH-16										
4-Bromophenyl phenyl ether _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Hexachlorobenzene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Diethyl phthalate _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Dimethyl phthalate _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Dibenzofuran _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Carbazole _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Butylbenzyl phthalate _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate _A	-	-	-	-	-	<500	-	µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
4-Nitrophenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
3+4-Methylphenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
4-Chloro-3-methylphenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2-Nitrophenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2-Methylphenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2-Chlorophenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2,6-Dinitrotoluene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2,4-Dinitrotoluene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2,4-Dimethylphenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2,4-Dichlorophenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2,4,6-Trichlorophenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2,4,5-Trichlorophenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
1,4-Dichlorobenzene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
1,3-Dichlorobenzene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
1,2-Dichlorobenzene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2-Chloronaphthalene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
2-Methylnaphthalene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Phenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Pentachlorophenol _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	TP106	TP110	TP103	TP103			
Depth to Top	0.20	0.40	0.10	0.60	0.20	0.45	1.40			
Depth To Bottom										
Date Sampled	11-Jun-24	11-Jun-24	11-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AE	6AB	4A	4A	4AE	4AE	6A			
n-Diethylphthalate _A	-	-	-	-	-	<500	-	µg/kg	500	A-T-052s
n-Dibutylphthalate _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Nitrobenzene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Isophorone _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Hexachloroethane _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Hexachlorobutadiene _A	-	-	-	-	-	<100	-	µg/kg	100	A-T-052s
Perylene _A	-	-	-	-	-	190	-	µg/kg	100	A-T-052s

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	TP106	TP110	TP103	TP103			
Depth to Top	0.20	0.40	0.10	0.60	0.20	0.45	1.40			
Depth To Bottom										
Date Sampled	11-Jun-24	11-Jun-24	11-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AE	6AB	4A	4A	4AE	4AE	6A			
VOC										
Dichlorodifluoromethane _A	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Chloromethane _A	-	-	-	-	-	<10	-	µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene) _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromomethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Chloroethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Trichlorofluoromethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1-Dichloroethene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Carbon Disulphide _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Dichloromethane _A	-	-	-	-	-	<5	-	µg/kg	5	A-T-006s
trans 1,2-Dichloroethene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1-Dichloroethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
cis 1,2-Dichloroethene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
2,2-Dichloropropane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromochloromethane _A [#]	-	-	-	-	-	<5	-	µg/kg	5	A-T-006s
Chloroform _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,1-Trichloroethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1-Dichloropropene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Carbon Tetrachloride _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dichloroethane _A [#]	-	-	-	-	-	<2	-	µg/kg	2	A-T-006s
Benzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Trichloroethene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dichloropropane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Dibromomethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromodichloromethane _A [#]	-	-	-	-	-	<10	-	µg/kg	10	A-T-006s
cis 1,3-Dichloropropene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Toluene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
trans 1,3-Dichloropropene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,2-Trichloroethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,3-Dichloropropane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Tetrachloroethene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Dibromochloromethane _A [#]	-	-	-	-	-	<3	-	µg/kg	3	A-T-006s
1,2-Dibromoethane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	TP106	TP110	TP103	TP103			
Depth to Top	0.20	0.40	0.10	0.60	0.20	0.45	1.40			
Depth To Bottom										
Date Sampled	11-Jun-24	11-Jun-24	11-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AE	6AB	4A	4A	4AE	4AE	6A			
Chlorobenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane _A	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Ethylbenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
m & p Xylene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
o-Xylene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Styrene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromoform _A [#]	-	-	-	-	-	<3	-	µg/kg	3	A-T-006s
Isopropylbenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane _A	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2,3-Trichloropropane _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
Bromobenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
n-Propylbenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
2-Chlorotoluene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
4-Chlorotoluene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
tert-Butylbenzene _A [#]	-	-	-	-	-	<2	-	µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
sec-Butylbenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
4-Isopropyltoluene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,3-Dichlorobenzene _A	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,4-Dichlorobenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
n-Butylbenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dichlorobenzene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP) _A	-	-	-	-	-	<2	-	µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene _A	-	-	-	-	-	<3	-	µg/kg	3	A-T-006s
Hexachlorobutadiene _A [#]	-	-	-	-	-	<1	-	µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene _A	-	-	-	-	-	<3	-	µg/kg	3	A-T-006s

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS104	WS105	TP106	TP110	TP103	TP103			
Depth to Top	0.20	0.40	0.10	0.60	0.20	0.45	1.40			
Depth To Bottom										
Date Sampled	11-Jun-24	11-Jun-24	11-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24	12-Jun-24			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AE	6AB	4A	4A	4AE	4AE	6A			
TPH CWG with Clean Up										
Ali >C5-C6 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<10	<1	<10	<1	<1	<1	-	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<10	<1	<10	<1	<1	<1	-	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<10	4	<10	<1	<1	<1	-	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<10	7	<10	2	1	4	-	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	52	13	26	22	15	22	-	mg/kg	1	A-T-055s
Total Aliphatics _A	52	24	26	24	16	26	-	mg/kg	1	Calc-As Recd
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<30	<3	<30	<3	<3	<3	-	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<10	<1	<10	1	<1	<1	-	mg/kg	1	A-T-055s
Aro >C12-C16 _A	29	3	<10	5	5	5	-	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	75	6	23	13	19	18	-	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	196	12	70	45	92	68	-	mg/kg	1	A-T-055s
Total Aromatics _A	301	21	92	65	116	91	-	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C35) _A	353	46	119	89	132	117	-	mg/kg	1	Calc-As Recd
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	mg/kg	0.01	A-T-022s

Envirolab Job Number: 24/05952

Client Project Name: Wythenshawe Town FC

Client Project Ref: Not specified

Lab Sample ID	24/05952/8	24/05952/9	24/05952/10					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP107	TP109	TP102							
Depth to Top	1.40	1.40	0.20							
Depth To Bottom										
Date Sampled	12-Jun-24	12-Jun-24	12-Jun-24							
Sample Type	SOIL	SOIL	SOIL							
Sample Matrix Code	3E	3AE	4AE							
% Stones >10mm _A	<0.1	<0.1	<0.1					% w/w	0.1	A-T-044
pH _D ^{M#}	7.62	7.24	6.29					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.16	0.04	-					g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	920	380	-					mg/kg	200	A-T-028s
Sulphur (total) _D	2660	673	-					mg/kg	50	A-T-024s
Magnesium _D	21900	13700	-					mg/kg	50	A-T-024s

Report Notes

General

- This report shall not be reproduced, except in full, without written approval from Envirolab.
- The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client and can affect the validity of results.
- The results reported herein relate only to the material supplied to the laboratory.
- The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
- Analytical results reflect the quality of the sample at the time of analysis only.
- Opinions and Interpretations expressed are outside our scope of accreditation.
- A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
- If a sample is outside of the calibration range or affected by interferences then it may need diluting. This will result in the limit of detection (LOD) being raised.
- Subcontracted Analysis: Please see the appended report for any deviations, current LODs and accreditation status of the test.

Key

Superscript “#”	Accredited to ISO 17025
Superscript “M”	Accredited to MCertS
Superscript “U”	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript “A”	Analysis performed on as-received Sample
Subscript “D”	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript “D” on Asbestos	Analysis performed on a dried aliquot of sample provided.
Subscript “A”	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis

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

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs

Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.

Soil Chemical Analysis:

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

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any “D” subscripts.

TPH by method A-T-007:

For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.

Results “with Clean up” indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:

EPH CWG results have humics mathematically subtracted through instrument calculation.

Where these humic substances have been identified in any IDs from “TPH CWG with clean up” please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: BEK Enviro Ltd, 2 Landwick Court, Metcalfe Drive, Altham Business Park,
Altham, Lancashire , BB5 5GY

Project: Wythenshawe Town FC

Clients Project No:

Project No: 24/05952

Date Received: 14/06/2024 (am)

Cool Box Temperatures (°C): 16.6 16.5

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/05952/1	24/05952/2	24/05952/3	24/05952/4	24/05952/5	24/05952/6	24/05952/7	24/05952/8	24/05952/9	24/05952/10
Client Sample No										
Client Sample ID/Depth	WS101 0.20m	WS104 0.40m	WS105 0.10m	TP106 0.60m	TP110 0.20m	TP103 0.45m	TP103 1.40m	TP107 1.40m	TP109 1.40m	TP102 0.20m
Date Sampled	11/06/24	11/06/24	11/06/24	12/06/24	12/06/24	12/06/24	12/06/24	12/06/24	12/06/24	12/06/24
A-T-006s						20/06/2024				
A-T-019s	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024				
A-T-022s	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024				
A-T-024s	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	28/06/2024	28/06/2024	28/06/2024	
A-T-026s	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	
A-T-027s	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024				
A-T-028s	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	
A-T-031s	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024
A-T-032s	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024				
A-T-040s	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024	24/06/2024				
A-T-042sTCN	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024				
A-T-044	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024
A-T-045	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024	17/06/2024				
A-T-050s	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024				
A-T-052s						19/06/2024				
A-T-055s	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024				
Calc-As Recd	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024	19/06/2024				

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

APPENDIX C

Geotechnical Test Results

TEST REPORT

Client BEK Enviro Ltd

Address Suite One
No. 3 Mitton Road Business Park
Mitton Road
Whalley
Lancashire
BB7 9YE

Contract Wythenshawe Town FC

Job Number MRN 24115/22
Date of Issue 02 July 2024
Page 1 of 4

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

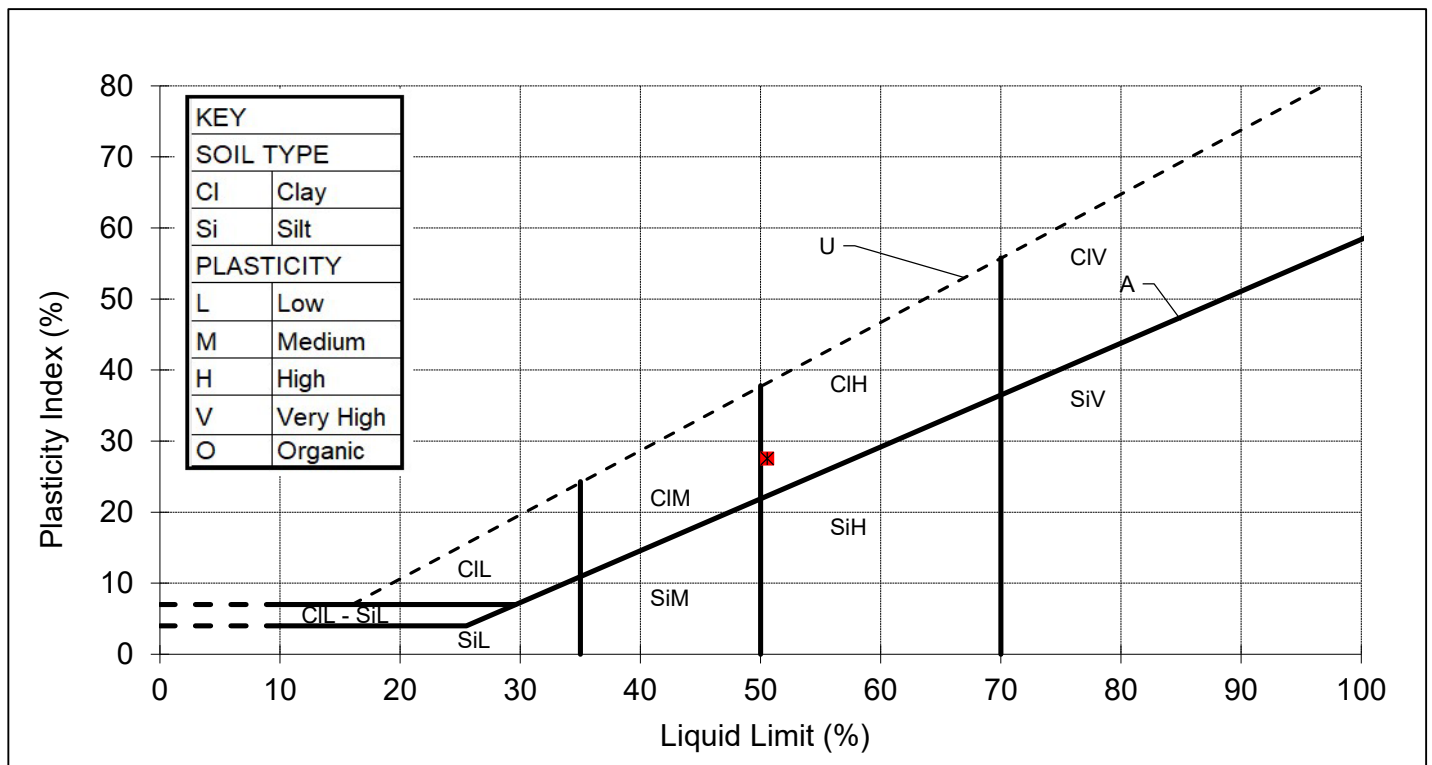
CLIENT	BEK Enviro Ltd
SITE	Wythenshawe Town FC
JOB NUMBER	MRN 24115/22

SAMPLE LABEL	TP103 1.40m	DATE SAMPLED	12-May-24
SAMPLE No.	493601	DATE RECEIVED	14-May-24
DATE TESTED	17-Jun-24	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	18.6	49.5	1.023	
Determination 2 (avg)	18.7	49.3		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
34.3	51	23	28	99



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

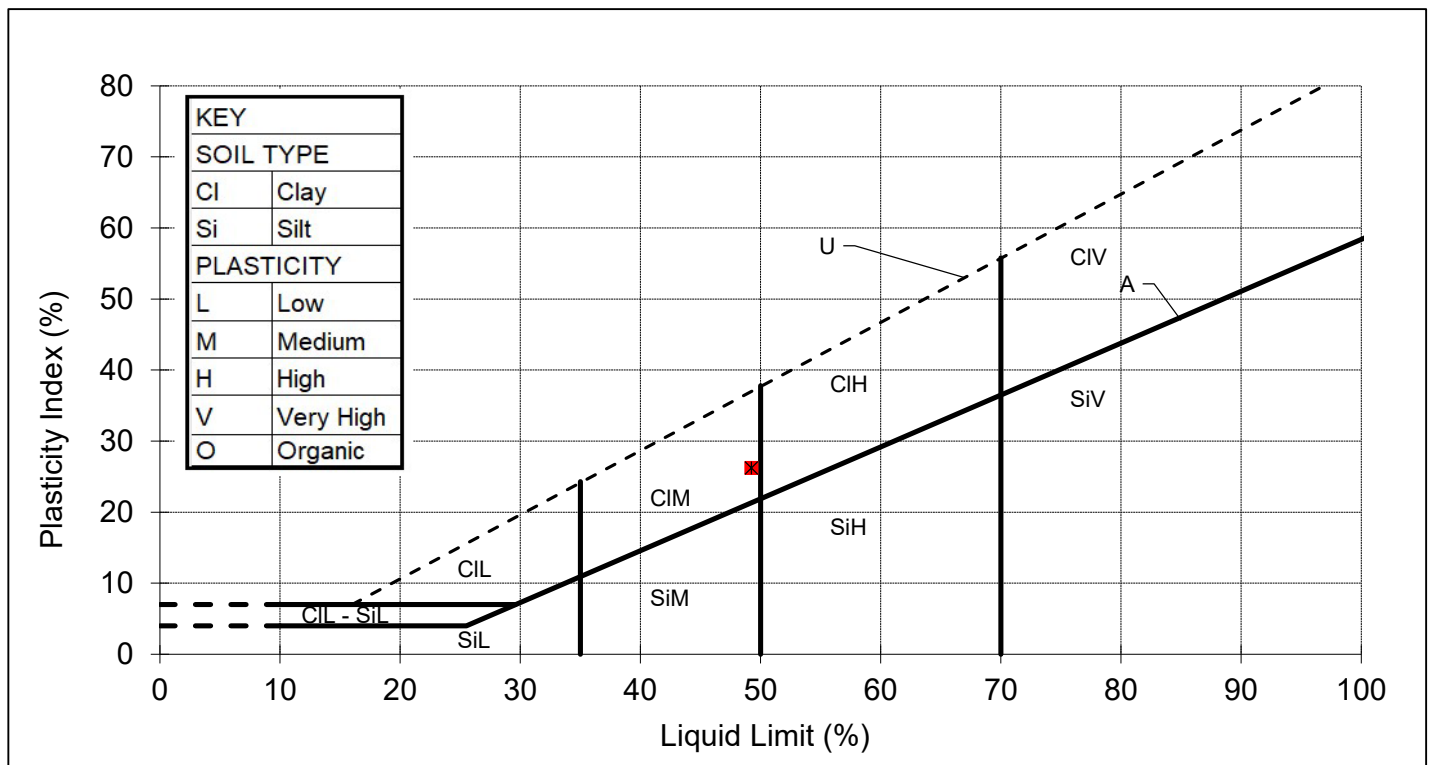
CLIENT	BEK Enviro Ltd
SITE	Wythenshawe Town FC
JOB NUMBER	MRN 24115/22

SAMPLE LABEL	TP107 1.40m	DATE SAMPLED	12-May-24
SAMPLE No.	493602	DATE RECEIVED	14-May-24
DATE TESTED	17-Jun-24	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	17.0	46.4	1.057	
Determination 2 (avg)	17.1	46.8		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
30.2	49	23	26	99



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

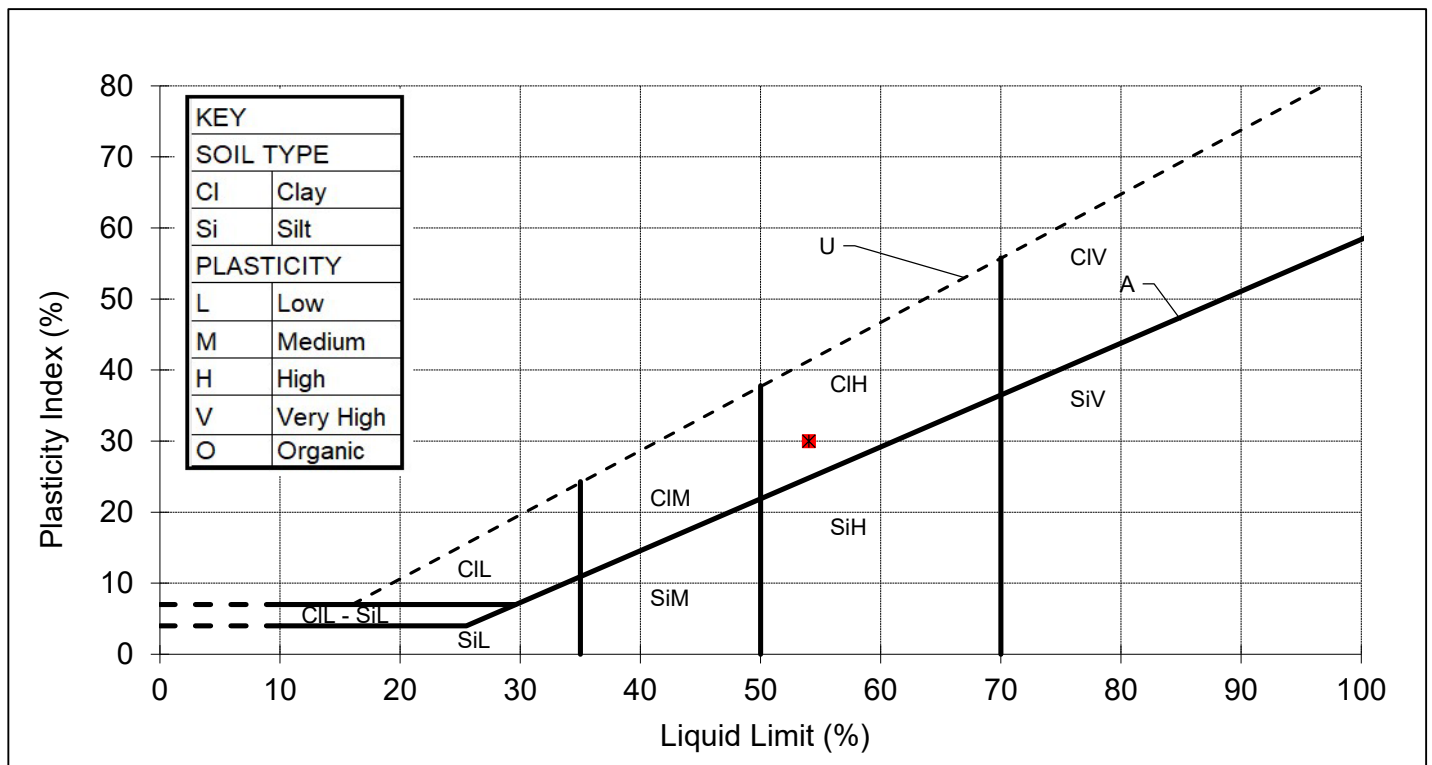
CLIENT	BEK Enviro Ltd
SITE	Wythenshawe Town FC
JOB NUMBER	MRN 24115/22

SAMPLE LABEL	TP109 1.40m	DATE SAMPLED	12-May-24
SAMPLE No.	493603	DATE RECEIVED	14-May-24
DATE TESTED	17-Jun-24	SAMPLED BY	Client

MATERIAL	Dark brown silty slightly sandy slightly gravelly CLAY.		
ADVISED SOURCE	Site Investigation Sample	WATER CONTENT	Increasing
SAMPLE HISTORY	Natural State	% RET. 425um BY	Wet Sieved

Test Readings mm (average)		Moisture Content %	Correction Factor	Correction factor from Clayton and Jukes 1978
Determination 1 (avg)	17.1	51.4	1.054	
Determination 2 (avg)	17.0	51.1		

Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
41.3	54	24	30	99



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

02-Jul-24

APPENDIX D

Infiltration Test Results



GEO-ENVIRONMENTAL CONSULTING

Soakaway Testing			
Project Name	Wythenshawe Town FC	Location Reference:	TP101
Project Number	24072	Test Number:	1
Test Date	12/07/2024	Weather:	Sunny, Dry

FIELD MEASUREMENTS

INFILTRATION CALCULATION

Elapsed Time, t (m)	Water Level (mBGL)
0	1.00
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
10	1.00
20	1.01
30	1.04
40	1.06
50	1.08
60	1.10
90	1.12
120	1.16
180	1.21
240	1.24

Calculation of Soil Infiltration Rate (f) as per BRE Digest 365 "Soakaway Design".

Using:

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

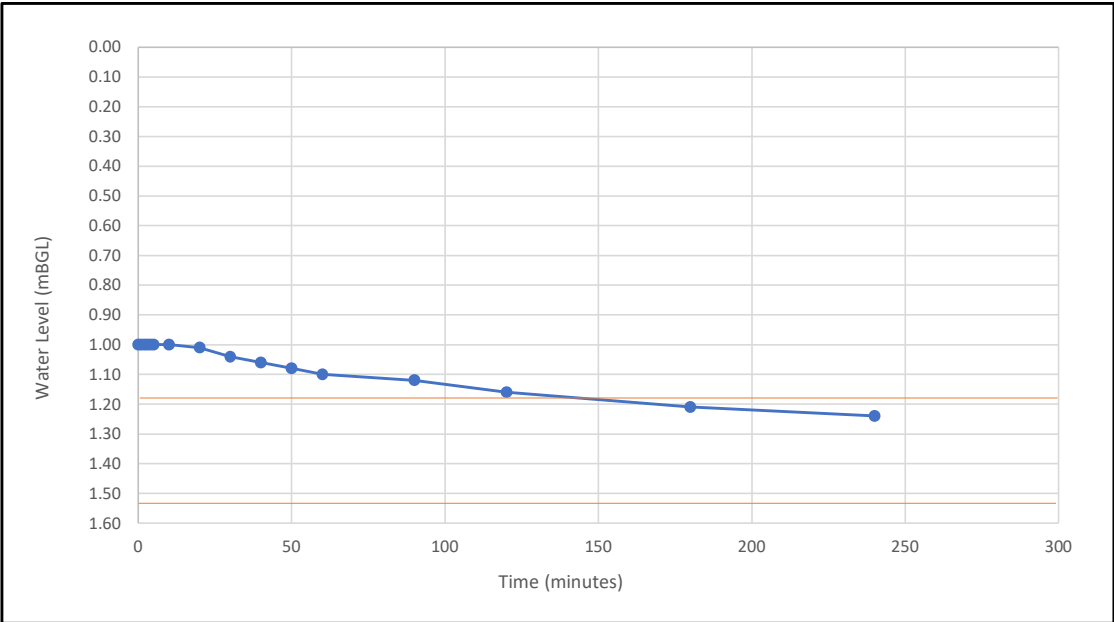
Where:

V_{p75-25}	The effective storage volume of water (m ³) in the trial pit between 75% and 25% effective depth	0.32
a_{p50}	The internal surface area of the trial pit (m ²) up to 50% effective depth and including the base area	2.37
t_{p75-25}	The time (s) for the water level to fall from 75% to 25% effective depth	0

Soakage Pit Length (m)	1.50
Soakage Pit Width (m)	0.60
Soakage Pit Depth (m)	1.70
Soakage Pit Area (m ³)	1.53
Start Water Level (mBGL)	1
Total Depth of Test (m)	0.70
75% Effective Depth (mBGL)	1.18
50% Effective Depth (m)	0.35
25% Effective Depth (mBGL)	1.53
Time at 75% Effective Depth (minutes)	0
Time at 25% Effective Depth (minutes)	0

INFILTRATION RATE

Soil Infiltration Rate (f)	Test Failed to Reach 25% Effective Depth
m/s	Test Failed to Reach 25% Effective Depth
m/hour	Test Failed to Reach 25% Effective Depth





GEO-ENVIRONMENTAL CONSULTING

Soakaway Testing			
Project Name	Wythenshawe Town FC	Location Reference:	TP102
Project Number	24072	Test Number:	1
Test Date	12/07/2024	Weather:	Sunny, Dry

FIELD MEASUREMENTS

INFILTRATION CALCULATION

Elapsed Time, t (m)	Water Level (mBGL)
0	1.00
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
10	1.00
20	1.02
30	1.04
40	1.05
50	1.06
60	1.06
90	1.07
120	1.09
180	1.10
240	1.12

Calculation of Soil Infiltration Rate (f) as per BRE Digest 365 "Soakaway Design".

Using:

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

Where:

V_{p75-25}	The effective storage volume of water (m ³) in the trial pit between 75% and 25% effective depth	0.32
a_{p50}	The internal surface area of the trial pit (m ²) up to 50% effective depth and including the base area	2.37
t_{p75-25}	The time (s) for the water level to fall from 75% to 25% effective depth	0

Soakage Pit Length (m)	1.50
Soakage Pit Width (m)	0.60
Soakage Pit Depth (m)	1.70
Soakage Pit Area (m ³)	1.53
Start Water Level (mBGL)	1
Total Depth of Test (m)	0.70
75% Effective Depth (mBGL)	1.18
50% Effective Depth (m)	0.35
25% Effective Depth (mBGL)	1.53
Time at 75% Effective Depth (minutes)	0
Time at 25% Effective Depth (minutes)	0

INFILTRATION RATE

Soil Infiltration Rate (f)

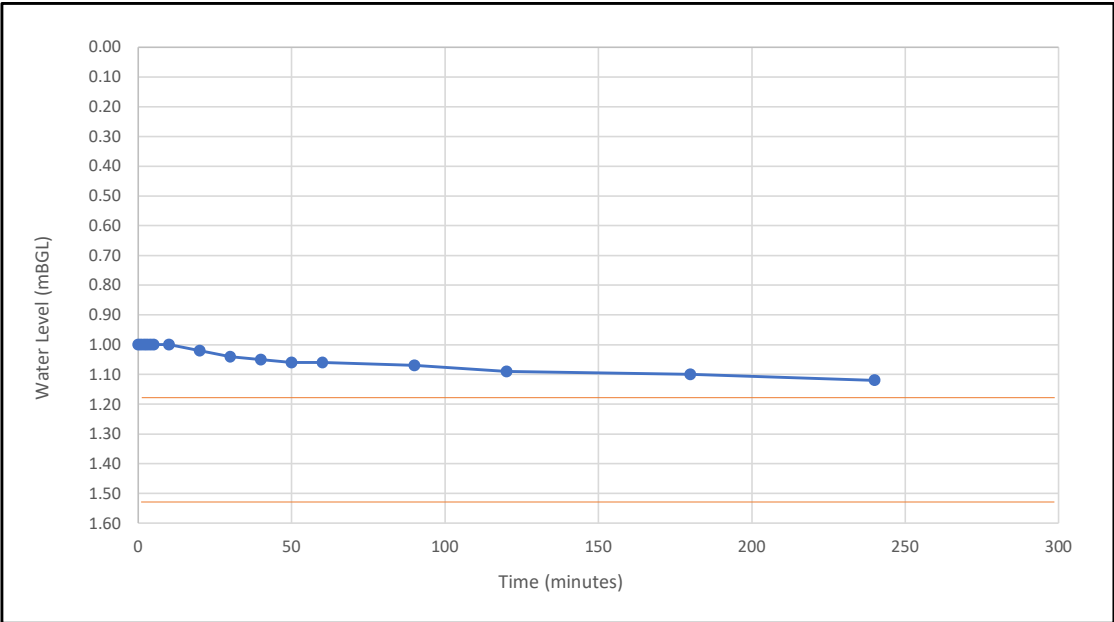
Test Failed to Reach 25% Effective Depth

m/s

Test Failed to Reach 25% Effective Depth

m/hour

Test Failed to Reach 25% Effective Depth





GEO-ENVIRONMENTAL CONSULTING

Soakaway Testing			
Project Name	Wythenshawe Town FC	Location Reference:	TP103
Project Number	24072	Test Number:	1
Test Date	12/07/2024	Weather:	Sunny, Dry

FIELD MEASUREMENTS

INFILTRATION CALCULATION

Elapsed Time, t (m)	Water Level (mBGL)
0	1.00
1	1.00
2	1.00
3	1.00
4	1.00
5	1.00
10	1.00
20	1.00
30	1.00
40	1.00
50	1.00
60	1.00
90	1.00
120	1.00
180	1.00
240	1.00

Calculation of Soil Infiltration Rate (f) as per BRE Digest 365 "Soakaway Design".

Using:

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

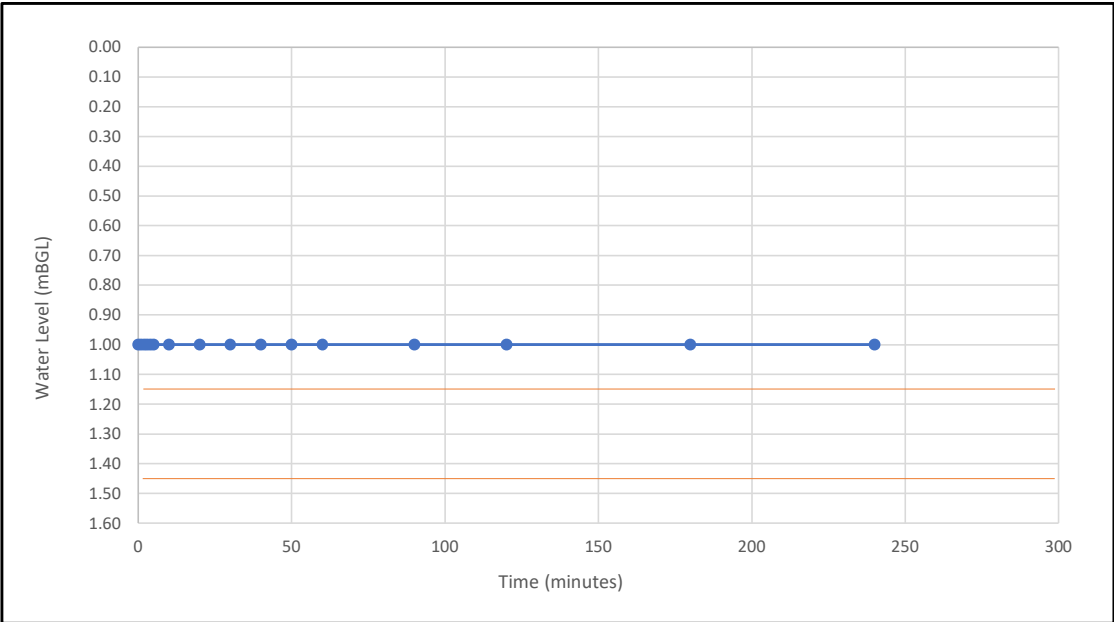
Where:

V_{p75-25}	The effective storage volume of water (m ³) in the trial pit between 75% and 25% effective depth	0.27
a_{p50}	The internal surface area of the trial pit (m ²) up to 50% effective depth and including the base area	2.16
t_{p75-25}	The time (s) for the water level to fall from 75% to 25% effective depth	0

Soakage Pit Length (m)	1.50
Soakage Pit Width (m)	0.60
Soakage Pit Depth (m)	1.60
Soakage Pit Area (m ³)	1.44
Start Water Level (mBGL)	1
Total Depth of Test (m)	0.60
75% Effective Depth (mBGL)	1.15
50% Effective Depth (m)	0.30
25% Effective Depth (mBGL)	1.45
Time at 75% Effective Depth (minutes)	0
Time at 25% Effective Depth (minutes)	0

INFILTRATION RATE

Soil Infiltration Rate (f)	Test Failed to Reach 25% Effective Depth
m/s	Test Failed to Reach 25% Effective Depth
m/hour	Test Failed to Reach 25% Effective Depth



APPENDIX E

Trial Pit Photos

				
P1: Trial Pit No 1 (Soakaway 1)	P2: Trial Pit No 2 (Soakaway 2)			
				
P3: Trial Pit No 3 (Soakaway 3)	P4: Trial Pit No 4			
				
P5: Trial Pit No 5	P6: Trial Pit No 6			
				
Photographs 1 to 6				
This appendix is for illustrative purposes only and is for use only in conjunction with associated reports relating to the project details adjacent. BEK accepts no liability for the misinterpretation or use of this illustration by any other parties.	Site: Wythenshawe Town FC	Project No: 24072	Created By: M Leigh-Monk	Date: September 2024
	Title: Appendix E - Photographs	Client: Padel and Pickle Ltd		

	
P7: Trial Pit No 7 (Correct number on board TP7)	P8: Trial Pit No 8
	
P9: Trial Pit No 9	P10: Trial Pit No 10
	
P11: Trial Pit No 11	
	
Photographs 7 to 11	
This appendix is for illustrative purposes only and is for use only in conjunction with associated reports relating to the project details adjacent. BEK accepts no liability for the misinterpretation or use of this illustration by any other parties.	
Site: Wythenshawe Town FC Project No: 24072 Created By: M Leigh-Monk Date: September 2024 Title: Appendix E - Photographs Client: Padel and Pickle Ltd	

APPENDIX F

Concrete Classification Sheet

Aggressive Chemical Environment for Concrete (ACEC) Classification for Brownfield Locations

Project Name	Wythenshawe Town FC
Project Number	24072
Test Date	12/06/2024

Classification of Aggressive Chemical Environment for Concrete (ACEC) for Brownfield Locations as per BRE Special Digest 1 (2005) "Assessing the aggressive chemical environment" (Pg 30-32)

	Units	TP103	TP107	TP109	WS101	WS104	WS105	TP106	TP110
Sample ID									
Depth to Top	m								
pH	pH	6.91	7.62	7.24	7.98	8.24	5.04	7.59	7.45
SO ₄ (Water Sol 2:1)	g/l	0.14	0.16	0.04	0.01	0.02	1.08	0.05	0.01
AS%SO ₄ (Acid Sol)	mg/kg	980	920	380	200	470	4800	440	360
TS%S	mg/kg	3000	2660	673					

Characteristic pH Value

5.04

Using:

$$\text{TPS}\% \text{SO}_4 = 3.0 \times \text{TS}\% \text{S}$$

and:

$$\text{OS}\% \text{SO}_4 = \text{TPS}\% \text{SO}_4 - \text{AS}\% \text{SO}_4$$

Where:

AS%SO₄ = Total Sulfate Content

TS%S = Total Sulfur Present

TPS%SO₄ = Total Potential Sulfate

OS%SO₄ = Oxidisable Sulfides

Calculations

SO ₄ (Water Sol 2:1)	mg/l	140	160	40	10	20	1080	50	10
TPS%SO ₄	%	0.90	0.80	0.20					
OS%SO ₄	%	0.80	0.71	0.16	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

Characteristic TPS Value

0.85

Results

Pyrite likely to be present?

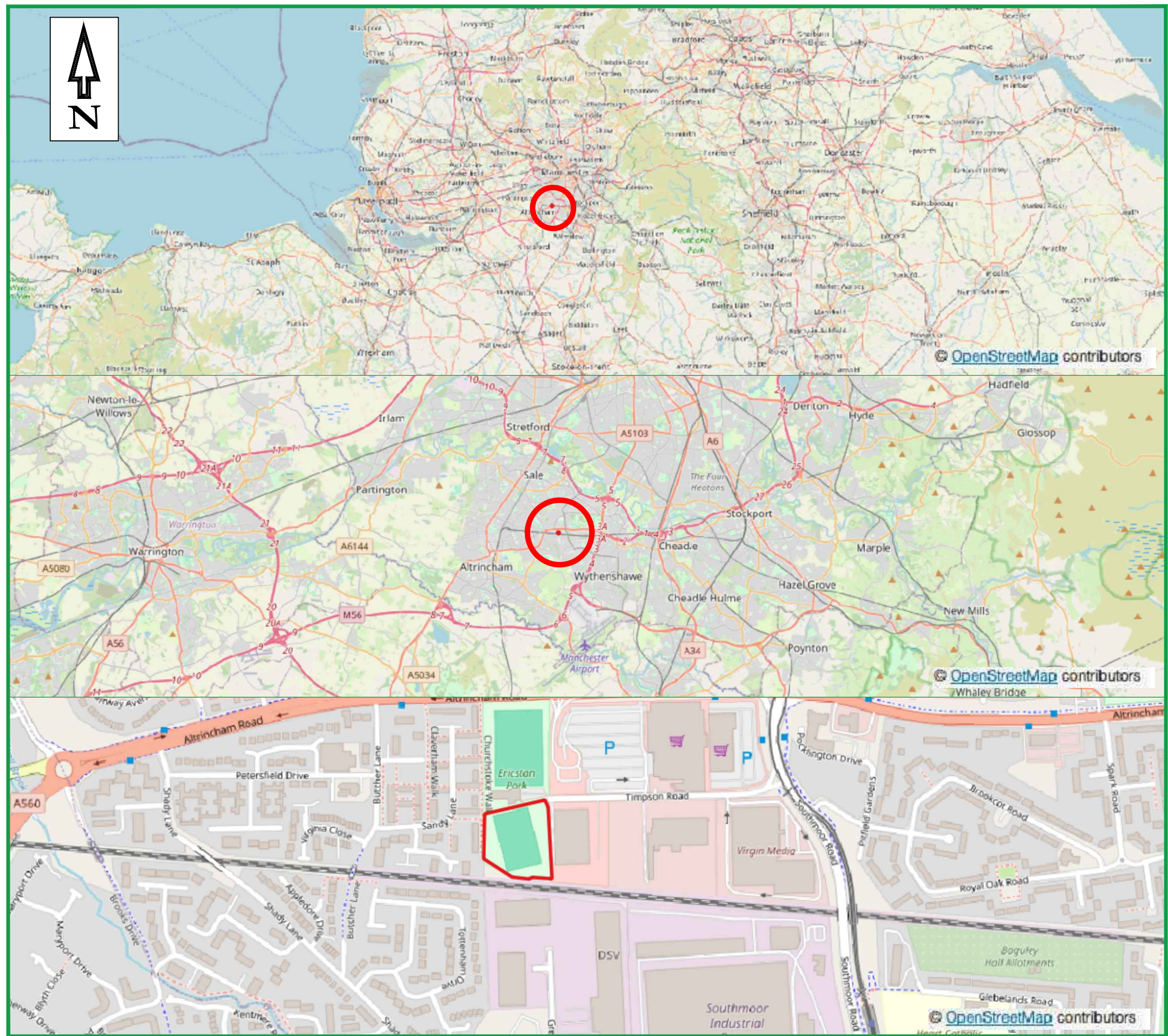
Yes

Concrete Classification?

DS-3 AC 3

APPENDIX G

Drawings



LEGEND

— SITE LOCATION

REV	DESCRIPTION	DATE	BY



No 2 Landwick Court, Metcalf Drive, Altham Business Park, Lancashire
Tel: 01254 377622 Mob: 07906753583
Email: mbuckley@bekenenviro.co.uk
Web: www.bekenenviro.co.uk

CLIENT.
STEVEN ABBOTT ASSOCIATES LLP

JOB TITLE.
LAND AT WYTHANSHAW TOWN FC, WYTHENSHAW

DRAWING TITLE.
SITE LOCATION PLAN

SCALE @ A3. N'TS	DRAWN BY. D.E.	APPROVED BY. M.B.	DATE. 04/06/24
DRAWING No.	24072-1	REV.	-



LEGEND

SITE FOOTPRINT

REV	DESCRIPTION	DATE	BY



No 2 Landwick Court, Metcalf Drive, Altham Business Park, Lancashire, BB5 5GY
Tel: 01254 377622 Mob: 07906753583
Email: mbuckley@bekenviro.co.uk
Web: www.bekenviro.co.uk

CLIENT.
STEVEN ABBOTT ASSOCIATES LLP

JOB TITLE.
LAND AT WYTHANSHAW TOWN FC, WYTHENSHAW

DRAWING TITLE.
SITE LAYOUT PLAN

SCALE © A3. NTS	DRAWN BY. D.E.	APPROVED BY. M.B.	DATE. 04/06/24
DRAWING No.	24074-2	REV.	-



LEGEND

-  WINDOW SAMPLE BOREHOLE
-  WINDOW SAMPLE BOREHOLE (GAS/GROUNDWATER WELLS)
-  TRIAL PIT
-  TRIAL PIT (INFILTRATION TEST)

REV	DESCRIPTION	DATE	BY



GEO-ENVIRONMENTAL CONSULTING
No 2 Landwick Court, Metcalf Drive, Altham Business
Park, Lancashire, BB5 5GY
Tel: 01254 377622 Mob: 07906753583
Email: mbuckley@bekenviro.co.uk
Web: www.bekenviro.co.uk

CLIENT.

STEVE ABBOTT ASSOCIATES LLP

JOB TITLE.

LAND AT WYTHENSHAW TOWN
FC, WYTHENSHAW

DRAWING TITLE.

SITE INVESTIGATION PLAN

SCALE @ A3. N.T.S	DRAWN BY. D.E.	APPROVED BY. M.B.	DATE. 13/06/24
DRAWING No. 24072-3	REV. -		



GEO-ENVIRONMENTAL CONSULTING

BEK Geo-Environmental Consulting
No.2 Landwick Court, Metcalf Drive,
Altham Business Park,
Lancashire BB5 5TU

✉ mbuckley@bekenviro.co.uk
☎ 01254 377622