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REGENERATE



GROUND INVESTIGATION REPORT

**FOR
9 CHATSWORTH AVENUE,
PRESTWICH,
MANCHESTER,
M25 1LZ**

**PREPARED FOR
TURNKEY INDEPENDENT
PROPERTY SERVICES LIMITED**

**REPORT NO. 7832A
JANUARY 2024**

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**GROUND INVESTIGATION FOR 9 CHATSWORTH AVENUE, PRESTWICH,
MANCHESTER, M25 1LZ**

CLIENT: TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED

1. INTRODUCTION

This report has been prepared in accordance with an email, dated 25th November 2023, from the Client.

The brief was set out in our estimate, ref. E6764 and dated 2nd November, with amendments as the investigation proceeded and includes:

- 3 No. mini boreholes
- 2 No. hand dug trial pits
- Geotechnical laboratory testing
- Contamination analysis
- Installation of standpipes followed by groundwater and ground gas monitoring
- Provision of an interpretative report on the above.

It should be noted that we have previously issued a Phase I Desk Study Report for this site, ref. 7832 and dated October 2023, which should be read in conjunction with this Phase II Ground Investigation Report.

1.1 Site Location and Description

The site is located at 9 Chatsworth Avenue, Prestwich, Manchester, M25 1LZ, as indicated on Figure 1. The approximate National Grid Reference of the centre of the site is 381820E, 403981N.

As shown on Figure 2, the about 0.03 hectare rectangular shaped site which comprises a party constructed residential property following the demolition of the previous building on site. It is bound by Chatsworth Avenue to the north, 7 Chatsworth Avenue to the east, the rear garden of 1 Oaklands Drive to the south, and 11 Chatsworth Avenue to the west.

1.2 Proposed Development and Purpose of the Ground Investigation

We understand that it is proposed to construct two storey side and rear extensions to produce a larger two storey semi-detached residential building on the site with the creation of a new vehicular access to the northwest, as shown on Figure 3.

The purpose of the investigation was to determine the ground conditions at the positions of the exploratory holes, to assess the likelihood of a general pattern of strata being present below the site. It should be noted that in the Desk Study a pond was shown to be present beneath the southwest third of the site in 1909.

In addition contamination analysis and assessment was required in order to determine necessary precautions and/or remedial measures required for the proposed development and to ascertain the need for any further sampling and analysis.

Ground gas monitoring and assessment was also required to determine necessary precautions and/or remedial measures.

2. INVESTIGATION

2.1 Investigation Details

Three mini boreholes were put down to a depth of 4.00 metres using Mini Sampling Rig fitted with windowless sample tubes of 86 to 66mm diameter at the positions determined and set out by Sub Surface North West Limited, as shown on Figure 2. The samples were subsequently logged in accordance with BS.5930:2015+A1:2020 and the resulting Mini Borehole Records are appended.

Two hand dug trial pits were taken out at the positions determined and set out by Sub Surface North West Limited, as shown on Figure 2. The hand dug trial pits were excavated to depth of 1.20 metres. Samples were taken for logging, in accordance with BS.5930:2015+A1:2020, and testing. The resulting Hand Dug Trial Pit Records are appended. On completion the hand dug trial pits were backfilled with arisings.

2.2 Sub Surface Detail

Details of the strata encountered in the ground investigation are given on the appended Mini Borehole Records. The exploratory holes found made ground overlying drift deposits. The depths of strata found were as follows:

TABLE 1 STRATA

Expl. Hole No.	Depth of Granular Made Ground (m)	Depth of Cohesive Made Ground (m)	Depth of Granular Drift Deposits (m)	Depth of Cohesive Drift Deposits (m)	Depth of Hole (m)
M1	0.00 - 1.00	-	3.35 - 3.55	1.00 - 3.35 3.55 - >4.00	4.00
M2	0.00 - 2.65	2.65 - >4.00	-	-	4.00
M3	0.0 - 2.50	-	-	2.50 - >4.00	4.00
HD1	>1.20	-	-	-	1.20
HD2	>1.20	-	-	-	1.20

M = Mini Borehole, HD = Hand Dug Trial Pit

A general summary of the strata found is as follows:

2.2.1 Made Ground

M1, M2 and M3 encountered made ground to depths of 1.00m, >4.00m and 2.50m respectively. M1 comprised dark brown gravelly silty sand with occasional rootlets to 1.00m. M2 comprised dark brown ashy gravelly silty sand to 2.35m, dark brown sandy silty gravel to 2.65m, soft dark brown ashy slightly gravelly sandy silty clay to 3.60m and dark grey slightly gravelly slightly sandy silty clay with occasional rootlets to 4.00m. M3 and HD2 comprised dark brown ashy gravelly silty sand with occasional rootlets to 2.50m and 1.20m respectively. HD1 comprised dark brown ashy gravelly sand to 0.50m, underlain by dark brown gravelly silty sand with occasional rootlets.

Gravel sized fragments within made ground consisted of fine to coarse stone, brick, glass, tile and clinker.

2.2.2 Drift Deposits

Cohesive deposits were found underlying the Made Ground in M1 and M3. In M1 these comprised soft orangish brown and brown mottled slightly gravelly sandy silty clay to a depth of 1.20m, overlying firm orangish brown slightly gravelly sandy silty clay with occasional pockets of sand to a depth of 1.65m, overlying firm medium strength brown slightly gravelly slightly sandy silty clay to a depth of 3.35m and between 3.55 and 4.00 metres. In M3 the cohesive deposits comprised soft to firm slightly gravelly slightly sandy silty clay with occasional pockets of sand.

Granular deposits were found in M1 and comprised a thin band of brown clayey silty fine to medium sand between the depths 3.35 and 3.55 metres.

Gravel within the natural strata consisted of subangular to subrounded fine to medium sandstone, siltstone, quartz and coal.

2.2.3 Groundwater

Groundwater inflows were recorded in M2 and M3 at depths of 2.00m and 1.50m depths respectively within the old pond area. It should be noted that they were only left open for a short period of time and groundwater levels and rates of inflow may be subject to seasonal and/ or climatic variations.

3. SAMPLING, TESTING AND MONITORING

3.1 Sampling

Continuous core and bulk disturbed samples were obtained for the strata encountered and were subjected to careful examination and hand shear vane tests, where appropriate.

The samples will be retained for a period of one month after the issue of this report, for reference purposes, and then disposed of unless otherwise instructed.

3.2 Field Testing

Nine hand shear vane tests were undertaken in the mini boreholes and the results are given on the appended Mini Borehole Records.

3.3 Installations and Monitoring

On completion of M1, M2 and M3, hdpe standpipes were installed to depths of 4.00m, 3.00m and 3.00 metres respectively. The standpipes are slotted from 1.00 metres depth, have an internal diameter of 50mm and have removable quick release gas valves to enable both ground gas and groundwater monitoring and sampling to be undertaken. Details of the installations are given on the Mini Borehole Records.

Monitoring of the standpipes for ground gas and groundwater has been undertaken on three of six scheduled occasions to date using portable equipment. A Gas Data GFM 435 was used for monitoring methane, carbon dioxide, oxygen, gas flows and atmospheric pressure. The results of the monitoring is given on the appended Ground Gas and Groundwater Monitoring Results sheet.

3.4 Laboratory Testing

Contamination analyses have been performed on four soil samples and two water samples to determine: pH and concentrations of sulphate, sulphide, cyanide, arsenic, boron (soluble), cadmium, chromium, hexavalent chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, speciated total petroleum hydrocarbons (TPHs), the speciated polynuclear aromatic hydrocarbons (PAHs) suite, the benzene/ethylbenzene/toluene/xylene (BTEX) suite and phenols. In addition four soil samples were subjected to an asbestos screen.

The results of the above analyses are appended.

4. APPRAISAL AND RECOMMENDATIONS

4.1 Comments on the Profile

At the outset it should be appreciated that only a small proportion of the area to be developed has been investigated and consequently the recommendations made and opinions expressed in this report can only be applied to such conditions as were encountered in the exploratory holes.

Due to the site having been previously developed, and the nature of Made Ground, localised variations in thickness and composition should be anticipated and hence interpolation or extrapolation from the exploratory holes to adjoining areas should not be undertaken.

The boreholes encountered made ground to depths of 1.00m, >4.00m, and 2.50m in M1, M2 and M3 respectively, which corresponds to the location of the backfilled pond recorded in 1909 in the southwest of the site. The deepest made ground being in the southwest (M2) becoming shallower to the northeast (M1).

The exploratory holes indicate a nature and degree of similarity to the extent that we consider them likely to be representative of the natural ground conditions. However, no guarantee can be given.

Details of the findings of the investigation are given on the appended Mini Borehole Records and Hand Dug Trial Pit Records and a summary of the ground conditions is given in Section 2.2.

4.2 Contamination Considerations

We have previously undertaken a Phase I Report, ref. 7832 and dated October 2023 and this Phase II ground investigation has been undertaken to provide an initial contamination risk assessment in accordance with the Phase I Conceptual Ground Model. Based upon the findings of the above additional sampling, analysis and assessment may be required.

It should be appreciated that the suite of determinants analysed for consists of a range of contaminants identified in the Conceptual Ground Model. However, the absence of any other specific contaminants cannot be guaranteed.

4.2.1 Assessment (Soil)

In order to provide an assessment of the presence of contamination four soil samples have been analysed for a suite of determinants and the results are appended.

Levels of the determinants have been compared against the most recently published guideline values. Contaminated Land: Applications in Real Environments (CL:AIRE) published guideline values in December 2009 to supplement previous guideline values. The Department for Environment, Food and Rural Affairs (DEFRA) published in March 2014 Category 4 Screening Levels (C4SLs) for arsenic, cadmium, lead, hexavalent chromium, benzo(a)pyrene and benzene. Land Quality Management Limited (LQM)/ Chartered Institute of Environmental Health (CIEH) then published Suitable for Use Levels (S4ULs) in November 2014, which largely superseded the previous guideline values. Updated S4ULs values for cadmium and phenols were published in July 2015 and for nickel in August 2015. The guideline values (S4ULs and occasionally C4SLs and CL:AIRE) are derived using the Environment Agency's CLEA Model and vary dependent upon the land use; allotment and residential use being the most sensitive and commercial/ industrial use being the least sensitive.

For the purposes of assessment, as the proposed development is a larger two storey semi-detached residential building, contamination analyses have been compared with the guideline values for a standard land use of residential with plant uptake (with homegrown produce).

When compared with published guideline values for a standard land use of residential with plant uptake (with homegrown produce), the contamination analysis determined elevated levels of a number of contaminants with varying distribution, as tabulated below:

TABLE 2 ASSESSMENT OF SOIL CONTAMINATION

Determinant	Expl. Hole No.	Depth (m)	Recorded Level (mg/kg)	Published Guideline Value (mg/kg)
Arsenic	HD1	0.00-0.50	85	37
	HD2	0.00-0.50	42	37
	M2	0.00-0.50	71	37
	M2	2.00-3.00	91	37

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Lead	HD1	0.00-0.50	940	200
	HD2	0.00-0.50	510	200
	M2	0.00-0.50	610	200
	M2	2.00-3.00	1700	200
TPH C10-C24	HD2	0.00-0.50	820	380 #
Benzo(a)anthracene	HD2	0.00-0.50	25	13
Benzo(b)fluoranthene	HD2	0.00-0.50	15	3.7
Benzo(a)pyrene	HD2	0.00-0.50	21	3.0
Dibenzo(ah)anthracene	HD1	0.00-0.50	0.5	0.3
	HD2	0.00-0.50	2.7	0.3
	M2	0.00-0.50	0.5	0.3
	M2	2.00-3.00	0.5	0.3

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Based on aromatic TPHs in this range.

Guideline values for the assessment can be supplied directly to the Regulator, if requested.

An asbestos screen was undertaken on four soil samples and no asbestos was detected.

4.2.2 Assessment (Water)

Two samples of groundwater taken from the standpipes installed in M1 and M2 on 2nd January 2024 have been analysed for a suite of determinants in accordance with the Conceptual Ground Model and the results are appended.

To assess the risk to surface water bodies the results have been compared with the Environmental Quality Standards (EQS) for annual allowable concentrations, published in the Department of Environment Food and Rural Affairs (DEFRA) Water Framework Directive Directions 2015, or the best equivalent (e.g. the Dangerous Substance Directive List II Substances).

To assess the risk to groundwater resources the results have been compared with the United Kingdom Drinking Water Standards (UK DWS), published in the Water Supply (Water Quality) Regulations 2016. Where no UK DWS is available the World Health Organisation (WHO) Drinking Water Guidelines have been adopted.

The bioavailability of copper, nickel and zinc has been estimated using the Water Framework Directive UKTAG Metal Biodiversity Assessment Tools (M-BAT).

We have listed the samples where the levels of contamination have exceeded the EQS, UK DWS and/ or WHO, as follows:

TABLE 3 ASSESSMENT OF GROUNDWATER CONTAMINATION

Determinant	Expl. Hole	Depth	Recorded Level	EQS	UK DWS	WHO
	No	(m)	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Cadmium (dissolved)	M1	1.60	0.21	0.08	5	3
Nickel (dissolved)	M1	1.60	4.46*	4	20	70
Selenium (dissolved)	M1	1.60	11	-	10	40
Zinc (dissolved)	M1	1.60	64.90*	10.9	5000	-
	M2	1.30	94.40*	10.9	5000	-
TPH C10-C24	M1	1.60	390	-	10	-
	M2	1.30	87	-	10	-
TPH C24-C40	M1	1.60	190	-	10	-
	M2	1.30	56	-	10	-
Fluoranthene	M1	1.60	0.09	0.0063	-	-
	M2	1.30	0.07	0.0063	-	-

* Bioavailable concentration

The results of the groundwater analysis indicate that elevated levels of cadmium (dissolved), nickel (dissolved), selenium (dissolved), zinc (dissolved), TPH C10-C24, TPH C24-C40 and fluoranthene are present.

It should be noted that the EQS values for nickel and zinc are based on the bioavailable component. The groundwater analyses report total concentrations of metal ions rather than bioavailable concentrations and consequently may indicate a false exceedance of the EQS.

4.2.3 Conclusions and Recommendations

Section 78a(2) of the Environmental Protection Act: 1990 as amended by the Contaminated Land (England) (Amendment) regulations 2012, and Section 86 of the Water Act 2003, defines CONTAMINATED LAND for the purposes of Part IIA as:

“any land which appears to the LOCAL AUTHORITY in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- (a) SIGNIFICANT HARM is being caused or there is a SIGNIFICANT POSSIBILITY of such harm being caused; or
- (b) SIGNIFICANT POLLUTION OF CONTROLLED WATERS is being, or is likely to be, caused”

Before a LOCAL AUTHORITY can make the judgement that land appears to be CONTAMINATED LAND on the basis that SIGNIFICANT HARM is being caused, or that there is a SIGNIFICANT POSSIBILITY of such harm being caused, the LOCAL AUTHORITY must identify a SIGNIFICANT POLLUTANT LINKAGE. This means that each of the following has to be identified:

- (a) a CONTAMINANT;
- (b) a relevant RECEPTOR (defined as living organisms, ecological systems, controlled waters or property); and
- (c) a PATHWAY by means of which either:
 - (i) the CONTAMINANT is causing SIGNIFICANT HARM to that RECEPTOR, or
 - (ii) there is a SIGNIFICANT POSSIBILITY of such harm being caused by that CONTAMINANT to that RECEPTOR

It should be noted that the words in capitals have a legal definition within the legislation.

Without a clear identification of all three elements of the pollutant linkage, land cannot be identified as contaminated under the regime.

The National Planning Policy Framework states that, “after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990”. Therefore, the general principles detailed above apply to this assessment.

Our assessment, based on four soil samples, indicates elevated levels of arsenic, lead, total petroleum hydrocarbons (TPH), and a number of poly aromatic hydrocarbons (PAHs) including benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(a,h)anthracene are present in the near surface Made Ground/ soils (source). The pathway from the source to site operatives during earthworks, the end users of the development and any proposed planting (receptors) will need to be removed by precautions and/ or remedial measures.

HD2 was found to have an elevated level of TPHs in the C10-C24 range which may produce hydrocarbon vapours. The area of HD2 is therefore considered to be a “hot spot” of contamination. We recommend that the area affected is defined by further sampling and contamination analysis to speciate the TPHs into the aliphatic or aromatic split, in order that the material can be assessed in greater detail for vapour risk, or, removed to a licensed waste disposal facility.

Following the above, where the remaining contaminated materials are covered by buildings or a hard surface cover of concrete or bituminous macadam no clean cover will be required. However, in gardens the end users should be protected from the contaminated materials and plants should be provided with a medium in which they can safely grow.

We recommend a 600mm blanket of clean topsoil/ subsoil (equivalent to two spade depths) is provided in back gardens and a 450mm blanket of imported clean topsoil/ subsoil is provided in front and side gardens and other open spaces. In addition deeper rooted bushes and trees should be pit planted on and in clean topsoil.

Contaminated materials should, where possible, be retained on site. However, it should be appreciated that contaminated material left on site is the legal responsibility of the landowner, unless the person who created the contamination can be identified.

If waste materials are to be removed from the site, classification of the waste should be undertaken to determine the most appropriate tip to use and the associated costs.

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It should be noted that significant cost savings can sometimes be made on waste disposal by correct classification of the waste, a service that we can provide.

It should be noted that all vehicles carrying contaminated material should be securely sheeted and the wheels and undercarriages cleaned before leaving site to ensure that hazardous materials are not dropped onto public roads.

S4ULs, C4SLs and CL:AIRE assume long term contact with contamination and assess chronic health risk. The risk of short term acute exposure to site personnel is dealt with in the remit of the Health and Safety Executive under the Health and Safety at Work Act: 1974 and Regulations made under the Act, including the Control of Substances Hazardous to Health (COSHH) Regulations. The levels of contamination and risk to site personnel should be considered under the Construction Design and Management (CDM) Regulations at the planning stage and in the development of the designers and contractors Health and Safety Plans and Method Statements. The risk of contact with on-site soils should be minimised and the following precautions should be taken as a minimum requirement.

Site personnel involved in earthworks and excavations should be made aware of the hazards of working with contaminated materials found on site. Strict personal hygiene should be observed and gloves, overalls and boots should be worn. Washing and messing facilities should be made available on site and smoking should be prohibited to minimise the potential for transfer of contaminants from hand to mouth.

Earthworks undertaken during dry weather might generate dust and in this instance dust should be damped down and dust masks made available to site operatives. In addition stockpiled materials should be sheeted over to prevent excessive airborne dust being formed.

Contaminants have been identified in the groundwater samples. The Phase I Desk Study (ref. 7832) recorded the site to be underlain by Secondary A aquifers in the drift deposits and the bedrock. There are no watercourses within 250m of the site boundary, no groundwater or surface abstraction licences within 1km of the site boundary and no potable water abstraction licences within 2km of the site boundary. Given the above, as the site is within an area of low sensitivity, in our opinion, the risk to controlled waters is likely to be very low and no further precautions and/ or remedial measures are likely to be required. Due to the moderately elevated levels of TPH C10-C24 and TPH C24-C40 encountered in M1, we recommend an extra round of sampling for TPH CWG to confirm the risk assessment.

4.3 Ground Gas Considerations

Ground gas monitoring has been undertaken on three of six scheduled occasions to date and the results of the monitoring visits are appended.

Ground gases: methane, carbon dioxide and oxygen and flow rate have been monitored and the ranges of ground gases and flow rate during the monitoring period are as follows:

TABLE 4 GROUND GAS CONCENTRATIONS AND FLOW RATE

Methane (% vol. in air)	Carbon Dioxide (% vol. in air)	Oxygen (% vol. in air)	Gas Flow Rate (litres/ hour)
0.0	0.1-1.4	19.2-20.5	<0.1

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It can be seen from the monitoring that no elevated levels of methane or carbon dioxide, or depleted levels of associated oxygen, have been detected. In addition no gas flow has been detected.

Methane gas when present between 5% volume in air (Lower Explosive Limit - L.E.L.) and 15% volume in air (Upper Explosive Limit - U.E.L.) is potentially explosive and inflammable whilst carbon dioxide in conjunction with depleted oxygen is an asphyxiant. Both methane and carbon dioxide are a by-product of the anaerobic and aerobic decomposition of biodegradable materials.

The levels of gas have been assessed in accordance with British Standard 8485, "Code of practice for the design of protective measures for methane and carbon dioxide gasses for new buildings", published in June 2015 and updated in January 2019 (BS.8485:2015+A1:2019).

The characteristic hazardous gas flow rate (Q_{hg}) is calculated by dividing the maximum gas (methane or carbon dioxide) concentration by 100 and multiplying by the maximum flow rate in litres per hour (minimum 0.1 l/hr for Sub Surface monitoring equipment). For this site $Q_{hg} = [1.4/ 100] \times 0.1 = 0.0014$ l/hr

Based on the monitoring to date, BS.8485:2015+A1:2019, Table 2, indicates that the site falls into Characteristic Situation 1 (CS1) (very low hazard potential). BS.8485:2015+A1:2019, Table 4, indicates that for a CS1 and the type of development proposed a score of zero gives no protection and remedial measures required.

4.4 General

It should be noted that when developing a "brownfield site" a phased investigation should be undertaken in order that each phase informs the next. A typical phased investigation comprises the following:

- Phase I: desk study report
- Phase II: ground investigation with report
- Phase III: remediation statement report
- Phase IV: validation with report.

In the preparation of this report no consideration has been given to:

- the foundations and excavations
- flora and fauna

as this was outside our brief.

In Section 4.2.3 it is recommended that further investigation of a "hot spot" of hydrocarbon contamination with a potential for the production of vapours around HD2 is undertaken. In addition due to the moderately elevated levels of TPH C10-C24 and TPH C24-C40 encountered in M1, we recommend an extra round of sampling for TPH CWG and a further assessment made.

We recommend that consultation should be undertaken with, and the written approval obtained from, the Local Authority Environmental Health Officer and the Local Authority Building Control Officer prior to commencing development.

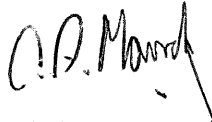
Following completion of the Phase II ground investigation and monitoring a Phase III remediation statement should be compiled and submitted to the Regulator for written approval prior to commencing development.

We trust that this report fulfils your present requirements but if you have any queries or we can be of further assistance please contact the undersigned or Ms Anna Marsden at our Preston office.

SUB SURFACE CONSULTANTS LIMITED
REPORT No. 7832A
JANUARY 2024



S. Solanki. B.Sc.(Hons.)
Geotechnical Engineer
For and on behalf of
Sub Surface Consultants Limited



C. A. Marsden B.Sc.(Hons.), C.Eng., M.I.C.E.
Director
For and on behalf of
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INSITU TEST RESULTS

CONTAMINATION ANALYSIS RESULTS



Certificate of Analysis

Certificate Number 23-29232

Issued: 02-Jan-24

Client Sub Surface Laboratories Ltd
3 Peel Street
Preston
Lancashire
PR2 2QS

Our Reference 23-29232

Client Reference 7832A

Order No (not supplied)

Contract Title 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER

Description 4 Soil samples.

Date Received 12-Dec-23

Date Started 12-Dec-23

Date Completed 02-Jan-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Soil Samples

Our Ref 23-29232

Client Ref 7832A

Contract Title 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER

Lab No	2275666	2275667	2275668	2275669
Sample ID	HD1	HD2	M2	M2
Depth	0.00-0.50	0.00-0.50	0.00-0.50	2.00-3.00
Other ID	928	930	937	940
Sample Type	SOIL	SOIL	SOIL	SOIL
Sampling Date	30/11/2023	30/11/2023	30/11/2023	30/11/2023
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Preparation							
Moisture Content	DETSC 1004	0.1	%	30	20	21	39
Metals							
Arsenic	DETSC 2301#	0.2	mg/kg	85	42	71	91
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.9	0.7	0.8	1.1
Cadmium	DETSC 2301#	0.1	mg/kg	0.9	0.7	0.9	1.0
Chromium	DETSC 2301#	0.15	mg/kg	24	22	23	43
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	700	140	420	370
Lead	DETSC 2301#	0.3	mg/kg	940	510	610	1700
Mercury	DETSC 2325#	0.05	mg/kg	2.3	0.74	13	0.85
Molybdenum	DETSC 2301#	0.4	mg/kg	22	7.7	16	22
Nickel	DETSC 2301#	1	mg/kg	62	29	44	58
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Zinc	DETSC 2301#	1	mg/kg	490	210	360	800
Inorganics							
pH	DETSC 2008#		pH	7.1	7.5	8.6	7.4
Cyanide, Total	DETSC 2130#	0.1	mg/kg	2.7	1.7	2.0	2.8
Sulphide	DETSC 2024*	10	mg/kg	72	< 10	64	12
Sulphate as SO ₄ , Total	DETSC 2321#	0.01	%	0.24	0.11	0.20	0.20
Petroleum Hydrocarbons							
C5-C10 Gasoline Range Organics (GRO): HS_1D_Total	DETSC 3321*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
C10-C24 Diesel Range Organics (DRO): EH_1D_Total	DETSC 3311#	10	mg/kg	52	820	74	21
EPH (C10-C40): EH_1D_Total	DETSC 3311#	10	mg/kg	150	1600	320	83
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
m+p Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
o Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
C24-C40 Lube Oil Range Organics (LORO): EH_1D_Total	DETSC 3311#	10	mg/kg	98	750	240	61
PAHs							
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.1	3.0	< 0.1	< 0.1
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.1	1.3	< 0.1	< 0.1
Acenaphthene	DETSC 3301	0.1	mg/kg	0.2	12	0.3	< 0.1
Fluorene	DETSC 3301	0.1	mg/kg	0.3	12	0.3	0.1
Phenanthrene	DETSC 3301	0.1	mg/kg	2.3	52	2.1	0.8
Anthracene	DETSC 3301	0.1	mg/kg	0.6	14	0.5	0.2
Fluoranthene	DETSC 3301	0.1	mg/kg	3.7	53	4.1	1.7

Summary of Chemical Analysis Soil Samples

Our Ref 23-29232

Client Ref 7832A

Contract Title 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER

Lab No	2275666	2275667	2275668	2275669
Sample ID	HD1	HD2	M2	M2
Depth	0.00-0.50	0.00-0.50	0.00-0.50	2.00-3.00
Other ID	928	930	937	940
Sample Type	SOIL	SOIL	SOIL	SOIL
Sampling Date	30/11/2023	30/11/2023	30/11/2023	30/11/2023
Sampling Time	n/s	n/s	n/s	n/s

Test	Method	LOD	Units				
Pyrene	DETSC 3301	0.1	mg/kg	3.9	49	4.4	2.0
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	2.0	25	2.1	1.0
Chrysene	DETSC 3301	0.1	mg/kg	2.1	26	2.3	1.1
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	1.3	15	1.4	0.6
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	0.8	10	0.8	0.4
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	2.0	21	2.1	1.2
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	1.8	12	1.5	1.3
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	0.5	2.7	0.5	0.5
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	1.6	13	2.0	0.8
PAH 16 Total	DETSC 3301	1.6	mg/kg	23	320	24	12
Phenols							
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.3	0.7	< 0.3	0.5

Summary of Asbestos Analysis Soil Samples

Our Ref 23-29232

Client Ref 7832A

Contract Title 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2275666	HD1 928 0.00-0.50	SOIL	NAD	none	Keith Wilson
2275667	HD2 930 0.00-0.50	SOIL	NAD	none	Keith Wilson
2275668	M2 937 0.00-0.50	SOIL	NAD	none	Keith Wilson
2275669	M2 940 2.00-3.00	SOIL	NAD	none	Keith Wilson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 23-29232
 Client Ref 7832A
 Contract 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER

Containers Received & Deviating Samples

Lab No	Sample ID	Date		Containers Received	Holding time exceeded for tests	Inappropriate container for tests
		Sampled				
2275666	HD1 0.00-0.50 SOIL	30/11/23		GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2275667	HD2 0.00-0.50 SOIL	30/11/23		GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2275668	M2 0.00-0.50 SOIL	30/11/23		GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
2275669	M2 2.00-3.00 SOIL	30/11/23		GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	

Key: G-Glass P-Plastic J-Jar T-Tub

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Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
C5-C10 Gasoline Range Organics (GRO)	HS_1D_Total
C10-C24 Diesel Range Organics (DRO)	EH_1D_Total
EPH (C10-C40)	EH_1D_Total
C24-C40 Lube Oil Range Organics (LO)	EH_1D_Total

End of Report



Certificate of Analysis

Certificate Number 24-00114

Issued: 15-Jan-24

Client Sub Surface Laboratories Ltd
3 Peel Street
Preston
Lancashire
PR2 2QS

Our Reference 24-00114

Client Reference 7832A

Order No (not supplied)

Contract Title 9 Chatsworth Ave, Prestwich, Manchester

Description 2 Water samples.

Date Received 04-Jan-24

Date Started 04-Jan-24

Date Completed 15-Jan-24

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

A handwritten signature in black ink, appearing to read "K. Bridgewood".

Kirk Bridgewood
General Manager



2139

Summary of Chemical Analysis

Water Samples

Our Ref 24-00114

Client Ref 7832A

Contract Title 9 Chatsworth Ave, Prestwich, Manchester

Lab No	2282848	2282849
Sample ID	M1	M2
Depth	1.60	1.30
Other ID		
Sample Type	WATER	WATER
Sampling Date	02/01/2024	02/01/2024
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.60	1.3
Boron, Dissolved	DETSC 2306*	12	ug/l	51	120
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.21	0.08
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.76	< 0.25
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.5	3.3
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.68	0.95
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.02	< 0.01
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	7.0	10
Nickel, Dissolved	DETSC 2306	0.5	ug/l	15	5.0
Selenium, Dissolved	DETSC 2306	0.25	ug/l	11	1.9
Zinc, Dissolved	DETSC 2306	1.3	ug/l	110	160
Inorganics					
pH	DETSC 2008		pH	6.9	7.1
Cyanide, Total	DETSC 2130	0.04	mg/l	< 0.04	< 0.04
Sulphate as SO4	DETSC 2055	0.1	mg/l	160	110
Sulphide	DETSC 2208	0.01	mg/l	0.02	0.02
Petroleum Hydrocarbons					
C5-C10 Gasoline Range Organics (GRO): HS_1D_Total	DETSC 3322	1	ug/l	< 1.0	< 1.0
C10-C24 Diesel Range Organics (DRO): EH_1D_Total	DETSC 3311	10	ug/l	390	87
C24-C40 Lube Oil Range Organics (LORO): EH_1D_Total	DETSC 3311	10	ug/l	190	56
EPH (C10-C40): EH_1D_Total	DETSC 3311	10	ug/l	590	140
Benzene	DETSC 3322	1	ug/l	< 1.0	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0	< 1.0
m+p Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0
o Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0
MTBE	DETSC 3322	1	ug/l	< 1.0	< 1.0
PAHs					
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Phenanthrene	DETSC 3304	0.01	ug/l	0.02	0.03
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	0.02
Fluoranthene	DETSC 3304	0.01	ug/l	0.09	0.07
Pyrene	DETSC 3304	0.01	ug/l	0.39	0.11
Benzo(a)anthracene	DETSC 3304*	0.01	ug/l	0.02	0.02
Chrysene	DETSC 3304	0.01	ug/l	0.01	0.02
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	0.02	0.03

Summary of Chemical Analysis

Water Samples

Our Ref 24-00114

Client Ref 7832A

Contract Title 9 Chatsworth Ave, Prestwich, Manchester

Lab No	2282848	2282849
Sample ID	M1	M2
Depth	1.60	1.30
Other ID		
Sample Type	WATER	WATER
Sampling Date	02/01/2024	02/01/2024
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	0.01	0.02
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	0.02	0.02
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	0.02	0.03
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	0.08	0.03
PAH Total	DETSC 3304	0.2	ug/l	0.68	0.41
Phenols					
Phenol - Monohydric	DETSC 2130	0.1	mg/l	< 0.1	< 0.1

Information in Support of the Analytical Results

Our Ref 24-00114
 Client Ref 7832A
 Contract 9 Chatsworth Ave, Prestwich, Manchester

Containers Received & Deviating Samples

Lab No	Sample ID	Date		Holding time exceeded for tests	Inappropriate container for tests
		Sampled	Containers Received		
2282848	M1 1.60 WATER	02/01/24	GB 1L, GV, PB 1L	pH/Cond (1 days)	
2282849	M2 1.30 WATER	02/01/24	GB 1L, GV, PB 1L	pH/Cond (1 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

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Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Information in Support of the Analytical Results

List of HWOL Acronyms and Operators

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det	Acronym
C5-C10 Gasoline Range Organics (GRO)	HS_1D_Total
C10-C24 Diesel Range Organics (DRO)	EH_1D_Total
C24-C40 Lube Oil Range Organics (LO)	EH_1D_Total
EPH (C10-C40)	EH_1D_Total

End of Report

**SUB SURFACE LIMITED**SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Contamination Analysis

Site: 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER, M25 1LZ

Client: TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED

Job Number:
7832ASheet:
1 / 1**UKTAG M-BAT RESULTS: Bioavailable Metal Concentrations****INPUT DATA - M-BAT**

Location	Measured Cu Concentration (dissolved) ($\mu\text{g l}^{-1}$)	Measured Zn Concentration (dissolved) ($\mu\text{g l}^{-1}$)	Measured Ni Concentration (dissolved) ($\mu\text{g l}^{-1}$)	pH	DOC	Ca
M1 1.60m	2.5	110	15	7.3	2.2	53.6
M2 1.30m	3.3	160	5	7.3	2.2	53.6

RESULTS (Copper)

Location	Site-specific PNEC Dissolved Copper ($\mu\text{g l}^{-1}$)	BioF	Bioavailable Copper Concentration ($\mu\text{g l}^{-1}$)	Risk Characterisation Ratio
M1 1.60m	8.95	0.11	0.28	0.28
M2 1.30m	8.95	0.11	0.37	0.37

RESULTS (Zinc)

Location	Site-specific PNEC Dissolved Zinc ($\mu\text{g l}^{-1}$)	BioF	Bioavailable Zinc Concentration ($\mu\text{g l}^{-1}$)	Risk Characterisation Ratio
M1 1.60m	18.48	0.59	64.90	5.95
M2 1.30m	18.48	0.59	94.40	8.66

RESULTS (Nickel)

Location	Site-specific PNEC Dissolved Nickel ($\mu\text{g l}^{-1}$)	BioF	Bioavailable Nickel Concentration ($\mu\text{g l}^{-1}$)	Risk Characterisation Ratio
M1 1.60m	13.47	0.30	4.46	1.11
M2 1.30m	13.47	0.30	1.49	0.37

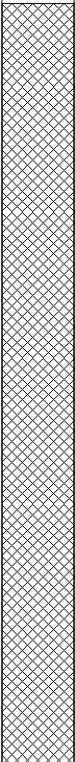
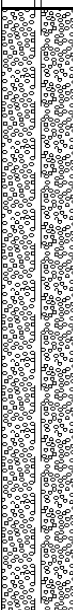
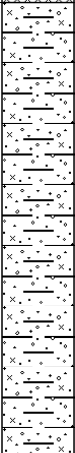
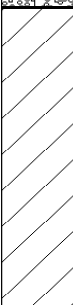
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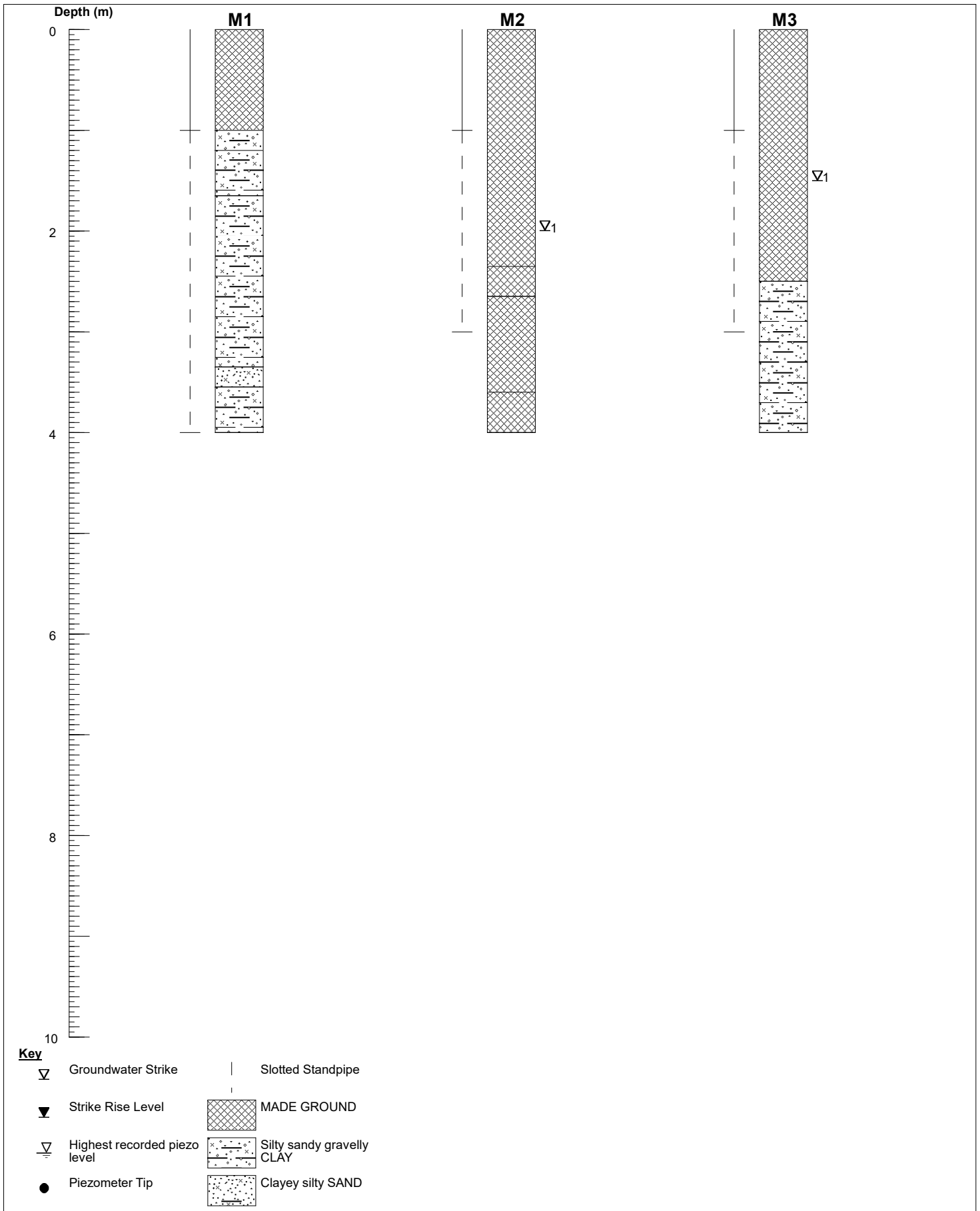
Red highlighted cells indicate the bioavailable metal concentration exceeds EQS based on site-specific conditions.

MINI BOREHOLE RECORD SHEETS

SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907							Site 9 CHATSWORTH AVENUE, PRESWICH, MANCHESTER, M25 1LZ		Borehole Number M1	
Boring Method MINI PERCUSSIVE		Casing Diameter		Ground Level (mOD)		Client TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED		Job Number 7832A		
		Location AS PLAN		Dates 30/11/2023		Engineer		Sheet 1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.50	B						MADE GROUND: dark brown gravelly silty fine to coarse sand with occasional rootlets. Gravel sized fragments are fine to coarse brick, stone and tile.			
0.50-1.00	B					(1.00)				
1.00-1.20	B					1.00 (0.20)	Soft orangish brown and brown mottled slightly gravelly sandy silty CLAY with occasional rootlets. Gravel is subangular to subrounded fine to medium sandstone, siltstone and quartz.			
1.20-2.00	C			1.20m to 2.00m - 94% Recovery		1.20 (0.45)	Firm orangish brown and occasional grey mottled slightly gravelly sandy silty CLAY with occasional pockets of sand. Gravel is subangular to subrounded fine to medium sandstone, siltstone, quartz and coal.			
2.00-3.00	C			HV at 1.65m c=47kPa HV at 1.75m c=51kPa HV at 1.95m c=49kPa 2.00m to 3.00m - 90% Recovery		1.65 (1.70)	Firm medium strength brown slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to medium sandstone, siltstone, quartz and coal.			
3.00-4.00	C			HV at 2.65m c=64kPa HV at 2.75m c=61kPa HV at 2.85m c=68kPa 3.00m to 4.00m - 65% Recovery		3.35 (0.20)	... below 2.60m : brown and occasional grey mottled			
						3.55 (0.45)	Brown clayey silty fine to medium SAND.			
				HV at 3.65m c=45kPa HV at 3.85m c=49kPa HV at 3.95m c=42kPa 30/11/2023:DRY		4.00	Firm medium strength brown slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine to medium sandstone, siltstone and quartz.			
							Complete at 4.00m			
Remarks Hand dug inspection pit from GL to 1.20m to check for services. HV = Hand Shear Vane test. No groundwater encountered. On completion backfilled with arisings and installed a 50mm diameter hdpe gas monitoring standpipe with a gas valve and a gravel surround to 4.00m, a bentonite seal from 1.00m to 0.20m, and a concreted in lockable metal cover from 0.20m to 0.00m.								Scale (approx)	Logged By	
								1:25	SS/HB	
								Figure No. 7832A.M1		

S S SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907							Site 9 CHATSWORTH AVENUE, PRESWICH, MANCHESTER, M25 1LZ		Borehole Number M2	
Boring Method MINI PERCUSSIVE		Casing Diameter			Ground Level (mOD)		Client TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED		Job Number 7832A	
									Sheet 1/1	
		Location AS PLAN			Dates 30/11/2023		Engineer			
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.50	B						MADE GROUND: dark brown ashy gravelly silty fine to coarse sand. Gravel sized fragments are fine to coarse stone, tile, glass, brick and clinker.			
0.50-1.20	B									
1.20-2.00	C			1.20m to 2.00m - Recovered as bulk		(2.35)				
2.00-3.00	C			Water inflow(1) at 2.00m. 2.00m to 3.00m - 65% Recovery		2.35	MADE GROUND: dark brown sandy silty fine to coarse gravel sized fragments of stone, brick, glass and tile.			
						(0.30)				
						2.65	MADE GROUND: soft dark brown ashy slightly gravelly sandy silty clay. Gravel sized fragments are fine to coarse stone, glass, tile, brick and clinker.			
3.00-4.00	C			3.00m to 4.00m - 60% Recovery		(0.95)				
						3.60	MADE GROUND: soft dark grey slightly gravelly slightly sandy silty clay with occasional rootlets. Gravel sized fragments are fine to coarse stone and brick (organic odour).			
						(0.40)				
				30/11/2023:		4.00	Complete at 4.00m			
Remarks Hand dug inspection pit from GL to 1.20m to check for services. Hole collapsed below 3.00m Water inflow at 2.00m On completion backfilled with arisings and installed a 50mm diameter hdpe gas monitoring standpipe with a gas valve and a gravel surround to 3.00m, a bentonite seal from 1.00m to 0.20m, and a concreted in lockable metal cover from 0.20m to 0.00m.								Scale (approx) 1:25	Logged By SS/HB	Figure No. 7832A.M2

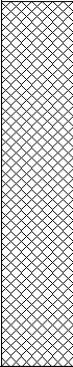
S S SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 Site 9 CHATSWORTH AVENUE, PRESWICH, MANCHESTER, M25 1LZ Borehole Number M3					Boring Method MINI PERCUSSIVE		Casing Diameter		Ground Level (mOD)		Client TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED		Job Number 7832A	
		Location AS PLAN		Dates 30/11/2023		Engineer		Sheet 1/1						
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr				
0.00-0.50	B						MADE GROUND: dark brown ashy gravelly silty fine to coarse sand with occasional rootlets. Gravel sized fragments are fine to coarse stone, brick, glass, tile and clinker.							
0.50-1.20	B													
1.20-2.00	C			1.20m to 2.00m - Recovered as bulk		(2.50)								
				Water inflow(1) at 1.50m.										
2.00-3.00	C			2.00m to 3.00m - Recovered as bulk										
						2.50	Soft to firm brown slightly gravelly sandy silty CLAY with occasional pockets of sand. Gravel is subangular to subrounded fine to medium sandstone, siltstone and quartz.							
3.00-4.00	C			3.00m to 4.00m - Recovered as bulk		(1.50)								
				30/11/2023:		4.00	Complete at 4.00m							
Remarks Hand dug inspection pit from GL to 1.20m to check for services. Hole collapsed below 3.00m Water inflow at 1.50m On completion backfilled with arisings and installed a 50mm diameter hdpe gas monitoring standpipe with a gas valve and a gravel surround to 3.00m, a bentonite seal from 1.00m to 0.20m, and a concreted in lockable metal cover from 0.20m to 0.00m.								Scale (approx) 1:25	Logged By SS/HB	Figure No. 7832A.M3				

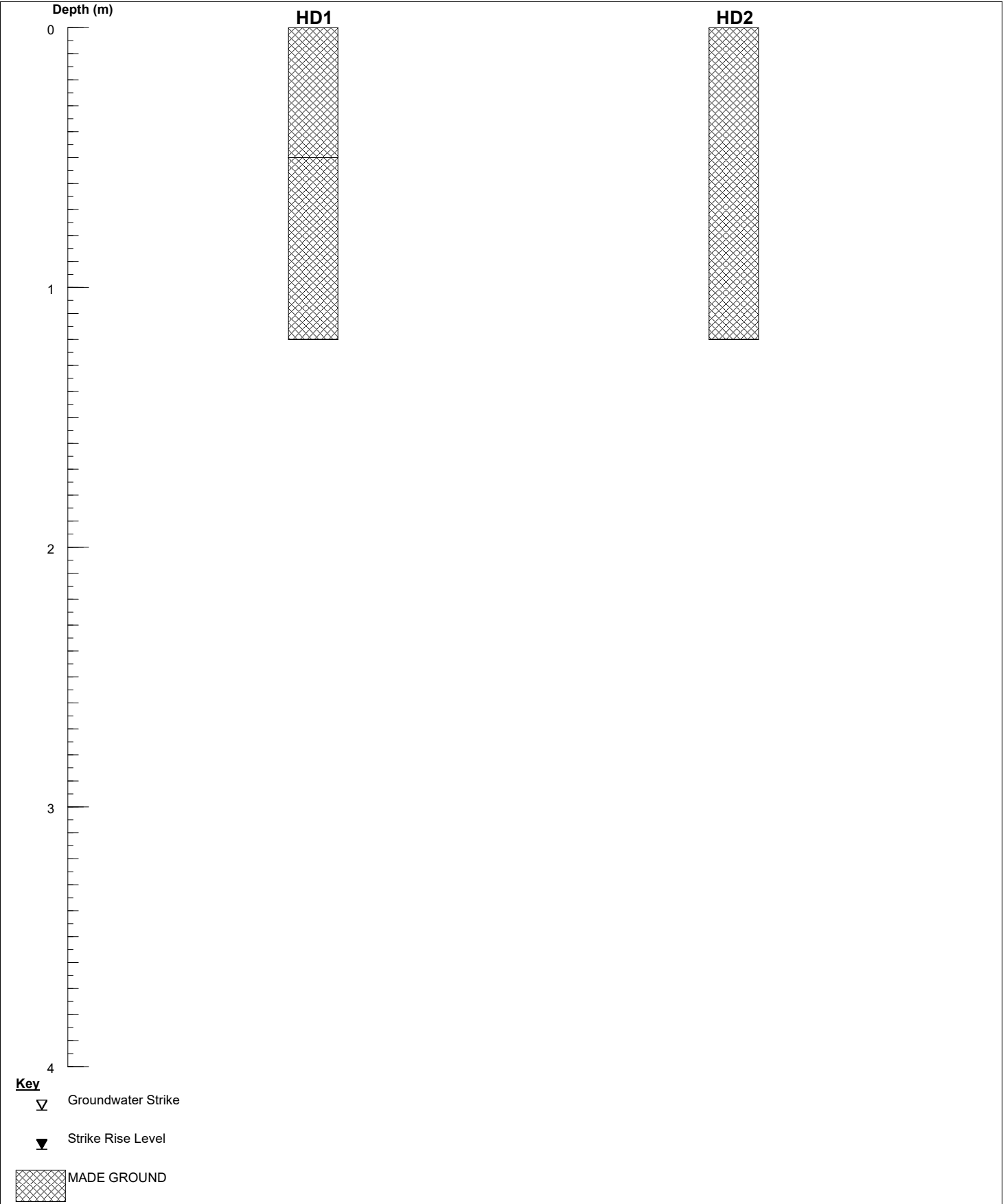


SS SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907		Nominal Section		
Site 9 CHATSWORTH AVENUE, PRESWICH, MANCHESTER, M25 1LZ		Date Drawn 01/02/2024	Date Checked	Sheet 1/1
Client TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED		Drawn By	Checked By	Job Number 7832A
			Scale 1:50[V]	Figure No. 7832A.1

HAND DUG TRIAL PIT RECORD SHEETS

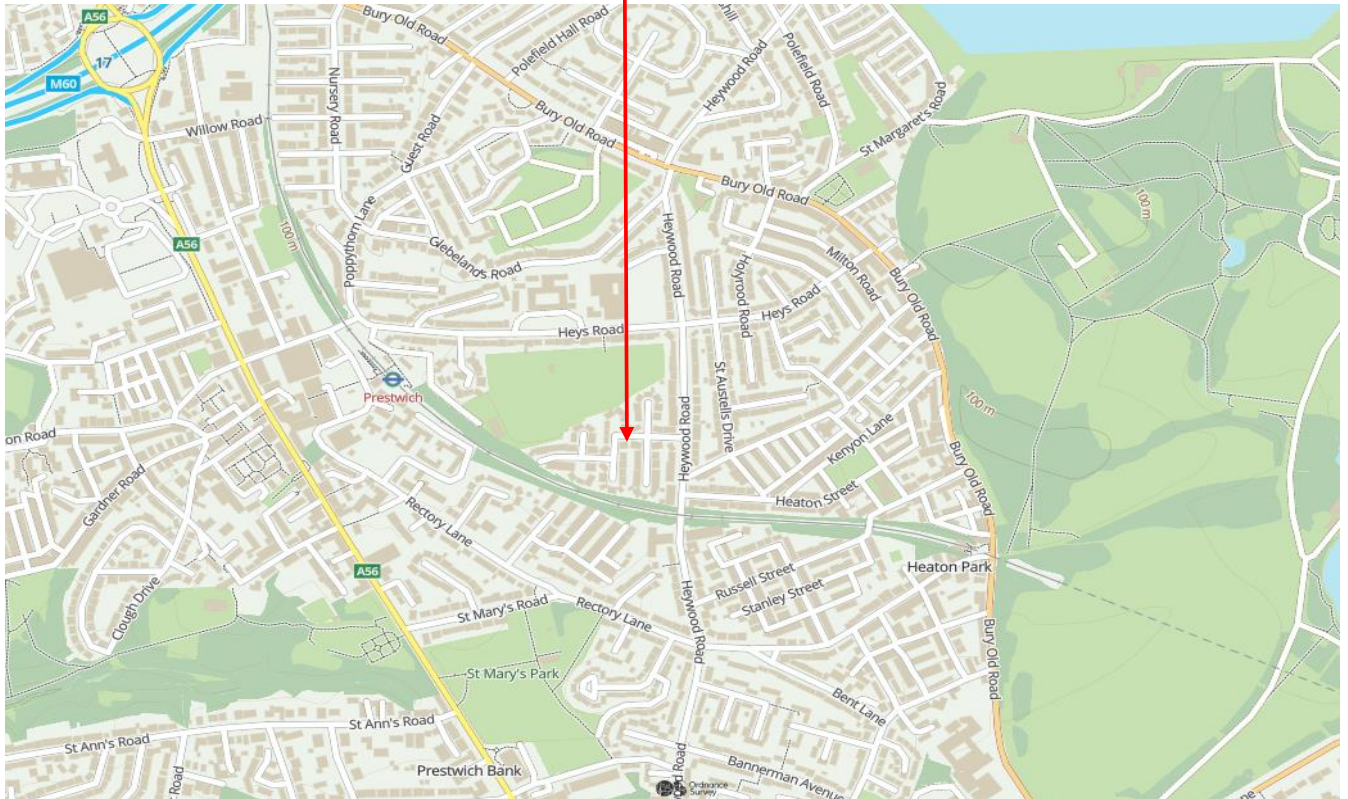
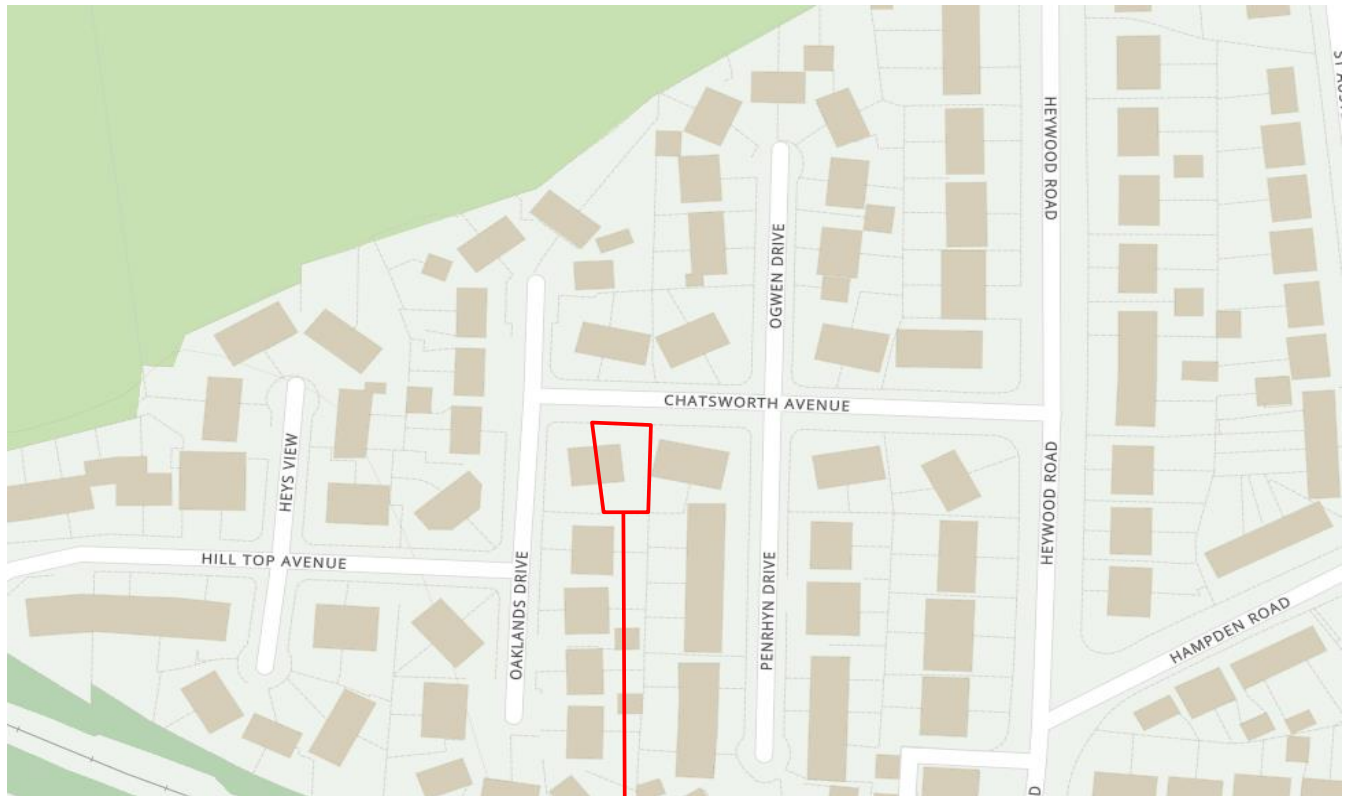
S S SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907							Site 9 CHATSWORTH AVENUE, PRESWICH, MANCHESTER, M25 1LZ		Borehole Number HD1	
Boring Method HAND DUG		Casing Diameter		Ground Level (mOD)		Client TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED		Job Number 7832A		
		Location AS PLAN		Dates 30/11/2023		Engineer		Sheet 1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.00-0.50	B					(0.50)	MADE GROUND: dark brown ashy gravelly fine to coarse sand. Gravel sized fragments are fine to coarse stone, tile and clinker.			
0.50-1.20	B					0.50 (0.70)	MADE GROUND: dark brown gravelly silty fine to coarse sand with occasional rootlets. Gravel sized fragments are fine to coarse stone, tile and brick.			
				30/11/2023: DRY		1.20	Complete at 1.20m			
Remarks No groundwater encountered. Pit sides remained vertical and stable. On completion backfilled with arisings.								Scale (approx) 1:25	Logged By SS/HB	
								Figure No. 7832A.HD1		

S S SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907							Site 9 CHATSWORTH AVENUE, PRESWICH, MANCHESTER, M25 1LZ		Borehole Number HD2	
Boring Method HAND DUG		Casing Diameter		Ground Level (mOD)		Client TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED		Job Number 7832A		
		Location AS PLAN		Dates 30/11/2023		Engineer		Sheet 1/1		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.00-0.50	B						MADE GROUND: dark brown gravelly silty fine to coarse sand with occasional rootlets. Gravel sized fragments are fine to coarse stone, tile and brick.			
0.50-1.20	B					(1.20)				
				30/11/2023: DRY		1.20	Complete at 1.20m			
Remarks No groundwater encountered. Pit sides remained vertical and stable. On completion backfilled with arisings.								Scale (approx) 1:25	Logged By SS/HB	
								Figure No. 7832A.HD2		



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Site 9 CHATSWORTH AVENUE, PRESWICH, MANCHESTER, M25 1LZ	Date Drawn 01/02/2024	Date Checked	Sheet 1/1	Job Number 7832A
Client TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED	Drawn By	Checked By	Scale 1:20[V]	Figure No. 7832A.1

FIGURES

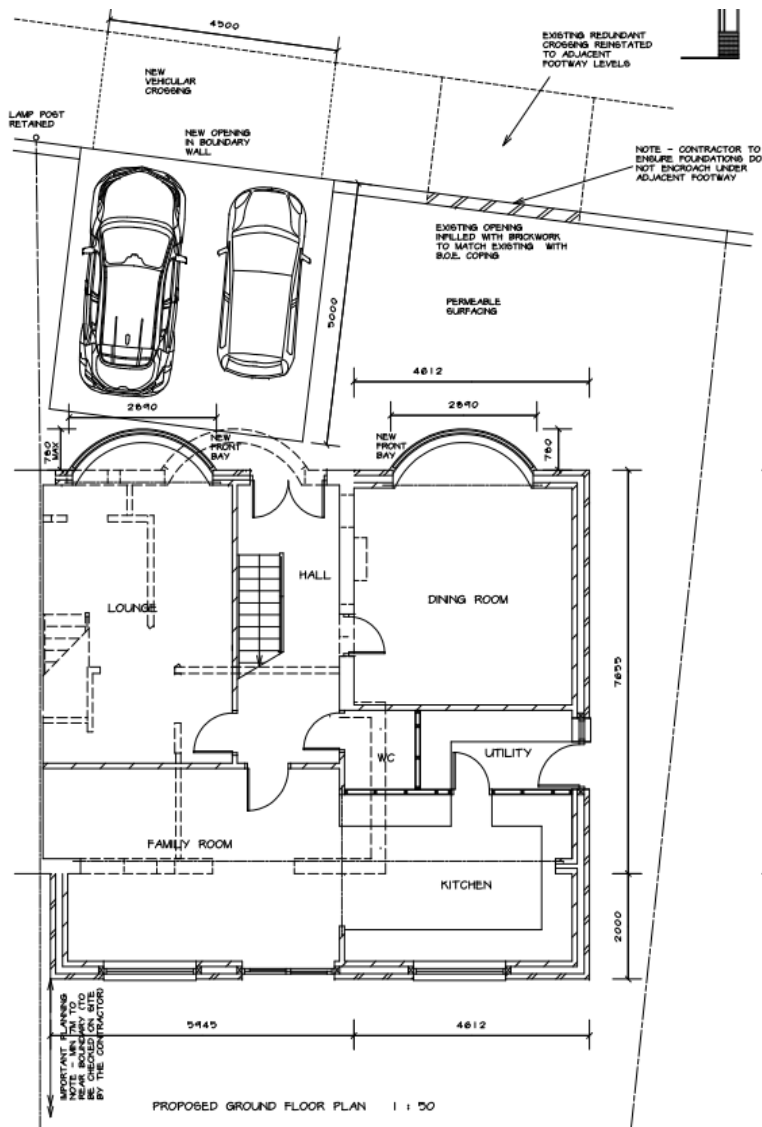
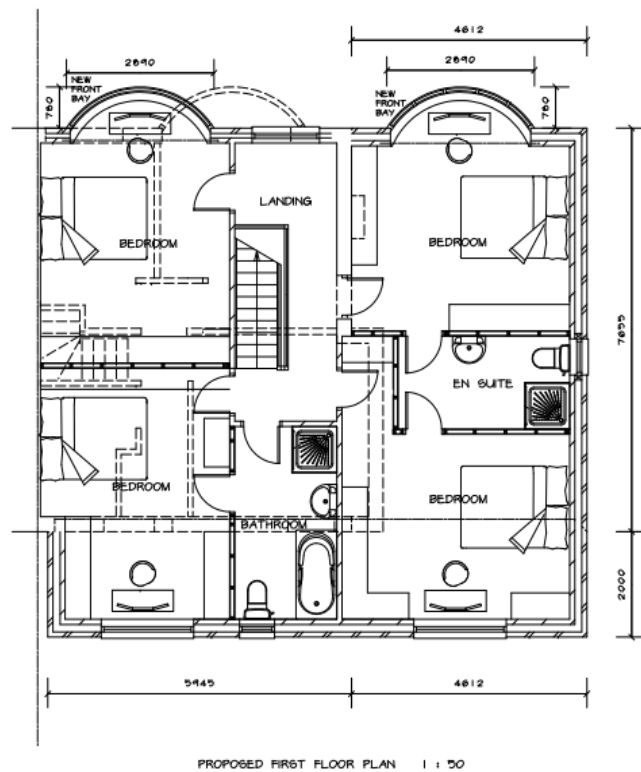
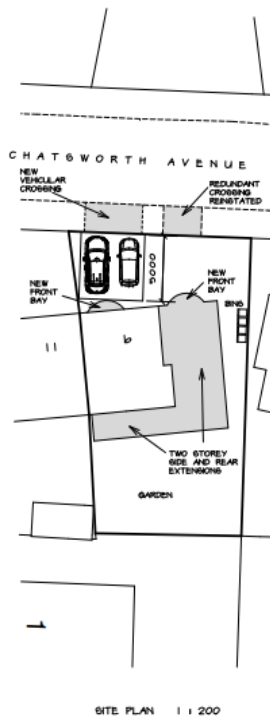


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SS SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907	Site Location Plan			
Site: 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER, M25 1LZ	Date Drawn: 22-Dec-23	Date Checked: —	Orientation: 	Job Number: 7832A
Client: TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED	Drawn By: SS	Checked By: —	Scale: —	Figure Number: 1



SS SUB SURFACE SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907	Existing Site Plan and Exploratory Hole Locations			
Site: 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER, M25 1LZ	Date Drawn: 22-Dec-23	Date Checked: —	Orientation: 	Job Number: 7832A
Client: TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED	Drawn By: SS	Checked By: —	Scale: —	Figure Number: 2



SUB SURFACE

SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

Site: 9 CHATSWORTH AVENUE, PRESTWICH, MANCHESTER, M25 1LZ

Client: TURNKEY INDEPENDENT PROPERTY SERVICES LIMITED

Proposed Development

Date Drawn: 22-Dec-23

Drawn By: SS

Date Checked: -

Checked By: -

Orientation:

Scale: -

Job Number: 7832A

Figure Number: 3