

Post Demolition Contamination Assessment

99 Plymouth Grove, Manchester

JC Consulting

NE-26-004/PD

Solmek Ltd

12 Yarm Road
Stockton-on-Tees
TS18 3NA
Tel: 01642 607083

www.solmek.com

info@solmek.com

POST DEMOLITION CONTAMINTION ASSESSMENT

99 PLYMOUTH GROVE, MANCHESTER

TABLE OF CONTENTS

1 INTRODUCTION 2
2 FIELDWORK 2
3 GROUND CONDITIONS 2
4 CONTAMINATION TESTING RESULTS 3
5 CONCEPTUAL MODEL AND CONTAMINATION ANALYSIS 6

TABLE 1: SUMMARY OF INORGANIC CONTAMINATION TESTING RESULTS 4
TABLE 2: SUMMARY OF ORGANIC CONTAMINATION TESTING RESULTS (RES WITH HGP) 5
TABLE 3: CONCEPTUAL MODEL (EXTRACTED FROM NE-26-066 PHASE 2 SITE INVESTIGATION) 7

APPENDICES

Appendix A: Drawings
Appendix B: Trial Pit Logs
Appendix C: Contamination Laboratory Results
Appendix D: Notes on Limitations & Contamination Guidelines

Revision	Date	Prepared by	Signed
Final	May 2026	M Atkins *Senior Geotechnical Engineer*	[redacted]
		Checked by	
		A Cutts *Senior Engineering Geologist*	
		Approved by	
		R Woods *Managing Director*	

1 INTRODUCTION

1.1 Authorisation

Solmek Limited have been commissioned by JC Consulting to undertake a post demolition contamination assessment on a parcel of land at the former Rensaw House Methodist Church, 99 Plymouth Grove, Manchester, M13 9HX.

A site location plan is presented in Appendix A, Figure 1.

Sources of information, including previous work undertaken at the site, are detailed below:

- *Ground and Project Consultants Ltd, Phase 1 Desk Study (100948, February 2024)*
- *Solmek Phase 2 Site Investigation Report (NE-26-004 – Rev 1, March 2026)*

Reference should be made to the above reports for details of the site's history, geotechnical/environmental setting and underlying geological conditions.

1.2 Scope of Works

The proposed development is expected to comprise new student residential accommodation with peripheral soft landscaping.

This report has been prepared for the use of the Local Authority in its capacity as Regulatory Authority. The principal purpose of this report is to allow planning condition(s) relating to contamination to be addressed and be discharged.

A post demolition contamination assessment was requested to determine the contamination regime of the areas beneath building footprints that could not be investigated initially.

The fieldwork and testing was generally carried out according to the recommendations of BS5930: 2015 "Code of Practice for Ground Investigations" and where applicable BS EN 1997-2:2007 with soil descriptions to BS EN 14688-1:2013 where applicable. The information provided in this report is based on the investigation fieldwork and is subject to the comments and approval of the various regulatory authorities.

There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Solmek reserve the right to alter conclusions and recommendations should further information be available or provided. Any schematic representation or opinion of the possible configuration of ground conditions between exploratory holes is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

2 FIELDWORK

The fieldwork was undertaken on 31st March 2026. The scope of works included:

- 3no. machine excavated trial pits (TP01 to TP03 inclusive) to a maximum depth of 1.40m below ground level (bgl).
    - The trial pits were targeted within the footprint of the former building following demolition obtaining environmental samples for chemical analysis.

A plan showing the location of the trial pits can be found in Appendix A, Figure 2. Descriptions of the strata encountered in the trial pits together with details of testing, sampling and groundwater are presented in Appendix B of this report.

3 GROUND CONDITIONS

A summary of the ground conditions encountered is given below.

3.1 Made Ground

Made ground comprised locally silty slightly sandy slightly gravelly clay to depths of between 0.20mbgl and 0.30mbgl.

The gravel fractions within the made ground were brick, sandstone, mudstone and coal.

3.2 Natural Deposits

Natural deposits comprised very stiff to stiff slightly silty slightly sandy slightly gravelly clay to a maximum termination depth of 1.40mbgl (TP01).

3.3 Groundwater

No groundwater was encountered during this intrusive investigation. However, a groundwater strike was encountered during the previous site investigation (*NE-26-004, February 2026)*, locally within CP01 at depth of 9.50mbgl as a slight seepage.

It should be noted the rapid rate of advancement of the exploratory holes may mask minor seepages and it should be borne in mind that water levels fluctuate with a number of influences including season, rainfall, dewatering and pumping activities. Therefore, water levels significantly higher than those found during this investigation may be encountered.

4 CONTAMINATION TESTING RESULTS

The proposed development is expected to comprise of a series of residential houses with access roads and soft landscaping as garden areas. The chemical test results are presented in Appendix C.

4.1 Contamination Testing and Rationale

To provide information upon the possibility of ground contamination one sample of natural clay and two samples of made ground were selected for shallow contamination testing. The end use is Residential without Home Grown Produce and given the size of the post demolition area tested the following three samples selected are considered appropriate for testing:

- BH01 - 0.50-0.60m (Natural CLAY)
- BH02 - 0.00-0.20m (MADE GROUND - Clay)
- BH03 - 0.00-0.20m (MADE GROUND - Clay)

The samples selected are considered to provide a range of coverage of material encountered during the site investigation and are likely to be encountered by construction workers during future site development.

The scope of testing included:

- 3no. Metals, semi-metals, non-metals, inorganic determinands
- 3no. Asbestos identification screenings
- 3no. Speciated Polyaromatic Hydrocarbons (PAHs)

4.2 Test Results

Based on the proposed development at the site, the test results have been compared to a series of Land Quality Management (LQM) Suitable for Use Levels (S4UL) based on a Residential without Home Grown Produce (HGP) land use.

The value for lead has been compared with the Category 4 Screening Level (March 2014) developed by Contaminated Land: Applications In Real Environments (CL:AIRE).

The test results are presented in Appendix C, and a summary is provided below in Tables 1 and 2 with values above the threshold highlighted.

TABLE 1: SUMMARY OF INORGANIC CONTAMINATION TESTING RESULTS

Determinand	Units	Number of Samples above Level of Detection	Minimum Recorded Level	Maximum Recorded Level	Residential without HGP Threshold Value	Number of Results Exceeding Threshold Value
Metals						
Cadmium	mg/kg	2	<0.1	0.7	85	0
Chromium	mg/kg	3	5.5	17	910	0
Copper	mg/kg	3	10	22	7100	0
Lead	mg/kg	3	9.8	18	310*	0
Mercury	mg/kg	2	<0.05	0.29	56	0
Nickel	mg/kg	3	5.9	30	180	0
Zinc	mg/kg	3	17	83	40000	0
Semi metals and non metals						
Arsenic	mg/kg	3	12	15	40	0
Boron	mg/kg	3	0.2	0.6	11000	0
Selenium	mg/kg	0	<0.5	-	430	0
Inorganic chemicals						
Cyanide (Total)	mg/kg	0	<0.1	-	73.8**	0
Sulphate (2:1 Water Soluble)	mg/l	3	35	250	2000^	0
Other						
pH	pH	-	7.8	8.6	<5.5^	0

* Category 4 Screening Levels, March 2014
** CLEA Software Version 1.06 (pH7 and 1%SOM)
^ EA Threshold Values
HGP Home Grown Produce

4.3 Metals, Semi Metals and Non-Metals

From the three samples tested the concentrations of metals, semi-metal and non-metals were below the relevant thresholds for long term risk to human health.

4.4 Inorganic Chemicals

Soluble sulphates (potentially aggressive to foundation concrete) were recorded between 35mg/l and 250mg/l. None of the samples were elevated above levels affecting human health or the BRE Special Digest 1 500mg/l limit for the sulphate classification of concrete.

The results of the pH testing were between 7.8 and 8.6. These pH levels indicate slightly alkaline to alkaline conditions.

4.5 Organic Chemicals

The organic thresholds vary depending on the levels of soil organic matter (SOM). The average SOM recorded across the site was 2.10% therefore a SOM of 1.00% has been used to determine the S4UL thresholds.

Table 2, below, summarises the results.

TABLE 2: SUMMARY OF ORGANIC CONTAMINATION TESTING RESULTS (RES WITH HGP)

Determinand	Units	Number of Samples above Level of Detection	Minimum Recorded Level	Maximum Recorded Level	Residential without HGP Threshold Value at 1% SOM	Number of Results Exceeding Threshold Value
Speciated PAH						
Naphthalene	mg/kg	1	<0.10	0.18	2.3	0
Acenaphthylene	mg/kg	1	<0.10	0.68	2900	0
Acenaphthene	mg/kg	1	<0.10	0.46	3000	0
Fluorene	mg/kg	1	<0.10	1.10	2800	0
Phenanthrene	mg/kg	1	<0.10	4.8	1300	0
Anthracene	mg/kg	1	<0.10	0.93	31000	0
Fluoranthene	mg/kg	1	<0.10	5.2	1500	0
Pyrene	mg/kg	1	<0.10	5.1	3700	0
Benz' (a)anth' ene	mg/kg	1	<0.10	1.8	11	0
Chrysene	mg/kg	1	<0.10	2.2	30	0
Benz' (b)fluor' ene	mg/kg	1	<0.10	1.4	3.9	0
Benz' (k)fluor' ene	mg/kg	1	<0.10	0.97	110	0
Benz' (a)pyrene	mg/kg	1	<0.10	1.9	3.2	0
Benz (ghi)per' ene	mg/kg	1	<0.10	1.0	360	0
Diben(ah)anth'ene	mg/kg	1	<0.10	0.19	0.31	0
Id' (123cd)pyrene	mg/kg	1	<0.10	1.4	45	0
Total PAH	mg/kg	1	<1.6	23	50*	0
Phenol	mg/kg	0	<0.3	-	750	0
* EA Threshold Values						

In terms of Speciated PAH, all levels were recorded below the relevant thresholds for long term risk to human health.

4.6 Asbestos

Three samples were selected for asbestos screening. No asbestos fibres were detected in the samples tested to date.

4.7 Environmental Protection Act 1990: Part 2A Revised Statutory Guidance (April 2012)

This revised document explains how the Local Authority should decide if land, based on a legal interpretation, is contaminated. The document replaces the previous guidance given in Annex 3 of DEFRA Circular 01/2006, issued in accordance with section 78YA of the 1990 Environmental Protection Act.

The main objectives of the Part 2A regime are to "identify and remove unacceptable risks to human health and the environment" and to "seek to ensure that contaminated land is made suitable for its current use". Part 2A uses a risk based approach to defining contaminated land whereby the "risk" is interpreted as "the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land" and by "the scale and seriousness of such harm or pollution if it did occur".

For a relevant risk to exist a contaminant, pathway and receptor linkage must be present before the land can be considered to be contaminated. The document explains that *"for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters."*

A conceptual model is used to develop and communicate the risks associated with a particular site.

To determine if land is contaminated the local authority use various categories from 1 to 4. Categories 1 and 2 include "land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health."

Categories 3 and 4 "encompass land which is not capable of being determined on such grounds".

See Appendix E for additional notes on contamination guidelines.

5 CONCEPTUAL MODEL AND CONTAMINATION ANALYSIS

The contamination conceptual model in Table 3 identifies the potential pollution linkages present on site based on source – pathway – receptor relationships. This model has been updated since the original Site Investigation report.

The following is also based on the findings the initial site investigation works (Solmek Phase Two Site Investigation NE-26-004-Rev1, March 2026) and therefore information may be extracted from the report.

TABLE 3: CONCEPTUAL MODEL (Extracted from NE-26-066 Phase 2 Site Investigation)

Source	Pathway	Receptor	Risk Rating	Comments
Asphyxiating or explosive ground gases • Made ground (<2.50m) • Coal mining • No landfills within 250m.	**Ground gas migration** • Migration through permeable soils • Inhalation	**Future site users** • Residents	Moderate /Low	Gas monitoring in progress, source risk rating subject to change.
		Users during development • Construction workers	Low	
Areas of contamination hazardous to human health (Residential Thresholds) • 5no samples tested • No significantly elevated inorganic determinants • Significantly elevated PAH compounds. • No asbestos detected • 3no samples tested post-demo – No further elevations reported	• Inhalation • Dust ingestion • Dermal contact	**Future site users** • Residents	Low	Localised contamination, however, this will be mitigated by encapsulation beneath proposed structure footprint, hardstanding or a clean cover system.
		Users during development • Construction workers	Moderate	Mitigation measures required during construction. Consideration to be given to Health and Safety Executive: *Protection of Workers and the General Public During the Development of Contaminated Land.*
	• Inhalation • Dust ingestion	**Users of surrounding sites** • Commercial & Residential	Moderate	Potential moderate risk during remediation/construction from dust generation. Consideration to be given to dust suppression, in line with BRE: *The Control of Dust and Emissions from Construction and Demolition, Best Practice Guidance.*
Areas of elevated Leachate contamination • Leachable Total PAH compounds • Groundwater testing not undertaken due to lack of GW in boreholes.	• Leaching of mobilised contaminants	**Drift geology** • Secondary Aquifer – Undifferentiated	Low	The thick low permeability drift deposits and the relatively low sensitivity aquifer is not considered to be a sensitive receptor.
		Solid geology • Principal Aquifer	Low	High sensitivity aquifer under thick low permeable natural cohesive deposits, not considered to pose a risk.
	• Drainage • Lateral migration • Accumulation of contaminated sediment	**Surface water features** • None on or adjacent to the site	Low	The surface water is unlikely to be impacted by the low contamination levels recorded.
Areas of phytotoxic contamination • No raised phytotoxics	• Uptake via roots and leaf surfaces	**Vegetation** • Soft landscaping proposed	Moderate	Clean cover system required for peripheral soft landscaped areas.
Areas of contamination above service fabric or BRE Special Digest 1 thresholds • Elevated pH, TPHCWG & phenols	• Direct contact	**Construction Materials** • Concrete	Low	Mitigation through use of sulphate resistant concrete where in contact with made ground.
		Construction Materials • Service Fabric	Moderate	PE, PVC and copper piping to be avoided and prudent to lay any service within a clean bedding.

In general terms, construction workers and construction materials are **potentially most** at risk as pollution linkages may be present for each of these receptors. Mitigation/remedial measures to reduce the risks identified for reach receptor are discussed in the following sections.

5.1 Users of the Site Once Development is Complete

The users of the site, particularly construction workers, are unlikely to be exposed to contaminants present in the soils beneath the site during redevelopment work. However, **potential** exposure pathways may include dermal absorption after contact with contaminated ground, inhalation of soil or dust, inhalation of volatised compounds, and inadvertent soil ingestion.

To establish if the levels of contaminants present on site may pose a risk to the health of the future users of the site the results of the contamination testing within the three samples subject to testing have been compared to a series of LQM S4UL and C4SL thresholds based on a residential without home grown produce land use.

The tested post demolition soil samples indicated that metals, semi-metals, non-metals and inorganic contaminants were recorded below the relevant thresholds for long term risk to human health. In addition, no asbestos fibres were detected within the samples tested to date.

There was no significant PAH contamination beneath the former structures based on the soil contamination testing on the three samples to date. It is considered that the levels recorded in the former building footprints are therefore unlikely to pose a significant risk to future users of the site.

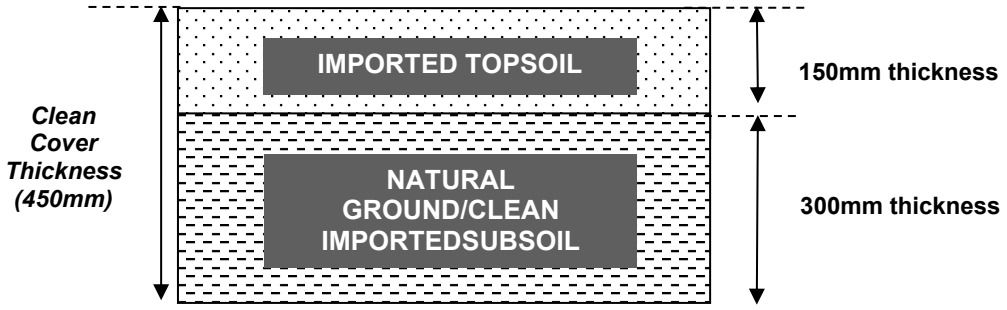
During the previous site investigation (Solmek Phase Two Site Investigation Report (NE-26-004-Rev1, March 2026) elevated levels of Speciated PAH and Total PAH were recorded based on the five samples subject to testing.

The proposed development is expected to comprise new student residential accommodation with peripheral soft landscaping. Based on the shallow soil contamination testing, it is considered that the levels of contamination may pose a risk to future users of the site, as soft landscaping is proposed in the final development. This pollutant linkage however will be severed as long as all contaminated areas are encapsulated either by buildings, hardstanding, or a clean cover system.

During the initial site strip, proposed soft landscaped areas should be excavated to 0.45mbgl or natural ground (whichever is the shallowest). Any deleterious materials encountered (i.e. ash, slag, brick rubble and concrete) should be removed and placed beneath areas of permanent hardcover. If material is to be moved either elsewhere on site or removed from site, consideration should be given to carrying out these works in accordance with the CL:AIRE Definition of Waste: Code of Practice, and a Materials Management Plan may be required

The cover system should include imported topsoil, to a depth of 150mm over either natural ground or clean imported subsoil at least 300mm in thickness. Appropriate certification would be required to ensure that the onsite or imported materials are clean and free from deleterious materials in accordance with the Local Authority Guidelines *Verification Requirements for Cover Systems, Technical Guidance for developers, Landowners and Consultants* (Yorkshire and Lincolnshire Pollution Advisory Group Version 4.1 – June 2021). Details of the clean cover system must be presented in a Phase 3 Remediation Statement.

The diagram below gives an overview of the minimum thicknesses of clean cover system that should be placed by the site operatives in soft landscaped areas.



5.2 Construction Workers and Users of Surrounding Sites

Short term human exposure to contaminants present in soils can occur via several pathways during the construction and ground works phase of the development. These include dermal absorption after contact with contaminated ground, inhalation of soil or dust (including windblown dust), inhalation of volatised compounds, inadvertent soil ingestion and contact with contaminated groundwater.

Raised levels of Speciated PAHs were detected during the initial site investigation (Solmek Phase Two Site Investigation NE-26-004-Rev1, March 2026). It is considered that such levels of contamination may pose a risk to construction workers and users of surrounding sites, however S4ULs assume long term exposure to contamination and therefore relate primarily to chronic health risks. The risk of short-term acute exposure (e.g. to construction workers) falls under the *Health and Safety at Work Act: 1974* and underlying regulations, such as the *Control of Substances Hazardous to Health (COSHH, 2002)* Regulations. The levels of contamination and the associated risks to site workers should be considered under the *Construction Design and Management (CDM, 2015)* regulations during the planning of works and the preparation of the designers and contractors Health and Safety Plans and Method Statements.

As good practice, full PPE must be employed in accordance with Health and Safety Executive*: Protection of Workers and the General Public During the Development of Contaminated Land* and safeguards should be taken to limit dust during ground works, and access to the public should be restricted. Construction workers should use gloves as a precaution when handling any fill materials. Provision of suitable hygiene facilities are needed for site workers. Wheel washers should be provided and used for any vehicle entering or leaving site to prevent cross contamination.

Although asbestos or other forms of contamination were not detected from the soil samples subjected to testing within this investigation, the possibility still exists that asbestos containing materials may still be present on site and currently lie undetected. It is therefore advised that a 'watching brief' is undertaken during the initial site strip and any excavation works and advice sought if asbestos is found or suspected.

During dry weather, any excavations may require clean water to be sprinkled at shallow depth to prevent excess dust escaping to off-site receptors. Monitoring of dust concentrations during construction should be given careful consideration to ensure occupational exposure levels are not exceeded. Works should be undertaken in line with BRE: *The Control of Dust and Emissions from Construction and Demolition, Best Practice Guidance*.

5.3 Vegetation

Plants can be affected by soil contamination in a number of ways resulting in growth inhibition, nutrient deficiencies and yellowing of leaves. Contaminants are taken up by plants through the roots and through foliage. Contaminants identified as being highly phytotoxic include boron, cadmium, copper, nickel, and zinc.

To establish if the levels of contaminants present on site may pose a risk to vegetation the results of the contamination testing have been compared to a series of threshold values published in *Code of Good Agricultural Practice for the Protection of Soil*. No phytotoxic determinants are shown as elevated. The clean cover layer to be incorporated in soft landscaping areas will mitigate against this risk.

5.4 Ground & Surface Water *(extracted from Solmek Phase 2 Site Investigation NE-26-004-Rev1, March 2026)*

The principal pathway by which soil contamination may reach the water environment is through a slow seepage or leaching to groundwater or surface water. The potential for contaminants to migrate along such pathways is dependent on the chemical and physical characteristics of the contaminants and the local hydrogeology.

From the site investigation undertaken, ground conditions broadly comprise made ground (up to 2.50mbgl) underlain by deep glacial clay with localised thin granular bands at depth.

The cohesive deposits can be considered to have a low permeability. The drift deposits are designated as a Secondary Aquifer – Undifferentiated by the Environment Agency.

The published geology indicates the site is underlain by solid geology of Chester Formation (Sandstone)

with possible Manchester Marls (Mudstone) the south of the site which are designated as a Principal Aquifer by the Environment Agency. The site is not located within a Source Protection Zone.

Groundwater was encountered locally within CP01 at depth of 9.50mbgl as slight seepage during the intrusive investigation. No further groundwater was encountered.

Generally low contamination levels were recorded based on the five samples tested with levels of elevated Speciated PAH recorded within the five samples subject to testing.

However, the exceedances were noted to be minor and the mobility of PAHs in groundwater are low, due to its low solubility and high preference for sorption to organic carbon. Solmek has identified that there is a negligible risk to controlled waters receptors.

Given the relatively impermeable nature of the clay on site underlying the made ground soils serving as a containment layer, it is likely that the leachates will attenuate naturally before they migrate to groundwater and therefore it is unlikely that a complete contaminant linkage will exist between groundwater water on site and underlying aquifers.

5.5 Construction Materials

Materials at risk from potential soil contamination include inorganic matrices such as cement and concrete and also organic material; e.g. plastics and rubbers. Acid ground conditions and elevated levels of sulphates can accelerate the corrosion of building materials. Plastics and rubbers are generally used for piping and service ducts and are potentially attacked by a range of chemicals, most of which are organic, particularly petroleum-based substances. Drinking water supplies can be tainted by substances that can penetrate piping and water companies enforce stringent threshold values.

5.5.1 Concrete Classification

BRE Special Digest One: *Concrete in Aggressive Ground*: 2005 3rd Edition has been used to assess the risks posed to underground concrete and to establish the design measures required to mitigate the risks. The results of the pH and water-soluble sulphate tests (when converted to total potential sulphate) fall into Class DS-1 ACEC (Class AC-1s) requirements for concrete protection. This assumes static groundwater conditions.

5.5.2 Water Supply Pipes Material Selection

The levels of potential contaminants should be compared to thresholds supplied in the UK Water Industry Research (UKWIR) publication *Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites* (January 2011). A Brownfield Site is defined in the document as “Land or premises that have previously been used or developed that may be vacant or derelict”. It should be noted that Brownfield sites may not be contaminated. The guidance does not apply to Greenfield Sites however water companies may have their own assessment criteria which should be checked by the developer.

Based on the samples tested during the initial and post-demolition site investigation, levels of slightly alkaline to alkaline pH (7.8 to 9.0) were recorded across the site at depths of between 0.00mbgl and 9.00mbgl within the made ground and natural samples.

The concentrations of the selected determinants should be compared to the pipe material selection table in Appendix E, and consultation with the appropriate utility supply company is required to identify the most suitable service fabric. However, the pH, TPHCWG and phenol levels may preclude the use of PE, PVC and copper pipes.

Appendix A



SOLMEK
12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

Site Location Plan

Project Number

NE-26-004

Project Name

99 Plymouth Grove, Manchester

Client

JC Consulting

Date

May 2026

DRG Number

Figure 1

Scale

1:5000 @ A4 [DO NOT SCALE]

Legend Key

Project Bounds - Project Bounds



SOLMEK
12-16 Yarm Road, Stockton on Tees, TS18 3NA
Tel: 01642 607083 Email: info@solmek.com

Figure Title

Trial Pit Location Plan

Project Number

NE-26-004

Project Name

99 Plymouth Grove, Manchester

Client

JC Consulting

Date

May 2026

DRG Number

Figure 2

Scale

1:500 @ A4 [DO NOT SCALE]

Legend Key

Locations By Type - TP

Project Bounds - Project Bounds



Title
TP01 Trial Pit Photograph

Project
99 Plymouth Grove, Manchester

Client
JC Consulting

Date
May 2026

Fig No.
Figure 3

Scale
Do Not Scale

Key

N

Solmek Ltd.
12 Yarm Road
Stockton-on-Tees
TS18 3NA

Tel: +44 (0) 1642 607083
Fax: +44 (0) 1642 612355
e-mail: south@solmek.com
www.solmek.com

SOLMEK



Title
TP02 Trial Pit Photograph

Project
99 Plymouth Grove, Manchester

Client
JC Consulting

Date
May 2026

Fig No.
Figure 3

Scale
Do Not Scale

Key

N

Solmek Ltd.
12 Yarm Road
Stockton-on-Tees
TS18 3NA

Tel: +44 (0) 1642 607083
Fax: +44 (0) 1642 612355
e-mail: south@solmek.com
www.solmek.com

SOLMEK



Title
TP03 Trial Pit Photograph
Project
99 Plymouth Grove, Manchester
Client
JC Consulting
Date
May 2026
Fig No.
Figure 5
Scale
Do Not Scale
Key

N

Solmek Ltd.
12 Yarm Road
Stockton-on-Tees
TS18 3NA

Tel: +44 (0) 1642 607083
Fax: +44 (0) 1642 612355
e-mail: south@solmek.com
www.solmek.com

SOLMEK

Appendix B

SOLMEK
Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

TrialPit No
TP01
Sheet 1 of 1

Project Name:	99 Plymouth Grove, Manchester	Project No. NE-26-004	Co-ords: 385320E - 396371N Level:
Date	31/03/2026		
Plant Used:	JCB 3CX	Dimensions (m): Depth 1.40	1.00 × 0.30
Scale	1:26		
Client:	JC Consulting		
Logged	AG		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 0.20	B+ES		0.30			MADE GROUND: Firm light brown silty, slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick, sandstone, mudstone and coal. Brick cobbles present.
	0.50 - 0.60	B+ES					Very stiff to stiff brown with mottled grey slightly silty, slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded coal, sandstone and mudstone.
	1.00 - 1.20	B+ES		1.40			End of Pit at 1.400m

1
2
3
4
5

Remarks: No groundwater encountered.
Ground surface stripped. Ground level taken from 0.60mbgl compared to original ground level

Stability: Pit Walls Stable

SOLMEK
Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

TrialPit No
TP02
Sheet 1 of 1

Project Name:	99 Plymouth Grove, Manchester	Project No. NE-26-004	Co-ords: 385314E - 396379N Level:
Date	31/03/2026		
Plant Used:	JCB 3CX	Dimensions (m): Depth 0.80	1.00 × 0.30
Scale	1:26		
Client:	JC Consulting		
Logged	AG		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 0.20	B+ES		0.30			MADE GROUND: Firm light brown silty, slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick, sandstone, mudstone and coal. Brick cobbles present.
	0.40 - 0.60	B+ES					Very stiff to stiff brown with mottled grey slightly silty, slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded coal, sandstone and mudstone.
	0.70 - 0.80	B+ES		0.80			End of Pit at 0.800m

Remarks: No groundwater encountered. Ground surface stripped. Ground level taken from 0.60mbgl compared to original ground level.

Stability: Pit Walls Stable

SOLMEK
Solmek Ltd
12-16 Yarm Road
Stockton on Tees
TS18 3NA
Tel: 01642 607083
Email: info@solmek.com

Trial Pit Log

TrialPit No
TP03
Sheet 1 of 1

Project Name:	99 Plymouth Grove, Manchester	Project No. NE-26-004	Co-ords: 385319E - 396363N Level:
Date	31/03/2026		
Plant Used:	JCB 3CX	Dimensions (m): Depth 0.90	1.00 × 0.30
Scale	1:26		
Client:	JC Consulting		
Logged	AG		

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.00 - 0.20	B+ES		0.20			MADE GROUND: Firm light brown silty, slightly sandy, slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subangular to angular brick, sandstone, mudstone and coal. Brick cobbles present.
	0.40 - 0.60	B+ES					Very stiff to stiff brown with mottled grey slightly silty, slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse angular to subrounded coal, sandstone and mudstone.
	0.70 - 0.90	B+ES		0.90			End of Pit at 0.900m

Remarks: No groundwater encountered. Ground surface stripped. Ground level taken from 0.60mbgl compared to original ground level.

Stability: Pit Walls Stable

Appendix C

Certificate of Analysis

Certificate Number	26-09753	*Issued:*	30-Apr-26

Client SOLMEK
12 Yarm Road
Stockton On Tees
Cleveland
TS18 3NA

Our Reference	26-09753
Client Reference ~	ne-26-004
Order No ~	PO-01-26363
Contract Title ~	99 Plymouth Road
Description	3 Soil samples.
Date Received	24-Apr-26
Date Started	24-Apr-26
Date Completed	30-Apr-26
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 [redacted]

Reyhan Irfan
Operations Manager

2139

Sample Deviations present. See Deviation Table Section for details.

Summary of Chemical Analysis
Matrix Descriptions

Our Ref 26-09753
Client Ref ~ ne-26-004
Contract Title ~ 99 Plymouth Road

Sample ID	Depth	Lab No	Completed	Matrix Description
TP01	0.50-0.60	2675845	30/04/2026	Brown sandy CLAY
TP02	0.00-0.20	2675846	30/04/2026	Brown sandy CLAY
TP03	0.00-0.20	2675847	30/04/2026	Brown sandy CLAY

Summary of Chemical Analysis
Soil Samples

Our Ref 26-09753
Client Ref ~ ne-26-004
Contract Title ~ 99 Plymouth Road

	Lab No	2675845	2675846	2675847
	Sample ID ~	TP01	TP02	TP03
	Depth ~	0.50-0.60	0.00-0.20	0.00-0.20
	Other ID ~			
	Sample Type ~	ES	ES	ES
	Sampling Date ~	31/03/2026	31/03/2026	31/03/2026
	Sampling Time ~	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Arsenic	DETSC 2301#	0.2	mg/kg	12	13	15
Boron, Water Soluble (2.5:1)	DETSC 2311#	0.2	mg/kg	0.2	0.5	0.6
Cadmium	DETSC 2301#	0.1	mg/kg	0.7	0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	17	5.5	6.8
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	22	10	12
Lead	DETSC 2301#	0.3	mg/kg	18	9.8	13
Mercury	DETSC 2325#	0.05	mg/kg	0.29	0.06	< 0.05
Nickel	DETSC 2301#	1	mg/kg	30	5.9	7.0
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	83	17	20
Inorganics						
pH	DETSC 2008#		pH	8.6	8.2	7.8
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	1.5	2.2	2.6
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#	10	mg/l	58	35	250
PAHs						
Naphthalene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	0.18
Acenaphthylene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	0.68
Acenaphthene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	0.46
Fluorene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	1.1
Phenanthrene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	4.8
Anthracene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	0.93
Fluoranthene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	5.2
Pyrene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	5.1
Benzo(a)anthracene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	1.8
Chrysene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	2.2
Benzo(b)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	1.4
Benzo(k)fluoranthene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	0.97
Benzo(a)pyrene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	1.9
Indeno(1,2,3-c,d)pyrene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	1.4
Dibenzo(a,h)anthracene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	0.19
Benzo(g,h,i)perylene	DETSC 3301	0.1	mg/kg	< 0.10	< 0.10	1.0
PAH 16 Total	DETSC 3301	1.6	mg/kg	< 1.6	< 1.6	23
Phenols						
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3

Summary of Asbestos Analysis
Soil Samples

Our Ref 26-09753
Client Ref ~ ne-26-004
Contract Title ~ 99 Plymouth Road

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
2675845	TP01 0.50-0.60	SOIL	NAD	none	Keith Wilson
2675846	TP02 0.00-0.20	SOIL	NAD	none	Keith Wilson
2675847	TP03 0.00-0.20	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 26-09753
Client Ref ~ ne-26-004
Contract ~ 99 Plymouth Road

Containers Received & Deviating Samples

Lab No	Sample ID ~	Date Sampled ~	Containers Received	Holding time exceeded for tests	Incorrect container for tests
2675845	TP01 0.50-0.60 SOIL	31/03/26	GJ 250ml, GJ 60ml, PT 1L x2	Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2675846	TP02 0.00-0.20 SOIL	31/03/26	GJ 250ml, GJ 60ml, PT 1L x2	Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	
2675847	TP03 0.00-0.20 SOIL	31/03/26	GJ 250ml, GJ 60ml, PT 1L x2	Naphthalene (14 days), PAH FID (14 days), pH + Conductivity (7 days), Cyanide/Mono pHoh (14 days)	

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

Normec DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 250µm sieve
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

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC 2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC 2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC 2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC 2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC 2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 2311	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	As Received	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3321	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3321	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3521	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3521	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3521	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3521	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3521	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3521	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS

Key:
~ Sample details are provided by the client and can affect the validity of the results
***** -not accredited.
# -MCERTS (accreditation only applies if report carries the MCERTS logo).
$ -subcontracted.
n/s -not supplied.
I/S -insufficient sample.
U/S -unsuitable sample.
t/f -to follow.
nd -not detected.

End of Report

Appendix D

♣Solmek conditions of offer, notes on limitations & basis for contract (ref: version1/2026)

These conditions accompany our tender and supercede any previous conditions issued. Solmek will prepare a report solely for the use of the Client (the party invoiced) and its agent(s). No reliance should be placed on the contents of this report, in whole or in part by 3rd parties. The report, its content and format and associated data are copyright, and the property of Solmek. Photocopying of part or all of the contents, transfer or reproduction of any kind is forbidden without written permission from Solmek. A charge may be levied against such approval, the same to be made at the discretion of Solmek.

Solmek cannot be held liable and do not warrant, or otherwise guarantee the validity of information provided by third parties and subsequently used in our reports. Solmek are not responsible for the action negligent of otherwise of subcontractors or third parties.

Site investigation is a process of sampling. The scope and size of an investigation may be considered proportional to levels of confidence regarding the ground and groundwater conditions. The exploratory holes undertaken investigate only a small volume of the ground in relation to the overall size of the site, and can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions as encountered within each of the exploratory holes. There may be different ground conditions elsewhere on the site which have not been identified by this investigation and which therefore have not been taken into account in this report. Reports are generally subject to the comments of the local authority and Environment Agency. The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that mobile contamination, ground gas levels and groundwater levels may vary owing to seasonal, tidal and/or weather related effects. Solmek cannot be held liable for any unrecorded or unforeseen obstructions between exploratory boreholes and trial pits. This includes instances where previous structures on the site (buried man made structures) or the presence of boulder clay (cobbles and/or boulder obstructions) have been anticipated. All types of piling operations should make allowance for obstructions within the construction budget to accommodate this. Unrecorded ancient mining may occur anywhere where seams that have been worked and influence the rock and soil above. Dissolution cavities can occur where gypsum or chalk is present. Rotary drilling is the recommended technique to prove the integrity of the rock.

Where the scope of the investigation is limited via access to information, time constraints, equipment limitations, testing, interpretation or by the client or his agents budgetary constraints, elements not set out in the proposal and excluded from the report are deemed to be omitted from the scope of the investigation.

Desk studies are generally prepared in accordance with RICS guidelines. Environmental site investigations are generally undertaken as 'exploratory investigations' in accordance with the definitions provided in paragraph 5.4 of BS 10175:2011 in order to confirm the conceptual assumptions. You are advised to familiarize yourself with the typical scope of such an investigation. No pumping of water will be undertaken unless a licence or facilities/equipment have been arranged by others.

Where the type, number or/and depth of exploratory hole is specified by others, Solmek cannot and will not be responsible for any subsequent shortfall or inadequacy in data, and any consequent shortfall in interpretation of environmental and geotechnical aspects which may be required at a later date in order to facilitate the design of permanent or temporary works.

All information acquired by Solmek in the course of investigation is the property of Solmek, and, only also becomes the joint property of the Client only on the complete settlement of all invoices relating to the project. Solmek reserve the right to use the information in commercial tendering and marketing, unless the Client expressly wishes otherwise in writing. The quoted rates do not include VAT, and payment terms are 30 days from dispatch of invoice from our offices. Quotes are subject to a site visit.

We have allowed for 1 mobilisation and normal working hours unless otherwise stated. The scope of the investigation may be reviewed following the desk study and/or fieldwork. The presence or otherwise of Japanese Knotweed or other invasive plants can be difficult to identify especially during winter months. If Japanese Knotweed or other invasive species are suspect, it should be confirmed by an ecologist. We have not allowed for acquiring services information, and cannot be responsible for damage to underground services or pipes not shown to us or not clearly shown on plans. Costs incurred will be passed on to you, and in commissioning Solmek you understand and accept that you/your agent have a contractual relationship with Solmek & you accept this. Our rates assume unobstructed, reasonably level and firm access to the exploratory positions and adequate clear working areas and headroom. We have priced on the basis that you or your client have the necessary permissions, wayleaves and approvals to access land. All boreholes and pits are backfilled with arisings except where gas monitoring pipes are installed with stopcock covers. Solmek are not responsible for any uneven surfaces as a result of siteworks and rutting and backfilled excavations may require re-levelling and/or making good by others after fieldwork is complete, and Solmek has not allowed for this. No price has been provided or requested for a return visit to remove pipework and covers. Hourly rates apply to consultancy only and do not include expenses unless otherwise shown. If warranties are required, legal costs incurred will be passed on to you assuming Solmek agree to complete such warranties, modified or otherwise and you understand and agree to pay all costs.

We reserve the right to pursue full payment of the invoice prior to release of any information including reports. We advise you/your client that we may elect to pursue our statutory rights under late payment legislation, and will apply 8% to the base rate for unreasonably late payments. Solmek are exempt from the CIS Scheme. Solmek offer to undertake work only in strict accordance with conditions covered by our current insurances, which are available for inspection. Solmek are not responsible for acts, negligent or otherwise of subcontractors and as a matter of policy cannot indemnify any other parties. Professional indemnity Insurance is limited to ten times the invoice net total except where stated otherwise by Solmek. Solmek give notice that consequential loss as a direct or indirect result of Solmek's activities or omission of the same are excluded.

SOLMEK NOTES ON CONTAMINATION GUIDANCE (REF: VERSION 1/2026)

UK BACKGROUND

Environmental Protection Act 1990: Part 2A Revised Statutory Guidance (April 2012)

This revised document explains how the Local Authority should decide if land, based on a legal interpretation, is contaminated. The document replaces the previous guidance given in Annex 3 of DEFRA Circular 01/2006, issued in accordance with section 78YA of the 1990 Environmental Protection Act.

The main objectives of the Part 2A regime are to *"identify and remove unacceptable risks to human health and the environment" and* to *"seek to ensure that contaminated land is made suitable for its current use".*

Part 2A uses a risk based approach to defining contaminated land whereby the "risk" is interpreted as *"the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land"* and by *"the scale and seriousness of such harm or pollution if it did occur".*

For a relevant risk to exist a contaminant, pathway and receptor linkage must be present before the land can be considered to be contaminated. The document explains that *"for a risk to exist there must be contaminants present in, on or under the land in a form and quantity that poses a hazard, and one or more pathways by which they might significantly harm people, the environment, or property; or significantly pollute controlled waters."*

A conceptual model is used to develop and communicate the risks associated with a particular site.

To determine if land is contaminated the local authority use various categories from 1 to 4. Categories 1 and 2 include *"land which is capable of being determined as contaminated land on grounds of significant possibility of significant harm to human health."*

Categories 3 and 4 *"encompass land which is not capable of being determined on such grounds".*

PRELIMINARY CONCEPTUAL MODEL

Preliminary Conceptual Models are undertaken in accordance with CIRIA C552. The Preliminary Conceptual Model assesses the consequence and the likelihood of a risk being realised to provide a risk classification, using the tables detailed below.

CONSEQUENCE OF RISK BEING REALISED (Based on C552 CIRIA, 2001)

Classification	Definition	Example
Severe	Short-term (acute) risk to human health, the environment, an element of the development or other aspect with is likely to result in *significant harm*, damage or both.	High concentrations of cyanide on the surface of an informal recreational area. Major spills of contaminants from site into controlled water. High concentrations of explosive gas in the subsurface environment that have a clear unobstructed pathway into buildings.
Moderate	Chronic damage to human health, a plausible chance that an event will occur, although the timeline is not immediate to be in the short-term.	Appreciable concentration of contamination that over the longer-term will cause significant harm i.e. high lead concentration in topsoil. Shallow mine workings that are potentially unstable but may remain in a satisfactory or stable conditions for a number of years.
Mild	Low level pollution of non-sensitive water, a feasible hazardous scenario although the timeline of such occurring can probably be considered in 10's of years.	The effect of high sulphate concentrations on structural concrete. Pollution of non-classified groundwater.
Minor	Harm, although not necessarily significant to human health, or with respect to other aspects of the development, which are considered implausible in terms of occurrence, or will have little consequential impact.	The presence of contaminants at such low concentrations that protective equipment is required during site works. Any damage to structures is minimal and will not be structural in characteristics.

PROBABILITY OF RISK BEING REALISED (C552 CIRIA, 2001)

Classification	Definition
High Likelihood	There is a viable pollutant linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence that the receptor has been harmed or polluted.
Likely	There is a viable pollutant linkage and all elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a viable pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a viable pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

RISK CLASSIFICATION MATRIX (C552 CIRIA, 2001)

Risk = Probability x Consequence		Consequence			
		Severe	Moderate	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

HUMAN RECEPTORS

Human exposure to contaminants present in soils can occur via several pathways. Direct exposure pathways include dermal absorption after contact with contaminated ground, inhalation of soil or dust, inhalation of volatised compounds, and inadvertent soil ingestion (or deliberate soil ingestion in the case of some children). Other indirect pathways include human ingestion of plants grown in contaminated soil or contaminated ground or surface water. Contaminants associated with wind blown dust can affect humans on surrounding sites.

VEGETATION

Plants can be affected by soil contamination in a number of ways resulting in growth inhibition, nutrient deficiencies and yellowing of leaves. Contaminants are taken up by plants through the roots and through foliage. Contaminants identified as being highly phytotoxic include boron, cadmium, copper, lead, nickel, and zinc.

To establish if the levels of contaminants present on a site may pose a risk to vegetation the results of the contamination testing are compared to a series of threshold values published in 'Code of Good Agricultural Practice for the Protection of Soil'.

GROUNDWATER AND SURFACE WATER RECEPTORS

The principal pathway by which soil contamination may reach the water environment is through a slow seepage or leaching to groundwater or surface water. The potential for contaminants to migrate along such pathways is dependent on the chemical and physical characteristics of the contaminants and the local hydrogeology. Surface watercourses may also accumulate contamination as contaminated sediments are deposited within the water body.

Where the site investigated overlies major/principal aquifers (and in some cases minor/secondary aquifers depending on certain conditions), groundwater Source Protection Zones and areas in close proximity to groundwater abstractions, contamination test results have been compared with the Water Supply (Water Quality) Regulations 1989 and The Water Supply (Water Quality) Regulations 2000.

Should a surface water receptor, such as a fresh water environment (river, canal, stream, lake etc), or marine environment be considered sensitive in relation to a site, then test results are compared with DEFRA & SEPA Environmental Quality Standards (2004). Many of the Environmental Quality Standards are hardness ($CaCO_3$) depended. Where no hardness values are available, Solmek assume conservative values (of between 0 and 50mg/l).

In the absence of vulnerable ground and surface water environments, Solmek may compare any test results with the Environment Agency Leachate Quality Threshold Values.

DETAILED QUANTITATIVE RISK ASSESSMENT (DQRA)

In line with Environment Agency's guidance document Environment Agency *Land Contamination Risk Management*, which replaced the now-withdrawn *Contaminated Land Report 11 – Model Procedures for the Management of Land Contamination (2004)*, a DQRA for groundwater/human health may be required following a Phase 2 investigation and before the preparation of a Phase 3 Remediation Strategy. For human health DQRA, a site specific assessment criteria is undertaken using CLEA Software Version 1.06. For groundwater DQRA, the Environment Agency Remedial Targets Worksheet Version 3.1 is used.

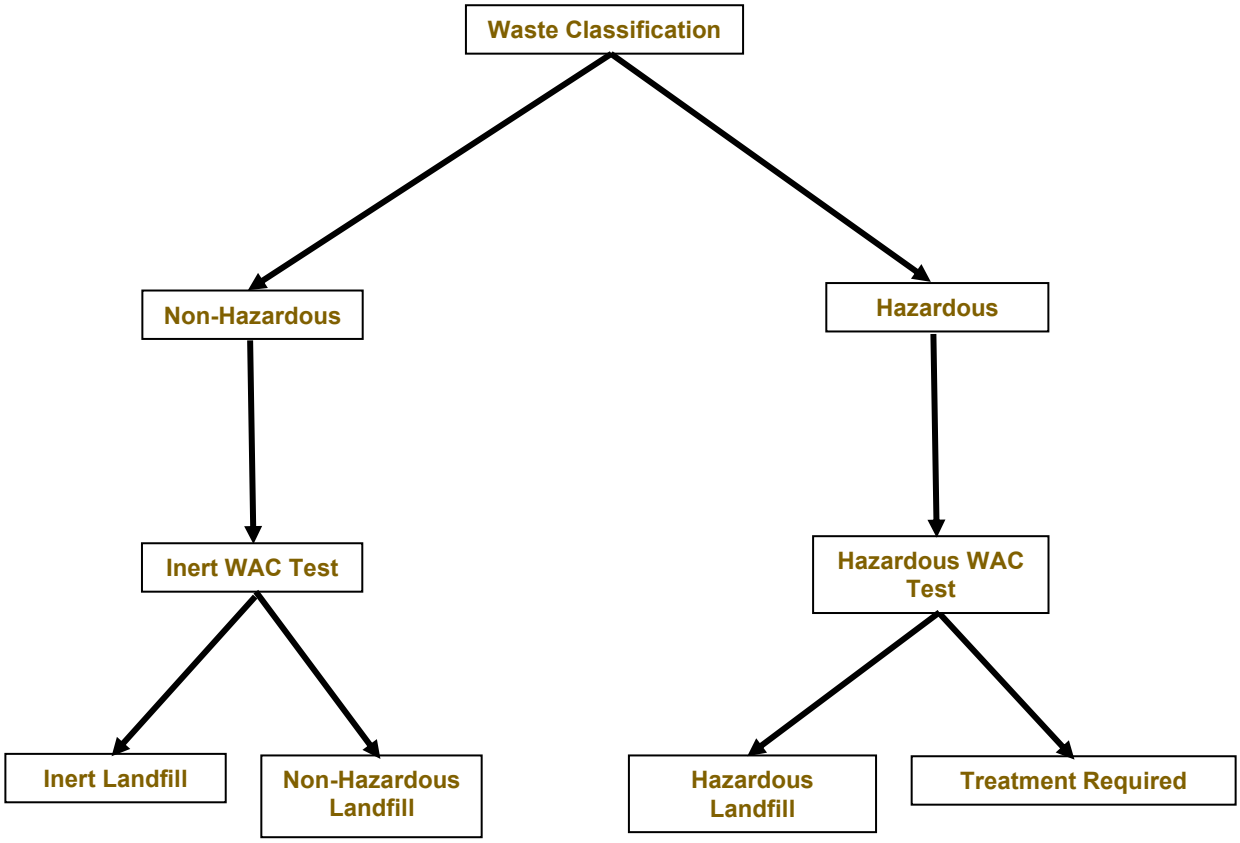
WASTE CLASSIFICATION AND WASTE ACCEPTANCE CRITERIA

During the site strip and construction activities, material may be required to be removed from site. Any such material would require classification, in line with Environment Agency Technical Guidance *Waste Classification: Guidance on the classification and assessment of waste (2015)*. This would classify the material as either Non-Hazardous or Hazardous Waste.

Once the material has been classified, determining the suitable landfill for disposal is governed by landfill directive Waste Acceptance Criteria (WAC) testing, with landfills categorized as Inert Waste, Stable Non-Reactive Hazardous Waste and Hazardous Waste. The WAC testing relates to materials that are to be exported from a site/development to landfill, and do not directly relate to human health specifically. The testing results are generally presented as certificates which can be used by site owners/contractors etc, which should be presented to the accepting waste facility or waste contractor.

If waste classification and/or WAC testing are not undertaken, material taken off site may be subject to WAC testing by the appropriate waste disposal company. The decision on whether or not to accept waste, or whether further testing is required, is at the discretion of the waste disposal company.

The below flow chart provides further information on the waste classification process.



CONSTRUCTION MATERIALS

Materials at risk from possible soil contaminants include inorganic matrices such as cement and concrete and also organic material such as plastics and rubbers. Acid ground conditions and high levels of sulphates can accelerate the corrosion of building materials. Where pH and soluble sulphate analysis has been undertaken, Solmek compare the test results with the guidelines presented within BRE Special Digest 1, 2005 (3rd Edition) 'Concrete in Aggressive Ground'. Plastics and rubbers are generally used for piping and service ducts and are potentially attacked by a range of chemicals, most of which are organic, particularly petroleum based substances. Drinking water supplies can be tainted by substances that can penetrate piping and water companies enforce stringent threshold values.

The levels of potential contaminants should be compared to thresholds supplied in the UK Water Industry Research (UKWIR) publication "Guidance for the selection of Water Supply Pipes to be used in Brownfield Sites" (January 2011). A Brownfield Site is defined in the document as "Land or premises that have not previously been used or developed that may be vacant or derelict". It should be noted that Brownfield sites may not be contaminated. The guidance does not apply to Greenfield Sites however water companies may have their own assessment criteria which should be checked by the developer. The table below outlines the pipe material selection threshold concentrations.

	Pipe Material (Threshold concentrations in mg/kg)					
Parameter group	**PE**	**PVC**	**Barrier pipe (PE-AL-PE)**	**Wrapped Steel**	**Wrapped Ductile Iron**	**Copper**
Extended VOC suite by purge and trap or head space and GC-MS with TIC	0.5	0.125	Pass	Pass	Pass	Pass
+ BTEX + MTBE	0.1	0.03	Pass	Pass	Pass	Pass
SVOCs TIC by purge and trap or head space and GC-MS with TIC (aliphatic and aromatic C5-C10)	2	1.4	Pass	Pass	Pass	Pass
+ Phenols	2	0.4	Pass	Pass	Pass	Pass
+ Cresols and chlorinated phenols	2	0.04	Pass	Pass	Pass	Pass
Mineral oil C11-C20	10	Pass	Pass	Pass	Pass	Pass
Mineral oil C21-C40	500	Pass	Pass	Pass	Pass	Pass
Corrosive (Conductivity, Redox and pH)	Pass	Pass	Pass	Corrosive if pH <7 and conductivity >400µS/cm	Corrosive if pH <5, Eh not neutral and conductivity >400µS/cm	Corrosive if pH <5 or >8 and Eh positive
Specific suite identified as relevant following site investigation						
Ethers	0.5	1	Pass	Pass	Pass	Pass
Nitrobenzene	0.5	0.4	Pass	Pass	Pass	Pass
Ketones	0.5	0.02	Pass	Pass	Pass	Pass
Aldehydes	0.5	0.02	Pass	Pass	Pass	Pass
Amines	Fail	Pass	Pass	Pass	Pass	Pass

REQUIREMENTS OF PARTIES WITHIN THE DEVELOPMENT PROCESS

Interested parties involved in the development process may use the data in different ways and there may be varying views and interpretation of the factual data. Local Authority staff may have a view on contamination and human health and the wider environment. The Environment Agency are concerned principally with the protection of Controlled waters. Building insurers, funders and purchasers may be primarily concerned with issues of potential commercial blight. Purchasers are also not always fully informed, and perceptions on issues associated with risk can affect the decision to purchase. Developers and construction organisations will focus on financial aspects of dealing with the contamination in the context of the development and construction programme.

RISKS & LIABILITIES FROM CONTAMINATION

In simple terms, risks associated with contamination may be considered in terms of 1) statutory risks and 2) development related risks. If contamination is severe or forms a potential hazard based on its potential to affect groundwater, surface water or human health, a statutory risk may be present, and as such, if the risk is not reduced, criminal proceedings may be instigated by a government body or local authority.

If the contamination is less severe or not considered to be mobile, it may be considered a commercial liability which could, in theory remain untreated, but which may at a later date affect the value of the property, or, with changing legislation, become a statutory risk. Commercial liabilities could give rise to civil proceedings by third parties if there are grounds for action.