

Zak Rees Barrington

Farrington Avenue,
Manchester

Interpretative Desk Study

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Document Control

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Site Address: 1 Farrington Avenue, Withington, Manchester M20 1ER

Client: Zak Rees Barrington

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Brief Description of Contents Review of desk top information to determine likely ground conditions and develop a conceptual model in order to establish the geo-environmental site setting, identify any potential Source-Pathway-Receptor pollutant linkages and associated environmental issues, and to provide recommendations for any further works (as required).

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1.0 INTRODUCTION

G&J Geoenvironmental Consultants Ltd (G&J) was commissioned by Mr Zak Rees Barrington to carry out an Interpretative Desk Study for a site located at 1 Farrington Avenue, Manchester, M20 1ER, in support of a proposed residential development.

The purpose of this report is to collate and interpret information pertaining to the site from a desk-based review of available data. The scope of the study is as follows:

- To determine the environmental setting of the site and its surroundings in terms of location, topography, ground conditions and land-use;
- To discuss the geology, hydrogeology and hydrology at, and in the vicinity of, the site;
- To determine the site history and that of the surrounding area;
- To assess potential contamination issues pertaining to the site with consideration of the site's current and historic use;
- To develop an initial Conceptual Site Model (CSM) linking sources of potential contamination with pathways and receptors;
- To produce a Preliminary Risk Assessment for contamination in accordance with the Environment Agency's *Land Contamination Risk Management* (LCRM) framework;
- To provide recommendations for any further work and / or mitigation measures (if required); and
- To support any planning applications for development of the site.

1.1 Terms and Conditions

This report has been prepared for Mr Zak Rees Barrington in consideration of the current use of the site and the proposed future residential development. Much of the environmental information relates to the site in its present state and should not be used in a different context without reference to G&J.

1.2 Sources of information

The following sections describe the environmental setting of the site, the site history and the anticipated ground conditions based on information taken from a variety of sources, including;

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- Current maps and plans;
 - Geological maps and records;
 - Site Photographs (Appendix A);
 - Historical maps;
 - Website of relevant authorities and organisations such as The British Geological Survey, the Environment Agency, Defra, Groundsure, Natural England and Historic England

Although every effort has been made to ensure the accuracy of the information contained herein, no checks have been carried out to ensure the accuracy of information obtained from third parties and no liability can be accepted for any errors or misinterpretation of the third-party information where it has been incorporated into this report.

1.3 Policy Context – Land Contamination

The primary legal and policy mechanisms for managing contaminated land are Part IIA of the Environmental Protection Act 1990 and the National Planning Policy Framework.

Part IIA provides a statutory definition of Contaminated Land and supporting guidance which defines how to decide whether or not land meets this definition. For land to be determined as contaminated land, the onus is on demonstrating with sufficient certainty that land is in such condition, by reasons of substances in, on or under the ground 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 caused, or there is a significant possibility of such pollution being caused.

Significant harm and how to determine if a significant possibility of such harm exists is defined in the statutory guidance which accompanies Part IIA. The guidance also defines four categories of land with respect to the risks to human health and the water environment and how the degree of risk relates to the statutory definition of contaminated land, as summarised in the following figure:

Figure 1.1 Part IIA Categories

Land Category	Human Health	Water	
1	Unacceptably high probability that Significant Harm would occur if no action taken	Strong case that a Significant Possibility of Significant Pollution exists	Part IIA Contaminated Land
2	The risks are sufficient that a Significant Possibility of Significant Harm exists	Of sufficient concern to present a Significant Possibility of Significant Pollution	
3	Not low risk but does not pose a Significant Possibility of Significant Harm	The risks are not sufficient to constitute Significant Possibility of Significant Pollution	Not Part IIA Contaminated Land
4	Low risk to human health and no possibility of meeting the statutory definition	No/low risk to controlled waters and would not meet the statutory definition	

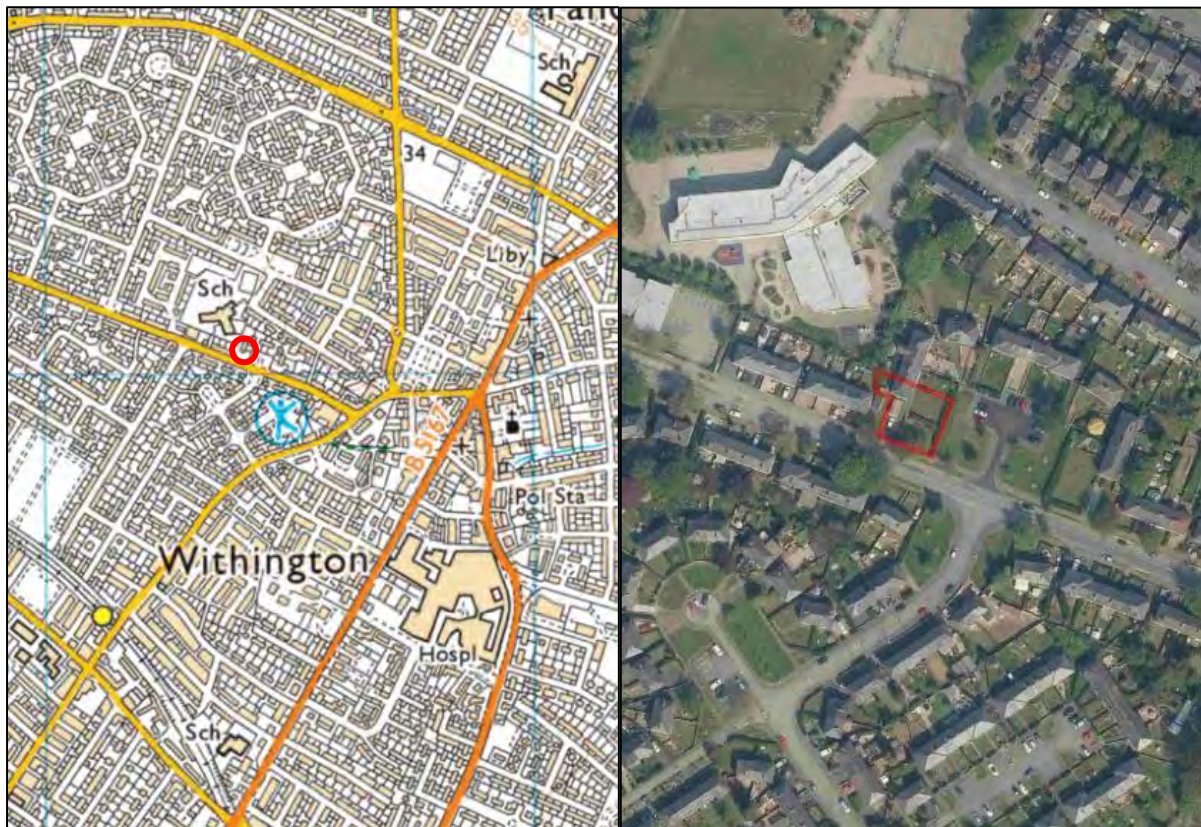
In terms of planning policy, a precautionary approach is adopted whereby it is necessary to demonstrate with sufficient confidence that the site cannot meet the statutory definition of contaminated land. Although the above categorisation is not explicitly applicable to planning decisions, a site classed as Category 4 should be considered suitable for development in accordance with planning policy. While a Category 3 site could be considered suitable, the reduced level of confidence associated with such a site means this is less likely.

2.0 SITE SETTING

2.1 Site Location

The site is located off Farrington Avenue within the Withington area of southern Manchester. The site is approximately centred on National Grid Reference 384404, 393040, and the site location and layout are shown in Figure 2.1.

Figure 2.1 Site Location and Layout



Contains Ordnance Survey data, © Crown copyright 2024

2.2 Site Description

The site comprises a two-storey end of terrace residential dwelling with associated garden and a small domestic garage with an assumed asbestos cement roof and covers an area of approximately 0.05ha. The garage is detached and located to the south of the residential house, with well-tended gardens to the east. The garage is used to store a variety of domestic items and materials such as gardening equipment, tools, wood, boxes, paints etc. To the front (south) of the garage is a gravel driveway, while domestic refuse bins are kept on the eastern side, together with some materials such as bricks and stone slabs.

The site is located to the west of Farrington Avenue and the north of Whitchurch Road. The site is accessed via two driveways from Whitchurch Road.

The site is bound by residential properties to the north and west, a small 'green' and Farrington Avenue to the east, and Whitchurch Road to the south, with residential properties beyond.

Site photographs are included in Appendix A

2.3 Surrounding Land Use

The surrounding land use is predominantly residential. There are no records of significant industrial activity, permits or processes in close proximity to the site.

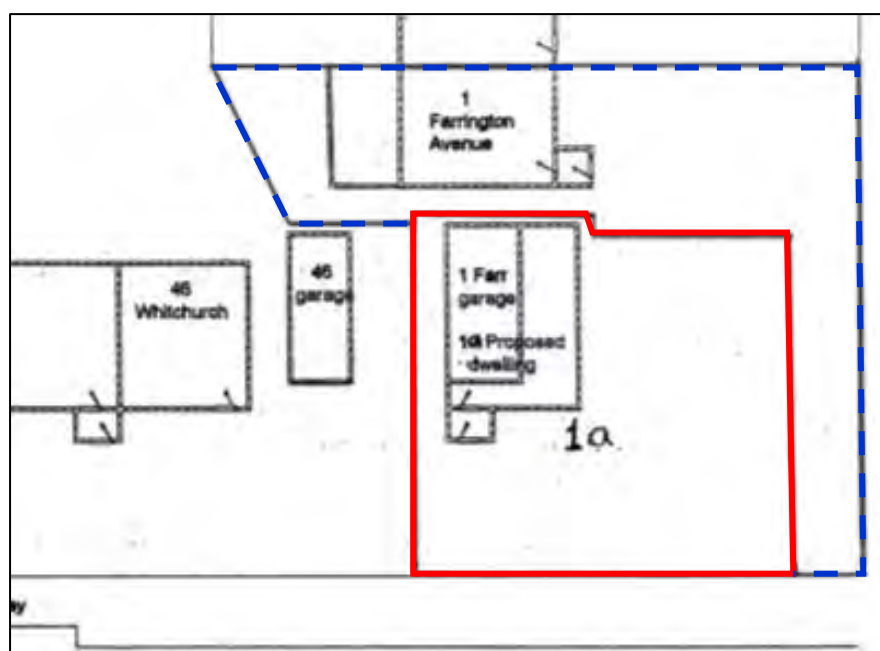
2.4 Potential Sources of Contamination

There are no obvious potential sources of significant contamination on the site.

2.5 Proposed Development

It is proposed to demolish the existing garage and replace it with a 2-storey, detached, residential dwelling. The existing property will be accessed by the new driveway which runs along the eastern boundary of the site. New fences are already present which mark the boundaries of the new plot. The proposed development layout is shown in Figure 2.2.

Figure 2.2 Proposed Development Layout



3.0 GROUND CONDITIONS

3.1 Geology

The British Geological Survey (BGS) geological map of the area shows the site to be underlain by the bedrock geology comprising the gravelly sandstone of the Chester Formation, as shown in Figure 3.1. No superficial deposits are shown although glacial deposits including Till (Diamicton) and sand and gravel are shown nearby.

Figure 3.1 Geology



3.2 Mining and Extraction

There are no records of mining or extraction on the site.

The site is not in an area that may be affected by coal mining.

3.3 Radon

The site is not located in a Radon Affected Area as defined by the Health Protection Agency (HPA), as less than 1% of properties are above the Action Level. Radon protective measures are not a requirement in new buildings in such areas.

3.4 Ground Stability

British Geological Survey (BGS) data presented in table 3.1 below identifies the following potential ground instability hazards:

Table 3.1 Summary of Potential Ground Instability

Potential Instability Factor	Maximum Hazard Potential
Collapsible Ground	Very Low
Compressible Ground	Negligible
Ground Dissolution	Negligible
Landslide Risk	Very Low
Running Sand	Low
Shrinking or Swelling Clay	Negligible

The BGS data suggests that all potential ground stability hazard identified are rated as low to negligible.

3.5 Made Ground and Landfills

There are no records suggesting the presence of significant thicknesses of fill or Made Ground on the site.

3.6 Hydrogeology

The underlying Chester Formation is classed as a Principal Aquifer, meaning it has a highly permeable layers capable of providing high level of water storage and supply at a strategic scale.

The site is not within a Groundwater Source Protection Zone, meaning it is not within the catchment of a groundwater source from which water is abstracted for public potable supply.

3.6.1 Groundwater Abstractions

There are no records of active groundwater abstractions within 2000m of the site.

4.0 HYDROLOGY

4.1 Watercourses

The nearest surface watercourse is Red Lion Brook, approximately 700m to the north-west of the site.

4.2 Flood Risk

The site is shown to be located in Flood Zone 1, meaning it is outside the predicted extent of extreme flooding from rivers or the sea.

The risks from other forms of flooding are considered to be low.

4.3 Site Drainage

The development site is covered predominantly by soft ground and some limited hardstanding, therefore drainage will be dominated by infiltration, with some run-off from the hard surfaces run-off. The roof drainage from the existing residential property is directed to the man-made drainage system which is understood to be a combined surface and wastewater system.

5.0 SITE HISTORY

5.1 Historical Mapping

The following is a summary of the relevant history of the site and its immediate surroundings, based on a review of historical Ordnance Survey (OS) maps and plans. A selection of historical maps are presented in Figure 5.1.

Figure 5.1 Historical Mapping



5.2 Summary of Site History

The site is shown as part of an undeveloped field until the 1930s, when the current residential development is shown. The site is subsequently shown to have remained the same, although the detached garage is not shown on any of the mapping.

Significant residential development is shown to have occurred in the local area at the same time the site was developed in the 1930s and appears little changed since.

6.0 CONCEPTUAL SITE MODEL

6.1 Introduction

The information obtained from the desk-based study has been collated and evaluated to develop a Conceptual Model for the site.

The site has been assessed in line with current UK guidelines, namely the Contaminated Land (England) Regulations 2000 and Part IIA of the Environmental Protection Act 1990, and follows the procedures set out in the Environmental Agency 'Land Contamination Risk Management' (LCRM) framework.

LCRM provides the technical framework for structured decision making about land contamination and replaces 'Model Procedures for the Management of Land Contamination – Contaminated Land Report (CLR) 11', which built on previous work carried out under the Contaminated Land Research Programme of the former Department of the Environment. LCRM has adopted and refined the methodology and terminology that has been used in contaminated land risk assessment for a number of years.

LCRM defines the three essential elements to any risk:

- A contaminant source - a substance that is in, on or under land and has the potential to cause harm or to cause pollution of controlled waters.
- A receptor – in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property or a water body.
- A pathway - a route or means by which a receptor can be exposed to or affected by a contaminant.

Each of these elements can exist independently and create a risk only where they are linked together, so that a particular contaminant affects a particular receptor through a particular pathway. This kind of linked combination of source-pathway-receptor is described as a contaminant linkage or pollutant linkage.

The following describes a Preliminary Risk Assessment and presents a Stage 1 Conceptual Model for the site, based on the proposed residential development.

6.2 Hazard Identification

6.2.1 Potential Contamination Sources

Overall, the desk study has not identified any obvious historical or contemporary potential sources of significant land contamination on the site. There is the presence of assumed asbestos roof tiling on the garage, but such materials should be addressed by an asbestos specialist prior to demolition of the structure.

The potential for significant contamination is considered to be very low, although minor contamination as a result of domestic activities is a possibility (albeit very small).

The potential for contamination originating from off-site to have significantly affected the site is considered to be very low.

Potential contamination sources are summarised in Table 6.1.

Table 6.1 Summary of Potential Contaminant Sources

Structure / Process	Potential Contaminants
Minor contamination associated with general past and current site use. (S1)	• Oils • Paints • Metals • PAHs

6.2.2 Potential Receptors

The following are considered the potential receptors assuming a future residential use of the site.

- Future land users – Occupiers of the proposed development.
- Buildings (including foundations) and below ground services / infrastructure – Concrete foundations, drinking water supply pipes and other service infrastructure.
- Groundwater – Underlying Principal Aquifer.
- Flora – Any vegetation within current or proposed site landscaping.

6.2.3 Potential Contamination Pathways

The following are considered potential contamination pathways given the nature of the site and the potential contaminative sources identified, and assuming a future residential end use with gardens.

- Ingestion and dermal absorption through direct contact with contaminated soils and soil-derived dusts;
- Inhalation of airborne soil-derived dust/particulate matter;
- Migration and inhalation of gases and vapour;
- Contamination of drinking water pipes by contaminated material leading to the ingestion of contaminated drinking water;
- Attack on concrete foundations by aggressive soil conditions.
- Leaching of contaminants by percolating rainwater and dissolution, followed by horizontal and vertical migration through the unsaturated zone to shallow groundwater.

6.3 Preliminary Risk Assessment

Risks from land contamination in the UK are assessed on the 'suitability for use' principle, whereby pollutant linkages are considered with regard to the intended end use of the site, and the specific exposure pathways and receptors associated with that use.

The CSM forms the basis for the design of subsequent stages of investigation, which should aim to confirm (or otherwise) the presence and significance of the potential pollutant linkages highlighted by the CSM. The risk assessment has been carried out based on a residential land use with gardens.

For the purpose of this report, the environmental risks associated with each potential pollutant linkage have been initially assessed based on the available information using the following scale;

Figure 6.1 Risk Definitions

Risk Level	Description
Very Low / Negligible	The contaminant linkage may not be complete or is otherwise very unlikely to result in significant effects*, and further investigation should not be necessary
Low	Significant effects* are unlikely and further investigation may not be necessary, but should be considered
Medium	Significant effects* are a possibility and further investigation is recommended
High	Significant effects* are likely and further investigation is required
Very High	There is evidence that significant effects* are currently occurring, or are likely to occur, and immediate action is required.

*Significant effects are considered to be any of the following:

- Exposure of site users to levels of contamination that may constitute significant harm as defined by Part IIA of the Environmental Protection Act
- An impact on controlled waters from contamination in contradiction of the aims of the Water Framework Directive, which may constitute Part IIA significant harm
- Exposure of an ecological system, or part thereof, to levels of contamination that may constitute Part IIA significant harm
- Exposure of crops, domesticated animals and animals subject to hunting / fishing rights to levels of contamination that may constitute Part IIA significant harm
- Exposure of construction and underground service materials to levels of contamination which may cause damage or exceed industry thresholds

In accordance with LCRM, professional judgement has been employed to evaluate the risk on a qualitative basis using available information.

Based on the potential sources, pathways and receptors associated with the proposed residential development site use, an initial Conceptual Site Model has been developed, and is summarised in Table 6.2.

Table 6.2 Conceptual Site Model

Area / Structure	Contaminants (Chemicals of Concern)	Pathway		Risk	Comment / Recommended Actions
Source 1 Minor contamination associated with past and present site use.	Oils (hydrocarbons), paints, metals, PAHs	Ingestion and dermal adsorption through direct contact	Humans (Future site users)	Very Low / Negligible	The potential for significant contamination to be present is very low, and further investigation works are not considered necessary.
		Consumption of plants grown in contaminated ground		Very Low / Negligible	
		Inhalation of dust / particulates		Very Low / Negligible	
		Inhalation of gases / vapours		Very Low / Negligible	
		Direct contact	Buildings / Foundations / Services	Very Low / Negligible	The potential for significant contamination to be present is very low, and further investigation works are not considered necessary.
		Leaching and migration through unsaturated zone	Principal Aquifer	Very Low / Negligible	Further investigation may not be necessary given the very low potential for significant contamination to be present.
		Plant uptake	Flora	Very Low / Negligible	Further investigation is not considered necessary given the very low potential for significant contamination

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Preliminary Risk Assessment

Based on the information reviewed during this survey, all risks from land contamination (except those to construction workers) are considered to be very low/negligible. The risks reflect the very low potential for significant contamination to be present, given the past site use and surrounding land uses, and the proposed development layout.

The development will comprise the construction of a new property on a larger footprint than the existing garage, and there will therefore be no potential for direct exposure to soils in this location. The only area where direct exposure will be possible is the garden area. However, this area is already occupied well-tended gardens and no potential contamination risks have been identified here.

7.1.1 Construction Workers

Given the unique exposure scenario for any construction, investigation or maintenance worker involved in groundworks or excavations, the risks are considered separately from those to other receptors which are described above.

There is always a risk of exposure to contamination for those involved in ground disturbance, particularly in Made Ground and near surface soils where materials such as asbestos can be present. Measures should be taken to minimise exposure of such workers to these risks, in accordance with common good practice.

7.2 Future Work Requirements

The potential for significant contamination to be present, that would represent a significant risk for the proposed development, is considered to be very low / negligible and no intrusive investigation works with respect to land contamination are considered necessary.

7.2.1 Asbestos Containing Materials (ACMs)

If not already undertaken, an asbestos survey of the existing garage should be carried out by a suitably qualified and licensed asbestos specialist, and any ACMs stripped and removed from the site, in accordance with the Control of Asbestos Regulations and applicable waste legislation.

7.3 Previously Unidentified Contamination

In the unlikely event that any evidence of previously unidentified significant contamination (odours, staining, suspicious materials, potential ACMs) is encountered during any future earthworks or construction, the works should be paused and a geo-environmental specialist consulted to determine the most appropriate course of action.

APPENDICES

A – Site Photographs



Driveway leading onto site from Whitchurch Street



A view looking towards the garage from east



View of the garden from the garage looking westwards



View of the roof of the garage showing assumed asbestos roof sheeting