Wesson Environmental

Contaminated Land Solutions

PHASE 1 SITE INVESTIGATION

96-8, Emery Road, Brislington

For

Trustees of AMP Electrical Retirement Benefits Scheme

May 2024

Project No. 001MYTRP1

Prepared by

Wesson Environmental

Telephone 0117 369 0156

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The material and data in this report were prepared under the supervision and direction of the undersigned.

[redacted]

Environmental Consultant

6th August 2025

Date

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APPENDICES

1.0 Introduction

1.1 General

Wesson Environmental were commissioned to carry out a Phase 1 Site Investigation of the site located at 96-8, Emery Road, Brislington.

The report uses documentary data (refs. 1, 2, 3).

The purpose of this report is to assess the potential risks to human, controlled water receptors and to the wider environment arising from past and present land use, and naturally occurring features present at or near the site.

1.2 Scope of report

This report aims to identify and address the following issues related to the use of the site for potential commercial development:

1. The potential presence of any contaminants.
2. Pathways which may feasibly exist between contaminant sources and receptors.
3. Potential impact on human, controlled waters and the wider environment.

The report will conclude with a preliminary risk assessment which will address issues associated with potential contaminants on the site based on the collation of documentary data.

2.0 Site Location and Description

The site is located at National Grid Reference 362730 173726 and covers an area of approximately 0.35ha.

Current Site Use:

The site currently comprises a children's nursery and a vehicle servicing garage.

Site Boundaries:

Roads border the site to the south and west, with commercial buildings present to the north and east. .

Surrounding Site Use:

The surrounding area is predominantly commercial in character.

Storage Tanks:

No tanks are present on the site.

3.0 Site History

Historical maps have been procured from the Ordnance Survey, which show development of the site and its surrounding area from 1886– 2024.

These maps are contained in Appendix B. Please note that maps showing no significant change to the site or surrounding area are not referred to in this section.

Site Area	Date	Scale	Surrounding Area
The site is situated on agricultural land	1886	1:2500	Orchard is present 30m to the north and east. A pond is present 100m to the west. A farm is present 90m to the north with a large residential property and grounds (the Beeches) located 70m to the east. A small excavation is present 150m to the south west and a burial ground is shown 240m to the south west.
	1947	1:1250	The majority of the orchard is no longer present, with a small amount remaining 70m to the north east. A metal factory is shown 100m to the south west with a brake lining works to the west. A potato crisp factory is shown 150m to the southwest with a motor engineering works to the west. The pond and small excavation are no longer shown.
A depot is present on the site which is consistent in layout with the current building.	1960	1:1250	Works are present immediately to the north and east. Roads are present to the south and west. Much of the area except to the south has undergone commercial/industrial development with various works factories and warehouses shown.
A bottling depot is shown on the site.	1965	1:1250	An engineering works is present immediately to the eat and a sheet metal works immediately to the north. A number of engineering works are and processing works are present in the wider area. A printing works is shown 60m to the south west.
The site is shown as a warehouse.	1989	1:1250	

3.1 Areas of Disturbed Ground

A pond was present 100m to the west and a small excavation 150m to the south west.

3.2 Intended Site Use

It is understood that the existing buildings will be removed and small industrial units will be constructed. .

3.3 Historical Industrial sites

3.3.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping.

53 records found within 500m. Nearest:
17m W. Unspecified Works. Date: 1973

17m W. Unspecified Commercial/Industrial. Date: 1896.
82m W. Metal Factory. Date: 1955.
86m W. Unspecified Commercial/Industrial. Date: 1973-1986.

3.3.2 Historical Tank Database

43 records found. Nearest:
65m SW. Unspecified Tank. Date: 1965.

3.3.3 Historical Energy Features Database

19 records found. Nearest:
168m NE. Electricity Substation. Date: 1984-1994.

3.3.4 Historical Petrol and Fuel Site Database

No records found:

3.3.5 Historical Garage and Motor Vehicle Repair Database

13 records found. Nearest:
30m NW. Plant Maintenance Depot. Date: 1965.

3.3.6 Historical military sites

No records found.

4.0 Geological Setting

4.1 Geology

Current geological maps of the region[2] have been consulted to provide information on geological conditions associated with the site.

Artificial/Made Ground:
1 record within 500m which is located 407m north east of the site and refers to Made ground (Undivided).

Superficial Geology:
No superficial deposits are shown underlying the study site.

Bedrock/solid geology:
Bedrock is shown as Mudstone, Siltstone and Sandstone of the Farrington member and Barren Red Member (Undifferentiated). Fracture flow is present and permeability is classified as low to moderate.

4.1.1 Man Made/ Induced Hazards

Hazard	Risk
BritPits	4 records found. Nearest: 164m SW. Commodity: Coal. Ceased.
Surface ground workings	24 records found. Nearest: 95 - 96m W. Pond. Date:1883- 1938.
Underground workings	13 records found. All: 905-919m NE. Tunnel. Date:1883-1986.
Non-coal mining	No records found.
Coal Mining	The site is located within a coal mining area as defined by the Coal Authority. See separate report.
Brine extraction	No records found.
Gypsum extraction	No records found.
Tin Mining	No records found.
Clay mining	No records found.
Natural cavities	No records found.
Mining cavities	No records found.

4.1.2 Natural Hazards

Hazard	Risk
Shrinking/Swelling clay	Very Low
Running Sand	Negligible
Compressible deposits	Negligible
Collapsible deposits	Very Low
Landslides	Low
Ground Dissolution	Negligible
Radon	Between 1-3% of properties are above the Action Level. No radon protective measures are necessary.

5.0 Environmental Setting

5.1 Hydrology and Hydrogeology

Groundwater:

Bedrock is classified as a Secondary A Aquifer. These are predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

Groundwater Vulnerability:

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one-kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

The bedrock aquifer underlying the site is classified as high vulnerability with a flow mechanism of well-connected fractures.

Soils are classified as high leaching class with an infiltration value <40% and a dilution factor of 300-550mm/year.

5.1.1 Surface and Groundwater Abstraction Points

No groundwater abstractions are shown within 1000m.

No surface water abstractions are shown within 1000m.

No potable water abstractions are shown within 1000m.

5.1.2 Source Protection Zones

No Source Protection Zones are shown within 500m.

5.1.3 Surface water network

2 records found within 250m. Nearest:
247m SE. Unnamed. Inland river not influenced by normal tidal action.

5.1.4 Surface Water Flooding

There are no Risk of Flooding from Rivers and The Sea (RoFRaS) records within 50m of the study site.

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e., land naturally vulnerable to surface water ponding or flooding and classifies the highest risk on site as negligible.

5.1.5 River and coastal flooding - Flood Zones

No flood zones are recorded within 50m of the study site.

5.1.6 Groundwater flooding

The highest risk on site is classified as negligible.

5.2 Sensitive Land Uses

Uses within 1km.

Designation	Details
Sites of Special Scientific Interest (SSSI)	No records found.
Ramsar sites	No records found.
Special Areas of Conservation (SAC)	No records found.
Special Protection Areas (SPA)	No records found.
National Nature Reserves (NNR)	No records found.
Local Nature Reserves (LNR)	3 records found. Nearest: 630m S. Stockwood Open Space.
Ancient Woodland	2 records found. Nearest: 713m NE. Name: Unknown. Ancient & Semi-Natural Woodland.
Biosphere Reserves	No records found.
Forest Parks	No records found.
Marine Conservation Zones	No records found.
Green Belt	1 record found: 13m SE. Name: Bristol and Bath
Nitrate Sensitive Areas	No records found.
Nitrate Vulnerable Zones (NVZ)	No records found.
World Heritage Sites	No records found.
Areas of Outstanding Natural Beauty (AONB)	No records found.
National Parks (NP)	No records found.

5.3 Landfill and Other Waste Sites

Uses within 1km.

Records Searched:	Details
Active or recent landfill	No records found.
Historical landfill (BGS records)	No records found.
Local Authority and Mapping Records	No records found.
Historical Landfills from EA/NRW	No records found.
Historical waste sites	1 record found: 377m N. Type: Waste Transfer Site.
Licensed waste sites	9 records found. Nearest: 147m N. Type: Metal Recycling Site (Vehicle Dismantler).
Waste exemptions	56 records found. Nearest: 31m N. Treating waste exemption. Sorting and de-naturing of controlled drugs for disposal.

5.4 Current Land Use

There are 46 current potentially contaminative industrial sites identified within 250m of the study site. Of these 14 are located within 100m of the site:

Onsite, 40m N. Vehicle Repair, Testing and Servicing.
12m NE. Mechanical Engineers.
37m NE. Electrical Production and Manipulation Equipment.

43m NE. Signs.
44m NW. New Vehicles.
44m NW. Published Goods
58m NE. Business Parks and Industrial Estates.
60m SW. Electricity substation.
61m SE. Vehicle Parts and Accessories.
74m NE. General Construction Supplies.
90m N. Pumps and Compressors.
96m NE. General Construction Supplies.
99m N. Animal Feeds, Pet Foods, Hay and Straw.

Full details are contained in Appendix C.

5.5 Petrol and Fuel Sites

2 records found:
184m SW. Obsolete.
433m W. Obsolete.

5.6 Electricity cables

No records found.

5.7 Underground Gas Pipelines

No records found.

5.8 Environmental permits, Incidents and Registers

Industrial Sites Holding Licences/ Authorisations:	**Records Held:**
Sites Determined as Contaminated Land under Part 2A EPA 1990	No records found
Control of Major Accident Hazards (COMAH)	No records found
Regulated explosive sites	No records found
Hazardous substance storage/usage	No records found.
Historic IPC Authorisations	4 records found. 239m NW. Process: Processes Involving Asbestos.
Part A (1) Licensed industrial activities	No records found
Licensed pollutant release (Part A(2)/B)	No records found
Radioactive Substances Authorisations	No records found
Licensed Discharges to controlled waters	3 records found. Nearest: 291m W. Effluent Type: Sewage Discharges - Sewer Storm Overflow – Water Company
Pollutant release to surface waters (Red List)	No records found
Pollutant release to public sewer	No records found
List 1 Dangerous Substances	No records found
List 2 Dangerous Substances	No records found
Pollution Incidents	4 records found. Nearest: 127m NE. Pollutant Description: Smoke. Air Impact: Category 3 (Minor).
Pollution inventory substances	No records found
Pollution inventory waste transfers	No records found
Pollution inventory radioactive waste	No records found

6.0 Walkover survey and other information

A walkover survey was carried out on 29th April 2024. The external area had hardstanding present throughout. In the case of the area fronting the nursery, this comprised tarmac which was observed to be in good condition. This was separated by a fence from the remainder of the site which had concrete present which was in reasonable condition with some cracking present.

The interior of the western part of the site comprised the former nursery which had wooden flooring, playrooms toilets etc. The area to the east of this had been used as a warehouse with a concrete floor and was observed to have been used for the storage of items such as furniture. An inspection pit was present which was covered. No staining was observed to be present. An MOT station formed the easterly extent of the building. No tanks were present. Cement bonded asbestos roofing was present on part of the building.

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7.0 Preliminary Conceptual Site Model

7.1 Introduction

To enable risks from contamination in soils, a preliminary conceptual site model (CSM) has been developed. This is based on documentary data sources such as site history, contemporary land use data, landfill records, geological mapping and hydrogeological/hydrological data.

The CSM allows the identification of potential pollution linkages and comprises the following three elements:

Source - Potential contaminants associated with former and current land use.

Receptor – who or what could be affected. May include site users, the water environment. Ecosystems and construction or building materials including services.

Pathway – How the receptor may be exposed to the source.

A pollution linkage is only considered to exist if all three elements are present. If a pollution linkage exists, then further assessment may be necessary.

7.2 Potential Sources of Contamination

It is evident from historical mapping that the site underwent a change to industrial/commercial use from the mid 20th century with similar changes to the surrounding area. The site itself appears to have been used as a bottling depot prior to current use which was observed to be as a children's nursery and vehicle servicing garage. The bottling depot and nursery are unlikely to have had impacts on the site soils. We would anticipate that based on the layout of the site from the change to a depot during this period that the external area was used for vehicular access by goods vehicles which would have necessitated hardstanding to be present. In the case of vehicle servicing, there is some potential for leakage and spillage of hydrocarbons from this activity. However, this will predominantly comprise long chain length hydrocarbon compounds originating from within the engine, as opposed to fuel oils which would be more typical at a filling station. This have a lower mobility and it is anticipated that carrying out work of this type would take place on a hardstanding service such as concrete, further reducing the potential for impacts to soils from this source.

Whilst various works are shown in the wider area including and engineering works immediately to the east and a sheet metal works to the north, disposal of waste from these and other source onto the study site is considered to be unlikely given that it was in use when these features were present. A printing works is shown 60m to the south west on 1965 mapping. Although these may be associated with volatile organic compounds (VOC), a site investigation carried out in September 2020 by Ground Investigation Limited at no. 3 Emery Road to the south and closer to the works did not record any olfactory or visual evidence of contamination. Made ground was encountered to 0.7m below ground level (bgl). This was underlain by stiff or very stiff silty clay consistent with the weathered facies of e Farrington Member and Barren Red Member. Beyond 1.2m the deposits became increasing dominated by mudstone. This, the deposits encountered are likely to demonstrate a very low permeability and thus mitigate against vapour phase contaminants. However, the presence of made ground in this location indicates that its presence cannot be ruled out on the study site, and where this occurs, soils may be impacted by heavy metals, polycyclic aromatic hydrocarbon compounds and asbestos.

7.3 Preliminary Risk Assessment

In developing the conceptual model, it is critical that not just the source of any potential contamination is assessed but also potential receptors and pathways. The future use of the site may introduce new pathways to any contaminants that may be present. A change in use of the site may also introduce human receptors to different exposure scenarios.

The use of risk assessment methodologies such as CLEA allows assessments to be made of whether concentrations of potential contaminants exceed a particular guideline value. The exceedance of a particular guideline value does not however, in itself enable an evaluation to be made of whether or not the subsequent risk posed to receptors is acceptable.

The risks from a particular pollutant linkage should therefore be evaluated to enable a determination of whether or not the risks are acceptable. This requires classification of:

The magnitude of the severity of the risk occurring (Table 7-1)
The magnitude of the likelihood of the risk occurring (Table 7-2)

Classification	Definition
Severe	Short term risk to human health which is likely to result in 'significant harm' as defined by the Environmental Protection Act 1990, Part IIA. Short term risk of pollution of sensitive water resources. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such an organism
Medium	Chronic damage to Human Health. Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent effects to human health which may easily be prevented by measures such as personal protective clothing, etc. Easily repairable effects of damage to buildings, structures and services

Table 7-1: Classification of severity of risk after CIRIA 552

Classification	Definition
High Likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the 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 pollution 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 an event would take place, and is less likely in the shorter term
Unlikely	There is a pollution linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.

Table 7-2: Classification of likelihood of risk after CIRIA 552

To evaluate the risk that each pollutant linkage present on the site poses to a specified receptor, the classifications from each table are compared. It is important that this is only applied where the possibility of an existing pollutant linkage exists. This enables a risk category to be produced that range from 'very high risk' to 'very low risk' (Table 7-3.)

		Consequence			
		Severe	Medium	Mild	Minor
Likelihood	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

Table 7-3: Comparison of consequence with likelihood of risk occurring, after CIRIA 552.

The classification gives a guide to the severity and consequence of risks that have been identified at the site. It is not possible to classify a risk that has been identified as presenting 'no risk'. 'Very low risk' is the lowest risk ranking classification. Whether action is required depends on how acceptable the stakeholder views that risk as being. Table 7-4 shows the action required for specific risk classifications.

Risk classification	Action
Very high risk	A high probability that severe harm could arise to a specified receptor from an identified hazard OR there is evidence that severe harm is currently happening. If the risk is realised it is likely to result in substantial liability If not already undertaken, urgent investigation is required, and remediation measures are likely to be required.
High risk	Harm is likely to arise to a specified receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. If not already undertaken, urgent investigation is required, and remedial works may be necessary in the short term and are likely over the longer term.
Moderate risk	It is possible that harm could arise to a specified receptor from an identified hazard. It is relatively unlikely that any such harm would be severe or if any harm were to occur it is more likely that the harm would be relatively mild. If not already undertaken, investigation is normally required to clarify the risk and determine potential liability. Some remedial works may be required in the longer term.
Low risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild
Very low risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Table 7-4: Description of the classified risks and likely action required after CIRIA 552.

The available data and observations from the walkover survey indicate that there is potential for heavy metals , PAH compounds and asbestos to be present associated with made ground where present on the site. These contaminants are unlikely to form a vapour phase and therefore risks to future site users are considered to be present where direct contact with soil occurs or where dust inhalation takes place. However, the planned development will comprise industrial units with no soft landscaping planned and therefore these pathways will not be

present. Consequently, in the absence of a pathway, a pollution linkage is not considered to be present.

7.4 Ground Gas

No potential sources of ground gas are indicated within 250m of the site.

7.5 Mining

The site is located within a coal mining area. A separate coal mining risk assessment has been issued.

8.0 Conclusions and Recommendations

The review of documentary information and the site reconnaissance indicates that a pollution linkage is unlikely to be present in the context of the intended site use.

All site investigations carried out in the UK should follow the principles set out in LCRM. This specifies that a phased approach should be used with a desk top study carried out in the first instant in all cases. Where this does not indicate the potential for a pollutant linkage, there is not considered to be a requirement for further stages such as intrusive investigations that involve the physical sampling of soils[4].

There are no specific recommendations for further investigative actions.
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Should during any works on the site, evidence of contamination become apparent, this should be reported to the Local Authority contaminated land officer.

9.0 Statement of Limitations

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project, without an independent check being carried out as to its suitability, and prior written authority of Wesson Environmental being obtained. This document can be relied upon by Trustees of AMP Electrical Retirement Benefits Scheme. Wesson Environmental accepts no responsibility or liability for the consequences of this document being used for any purpose other than the purpose for which it was commissioned. Any person using or relying on the document for such other purpose, agrees, and will by such use or reliance, be taken to confirm his acceptance, to indemnify Wesson Environmental for all loss or damage resulting therefrom. Wesson Environmental accepts no responsibility or liability for this document to any other party.

10.0 References

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APPENDIX A

Figures

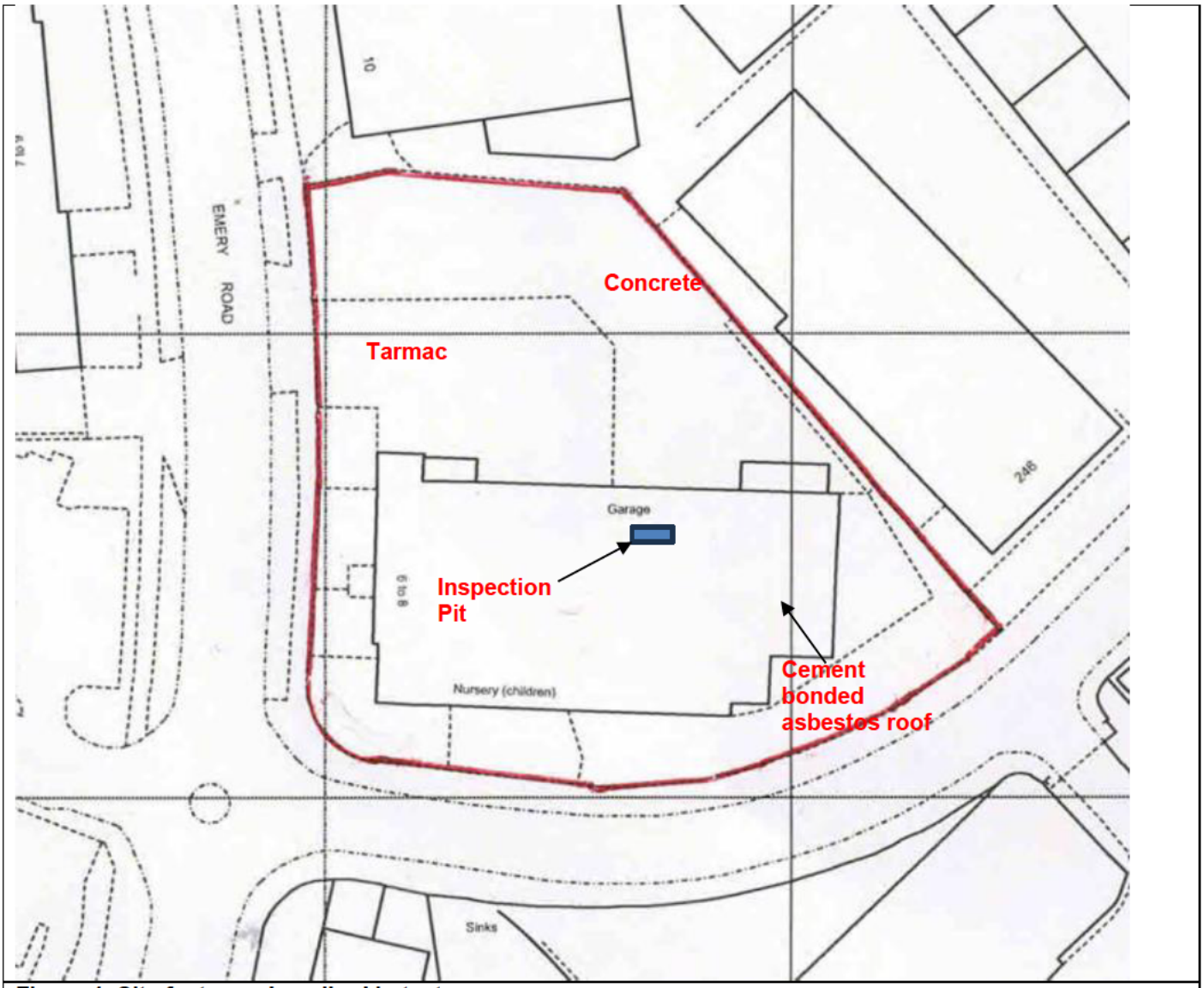

Figure 1. Site features described in text

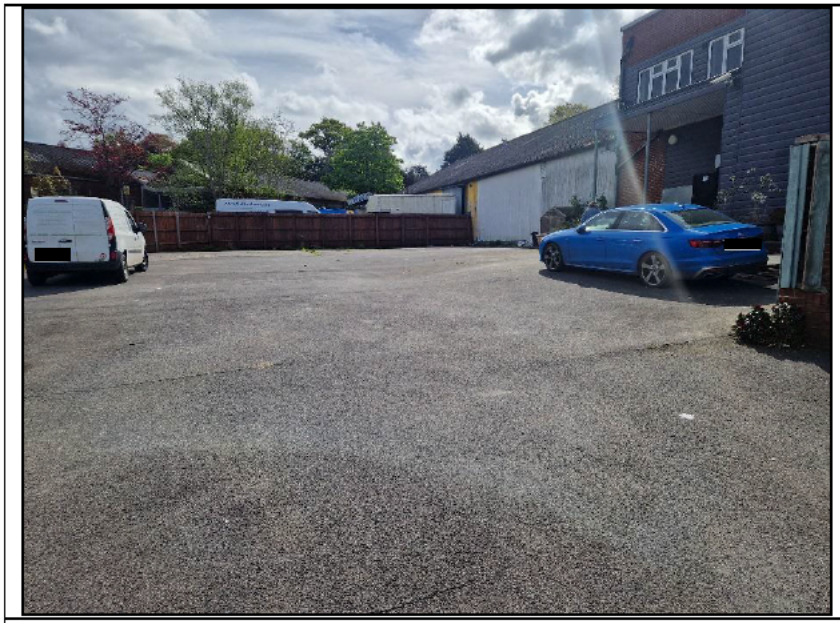

Figure 2. Tarmac area adjacent to nursery

Figure 3. MOT garage eastern part of site.

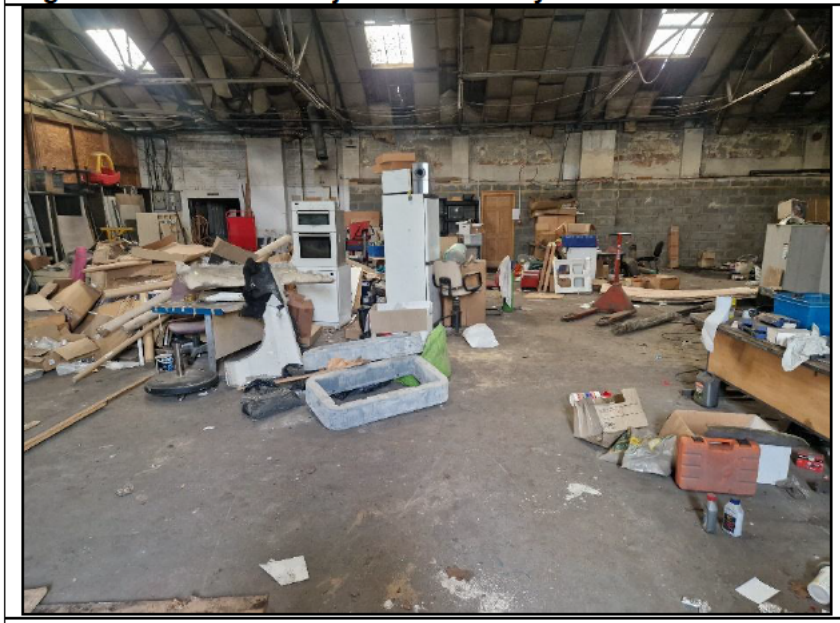

Figure 4. Interior of storage area.

Figure 5. Cement bonded asbestos roofing.

APPENDIX B

Historical Maps

APPENDIX C

Environmental Reports