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DESK STUDY / PRELIMINARY RISK ASSESSMENT REPORT

Meadow Road
Reading
RG1 8LB



JOMAS ASSOCIATES LTD

Unit 24 Sarum Complex, Salisbury Road, Uxbridge UB8 2RZ

www.jomasassociates.com 0333-305-9054 info@jomasassociates.com

Jomas Associates Ltd Registered in England and Wales No. 7095350

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Prepared by: JOMAS ASSOCIATES LTD For: CBRE LTD

Prepared by

Bibek Shah BSc (Hons),

Graduate Geo-environmental
Engineer



.....

Josh Hassall BSc (Hons),

Graduate Geo-environmental
Engineer



.....

Reviewed by

Clare Prosser BSc (Hons), MSc,
FGS

Senior Geo-environmental
Engineer



.....

Reviewed and approved by

Simon Pike BSc (Hons), MSc,
MIEnvSc

Senior Principal Geo-
Environmental Engineer



.....

Should you have any queries relating to this report, please contact

JOMAS ASSOCIATES LTD

www.jomasassociates.com

0333 305 9054

info@jomasassociates.com

CONTENTS

	Page
EXECUTIVE SUMMARY	IV
1 INTRODUCTION.....	1
1.1 Terms of Reference	1
1.2 Proposed Development.....	1
1.3 Objectives	1
1.4 Scope of Works	2
1.5 Supplied Documentation.....	2
1.6 Limitations	2
2 SITE SETTING	4
2.1 Site Information	4
2.2 Walkover Survey	4
2.3 Historical Mapping Information	5
2.4 Past Land Use	8
2.5 Landfill, Waste and Potentially Infilled Surface Ground Workings	9
2.6 Current Industrial Land Use	10
2.7 Tunnels and Railways	11
2.8 Previous Site Investigations.....	12
3 GEOLOGICAL & ENVIRONMENTAL SETTING	13
3.1 Introduction	13
3.2 Superficial and Solid Geology	13
3.3 British Geological Survey (BGS) Borehole Data	14
3.4 Hydrogeology & Hydrology	14
3.5 Sensitive Land Uses	17
3.6 Radon.....	18

4	POSSIBLE GEOLOGICAL HAZARDS.....	19
4.1	Database Information Review	19
5	QUALITATIVE RISK ASSESSMENT	21
5.1	Legislative Framework.....	21
5.2	Conceptual Site Model	23
5.3	Qualitative Risk Estimation	24
5.4	Outcome of Risk Assessment.....	29
5.5	List of Key Contaminants	30
6	REFERENCES.....	31

APPENDICES

APPENDIX 1 – FIGURES

APPENDIX 2 – GROUNDSURE REPORT

APPENDIX 3 – OS HISTORICAL MAPS

APPENDIX 4 – QUALITATIVE RISK ASSESSMENT METHODOLOGY

APPENDIX 5 – BGS BOREHOLE RECORDS

EXECUTIVE SUMMARY

CBRE IM Ltd ('The client') commissioned Jomas Associates Ltd to undertake a desk study and preliminary risk assessment at Meadow Road, Reading RG1 8LB. The principal objectives of the study were as follows:

- To determine the nature and where possible the extent of contaminants potentially present at the site.
- To establish the presence of significant contaminant linkages, in accordance with the procedures set out within the Environment Agency (EA) land contamination risk management (LCRM) guidance and relevant guidance within the National Planning Policy Framework (NPPF).
- To assess whether the site is safe and suitable for the purpose for which it is intended or can be made so by remedial action.

It should be noted that the table below is an executive summary of the findings of this report and is for briefing purposes only. Reference should be made to the main report for detailed information and analysis.

Desk Study	
Current Site Use	The site is occupied by 4No. industrial units with external parking areas and open space.
Proposed Site Use	The proposed development currently involves the demolition of the existing industrial units, and the construction of 4No. new industrial structures, comprising 11No units, with associated external parking, roadways and lorry loading areas.
Site History	A review of earliest available (1877) historical maps indicates that the site was comprised of unoccupied fields. By the map dated 1932, the site is shown to be occupied by a small industrial style building. Few changes occur to the site, until the map dated 1958 whereby a larger works building replaces the previous, later identified as an engineering works. By the map dated 1971, a warehouse and builders yard are present in the west of the site, a coal yard is shown in the north of the site and a runs through the north of the site, labelled "Ross Road". By the map dated 1979 the warehouse building has expanded, the coal yard in the north had been converted to a depot, and by 1989 the building in the north-west corner of site had been demolished. In 2010, it appears "Ross Road" no longer extended onto the site. No further changes were noted on site until the most recent 2025 map where the central works building appears to have been demolished. Current site uses include wholesale of food, a brewery company and a vehicle workshop business occupying a large gravel covered open space. The surrounding area comprised predominantly unoccupied fields from the earliest available map dated 1877, with a railway located 200m south of the site. From 1900, the area to the east of site was dominated by residential buildings and associated gardens. In 1912, a printing works was developed 40m south of site, later extending to 10m south of the site. There were no further significant changes surrounding site until the map dated 1971 where the area to the north and west were dominated by industrial style buildings including a chemical works 90m west, many warehouses and factories.

Desk Study	
Site Setting	The British Geological Survey indicates that the site is directly underlain by superficial deposits of Langley Silt Member. These are underlain by superficial deposits of the Kempton Gravel Park Member. These superficial deposits are underlain by bedrock deposits of the Seaford and Newhaven Chalk Formations. No artificial deposits are reported within the site. Borehole records on site indicate Made Ground overlying the Langley Silt Member to approximately 4mbgl, over the Kempton Park Gravel Member to approximately 7mbgl, underlain by the Seaford and Newhaven Chalk formations. The superficial deposits of the Langley Silt Member and Kempton Park Gravel Member are identified as unproductive and secondary aquifers, respectively, with the underlying solid deposits identified as a Principal Aquifer. A review of the Enviro+Geosight Report indicates that there are no source protection zones within 500m of the site. There are 19No groundwater abstractions reported within 2km; nearest 4No entries are for commercial/industrial/public services and non-evaporative cooling, 71m south-west. 2No of which are active. There are no active surface water abstractions within 2km of site. There are 5No potable water abstractions reported within 2km; nearest active entry is for commercial, industrial and public services, 71m south-west. The nearest detailed river entry is for the River Thames reported 227m north-west of the site. The site is located within an Environment Agency Zone 2.
Potential Sources	• Potential for contaminated ground associated with previous and existing site use – on site (S1) Previous: ○ Engineering works ○ Warehouse ○ Builders yard ○ Coal yard ○ Depot ○ Ross Road Existing: ○ Vehicle sales and cleaning. ○ Phantom brewing. • Current and previous industrial use – off site (S2) ○ Works adjacent to the south-east ○ Engineering works 50m north ○ Printing works 40m south ○ Industrial style buildings north, north-west and east of site, nearest 70m. ○ Numerous tanks; nearest 70m north-west. ○ Chemical works 90m west

Desk Study	
	○ Coal depot 100m south-west and 350m east ○ Works and warehouse buildings; nearest 225m east ○ Railway 250m south ● Potential for Made Ground associated with previous development operations – on site (S3) ○ Buildings and Ross Road ● Potential asbestos containing materials within existing buildings and associated with demolition of previous buildings – on site (S4)
Potential Receptors	● Construction workers (R1) ● Maintenance workers (R2) ● Neighbouring site users (R3) ● Future site users (R4) ● Building foundations and on site buried services (water mains, electricity and sewer) (R5) ● Controlled waters (R6) ○ Secondary and Principal Aquifers ○ River Thames 227m north-east.
Preliminary Risk Assessment	The risk estimation matrix indicates a moderate to low risk. Due to the potential presence of asbestos containing materials within the existing buildings on site, an asbestos survey should be undertaken with any asbestos containing materials found removed under suitably controlled conditions. There should be no risk to end users from asbestos if the potential asbestos containing materials are removed by suitably qualified and experienced specialists under controlled conditions. It is recommended that an intrusive investigation is undertaken to clarify potential risks to the identified receptors.
Potential Geological Hazards	The Groundsure identifies the risk from shrink swell clays, collapsible deposits, landslides running sands, compressible deposits, ground dissolution soluble rocks to be very low to negligible.
Recommended Further Work	An intrusive investigation is recommended to confirm the preliminary geo-environmental risks identified and to provide geotechnical information for use in design. The investigation should assess the thickness of any Made Ground, and allow samples of Made Ground and natural soils to be taken for laboratory analysis. A preliminary investigation may comprise a series of windowless sampler holes and trial pits. Due to the underlying geology, soil gas generation from possible surface ground workings is not considered to pose a significant risk to the proposed development.

1 INTRODUCTION

1.1 Terms of Reference

1.1.1 CBRE IM Ltd (“The Client”) has commissioned Jomas Associates Ltd, to assess the risk of contamination posed by the ground conditions at a site referred to as Meadow Road, Reading, RG1 8LB prior to redevelopment of the site.

1.1.2 To this end a desk-based assessment has been undertaken in accordance with Jomas Associates Limited’s email proposal dated 08th January 2025.

1.2 Proposed Development

1.2.1 The proposed development currently involves the demolition of the existing industrial units, and the construction of 4No. new industrial structures, comprising 11No units, with associated external parking, roadways and lorry loading areas.

1.2.2 A plan of the proposed development is included in Figure 4.

1.2.3 For the purposes of the contamination risk assessment, the proposed development is classified as ‘Commercial’.

1.2.4 For the purpose of geotechnical assessment, it is considered that the project could be classified as a Geotechnical Category (GC) 2 site in accordance with BS EN 1997 Part 1. GC 2 projects are defined as involving:

- Conventional structures.
- Quantitative investigation and analysis.
- Normal risk.
- No difficult soil and site conditions.
- No difficult loading conditions.
- Routine design and construction methods.

1.2.5 This will be reviewed at each stage of the project.

1.3 Objectives

1.3.1 The objectives of Jomas Associates Limited’s investigation were as follows:

- To present a description of the present site status, based upon the published geology, hydrogeology and hydrology of the site and surrounding area;
- To review readily available historical information (i.e., Ordnance Survey maps and database search information) for the site and surrounding areas, with respect to potentially contaminative land uses.

- To provide an assessment of the environmental sensitivity at the site and the surrounding area, in relation to any suspected or known contamination which may significantly affect the site and the proposed development.
- To assess the potential presence of significant pollutant linkages, in accordance with the procedures set out within Part IIA of the Environmental Protection Act 1990, associated statutory guidance and current best practice including the EA land contamination risk management (LCRM) guidance.
- To identify and assess geotechnical issues that may affect the site.

1.4 Scope of Works

1.4.1 The following tasks were undertaken to achieve the objectives listed above:

- A walkover survey of the site.
- A desk study, which included the review of third party historical Ordnance Survey maps and an environmental database report (attached in Appendix 2 and Appendix 3).
- The compilation of this report, which collects and discusses the above data, and presents an assessment of the site conditions, conclusions and recommendations.

1.5 Supplied Documentation

1.5.1 Jomas Associates have not been supplied with any previously produced reports at the time of writing this report.

1.6 Limitations

1.6.1 Jomas Associates Ltd has prepared this report for the sole use of CBRE IM Ltd in accordance with the generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon by any other party without the explicit written agreement of Jomas Associates Limited. No other third-party warranty, expressed or implied, is made as to the professional advice included in this report. This report must be used in its entirety.

1.6.2 The records search was limited to information available from public sources; this information is changing continually and frequently incomplete. Unless Jomas Associates Limited has actual knowledge to the contrary, information obtained from public sources or provided to Jomas Associates Limited by site personnel and other information sources, have been assumed to be correct. Jomas Associates Limited does not assume any liability for the misinterpretation of information or for items not visible, accessible, or present on the subject property at the time of this study.

1.6.3 Whilst effort has been made to ensure the accuracy of the data supplied, and analysis derived from it, there may be conditions at the site that have not been disclosed by the investigation and could not therefore be taken into account. As with any site, there

may be differences in soil conditions between exploratory hole positions. Furthermore, it should be noted that groundwater conditions may vary due to seasonal and other effects and may at times be significantly different from those measured by the investigation. No liability can be accepted for any such variations in these conditions.

- 1.6.4 Any reports provided to Jomas Associates Limited have been reviewed in good faith. Jomas Associates Limited cannot be held liable for any errors or omissions in these reports, or for any incorrect interpretation contained within them.
- 1.6.5 This investigation and report have been carried out in accordance with the relevant standards and guidance in place at the time of the works. Future changes to these may require a re-assessment of the recommendations made within this report.
- 1.6.6 *Our investigations exclude surveys to identify the presence of injurious and invasive weeds.*
- 1.6.7 ***This report is not an engineering design and the figures and calculations contained in the report should be used by the Structural Engineer, taking note that variations may apply, depending on variations in design loading, in techniques used, and in site conditions. Our recommendations should therefore not supersede the Engineer's design.***

2 SITE SETTING

2.1 Site Information

2.1.1 The site location plan is appended to this report in Figure 1, Appendix 1.

Table 2.1: Site Information

Name of Site	-
Address of Site	Meadow Road, Reading, RG1 8LB
Approx. National Grid Ref.	470962 174200
Site Area (Approx)	0.95ha
Site Occupation	4No. occupied industrial units and external car parking.
Local Authority	Reading Borough Council

2.2 Walkover Survey

2.2.1 A site walkover survey was undertaken by Jomas Associates on 4th June 2025.

Table 2.2: Site Description

Area	Item	Details
On-site:	Current Uses:	The site is occupied by 4No. industrial units with external parking and a large area of gravel covered open space in the east of the site. The gravel covered open space is being utilised as parking for buses and cars, assumed to be used by the vehicle workshop. The other industrial units are occupied by Phantom Brewing and Rocco Brand Group. There is limited soft landscaping on site, much of which contains dense and small shrubs along the boundaries only. Waste appears to be well handled with specific storage areas around the site.
	Evidence of historic uses:	There was no evidence of historic uses of the site, however the footprint/base of a previous building/structure appears to be present in the north-east.
	Surfaces:	Much of the site is hard cover either by the industrial unit's footprint or by the concrete spaces in front of the industrial units and large gravel covered open space. There is limited soft landscaping on site, much of which contains dense and small shrubs. The hard cover is a mixture of concrete and asphalt.

Area	Item	Details
	Vegetation:	Large and small shrubs situated by the entrance to the site in the east, adjacent to the vehicle workshop and to the east of site.
	Topography/Slope Stability:	The site is relatively flat with no significant changes across the site. Small slopes are present leading onto the site in the south-east access points and in front of the vehicle workshop. The gravel covered car parking area in the east of the site, is slightly raised at a higher level than the surrounding site, by a concrete slope.
	Drainage:	The site appears to be connected to normal drainage facilities with drains surrounding the outside of the industrial units. Drain covers are situated around the site. A cap of a possible drainage pipe is raised above ground level, near the entrance to the site. No obvious evidence of drainage issues.
	Services:	There is an electricity sub-station located in the east and the north-west of the site. The site is assumed to be connected to other communication services as well.
	Controlled waters:	No controlled waters were noted on site.
	Tanks:	No tanks were noted on site.
Neighbouring land:	North:	Residential building, industrial units and a park.
	East:	Residential buildings and associated gardens.
	South:	Residential buildings and associated gardens.
	West:	Industrial units including vehicle repair businesses and 'pack&send'.

2.2.2 Key features noted during the walkover are shown on a site walkover plan in Figure 2, together with site photos, in Figure 3.

2.3 Historical Mapping Information

2.3.1 The historical development of the site and its surrounding areas was evaluated following the review of a number of Ordnance Survey historic maps, procured from Groundsure, and provided in Appendix 3 of this report.

2.3.2 A summary produced from the review of the historical map is given in Table 2.3 below. Distances are taken from the site boundary.

Table 2.3: Historical Development

Dates and Scale of Map	Relevant Historical Information	
	On Site	Off Site
1877-81 1:2,500 1:10,560	The site is undeveloped and there is a small tree line crossing the south eastern corner of site boundary and another crossing the western boundary.	A Malthouse and timber yard are present 230m south-east. Timber yard and steam sawmills are present 230m north-east. An engine shed is located 280m south. There is also a railway present at 250m south of site. River Thames located 400m north-east.
1897-1900 1:2,500 1:10,560	No significant change	Church now present 100m to the east. Residential style properties developed to the east of site. Reading central train station 500m to the south-east. Great Western Railway works and Thames bank iron works are located 700m east . Chalk pit identified 750m north.
1910-14 1:2,500 1:10,560	Development of Meadow Road adjacent to the southern boundary of site.	Printing works present 40m south. School 110m to the east of site. A foundry is located 275m north-east. There is a corporation yard 350m south. A coal depot is located 350m to the east. A joinery works is located 700m north-east.
1931-38 1:2,500 1:10,560	A rectangular shaped industrial style building developed in the south-east of site. A small structure is also present in the north-west.	Printing works has been extended to the north and now lies on the opposite side of Meadow Road, 10m south of the site. Allotment gardens located 75m and 550m to the north-east, 150m to the south-east, and 400m, 500m and 650m to the south-west. A floodplain is located 600m south-west. A larger industrial style building is now present 150m west of the site.

Dates and Scale of Map	Relevant Historical Information	
	On Site	Off Site
1956-62 1:1,1250 1:2,500 1:10,560	Previous rectangular building demolished and a new works building has been constructed in the south-east, as well as 6No other small buildings/structured scattered across the site.	Buildings developed 50m to the north of site – described as engineering works . A coal yard has been developed 100m to the south-west. Extensions have occurred to the printing works to the south. Industrial style buildings developed to the south-west between 125 – 250m. 2No works and 1No warehouse have been constructed 125m south-west. Many warehouses are now present from 175m to the east and south-east. Engineering works located 175m north-east. Photographic works present 220m south-east. Allotment gardens developed 500m north-east and 600m north. Industrial building 150m is now identified as a depot .
1969-73 1:1,250 1:10,000	Warehouse developed in north-west of the site. The north-east of the site is now identified as a coal yard with a new road 'Ross Road' running from east to west, separating the north from the south. The far west of the site is identified as a builder's yard . Slight extensions to the existing works which is now identified as an engineering works. Structures in the far north-west corner and east of the site, are electricity sub-stations .	Industrial style buildings have been constructed to the north-west of site, from 70m to 500m north-west and west, including warehouses and engineering works . Numerous tanks are associated with the industrial buildings, nearest is 70m north-west. Engineering works to the north is now identified as joinery works and a scrap metal yard to the west. Chemical works developed 90m to the west of site. Warehouses 250m south-east labelled as motor and chemical warehouses.
1976-82 1:1,1250 1:10,000	No significant change. Large scale map has incomplete mapping	Industrial style buildings developed from 500m north, including a depot. Depot 500m south of site. Residential style buildings developed to the north-east.
1984-94 1:1,1250 1:10,000	Warehouse in the centre of site has expanded. A new elongated L-shape building is now present in the north-east and the coal yard is no longer identified. A building has been demolished in the north-west corner of site. Ross Road no longer extends onto site.	Works present adjacent to site to the south-east.

Dates and Scale of Map	Relevant Historical Information	
	On Site	Off Site
2001-2003 1:1,1250 1:10,000	No significant change.	Corporation yard 350m to the south is now identified as a depot. Chalk pit 750m north has possibly been infilled as the area has been redeveloped.
2010 1:10,000	No significant change.	No significant change.
2025 1:10,000	Demolition of engineering works building in the centre of site. Western extension of warehouse in the south-west. Furthest north-east corner of the elongated building appears to have been demolished.	No significant change.

- 2.3.3 Aerial photographs supplied as part of the Groundsure Enviro+GeoInsight report range from 1999 to 2022. These shows a building with 3No peaked roofs present up until 2019, however no longer present on the next available photograph dated 2022 and therefore demolished. On the 1999 photograph, the south-east corner appears to be utilised for car parking but in the next photograph, dated 2010, a warehouse style building is present, in addition to the warehouse buildings to the east and in the north-east, which are present throughout.
- 2.3.4 Publicly available imagery (Google Street View) shows the western unit occupied by Manrose Manufacturing, a ventilation manufacturer from the earliest available (2009), until approximately 2017. Buildings are present in the east of the site on the May 2019 view, however no longer present in October 2020, therefore we assume demolition occurred during this time.
- 2.3.5 In May 2019, redevelopment appears to be ongoing at the site and by October 2020, the western section appears to be in its current condition with the far east of the site undergoing further developments.

2.4 Past Land Use

- 2.4.1 Groundsure provide some information on past land use on and in the vicinity of the site. Table 2.4 below summarises the information provided, which is presented in further detail in the Enviro+Geoinsight in Appendix 2. Where the identified features have appeared on more than one map, they have been counted multiple times and therefore the reported numbers may be higher than the actual count.

Table 2.4: Past Land Use

Type of Use	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Historical Industrial Land Uses	1No reported for unspecified works in 1962.	161No reported; nearest entry is for unspecified commercial/industrial, 6m north-east. Other entries include printing works 8m south-west and railway building, 147m south.	✓
Historical Tanks	None reported	47No reported; nearest entry is for unspecified tank present between 1970-1988, 69m west. Other entries include tanks, 86m west and tank or trough, 208m south.	✓
Historical Energy Features	2No reported for electricity substation, present between 1970-1984.	32No reported; nearest entry is for electricity substation, present between 1970-1988, 100m south. Other entries include a gas governor, 278-279m west and entries for electricity substations, 326-355m east.	✓
Historical Petrol Stations	None reported	None reported	X
Historical Garages	None reported	20No reported; nearest entry is for a garage, 235m south-east.	X
Historical Military Land	None reported	None reported	X

* From a land contamination/site development perspective

2.5 Landfill, Waste and Potentially Infilled Surface Ground Workings

2.5.1 The Groundsure Enviro+Geoinsight Report provides information on active and historical landfills and waste sites. It also provides information on historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface; these features may or may not have been subsequently infilled. The following section summarises the information collected from the available sources.

Table 2.5: Landfill, Waste and Potentially Infilled Ground Surface Workings

Type of Consent/Authorisation	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Active or Recent Landfill	None reported	None reported	X
Historical Landfill	None reported	1No reported by EA/NRW for commercial, household and liquid sludge, 217m north.	X
Historical Waste Sites	1No reported for scrap metal yard in 1970.	4No reported; nearest entry is for refuse yard, 248m south.	✓
Licensed Waste Sites	None reported	4No reported; all entries are for M collard waste and R Collard Limited, 383-389m west.	X

Type of Consent/Authorisation	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Waste Exemptions	None reported	68No reported; nearest entry is for crushing waste fluorescent tubes, 58m north-west. Other entries are for storage of waste in a secure container, 120m west and repair or refurbishment of WEEE, 161m south-west.	✓
Potentially Infilled Surface Ground Workings	None reported	None reported	X

* From a land contamination/site development perspective

2.6 Current Industrial Land Use

2.6.1 The Groundsure Enviro+Geoinsight Report also provides information on various records relating to current industrial land use on and in the vicinity of the site. The following section summarises the information collected from the available sources.

Table 2.6: Current Industrial Land Use

Type of Consent/Authorisation	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Recent Industrial Land Uses	2No reported, for electricity substations.	48No reported within 250m; nearest entry is for electricity substation, 13m south. Other entries are for V-tech Auto Ltd, 33m west and P V P Maintenance Ltd, 38m west.	✓
Current or Recent Petrol Stations	None reported	3No reported; 2No nearest are for obsolete petrol stations, 26m south-west and 148m west.	✓
High Voltage Electricity Cables	None reported	None reported	X
High Pressure Gas Pipelines	None reported	None reported	X
Sites Determined as Contaminated Land	None reported	None reported	X
Control of Major Accident Hazards (COMAH) and Notification of Installations Handling Hazardous Substances (NIHHS) Sites	None reported	None reported	X
Regulated Explosive Sites	None reported	None reported	X
Hazardous Substance Storage/Usage	None reported	None reported	X
Historical Licensed Industrial Activities	None reported	None reported	X
Licensed Industrial Activities	None reported	2No reported; both entries are for organic chemicals; hydrocarbons such as aromatics, 364m west.	X

Type of Consent/Authorisation	On site	Off-site (within 500m of site, unless stated otherwise)	Potential to Impact Site*
Licensed Pollutant Release	None reported	6No reported; nearest entry is for combustion and incineration, 92m south. Status: Historical permit. Nearest current permit is for respraying of old vehicles, 200m south-west.	X
Radioactive Substance Authorisations	None reported	None reported	X
Licensed Discharge to Controlled Waters	None reported	10No reported; nearest entry is for miscellaneous discharges of surface water, 259m north.	X
Pollutant Release to Surface Waters (Red List)	None reported	None reported	X
Pollutant Release to Public Sewer	None reported	1No reported for E Hillier and Son (Holdings) Ltd, 490m west.	X
List 1 and List 2 Dangerous Substances	None reported	4No reported for List 1 dangerous substances; all entries are for 471m north-west, where two entries are active and two are not active. Active entries are for mercury (other) and Cadmium. 1No reported for List 2 dangerous substances for chromium, 381m west. Status: not active.	X
Pollution Incidents	None reported	11No reported; nearest entry is for oils and fuel, 248m north, minor impact to water and land and no impact on air.	X
Pollution Inventory Substances	None reported	None reported	X
Pollution Inventory Waste Transfers	None reported	None reported	X
Pollution Inventory Radioactive Waste	None reported	None reported	X

* From a land contamination/site development perspective

2.7 Tunnels and Railways

2.7.1 The Groundsure Enviro+Geoinsight Report provides information on railway tunnels and railways on and within the vicinity of the site, as summarised in the table below.

Table 2.7: Tunnels and Railways

Feature	On site	Off-site (within 250m of site, unless stated otherwise)	Potential to Impact Site*
Underground Railways (London)	None reported	None reported	X
Underground Railways (Non-London)	None reported	None reported	X
Railway Tunnels	None reported	None reported	X
Historical Railway and Tunnel Features	None reported	47No reported; nearest entry is for railway, 141m south-west.	X

Feature	On site	Off-site (within 250m of site, unless stated otherwise)	Potential to Impact Site*
Royal Mail Tunnels	None reported	None reported	X
Railways	None reported	58No reported; nearest entry is for rail, 165m south-west.	X
Crossrail and HS2	None reported	None reported	X

* From a land contamination/site development perspective

2.8 Previous Site Investigations

2.8.1 Jomas Associates are not aware of any previous site investigations undertaken at the site prior to the writing of this report.

3 GEOLOGICAL & ENVIRONMENTAL SETTING

3.1 Introduction

3.1.1 The following section summarises the principal environmental resources (geological, hydrogeological and hydrological) of the site and its surroundings.

3.1.2 The data discussed herein is generally based on the information given within the Enviro+Geosight Report and published information provided by the Environment Agency and British Geological Survey.

3.2 Superficial and Solid Geology

3.2.1 The British Geological Survey indicates that the site is directly underlain by superficial deposits of Langley Silt Member.

3.2.2 The BGS describes the Langley Silt Member Formation as consisting of:

“Varies from silt to clay, commonly yellow-brown and massively bedded.”

3.2.3 The Langley Silt Member has an average thickness of 3m but can range between 1-5m in thickness.

3.2.4 These deposits are underlain by superficial deposits of the Kempton Park Gravel Member.

3.2.5 The BGS describes the Kempton Gravel Park Member Formation as consisting of:

“Sand and gravel, locally with lenses of silt, clay or peat.”

3.2.6 The Kempton Park Gravel Member has an average thickness of 6m but is much thicker where infilling deep hollows.

3.2.7 This overlies bedrock deposits of the Seaford and Newhaven Chalk Formations (Undifferentiated).

3.2.8 The BGS describes the Seaford Chalk Formation as consisting of:

“Firm white chalk with conspicuous semi-continuous nodular and tabular flint seams. Hardgrounds and thin marls are known from the lowest beds. Some flint nodules are large to very large.”

3.2.9 The BGS describes the Newhaven Chalk Formation as consisting of:

“Composed of soft to medium hard, smooth white chalks with numerous marl seams and flint bands, including abundant Zoophycos flints (notably at levels near the base). The formation is known to contain distinct phosphatic chalks of limited lateral extent. Equivalent beds, the Margate Chalk of north Kent, are marl-free and contain little flint.”

- 3.2.10 Although artificial deposits are not reported within the site, they are noted 139m to the south-west. In addition, given the identified site history a thickness of Made Ground should be expected.
- 3.2.11 BS5930:2015 defines Made Ground as anthropogenic ground in which the material has been placed without engineering control and/or manufactured in some way, such as through crushing or washing, or arising from an industrial process. Great variations in material type, thickness and degree of compaction invariably occur.

3.3 British Geological Survey (BGS) Borehole Data

- 3.3.1 As part of the assessment, publicly available BGS borehole records were obtained and reviewed from the surrounding area. The local records obtained are presented in Appendix 5.
- 3.3.2 A borehole record is reported on site, from September 1968.
- 3.3.3 This showed the underlying ground conditions to comprise 'Made ground' to a depth of around 2.44mbgl. The Made ground was overlying green sandy clay to a depth of around 4.15mbgl, which in turn is overlying gravel and 'rubble chalk' to a depth of around 7.32mbgl, that is underlain by rubble chalk to a depth of 12.80mbgl, which is overlying 'hard' chalk and flints to the base of the borehole, at approximately 45.72mbgl.
- 3.3.4 During the drilling of the borehole, there was no groundwater strike, however a resting level of water has been reported at around 2.14mbgl.
- 3.3.5 All depths and measurements should be viewed as approximate, due to the age of the borehole and corresponding use of imperial measurements.
- 3.3.6 On the basis of the above, the site is expected to be underlain by some made ground over the Langley Silt Member to approximately 4mbgl, over the Kempton Park Gravel Member to approximately 7mbgl, followed by the Seaford and Newhaven Chalk formations

3.4 Hydrogeology & Hydrology

- 3.4.1 General information about the hydrogeology of the site was obtained from the Enviro+GeoInsight and / or the DEFRA "MAGIC" website.

Groundwater Vulnerability

- 3.4.2 The EA operates a classification system to categorise the importance of groundwater resources (aquifers) and their sensitivity to contamination. Aquifers were formerly classified as major, minor and non-aquifers, based on the amenity value of the resource. A major aquifer is a significant resource capable of producing large quantities of water suitable for potable supply. Minor aquifers produce water in varying quantities or qualities, and if utilised are of local importance. Non aquifers are low permeability strata, which contain no significant exploitable groundwater and

have very limited capacity to transmit contaminants.

3.4.3 Since 1 April 2010, the EA's Groundwater Protection Policy uses aquifer designations that are consistent with the Water Framework Directive. These comprise:

- **Secondary A** - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
- **Secondary B** - predominantly lower permeability layers which may store and 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.
- **Secondary Undifferentiated** - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
- **Principal Aquifer** – this is a formation with a high primary permeability, supplying large quantities of water for public supply abstraction.
- **Unproductive Strata** - These are rock layers or superficial deposits with low permeability that have negligible significance for water supply or river base flow.

Source Protection Zones (SPZ)

3.4.4 In terms of aquifer protection, the EA generally adopts a three-fold classification of SPZs for public water supply abstraction wells.

- Zone I - or 'Inner Protection Zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source.
- Zone II - or 'Outer Protection Zone' is defined by a 400-day travel time to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants.
- Zone III - or 'Total Catchment' is the total area needed to support removal of water from the borehole, and to support any discharge from the borehole.

Hydrology

3.4.5 The hydrology of the site and the area covers water abstractions, rivers, streams, other water bodies and flooding.

3.4.6 The Environment Agency defines a floodplain as the area that would naturally be affected by flooding if a river rises above its banks, or high tides and stormy seas cause flooding in coastal areas.

3.4.7 There are two different kinds of area shown on the Flood Map for Planning. They can be described as follows:

Areas that could be affected by flooding, either from rivers or the sea, if there were no flood defences. This area could be flooded:

- from the sea by a flood that has a 0.5 per cent (1 in 200) or greater chance of happening each year;
- or from a river by a flood that has a 1 per cent (1 in 100) or greater chance of happening each year.

(For planning and development purposes, this is the same as Flood Zone 3, in England only.)

- The additional extent of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1 per cent (1 in 1000) chance of occurring each year.

(For planning and development purposes, this is the same as Flood Zone 2, in England only.)

3.4.8 These two areas show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements.

3.4.9 Outside of these areas flooding from rivers and the sea is very unlikely. There is less than a 0.1 per cent (1 in 1000) chance of flooding occurring each year. The majority of England and Wales falls within this area. (For planning and development purposes, this is the same as Flood Zone 1, in England only.)

3.4.10 Some areas benefit from flood defences, and these are detailed on Environment Agency mapping.

3.4.11 Flood defences do not completely remove the chance of flooding, however, and can be overtopped or fail in extreme weather conditions.

Table 3.1: Summary of Hydrogeology & Hydrology

Feature	On Site	Off Site	Potential Receptor?
Aquifer	Superficial: Unproductive – Langley Silt Member Secondary A – Kempton Park Gravel Member	Secondary A 164m south and Unproductive 426m north-east.	✓
	Solid: Principal	None	✓

Feature	On Site	Off Site	Potential Receptor?	
Abstractions	Groundwater	None	19No reported within 2km; nearest entry is for commercial/industrial/public services and non-evaporative cooling, 71m south-west.	✓
	Surface water	None	6No reported within 2km; nearest three entries are for lake and pond throughflow, 453m north-east. Status: Historical. All reported abstractions are of historical status.	X
	Potable	None	There are 5No reported within 2km; nearest active entry is for commercial, industrial and public services, 71m south-west.	✓
Source Protection Zone		None	None	X
Surface Water Features		None	River Thames 227m north-east.	✓
Flood Risk	EA Flood Zone 2	Yes	-	-
	EA Flood Zone 3	No	-	-
	RoFRaS	Low	Low	-
	Historical Flood Events	Fluvial flood was reported on site in 1947, caused by channel capacity exceedance.		-
	Flood Defences	There are no areas benefiting from flood defences within 250m of the study site.		-
	Groundwater Flooding	The highest risk onsite is reported as Moderate-High with the highest risk within 50m of the site reported as high.		-

3.4.13 The site is expected to be directly underlain by the unproductive stratum of the Langley Silt Member, underlain by the Kempton Park Gravel Member, a Secondary Aquifer. A ground investigation is recommended to confirm the underlying ground conditions to determine whether a potential pathway into the underlying chalk, is present.

3.5 Sensitive Land Uses

3.5.1 The site is located within the Thames Wallingford to Caversham Nitrate Vulnerable Zone.

3.5.2 A Nitrate Vulnerable Zone (NVZ) is a conservation designation of the Environment Agency for areas of land that drain into nitrate polluted waters, or waters which could become polluted by nitrates. Nitrate Vulnerable Zones were introduced by the UK government in response to the EU mandate that all EU countries must reduce the

nitrate in Drinking Water to a maximum of 50 mg/l.

- 3.5.3 The NVZs cover large areas of land that have been identified as exceeding or being at risk of exceeding 50 mg NO₃/l.
- 3.5.4 The site lies within a SSSI Impact Risk Zone. The proposed development is unlikely to require consultation.
- 3.5.5 The site is classified as a non-agricultural/no quality assigned Urban land.
- 3.5.6 No other sensitive land use was identified within 2km of the site.

3.6 Radon

- 3.6.1 As reported, the site is not within a radon affected area, as less than 1% of properties are above the action level.
- 3.6.2 Consequently, no radon protective measures are necessary in the construction of new dwellings or extensions as described in publication BR211 (BRE, 2023).

4 POSSIBLE GEOLOGICAL HAZARDS

4.1 Database Information Review

4.1.1 The following are brief findings extracted from the Groundsure Enviro+Geosight Report, that relate to factors that may have a potential impact upon the engineering of the proposed development.

Table 4.1: Geological Hazards

Potential Hazard	Site check Hazard Rating	Details	Further Action Required?
Shrink swell clays	Very low	Ground conditions predominantly low plasticity.	No
Running sands	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.	No
Compressible deposits	Negligible	Compressible strata are not thought to occur.	No
Collapsible deposits	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.	No
Landslides	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.	No
Ground dissolution soluble rocks	Very low	Soluble rocks are present within the ground. Few dissolution features are likely to be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered.	No
Coal mining	None	The study site is not located within the specified search distance of an identified coal mining area.	No
Non-coal mining	None	The nearest record for non-coal mining is for chalk, 479m south.	No

4.1.2 In addition, the Enviro+GeoInsight report notes the following:

- 6 No. historical surface ground working features are reported within 250m of the site. The nearest entry is for unspecified ground workings, 145m south.
- No historical underground working features within 1km of the site.
- The site falls under Johnson Poole and Bloomer (JPB) mining area, a request of possible information has been made and awaiting a reply.

4.1.3 Existing hardstanding and foundations will need to be removed and grubbed out ahead of the development. This may require the use of hydraulic breaking.

4.1.4 The clearance of the site, including removal of foundations and services is likely to increase the depth of Made Ground on the site.

-
- 4.1.5 Foundations should not be formed within Made Ground or organic rich material (e.g. topsoil due to the unacceptable risk of total and differential settlement.
 - 4.1.6 Foundations must be designed so as not to load nor undermine adjacent boundary walls and buildings.
 - 4.1.7 The presence of Made Ground derived from demolition material may be a source of elevated sulphate, associated with plaster from the previous structures. If such levels are noted, sulphate resistant concrete may be required.
 - 4.1.8 The resultant thickness of Made Ground and the potential for clays beneath the proposed footprint means that a suspended floor slab may be required.
 - 4.1.9 Although soluble rocks are noted to exist immediately beneath the site they are not considered to pose a significant risk.
 - 4.1.10 The use of soakaway drainage should not be used without an assessment of the underlying chalk.
 - 4.1.11 A geotechnical investigation is recommended to inform foundation design.

5 QUALITATIVE RISK ASSESSMENT

5.1 Legislative Framework

5.1.1 A qualitative risk assessment has been prepared for the site, based on the information collated. This highlights the potential sources, pathways and receptors. Intrusive investigations will be required to confirm the actual site conditions and risks.

5.1.2 Under Part IIA of the Environmental Protection Act 1990, the statutory definition of contaminated land is:

"land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

(a) significant harm is being caused or there is a significant possibility of such harm being caused; or

(b) significant pollution of controlled waters is being caused, or there is significant possibility of such pollution being caused."

5.1.3 The Statutory Guidance provided in the DEFRA Circular 04/2012 lists the following categories of significant harm to **human health**:

- death; life threatening diseases (e.g. cancers); other diseases likely to have serious impacts on health; serious injury; birth defects; and impairment of reproductive functions.

5.1.4 Other health effects may also be considered by the local authority to constitute significant harm with a wide range of conditions that may or may not constitute significant harm (alone or in combination) including: physical injury; gastrointestinal disturbances; respiratory tract effects; cardio-vascular effects; central nervous system effects; skin ailments; effects on organs such as the liver or kidneys; or a wide range of other health impacts.

5.1.5 In deciding whether or not land is contaminated land on grounds of significant possibility of significant harm to human health there are four categories to be considered. Categories 1 and 2 would encompass 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 would encompass land which is not capable of being determined on such grounds.

5.1.6 For non-human receptors the following types of harm should be considered to be significant harm:

Ecological System Effects

- Harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or

- Harm which significantly affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location.
- In the case of European sites, harm should also be considered to be significant harm if it endangers the favourable conservation status of natural habitats at such locations or species typically found there. In deciding what constitutes such harm, the local authority should have regard to the advice of Natural England and to the requirements of the Conservation of Habitats and Species Regulations 2010.

Property Effects

- Crops: A substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.
- Buildings: Structural failure, substantial damage or substantial interference with any right of occupation. The local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be capable of being used for the purpose for which it is or was intended. In the case of a scheduled Ancient Monument, substantial damage should also be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.

5.1.7 Contaminated land will only be identified when a 'pollutant linkage' has been established.

5.1.8 A 'pollutant linkage' is defined in Part IIA as:

"A linkage between a contaminant Source and a Receptor by means of a Pathway".

5.1.9 Therefore, this report presents an assessment of the potential pollutant linkages that may be associated with the site, in order to determine whether additional investigations are required to assess their significance.

5.1.10 In accordance with the National Planning Policy Framework, where development is proposed, the developer is responsible for ensuring that the development is safe and suitable for use for the purpose for which it is intended, or can be made so by remedial action. In particular, the developer should carry out an adequate investigation to inform a risk assessment to determine:

- whether the land in question is already affected by contamination through source – pathway – receptor pollutant linkages and how those linkages are represented in a conceptual model;

- whether the development proposed will create new linkages, e.g. new pathways by which existing contaminants might reach existing or proposed receptors and whether it will introduce new vulnerable receptors; and
- what action is needed to break those linkages and avoid new ones, deal with any unacceptable risks and enable development and future occupancy of the site and neighbouring land.

5.1.11 A potential developer will need to satisfy the Local Authority that unacceptable risk from contamination will be successfully addressed through remediation without undue environmental impact during and following the development.

5.2 Conceptual Site Model

5.2.1 On the basis of the information summarised above, a conceptual site model (CSM) has been developed for the site. The CSM is used to guide the investigation activities at the site and identifies potential contamination sources, receptors (both on and off-site) and exposure pathways that may be present. The identification of such potential “pollutant linkages” is a key aspect of the evaluation of potentially contaminated land.

5.2.2 The site investigation is then undertaken in order to prove or disprove the presence of these potential source-pathway-receptor linkages. Under current legislation an environmental risk is only deemed to exist if there are proven linkages between all three elements (source, pathway and receptor).

5.2.3 This part of the report lists the potential sources, pathways and receptors at the site, and assesses based on current and future land use, whether pollution linkages are possible.

5.2.4 Potential pollutant linkages identified at the site are detailed below:

Table 5.1: Potential Sources, Pathways and Receptors

Source(s)	Pathway(s)	Receptor(s)
- Potential for contaminated ground associated with previous and existing site use – on site (S1) Previous: - Engineering works - Warehouse - Builders yard - Coal yard - Depot - Ross Road Existing: - Vehicle sales and cleaning. - Phantom brewing. - Current and previous industrial use – off site (S2) - Works adjacent to the south-east - Engineering works 50m north - Printing works 40m south - Industrial style buildings north, north-west and east of site, nearest 70m. - Numerous tanks; nearest 70m north-west. - Chemical works 90m west - Coal depot 100m south-west and 350m east - Works and warehouse buildings; nearest 225m east - Railway 250m south - Potential for Made Ground associated with previous development operations – on site (S3) - Buildings and Ross Road - Potential asbestos containing materials within existing buildings and associated with demolition of previous buildings – on site (S4)	- Ingestion and dermal contact with contaminated soil (P1) - Inhalation or contact with potentially contaminated dust and vapours (P2) - Leaching through permeable soils, migration within the vadose zone (i.e., unsaturated soil above the water table) and/or lateral migration within surface water, as a result of cracked hardstanding or via service pipe/corridors and surface water runoff (P3) - Horizontal and vertical migration of contaminants within groundwater (P4) - Accumulation and Migration of Soil Gases (P5) - Permeation of water pipes and attack on concrete foundations by aggressive soil conditions (P6)	- Construction workers (R1) - Maintenance workers (R2) - Neighbouring site users (R3) - Future site users (R4) - Building foundations and on site buried services (water mains, electricity and sewer) (R5) - Controlled waters (R6) - Secondary A and Principal. - River Thames 227m north-east.

5.3 Qualitative Risk Estimation

5.3.1 Based on information previously presented in this report, a qualitative risk estimation was undertaken.

5.3.2 For each potential pollutant linkage identified in the conceptual model, the potential risk can be evaluated, based on the following principle:

Overall contamination risk = Probability of event occurring x Consequence of event occurring

5.3.3 In accordance with CIRIA C552, the consequence of a risk occurring has been classified into the following categories:

- Severe
- Medium
- Mild
- Minor

5.3.4 The probability of a risk occurring has been classified into the following categories:

- High Likelihood
- Likely
- Low Likelihood
- Unlikely

5.3.5 This relationship can be represented graphically as a matrix (Table 5.2).

Table 5.2: Overall Contamination Risk Matrix

		Consequence			
		Severe	Medium	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

5.3.6 The risk assessment process is based on guidance provided in CIRIA C552 (2001) *Contaminated Land Risk Assessment – A Guide to Good Practice*. Further information including definitions of descriptive terms used in the risk assessment process is included in Appendix 4.

5.3.7 The degree of risk is based on a combination of the potential sources and the sensitivity of the environment. The risk classifications can be cross checked with reference to Table A4.4 in Appendix 4.

5.3.8 Hazard assessment was also carried out, the outcome of which could be:

- Urgent Action (UA) required to break existing source-pathway-receptor link.
- Ground Investigation (GI) required to gather more information
- Watching Brief there is no evidence of potential contamination but the possibility of it exists and so the site should be monitored for local and olfactory evidence of contamination.
- No action required (NA)

5.3.9 The preliminary risk assessment for the site is presented in Table 5.3 overleaf.

SECTION 5

QUALITATIVE RISK ASSESSMENT

Table 5.3: Preliminary Risk Assessment for the Site

Sources	Pathways (P)	Receptors	Consequence of Impact	Probability of Impact	Risk Estimation	Hazard Assessment
- Potential for contaminated ground associated with previous and existing site use – on site (S1) Previous: - Engineering works - Warehouse - Builders yard - Coal yard - Depot - Ross Road Existing: - Vehicle sales and cleaning. - Phantom brewing. - Current and previous industrial use – off site (S2) - Works adjacent to the south-east - Engineering works 50m north - Printing works 40m south - Industrial style buildings north, north-west and east of site, nearest 70m. - Numerous tanks; nearest 70m north-west. - Chemical works 90m west	- Ingestion and dermal contact with contaminated soil (P1) - Inhalation or contact with potentially contaminated dust and vapours (P2) - Permeation of water pipes and attack on concrete foundations by aggressive soil conditions (P6)	- Construction workers (R1) - Maintenance workers (R2) - Neighbouring site users (R3) - Future site users (R4) - Building foundations and on site buried services (water mains, electricity and sewer) (R5)	Medium	Likely	Moderate	GI – Ground Investigation
			Severe for Asbestos	Low likelihood	Moderate for Asbestos	
	Accumulation and migration of soil gases (P5)		Severe	Unlikely	Moderate/Low	
	- Leaching through permeable soils, migration within the vadose zone (i.e., unsaturated soil above the water table) and/or lateral migration within surface water, as a result of cracked hardstanding or via service pipe/corridors and surface water runoff (P3) - Horizontal and vertical migration of contaminants within groundwater (P4)	- Neighbouring site users (R3) - Building foundations and on site buried services (water mains, electricity and sewer) (R5) - Controlled Waters (R6) - Secondary and Principal Aquifers. - River Thames 227m north-east.	Medium	Unlikely	Low	

SECTION 5

QUALITATIVE RISK ASSESSMENT

Sources	Pathways (P)	Receptors	Consequence of Impact	Probability of Impact	Risk Estimation	Hazard Assessment
○ Coal depot 100m south-west and 350m east ○ Works and warehouse buildings; nearest 225m east ○ Railway 250m south • Potential for Made Ground associated with previous development operations – on site (S3) ○ Buildings and Ross Road • Potential asbestos containing materials within existing buildings and associated with demolition of previous buildings – on site (S4)						

- 5.3.10 It should be noted that the identification of potential pollutant linkages does not necessarily signify that the site is unsuitable for its current or proposed land use. It does however act as a way of focussing data collection at the site in accordance with regulatory guidance in LCRM.

5.4 Outcome of Risk Assessment

- 5.4.1 The risk estimation matrix indicates a “moderate to low” risk as defined above.
- 5.4.2 The proposed development currently involves the demolition of the existing industrial units, and the construction of 4No. new industrial structures, comprising 11No units, with associated external parking.
- 5.4.3 Due to the potential presence of asbestos containing materials within the existing buildings on site, an asbestos survey should be undertaken with any asbestos containing materials found removed under suitably controlled conditions. There should be no risk to end users from asbestos within the fabric of the existing building if the potential asbestos containing materials are removed by suitably qualified and experienced specialists under controlled conditions.
- 5.4.4 A review of earliest available (1877) historical maps indicates that the site was comprised of unoccupied fields. By the map dated 1932, the site is shown to be occupied by a small industrial style building. Few changes occur to the site, until the map dated 1958 whereby a larger works building replaces the previous, later identified as an engineering works. By the map dated 1971, a warehouse and builders yard are present in the west of the site, a coal yard is shown in the north of the site and a runs through the north of the site, labelled “Ross Road”.
- 5.4.5 By the map dated 1979 the warehouse building has expanded, the coal yard in the north had been converted to a depot, and by 1989 the building in the north-west corner of site had been demolished. In 2010, it appears “Ross Road” no longer extended onto the site. No further changes were noted on site until the most recent 2025 map where the central works building appears to have been demolished. Current site uses include wholesale of food, a brewery company and a vehicle workshop business occupying a large gravel covered open space.
- 5.4.6 The surrounding area comprised predominantly unoccupied fields from the earliest available map dated 1877, with a railway located 200m south of the site. From 1900, the area to the east of site was dominated by residential buildings and associated gardens. In 1912, a printing works was developed 40m south of site, later extending to 10m south of the site. There were no further significant changes surrounding site until the map dated 1971 where the area to the north and west were dominated by industrial style buildings including a chemical works 90m west, many warehouses and factories.
- 5.4.7 It is recommended that an intrusive investigation is undertaken to clarify potential risks to the identified receptors, and assess the extent of Made Ground soils present at the site.

5.4.8 The ground investigation should confirm the underlying ground conditions to determine whether a potential pathway into the underlying chalk, is present.

5.4.9 The above conclusions are made subject to approval by the statutory regulatory bodies.

5.5 List of Key Contaminants

5.5.1 The possible contamination implications for both on-site and off-site sources have been assessed based on the information presented in the report. This has been achieved using guidance publications by the Environment Agency, together with other sources.

5.5.2 In the case of the site uses identified as part of the desk study research, reference to DoE industry profiles would not indicate a specific use reference, although reference has been made to the miscellaneous industries profile.

5.5.3 Based on recommendations within the guidance publications, an initial soil and water chemical testing suite would need to consider a range of contaminants as follows:

- *Metals: cadmium, chromium, copper, lead, mercury, nickel, zinc.*
- *Semi-metals and non-metals: arsenic, boron, sulphur.*
- *Inorganic chemicals: cyanide, nitrate, sulphate and sulphide.*
- *Organic chemicals: aromatic hydrocarbons, aliphatic hydrocarbons, petroleum hydrocarbons, phenol, polyaromatic hydrocarbons.*
- *Others: pH, Asbestos.*
- *Polychlorinated biphenyls (PCBs)*

6 REFERENCES

BRE Report BR211; Radon: Guidance on protective measures for new buildings, 2023

Code of Practice for Ground Investigations BS5930: 2015

CL:AIRE; Petroleum Hydrocarbons in Groundwater, 2017

Environment Agency (2020); *Land Contamination Risk Management (LCRM)*.
<https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

Groundsure Enviro+Geoinsight Report Ref GS-1TN-URX-YHY-SIS-SIS May 2025

Investigation of Potentially Contaminated Sites – Code of Practice BS10175: 2011

Ministry of Housing, Communities & Local Government: *National Planning Policy Framework*. February 2019

Department of Environment Industry Profiles (1996) - Miscellaneous Land ISBN 1 85112 313 X

APPENDICES

APPENDIX 1 – FIGURES

APPENDIX 2 – GROUNDSURE REPORT

APPENDIX 3 – OS HISTORICAL MAPS

APPENDIX 4 – QUALITATIVE RISK ASSESSMENT METHODOLOGY

APPENDIX 5 – BGS BOREHOLE RECORDS

APPENDIX 6 – LOCAL AUTHORITY CORRESPONDENCE

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JOMAS ASSOCIATES LTD

Unit 24 Sarum Complex
Salisbury Road
Uxbridge
UB8 2RZ

CONTACT US

Website: www.jomasassociates.com
Tel: 0333 305 9054
Email: quotes@jomasassociates.com