



Phase I Environmental Report

Clayton Road, Hayes.

For

Gate of Eden Ltd



Contact Details:

Enzygo Ltd.
The Granary
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA

tel: 01454 269237
fax: 01454 269760
email: steve.rhodes@enzygo.com
www: enzygo.com

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Author:	Steve Rhodes - Technical Director
Reviewer:	Richard Hamilton – Associate Director

TABLE OF CONTENTS

1.0 INTRODUCTION	1
<i>Background</i>	<i>1</i>
<i>Proposed Development</i>	<i>1</i>
<i>Objectives.....</i>	<i>1</i>
<i>Risk Classification</i>	<i>1</i>
2.0 SITE SETTING	3
<i>Current Site Description.....</i>	<i>3</i>
<i>Surrounding Area</i>	<i>3</i>
3.0 SITE HISTORY	4
4.0 ENVIRONMENTAL SETTING.....	5
<i>Ground Conditions.....</i>	<i>5</i>
<i>Sensitive Land Uses.....</i>	<i>5</i>
<i>Environmental Sensitivity</i>	<i>5</i>
<i>Industrial Land Uses.....</i>	<i>6</i>
<i>Landfill Sites and Waste Treatment Sites</i>	<i>6</i>
5.0 CONSULTATIONS.....	7
<i>Regulatory Database</i>	<i>7</i>
6.0 PRELIMINARY CONCEPTUAL MODEL	8
7.0 DISCUSSIONS AND RECOMMENDATIONS	9
<i>Discussion.....</i>	<i>9</i>
<i>Recommendations.....</i>	<i>9</i>

1.0 INTRODUCTION

Background

- 1.1 Enzygo Limited has been commissioned by Gate of Eden Ltd to prepare a Phase I assessment for a proposed conversion of an existing commercial unit to residential properties.

Proposed Development

- 1.2 Information provided with the Planning Application confirms development will only involve change of use and internal refurbishment. No changes to the exterior of the building and no sub-structure works are proposed.

Objectives

- 1.3 The objectives of the study are to:
- Review an existing Phase I Environmental Statement Report prepared on the site for a previous planning application. This was viewed on the planning web portal and no new data was obtained;
 - Provide a factual and interpretative report relating to the desk study.
 - Provide preliminary recommendations in relation to environmental risk and potential remedial options.

Risk Classification

- 1.4 Enzygo has utilised the available information, together with our experience to assess the likely risks to development from land quality issues. Definitions of the risk terms used are provided on the following table.

Risk	Description
Negligible	No contamination risk has been identified which is likely to affect development.
Low	No significant contaminated land risks have been encountered affecting development and a low risk that remediation will be required.
Low-Moderate	There are unlikely to be significant contaminated land issue associated with the site which will adversely affect its re-development. However, minor or localised contamination may be present requiring remediation. Remediation should be possible under a discovery strategy and with a call out service.
Moderate	Some potential contaminated land risks have been encountered or identified which may affect re- development. The risks identified are unlikely to affect the entire site or

	preclude development. Remediation is considered feasible as part of the development process and no further investigation is considered necessary.
Moderate-High	Some potentially significant contaminated land risks have been identified at the property that requires remediation. It is recommended that a separate remedial methodology is prepared supported by a site specific risk assessment
High	Significant potential contaminated land risks have been identified and remediation is required supported by further intrusive ground investigation, risk assessment and remedial design.

2.0 SITE SETTING

Site Description

Item	Description
Site Address	23 Clayton Road, Hayes, UB3 1AN.

Current Site Description

- 2.1 The following site description has been compiled from current maps and aerial photographs.
- 2.2 The site comprises a six storey office building with associated car parking and limited soft landscaping.
- 2.3 No basement is noted at the site.
- 2.4 Light industrial units are present to the east but these appear to be constructed with concrete floor slabs and hardstanding which will limit potential contamination risk.

Surrounding Area

- 2.5 Land uses surrounding the site are summarised as follows:

Direction	Land Use
South	Clayton Road with residential use beyond.
East	Office accommodation.
West	Light industrial use.
North	Towpath and Grand Union Canal beyond.

- 2.6 No significant contamination risk to the site is noted on or adjacent to the site.

3.0 SITE HISTORY

- 3.1 A review of historical Ordnance Survey maps and information pertinent to the site and within a 250m radius is summarised below:

Potentially Contaminative Historical Land Use		
Map Edition	Site	Surrounding Area
1865	Open space with access track.	Brickfield 100m W. Public House and houses 100m E. Grand Union Canal 10m N. Fields 0m S. Railway line 180m S.
1895	No change.	Brickfields no longer shown. Carriage sheds 100m SE.
1914	Track no longer shown.	Engineering works 80m W. Clayton Road with residential houses beyond 10m S. Residential development 50m NE.
1935	Railway sidings. Buildings in W.	Engineering works 0m W. Oil Works 200m W. Residential properties 0m SE. Residential development 20m N. Engineering works 120m S.
1962	Engineering works encroaching on W boundary of site.	No change.
1972	No change.	No change.
1982	Office shown.	Engineering works to W re-developed for light industrial buildings. Oil Works re-developed for works.
1992	No change.	Car park 50m SE.
1993	No change.	No change.
2012	No change.	No change.

- 3.2 There is a potential risk of contamination on site from the railway sidings from material spillages and track maintenance works. Any such spillage and leakage is likely to be shallow and localized. As the site has subsequently been re-developed for office accommodation it is considered that any localised spillage will have been excavated as part of the reduced level excavation to accommodate car parking, floor slab and foundations. As such this is not considered a significant risk.
- 3.3 There is negligible risk of hydrocarbons migrating from the adjoining engineering works. However this site was redeveloped for commercial use and will have had a reduced level excavation to accommodate substructures. As such any localised should have been removed. Gross mobile contamination is not expected from the engineering Works post re-development.
- 3.4 The Oil works is considered to be too far from the site to pose a significant risk.
- 3.5 No other historical uses are considered to pose a significant risk to the site given their distance.

4.0 ENVIRONMENTAL SETTING

Ground Conditions

- 4.1 The British Geological Survey (BGS) indicates that the site is underlain by the following geological sequence:

Geological Unit	Type	Description	Aquifer Classification
Drift.	Lynch Hill Gravel Member.	Sand and Gravel.	Principal.
Solid.	London Clay.	Clay and Silt.	Unproductive.

- 4.2 There are no records of artificial/Made Ground on site.
- 4.3 There are no records of background soil chemistry for the site.
- 4.4 Boreholes records close to the site confirm Sand and Gravel Deposits clay consistent with Lynch Hill Gravel Member over London Clay.

Sensitive Land Uses

- 4.5 The site comprises an office block and is considered to be of low sensitivity.
- 4.6 English heritage identifies no historical features on the site.

Environmental Sensitivity

- 4.7 Overall the site is currently considered to be of **Low** sensitivity due to the following:
- The underlying stratum is classified as an Principal Aquifer but there is no groundwater abstractions within 500m of the site;
 - The Grand Union Canal is located 10m north of the site but as this is constructed within gravels it will be lined with clay puddle so acting as a barrier to potential contaminant migration;
 - The site is not within a source protection zone;
 - No ecological designations on the site.
- 4.8 The proposed end use of the site is for residential development (flats) without domestic gardens. Future sensitivity is therefore low/moderate.

Industrial Land Uses

- 4.9 Industrial land uses within 250m of the site are limited to a light industrial and infrastructure features. Based on the recent construction and distances of these features no significant risks to the site are identified.
- 4.10 The Groundsure EnviroInsight Report indicates that there are no fuel stations within 250m of the site.
- 4.11 No high pressure oil/gas pipelines within 250m of the site.
- 4.12 No new risks are identified from the register of industrial land uses.

Landfill Sites and Waste Treatment Sites

- 4.13 There are no operational or historic landfill sites within 250m of the site.
- 4.14 There are no operational and non-operational waste treatment, transfer or disposal sites within 250m site.
- 4.15 No significant risks are identified from waste activities.

5.0 CONSULTATIONS

Regulatory Database

- 5.1 The following information has been obtained from a commercially available environmental database.

Environmental Permits, Incidents and Registers	0 -250m	250-500m	Details
Site determined as contaminated land	0	0	Not applicable
Authorised industrial processes	0	5	Nearest is 332m W and considered too far from the site to pose a risk.
Registered radioactive substances	0	0	Not applicable.
Enforcements, prohibitions or prosecutions	0	0	Not applicable.
Pollution Incidents	2	4	Category 3 (Minor) impact to surface water. Nearest being 13m N. No impact on land. Not considered a risk to the site.
Consents issued under the Planning (Hazardous Substances) Act 1990	0	0	Not Applicable.
Control of Major Accident Hazard (COMAH)/ Notification of Installations Handling Hazardous Substances (NIHHS) sites	0	0	Not Applicable.
Records of Licensed Discharge Consents	0	3	Trade effluent discharges, the nearest being 401m NW and not considered a risk.

- 5.2 No significant risks are identified from the regulatory data base.

6.0 PRELIMINARY CONCEPTUAL MODEL

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, metals and hydrocarbons.	Potential Made Ground.	Ingestion dermal and inhalation.	End users.	Dismissed.	Hardstanding will break pollutant linkage.
Hydrocarbons.	Localised spills not removed as part of site re-development.	Dermal and ingestion.	End users.	Dismissed.	Hardstanding will break pollutant linkage.
Hydrocarbon.	Migration from off-site sources spills not removed as part of site re-development.	Dermal and ingestion.	End users.	Dismissed.	Hardstanding will break pollutant linkage.
Hydrocarbons	On-site and off-site sources not removed as part of site re-development.	Inhalation.	End users.	Negligible.	Light end hydrocarbons are likely to have volatilised during site development leaving minimal residual risk mitigated by existing hardstanding.
Asbestos, metals and hydrocarbons.	All sources above	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No excavation below hardstanding proposed and as such no pathways will be created.
Ground Gas.	Historic Landfills.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No confined access likely.
			Site users.	Dismissed.	No significant highly putrescible source identified.
Groundwater					
Hydrocarbon and metals.	Potential spillage on site.	Vertical Migration.	Groundwater.	Dismissed.	Negligible risk of source and no creation of new pathway.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site.	Horizontal Migration.	River Network.	Dismissed.	Negligible risk of source and no creation of new pathway.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	None present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	None present.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	None present.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	No receptors
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Dismissed.	No source identified.

6.1 There is a negligible risk associated with residual hydrocarbons on site.

7.0 DISCUSSIONS AND RECOMMENDATIONS

Discussion

- 7.1 It is considered that there is a negligible residual risk to future occupiers associated with potential localised hydrocarbon contamination at the site which has not been removed as part of the previous construction works.
- 7.2 The Local Planning Authority has raised concerns over the residual risk of hydrocarbon vapour ingress in to the structure given its proposed change of use from office to residential.
- 7.3 It is recommended that additional measures are incorporated in to the building refurbishment works to provide additional protection to future residents.

Recommendations

- 7.4 It is recommended that as part of the building refurbishment a vapour membrane is placed on the ground floor slab and any substructures such as lift pits. The use of a vapour membrane is consistent with remedial measures which are used where a vapour risk has been identified and as such should address any perceived residual risk at the site.
- 7.5 It is recommended that an aluminium/polymer composite membrane is installed, jointed and sealed around service entry points. The membrane should be placed above the floor slab and below a screed to provide protection.
- 7.6 Installation, jointing and sealing of service entry pints should be undertaken by a specialist contractor who will also provide a verification report confirming that the measures have been undertaken.
- 7.7 This membrane should provide additional protection to future site users and address the concerns of the Local Planning Authority in relation to minor residual contamination which could be present.
- 7.8 It is proposed that a remedial methodology including a specification for the membrane, drawings and details of the installation, jointing and testing of the membrane is provided to the Local Planning Authority by a suitably experienced and qualified Contractor to discharge a Planning Condition for the site.
- 7.9 Future protection of the membrane can be accommodated under the Health and Safety File for the building which all future contractors are legally obligated to follow.



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BRISTOL OFFICE

The Granary
Woodend Lane
Cromhall
Bristol GL12 8AA
Tel: 01454 269237
Fax: 01454 269760

kevin.parr@enzygo.com

SHEFFIELD OFFICE

STEP Business Centre
Wortley Road
Deepcar
Sheffield S36 2UH
Tel: 0114 2903677
Fax: 0114 2903688

matt.travis@enzygo.com

MONMOUTH OFFICE, WALES

Singleton Court Business Park
Wonastow Road
Monmouth
Monmouthshire NP25 5JA
Tel: 01600 714611
Fax: 01600 716744

chris.formaggia@enzygo.com

Please visit our website for more information.

enzygo.com