INFORMER HOUSE

2 HIGH STREET, TEDDINGTON, TW11 8EW

PHASE 1:
ENVIRONMENTAL RISK ASSESSMENT

FOR

RHP

June 2016

Our Ref: HLEL40231/001R

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This report has been prepared in the RPS Group Quality Management System to British Standard EN ISO 9001:2008

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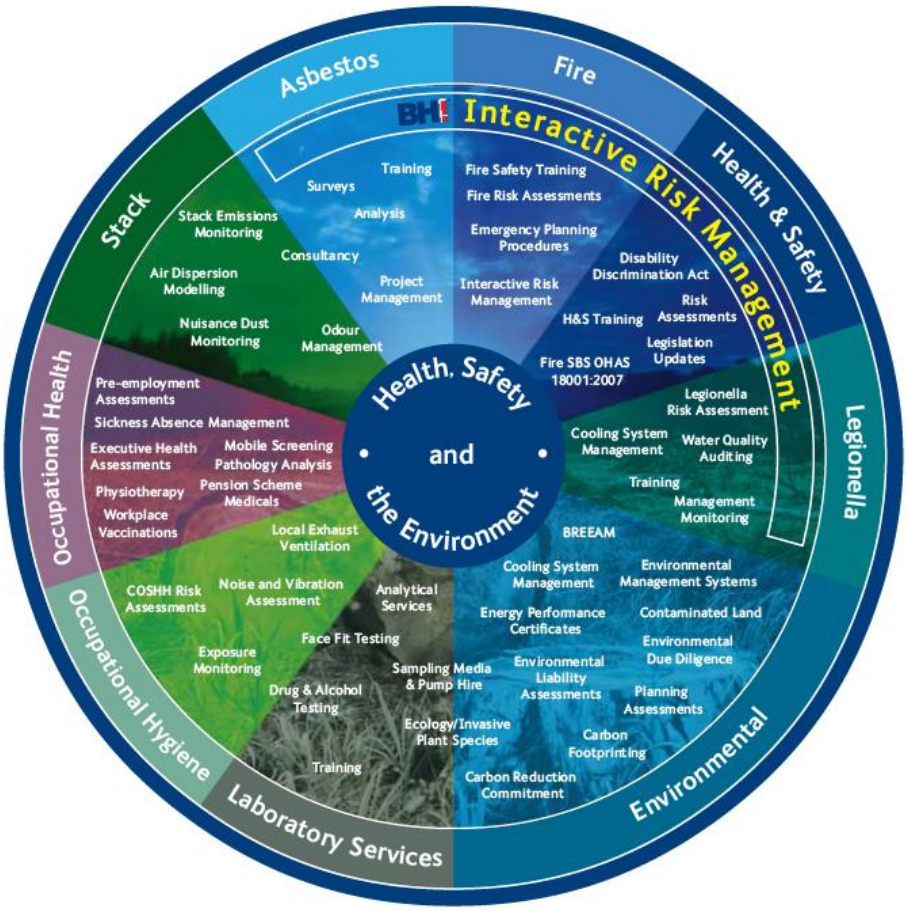
RPS Health, Safety & Environment (London office) is certified to Environmental Management Standard ISO 14001.



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EXECUTIVE SUMMARY

Overall Summary:

The site is considered to be suitable for its proposed use from a ground contamination perspective.

Section Summary:

Section	Summary
Site Details	*Area: 0.06 ha* *NGR: TQ 159 710* *Current use: Offices / commercial premises* *Proposed use: Mixed use residential and commercial development*
Site History	*Historically the site comprised predominantly undeveloped land between 1864 and c.1896. By c.1896 railway tracks were present in the south and west of the site, with the majority of the remainder of the site also likely associated with the railways. By c.1959 the site appeared to comprise part of a yard area associated with the railways to the west. The railway tracks in the south and west of the site were no longer present by c.1978. The current premises on site had been constructed by c.1989.* *Former significant land uses identified in the surrounding area include a Railway adjacent to the south and west since 1864, a Smithy located 25m to the southwest (1896 – c.1915), a Garage situated 30m to the south (1959 – c.1986) and a Works located 60m to the south (1983 – c.2010).*
Environmental Setting	*The site is located within a mixed commercial and residential setting, with the nearest residential properties (in the form of flats) situated adjacent to the east. It is proposed for redevelopment to mixed residential and commercial use, however no significant soft landscaping is proposed.* *The site is located above a Principal Aquifer relating to the Kempton Park Gravel Formation, which is underlain by an Unproductive Stratum relating to the London Clay Formation. Beneath this are Secondary Aquifers relating to the Lambeth Group and the Thanet Sand Formation and finally a further Principal Aquifer relating to the Chalk Group. No public potable water abstractions are located within 2km and the site is not located within a groundwater Source Protection Zone.*

Section	Summary
	The nearest surface water feature to the site is the River Thames, located 780m to the northeast, which has been classified as having 'moderate' ecological quality and 'good' chemical quality. *Natural England data indicates that Bushy Park and Home Park Site of Special Scientific Interest (SSSI) is located 590m to the south at its closest point and Ham Lands Local Nature Reserve (LNR) is situated 875m to the northeast.*
Regulatory Consultations	*The Environmental Health Department at the Local Authority advised that subject to a desk study and risk assessment confirming a lack of potential pollutant linkages, it is unlikely that the Council would require an intrusive site investigation in relation to the site's proposed redevelopment to mixed residential and commercial use.*
Risk Assessment	*Given the former railways historically present on site and subsequently the unknown nature of land uses, there is the potential for a limited degree of contamination to be present beneath the site. However, RPS notes that no specific potentially contaminative features (i.e. tanks) have been shown on site on historical mapping, reducing the risk of any significant contamination existing.* *Following redevelopment the site is proposed to comprise almost complete building and hardstanding cover. This will provide a significant degree of protection to site users by severing pathways between any underlying contamination (if present) and future site users and also restricting the potential for rainfall infiltration and subsequent leaching of any contamination (if present) beneath the site.* *Redevelopment proposals also indicate that residential properties will be situated at first floor level and above. As a result of this direct pathways between residential properties and any underlying contamination (if present) are not considered to exist.* *The substantial thickness of low permeability London Clay beneath the site will limit the potential for the vertical migration of any contamination (if present) beneath the site and offer a significant degree of protection to deeper, more sensitive, groundwater resources.* *Overall, the site is considered to be suitable for its proposed redevelopment to residential use from a ground contamination perspective.*
Recommendations	*No further work is required relating to ground conditions / contamination at the*

Section	Summary
	site, in relation to its proposed redevelopment to residential use.

1 INTRODUCTION

RPS Health, Safety & Environment (RPS) was commissioned by *James Lloyd Associates* on behalf of ***RHP*** to undertake an environmental review of *Informer House, 2 High Street, Teddington, TW11 8EW* in relation to the proposed conversion of the site to residential use.

The principal aim of the review was to determine whether there was the potential for contamination to be present, which could impact future site uses/occupiers and the wider environment, significantly constrain the proposed use of the site or affect the development process. The site's suitability for its proposed use has been determined in accordance with the guidance outlined in the National Planning Policy Framework.

The environmental review comprised:

i) a site inspection;
ii) a review of the historical land uses to assess the potential for ground contamination;
iii) a review of the environmental setting to assess the sensitivity of the surrounding area to contamination/pollution;
iv) consultation with the regulatory authorities to establish whether any significant environmental issues have been recorded, which may impact on the site;
v) qualitative environmental risk assessment of the site's current and proposed use; and
vi) a review of existing relevant reports (if supplied).

The environmental risk assessment presented within this report has been prepared having regard to the *contaminant-pathway-receptor* model introduced under Part 2A of the Environmental Protection Act 1990, and associated guidance on contaminated land published by the *Department of Environment, Food and Rural Affairs* [and its predecessors]. The methodology is essentially a qualitative assessment, based on the identification and evaluation of potential 'contaminant-pathway-receptor contaminant linkages'. On the basis of this risk assessment, consideration has been given to the potential for the site to be designated as 'contaminated land' (under the local authority contaminated land inspection strategy) as defined in Part 2A of the Environmental Protection Act 1990. See Appendix C for further details of the Environmental Protection Act 1990 and the risk assessment process.

The scope of the report is in general accordance with:

- British Standard requirements for the *'Investigation of potentially contaminated sites - Code of practice' (ref. BS10175:2011)*;

- '*Model Procedures for the Management of Land Contamination' - Contaminated Land Report (CLR) 11*;
- *National Planning Policy Framework (2012)*; and
- *DEFRA Environmental Protection Act 1990: Part 2A - Contaminated Land Statutory Guidance (2012).*

Where appropriate, consideration has also been given to the following:

- The potential for environmental liabilities to occur under other associated regimes, for example the Water Resources Act 1991 and the Environmental Damage Regulations 2009; and
- Key constraints on site redevelopment (if proposed), including the impact of other environmental issues (e.g. asbestos, flooding, ecology);

Details of the limitations of this type of assessment are described in Appendix D.

2 LAND USE

2.1 Site Inspection

This section of the report is based upon observations made during a site visit on the 18th April 2016. The site location and site boundary plans are shown in Appendix A. Selected photos are shown in Appendix B.

RPS understands that the site is proposed for redevelopment, comprising a six storey building of predominantly residential flats with commercial properties at ground floor level and a basement car park. RPS notes that the basement car park is to comprise the area of the existing undercroft car parking and no additional excavations are proposed as part of the redevelopment.

General view of the site. For further photos see Appendix B.

2.1.1 The Site

Section	Description
Background:	The site is located on Teddington High Street at National Grid Reference TQ 159 710. It is roughly square in shape and occupies an area of approximately 0.06 ha. The site representative advised RPS that the building was originally occupied by the *Informer Newspaper Group*. It was then vacant for several years before *Dataflow*, the current occupants of the building, moved in approximately 4/5 years ago.
Site Layout & Activity / Operations:	The site comprised a two storey office building with an undercroft car park beneath this. The building at site was occupied by *Dataflow*, a computer software organisation who used the ground and first floors as offices and storage. Beneath this, below the level of Teddington High Street to the front of the building was an area of undercroft car parking. Two rooms located off the undercroft car park contained two gas boilers and the mains

Section	Description
	electricity supply for the site (see Photo 2, Appendix B). The building was accessed from Teddington High Street to the north, whilst the car parking was accessed through Teddington Business Park to the rear. The topography of the site itself was generally level; however the road and land adjacent to the north of the site were elevated approximately 3-4m above the level of the site itself and sloped down to the northeast. As a result, the building on site had been constructed such that the ground floor level of the building was level with the adjacent High Street to the north.
Building Structure(s):	The building on site was of concrete framed construction and included a pitched roof and undercroft car parking (see Photo 3, Appendix B).
Surface Cover:	Surface cover at the site comprised almost complete hardstanding and building cover. Soft landscaping was restricted to a small area in the northeast and several raised beds (not connected to the underlying ground) on the northern boundary of the site.
Drainage:	A Thames Water sewer plan reviewed by RPS indicates that water from the site likely discharges into separate surface and foul water sewers. RPS noted drainage grates were located within the undercroft car parking area. No covers considered likely to relate to an oil interceptor were observed on site.
Storage / Tanks:	No bulk storage tanks were present on site at the time of the walkover survey.
Waste:	Waste produced by the office was collected within one wheelie bin in the undercroft car park area. Site representatives advised this was collected weekly but were not aware which company carried this out. RPS also noted numerous wooden pallets left adjacent to the building at lower ground floor level (see Photo 4, Appendix B).
Air Emissions:	Various air conditioning units were noted within the undercroft car park area (see Photo 1, Appendix B). RPS was unable to ascertain the refrigerants within all of the units, however noted that some of these contained R22, which is an ozone-depleting substance (ODS).
Electricity Transformers:	No electricity sub-stations were observed on site at the time of the inspection.
Visual Evidence of Contamination:	Minor hydrocarbon staining was observed within the undercroft car parking beneath the site. No significant visual or olfactory evidence of contamination was noted during the site walkover.
Statutory Nuisance:	RPS is not aware of any complaints relating to the site.
Other Issues:	An asbestos survey carried out at the property in March 2007 by *Alfred McAlpine* found no asbestos containing materials (ACMs) within the building fabric. The site representative advised RPS that no incidences of flooding had occurred at the site. No *Japanese Knotweed* or *Giant Hogweed* (invasive plant species) were readily

Section	Description
	identified on the site at the time of the survey. *(It should be noted that the identification can be limited by the seasons and in areas of dense vegetation growth).*

2.1.2 The Surrounding Area

The site is located in an area of mixed commercial and residential land uses. At the time of the site inspection, neighbouring land consisted of the following:

Direction	Description
North:	Teddington High Street, then offices occupied by *BMT Group* and *Eurolog.*
East:	Residential flats and *Nando's* restaurant, then *Travelodge* hotel.
South:	Teddington Business Park, with occupants including *Air Conditioning Associates Ltd* and *Bondent* (dental equipment supplier).
West:	Railway line, then commercial premises.

2.2 Site History

2.2.1 Historical Map Review

The following review is based on past editions of readily available Ordnance Survey (OS) maps. These include scales of 1:1,250, 1:2,500 and 1:10,000 dated 1864 to 2014. Extracts from selected historical maps are given in Appendix A.

On-site Land Use and Features	Dates
Site comprised predominantly undeveloped land with gradients present in the north and west.	1864 – c.1896
Then Railway tracks/sidings were present in the far south and west of the site. The majority of the remainder of the site appeared to comprise land associated with the railway.	1896 – c.1915
Then small unlabelled building present in the north of the site. Gradients no longer shown.	1915 – c.1959
Then site appeared to comprise part of a yard associated with the railways to the west.	1959 – c.1978
Then railway tracks no longer situated in the south and west of the site.	1978 – c.1989
Then the current building formation had been constructed on site.	1989 – c.2014

Surrounding Land Uses (250m radius)	Orientation	Distance	Dates	
			From	To
Railways	South & West	Adjacent (and extending on site)	1864	present
Smithy	Southwest	25m	1896	c.1915
Garage	South	30m	1959	c.1986
Works	South	60m	1983	c.2010
Electricity Sub Station	South	65m	1986	c.2002
Works	West	90m	1983	c.1989
Works	North	110m	1959	c.1978
Smithy	Northwest	130m	1898	c.1934

Surrounding Land Uses (250m radius)	Orientation	Distance	Dates	
			From	To
Works	Northeast	130m	1959	c.2014
Garage (including Tanks)	Northeast	130m	1959	c.1989
Coal Yard	Southeast	130m	1971	c.1986
Wax Factory *Then* Works	North	150m 145m	1898 1959	c.1934 c.2014
Goods Shed	Southeast	155m	1898	c.1986
Garage	Southwest	165m	1983	c.2002
Works	Northwest	210m	1959	c.1991
Works	West	210m	1959	c.2010
Works	North	220m	1960	c.2014
Works	Northwest	235m	1983	c.1991
Works	Southwest	240m	1959	c.1983
Hospital	West	245m	1898	c.1934

2.2.2 Site Planning History

Relevant planning records for the site, obtained from the London Borough of Richmond upon Thames Planning Department are summarised as follows:

- Ref. 84/1069. Erection of balustrade to replace parts of existing brick wall. 2 High Street, Teddington, TW11 8EW. Approved 08-11-1984.
- Ref. 12/1301/FUL. Alterations to front external area and boundary including new hard/soft landscaping and boundary railings. Approved 20-06-2012.
- Ref. 14/2683/P3JPA. Change of use of office building (B1) to 8 residential flats (4 x 1 bed and 4 x 2 bed). Approved 21-08-2014.

No conditions in relation to contaminated land were attached to the above prior approval.

A Sitecheck Assess report was submitted to the Council as part of the above change of use application. This noted that based on available historical records relating to the site, it was unlikely to be designated 'contaminated land' under Part 2A of the Environmental Protection Act (EPA) 1990.

3 ENVIRONMENTAL SETTING, REGULATORY CONSULTATIONS & ADDITIONAL INFORMATION

3.1 Geology & Hydrogeology

Based on British Geological Survey mapping (1:50,000-scale) and the Environment Agency's Groundwater Vulnerability mapping (1:100,000-scale), the stratigraphic sequence and aquifer classifications beneath the site are as follows:

Strata	Age	Description & approximate thickness	Aquifer Classification
Kempton Park Gravel Formation	*Quaternary*	Comprised of sand and gravel. Likely to be several metres in thickness beneath the site.	Principal
London Clay Formation	*Paleogene*	This formation generally comprises low permeability clay with variable silty and sandy parts, likely to be over 50m in thickness beneath the site.	Unproductive Stratum
Lambeth Group	*Paleogene*	This group generally comprises mottled, slightly-sandy clay with occasional silt and pebble lenses, likely up to 20m in thickness beneath the site.	Secondary A
Thanet Sand Formation	*Paleogene*	This formation comprises generally fine-grained sand and silt, likely to be in the region of 10m in thickness beneath the site.	Secondary A
Chalk Group	*Cretaceous*	This group generally comprises highly fissured limestone with occasional flint nodules and interbedded marls and calcareous mudstones in the lower parts. Likely to be of substantial thickness.	Principal

Made Ground is likely to be present across the site as a result of past construction and/or demolition activities. No site investigation reports have been reviewed to verify this.

The site is located above a Principal Aquifer relating to the Kempton Park Gravel Formation. These formations provide a high level of water storage and may support water supply and / or river base flow on a strategic scale.

This is underlain by an Unproductive Stratum relating to the London Clay Formation. These formations have a low permeability and have negligible significance for water supply or base flow.

Beneath this are Secondary A Aquifers relating to the Lambeth Group and the Thanet Sand Formation. These formations are formed of permeable layers capable of supporting water supplies at a local scale, in some cases forming an important source of base flow to rivers.

These are finally underlain by a further Principal Aquifer relating to the Chalk Group.

According to Environment Agency data, the site is not located in a groundwater Source Protection Zone.

Under the Water Framework Directive, the Environment Agency's local River Basin Management Plan classifies groundwater chemical quality beneath the site as 'good' quality.

3.2 Water

3.2.1 Surface Water

Under the Water Framework Directive, the Environment Agency identifies one watercourse within 1km of the site which is classified within the local River Basin Management Plan. A list of all nearby watercourses and water bodies is as follows:

Watercourse / body	Quality Classification	Approx. Distance and Direction from Site
River Thames	Ecological Quality – Moderate Chemical Quality – Good	780m Northeast
Lake	Not classified	835m Southwest

3.2.2 Fluvial / Tidal Flood Risk

According to the Environment Agency flood map, the site is not located within an indicative fluvial floodplain. A separate RPS flood report is being issued regarding this aspect (ref. HLEF40143/001R).

3.2.3 Water Abstractions

Information provided by the Environment Agency indicates that there are records of three licensed groundwater abstractions and no licensed surface water abstractions within 2km of the site. The details of these are as follows:

Licence Holder	Source	Use	Approx. Distance and Direction from Site
The Catholic Education Service	Groundwater	Spray Irrigation	775m East
Lensbury Limited	Groundwater	Spray Irrigation	1115m East
Hampton Pool Limited	Groundwater	General Use Relating	1840m Southwest

Licence Holder	Source	Use	Approx. Distance and Direction from Site
		To Secondary Category	

3.3 Sensitive Sites / Designated Protected Areas

Natural England data indicates that Bushy Park and Home Park Site of Special Scientific Interest (SSSI) is located 590m to the south at its closest point and Ham Lands Local Nature Reserve (LNR) is situated 875m to the northeast. No other SSSIs, SPAs, SACs, RAMSAR, Nature Reserves or other protected / sensitive environmental areas are located within 1km of the site.

3.4 Landfills and Waste Sites

Data provided by the Environment Agency, Local Authority and British Geological Survey indicates that there are no recorded licensed or known historical landfill sites or licenced waste treatment or transfer sites located within 500m of the site.

3.5 Local Authority Search Responses / Consultations

The Environmental Health Department at London Borough of Richmond upon Thames was consulted regarding any known contamination issues at the site. The Council advised as follows:

- The Environmental Health Department advised that it has no plans to investigate the site under Part IIA of the Environmental Protection Act 1990.
- The Department further indicated that subject to a desk study and risk assessment confirming a lack of potential pollutant linkages, it is unlikely that it would require an intrusive site investigation in relation to the site's proposed redevelopment to mixed residential and commercial use.
- The Council does not have any specific information on ground conditions at the site and advised that it currently does not have any concerns.
- No records are held by the Council of any site investigations or remediation work that has been carried out on the site or within the surrounding area.
- Council records identified the adjacent railways as a potentially contaminative land use, however did not provide a Part 2A risk rating for this land.

3.6 Pollution Incidents

Environment Agency data indicates that there are no records of 'major' or 'significant' pollution incidents within 500m of the site.

3.7 Authorised Processes

3.7.1 Environmental Permits

Environment Agency and Local Authority data indicates that there are three processes regulated by an Environmental Permit (under the Environmental Permitting Regulations 2010) within 500m of the subject site. These are outlined in the table below:

Licence Holder	Permitted Activity	Approx. Distance and Direction from Site
Pristine Laundries	Dry Cleaning	155m Northeast
Silks Dry Cleaners	Dry Cleaning	195m West
Oceana Dry Cleaners	Dry Cleaning	305m East

3.7.2 COMAH Sites

There are no records of any operations under the Control of Major Accident Hazards (COMAH) within 500m of the site.

3.8 Radon

According to the Health Protection Agency (part of Public Health England) and the British Geological Survey, the site is not located in an area at risk from radon gas.

3.9 Coal Authority

The site is not located in an area potentially affected by coal mining activities.

4 ENVIRONMENTAL RISK ASSESSMENT

4.1 Background

This Risk Assessment consists of an appraisal of the *contaminant-pathway-receptor* 'contaminant linkages' which is central to the approach used to determine the existence of 'contaminated land' according to the definition set out under Part 2A of the Environmental Protection Act 1990. For a risk to exist (under Part 2A), all three of the following components must be present to facilitate a potential 'pollutant linkage'.

- ***Contaminant*** *referring to the source of contamination (Hazard).*
- ***Pathway*** *for the contaminant to move/migrate to receptor(s).*
- ***Receptor*** *(Target) that could be affected by the contaminant(s).*

Receptors include human beings, other living organisms, crops, controlled waters and buildings / structures. The assessment includes a qualitative review for the 'significant possibility of significant harm' (SPOSH). The mere presence of a contaminant source / hazard at a site does not mean that there will necessarily be attendant risks or that the site will be designated as 'contaminated land'. For further details see Appendix C.

In addition, the assessment includes consideration of redevelopment constraints, the site's '*suitability for use'* and the perception by any future purchasers regarding the potential impact on investment value/saleability.

The Risk Assessment comprises three sections:

Section 4.2: A summary of current and historical land use and environmental sensitivity information demonstrated as a tabular *Conceptual Model* with *Contaminant*, *Pathway* and *Receptor* components (in accordance with *Model Procedures for the Management of Land Contamination' - Contaminated Land Report (CLR) 11).*

Section 4.3: An assessment of Overall Risk compiling the findings of Section 4.2, together with the likelihood of occurrence and its commercial impact. This risk is assessed in relation to 'Ground Contamination' and 'Other Environmental Issues', and has been classified under three categories (see below):

Section 4.4: Details of notable environmental issues and key operational issues (outside ground contamination aspects) are highlighted in this section.

- ***Low risk -*** *it is considered unlikely that issues within the category will give rise to significant harm or a liability/cost for the owner of the site.*
- ***Moderate risk -*** *it is possible, but not certain that issues within the category will give rise to significant harm or a liability/cost for the owner of the site.*
- ***High risk -*** *there is a high potential that issues within the category will give rise to significant harm or a liability/cost for the owner of the site.*

4.2 Conceptual Model

Source: *(Land Use)*

The site currently comprises a two storey commercial premises with undercroft car parking and associated external areas. RPS did not observe any significant potentially contaminative activities occurring on site during the site inspection.

Historically the site comprised predominantly undeveloped land between 1864 and c.1896. By c.1896 railway tracks were present in the south and west of the site, with the majority of the remainder of the site also likely associated with the railways. By c.1959 the site appeared to comprise part of a yard area associated with the railways to the west. The railway tracks in the south and west of the site were no longer present by c.1978. The current premises on site had been constructed by c.1989.

There is the potential for a limited degree of contamination to be present beneath the site associated with the former railways and associated land uses on site and the subsequent unknown historical use of the land. Potential contaminants associated with railway land may include hydrocarbons, solvents, herbicides and creosote. However, RPS notes that no specific potentially contaminative features (i.e. tanks) have been shown on site on historical mapping, reducing the risk of contamination being present.

Potential sources of contamination identified in the surrounding area include railways adjacent to the south and west since 1864, a Smithy located 25m to the southwest (1896 – c.1915), a Garage situated 30m to the south (1959 – c.1986) and a Works located 60m to the south (1983 – c.2010). These may have resulted in a degree of contamination within the underlying ground in the vicinity of the site, with the activities associated with the adjacent railways likely the most significant potential source.

Overall, the likelihood of significant contamination beneath (parts of) the site is considered to be low to moderate.

Pathways:

The site currently comprises almost complete building and hardstanding cover. RPS understands that redevelopment proposals comprise a mixture of commercial units at ground floor level and residential properties at first floor level and above and the site will comprise predominant building and hardstanding cover. This will provide a significant degree of protection to future site users from any contamination (if present) within the underlying ground and therefore direct pathways between contamination (if present) and site users are not considered to exist. The hardstanding cover will also restrict the potential for rainfall infiltration and subsequent leaching beneath the site.

The permeable superficial deposits beneath the site may enable the lateral migration of contamination beneath the site, however the substantial thickness of the underlying low permeability London Clay beneath this will restrict downwards migration towards deeper groundwater resources.

Construction workers may be exposed to any contamination (if present) within the underlying ground during redevelopment works, however this can be mitigated by the use of appropriate personal protective equipment (PPE).

Receptors: *(Environmental Sensitivity)*

The site is currently commercial in use however is proposed for redevelopment to a mixed commercial and residential development (i.e. increased sensitivity). However, RPS notes from available development plans that no significant areas of soft landscaping are proposed for creation as part of the redevelopment works. The site is located within a mixed commercial and residential setting, with the nearest residential properties (in the form of flats) situated adjacent to the east.

The potential risks to construction workers during redevelopment (in particular any ground breaking activities) will be mitigated by the use of appropriate PPE.

The site is located above a Principal Aquifer relating to the Kempton Park Gravel Formation, which is subsequently underlain by an Unproductive Stratum relating to the London Clay Formation which due to its low permeability will offer a significant degree of protection to the deeper groundwater resources outlined in Section 3.1. No public potable water abstractions are located within 2km and the site is not located within a groundwater Source Protection Zone, reducing the sensitivity of the underlying groundwater.

The nearest surface water feature to the site is the River Thames, located 780m to the northeast, which has been classified as having 'moderate' ecological quality and 'good' chemical quality. Given its distance from the site it is not considered to be a vulnerable receptor.

Natural England data indicates that Bushy Park and Home Park Site of Special Scientific Interest (SSSI) is located 590m to the south at its closest point and Ham Lands Local Nature Reserve (LNR) is situated 875m to the northeast. Given the distance of these features from the site, they are not considered to be significantly vulnerable receptors.

Overall the site is considered to be located in a low to moderately sensitive environmental setting and the sensitivity of the proposed future land use is reduced given that no significant areas of soft landscaping are planned for creation as part of the redevelopment works.

Note: Operational health and safety issues are beyond the remit of this report.

4.3 Overall Risk

Risk Assessment:

Given the former railways historically present on site and subsequently the unknown nature of land uses, there is the potential for a limited degree of contamination to be present beneath the site. However, RPS notes that no specific potentially contaminative features (i.e. tanks) have been shown on site on historical mapping, reducing the risk of any significant contamination existing.

Following redevelopment the site is proposed to comprise almost complete building and hardstanding cover. This will provide a significant degree of protection to site users by severing pathways between any underlying contamination (if present) and future site users and also restricting the potential for rainfall infiltration and subsequent leaching of any contamination (if present) beneath the site.

Redevelopment proposals also indicate that residential properties will be situated at first floor level and above. As a result of this direct pathways with between residential properties and any underlying contamination (if present) are not considered to exist.

The substantial thickness of low permeability London Clay beneath the site will limit the potential for the vertical migration of any contamination (if present) beneath the site and offer a significant degree of protection to deeper, more sensitive, groundwater resources.

The Environmental Health Department at the Local Authority advised that subject to a desk study and risk assessment confirming a lack of potential pollutant linkages, it is unlikely that it would require an intrusive site investigation in relation to the site's proposed redevelopment to mixed residential and commercial use.

Overall, the site is considered to be suitable for its proposed redevelopment to residential use from a ground contamination perspective.

5 CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The following conclusions have been drawn from the observations recorded and the information collated and reviewed as part of this Risk Assessment:

Overall, the site is considered to be suitable for its proposed use from a ground contamination perspective.

5.2 Risk Management Recommendations

5.2.1 Ground Contamination

No further work is required relating to ground conditions / contamination at the site, in relation to its proposed redevelopment to residential use.

APPENDIX A

Figures

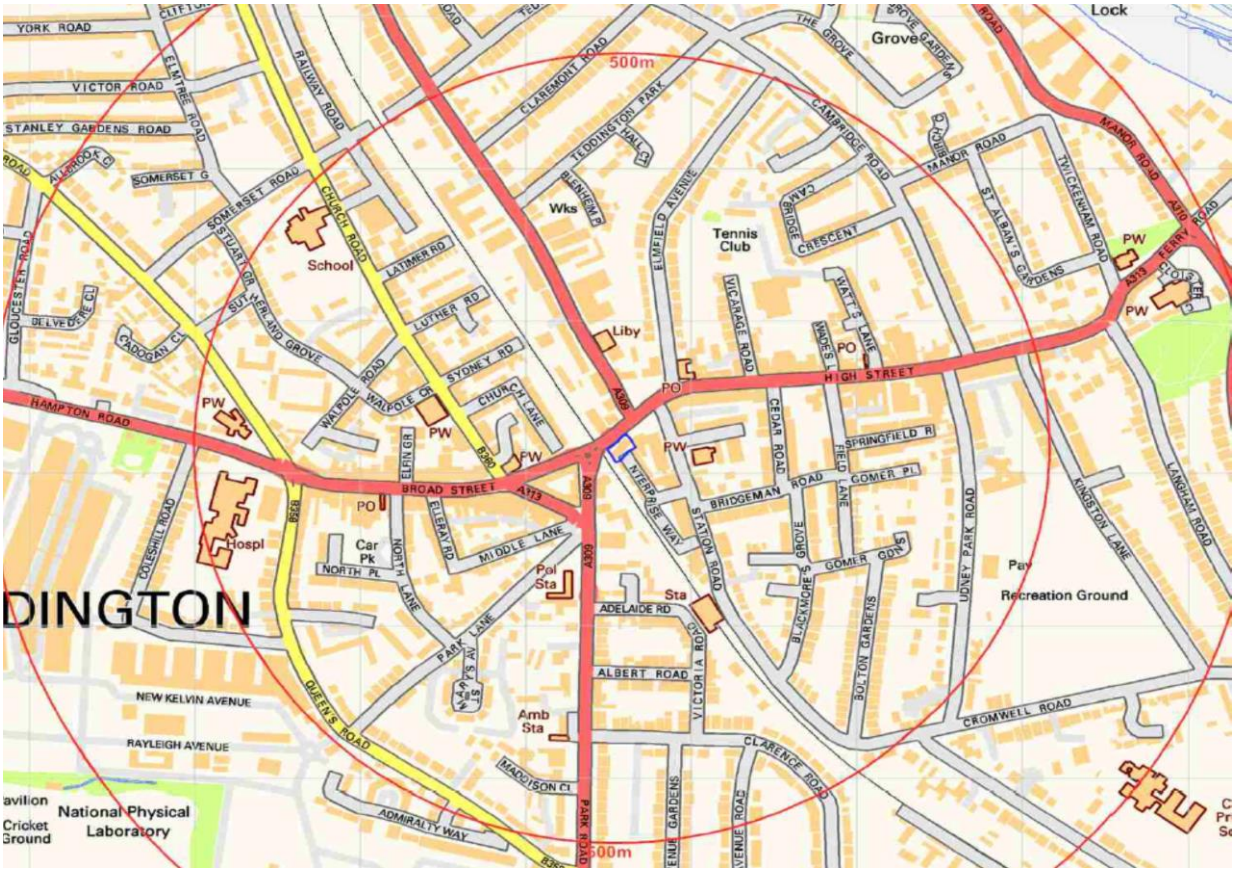

Figure 1: Site Location Plan

Map Date: Current

Scale: Not to scale

RPS
35 New Bridge Street
London
EC4V 6BW

☎ 020-7280-3240
www.rpsgroup.com

Figure 2: Site Boundary Plan

Map Date: Current

Scale: Not to scale

RPS
35 New Bridge Street
London
EC4V 6BW

☎ 020-7280-3240
www.rpsgroup.com

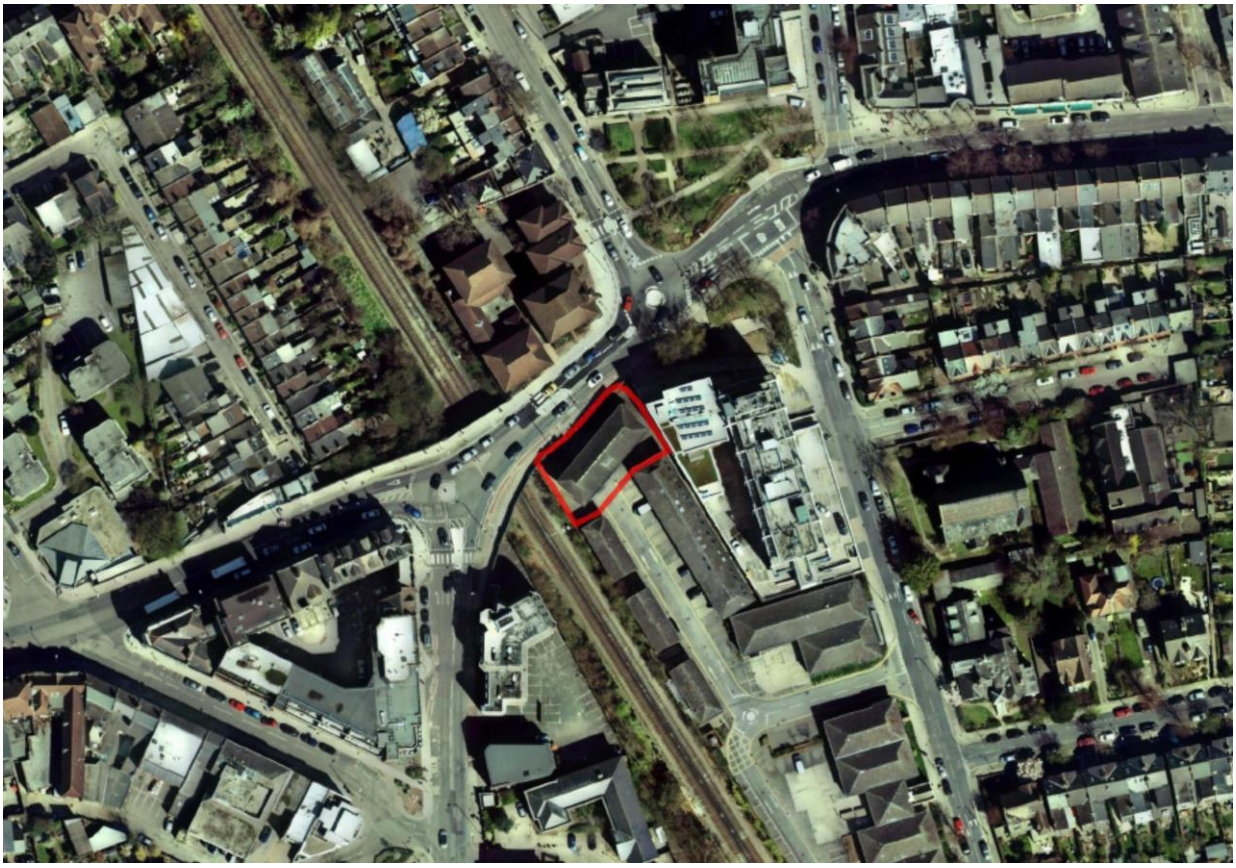

Figure 3: Aerial Photo

Map Date: Current

Scale: Not to scale

RPS
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☎ 020-7280-3240
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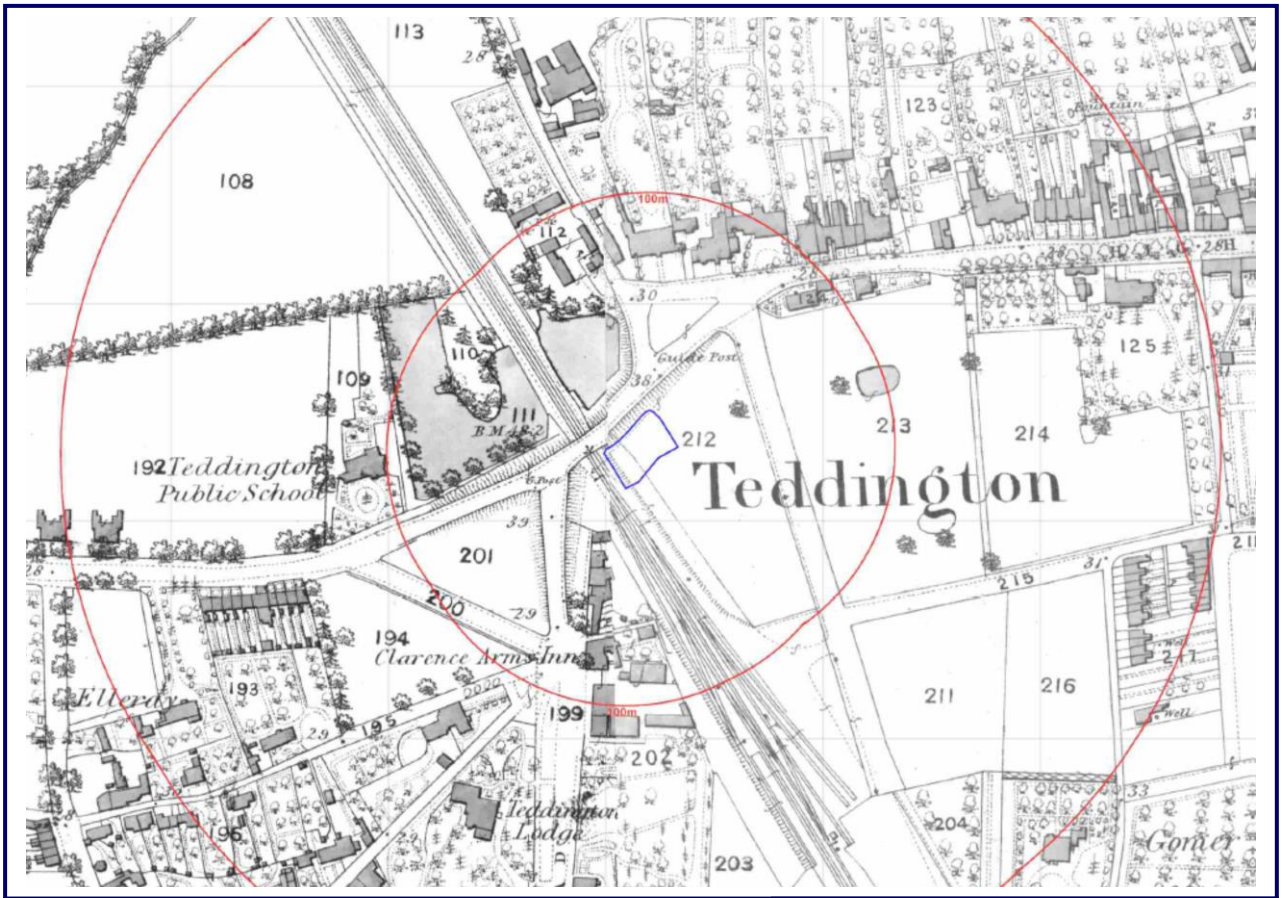

Figure 4: Historical Map Extract

Map Date: 1865

Scale: Not to scale

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Figure 5: Historical Map Extract

Map Date: 1896

Scale: Not to scale

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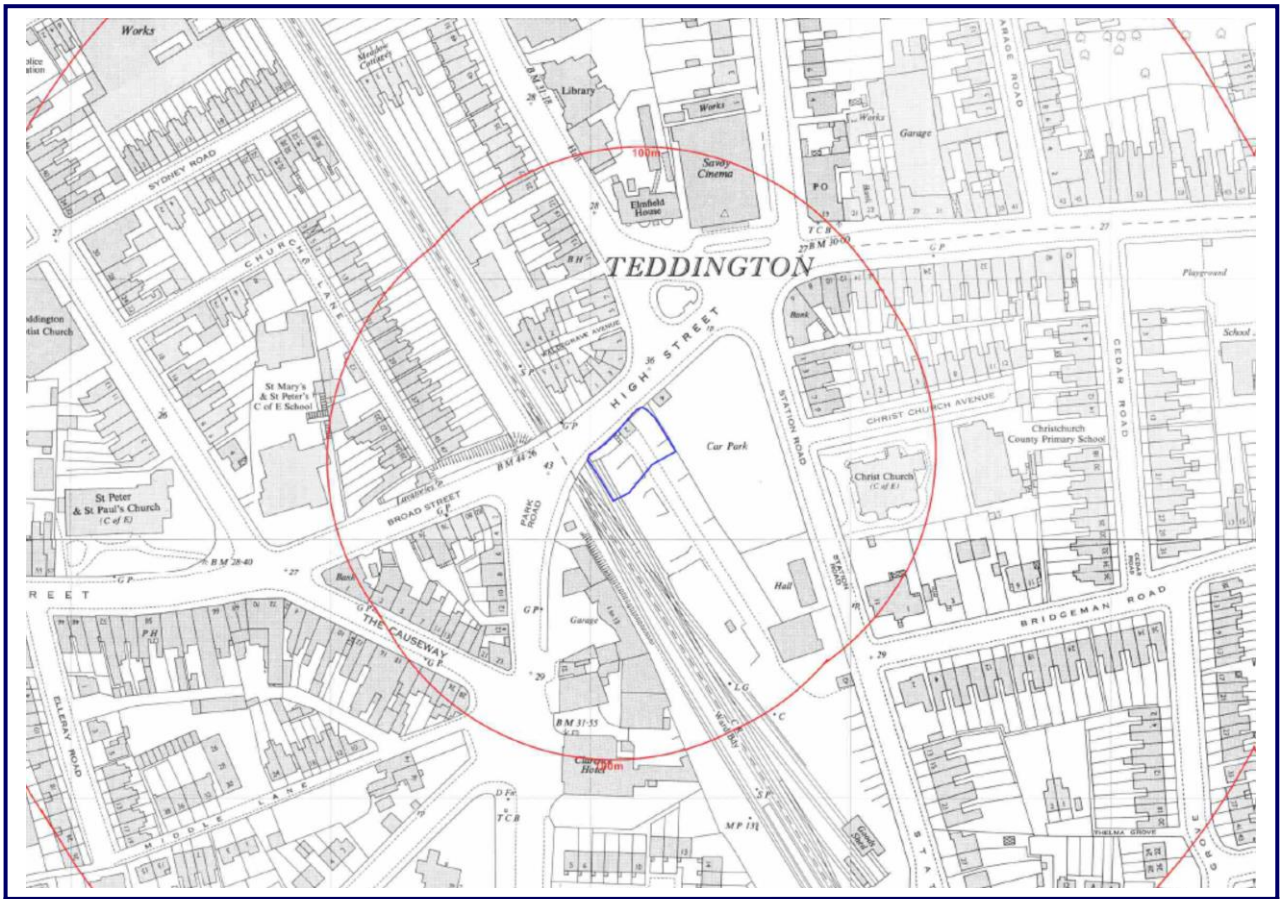

Figure 6: Historical Map Extract

Map Date: 1959

Scale: Not to scale

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Figure 7: Historical Map Extract

Map Date: 1983

Scale: Not to scale

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Figure 8: Historical Map Extract

Map Date: 1991

Scale: Not to scale

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APPENDIX B

Photographs

Photo 1: Air conditioning units within the undercroft car park.

Photo 2: View of the natural gas boilers within a room off the undercroft car parking.

Photo 3: View from the rear of the site showing the undercroft car parking.

Photo 4: Pallets stored adjacent to the building at lower ground level.

APPENDIX C

Background to Part 2A (The Contaminated Land Regime)

Contaminated Land Definition

Under Section 57 of the Environmental Act 1995, Part 2A was inserted into the Environmental Protection Act 1990 to include provisions for the management of contaminated land.

Subsequent regulations were first implemented in England in April 2000, Scotland in July 2000 and Wales in July 2001[1], providing a definition of 'contaminated land' and setting out the nature of liabilities that can be incurred by owners of contaminated land and groundwater.

According to the Act, contaminated land is defined as 'any land which appears to the local authority in whose area the land 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[2] is being caused or there is a significant possibility of such pollution being caused[3],

The guidance on determining whether a particular possibility is significant is based on the principles of risk assessment and in particular on considerations of the magnitude or consequences of the different types of significant harm caused. The term 'possibility of significant harm being caused' should be taken, as referring to a measure of the probability, or frequency, of the occurrence of circumstances that could lead to significant harm being caused.

The following situations are defined where harm is to be regarded as significant:

i. Chronic or acute toxic effect, serious injury or death to humans
ii. Irreversible or other adverse harm to the ecological system
iii. Substantial damage to, or failure of, buildings
iv. Disease, other physical damage or death of livestock or crops
v. The pollution of controlled waters[4].

[1] In England by The Contaminated Land (England) Regulations 2000, updated by The Contaminated Land (England) (Amendment) Regulations 2012; in Scotland by The Contaminated Land (Scotland) Regulations 2000, updated by the Contaminated Land (Scotland) Regulations 2005; and in Wales by The Contaminated Land (Wales) Regulations 2001, updated by the Contaminated Land (Wales) Regulations 2006.

[2] In Scotland the term "controlled water" has been updated to "water environment" under the Contaminated Land (Scotland) Regulations 2005 in line with the Water Environment and Water Services (Scotland) Act 2003.

[3] The definition was amended in 2012 by implementation of the Water Act 2003.

[4] Groundwater in this context does not include waters within underground strata but above the saturated zone.

With regard to radioactivity, contaminated land is defined as 'any land which appears to be in such a condition, by reason of substances in, on or under the land that harm is being caused, or there is a *significant possibility of such harm being caused*[5]'.

The Risk Assessment Methodology

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risks to receptors. The receptor may be humans, a water resource, a sensitive local ecosystem or future construction materials. Receptors can be connected with the hazard via one or several exposure pathways (e.g. the pathway of direct contact). Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there can be no risk. Thus, the mere presence of a hazard at a site does not mean that there will necessarily be attendant risks.

The Risk Assessment

By considering where a viable pathway exists which connects a source with a receptor, this assessment will identify where pollutant linkages may exist. A pollutant linkage is the term used by the DEFRA in their standard procedure on risk assessment. If there is no pollutant linkage, then there is no risk. Therefore, only where a viable pollutant linkage is established does this assessment go on to consider the level of risk. Risk should be based on a consideration of both:

- The likelihood of an event (probability) - takes into account both the presence of the hazard and receptor and the integrity of the pathway.
- The severity of the potential consequence - takes into account both the potential severity of the hazard and the sensitivity of the receptor.

For further information please see the Contaminated Land section on the DEFRA website (www.defra.gov.uk).

[5] The Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006 and Contaminated Land (Wales) Regulations 2006.

APPENDIX D

General Notes

RPS HEALTH, SAFETY & ENVIRONMENT

Phase 1 - Environmental Risk Assessment / Desk Study Environmental Review

General Notes

1. A "desk study" means that no site visits have been carried out as any part thereof, unless otherwise specified.
2. This report provides available factual data for the site obtained only from the sources described in the text and related to the site on the basis of the location information provided by the Client.
3. The desk study information is not necessarily exhaustive and further information relevant to the site may be available from other sources.
4. The accuracy of maps cannot be guaranteed and it should be recognised that different conditions on site may have existed between and subsequent to the various map surveys.
5. No sampling or analysis has been undertaken in relation to this desk study.
6. Any borehole data from British Geological Survey sources is included on the basis that: "The British Geological Survey accept no responsibility for omissions or misinterpretation of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation".
7. Where any data supplied by the Client or from other sources, including that from previous site investigations, have been used it has been assumed that the information is correct. No responsibility can be accepted by RPS for inaccuracies in the data supplied by any other party.
8. This report is prepared and written in the context of an agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in legislation may necessitate a re-interpretation of the report in whole or in part after its original submission.
9. The copyright in the written materials shall remain the property of the RPS Company but with a royalty-free perpetual licence to the Client deemed to be granted on payment in full to the RPS Company by the Client of the outstanding amounts.
10. The report is provided for sole use by the Client and is confidential to them, their professional advisors, no responsibility whatsoever for the contents of the report will be accepted to any person other than the Client. [Unless otherwise agreed]
11. These terms apply in addition to the RPS HSED "Standard Terms & Conditions" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms & Conditions the said Standard Terms & Conditions shall prevail.) In the absence of such a written contract the Standard Terms & Conditions will apply.