PHASE I
ENVIRONMENTAL DESK STUDY

POTTERY LANE, LONGSIGHT
MANCHESTER

REC Report 42912p1r0
November 2007

Prepared for

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EXECUTIVE SUMMARY

REC Ltd understands that Quorum Estates Ltd are proposing to redevelop a currently vacant site for a commercial end use. The Development will consist of fifteen commercial units, with associated car parking and nominal areas of landscaping around the periphery of the site.

REC Ltd has been commissioned to undertake a desk based study to identify any potential environmental issues which may affect the proposed acquisition and redevelopment of the site.

The site is irregularly shaped site within a predominantly commercial area of Longsight Greater Manchester. The currently vacant site is bordered by a large railway depot to the north and east, and other commercial properties, including a vehicle auction and computer manufacturing facility are located are located to the east and south respectively.

The topography of the site generally slopes gently down gradient from north to south; however a localised change of slope is apparent in the northern sector of the site, sloping gently from south to north. With the exception of a path transecting the northern sector of the site, there is no hardstanding currently present across the remainder of the site.

The British Geological Survey (BGS) maps for the area (Sheet 85, Manchester, Solid and Drift editions, 1:50,000) indicates that the site is directly underlain by superficial drift deposits of Glacial Boulder Clay, underlain by solid geology of Permian Collyhurst Sandstone.

According to the Environment Agency, the site is underlain by a Major Aquifer associated with the Collyhurst Sandstone, overlain with soils of high leaching potential. It is however noted that information regarding soils in urban areas is based on fewer observations than elsewhere and that therefore a worse case scenario is assumed; the Sitecheck Report indicates that the Boulder Clay mapped underlying the site is classified as a low permeability drift deposit.

A search of historical mapping has revealed that the site has remainder largely undeveloped with the exception, the presents of allotments during the mid 1900's. Significant industrial development has occurred in the vicinity of the site including the presence of a railway depot to the west of the site and associated gasometers, which are considered to be potential sources of hydrocarbons, asbestos, heavy metals and inorganics

Made Ground is anticipated on and in the vicinity of the site, due to historical land use on the site as allotments, historical demolition activities and localised areas of historical infilling. Made Ground is identified as a potential source of heavy metal, asbestos and hydrocarbon contamination and a potential source of hazardous ground gases.

It is indicated that there are no landfill sites within 250m of the site boundary; localised infilling to ponds and a reservoir is identified in the vicinity of the site.

It is considered that due to the commercial end use of the site, where the majority of the site will be occupied by hardstanding, that the risk to human health of the end users of the site and the general public to potential sources of contamination will be highest in areas remaining uncovered after construction, i.e. within any areas of landscaping. Detection of any volatile contamination would also represent a risk via migration of hazardous vapours within the proposed buildings.

Potential receptors identified are therefore considered to be;

- Construction workers during the development works
- Underlying groundwater including the Major Aquifer, the underlying Boulder Clay; mapped at the site would afford some protection to the underlying Major Aquifer.
- There is limited surface water in the vicinity of the site (closest water feature is a pond located approximately 220m to the northeast of the site); and
- Service infrastructure and the foundations of the existing and any future buildings on site.

REC Ltd considers that given the site setting and former commercial land uses partially on and in the vicinity of the site, an intrusive investigation will be required to fully characterise any environmental issues and associated liabilities resulting from previous and current uses of the site and surrounding area. A geotechnical investigation may also be required to determine the ground conditions and assist in the design of foundations for the construction of any new structures on the site.

Japanese knotweed was evident in distinct stands mainly in the south west sector of the site. It is therefore recommended that a full invasive plant survey is undertaken across the site and treatment or eradication of any invasive plant species is undertaken prior to redevelopment works.

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1.0 INTRODUCTION

Resource and Environmental Consultants (REC) Ltd were contracted by Quorum Estates Ltd to complete a phase 1 desk study and site walkover at their proposed commercial development on Redgate lane, Longsight, Manchester. The purpose of the work is to determine past history and potential sources of contamination in preparation for a redevelopment of the site for commercial end use.

REC Ltd developed a scope of work, (REC Ltd. Proposal 01p42912, dated 25th October 2007), that was approved by Quorum Estates Ltd. The scope of work consisted of obtaining historical documents and completing a site walkover. This report contains the results of that study.

1.1 Background

REC understands that it is proposed to redevelop the site for a commercial end use. The site is located directly to the west of Redgate Lane Manchester at National Grid Reference 386930E 396200N, indicated in Figure 1.1. A copy of the proposed development layout plan, provided to REC Ltd by Quorum Estates Ltd is presented as Figure 1.2.

The proposed development of the site comprises of fifteen commercial units across the site, with associated car parking and nominal areas of landscaping around the periphery of the site, as detailed within a proposed development layout plan provided to REC Ltd shows by the client (ref: B3098-F002).

1.2 Objectives

The objectives of the desk based study are to;

- Provide a desk-based study of the environmental setting, historical development, geology, hydrogeology and hydrology.
- Assess the presence and likely extent of any potential environmental hazards associated with the historical land uses on the site and in the surrounding area.
- Assess the implications of any environmental risks and liabilities associated with the site in relation to the future use of the site and in relation to off-site receptors.
- Provide a preliminary programme, together with costs, for the development of a site investigation strategy and remediation plan (if needed).

1.3 Limitations of the Study

Reliance has been placed on factual and anecdotal data obtained from the sources identified. REC Ltd cannot be held responsible for the scope of work, or any omissions, misrepresentation, errors or inaccuracies with the supplied information. The desk study information is not necessarily exhaustive and further information relevant to the site may be available. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



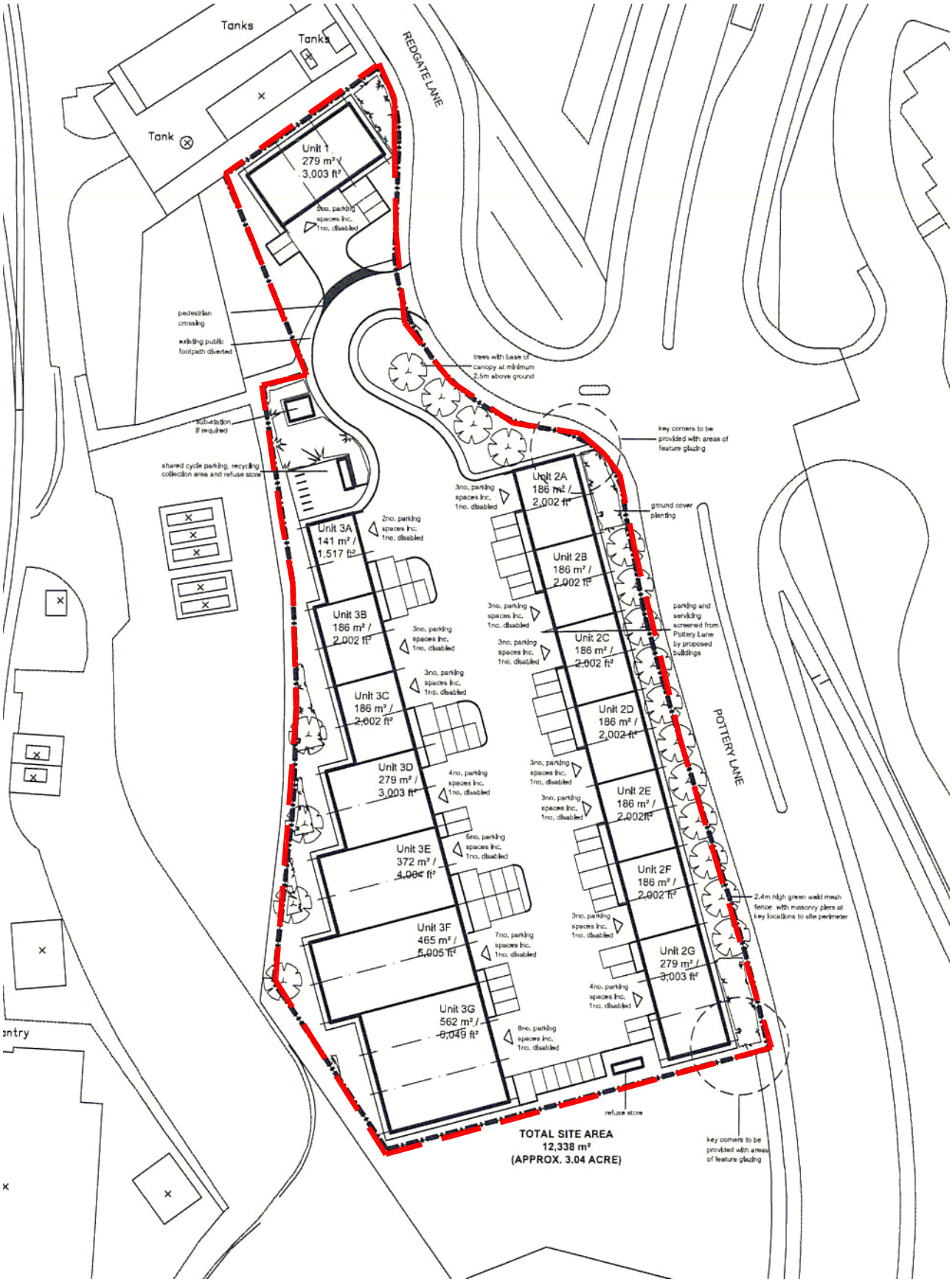
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Redgate Lane, Longsight
Site Location Plan

Job No: 42912	Figure: 1.1
Scale: NTS	Drawn: JC NOV 07



KEY: Site Boundary

N

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Pottery Lane, Longsight
Proposed Site Layout Plan

Job No: 42912	Figure: 1.2
Scale: See Scale Bar	Drawn: JC Nov 2007

2.0 DESK STUDY

2.1 Sources of Information

Background information was sought from the following sources:

- Landmark Site Check Review (provided to REC by Quorum Estates Ltd) (included in Appendix I).
- Historical mapping, dated 1848 to 2007, reproduced in Appendix II
- British Geological Survey Map (Sheet 85, Manchester, l:50,000.)
- Environment Agency Groundwater Vulnerability Map (Sheet 17, Derbyshire and North Staffordshire)
- Radon: Guidance on protective measures for new dwellings (BRE Document BR 211, 1999).
- Coal Authority Mining Report reproduced within Appendix III.
- Greater Manchester Geological Unit (GMGU) landfill search, reproduced within Appendix IV.

2.2 Site Setting and Topography

The site is a roughly rectangular shaped plot of land occupying an area of approximately 1.66 hectares within a mixed residential and commercial district of Greater Manchester.

A site visit was completed on the 6th November 2007 by a representative from REC Ltd; selected photographs from the visit are reproduced in Appendix V of this report. The site is currently occupied by grassland with several small stands of beech trees located across the site (plates 1, 2 and 3).

The site is bordered to the east by Pottery Lane and Redgate Lane. A number of commercial and industrial type premises are evident in the surrounding area, with some residential properties further to the south and west of the site.

The site visit confirmed the presence of a large rail depot and service facility located to the north and west of the site (plate 7) and a factory manufacturing computer components located to the south of the site (plate 6).

A bund is located on the eastern boundary of the site and continues along the whole boundary.

Two billboard signs are located on the eastern boundary at the junctions between Pottery Lane and Redgate Lane, the supports for these extend back into the site approximately 3m (plate 8).

A tarmac footpath in the north sector of the site trends east-west, a fence adjacent to this segregates off the north sector of the site (plate 4).

The site generally slopes gently to the south but there is a localised slope to the north in the north of the site.

During the site walkover, Japanese Knotweed was identified extensively in the south west sector of the site (plate 5).

2.3 Site History

A review of historical maps and information pertinent to the site and immediate surrounding area is summarised below in Table 2.1 below.

Table 2.1
Summary of Historical Land Use

Date	Land Use
By 1848	The site is currently vacant and the majority of the surrounding area is occupied by open fields. The site is located immediately to the east of a carriage and engine depot associated with a railway, (trending north-south) approximately 150m to the west of the site. A circular structure, possibly a gasometer, is indicated associated with the adjacent depot, located approximately 100m to the west of the site.
By 1893 to 1895	A gasometer is indicated immediately to the west of the site, a row of houses located along the south west boundary of the site is identified as 'Tank Row'. The majority of the site remains unoccupied. Railway tracks are indicated, trending east-west across the centre of the site. The depot to the west of the site has expanded and includes engine and carriage sheds. A small gasometer is indicated adjacent to the engine sheds, approximately 160m to the northwest of the site. A (disused) prison is shown approximately 10m to the northeast of the site. A reservoir is located immediately to the southwest of the site. Considerable residential and commercial development has occurred in the surrounding areas. An athletic ground is indicated approximately 200m to the northeast of the site.
By 1908 to 1909	A cricket ground is indicated in the southern sector of the site; a football ground is indicated immediately to the east of the site, and an athletic ground is indicated approximately 200m to the east of the site. Localised ground re-levelling may have occurred, associated with the establishment of these land uses. Some demolition and construction of engine / carriage sheds is indicated approximately 100m to the west of the site. Terraced housing has been constructed immediately to the northeast of the site, formally occupied by the prison, indicating significant construction and demolition activities.
By 1922 to 1923	The engine / carriage sheds to the west of the site have increased in size, indicating additional demolition and construction activities. Allotment gardens are present across the northern sector of the site
By 1949 to 1956	The gasholder formally indicated immediately to the northwest of the site is no longer shown, and allotment gardens have expanded across and beyond the northern and western sectors of the site. Some small buildings are indicated on the northern boundary of the site.

Date	Land Use
	A speedway stadium has replaced the athletic ground to the east of the site, and an exhibition hall has been constructed from approximately 50m to the east of the site. A pipe depot is indicated approximately 145m to the north of the site.
By 1964	No significant changes are apparent.
By 1968 to 1978	The allotments are no longer shown across the site, and the site is shown as vacant with the exception of small buildings on the northern boundary. The reservoir formally shown to the southwest of the site is no longer shown, and an office building is indicated in this area.
By 1981 to 1987	A depot is indicated on the northern sector of the site, and additional small commercial buildings have been established in this sector of the site. The gasometer / gasworks is no longer indicated adjacent to the engine shed to the north west of the site; a number of square tanks are shown in this location. The row of terraced housing on the southwest boundary had been removed indicating demolition activities.
By 1988	The depot and associated buildings are no longer shown on the northern boundary of the site, and the site is shown vacant, with the exception of a path across the northern sector.
By 1991 to 1999	The terraced housing to the north of the site has been replaced by a road, commercial buildings and car parking. The exhibition hall and speedway stadium to the east of the site has been replaced by a commercial building and associated car parking identified as a car auction, indicating demolition and construction activities.
By 2007	The site remains unoccupied. The site remains surrounded by railway tracks and depot sheds to the west and by commercial buildings, car parking and roads to the north, east and south.

2.4 Site Geology

The British Geological Survey (BGS) maps for the area (Sheet 85, Manchester, Solid and Drift editions, 1:50,000) indicates that the site is directly underlain by superficial drift deposits of Glacial Boulder Clay; the drift deposits are underlain by the Permian Collyhurst Sandstone.

The closest fault is located approximately 500m to the southeast to the site, trending north-south, down throwing to the southwest, away from the site.

2.5 Coal Mining

The Coal Mining report, dated 30th October 2007, reproduced in Appendix III, states that *"the property is in the likely zone of influence from workings in 3 seams of coal at 330m to 1100m depth, and last worked in 1957. Any ground movement from these coal workings should have stopped by now."*

The Coal Authority also states that *"there are no known coal mine entries within, or within 20 metres*

of, the boundary of the property."

According to Coal Authority records, the site is not affected by any present or future underground coal mining or any past, present or proposed future open cast mining.

2.6 Site Hydrogeology and Hydrology

The Environment Agency Groundwater Vulnerability Map (Sheet 17, Derbyshire and North Staffordshire, 1:100,000) indicates that the site is underlain by a Major Aquifer associated with the Collyhurst Sandstone, overlain with soils of high leaching potential. It is however noted that information regarding soils in urban areas is based on fewer observations than elsewhere and that therefore a worse case scenario is assumed; the Sitecheck Report indicates that the Boulder Clay mapped underlying the site is classified as a low permeability drift deposit.

According to the Environment Agency, the site is not located within a groundwater Source Protection Zone (SPZ) and according to the Site Check Report there are no water abstraction licences within 500m of the site.

According to the Sitecheck Report the closest water feature is a pond located approximately 220m to the northeast of the site.

According to the Environment Agency the site is not located within an area at risk of flooding

According to the Sitecheck Report there are no discharge consents listed within 500m of the site.

2.7 Radon Risk Potential

According to the Sitecheck report the site is located within an area where less than 1% of housing is above the trigger action level, therefore according to the BGS, no special precautions would therefore be required to protect against the entry of radon gas into the development.

2.8 Landfill Sites

The Landmark Sitecheck Report indicates that there are two Licensed Waste Management Facilities within 1km of the site; the closest is located approximately 220m to the north of the site for household, commercial and industrial waste transfer.

A response from the GMGU, reproduced in Appendix IV indicates that there are no registered landfill sites within 250m of the site boundary. However, a review of historic mapping has identified five discreet areas of historical infilling associated within a former reservoir and four former ponds in the vicinity of the site, the closest is a former reservoir located approximately 30m to the southwest of the site.

2.9 Consultation with the Local Authority

At the time of writing the local authority had supplied no information pertaining to the site or surrounding area, this information will be supplied as an addendum to this report when available.

3.0 CONCEPTUAL MODEL

3.1 Conceptual Model

In accordance with Environment Agency, CLR 11 (2004) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), REC Ltd have developed a Conceptual Model to identify potential contamination sources, migration pathways and receptors within the study area.

3.2 Potential Sources

Potential sources of contamination identified include:

- Allotments historically present on the site represent a potential source of heavy metals and hydrocarbons associated with the possible use of ashy material as a growing medium;
- Any Made Ground on site associated with the demolition of any historical buildings associated with the former allotments e.g. greenhouses / sheds which or the former depot is a potential source of metal and hydrocarbon contamination, and a potential source of hazardous ground gases;
- The gasometers historically located to the northwest of the site are a potential source of hydrocarbons, heavy metals and inorganics, as well as low pH waters;
- Any Made Ground on site associated with the historical demolition and construction activities and localised infilling of ponds and reservoir in the vicinity of the site, is a potential source of metal and hydrocarbon contamination, and a potential source of hazardous ground gases;
- Historical and current industrial land use immediately to the west of the site as a railway depot is a potential source of hydrocarbons (fuels and oils), heavy metals, asbestos and glycols;
- Former depot in the northern sector of the site is a potential source of hydrocarbons, heavy metals and asbestos;
- Commercial land uses in the vicinity of the site, including the vehicle auction are potential sources of hydrocarbons, heavy metals and asbestos; and
- Stands of Japanese Knotweed identified on site.

3.3 Potential Pathways

REC Ltd has identified the following possible pathways:

- If hydrocarbons are present underlying the site, there is a potential for permeation of hydrocarbons into unprotected potable water supply pipes. All utility companies now use protectorline to site boundaries (house) a normal.
- Migration of hazardous vapours and gases via permeable strata and service ducts.
- Contaminant movement to and within surface water and groundwater.
- Dermal contact with impacted soils and / or groundwater during construction, or from areas of uncovered ground remaining after construction.
- Inhalation of dust from impacted soils and / or groundwater during construction, or from areas of uncovered ground remaining after construction.

3.4 Potential Receptors

REC Ltd has identified the following possible receptors:

- Current and future site occupants and the general public;
- The underlying groundwater within the Major Aquifer beneath the site;
- Nearby surface watercourses and any shallow controlled waters beneath the site;
- Construction workers during the development of the site;
- Foundations and building infrastructure of the proposed development; and
- Although unlikely, off-site residential or commercial receptors can't be ignored.

4.0 CONCLUSIONS & RECOMMENDATIONS

4.1 Conclusions

REC understands that Quorum Estates propose to develop a currently vacant site for a commercial end use, comprising of commercial units, car parking and nominal areas of landscaping. The site is located within a predominately historically commercial area of Longsight, Greater Manchester.

A search of historical mapping has revealed that the site has remainder largely undeveloped with the exception the presents of allotments during the mid 1900's. Significant industrial development has occurred in the vicinity of the site including the presence of a railway depot to the west of the site and associated gasometers, which are considered to be potential sources of hydrocarbons, asbestos, heavy metals and inorganics. Additionally current commercial properties, including a vehicle auction and computer manufacturing facility located to the east and south of the site respectively also represent potential sources of hydrocarbons, asbestos and heavy metals in the vicinity of the site.

There are no landfill sites identified within 250m of the site boundary; however, a review of historic mapping has identified the presence of historical allotments on the site, significant historical demolition activities and the presence of historically infilled surface features in the vicinity of the site. Any Made Ground associated with these activities is considered to be a potential source of heavy metal, asbestos and hydrocarbon contamination and a potential source of hazardous ground gases.

It is considered that due to the commercial end use of the site, where the majority of the site will be occupied by hardstanding, that the risk to human health of the end users of the site and the general public to potential sources of contamination will be highest in areas remaining uncovered after construction, i.e. within any areas of landscaping. Detection of any volatile contamination would also represent a risk via migration of hazardous vapours within the proposed buildings.

The underlying Major Aquifer associated with the Collyhurst Sandstone, is considered a relevant receptor, however the absence of groundwater abstractions within the 500m of the site and the (mapped) presence of Glacial Boulder Clay reduces the sensitivity of this receptor.

There are no significant surface watercourses in the vicinity of the site; the closest water feature is a pond located approximately 220m to the northeast of the site, therefore the sensitivity of this receptor (surface waters) is considered to be low.

The construction workers during development and future building infrastructure are also identified as potential receptors.

Japanese Knotweed observed on the site represents an unacceptable risk to the proposed buildings.

4.2 Recommendations

REC Ltd considers that given the site setting and significant historical and current industrial land uses, an intrusive investigation will be required to fully characterise any environmental issues and associated liabilities resulting from previous and current uses of the site and surrounding area.

An intrusive investigation should aim to confirm underlying ground conditions and delineate the extent of and characterise any potential sources of contamination including any Made Ground and

specific potential point sources identified during the desk study, including the nearby gasometer and former depot located in the northern sector of the site.

A geotechnical investigation may also be required to determine the ground conditions and assist in the design of foundations for the construction of any new structures on the site.

In view of the potential for infilled ground on the site and adjacent to the site boundary, it is recommended ground gas monitoring standpipes are installed during any intrusive works to allow assessment of the ground gas regime within Made Ground and shallow soils beneath the site.

Japanese knotweed was evident in distinct stands mainly in the south west sector of the site. It is therefore recommended that a full invasive plant survey is undertaken across the site and treatment or eradication of any invasive plant species is undertaken prior to redevelopment works.

Submitted for and behalf of REC Ltd by:

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