PRELIMINARY RISK ASSESSMENT PROPOSED DEVELOPMENT SITE EVERTON ROAD LIVERPOOL L6 2EH



Carley Daines & Partners 11, Bridgewater Road Walkden, Worsley Manchester M28 3JE

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Email: chris.carley@carleydaines.co.uk

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1. INTRODUCTION

1.1 Appointment

Carley Daines & Partners has been commissioned by Seddon Construction Ltd to undertake a Phase 1 Preliminary Risk Assessment on the proposed development of a plot of land at the junction of Spencer Street & Everton Road, Liverpool. Instructions were received by email from Paul Hulme of Seddon Construction Ltd on 1st August 2013.

1.2 Proposed Development

It is believed that the future development of the land will be residential, and will contain a total of 10 new houses with associated parking areas, highways, pathways, drainage infrastructure and gardens.

1.3 **Objectives**

The objectives of this report are to identify any potential constraints to the proposed development with respect to contaminated land. The report will facilitate the design of future geotechnical and environmental ground investigations of the site, and will support a Planning Application for the proposed development.

1.4 Scope of Report

The scope of activities included in the production of this study are:

- Assessment of geo-environmental information;
- Assessment of historical and current mapping;
- A site walkover
- Production of a preliminary conceptual site model
- Recommendations for intrusive ground investigation.

1.5 **Previous Investigations**

To the best of our knowledge, no previous Phase 1 or Phase 2 Site Investigations have been undertaken on the site. If these exist, they have not been made available to us.

1.6 Sources of Information

The following sources of information have been used in the compilation of this report;

- Ordnance Survey Maps at various scales
- Site Specific Environmental Information
- Historical mapping

2. SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site location and description are summarised in Table 1 below.

Table 1 – Site Descriptio	n		
Site Location	Plot of land at the junction of Spencer Street & Everton Road, Liverpool.		
Site Description	The site is an irregular shaped plot of land, unoccupied by buildings, and it covered by unmanaged grassland and shrubs & trees. The site is also crossed by informal paths.		
Grid Reference	NGR 335900,391260		
Site Area	1500m ² (0.15 hec	1500m ² (0.15 hectares)	
Site Setting / Description	Current Land use:	The site is presently unoccupied by buildings, though former buildings may have been recently demolished.	
	Surrounding area:	The surrounding area appears to be primarily residential, with a light commercial/industrial mix. Land to the west of the site appears to be open ground/parkland.	

Site location and site layout plans are presented in Appendix A.

2.2 Site Visit

A site visit was undertaken on 28th August 2013. The site has had previous buildings demolished and the surface consists of unmanaged vegetation (grass and trees) and is crossed by gravel paths. The site is gently mounded but generally level. There are no watercourses on site. Other than the trees, there are no distinguishing features on site. The northern boundary is formed by a fence – other boundaries are defined by back of footways to the three adjacent roads.

2.3 Site History

The earliest published site plans are from the Lancashire & Furness Series published in 1851 at a scale of 1-10,560. These plans indicate Spencer Street, Everton Road and Creswell Street as already being in existence. The site appears to be substantially unoccupied, though a small number of terrace houses are shown on Creswell Street on the southern boundary of the site.

By 1893, there has been substantial development. The site is now occupied by a hotel and by terraced housing fronting onto Creswell Street. The area appears to be overwhelmingly developed with terraced housing, constructed since the 1851 Publication. Approximately 300m to the north east is a reservoir (covered) belonging to Liverpool Corporation Water Works. Approximately 400m to the north west is indicated Rupert Lane Barracks. Approximately 250m due south is an industrial building indicated as a Drill Shed.

Plans from 1908 indicate further building on the northern part of the site, indicated as a Manual Instruction Centre. The Rupert Lane Barracks are now indicated as being disused. There are no significant changes off site.

Plans from 1927 indicate no significant changes on or off site. However, Rupert Lane Barracks is now indicated as a recreation ground with a band stand.

Plans from 1951 indicate no significant changes on site, though the Manual Instruction Centre is now identified as Handicraft Centre.

Plans from 1954 indicate no significant changes on or off site.

Plans from 1959 indicate that the Handicraft Centre is now identified as Steers Street Handicraft Centre.

Plans from 1968 indicate no changes on site. However, within the wider area, there appears to have been large scale demolition and clearance of dense terraced housing.

Plans from 1976 indicate no changes on site. However, immediately to the south and west of the site, significant re-development with more modern housing has occurred. There has been generally widespread residential re-development throughout the area.

Plans from 1979 indicate the Public House (hotel) to still be present. However, the former terraced housing fronting onto Everton Road and Creswell Street has been removed, and the site appears to have been landscaped with access paths created between Everton Road, Creswell Road, Creswell Street & Spencer Street.

There has been continuing redevelopment of housing in the wider area.

Plans from 1982 indicate no significant changes on or off site.

Plans from 1993 indicate no changes on site. However, some of the more modern housing constructed in the 1960's and 1970's, to the south and west of the site appears to have been demolished.

Plans fro 2006 indicate no significant changes on or off site. However, there appears to have been created a band of open space immediately to the west of Everton Road.

The latest plans from 2013 indicate no significant changes on or off site.

Table 2 – On-Site History(within 250		
metres)		
Potentially Contaminative Past Uses	Map Date	
	From	То
Residential	1851	1980
Handicraft Workshop	1908	1980

Table 3 – Off Site History (within 250		
metres)		
Potentially Contaminative Past Uses	Map Date	
	From	То
Residential	1851	To date
General commercial activities	1851	To date

In summary, it would seem that the most likely source of contamination occurring on site is from the Handicraft Centre. The precise previous activities are unknown, but the probability of light manufacture and machinery on site must be anticipated. These could lead to potential contamination, possibly from hydrocarbons and metals. Furthermore, the former Public House on site (demolished relatively recently) may have contained asbestos, and there remains the possibility of minor hydrocarbon contamination from fuel deliveries and spillages. The wider area is unlikely to have suffered from significant contamination, as the principal development and activity within 250m or thereabouts appears to have been generally residential since earliest recorded times.

3. ENVIRONMENTAL INFORMATION

In compiling this section, environmental, geological and ground stability reports produced by Envirocheck were reviewed. Copies of these reports are presented in Appendix B. A summary of the environmental setting is provided in Table 4 below.

Table 4 – Summary of Environmental Information		
Made Ground	There is no made ground on site. However, there are significant areas of made ground to the north east and also to the west and north west of the site. These are within 250m of the site boundary.	
Drift Geology	On Site: There is no drift geology on site.	
	Surrounding Area: Generally, drift geology in the immediate area is also absent. The closest area of drift geology is approximately 600m to the west of the site, and consists of glacial till.	
Solid Geology	On Site: Solid geology on site consists of Rocks of the Chester Pebble Beds formation (sandstone).	

	Off Site: Local rocks also comprise Rocks of the Chester Pebble Beds formation (sandstone).	
Faults	There are no faults affecting the site. However, there is a fault approximately 300m to the west of the site, running in a north/south direction.	
Hydrology	There are no surface water features on site. Furthermore, plans indicate there are no surface water features within an area of approximately 1.0km around the site.	
Hydrogeology	The underlying bedrock is classified as a Principal Aquifer.	
Groundwater Abstractions	There are none on site. There is 1 groundwater abstraction within 1000m of the site.	
Pollution Incidents to Controlled Waters	There has been 1 pollution incident classified as minor in 1992.	
Flood Risk	The site is not indicated as being at risk from river flooding.	
Mineral and Coal Extraction	The site is not in an identified coal mining area.	
Radon Gas	The site is not in an area identified as being affected by Radon.	
Hazardous Installations	There are no identified hazardous installations within 500m of the site.	
Historic and Current Landfill Sites	There are none identified within 1000m of the site. There are 5 licensed waste management facilities within 1000m of the site, and 5 registered waste treatment/disposal site within 1000m of the site.	
Area Wide Chemical Contamination Plans	Area-wide chemical Contamination Plans indicate the site as being at risk from generally low levels of chemical contamination.	

4. ENVIRONMENTAL RISK ASSESSMENT

4.1 **Preliminary Conceptual Site Model**

A conceptual site model (CSM), which supports the identification and assessment of contamination-pathway-receptor pollutant linkages, is integral to the overall process of risk assessment. A CSM provides a foundation for hazard identification and risk estimation. For a risk to be present, all three components of an identified pollutant linkage must be present. The

potential risks have been assessed with respect to the most sensitive land use, which is deemed to be residential, with plant uptake.

Risk estimation is based upon consideration of magnitude, probability, and consequence of a contaminant-pathway-receptor linkage occurring. This is in line with best practice and guidance described in CLR11¹.

4.1.1 **Possible Sources of Contamination**

Based upon a review of historical maps and available environmental information, there is potentially a risk of contamination at this site most likely resulting from heavy metals, hydrocarbons, and fuel and lubrication oils from past light machine processes.

In addition, there remains the possibility of asbestos being present on site.

There is also a possibility of ground gas pollution due to nearby made ground.

4.1.2 Possible Pathways

In our assessment of potential exposure pathways, we have used a residential with gardens land use scenario.

- Ingestion of soil and soil derived indoor dust;
- Ingestion of home grown produce and soil attached to home grown produce;
- Dermal contact with soil and soil derived indoor dust;
- Inhalation of indoor and outdoor dust (on and off site);
- Inhalation of indoor and outdoor vapours;
- Migration of mobile contaminants in groundwater; and
- Migration of ground gases.

4.1.3 Potential Receptors

Based upon development of the site to a residential gardens end use, the following potential receptors have been identified:

- Site users (residents and visitors);
- Construction workers;
- Buildings;
- Drinking water supplies;
- Primary aquifer

A summary of the potential pollutant linkages is presented as a CSM in the following Table 5.

Table 5 – Summary of Environmental Information			
Potential Source	Pathways	Potential Receptor	
In-ground Contaminants on Site (Metals, PAH, Hydrocarbons, asbestos)	Ingestion Dermal Contact Inhalation of dust Inhalation of vapours	Human health – future site occupants.	
	Infiltration and migration through permeable strata	Groundwater	
	Direct contact	Construction materials Drinking water pipes	
Ground Gas from:	Inhalation of gas	Human Health-future site users	
Surrounding refuse heaps/infilling Made ground	Migration through permeable strata and preferential pathways into confined spaces	Future buildings on site	

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Carley Daines and Partners have completed a Preliminary Risk Assessment for the site at Everton Road, Liverpool. This is being considered for redevelopment for residential end usage.

The purpose of the report is to identify possible constraints to the proposed development, and to provide appropriate information to form part of any future planning submission. Based upon an assessment of the available information and development of the conceptual site model, it is considered likely that several potential pollution linkages may be relevant to the site which

require further investigation and assessment. In addition to the identified sources, there may be localised areas of contamination present as a result of unidentified activities at the site.

5.2 Recommendations

An intrusive ground investigation is recommended to investigate the potential pollutant linkages that have been identified. The purpose of the site investigation would be to provide sufficient data to enable a robust site specific Risk Assessment and to identify potential remedial requirements and to enable an appropriate waste disposal management strategy to be drawn up. In addition, the ground investigation should include a geotechnical assessment to confirm the ground conditions with respect to appropriate foundation design.

It is recommended that the ground investigation comprises a series of boreholes and trial pits, targeted to the sources of contamination identified in this report across the site to provide site wide coverage. Specifically, sampling and testing for heavy metals, TPH, PAH, should be undertaken as well as screening for asbestos. Also, ground gas monitoring should be undertaken.

Although published plans indicate that significant levels of in ground contamination is not anticipated, we believe that the above proposals set out a prudent and balanced approach in relation to the possible future site development.

SIGNED

C. R. CARLEY CARLEY DAINES & PARTNERS

APPENDIX A

SITE PLANS

APPENDIX B

ENVIROCHECK DATA