



PHASE 1 PRELIMINARY RISK ASSESSMENT

DOWNLEY DRIVE

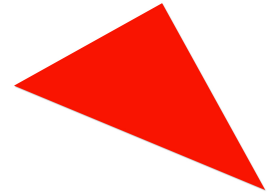
MANCHESTER, M4 7JU

for

GREAT PLACES HOUSING GROUP



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CONTENTS

1. INTRODUCTION

- 1.1 Appointment*
- 1.2 Proposed Development*
- 1.3 Objectives of Report*
- 1.4 Scope of Report*
- 1.5 Previous Investigations*
- 1.6 Sources of Information*

2. SITE LOCATION AND DESCRIPTION

- 2.1 Site Location*
- 2.2 Site History*

3. ENVIRONMENTAL INFORMATION

4. ENVIRONMENTAL RISK ASSESSMENT

- 4.1 Preliminary Conceptual Site Model*

5. CONCLUSIONS AND RECOMMENDATIONS

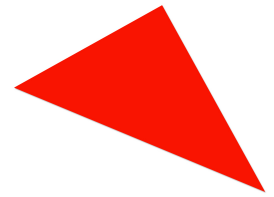
- 5.1 Conclusions*
- 5.2 Recommendations*

APPENDIX A - SITE LOCATION PLANS

APPENDIX B - ENVIROCHECK REPORT

- B.1 Historical Maps*
- B.2 Envirocheck Data Sheets*

APPENDIX C – COAL AUTHORITY REPORT



1. INTRODUCTION

1.1 Appointment

Carley Daines & Partners has been commissioned by Great Places Housing Group to undertake a Phase 1 Preliminary Risk Assessment on the proposed development of land at Downley Drive, Manchester. The report is intended to support a Planning Application for proposed re-development.

1.2 Proposed Development

Preliminary plans that have not been made available to us but the assumed proposal for the site is for development as housing, with associated access road, drainage, and parking infrastructure.

1.3 Objectives of Report

The objectives of this report are to identify any potential constraints to the proposed re-development with respect to contaminated land and previous land use. 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 re-development.

1.4 Scope of Report

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

- Purchase and assessment of geo-environmental information
- Assessment of historical and current mapping
- Production of a preliminary conceptual site model
- Recommendations for intrusive ground investigation

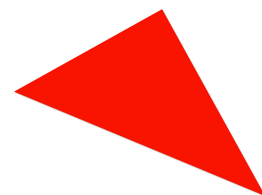
1.5 Previous Investigations

No previous investigations have been undertaken on the site to the best of our knowledge. If they have, 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 provided by Envirocheck



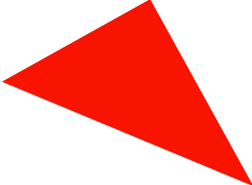
2. SITE LOCATION AND DESCRIPTION

2.1 Site Location

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

Table 1 – Site Description		
Site Location	The site is located within the Ancoats/New Islington area of Manchester, approximately 1km east of Manchester City centre.	
Site Description	The site is trapezoidal in shape, with maximum dimensions of approximately 150m in the northeast-west direction, and 25-50m in the northwest-southeast direction. The site is predominantly surrounded by residential development with residential apartments to the north west of the site, low rise accommodation to the southwest, southeast and east of the site and to the North is the Rochdale canal.	
Grid Reference	NGR 85345,98731	
Site Area	8600m ² (0.86 hectares). The mean site level is approx. 49m AOD.	
Site Setting / Description	Current land use:	The site is presently unoccupied and split by a path from the end of Downley Drive to the Rochdale Canal. From the site photographs it is clear the site to the south side of the path was formerly developed, potentially as housing, but to the North this is potentially undeveloped.
	Surrounding area:	The site is situated within the suburbs of Manchester. Therefore, the surrounding area is primarily residential. More locally, however, directly to the North is the Rochdale canal, beyond which lies further residential development. 350m to the south lies Ancoats Retail Park - a large retail development, now closed.

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



2.2 Site History

This study has been based upon published plans at a scale of 1:10,560 (1:10,000) and 1:2,500.

Earliest published plans are from the Lancashire & Furness Series and are dated 1848. At this time the site is shown as undeveloped and situated in an area surrounded predominantly by residential dwellings and industrial works. There is also an industrial building directly to the south of the site. Mills and factories are prevalent to the west of the site on the other side of Rochdale Canal which exists to the north of the site. The site is located generally in built up surroundings.

Plans from 1893 show a steel works to the centre of the site and residential properties to the south of the site. There has been an increase in residential development beyond 500m of the site, particularly to the north, north east and south east where significant areas of housing have been built. Also, by this time Ducie sawmills have been constructed to the north of the site.

By 1908 the on site steelworks have been replaced with 'St Vincents Home' but otherwise there is little change to the site and its surrounding area. Also, there is a tramway on Bradford Street/New Islington to the south.

Few changes were made between 1908 and 1922 but by 1948/1949 New Islington works had replaced the residential properties to the south west of the site and some on the on site residential properties in the southern section were no longer present. Also, a wire works is now shown on site.

Between 1958 and 1980 residential dwellings were added on site to the north east corner. Also, during this time, the Ducie sawmills to the north of the site were removed. The houses on site to the south side were also removed in this period.

By 1988/1989 all the on site industrial works had been removed and all that remained on site were the houses to the north east corner.

By 2006, the industrial works identified adjacent (to the left) of the site had been removed.

Between 2006 and 2016 the remaining residential properties on site, to the north, had been removed.

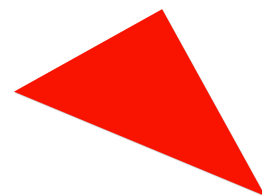
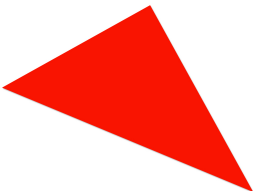


Table 2 – On-Site History		
Potentially Contaminative Past Uses	Map Date	
	From	To
Steel/Wire works	1893	1988

Table 3 – Off Site History (250metres)		
Potentially Contaminative Past Uses	Map Date	
	From	To
Engineering Works	1893	2006
Sawmill	1893	1980

There is evidence to suggest that the site could have been subject to levels of contamination arising from the use of the site for engineering and wire works.

Immediately off-site, there has been a significant amount of past industrial development which is a potential source of contamination. Specifically, the presence of the sawmills, timber yards, engineering works, builders works, mills, etc. could all leave residual contamination, though this would be expected to diminish with increasing distance from the site.

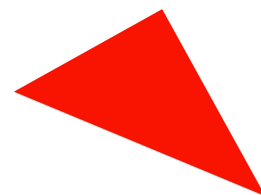


3. ENVIRONMENTAL INFORMATION

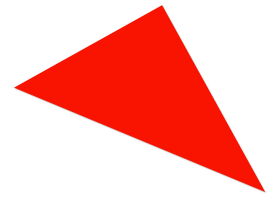
In compiling this section, environmental, geological and other reports produced by Envirocheck were reviewed. Copies of these reports are presented in Appendix B. A summary of the environmental setting is provided in Table 4 below.

Table 4 – Summary of Environmental Information

Made Ground	There is no obvious made ground on site. However, there is a large area of infilled ground shown 450m east of the site to the former works where houses are now situated. There is an also made ground 300m to the north of the site where former works were also located.
Drift Geology	On Site: This is indicated as Devensian Till.
	Off Site: Indicated as Devensian Till.
Solid Geology	On Site: Both the Rocks of the Manchester Marls formation and the Collyhurst Sandstone Formation.
	Off Site: Rocks of the Manchester MARls Formation, the Collyhurst Sandstone Formation, and the Etruria Formation (sandstone and mudstone).
Faults	There is a discontinuous fault line approximately 100m to the north of the site.
Hydrology	There are no watercourses on site. The nearest watercourse is the Rochdale Canal, 10m to the North of the site.
Hydrogeology	The site is indicated as a being above a Secondary Aquifer.
Water Abstractions	None within 500m. A significant number over 1300m away.
Source Protection Zones	None.
Flood Risk	The site is not at risk of flooding from Rivers, the Sea, or surface water, and does not lie within a flood risk zone.



Environmental Incidents	None.
Mineral and Coal Extraction	The Coal Authority Report indicates that the site has been affected by past coal mining at significant depth from 330m to 1090m. There is no indication of shallow workings affecting the site
Brine Compensation	The site is not within a known brine compensation area.
Radon Gas	The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). No radon protective measures are necessary in the construction of new dwellings.
Hazardous Installations	There are no obvious hazardous installations within 500m of the site.
Potentially Contaminative Land Uses	There are no indicated contaminative land uses within 250m of the site.
Shrinking/Swelling of Clay	Very low risk.
Landslip	Very low risk
Running Sands	Very low risk.
Compressible Deposits	No risk.
Collapsible Deposits	Very low risk.
Soil Chemistry	Data has been obtained for a variety of potential contaminants, specifically arsenic, cadmium, chromium, lead and nickel. The data supplied indicates that there is relatively low risk of significant concentrations of these potential contaminants. However, there may be localised exceedencies that are unrecorded.



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 and vegetable 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.

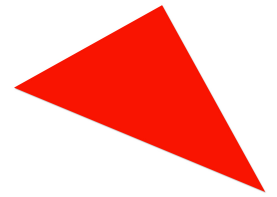
4.1.1 Possible Sources of Contamination

On Site

There is potential for contamination arising from the site's previous uses directly. Also, the possibility of asbestos being present in the relatively old structures on site cannot be ruled out.

Off site

There is a potential source of contamination which would be associated with the site's neighbouring previous industrial buildings. This would suggest that there may be contaminants such as hydrocarbons from oil and fuel spillages, plus metals etc. from the nearby industrial units, however these levels are considered unlikely to be significant. The area of infilled ground to the north east of the site is similarly not considered to have a significant effect on the site due to distance from site and the nature of the material present.



4.1.2 Possible Pathways

In our assessment of potential exposure pathways, we have identified a residential land use scenario as housing is proposed. The potential exposure pathways identified are:

- Ingestion of soil and dust;
- Dermal contact with soil and dust;
- Inhalation of dust (on and off site);
- Inhalation of outdoor vapours;
- Inhalation of indoor vapours;
- Migration of mobile contaminants in groundwater.

4.1.3 Potential Receptors

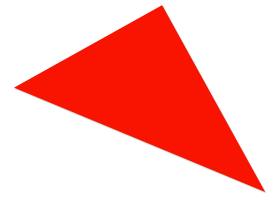
With respect to the proposed development for residential usage, the following potential receptors are considered:

- Site users (residents and visitors);
- Future site users;
- Construction workers;
- Site structures & infrastructure;
- Drinking water supplies;
- Secondary Aquifer.

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

Preliminary Risk Assessment, Downley Drive, Manchester

Table 5 - Conceptual Site Model				
Potential Source	Potential Pathways	Potential Receptor	Comments	Risk
On-site contamination (Heavy Metals, PAHs, TPH, Asbestos & pH)	Ingestion Dermal Contact Inhalation	Human Health - Site Users, Maintenance Staff, Contractors	Minimal risk of contamination due to residential usage of site to date.	Very Low
	Direct Contact	On-site structures, Water pipes		
	Migration of contamination to groundwater	Local Water Courses, Underlying Aquifer	Minimal risk of contamination due to residential usage of site to date.	Very Low
Off-site contamination	Ingestion Dermal Contact Inhalation	Human Health - Site Users Maintenance Staff Contractors	The previous use as agricultural land and allotment gardens suggests contamination may be present, though unlikely to be at significant levels. Nearby industrial works and motor-vehicle related activities may also be sources of contamination.	Moderate
	Direct Contact	On-site Structures Water Pipes		
	Migration of contamination to groundwater	Underlying Aquifer	Possible risk of contamination to principal aquifer due to probable low levels of contamination and underlying impermeable strata.	Moderate / Low
Ground gas from nearby landfill sites	Migration through permeable strata	Human Health, On-site Structures	There is an area of landfill north east of the site, and another area to the west of the site.	Moderate
Coal Mining	Workings close to surface	Buildings, roads & services	The data indicates there to be no risk to the site from previous coal mining related activity.	None.



5. SUMMARY & CONCLUSIONS

5.1 Conclusions

Carley Daines and Partners have been commissioned by Great Places Housing Group to undertake a Preliminary Risk Assessment for possible future re-development of the site at Downley Drive, Manchester, M4 7JU.

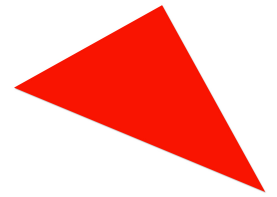
The purpose of the report is to identify possible constraints to the proposed development, and to provide appropriate information to form part of any future planning submission. Based upon an assessment of the available information and development of the conceptual site model, it is considered likely that potential pollution linkages may be relevant to the site which require further investigation and assessment. In addition to identified sources (former on site Engineering works, as well as relatively nearby sawmills/yards and other industrial works) there may be minor localised areas of contamination present as a result of unidentified uses of the site. However, the overall assessment at this stage is that the risk of significant contamination being present on site is regarded as being generally low to moderate.

5.2 Recommendations

In-Ground Contamination

An intrusive ground investigation is recommended to interrogate 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 and PAH should be undertaken as well as screening for asbestos. This should be sufficient to confirm or otherwise the presence of contamination levels on site.

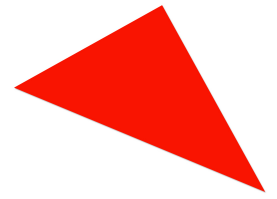


Ground Gases

As no potential sources of gas (landfills, infilled ground) existing within 250m of site gas monitoring is not required.

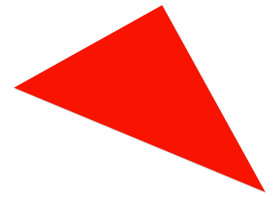
SIGNED

DAVID MIDDLETON
CARLEY DAINES AND PARTNERS LIMITED



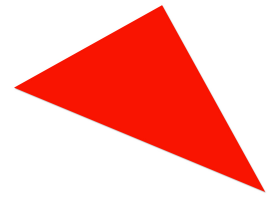
APPENDIX A

SITE PLANS



APPENDIX B

ENVIROCHECK REPORT



APPENDIX C

COAL AUTHORITY