S PEMBERTON

for

ERECTION OF TWO DWELLINGS

at

PARK HOLLOW
BARNSLEY

PHASE 1 CONTAMINATION REPORT

mda ARCHITECTS
MORETON DEAKIN ASSOCIATES

The Turret
Valley Road
Hebden Bridge
HX7 7BZ

OCTOBER 2014

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1. INTRODUCTION

1.1 General:

Moreton-Deakin Associates Geotechnical Consultants Ltd were instructed by Mr S Pemberton under his letter dated June 2014 to undertake a Phase 1 Desk Study pertaining to the development of land located at Park Hollow, Barnsley.

1.2 Form of Development:

It is understood that the proposed development is to comprise the erection of two dwellings.

1.3 Scope of Work:

The work is to comprise a desk study of environmental factors pertaining to the plot, including a site walk over survey, a review of available historical maps, an assessment of the published geology, and assessment of statutory authority records and an examination of other sources of geo-environmental information.

1.4 Conditions:

The data collected from the study has been used to provide an interpretation of the geo-environmental conditions pertaining to the plot. The recommendations and opinions expressed in this report are based on the data obtained. Moreton-Deakin Associates take no responsibility for conditions that either have not been revealed in the available records. Whilst every effort has been made to interpret the conditions, such information is only indicative and liability cannot be accepted for its accuracy.

Information contained in this report is intended for use of the Client, and Moreton-Deakin Associates can take no responsibility for the use of this information by any third party for the uses other than described in this report. Moreton-Deakin Associates do not indemnify any third parties such as the vendor against any dispute or claim arising from any finding or result of this desk study or any claim or dispute arising as a result of any decisions made thereof..

2. DESK STUDY

2.1 Site Walkover Survey:

The study area comprises existing land set in a mixed use area several miles from Barnsley town centre. The site has various residential properties in the immediate vicinity, and a canal to the rear (elevated and drained).

2.2 Geology:

The local British Geological Survey sheet indicates that the geology below the site comprises Namurian (Millstone Grit Series), commonly known as Millstone Grit or Gritstone.

2.3 Hydrogeology:

The underlying Namurian Gritstone is classified as a Minor Aquifer (Variably Permeable). Although not producing large quantities of water for abstraction it is important for local supplies.

According to the Envirocheck Report (Appendix A) the nearest water abstraction are farms further up the hillside.

2.4 Hydrology:

The general quality assessment indicates that the water quality is Category A. The plot does not lie within a flood plain.

2.5 Radon Gas:

The Envirocheck Report (Appendix A) indicates that less than 1% of homes in the area are above the Action Level and that no radon protective measures are required for this plot. Since it is not filled ground, further investigation is considered not essential.

2.6 Environmental Data:

With reference to the Envirocheck Report (Appendix A), no reported pollution incidents to controlled waters have occurred in the vicinity of the site. No discharge consents, radioactive substances or local businesses identified within the immediate vicinity are considered likely to have significantly impacted on the environmental conditions of the site.
The Envirocheck Report records no registered landfill site within a distance of 1000m of the site.

2.7 Geotechnical Data:

The site lies within an area that is considered as unlikely to be affected by coal extraction activities. The BGS attribute a moderate risk to compressible ground, together with no risk with respect to ground dissolution, a low to moderate risk with respect to landslip (this classification does not take into account local variations in topography that may increase the risk) and no risk concerning shrinkage and swelling clays. No other geotechnical hazards are identified locally. Due to the site topography, the risk of landslip is not considered to be high. I would advise no further investigation necessary.

2.8 Historical Maps.

A summary of the apparent key features noted on the map extracts both on the site and within the local area is presented in the following tables:-

Date	On site	Adjacent Area
1894	Erection of original premises on adjacent sites. Canal to boundary.	The surrounding area is relatively undeveloped with a hamlet to the east known as Wombwell. The site is bounded by fields. Residential properties are located along the main road some 100 yards away.
1907	No discernible changes.	
1919	No discernible changes.	
1933	Buildings demolished.	Surrounding village development at various stages.
1980's	Residential properties erected in immediate vicinity.	

The site has no history of previous development, which would suggest the site is free of industrial contaminants.

2.9 Land Gases:

Information obtained from the Envirocheck Report indicates there are no operational or closed landfill sites within a distance of 425m of the plot. The British Geological Survey published geology does not suggest that any shallow coal workings are present. It is considered therefore, that the plot is at very low risk from migration of land gases although gases may be present in the material deposited on the fluvial flood plain.

3. ENVIRONMENTAL CONSIDERATIONS

3.1 Risk Assessment:

The liabilities that can be incurred by owners of contaminated land are defined in Section 57 of the Environment Act 1995, the Section coming into force in April 2000. This part of the Environment Act provides a new definition of "contaminated land", which is to be determined by a procedure of risk assessment. According to the Act, "contaminated land" is defined as that which is in such a condition that:-

* Significant harm is being caused or there is significant possibility of such harm being caused.
  or,
* Pollution of controlled waters is being, or is likely to be caused.

Harm is defined in the following terms:-

* Chronic or toxic effect, serious injury or death to humans.

* Irreversible or other adverse harm to the ecological system.

  Substantial damage to/or failure of buildings.

* Disease or physical damage to livestock or crops.

* Pollution of controlled waters (Section 104 of Water Resources Act 1991) defines controlled waters as "any waters contained in *underground strata*" as well as *surface waters*.

The possible risks associated with the "contamination" on the site have been assessed , following an SPR (source-pathway-receptor) approach in accordance with current UK legislation and other international protocols, where:-

* A contaminant is a hazardous substance or agent that has the potential to cause harm or damage to a receptor.

* A pathway is the means by or through which a contaminant comes into contact with, or otherwise affects the receptor.

* A receptor is an entity (human being, aquatic environment, flora and fauna etc) that is vulnerable to the adverse effects of the contaminant.

This relationship is termed a "pollution linkage". It should be recognised that for a health or environmental risk to exist, all three elements of the relationship must be present, i.e.:-

* If there is no contaminant there can be no adverse affect on the receptor.

* If there is nothing that can be adversely affected by the contaminant, no harm or damage can arise.

* Even where both a contaminant and a receptor are present, no harm or damage will occur if there is no pathway by or through which contact between the two can be established.

There is no indication of any industrial development of the plot at any time in the past, and therefore the possibility of any contamination existing on the site is considered LOW.

There are a number of possible pathways on the plot, and to a lesser extent, groundwater flow, which is unknown at this stage of the investigation. However, there is no indication from the desk study that the plot is at risk from any possible sources of serious contamination, or has been substantially contaminated in the past. For that reason it is considered that the risk to humans or to the ecological system is considered to be LOW. It is the recommendation of this report that some chemical analyses are undertaken on samples collected during any proposed site investigation as detailed in the following paragraphs.

3.2 Soil Contamination vs. Site Workers/General Public:

Indeed, the greatest risk is to construction workers and the general public during construction works, to mitigate this risk, which is considered to be LOW, effective dust suppression measures can be employed, e.g:-

* Water spraying in dry conditions.

* Sheeting of lorries transporting site soil.
  In addition, the wearing of overall, boots and gloves should be compulsory; smoking, eating and drinking should be restricted to welfare facilities.

3.3 Soil Contamination vs. End Users:

Given the proposed residential end use of the site, soil samples could be tested for basic general chemical screening, including common zootoxic and phytotoxic elements.

3.4 Soil Contamination vs. Soft Landscaping (Phytotoxic Effects:

Arsenic, Copper, Nickel, Zinc and Boron are phytotoxic elements that might be hazardous to plant growth, the presence or otherwise of these can only be ascertained by chemical testing.

3.5 Soil Contamination vs. Building Materials:

Recommendations with respect of Sulphate and buried concrete are given in BRE Special Digest 1. Testing should include total and soluble Sulphates (S0) and ph values.

3.6 Controlled Waters:

During construction, there is the possibility of spillages occurring, examples include, fuel spillages or failure of hydraulic hoses. This risk is considered to be LOW to MEDIUM and strategies should be in place to deal with incidents. Spill kits are available to deal with such events and any contaminated soil should be removed and disposed of at a licensed tip.

3.7 General:

Site workers should remain vigilant during any ground works, and any evidence of contamination should be reported to the Client who must act on this information. Risk assessments must take account of the possibility of a contaminant being encountered, even though no evidence for concern has been revealed to this study.