



Contaminated Land Phase One Desk Study for proposed conversion of a barn at Higher Gibfield Farm, Manchester Road, Burnley, BB11 5NS.

Prepared for

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Summary

This report consists of a phase one contaminated land desk study produced in support of planning application for a conversion of a barn at Higher Gibfield Farm, Manchester Road, Burnley, BB11 5NS into residential accommodation.

Following the site walkover and review of the available information it has been concluded that no contamination exists which poses a significant risk of significant harm to the identified receptors either on site or in the immediate vicinity and the site is considered safe and suitable for the intended use.

The report further recommends that a watching brief is maintained throughout the construction of the new dwellings and any signs of potential contamination found are fully investigated, with appropriate remedial action taken as necessary.



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Introduction

Martin Environmental Solutions has been commissioned, to carry out a phase one contaminated land desk study report in relation to a proposed residential development at Higher Gibfield Farm, Manchester Road, Burnley, BB11 5NS.

Aims and Objectives of the report

The aims and objectives of this report are as follows:

- Assess the likelihood of contamination affecting the site,
- Identify any likely receptors to be affected by the potential contamination,
- Identify the pathways by which the receptors will be exposed to any potential contamination,
- Identify any areas where further investigation will be required.

Scope of works

This report has been written in line with the 'BS 10175: 2011+A2: 2017 Investigation of potentially contaminated sites – Code of Practice' and Land Contamination Risk Management (LCRM).

The scope of this report covers the phase one desk study only. It will look at relevant information on: -

- the history of the site and surrounding area,
- the current use of the site and surrounding area,
- the geology and hydrogeology of the area,

A site walk-over survey has been undertaken in addition to consultations with the existing site owner, to identify any potential contamination issues.

Evaluation of the above information will be used to construct an initial conceptual model as appropriate, with the identification of any additional investigations that may be required.



The Site:

Site Address: Higher Gibfield Farm, Manchester Road, Burnley, BB11 5NS.

Grid reference: 383023; 429795

An aerial photograph of the site is included in Figure 1.

Current Site use:

The site currently consists of a large barn in significant disrepair, with concrete yard to the rear, east, and a paddock to the front (west) and side (South). The site covers an area of approx. 0.21ha with access of the main road to the west. The surrounding area is predominantly agricultural with the odd farm stead dotted around the area.

Research

Details of Research

This report has been based on information gathered from a number of reputable sources, covering details:

- on the historic and current use of the site,
- any known waste disposal activities in the area,
- any regulated industrial activities within the vicinity of the site including recorded industrial accidents,
- on the geology, hydrogeology, hydrology of the area,
- identification of any environmentally sensitive sites,
- any natural hazards.

Principle sources of this information have been:

- environmental data from Groundsure Limited
- the Local Planning Authority,
- historic maps (Groundsure Ltd),
- site walk-over survey and discussion with the current owners.



Site History

Information on the historic uses of the site has been obtained from historic mapping information (Appendix 2), and environmental data from Groundsure Limited.

Mapping Year	Changes on Site	Changes off Site
1846	The site forms part of a larger field	The area is predominantly agricultural. The main road runs in a north-south direction to the immediate west and a track runs along the northern boundary to the farmstead in the northeast called Gibfield. Another property lies to the northwest, Oaken Eaves and a third to the south along the main road, Higher Oaken Eaves. A sandstone quarry is located 500m due north, just off the main road and slightly further north a smithy.
1892	No Change	No significant changes, the quarry is no longer labelled and further 'old quarry' is shown 760m north of the site.
1910-12	No change	Gibfield is now Higher Gibfield and Lower Gibfield is shown 500m to the north. The original sand quarry is labelled again along with a further site slightly east approximately 500m northeast of the site. All of which are identified as 'old quarries'. A tank is shown approx. 650m east in a field and slightly to the south a Small Pox hospital
1929-31	No change	No significant changes. The residential area approx. 1Km to the north has been developed. There has been some expansion of the buildings to the south at Higher Oaken Eaves.
1950	No change	No significant changes
1960-61	No change	A tank is shown approx. 240m to the west of the site at Lower Oaken Eaves. This appears to be an above ground concrete structure,



		probably for a water supply given its shape and size (having experienced similar elsewhere).
1965	No change	The buildings at Higher Gibfield to the northeast appear to have altered. The smallpox hospital is no longer present. Electricity pylons are shown the nearest approx. 325m west of the site.
1974	No change	No significant changes
1988-89	No change	No significant changes
1993	No change	No significant changes
2001-03	The barn is shown on site, the boundary of the plot runs along the southern edge of the barn.	100m to the south another barn has also been built, consisting of a masonry lower wall and corrugated upper wall and roof. No other significant changes
2010-21	No change	No significant changes
Aerial Photographs	The barn is shown on site in 2000	Two new barns are erected at Higher Micklehurst Barn 400m to the southwest.



Regulatory Information

Relevant information obtained from the Groundsure report (Appendix 1) is summarised below.

No permitted activities have been identified within 500m of the site as defined in the Environmental Permitting (England and Wales) Regulations 2016 or previous legislation.

No pollution incidents have been identified in the surrounding area.

No discharge consents are reported in the area.

No landfill or other waste site record have been found in the area.

27 waste exemptions are reported. The nearest of these, 60m northeast are for the storage of sludge at a farm (presumably Higher Gibfield Farm). Another 18 are located at Higher Micklehurst Farm, 247m southwest involving deposit of dredging waste, burning waste in the open, use of waste in construction, spreading waste on agricultural land, use of waste for specific purpose. One at Lower Oaken Eaves Farm, 260m northwest for the storage of sludge, with more of the same at Walls Clough Farm, 399m east, Ivy House Farm, 421m east.

Given the distances and nature of the sites it is unlikely that the above sites will pose any risk to the development.

Only one current potentially contaminative sites have been identified, this being the tank at Lower Oaken Eaves Farm, 229m west of the site

This is unlikely to impact on the site.

No historical potentially contaminative land uses have been identified within 250m of the site from the purchased information. Further afield the sand quarries 416m north are identified.

Geology and Hydrogeology

Information from the British Geology Survey 1:50,000 mapping identifies the bedrock in the area as Old Lawrence Rock – Sandstone overlaid with Till, Devensian and Diamicton deposits.

The information obtained on the hydrogeology of the area identifies the site as having a Secondary A aquifer in the bedrock capable of supporting water supplies at a local



rather than strategic scale, and in some cases forming an important source of base flow to rivers, with a Secondary undifferentiated aquifer in the superficial layer.

One historic groundwater abstraction license has been identified 1975m northwest at Viktor Achter Ltd.

Five surface water abstraction licenses are identified, a historical license 389m west at Lower Oaken Eaves Farm for general farming and domestic use, 1089m east another historical license for spray irrigation and finally 1766m south an active license at Clowbridge Reservoir for United Utilities.

The site is not located within a Source Protection Zone.

The Groundwater vulnerability is described as low in all geological layers.

Hydrology

There are a number of watercourses surrounding the site, the nearest is 91m northeast forming part of the Long Syke watercourse.

The site is not within a floodplain, and the risk of flooding is classified as low.

Environmental Sensitivity

There are no Environmental Sensitive sites identified.

The property is in an area identified as having less than 1% of properties above the action level of 200 Becquerel's per cubic metre, based on specific property search. Radon protection measures are not required in line with BR211.

No additional natural hazards have been identified & the site has very low/negligible risk of shrink swell, running sand, and compressible ground.

There are no mining activities identified in the area.



Site Walkover

A site walkover was undertaken on the 25th October 2021 and confirmed much of what had already been identified from the information obtained on the site. The photographs in Appendix 3 provide some indication of the current layout and condition of the site.

The site is accessed from the main road via a shared track leading to Higher Gibfield Farm. The development site fronts onto the main road.

To the front, west of the site is an open paddock raised slightly from the road, this wraps around the building to the south where the ground is approx. 2m higher than the yard to the rear of the building. The base of the building being dug into the ground and the wall raised adjacent to it.

Along the northern boundary is the shared access road to the Higher Gibfield. This is a rough asphalt drive which extends slightly into the site and then meets a concrete base to the side of the building. This wraps around to the front and rear of the building forming the yard to the rear. An area of rough ground with some 'crush and run' material lies to the very rear of the site which has been used as a midden.

The rear of the building is intact and used as stables, consisting of a concrete floor, brick rendered walls and metal corrugated roof. To the northern end the room runs the full length of the building and the north eastern corner used as a tack room.

The main section of the main is partially open to the elements, consists of brick rendered walls, some metal supports to the roof, a concrete base covers the front half of the area and the roof is metal corrugated sheeting.

To the front another small brick enclosure containing a couple of pigs.

No signs of contamination, discoloration or olfactory evidence, dead or dying vegetation were seen during the walkover.

The current owners are unaware of any issues on site which could have led to contamination and the site has been used as a garden since the property was purchased.



Conclusions

Potential Contaminants

Following a review of the information gathered on the history of the site and the surrounding area and following the site walk-over survey there are no contaminants identified on or off site that are likely to present a significant possibility of significant harm to any identified receptor.

Receptors and Pathways

Potential receptors which may be affected by any unknown contamination on site will include:

- Construction workers who are likely to be affected by any potential contamination as they will initially be working in the ground and are likely to be the ones who unearth any potential contaminants.
- Future users of the site, including residents, staff and visitors to the site. For the purpose of evaluating any effects from any contamination found during any intrusive investigation future users/visitors to the site should be regarded as the 0-6-year-old female child.
- Any building on site e.g., foundations which may be attacked by any contaminants in the ground or services.
- The underlying groundwater which may be contaminated by migrating pollutants present on the site. There is also the potential for further pollution of the groundwater or the watercourse from disturbing any potential contaminants on site.

The pathways by which these receptors may be exposed to any unforeseen potential contamination will include:

Construction workers

- Inhalation, of gases or vapours released during ground work or fine particles.
- Ingestion of the contaminants, principally from cross contamination with contaminated soil and inadequate hand washing before smoking and eating.
- Absorption through the skin following contact with contaminated soil.



Future users and visitors

- Inhalations of gas/vapours or fibres, particularly if these are allowed to enter the new structures through the ground and build up in an enclosed area.
- Ingestion of contaminants, through the ingestion of contaminated soil from the garden area via direct contact, e.g., playing in the garden.
- Absorption of contaminants from dermal contact with contaminated soil.

Buildings

Contaminants on site have the potential to affect the foundations to the new building or the services supplying it.

Watercourses

As discussed above, if they exist on site, there is a potential for any contaminants to migrate through the ground into the groundwater and aquifer or via run-off into the watercourse.

Neighbouring sites

If present on site contaminants have the potential to migrate to neighbouring sites through ground water or air blown transfer.



Conceptual Model

The table represents a basic conceptual model. It highlights the potential sources of pollutants identified from the gathered information, and potential pathways in which any contaminants could reach the identified receptors.

Pathway	Description	Identified sources	Receptor at risk	Likelihood
1	Run off and seepage into groundwater from any spillages	-	Watercourse/ Environment	V. Low
2	Migration of gases into the building.	-	Future users	V. Low
3	Inhalation of gases/ vapours outside	-	Construction workers/future users	V. Low
4	Inhalation of fine particles	-	Construction workers/future users	V Low
5	Direct ingestion of contaminated soil	-	Construction workers	V Low
6	In-direct ingestion of contaminated soil	-	Future users	V Low
7	Absorption via direct dermal contact with contaminated soil	-	Construction workers/future users	V Low



Recommendations

As a result of the investigation into the historical use of the site and surrounding area no sources of contamination have been identified on or off site which present a significant possibility of significant harm to the any of the identified receptors, the site is therefore considered to be suitable for the intended use.

It is further recommended that a watching brief is maintained throughout the construction of the new building and any signs of potential contamination found are fully investigated, with appropriate remedial action taken as necessary and the local planning authority informed of the findings.



Figure 1 – Aerial Photograph





Appendix 1 – Groundsure Data



Appendix 2 – Historical Mapping

Appendix 3 – Site Walkover Photographs

The access from the main road and shared drive.





The paddock







The rear yard, and drop from the paddock.









The front of the building with the pigs.





The stables to the rear and tack room







Inside the front of the building









Appendix 4 Report limitations and exclusions

Basis of Risk Assessment

The methods used follow a risk-based approach with the potential risk assessed using the 'Source – pathway – receptor pollution linkage concept.

Limitations and Exceptions of this Report

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This report is prepared and written in the context of the purposes stated above and should not be used in a different context. Furthermore, new information, improved practices and legislation may necessitate an alteration to this report in whole or in part after its submission.

The conclusions and recommendations of this report are based on the development described, for any other development the report may require revision.

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The report should be read in its entirety, including all associated drawings and appendices.

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This report does not comprise a geotechnical assessment of the strata underlying the site.

Any borehole data from the British Geological Survey sources is included on the following basis: 'The British Geological Survey accept no responsibility for omissions or misinterpretations of the data from their Data Bank as this may be old or obtained from non-BGS sources and may not represent current interpretation'.

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Any risks identified in a Phase I Desk Study Report are perceived risks. Actual risks can only be assessed following a physical investigation of the site.

The findings of this report are based on finite information obtained from research and consultations. Martin Environmental Solutions cannot guarantee the reliability of all such information and the searches should not be considered exhaustive. The findings of the report may need to be reviewed as any future exploratory investigations progress and in the event that additional archive information becomes available.

Notwithstanding the findings of this study (and any subsequent investigations), if any indication of contaminated soil (visual or olfactory) is encountered at any stage of the development further investigation may be required.



Arboricultural Survey and advice on arboricultural issues are considered to be outside the scope of this report except for their effect on the foundations to the proposed buildings.

Where identification of any species is made, especially invasive plants such as Japanese Knotweed, Himalayan Balsam or Giant Hogweed, this should only be considered as a preliminary assessment and subject to confirmation by a professional Arboriculturist. Martin Environmental Solutions takes no responsibility for failing to identify, or the incorrect identification of, any tree or plant species on site.

Our investigations exclude surveys to identify the presence or indeed absence of asbestos in buildings/infrastructure on site. If asbestos is suspected to be present, we recommend specialists in the identification and control / disposal of asbestos are appointed prior to commencement of any works on site or, if appropriate, purchase of the site. The presence of asbestos on site may have considerable effects on the cost / timescale in developing the site. There is good guidance in relation to Asbestos available on the Health and Safety Executive (HSE) web site.

Whilst a site walkover has been undertaken as part of this report, the survey does not constitute either an asbestos or structural survey and all areas of the site may not have been visited / inspected.