



Contaminated Land Phase One Desk Study for Land off Dock Road, Lytham St Annes, FY8 5FG.

Prepared for

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Summary

This report consists of a phase one contaminated land desk study produced for the land at Dock Road, Lytham St Annes, FY8 5FG.

Following the site walkover and review of the available information it has been concluded that the historical use of the site and surrounding area suggests contamination may exist on site. It has been identified that the site has had a number of historic industrial land uses and neighbouring sites have identified ground gas. However, given the nature of the development the risk posed is considered minimal and the source-pathway-receptor pollutant linkages can easily be prevented.

It is therefore recommended that gas protection measures are incorporated into the design of the building in the form of a gas protection membrane. A phase II investigation to ascertain what if any contamination exists within the made ground should be undertaken.



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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 site to the north of Dock Road, Lytham St Annes, FY8 5FG, to satisfy condition 5 on planning permission 20/0573 granted by Fylde Borough Council on 20th November 2020.

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) which has recently replaced 'The Model Procedures for the Management of Land Contamination, CLR11'.

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: Land north of Dock Road, Lytham St Annes, FY8 5FG.

Grid reference: 338060; 427622

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

Current Site use:

The site currently an open piece of waste land, evidence of former structures on the site are present. To the west are new residential properties, to the east a commercial unit. To the north a tributary to the River Ribble estuary and to the south beyond dock road more residential housing. The site covers an area of approximately 0.15ha. the intended development is commercial.

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
1847	The site forms part of the banking along the river/a larger field	The area is predominantly agricultural. Graving Dock is located to the west ~45m away along the tributary and Lytham Dock to the northwest. The river and estuary are to the south. A railway line runs to the north terminating at Lytham in the west. The nearest properties are at Saltcoates some 500m north of the site.
1891-92	The site has been developed and forms part of a larger Ship building yard site stretching east. A travelling crane is shown running north-south across the site. A long slim building runs along the road to the south of the site. An additional 'L' shaped building is located to the west, a small section is shown encroaching on to the site.	Gravel Dock is now identified as 'old' A pond is shown to the north ~150m and a property has been built, with a pond to the west 250m Further to the west Lytham is developing and a Hospital is located 500m from the site between the two. Still present today as a primary care centre. The railway now continues on to St Annes, the station is still the end of the line.
1909-11	Additional structures are shown on the site which still forms part of the ship building yard.	The site to the immediate west is identified as a laundry. A tank and chimney are shown along the road to the centre of the long building. An extension has been built to the far end and another building opposite. A refuse destructor and sewage works are located to the north on the far side of the tributary, 100m away Additional residential dwellings are shown 250m to the west. Lytham continues to expand. A rifle range is shown 750m east.
1930-32	No changes on site, with the exception of the tramway linking all buildings forming part of the larger site.	A disused Aerodrome is shown to the southwest, now housing. Saltcoates has started to expand to the north.

		<p>To the south of the site the Ship yard has expanded and additional buildings are shown with a tramway linking them together. 80m away a reservoir is present.</p> <p>More residential dwellings are shown along Dock Road to the west.</p>
1938	No changes	<p>Lytham has expanded</p> <p>A bakery is shown to the southwest 500m away.</p>
1951	No changes	No significant changes
1965-69	The site has been redeveloped and is shown as an engineering works	<p>The boat yard is only present to the far east with the majority of the buildings having been demolished and converted into engineering works. The reservoir has been built over.</p> <p>In addition to the works an iron works is located to the southwest and a builder's yard to the south ~80m and joinery to the west opposite the housing on dock Road.</p> <p>The laundry building is also an engineering works and these extend south and east along the river towards Lytham.</p> <p>By 1967 a garage is shown at the western end of Dock Road.</p> <p>On the far side of the tributary over 500m away are a chemical works and more engineering works and a garage.</p> <p>A publication depot is also shown adjacent to the garage.</p> <p>A refuse tip is shown on the edge of the river past the sewage works.</p>
1971-78	No change	No significant changes
1989	The site is shown as works	<p>Most of the former engineering works are identified as either 'works' or 'depots' a motive power museum is located to the southeast of the site. Small industrial units/estate are shown to the south ~200m away.</p>



1993	No change	No significant changes the opposite to the south has been redeveloped into small industrial units.
2001-present	By 2003 the site has been cleared	No other significant changes are shown on the mapping until 2010 when the surrounding industrial estate to the south and west is redeveloped into a housing estate.
Aerial photography	The site remains empty.	By 2005 the site to the far south has been cleared and by 2010 housing is present. By 2015 the site to the immediate west has been cleared and redeveloped into housing. Additional housing has also been built to the immediate south and the site to the east has been cleared. By 2017 this is redeveloped.



Regulatory Information

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

Three permitted activities have been identified within 500m of the site as defined in the Environmental Permitting (England and Wales) Regulations 2016 or previous legislation. These consist of a revoked dry cleaner located 58m east of the site, Lytham Service Station 263m north and a historic metal coating process 465m north.

Five pollution incidents have been identified in the surrounding area, incurring between July 2001 (Cutting oils minor impact on land) located 149m east to September 2003 (smoke) 418m southwest. The other three sites all involved waste and occurred 124m north with a minor impact to land, 231m east significant impact to land from inert construction waste and 246m southeast minor impact on land from construction wastes.

Four discharge consents are reported, all linked to sewer storm overflow from United Utilities Lytham pumping station, two located 272m east at Luggard Brook, and two at 284m east.

The above identified sites are unlikely to impact on the development site.

No current landfill site records have been found in the area; five historic records have been identified located

- 111m northeast in 1964 – refuse tip
- 325m south in 1984 – refuse tip
- 38m north Lytham pumping station accepting household waste in 1950-55 (the above refuse tip)
- 57m west between 1977-1991 inert waste at Sadlers Dock Rd
- 311m south between 1981-1990 inert waste at Cookson's Bakery, Preston Road

Additional historic waste sites have been identified;

- 76m north the refuse destructor 1909-1951
- 89m south a scrap yard in 1989



20 waste exemptions have been identified within 250m covering two sites. The first 223m east for the storage of waste on Dock Road. The second 225m west at VolkerStevin for the storage, treatment and disposal of waste.

18 current potentially contaminative sites have been identified within 250m of the site. These consist of;

- Animal feeds – adjacent unit to the east & 102m south
- A telecommunications mast 16m south, 114m northeast
- Industrial units 30m east
- Electricity Substations 56, west, 95m east, 135m & 204m north
- Vehicle components Value engineering, design.
- Tanks 115m north (sewage works)
- Pumping station 125m north
- Moorings 184m southeast
- Second hand vehicles and vehicle repairs 186/191m north
- Petrol station 293m north
- The railway cuttings to the north

These are unlikely to impact on the site.

Historical potentially contaminative land uses have been identified within 250m of the site from the purchased information; most of these have been identified from the historical mapping and include:

The ship building and tramway on site and to the east and south

The laundry to the west

Unspecified works to the south (now housing), east and west

Refuse destructor 75m north

The garages to the north and west



Geology and Hydrogeology

Information from the British Geology Survey 1:50,000 mapping identifies the bedrock in the area as Singleton Mudstone Member overlaid with Tidal Flat Deposits of clay and silt deposit.

The information obtained on the hydrogeology of the area identifies the site as having a Secondary B aquifer in the bedrock may store/yield limited amounts of groundwater due to localised features such as fissures, with an unproductive aquifer in the superficial layer.

The only groundwater abstraction license identified is located 1179m northwest at Lytham Green Drive Golf Club for the use of spray irrigation.

Two surface water abstraction licenses are identified, both are historical and were for the use of water as spray irrigation. They were located 1725m & 1985m northeast.

The site is not located within a Source Protection Zone.

The Groundwater vulnerability is described as low in the bedrock geology, and unproductive in the superficial.

Hydrology

There are a number of watercourses surrounding the site, to the immediate north of the site is the tributary into the River Ribble Estuary which is located east and south of the site.

The site is on the edge of a floodplain, however due to defences present the majority of the site is considered to be at low risk from flooding. It is however within a Zone 3 Flood zone.

Environmental Sensitivity

A number of Environmental Sensitivity sites are identified within 2000m of the site. These include five Sites of Special Scientific Interest (SSSI). Consisting of the Ribble Estuary located 196m southeast and the Lytham Coastal Changes 378m northeast. The above sites are also recognized as Conserved wetland sites, Special Protection Areas (SPA) and National Nature Reserves (387m east). The Ribble Estuary is also identified as a Marine Conservation Zone (8m away).

In addition, the Blackpool Greenbelt is located 225m southeast and the Liverpool and Manchester Greenbelt 1766m south.



The site has the potential to impact on the nearby Ribble Estuary site.

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.

Additional natural hazards have been identified on the site as very low/negligible risk of shrink swell, and a potential moderate risk for compressible ground and running sand.

There is no historic or current mining activities in the area.



Site Walkover

A site walkover was undertaken on the 13th January 2021, and confirmed much of what had already been identified from the purchased information. 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 to the south of the site, the site is fairly levels with some hardstanding across it. Evidence of the former buildings is present in places and it is slightly overgrown. There was one pile of inert waste on the site.

To the west were new residential properties and to the east the Tangerine holdings site.

There was no sign, visual or olfactory contamination of any distressed, or dying vegetation or other contamination sources identified during the walkover survey.

Previous desk study reports.

Previous desk studies have been undertaken for a larger area including the proposed site. These were undertaken on behalf of Kensington Developments for a number of planning applications for residential developments in the area including the site in question. The report identifies that a nearby development found ground gas and suggested gas protection measure be incorporated into the design of any buildings. In addition, made ground was identified on site and so the potential for contamination was identified.



Conclusions

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.

Given the historic uses of the site it is possible that contamination is present, in addition neighbouring developments have identified the presence for ground gas and have incorporated gas protection measures.

The proposed development will consist of industrial units, with no direct contact between the occupants and the ground. Therefore, the Source-Pathway-Receptor linkage will not be present for many of the potential contaminants.

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 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 adults.
- 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 landscaping areas.
- 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, there is a potential for any contaminants to migrate through the ground into the groundwater and aquifer or via run-off into the watercourse.



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	Made ground,	Watercourse/ Environment	Low
2	Migration of gases into the building.	Ground gas	Future users	Medium
3	Inhalation of gases/ vapours outside	-	Construction workers/future users	V. low
4	Inhalation of fine particles	Made ground,	Construction workers	Low
5	Direct ingestion of contaminated soil	Made ground,	Construction workers	Low
6	In-direct ingestion of contaminated soil	Made Ground,	Future users	V. Low
7	Absorption via direct dermal contact with contaminated soil	Made ground,	Construction workers	Low



Recommendations

As a result of the investigation into the historical use of the site and surrounding area it has been identified that the site has had a number of historic industrial land uses and neighbouring sites have identified ground gas. However, given the nature of the development the risk posed is considered minimal and the source-pathway-receptor pollutant linkages can easily be prevented.

It is therefore recommended that gas protection measures are incorporated into the design of the building in the form of a gas protection membrane. A further phase II investigation should be undertaken to ascertain what if any contaminants are present in the made ground.

Given the historical nature of the site it is suggested representative soil samples are taken across the site and analysed for a suite of heavy metals, petroleum hydrocarbons, Polyaromatic Hydrocarbons and asbestos.

Figure 1 - Aerial Photograph





Appendix 1 – Groundsure Data



Appendix 2 – Historic Maps

Appendix 3 – Walkover Photographs

The southern boundary with the road looking east then west



The western boundary looking north and south



The eastern boundary looking north and south



The northern boundary looking east and west



Looking across the site from the south to the northeast corner



Looking across the site to the east



A view from the northwest corner across the site to the southeast



Northeast corner to southwest corner





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.