
Phase I Desk Study & site reconnaissance Report

at 52 – 56 Ferring Street,
Ferring, West Sussex

for EB Developments Ltd

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EXECUTIVE SUMMARY

The site is located at 52 – 56 Ferring Street, Ferring, West Sussex and is currently occupied by a commercial unit used for double glazing sales with a 3 bedroom residential flat at first floor. It is proposed to redevelop the site with three commercial units on the ground floor and six flats across the ground, first and second floors.

The site is located within a mixed residential and commercial area and prior to the current site use the site was a post office. There are records of a petrol filling station adjoining the site to the south, which has since been redeveloped with a shop which is no longer present however there is a maintenance garage to the south east of the site.

It appears as though the fuel tanks associated with the former petrol filling station adjoining the site, are still present beneath hardstanding, otherwise, the site walkover did not identify any obvious sources of soil contamination on site or in the immediate vicinity around the site. There are no landfills located within a 500m radius of the site.

The site is mapped as being underlain by River Terrace Deposits (Secondary A Aquifer) over New Pit Chalk (Principal Aquifer). The site is not located within a groundwater source protection zone. There are no surface water features on site or within the vicinity.

The risk to the site with regard to contaminated land is assessed as being **low to moderate**. Recommendations are given for an intrusive investigation to assess the impact, if any from the adjacent garage and petrol filling station.

This report has been prepared by Leap Environmental Ltd on the basis of information received from a variety of sources which Leap Environmental Ltd believes to be accurate. Nevertheless, Leap Environmental Ltd cannot and does not guarantee the authenticity or reliability of the information it has obtained from others.

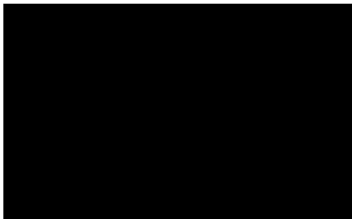
Leap Environmental Ltd has used all reasonable skill, care and diligence in the design and execution of this report, taking into account the manpower and resources devoted to it in agreement with the Client. Although every reasonable effort has been made to obtain all relevant information, all potential contamination, environmental constraints or liabilities associated with the site may not necessarily have been revealed.

The conclusions reached in this report are necessarily restricted to those which can be determined from the information consulted, and may be subject to amendment in the light of additional information becoming available. These conclusions may not be appropriate for alternative schemes.

This report is confidential to the Client, and Leap Environmental Ltd accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made



known, unless formally agreed by Leap Environmental Ltd beforehand. Any such party relies upon the report at their own risk.

Signed :	 Sarah Cook MSci
Countersigned :	 Helen Smith MSc CGeol DIC SiLC
Date :	20 June 2014
Revision:	Issue 1

A INTRODUCTION

1 Authority

Leap Environmental Ltd (hereafter referred to as LEAP) has been appointed by EB Developments Ltd to undertake a Phase I Desk Study of a site at 52 – 56 Ferring Street, Ferring, West Sussex. The instruction was given in an email dated 5th June 2014 from Emma Griffin of ECE Planning Ltd.

2 Objective

The site is currently occupied by a commercial unit and it is proposed to redevelop the site with a 2 storey mixed commercial and residential dwellings as per the attached layout drawing copied in Figure 1.

The objectives of this report are to:

- Provide information on the environmental quality of the ground present on the site and
- Assess the potential health and other environmental risks posed by the site to the proposed development and other specifically identified receptors and
- Assess the potential for offsite contamination to adversely affect the proposed development.

3 Scope of Works

This report describes a single stage process whereby the site is investigated and risks assessed.

3.1 Phase I Scope

The first part of this report presents the results of a desk study and site reconnaissance. The following sources of information have been reviewed also:

- Envirocheck database report
- Envirocheck Historical map Search
- Interrogation of the World Wide Web on 11/06/2014 for general information pertaining to the site history

- Interrogation of Arun District Council Planning records for the site

A site reconnaissance was carried out on 9/06/2014.

The desk study and site reconnaissance have been used to develop an initial conceptual site model which has in itself been used to develop a strategy for an intrusive investigation. The initial site conceptual model is used to identify geotechnical and geoenvironmental hazards and the qualitative degree of risk associated with them. In terms of the geoenvironmental assessment the conceptual site model is used to identify potential sources of contamination, potential receptors, and pathways by which the two may be connected. These are known as possible pollutant linkages and it is these pollutant linkages that are key to contaminated land risk assessment.

The Phase I investigation is also referred to as a Preliminary Investigation¹.

¹ BS 10175:2011 Investigation of Potentially Contaminated Sites – Code of Practice.

B PHASE I – DESK STUDY

4 Environmental Setting

4.1 Site Location and Description

The site is located on the eastern side of Ferring Street in the centre of Ferring, West Sussex. The approximate National Grid Reference of the site is 509500, 102850.

The site, which is roughly rectangular is approximately 0.04 hectares in size and comprises a commercial property ‘Newview Windows and Conservatories’, with outdoor storage space, used for storing windows, at the rear. There is a 3 bedroom residential flat on the first floor.

The site is part of a row of commercial properties along Ferring Street, and is bounded by a restaurant to the north, and a plumbing and heating centre to the south, with a garage building to the south east, to the rear of the heating centre. The Village Green is located to the west of the site on the western side of Ferring Street.

The site and surrounding area are relatively flat. There is no vegetation located on the site. The adjacent site to the south appears to have a number of manhole covers within the parking area typical of a petrol filling station.

4.2 Geology

The geology of the site has been ascertained by reference to the 1:50,000 British Geological Survey sheet 318/333, solid and drift edition. The site is mapped as being underlain by River Terrace Gravels over New Pit Chalk Formation.

4.2.1 River Terrace Gravels

A series of River Terrace Deposits were laid down during the Quaternary Period. The deposits are those of a braided river system and generally comprise a sheet of variably graded sand and gravel, with local lenses of silts/clays and peats. The Terrace Gravels are usually classified by the Environment Agency as a Secondary Aquifer.

4.2.2 New Pit Chalk Formation

A blocky white firm to moderately hard chalk with numerous marl seams. Sporadic Flint seams in the upper part.

Chalk is a very fine grained white limestone. It consists predominantly of the disaggregated skeletal remains of tiny planktonic algae, composed of almost pure calcium carbonate. Layers of flint are common within the Upper Chalk. Flint is composed of silica derived from the dissolved skeletons of siliceous sponges and microfossils.

The White Chalk is a Major Aquifer in SE England.

Chalk is particularly affected by its weathering, particularly the affects of dissolution. The top surface of the chalk is usually irregular and may be include deep drift filled solution pipes for example. Chalk is also susceptible to frost action.

4.3 Hydrogeology

The Hydrogeology of the site has been ascertained from the Envirocheck data report. The source of the data is reported to be the Environment Agency Groundwater Vulnerability mapping.

The superficial soils which underlie the site are classified as a Secondary A Aquifer over the chalk a Principal Aquifer.

The site is situated is not located within a Groundwater Source Protection Zone (SPZ). The abstraction borehole is situated 922m north west of the subject site and is used for general farming and domestic supply.

4.4 Surface Water Resources

There are no surface water features within the site or adjoining the site boundary. The closest surface water feature to the site is a drainage ditch behind the residential properties on 'Meadow Bank', 250m west of the site. This drain flows into 'Ferring Rife', which in turn flows into the sea, which is 1.3km to the south of the site.

According to the Environment Agency website, the site is not situated within an area that has a significant chance of flooding.

4.5 Ecology

The South Downs National Park is located 775m north of the site.

5 Site Usage

5.1 Current Land Use

The site is currently occupied by a windows and conservatories company with a residential flat on the first floor. There was no evidence that manufacturing of the products takes place on site. The Envirocheck lists four active industrial land uses within 250m of the site and these include a garage, tyre dealers and printers.

5.2 Evidence of Onsite Contamination

A walkover survey was carried out on 09/06/2014. There were no obvious signs of contamination on site or in the surrounding area.

5.3 Neighbouring Land Use

The site is located in a mixed residential and commercial area. There are shops to the north and south of the site with warehouse buildings to the south east of the site behind the shops. These form part of Northbrook College and a garage.

5.4 Site History

The History of the site has been ascertained with reference to the Ordnance Survey Historical maps,

5.4.1 Historical Map Evidence

Historical maps have been studied as follows:

1879, 1899, 1913-1914, 1933 and 1938 - 1943 at 1:10,560 scale

1962, 1969, 1979, 1992, 2006 and 2014 at 1:10,000 scale

1876, 1898, 1911, 1932, 1960, 1972 and 1994 at 1:2,500 scale

1875 – 1876 – 1:2,500

The site is located within a field with a road, running north south to the west of the site. There is a school located 50m south west of the site and a pond located 40m to the north of the site.

1898 – 1:2,500

There have been no changes to the site. Some residential development has occurred to the north and south of the site along the road. There are two wells shown 70m North West of the site.

1911 – 1:2,500

There have been no significant changes to the site or surrounding area.

1932 – 1:2,500

The site has a building located on the western end of the site and is marked as the post office. Buildings are shown immediately to the north and south of the site and there has been further residential development to the south of the site.

1960 – 1:2,500

There have been no changes to the site. The building off site to the south is now shown as a garage. There has been significant development surrounding the site. The pond to the north is no longer shown. A tank is marked 110m south of the site.

1970 – 1:2,500

The site is now labelled as 52- 56 (Ferring Street). There are two garages marked to the south of the site. There is a printing works 50m north east of the site and a builders yard

immediately beyond the printing works to the north east. The tank to the south is no longer shown.

1994 – 1:2,500

The site remains unchanged. The garages to the south are still shown. The printing works and builder's yard to the north east have been redeveloped with housing.

5.4.2 Other Evidence

A search of Arun District Council website found planning applications relating to the adjacent garage at 50 Ferring Street. Detailed information on applications pre-1987 was not available however the following applications have been made which may be significant for the subject site.

Summary of Planning Records

Year	Planning Reference	Description	Status/ notes
1955	FG/126/55	Canopy over Petrol Pumps	Application Permitted
1959	FG/176/59	Extension of pump island and installation of petrol storage tanks	Application Permitted
1971	FG/6/71	Forecourt Improvements to existing filling station	Application Permitted
1978	FG/45/78	Proposed fuel storage tank for garage showroom	Application Permitted
1981	FG/69/81	Proposed installation of new petrol pumps and additional petrol storage tanks	Application Permitted
2009	FG/26/10	Change of use from large vehicle maintenance to training centre for Northbrook College.	Application Permitted

5.5 Waste Planning and Landfill Records

There are no current or historic landfills within a 1 km radius of the site.

5.6 Other Regulatory Records

There are no records of pollution incidents within a 500m radius of the site.

5.7 Fuel Storage

There are no current records of fuel storage on site or within the local area however a search of the Arun District Council website indicated the former petrol filling station to the south of the site had underground fuel storage tanks.

5.8 Radon

According to the Envirocheck database search and the BRE report “Radon: Guidance on protective measures for new buildings” 2007 edition, the site is in an area where 1 – 3% of homes are above the action level however no special protective measures are required in the construction of buildings on this site, in respect of radon gas.

C PRELIMINARY CONCEPTUAL SITE MODEL

6 Environmental Risk Assessment

6.1 Conceptual Site Model

A risk based approach is used to assess contaminated or potentially contaminated land within the UK. For a potential risk to exist then there must be in place a pollutant linkage. I.e. there must be a source of contamination, a potential receptor and a pathway linking the two.

In order to quantify the magnitude of the risk then it is necessary to first calculate the potential exposure of the receptor as a result of all the individual active pollutant linkages affecting that receptor. Secondly it is necessary to ascertain “what is an acceptable exposure level for each of the identified receptors and contaminants?”.

The purpose of the Conceptual Site Model, in this instance, is to identify all of the potential pollutant linkages, by considering in turn, the potential sources, receptors and pathways.

6.2 Sources

The site is used as a double glazing sales room and there is no evidence of manufacturing of the products on site. The site has a history of use as a post office prior to its current use therefore there is limited contaminants of concern for the site which are limited to any made ground present beneath hardstanding in the storage areas.

6.2.1 Offsite Sources

The desk study has highlighted the following potential off site sources of contamination:

Table 1: Offsite sources of contamination

Source	Distance from Site (m)	Contaminants of Concern
Former Garage and Petrol filling station	0 - South	Heavy metals, Petroleum hydrocarbons, polycyclic aromatic hydrocarbons
Printers	80 – North	Heavy metals, PAH VOC, SVOC

The historic maps and planning records indicate the site to the south has been used as a petrol filling station and garage workshop. There is a record of a printers 91m north east the remaining commercial land uses within 250m of the site are mainly retail premises.

6.3 Receptors

Potential receptors are those which may be impacted by any of the contaminants of concern identified above, and include the following:-

- Future residents and construction workers
- Groundwater – Secondary A Aquifer overlying Principal Aquifer
- Material construction of buildings and infrastructure

6.4 Pathways and Potential Pollutant Linkages

The development will include commercial properties at ground level, with the majority of the open space remaining as hard standing however there is some planting indicated on the proposed layout. All potential pollutant linkages involving resident humans and soil contaminants will be active i.e. direct ingestion of soil, ingestion of soil attached to plants as well as via plant uptake, inhalation of indoor and outdoor vapour and of dust tracked back into the house and finally ingestion of water carried by plastic water pipes through contaminated ground.

Ground workers are at risk as a result from all of the above except for those involving edible plants.

The site is underlain by a principal aquifer of high leaching potential. Hence there is a potential pathway for leachate from soil pollutants and for mobile liquid contaminants to enter the groundwater. The water table is anticipated to be close to ground level and hence there is a potential for contaminants present leaching into the groundwater.

6.5 Conclusions

The site has a history of use as a residential and a commercial property. There was no evidence of potentially contaminative land uses identified on site during the walkover survey.

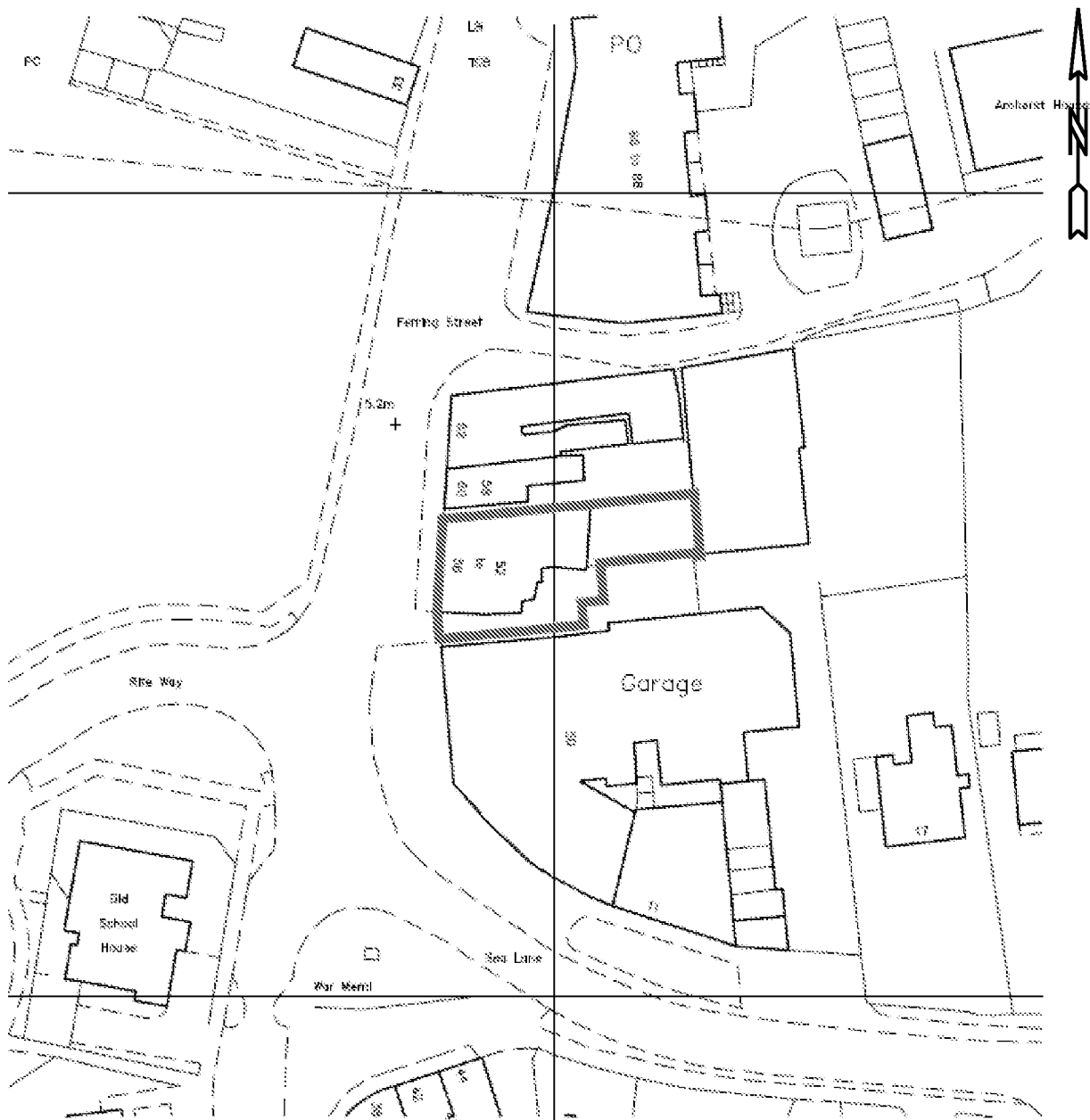
The site is located within a mixed commercial and residential area with some current and historic potentially contaminative land uses noted within the immediate vicinity of the site.

Overall the site is considered to have a low to moderate potential of soil contamination however there is the potential that contamination from the adjacent garage may have migrated onto the subject site. There is no evidence that the tanks have been removed from the adjacent site and it is recommended that an intrusive investigation is carried out to ensure there are no contaminated soils present and no vapour risk to future site users.

Given the sites former use the local water supply company may specify the use of contamination resistant water supply pipes for any replacement pipes required on site.

APPENDIX A

Figures



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	Client :	EB Developments	Date :	16/06/2014	Project ID:	LP00757
	Project :	Ferring Street	Title :	Site Plan	Fig. No.	I