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PHASE I ENVIRONMENTAL ASSESSMENT (DESK STUDY REPORT)

Site: The Estate Yard, Camp Hill, Chiddingstone Causeway, near Tonbridge, Kent TN11 8LE



Prepared for: Lambert and Foster

Date: 4th May 2017

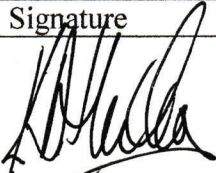



CLIENT: Lambert and Foster

SITE: The Estate Yard, Camp Hill, Chiddingstone Causeway, near Tonbridge,
Kent TN11 8LE

JOB NUMBER: 07538/23

DATE: 4th May 2017

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On behalf of Soiltec Laboratories Limited				

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Executive Summary

Soiltec Laboratories Limited was instructed by Lambert and Foster to carry out a Phase 1 Environmental Assessment (Desk Study) of the site at

The Estate Yard, Camp Hill, Chiddingstone Causeway, near Tonbridge, Kent TN11 8LE

A planning application has been not submitted to Sevenoaks District Council. A desk study report will be required to accompany the application when submitted and also paragraph 121 of the National Planning Policy Framework (NPPF) that came into force in March 2012.

The site is on the south/southeast side of Camp Hill and is occupied by a builder's yard and its associated outbuildings. It is proposed to redevelop the site with residential houses with off road parking and private gardens. The number of houses and their locations on the site are at this juncture unknown. It is also unknown at this juncture if any of the existing buildings are to be retained and converted.

From the investigations carried out for this desk study the site was developed with the main barn that is on the site from at least 1870. The additional outbuildings that are currently on the site were built between 1908 and the mid 1930's. The site has been a builder's yard since at least 1979 with some of the buildings used in association with the builder's business. The other buildings have more recently been used as a paper archiving store and domestic workshop. The southwest/west area of the site was part of a small orchard from at least 1870 until at least 1908. No timber treatment has been carried out on the site.

The immediate surrounding areas have been mainly farmland since at least 1870 to date. The adjacent houses Old Stable Cottages and Stonelake have also existed since at least 1870. The adjacent houses (Camp Hill Cottages) were built between 1908 and the mid 1930's.

The predominant underlying bedrock geology is The Weald Clay Formation (mudstone) of very low to low permeability with no drift deposits and thus the site is overlying a non aquifer and is not within a groundwater source protection zone (SPZ).

There are no surface water abstractions in the area (within 2km).

There are no current groundwater abstractions for potable water or other uses in the area (within 2km).

The findings of this report indicate that the site represents a **very low to moderate environmental risk** and that a detailed phase II intrusive investigation of the site is required.

Soiltec Laboratories Limited

1. Introduction

Soiltec Laboratories were instructed by Lambert and Foster to carry out a Desk Study of the site The Estate Yard, Camp Hill, Chiddingstone Causeway, near Tonbridge, Kent TN11 8LE (grid reference at the site centre 551860 146813). The site is approximately 40 metres above ordnance datum (AOD) in the small village of Chiddingstone Causeway, Kent.

The desk study would mainly comprise of a walkover survey of the site, review historical land use, review historical maps, assess the environmental sensitivity of the site and surrounding areas, review geological maps, investigate pollution incident registers, abstraction and discharge consents and liaise with the relevant personnel at the local authority if necessary.

The main sources of the information are, but not limited to; The Environment Agency (EA), Ordnance Survey, The Coal Authority, British Geological Survey, English Nature and The Health Protection Agency.

The site is on the south/southeast side of Camp Hill and is occupied by a builder's yard and its associated outbuildings. It is proposed to redevelop the site with residential houses with off road parking and private gardens. The number of houses and their locations on the site are at this juncture unknown. It is also unknown at this juncture if any of the existing buildings are to be retained and converted.

A site plan showing the site location and existing layout is shown in appendix 1, site plans (p1).

2. The Site and Surrounding Areas

2.1 Location and Setting

The site covers an area of approximately 0.16ha (1600m²) and is a small builder's yard in the village of Chiddingstone Causeway, near Tonbridge. The town centre of Tonbridge is approximately six miles to the east.

It is located in an area of low density residential and agricultural uses although there are a few light industrial units in the area.

An aerial photograph of the site dated May 2012 is shown in appendix 2.

Immediately to the northwest of the site on the opposite side of Camp Hill is woodland with farmland beyond. Approximately 100m to the north on the opposite side of the road are a few residential houses, Camp Hill Oast, Camp Hill and White Court with farmland beyond. Immediately to the northwest of the northwest area of the site is a pair of cottages, Old Stable Cottages with farmland beyond.

Immediately to the west of the site on the opposite side of Camp Hill is farmland.

Immediately to the southwest of the site are a few residential houses, Camp Hill Cottages with residential houses in Richard's Close and Dukes Meadow beyond. The High Street, which is the B2027, is approximately 200m to the south with the village cricket ground on the opposite side of the road, with a main railway line and farmland beyond. To the southwest approximately 250m from the site is the junction of Camp Hill and the B2027 with a small light industrial estate beyond that extends to approximately 300m from the site.

Immediately to the southeast of the site is a residential house, Stonelake with farmland beyond. Immediately to the east is farmland.

2.1.1 Walkover Survey

The walkover survey was carried out on the 26th April 2017. At the time of the walkover survey the site was in full use as a builder's yard. The company has occupied the site since 1979 and at present appears to specialise in carpentry works.

The site was concrete and gravel hard cover with areas of general storage. The main building on the site was timber clad with a tiled roof. This building had a carpenter's workshop with electric saws and dust extraction facilities. Parts of the building were used to store small quantities of paint, as well as being used as offices. Adjacent to this building to the north were timber sheds and a covered sawdust collection shed. Stored in this area were roof tiles and timber. Also in this area of the site was a polymer type oil tank. No visible or olfactory contamination was noted around the tank. Also in the northeast area of the site was a steel storage container storing timber as a waste skip for timber.

The building to the southeast of the main building was a timber clad building with a flat felt roof. This was a former office storing old files and office furniture.

The buildings at the southwest boundary were also timber clad with flat felt roofs. No access could be gained to one of the buildings. The other building was being used to store timber, plastic guttering, foam pipe lagging and small tins of paint.

In parts of the open yard areas were stored roof tiles, bricks and plastic pipe. Also in the west area were a few old oil drums. No visible or olfactory contamination was noted around the drums. A waste skip was also in this area of the site for general rubbish.

Very little vegetation was on the site apart from a few small areas of brambles, weeds and rough grass with wild shrubs in parts of the yard. All vegetation adjacent and near to the site appeared to be in a healthy condition.

No other above ground tanks were on or adjacent to the site apart from the one mentioned above and there was no evidence of any former above ground tanks. There was no evidence of any below ground tanks on or near to the site and no evidence of any storage of chemicals in or around the buildings, or previous use of chemicals.

A site plan showing the existing and proposed layout and the immediate surrounding areas is shown in appendix 1 (p2). Also shown on this site plan are the locations and view direction of the photographs of the site that were taken during the walkover survey. The site photographs are shown in appendix 3.

There are no current or former fuel stations registered within 500m of the site.

There are no high voltage underground electricity transmission cables or high pressure gas pipelines within 500m of the site.

This is shown in appendix 5 (current land use map).

2.2 Hydrology

There are no surface water features on, adjacent or near to the site although there are ponds and surface water drainage ditches in the area and on the surrounding farmland.

This is shown in appendix 5 (hydrology – detailed river network and river quality map).

3. Historical Site use

3.1 1870 to 1908

The study of the historical maps of the site, some of which can be found in appendix 4, Historical Maps, shows that the site was developed in 1870 with the main barn building that remains on the site to date. The west /southwest area of the site was part of a small orchard that extended further to the southwest.

Most of the roads in the area were constructed including Camp Hill and the High Street (now the B2027) further to the south but not Richard's Close and Dukes Meadow to the southwest. Some of the existing houses in the area were built including those adjacent to the main barn that are now Old Stable Cottages and the house that is now Stonelake immediately to the south. Kennels were also to the south of the site. All the buildings are marked as Stonelake. Further to the south and southeast the main railway line and a pub (The Railway Hotel) were both constructed.

The site and immediate surround area generally remained unchanged until at least 1908 although a few more houses had been built in Camp Hill further to the southwest and in the High Street by 1896. Fewer trees were on the orchard by 1908 and a parish hall had also been built in the High Street by this date.

3.2 1937 to 1969

By 1937 the other outbuildings that remain on the site to date had been built and the orchard is no longer marked. The houses immediately to the southwest (Camp Hill Cottages) had also been built by this date and only the house immediately to the south is marked as Stonelake. Further to the south immediately beyond the High Street, the village cricket ground is marked that remains to date. The pub to the southeast is marked as the Station Inn.

The site and immediate surrounding areas remained unchanged until at least 1969.

3.3 1987 to Date

By 1987 the roads Richard's Close and Dukes Meadow as well as their associated residential houses had been built to the south/southwest. The pub to the southeast is marked as The Little Brown Jug.

The site and surrounding areas have remained unchanged to date.

3.4 Planning & Uses

Following an assessment of Sevenoaks District Council planning website there has been four historical planning applications for the site. Council online records for the area date from at least 1999.

Date	Planning Details
1999	Submission of landscaping, car parking, boundary treatment, joinery and acoustic protection pursuant to conditions 4, 5,7,8,9 and 10 of SE/98/2460 – granted
2000	Change of use redundant estate yard store and stable to form two lettable residential units and one small B1 unit – granted
2004	Change of use from B1 to bed sit dwelling. Insertion of one new window and minor internal partitioning – granted
2004	Change of use from B1 to bed sit dwelling – granted

The current land use data indicates that there are two current ‘industrial sites’ within 500m of the site.

The nearest is 70m southwest of the site and is a small electrical sub station. The other is 190m southwest of the site, which is a small works unit.

These ‘industrial sites’ are unlikely to impact the site.

This is shown in appendix 5, Environmental Maps (current land use map).

4. Environmental Sensitivity

4.1 Site Sensitivity

The site is not within a site of special scientific interest, special protection area, a special area of conservation, RAMSAR (wetlands) site, a nature reserve, environmentally sensitive area, a world heritage site, ancient woodland, an area of outstanding natural beauty or a national park.

The site is not within a designated nitrate vulnerable zone.

The site is within an area of London Area Greenbelt (Sevenoaks District).

This is all shown in appendix 5 (designated environmentally sensitive sites map).

The site is not within an area that is at risk of flooding from rivers or sea without defences.

The risk of flooding from rivers and sea (RoFRaS) map shows that the risk is ‘very low’.

“The Environment Agency RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection. RoFRaS data for the study site indicates the property is in an area with a **Very Low** (less than 1 in 1000) chance of flooding in any given year”. (Reference EA/Groundsure report)

This is shown in appendix 5 (Environment Agency flood maps).

The site is within an area where there is a potential for groundwater flooding – superficial deposits flooding (with unproductive aquifers) below surface.

“Where potential for groundwater flooding of property situated below ground level is indicated, this means that given the geological conditions there may be a groundwater flooding hazard to basements and other below surface infrastructure. Unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area you need take no further action in relation to groundwater flooding hazard. If there are records of previous incidences of groundwater flooding, then it is recommended that other information e.g. rainfall history, property type, and land drainage information in addition to previous records of flooding be investigated in order to establish relative, but not absolute, risk of groundwater flooding”.

4.2 Potentially Contaminative Use

The site is within an area of potentially contaminative use from heavy industrial uses although has been used for commercial uses since at least the late 1970's (builder's yard and stores).

There are areas of potentially infilled land, industrial sites and/or energy features within 250m of the site.

There is an area of potentially infilled land 90m to the northwest, which is a pond within a private garden that has not been infilled. This potentially infilled land is unlikely to impact the site.

There is also one area of industrial land use within 250m (small light industrial estate).

The nearest building on the small light industrial estate is approximately 240m from the site and is unlikely to impact the site.

This is all shown in appendix 5 (historical land use map).

There are historic surface ground workings, historic underground workings and/or current ground workings marked within 250m on the ground workings map in appendix 5.

There are areas of historic surface ground workings in the area, which is the pond within the private garden 90m to the northwest as mentioned above.

There are no historic underground workings or current ground workings marked within 250m.

The railways and tunnels map in appendix 5 shows that there are no existing railways, former railways, tunnels or proposed railways within 250m.

There are no areas of reclaimed ground, made ground, infilled ground, disturbed ground, worked ground and/or landscaped ground within 500m of the site as shown on the artificial ground maps in appendix 5.

4.3 Landfill and Waste Transfer Sites

There are no current or former EA registered historical licensed landfill sites or local authority registered licensed landfill sites within 500m.

There are no current or former registered waste treatments or other waste sites within 500m.

This is all shown in appendix 5 (landfill and other waste sites map).

4.4 Hydrogeology

As there are no superficial deposits on the site there is no classification by the Environment Agency (EA) for the aquifer status within the superficial geology on the site.

The site is classified by the Environment Agency (EA) as overlying unproductive strata within the bedrock geology.

These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site therefore could be classed as overlying a non aquifer.

The site is not within a groundwater source protection zone (SPZ).

This is all shown in appendix 5 (hydrogeology maps).

4.5 Geology

According to geological information, British Geological Survey sheet 287, Sevenoaks, the site is underlain by Weald Clay with no drift deposits.

This is also shown on the superficial deposits and landslips map in appendix 5 which shows that there are no superficial deposits on the site although there are in the area.

Area 1 on the map (adjacent to the north/northeast) is head deposits (clay silt sand and gravel).

Area 2 on the map (440m SW) is river terrace deposits (sand and gravel).

There are no landslip deposits within 500m.

The bedrock and faults map in appendix 5 shows that The Weald Clay Formation (mudstone) is the bedrock geology on the site of very low to low permeability (area 1 on the map).

There are no fault lines marked within 1000m.

There are two previously drilled boreholes marked within 250m of the site.

The nearest was drilled 120m north of the site to a depth of 33m in 1937. The strata encountered were clay with stones over brown becoming blue/grey clay. Water was encountered at approximately 24m.

This is shown in appendix 5 (borehole records map).

5. Discharge Consents, Water Abstractions and Pollution Incidents

5.1 Discharge Consents

There are five current or former licensed discharge consent points within 500m of the site.

The nearest is a former consent located 310m southwest of the site that was for the discharge of an unspecified effluent into a freshwater stream or river. The nearest current discharge consent is located 330m southwest of the site for the discharge of storm sewage overflow into a surface water course. These consents and the others listed are all unlikely to impact the site.

This is shown in appendix 5 (environmental permits, incidents and registers map).

5.2 Abstraction Consents

There are no current or former groundwater abstraction consents within 2000m of the site.

There are no current or former surface water abstraction consents within 2000m of the site.

This is shown in appendix 5 (hydrogeology – abstraction licence, SPZ and potable water abstraction maps), which shows up to 500m only.

5.3 Pollution Incidents and Permits

There are four recorded pollution incidents within 500m of the site.

The nearest occurred more than sixteen years ago 310m southwest of the site caused by a process effluent spill that is recorded as having no land or air impact and minor water impact. This incident and the others listed are all unlikely to have impacted the site.

There are no current or former authorised activity enforcements within 250m of the site.

There are no integrated pollution control permits, dangerous substances inventory sites or radioactive substances authorisations within 250m of the site.

There are no sites determined as ‘contaminated land’ under Part 2A of the Environmental Protection Act 1990 within 500m of the site.

This is all shown in appendix 5 (environmental permits, incidents and registers map).

6. Mining Hazards, Subsidence and Radon

6.1 Mining

The site is not within an area that may be affected by historic mining or coal mining hazards.

There are no natural cavities within 500m of the site.

There are no non-coal mining cavities within 500m and the site is within an area where the non coal mining activity is classed as 'highly unlikely'.

This is all shown in the mining, extraction and natural cavities map in appendix 5.

6.2 Subsidence

The clay swelling/shrinking subsidence hazard is classed as 'low hazard' (soils that are predominantly medium plasticity) although this will depend on the localised clay content. Low hazard indicates "Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink/swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present".

The landslides ground stability hazard is classed as 'very low hazard'.

The ground dissolution subsidence hazard is classed as 'negligible hazard'.

The compressible subsidence hazard is classed as 'negligible hazard'.

The collapsible ground stability hazard is classed as 'very low hazard'.

The running sand stability hazard is classed as 'negligible hazard' with 'very low hazard' just to the northeast.

All the above are shown on the ground stability maps in appendix 5.

6.3 Radon

There are less than 1% of properties in the area that are above the action level for radon and therefore radon protection measures are not necessary in new buildings and/or extensions.

7. Recommendations

7.1 General

From the investigations carried out for this desk study the site was developed with the main barn that is on the site from at least 1870. The additional outbuildings that are currently on the site were built between 1908 and the mid 1930's. The site has been a builder's yard since at least 1979 with some of the buildings used in association with the builder's business. The other buildings have more recently been used as a paper archiving store and domestic workshop. The southwest/west area of the site was part of a small orchard from at least 1870 until at least 1908. No timber treatment has been carried out on the site.

The immediate surrounding areas have been mainly farmland since at least 1870 to date. The adjacent houses Old Stable Cottages and Stonelake have also existed since at least 1870. The adjacent houses (Camp Hill Cottages) were built between 1908 and the mid 1930's.

There are no surface water features on, adjacent or near to the site.

The site overlies a non aquifer and is not within a groundwater source protection zone (SPZ).

The Weald Clay Formation (mudstone) is the bedrock geology on the site of very low to low permeability with no drift deposits although there are drift deposits adjacent to the north/northeast head deposits (clay silt sand and gravel).

There are no current groundwater abstractions for potable water or other uses in the area (within 2km).

There are no surface water abstractions in the area (within 2km).

It is assumed at this juncture that the surface water drainage for the new dwellings will be discharged via the existing local mains system.

It is also assumed at this juncture that the foul drainage for the new dwellings will be via the existing local mains as it is as present.

The site is not within a flood risk area.

7.2 On-Site Contamination Impact

From the investigations carried out for this desk study it is possible that the site could have been impacted from its current/former uses.

There are no recorded pollution incidents on the site that could have impacted the site.

It is unlikely that landfill gases are impacting the site from on site sources.

7.3 Off-Site Contamination Impact

The findings of this desk study indicate that contamination impact to the site from the immediate surrounding areas is unlikely.

There are no recorded pollution incidents near the site that could have impacted the site.

It is unlikely that landfill gases are impacting the site from off site sources.

7.4 Conceptual Model

Using the Contaminated Land Exposure Assessment (CLEA) model and associated Contaminated Land Report (CLR11, Model Procedures for the Management of Land Contamination) framework to assess sites, a Source (contaminant) – Pathway – Receptor approach is used.

Source – (contaminant) “a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters”

Pathway – e.g. via air, soil or water “route or means by which a receptor can be exposed to, or affected by, a contaminant”

Receptor – e.g. humans, buildings and services, groundwater or surface waters “in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body”

If any of the above elements are missing i.e. there is no pollution linkage, then it is considered that there is no significant risk associated with contamination. If there is a pollution linkage the potential risks to the identified receptors need to be assessed.

7.4.1 Source(s)

The possible sources of contamination on this site from on site or off site former or current uses are:

Heavy metals (made ground, builder’s yard)

Polyaromatic hydrocarbons (made ground, builder’s yard)

Total petroleum hydrocarbons (made ground, builder’s yard)

BTEX compounds (made ground, builder’s yard, paint and paint thinners)

Asbestos (made ground, builder’s yard)

7.4.2 Pathway(s)

It is proposed to construct residential houses with private gardens and off road parking

Using the CLEA model the potential pathways for a residential site are:

Ingestion of soils/groundwater/surface water

Ingestion of dusts, gases and vapours (indoors and outdoors)

Dermal contact with soils/groundwater/surface water

Ingestion of contaminated vegetables and or soils attached to vegetables (if applicable)

Leachate via infiltration and/or soakaways (if applicable)

The potential pathways for this site are:

Ingestion of soils

Ingestion of dusts and vapours (indoors and outdoors)

Dermal contact with soils

Ingestion of contaminated vegetables and or soils attached to vegetables (if applicable)

Leachate via infiltration and/or soakaways (if applicable)

7.4.3 Receptor(s)

The potential receptors and associated risks for this site are:

Construction staff – very low to moderate risk

Residents on site – very low to moderate risk

Residents off site – very low risk (no apparent current impacted)

Buildings off site (existing houses appear to be not impacted) – very low risk

New dwellings and below ground services – very low to moderate risk

Groundwater (non aquifer not SPZ) – very low to moderate risk from leachable contaminants via infiltration/or soakaways (if applicable)

7.4.4 Assessment of Risk

The assessment of the associated risk is based on the CIRIA (Construction Industry Research and Information Association) C552 methodology, contaminated land risk assessment, a guide to good practice (2001), tabulated below and overleaf.

(SH = Significant Harm, SPOSH = Significant Possibility of Significant Harm).

Classification of Consequence

Classification	Definition
Severe	<p>Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. Highly elevated concentrations likely to result in ‘significant harm’ to human health as defined by the EPA 1990 Part 2A, if exposure occurs i.e. SH/SPOSH concentrations are high enough to cause acute (short term) effects.</p> <p>Equivalent to an EA category 1 pollution incident including persistent and/or extensive effects on water quality (controlled waters); leading to a closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce.</p> <p>Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long term maintenance of the population.</p> <p>Catastrophic damage to buildings or property.</p>
Medium	<p>Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. Elevated concentrations which could result in ‘significant harm’ to human health as defined by the EPA 1990 Part 2A, if exposure occurs i.e. greater than SH/SPOSH</p> <p>Equivalent to an EA category 2 pollution incident including a significant effect on water quality (controlled waters); notification required to abstractors; reduction on amenity value or significant damage to agriculture or commerce.</p> <p>Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long term maintenance of the population.</p> <p>Significant damage to buildings or property.</p>

Classification of Consequence (cont)

Classification	Definition
Mild	<p>Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of no harm but not unacceptable intake or contact. Exposure to human health unlikely to lead to 'significant harm' i.e. concentrations are greater than SGV/GAC but less than SH/SPOSH.</p> <p>Equivalent to an EA category 3 pollution incident including minimal or short term effects on water quality (controlled waters); minor impact on amenity value, agriculture or commerce.</p> <p>Minor damage or short term damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long term maintenance of the population.</p> <p>Minor damage to buildings or property.</p>
Minor	<p>Concentration of contaminants is likely to (or is known from previous data to) be less than that indicative of no harm. No measurable effect on humans i.e. less than SGV/GAC.</p> <p>Equivalent to an unsubstantial pollution incident with no observed effect on water quality (controlled waters); no reduction on amenity value or damage to agriculture or commerce.</p> <p>No observed effect to aquatic or other ecosystems.</p> <p>Repairable effects of damage to buildings or property.</p>

Classification of Probability

Classification	Definition
High Likelihood	<p>There is a pollution linkage and an event that appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor of harm or pollution.</p>
Likely	<p>There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur.</p> <p>Circumstances are such that an event is not inevitable but possible in the short term and likely over the long term.</p>
Low Likelihood	<p>There is a pollution linkage and circumstances are possible under which an event could occur.</p> <p>However, it is no means certain that even over a longer period such event could take place, and it is less likely in the shorter term.</p>
Unlikely	<p>There is a pollution linkage but the circumstances are such that it is improbable that an event would occur even in the very long term.</p>

Matrix of Consequence against Probability to determine Risk Classification

Probability	Consequence			
	Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Low Risk
Likely	High Risk	Moderate Risk	Low Risk	Very Low Risk
Low Likelihood	Moderate Risk	Low Risk	Low Risk	Very Low Risk
Unlikely	Low Risk	Very Low Risk	Very Low Risk	Very Low Risk

A schematic diagram of the conceptual model for the site dated 04/05/17 is shown in appendix 6, conceptual model.

7.5 Investigation Work Recommended

7.5.1 General

As outlined above it is possible that there are sources of contamination on this site that could have impacted the site soils from the on site current and possible past activities.

It is unlikely that the site has been impacted by the uses and or/activities from the immediate surrounding areas.

The risk to human health could be classed as very low to moderate.

The risk to the new dwellings and below ground services could also be classed as very low to moderate.

The site overlies a non aquifer and is not within a source protection zone (SPZ). It is assumed that the surface water drainage for the new dwellings will be discharged via the existing local mains.

It is assumed foul drainage for the new dwellings will be discharged via the existing local mains system as it is at present.

The risk to controlled waters on completion of the development could be classed as very low to moderate via infiltration or soakaways if used.

It is therefore necessary to carry out a detailed phase II intrusive investigation of the site.

7.5.2 Sampling Locations and Analysis

Soils should be taken from various locations on the site including the location of the existing buildings and new dwellings, proposed gardens and analysed for a general suite of determinands that must include heavy metals, polyaromatic hydrocarbons, total petroleum hydrocarbons and BTEX compounds as a minimum.

Near surface soils must also be screened for the presence of asbestos fibres.

Soil samples from the proposed garden areas and soakaway(s) if applicable should also be analysed for leachable contaminants. The suite of tests carried out on the prepared soil leachates should be those outlined above as a minimum.

7.5.3 Timescale

The intrusive investigation work should be carried out following the vacation and demolition of the existing buildings and clearance of the site, subject to approval of this report by the local authority.

7.6 Excavated Soils

Any excavated soils that are produced as part of the construction work that are to be removed from the site to landfill, chemical analysis will be required to classify the 'waste' in conjunction with the EU Landfill Directive that came into effect in 2005, which defines the criteria for the chemical analysis and classification of materials that are to be disposed to landfill.

Should soils need to be removed from the site to landfill, a European Landfill Directive Waste Acceptance Criteria analysis will be required on the material to be disposed to be submitted to the proposed receiving tip before the soil is removed from the site.

The different strata excavated (if applicable) should be segregated and analysed separately prior to disposal off site.

7.7 Additional Notes

Should any contaminants be encountered during the site investigation or development works that were not expected analysis must be carried out to identify the type and extent of the contamination.

During the construction work, exposed soils should be protected from any accidental leakage or spillages from stored oils/fuels or chemicals used in the construction work, if any, to prevent any potential impact to the site or controlled waters.

The ground stability hazards in section 6.2 and associated comments where applicable are the opinion of the BGS based on the expected geology.

A copy of this report should be forwarded to Sevenoaks District Council or other regulators/insurers if applicable for their consideration and approval prior to the commencement of any further works on the site.

K.D.Huxley CSci CChem MRSC MIEnvSc

Date: 04/05/17