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Geotechnical Assessments | Environmental Assessments | Desktop Studies | Contamination Analysis

DESKTOP STUDY REPORT

Site Address:	Redwood Lodge Farm, Grafham Road, Ellington PE28 0AP
Report Date:	November 2025
Project No.:	19950
Prepared for:	Hargrave Farming Ltd
Planning Application	Huntingdonshire District Council 22/02534/FUL



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DESKTOP STUDY GENERAL NOTES

This report has been prepared based on the findings of investigations into the site's conditions using current available data which has been recovered from Envirocheck to provide environmental data in relation to the site and surrounding area. Where possible, local sources have been researched to gain a better understanding of the site's conditions. As part of this review, research has been undertaken with the Local Authority and the Environment Agency to aid in the assessment of the site's condition.

We can confirm that this report has been prepared based on the information gained and that this information is not exhaustive, and that subsequent research may reveal additional facts that may influence the reporting. Where possible, this information has been researched.

All geological information has been researched using the British Geological Society website, (the geology viewer). The disclaimer associated with this portal confirms 'The British Geological Society 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.'

The accuracy of map extracts cannot be guaranteed, and it should be recognized that different conditions on site may have existed after the various map surveys.

We can confirm that within the assessment of the site, various websites have been visited and as such, we cannot confirm the validity of these sites and as such, this information is accepted de facto and without prejudice. Anyone relying on these sources does so at their own risk, however, Herts & Essex Site Investigations does undertake all reasonable care to ensure this data is relevant and correct.

It should be confirmed that the extent of review of this report has undertaken a broad review of on-site features which would promote a contamination ground risk, however, this does not include ecological features and in particular Japanese Knotweed which should be reviewed under separate cover.

A review of the site will be made to confirm the extent of obvious Asbestos products or sheet materials either on the surface of the site soil or evident above ground, however, does not constitute a full Asbestos Survey by any means. This should be sought under separate cover.

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DOCUMENT INFORMATION AND CONTROL SHEET

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Original	21st November 2025	Original Copy	***Rebecca Chamberlain*** 	***Chris Gray*** 

SUMMARY

Client	Hargrave Farming Ltd		
Site Location	Redwood Lodge Farm, Grafham Road, Ellington PE28 0AP		
Existing Development	Vacant Farm barns		
Proposed Development	Convention of the existing buildings (once the lean-tos have been removed) to form a residential dwelling.		
Site Settings and Previous Uses	The site area is recorded as a farm from the earliest map reference in 1887 with a similar layout to that in place to date. Surrounding the site open agricultural land is in place, from the earliest map reference there is a pond recorded in place to the east of the site which remains in place although was dry at the time of the walk over. To the west of the site area an additional barn was constructed in about 1978 and a dwelling was building in about 2008, these remain in place to date.		
Geological and Hydrological Profile	**Geology**		**Aquifer Classification**
	Made Ground	Shallow Made Ground Anticipated	Not Classified
	Oadby Member	Clay, brown to grey, and silty clay, with chalk and flint fragments sand and gravel and silt	Secondary Aquifer Unproductive
	Oxford Clay Formation	Clay	Unproductive Stratum
Nearest Surface Water Feature	The nearest surface water feature is recorded as 4 meters to the east of the site which is a pond. At the time of the walk over this was dry.		
Groundwater Abstractions	The nearest abstraction well is located 1852 meters to the northeast of the site which is recorded.		
Source Protection Zone	The site does not lie within a Source Protection Zone.		
Potential Sources of Contamination	***Features On Site*** • Farm use (former) • Hardcore yard areas • Possible ACMs • Tanks – fuel and fertilizers ***Features Off Site*** • Additional Farm Barn		
Human Health Risk	We would suggest that where there are potential sources of contamination the potential pathways in place within the site area are recorded as : - • Dermal Contact. • Inhalation of dust and fibres. • Ingestion of dust and fibres via home-grown produce with plant uptake. • Inhalation of vapours from soils. • Inhalation of vapours through contaminated groundwaters • Ingestion of contaminated water through water main pipework. • Leaching, lateral migration of shallow groundwater to a target receptor. • Leaching, migration through fissures / cracks which may migrate to a groundwater receptor. • Plant Uptake. • Inhalation Asbestos dust and fibres (from Asbestos within the building). • Inhalation Asbestos dust and fibres (from asbestos within the soil).		
Receptors	Based on the proposed use of the site and the finding of this Desktop Study the following receptors will need to be considered : - • Human Health, (Site Development Personnel). • Human Health, (Residents or staff). • Adjoining Landowners, (unlikely). • Flora. • Groundwater. • Abstraction wells. • Surface water features.		
Proposed Investigation Work	Further works should be completed based on this assessment and follow protocols under BS 10175:2011+A2:2017, (Investigation of potentially contaminated sites). These recommended works are as follows :-		
Human Health Risk	• Intrusive investigation to assess and recover samples of the made ground and underlying natural geology to consider the geology and soil contamination. • Targeted samples to be recovered from within and/or around the sources noted above • Spatial sampling to be completed across the site area. • Chemical testing to be completed on an appropriate number of samples for the recommended pollutants.		
Land Gas Risks	Limited sources of land gases are recorded in place. Should significant depths of made ground or organic matter re-assessment will be required.		
Vapour Risk	• Soil testing to be undertaken to assess whether contamination that may promote a vapour risk is in place within the site area and the groundwater, where present.		
Groundwater Risks	• Assess soils profile to consider the requirement for installation of standpipes, (Clay or absence of groundwater would suggest limited groundwater risk) • Where significant risk is identified in place, undertake leachate testing on samples to assess mobility of soil contamination. • Utilize ground gas monitoring wells as dual gas and groundwater monitoring wells and recover samples of the groundwater for later chemical analysis. ○ Purge groundwater monitoring wells and recover fresh samples of the groundwater for this testing. • Testing suite to be as per the recommendations within this report.		

Watching Brief	• Maintain a watching brief throughout all site investigation works.
	  ○ Sample recovery should undertake due diligence to consider the presence of Asbestos as a critical risk.
	  ○ An engineering description of the samples recovered and depths to be noted for use within environmental reporting.
	  ○ An olfactoral assessment of the site soils exposed and recovered should be made and recorded for use within the environmental reporting.		

Reporting	• Complete an environmental report in accordance with BS 10175:2011+A2:2017. • Report all findings of the site investigation.		

PRELIMINARY RISK ASSESSMENT – DESKTOP STUDY - PHASE 1 REPORT

1 Context and Objectives of this report

1.1 Introduction

We have been asked by Hargrave Farming Ltd to undertake an investigation of the above site to assess the potential environmental impact of the existing and historical use of the site on the proposed development sufficient to document the level of risk and impact on future users and the environment.

The client is proposing to develop residential dwellings with gardens, as such the derivation of risk has been assigned as a 'Residential Land Use with Home-grown Produce'.

1.2 Reference to the Current Planning Application Details

An application is in place with Huntingdonshire District Council as follows:-

Application no: 22/02534/FUL
Application details: Change of use of existing buildings to create one residential dwelling and associated grounds, including the demolition of a barn and other ancillary structures.
Decision: Appeal allowed

1.3 Decision Notice Relating to Contaminated Land

Within the above application the following conditions us in place which relates to contaminated land and this report should be submitted as part of gaining the planning approval.

3) No development shall take place until a Phase 1 Desktop Study and a Phase 2 Site Investigation Strategy, to assess the risks posed by contamination at the site, have been submitted to and approved in writing by the local planning authority.

In the event that the Phase 1 Desktop Study identifies the need for intrusive site investigations to be carried out, no development shall commence until a Phase 2 Intrusive Site Investigation Report and, if contamination is identified, a Phase 3 Remediation Strategy, have been submitted to and approved in writing by the local planning authority.

Thereafter, the development shall not be occupied until a Phase 4 Verification Report, demonstrating that the approved Phase 3 Remediation Strategy has been implemented in full, has been submitted to and approved in writing by the local planning authority.

If, at any time during the demolition, conversion, and construction works, any unexpected contamination is encountered, all development shall cease immediately. Thereafter, the development shall not recommence until the contamination has been remediated in accordance with a Phase 2 Intrusive Site Investigation Report and Phase 3 Remediation Strategy that have first been submitted to and approved in writing by the local planning authority.

1.4 Report Objectives

The objective of this report is to assess and understand any potential sources, pathways and receptors associated with the site and preparation of a Conceptual Site Model (CSM) followed by a qualitative risk assessment, in line with UKs current regulatory guidance.

To complete the above the following will be undertaken.

- A visual walkover inspection of the site to review current and recent site activities, the condition of the site, potential ground related hazards and activities or areas that might have the potential to cause ground contamination as well as possible indicators of contamination.
- Review of historical land uses for the site and surroundings with a particular emphasis on identifying potential ground hazards and on-site and off-site contamination sources.
- A review of the geological, hydrological, and hydrogeological setting of the site, and public domain environmental information to build up an understanding of the site and its environmental setting/sensitivity/receptors.

1.5 Management Constraints

The site investigation has been prepared based on a budget and time scales which has been agreed with the client. The desk top study fees have been agreed at this time which will dictate a way forward.

2 Characteristics of the site

2.1 The Site

The site is located within a rural area of Ellington in Huntingdon, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 3, Sheet 1.

Table 1 Site Detail

Site Address:	Redwood Lodge Farm, Grafham Road, Ellington PE28 0AP
Site assessed under	Site Owners Request - Aid as part of planning and warranties.
Current use of land:	Vacant Farm barns and Yard
Previous use of site, (if known)	As above.
Grid Reference	NGR 517000, 270320
Site Area	0.5 Hectares.
Local Authority	Huntingdonshire District Council
Gradient of the site	The site forms a level area.

2.2 Existing Site Use

The site was not in use at the time of the walkover. The former farm barns and yard are in place although have become dilapidated and overgrown.

2.3 Surrounding Land Uses

The surrounding land uses are detailed below: -

- To the north of the site area open agricultural land is place.
- To the east of the site area open agricultural land and woodland is place.
- To the south of the site an access driveway is in place with open land beyond.
- To the west of the site area a farm storage barn with a residential dwelling beyond.

2.4 Site Reconnaissance

The site walk over visit was undertaken in November 2025 on which the weather conditions were recorded overcast.

Access

The site area is accessed from a driveway which leads from Grafham Road, about 1km to the west of the site, this leads along the southern boundary and open out onto the field.

Once at the site area there is free access across the site and into the majority of the buildings. The building towards the southeast of the site was very dilapidated and as such limited access was gained.

Site Area



The site forms a complex of farm buildings which are redundant and have not been in use from about 2011 when newer barns were developed further from the site and relocation of the main farm use took place.

Within the site there is the former farmhouse, granary, storerooms, barns and lean-tos.

The main farmhouse and sully, within the southwest of the site forms a brick building the roof of the farm house is no longer in place, some of the wall and roof were in a poor condition with vegetation growing over the though the building. The Scullery have a corrugated roof which may contain asbestos.

To the north of the above there is a Granary building is a two storey brick structure with a slate roof, again some damage to the structure is in place. To the east of this building there is a water tank raised on stilts and is no longer in use.

To the north, south and west there are open sided lean-to structures in place which are steel frame and brick works buildings with corrugated sheet roof which may contain asbestos. Within the western lead to a concrete floor is in place with some storage of fire wood on some pallets. The lean-to within the north is double hight with a concrete floor some storage is in place to the sides of the barn which included an empty water butt. The lean-to to the south had collapsed.

To the north and east of the complex there is an ‘L’ single storey barn in place which is a timber frame with corrugated metal and also possible asbestos containing cement board roof. This building is divided into smaller

barns with concrete floors; Within the west of the barn there is a metal tank in place, likely used of fuel although on some wooden pallets, at the time of the walk over this was empty, no other features are in place within these structures.

To the centre of the site there is a timber and brick frame barn in place with a corrugated sheet roof. Within the barn there were some storage tanks which were historically used for the mixing and collecting of the fertilizers. Dust and debris have built up on the concrete floor since it not been in use, no signs of contamination were seen in place.

Vegetation

Some low level wild grasses, weeds and bramble area in place within the site, as well as ivy and plants growth over some of the buildings.

Above or below ground fuel or oil storage tanks

By examination of the site above ground tanks are in place, forming old fuel and fertilizer tanks. No features are present to suggest that any below ground fuel tanks would be in place within the site area.

Asbestos Containing Materials

Possible Asbestos containing materials were reviewed on the roof of the buildings, although, from the walk over no obvious fragments were seen in place on the surface. We recommend that an asbestos survey of the building be carried out, if not done so already, prior to any further demolition or works on site. A full assessment for asbestos within the fill in site will be required to fully consider risk from Asbestos.

Surrounding Area

Surrounding the site area agricultural land is in place.

To the east of the site there is a dry pond in place which has well established plant growth around the feature. To the west of the site area there is a grain store in place which is used by the tenant of the cottage, further to the west, for storage of cars and machinery and household goods.

Site Levels and Ground Cover

The site area forms a generally level area of land.

The area surrounding the building is laid to a compacted soil and hardcore.

Current site activities

The current site use forms a vacant farm.

Effluent, Site Drainage and Services

Drainage and services may be in place although no service search is known to us, therefore the location condition nor status of these services is known.

2.5 Site Reconnaissance – Photos

Print 1



Print 2



Print 3



Print 4



Print 5

Print 6



Print 7



Print 8



Print 9



Print 10



Print 11



Print 12



Print 13



Print 14



Print 15



Print 16



Print 17



Print 18





Print 19



Print 20



Print 21



Print 22



Table 2 *Walk Over Inspection Risk*

Feature	*Location*	*Elevation*	*Is A Risk Assessment Required?*	*Justification*
Farm use (former)	Sitewide	At GL.	✓	
Hardcore yard areas	Centre of the site	At GL.	✓	
Possible ACMs	On the buildings	At GL.	✓	
Tanks – fuel and fertilizers	See site plan	Above GL	✓	

3 Details of Searches Undertaken

Within this report, various searches have been undertaken to assess the risk associated with the development of the site from the historical and current use of the site and surrounding area. These include: -

- Environmental Data Search 1:10,000.
- Environmental Data Search 1:2,500.
- Site Sensitivity Maps and Data Sheets.
- Historical Maps.
- Internet Search.
- Local Authority Search – Planning Files.
- Consultation with Site Owner / Architect.

4 Information on Historical and Current Activities on the Site and Surrounding Area

The history of the site's land-use and development from Victorian times onwards has been researched from Ordnance Survey, (O.S.) maps. Extracts of the O.S. Maps and plans are presented in Appendix 4. Reference to historical maps provides invaluable information regarding the land use/history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive map references.

4.1 Discussion of the Development History

A summary of the historical development of the site and surrounding area based on the information obtained from the above sources is provided in Table 3. It should be noted that these maps are only a small section of time and represent the timescales given in each of the map records. It is highly possible that development or features may have been developed within or surrounding the site which may influence the site, and this should be born in mind when assessing the history of the site.

Table 3 *Historic Maps Assessment*

Date	Scale	On Site Feature	Off Site Features
1887	1:10,560	Redwood Lodge Farm	Open Land Pond – E 5m
1888	1:2,500		
1901	1:2,500		
1902	1:10,560		
1926	1:2,500		
1927	1:10,560		
1952	1:10,560		
1958	1:10,560		
1978	1:2,500		Additional barn off site to the west.
1984	1:10,000		
1999	Historic Aerial Photo		
2000	1:10,000		
2008	1:10,000		Redwood Cottage – W 40m
2025	1:10,000		

Table 4 *Overview of Historic Map Assessment Risk*

Identified Risk	Distance & Direction	Year	*Is A Risk Assessment Required?*	Justification
Redwood Lodge Farm	On Site	Pre 1887 - present	✓	Possible risks.
Open Land	Off Site	1924 – Present	X	No Source
Pond	Off Site - E 5m	Pre 1887 - Present	X	No Source
Additional Barn	Off Site – W 1m	1978 - Present	✓	Possible risk of migration onto the site should significant contamination be in place, uses within the site is similar to the barn.
Redwood Cottage	Off Site – W 40m	2008 - Present	X	No Source

5 Details of the Intended Future Use of the Site

The proposed largely forms the existing buildings being converted to form residential dwelling. The lean-tos and the barn to the centre of the site are to be removed and a water pool is located on the footprint of the central barn.

A central courtyard will remain in place through the centre of the site with the grounds surrounding the barn forming a garden area, laid to the same soft landscaping that is in place to date.

6 References of Planning Applications

From a review of the Huntingdon District Council web site the following applications is recorded for the site area.

Application No: **22/02534/FUL**
Proposal: Change of use of existing buildings to create one residential dwelling and associated grounds, including the demolition of a barn and other ancillary structures
Decision: Granted on appeal.

Historical applications are in place with Council as follows: -

Application No: 7/00622/PMBPA ('L' shaped barn and central barn)
Proposal: Change of use of agricultural buildings to dwellinghouses
Decision: Refused 12 Jul 2017

Application No: 0301363FUL (larger site area)
Proposal: Erection of dwelling
Decision: Refused 30 Jul 2003
Site plans within this application do not show any additional information.

Application No: 18/00928/PMBPA ('L' shaped barn and central barn)
Proposal: Change of use of agricultural barns to three dwellinghouses
Decision: Approved 05 Oct 2018
EHO recommend that the risks from contaminated land be assessed.

7 Discussion with Local Authority

Via the planning file the following comment from the EHO is recorded in place " HDC's Environmental Health team have recommend a condition to ensures that there is no residual contamination from the previous use (such as agrochemicals, fertilizers, pesticides, herbicides, fuels, lubricants, buried animal carcasses, areas of waste incineration, asbestos containing materials, etc) that may impact on the future occupiers of the development.".

8 Consultation with Environment Agency

Consultation has not been made with the Environment Agency at this time. The information gained from Envirocheck and the EA web site has provided sufficient information at this stage. The assessment of the site

should consider the groundwater regime within the site area and the possible risk from both on-site and off-site contamination.

Should heavy or persistent contamination be identified within any Phase 2 or intrusive investigation, consultation will be required and will be undertaken.

9 Unexploded Bomb Assessment

A review of the data available on Zeticauxo web site, revealed the site was located within a low risk area associated with unexploded ordnance (UXO), as indicated by having less than 15 bombs dropped per 1000 acres.

10 Consultation with Appropriate Bodies/Local Sources

A request for information relating to the site has been made to confirm the site condition, any potential sources of risk within the site. Additional information has been supplied which has been added to this report. The requested information is as follows :-

- Prior knowledge in relation to the history of the site uses. – *Farming use*
- Service search to confirm the location of any and all Gas, Electric, Water Main, Fibre Optic, drainage works.- *over head cables are in palce along the western boudanry.*
- Asbestos Containing Materials, (reporting or building management plan). – *no report known to us.*
- Underground Fuel or Oil Tanks – *none*
- Above Ground Fuel or Oil Tanks. *.- for water and fuel*
- Petrol Interceptors. – *none*
- Pollution Incidents. – *none*
- Storage of Chemicals, Pesticides, Herbicides. *Historically fertilizers and and pestercisdes were used and mixed within the centreal barn.*
- Electric Sub Station Uses. *none*

11 Previous Reporting

No previous reports relating to contaminated land, or the ground conditions are known to us at the time of writing this report which relate to the site specifically.

12 Environmental Settings

12.1 Superficial Deposits and Solid Geology

The ground conditions based on geological maps and BGS information shows the site to be located within an area recorded as Oadby Member (Clay, brown to grey, and silty clay, with chalk and flint fragments sand and gravel and silt). This is seen to overlie Oxford Clay Formation.

12.2 BGS Boreholes

No BGS Boreholes have been identified close to the site.

12.3 Hydrogeology

The published Environment Agency Groundwater Vulnerability Map of the area indicates the site to be located within an area classified as a Secondary Aquifer Undifferentiated. The underlying geology is recorded as an Unproductive Stratum which is formed by the Clay.

Secondary undifferentiated are aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value.

Unproductive strata are largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them.

The nearest abstraction well is located 1852 meters to the northeast of the site which is recorded as a revoke abstraction for Spray Irrigation. No potable water supplies are recorded in place.

The site does not lie within a Source Protection Zone.

Table 5 Summary of Geological Information

Geological Unit	*Brief Description*	*Anticipated thickness, (m)*	*Aquifer Type*
Superficial Deposits/Drift On Site			
Filled/Re-worked ground	Made Ground, (Potentially Contaminated Stratum).	0.5-1.00 meters+	Not Classified
Oadby Member	Clay, brown to grey, and silty clay, with chalk and flint fragments sand and gravel and silt.	1-7 meters	Secondary Aquifer Undifferentiated
Solid Geology Deposits			
Oxford Clay Formation	Clay	c. 15m +	Unproductive Stratum

The above information has been taken from the BGS website based on the postcode location of the site.

12.4 Hydrology

The nearest surface water feature is recorded as 4 meters to the east of the site which is a pond. At the time of the walk over this was dry. Further from the site an OS Water Network Line is recorded as an Inland river 182 meters to the northwest of the site.

12.5 Implication of groundwater

Considering the underlying Secondary Aquifer Undifferentiated, groundwater links are possible and therefore some degree of assessment will be required to classify the extent of risk to a groundwater system, as well as abstraction wells, surface water features and source protections zones surrounding the site area.

In accordance with Environment Agency guidance document: -

- The Environment Agency's approach to groundwater protection, Version 1.2, (February 2018)

The document confirms: -

- "Selecting compliance points for use in land contamination risk assessments the distance to a set compliance point should not exceed 50 metres for hazardous substances or a maximum of 250 metres for non-hazardous pollutants unless there are specific physical constraints on the ability to use the groundwater resource. Any increases above these specified distances may be justified but must be supported by a sustainability assessment that considers environmental, social and economic factors."

Considering the above, groundwater risk may be in place if significant contamination or a persistent source of contamination are encountered or recorded within the site area, although the lack of groundwater receptors within the information to date risk is considered moderate.

12.6 Flooding

Based on the BGS Flood GFS Data the site is recorded within an area with potential for groundwater flooding to occur at surface. Off site to the north and east of the site there are area at a low risk (1000 year return) for flooding from surface water.

Based on a post code search of the Gov.com website the risks are noted as follows.

Surface water:

Yearly chance of flooding – Very low

Yearly chance of flooding between 2040 and 2060 - Very low

River and the sea:

Yearly chance of flooding - Very low

Yearly chance of flooding between 2036 and 2069 - Very low

Groundwater – This location is outside of a groundwater flood alert area.

Reservoirs - Flooding from reservoirs is unlikely in this area.

(https://www.gov.uk/check-long-term-flood-risk)

Based on the EA Flood map for planning search, as noted in the appendix of this report, this site is recorded within an area with limited potential for groundwater flooding to occur.

12.7 Landfill Sites

No landfill sites nor potentially infilled land is recorded in place surrounding the site area.

12.8 Environmentally Sensitive Sites

Surrounding the site area, no environmentally sensitive receptors are recorded in place.

Table 6 Sensitivity of Environmental Receptors in the Vicinity of the Site

Receptor Type	Receptor(s)	Sensitivity	Comments
Groundwater	Secondary Aquifer Unproductive	Moderate	Possible risk to underlying Gravel Deposits.
	Unproductive Stratum	Low	Limited risk of migration to a lower groundwater system.
Water Abstraction	Spray irrigation	Low	The nearest abstraction well is located 1852 meters to the northeast of the site which is recorded.
Source Protection Zone	NONE		
Surface Water	Pond	Low	The nearest surface water feature is recorded as 4 meters to the east of the site which is a pond. At the time of the walk over this was dry
	Inland river	Low	Further from the site an OS Water Network Line is recorded as an Inland river 182 meters to the northwest of the site.
Flooding	NONE		
Ecological	NONE		

13 Site Drainage and Other Potential Man-Made Pathways

Limited drainage is recorded in place, although, the site has not been reviewed for drainage routes. A full drainage assessment may aid in the assessment of the site in relation to pathway creation for pollution to migrate.

14 Regulatory Data

Information relating to the potential hazards associated with environmental regulatory controls are summarised in Table 7 and 8. This information is recorded in full within the Envirocheck Data provided within Appendix 5. The salient points recorded within this data are re-created below.

Table 7 *Summery of Regulatory Data - Sources*

Data Sources	On Site	Off Site	Distance from site	Is A Risk Assessment Required?	Justification
				X	
Radon Potential - Radon Protection Measures	No radon protective measures are necessary in the construction of new dwellings or extensions		On Site	X	The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level).

Table 8 *Summary of Regulatory Data - Receptors*

Data Receptors	On Site	Off Site	Distance from site	Is this a potential receptor for risk ?	Justification
Nearest Surface Water Feature	None	Pond	E 4m	✓	This feature was dry at the time of the walk over.
Water Abstractions	None	Spray irrigation	NE 1852m	X	Distance and nature of the feature reduce the risk.
OS Water Network Lines	None	Inland river	NW 182m	X	Distance and nature of the feature reduce the risk.
Source Protection Zone	None			X	

Table 9 *BGS Estimated Chemistry Data*

BGS Estimated Soil Chemistry Pollutant	BGS Estimated Soil Chemistry (mg / kg)
Arsenic	15-25
Cadmium	<1.8
Chromium	60-90
Lead	<100
Nickel	30-45

Considering the background concentrations present, Potential for human health risk is not anticipated within this area.

Table 10 Geological Hazards

Geological Hazard	Distance & Direction	Feature	Risk Assessment Required
Non-Coal Mining Areas of Great Britain	On Site		Negligible
Collapsible Ground	On Site		Very Low
Compressible Ground	On Site		Negligible
Ground Dissolution Features	On Site		Negligible
Landslide	On Site		Very Low
Running Sand	On Site		Very Low
Shrinking or Swelling Clay	On Site		Low

Table 11 Summary of Contemporary Trade Entries

Trade Name	Trade Use	Distance & Direction from Site	Is A Risk Assessment Required?	Comment
			X	
No trades are recorded within 1km meters of the site area.				

*NB The above information has been provided by Envirocheck and is taken from the Thomson Directories

15 Identification of Potential Contaminants of Concern and Source Areas

Potential sources of contamination are brought forward for further risk assessment which are detailed in Table 14: -

Table 12 Table of Source Risk

Risk Assessment	Source Risk	Associated Contaminants	Source of Information	Location	Date	Considering Site Specific Pathways	
						Assessment Required.	Method of Assessment
	On Site Features						
A	Farm use (former)	Metal, semi metals, PAHs, Asbestos, TPHs.	Walk Over Survey Historical Maps	On Site	Pre 1887 - present	Possible Soil Risk Possible GW Risk Possible Vapour Risk	Recover Soil Samples Install Standpipes GW & Vapour Assessments
	Hardcore yard areas	Metal, semi metals, PAHs, Asbestos, TPHs	Walk Over Survey	On Site			
	Possible ACMs	Asbestos.	Walk Over Survey	On Site			
	Tanks – fuel and fertilizers	Metal, semi metals, PAHs, Asbestos, TPHs, Pesticides, Herbicides	Walk Over Survey	On Site			

16 Outline Conceptual Model

What must now be considered is what contamination should be identified as a potential hazard because of the use of the site-specific source pathway and receptor. To undertake this task, the risk assessment process is based on guidance provided in CIRIA C552 (2001) Contaminated Land Risk Assessment – A Guide to Good Practice.

The information below incorporates a hazard assessment of the features surrounding the site that could potentially impact on the proposed development and has also been reproduced as a pictorial conceptual site model in Appendix 2. This is based on the information below: -

Table 13 CIRIA Contaminated Land Risk Assessment Table

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

Extracted from CIRIA Publication C552 Contaminated Land Risk Assessment

Table 14 *Risk Assessment A*

Source (Potential Contaminating Use)	*Potential Contaminants*	*Receptors*	*Pathways*	*Associated Hazard, [Severity]*	*Proposed Site Use Risk Assessment*		
					Likelihood of occurrence	*Potential Risk*	*Notes*
Farm use (former) ***Hardcore yard areas*** ***Possible ACMs*** ***Tanks – fuel and fertilizers***	TPHs Pesticides, Herbicides	Site Users. Construction Workers.	Dermal contact. Inhalation dust and fibres.	Medium	Likely	Moderate	Possible risk in place.
			Ingestion of dust and fibres via home-grown produce and plant uptake.	Medium	Likely	Moderate	Possible risk in place.
			Ingestion of contaminated water through water main pipework.	Medium	Likely	Moderate	Possible risk in place.
			Inhalation of vapours.	Medium	Likely	Moderate	Possible risk in place.
			Inhalation of land Gases.	Medium	Unlikely	Low	Limited sources of risk.
			Inhalation of vapours through contaminated ground waters.	Medium	Likely	Moderate	Possible risk in place.
		Adjoining Landowners.	Dermal contact. Inhalation of dust and fibres. Ingestion of dust and fibres	Medium	Low Likelihood	Moderate / Low	Limited risk in place.
			Ingestion of home-grown produce.	Medium	Low Likelihood	Moderate / Low	Limited risk in place.
			Ingestion of contaminated water through water main pipework.	Medium	Low Likelihood	Moderate / Low	Limited risk in place.
			Inhalation of vapours.	Medium	Low Likelihood	Moderate / Low	Limited risk in place.
			Inhalation of vapours through contaminated ground waters.	Medium	Low Likelihood	Moderate / Low	Limited risk in place.
		Controlled Surface Water.	Leaching, lateral migration of shallow groundwater to a target receptor.	Medium	Low Likelihood	Moderate / Low	Clay soils will reduce the risks to and from the groundwater and controlled water features.
		Ground Water. Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Low Likelihood	Moderate / Low	Clay soils will reduce the risks to and from the groundwater and controlled water features.
Asbestos		Site Users Construction Workers.	Inhalation dust and fibres (from Asbestos within the building)	Severe	Likely	High	Possible risk in place.
			Inhalation dust and fibres (from asbestos within the soil)	Severe	Likely	High	Possible risk in place.
Metals Metalloids PAHs		Site Users. Construction Workers.	Direct contact. Inhalation dust and fibres. Dermal contact.	Medium	Likely	Moderate	Possible risk in place.
			Ingestion of home-grown produce.	Medium	Likely	Moderate	Possible risk in place.
		Flora	Plant Uptake. Direct Contact.	Medium	Likely	Moderate	Possible risk in place.
		Controlled Surface Water.	Leaching, lateral migration of shallow groundwater to a target receptor.	Medium	Low Likelihood	Moderate / Low	Clay soils will reduce the risks to and from the groundwater and controlled water features.
		Ground Water. Abstraction Well.	Leaching, migration through fissures / cracks which may migrate to a groundwater receptor.	Medium	Low Likelihood	Moderate / Low	Clay soils will reduce the risks to and from the groundwater and controlled water features.
TPHs Pesticides, Herbicides		Buildings. Construction Materials. Services	Direct contact with contaminated soils.	Medium	Likely	Moderate	Possible risk in place.
			Direct contact with contaminated groundwater.	Medium	Low Likelihood	Moderate / Low	Clay soils will reduce the risks to and from the groundwater and controlled water features.

Table 15 Overview of Risk Assessments - Proposed Site Use

Receptors	*Pathways*	*A* *Farm use (former)* *Hardcore yard areas* *Possible ACMs* *Tanks – fuel and fertilizers*
Site Users Construction Workers	Direct Contact, Inhalation of Dust and Fibres, Dermal Contact.	✓
	Ingestion of home-grown produce.	✓
	Ingestion of contaminated water through water main pipework.	✓
	Inhalation of vapours from soils.	✓
	Inhalation of vapor from contaminated ground waters.	✓
	Inhalation of land gas vapours.	X
	Inhalation Asbestos dust and fibres (from Asbestos within the building)	✓
	Inhalation Asbestos dust and fibres (from asbestos within the soil)	✓
Adjoining Landowners	Direct Contact, Inhalation of Dust and Fibres, Dermal Contact.	X
	Ingestion of home-grown vegetation.	X
	Ingestion of contaminated water through water main pipework.	X
	Inhalation of vapours from soils.	X
	Inhalation of vapours from contaminated ground waters.	X
Flora	Plant Uptake / Direct Contact.	✓
Groundwater; Abstraction Well & Surface Water	Leaching, lateral migration of shallow groundwater to a River or surface water receptor.	X
	Leaching, lateral migration of shallow groundwater system underlying the site and subsequent abstraction well or SPZ.	X
Construction Materials	Direct contact with contaminated soils.	✓
	Direct contact with contaminated groundwater.	✓

*NB: Due to Severe Consequence from Asbestos and Explosive Gases, some risk is assessed and potentially in place and therefore highlighted above.

GW Only: Some risks have been assessed as a direct result of potential mobilisation of groundwater contamination that may influence the site. A pictorial conceptual model has been reproduced within this report to confirm the above findings

16 Discussion on Sources of Contamination

Considering the risk assessment and conceptual site model produced, the following contaminants of concern have been identified based on land uses and features.

Table 16 Methodology for further assessment of potential contaminants

Risk Assessment	Land Use	Pollutant	
Risk Assessment A	**Farm use (former)** **Hardcore yard areas** **Possible ACMs** **Tanks – fuel and fertilizers**	**Soil, Groundwater & Vapour Risk** Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAHs, (EPA Priority 16), Phenols, Asbestos, Total Petroleum Hydrocarbons (aliphatic/ aromatic 8-Band), Pesticides, Herbicides. **Soil Sampling Groundwater & Vapour Assessment**	
Spatial Sampling, (General Assessment)		Moisture Content, pH, Electrical Conductivity, Cyanide, (Free), Cyanide, (Total), Organic Matter, Boron, Sulfate, (2:1 water soluble), Chromium, (Hexavalent), Sulfate, (Total), Arsenic, Cadmium, Chromium, Copper, Mercury, Nickel, Lead, Zinc, Speciated PAHs, (EPA Priority 16), Phenols. BS3882:2015	25-meter Centres In accordance with BS10175: 2011+A2:2017.
		Asbestos	5-10-meter Centres In accordance with BS10175: 2011+A2:2017.

17 Next Steps

Considering the information gathered to date, we would suggest that an appropriate way forward would be to assess the condition of the subsoil within the site resulting from the historical and former uses of the site as detailed within previous sections of this report. We would suggest that the most viable way of assessing risk will be to consider the following assessment techniques.

The assessment of the site proposed in this report and the following recommendations which are detailed below have been prepared in accordance with key guidance documents as follows: -

- National Planning Policy Framework.
- British Standards 10175:2011+A2:2017.
- Land contamination risk management (LCRM).
- DEFRA: Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, (April 2012).
- Environment Agency, (2010) GPLC1 Guidance Principles for Land Contamination.

The investigation is proposing to undertake the following at the site: -

- Determine the ground and groundwater conditions.
- Determine if there are any obstructions such as old service and foundations, buried tanks, etc.
- Obtain samples of the made ground, natural soils and groundwater, if encountered, for contamination testing at targeted site-specific designed locations. Test soil and groundwater, if encountered, samples for a range of contaminants, as identified in Table 16.
- Obtain samples of soil to test for vapours contaminants, as identified in Table 16.
- Visually appraise soils to consider olfactorily or visual presence of contamination factors, risk, vapours or fragments.
- All laboratory testing should be completed to MCERT/UKAS accredited standard.
- All detection limits provided by chemical laboratories must fall below the set screening values.

17.1 Soil Assessment

Soil sampling will be completed recovering samples in appropriate containers for analysis by the analytical chemist. All sampling will be sent directly to the chemist in cool boxes to retain the integrity of the soil sample.

At least one sample will be recovered and chemically tested from the natural underlying subsoil to consider any pollution within the lower soils. Most of the sampling and chemical analysis will be recovered from the upper made ground / FILL material where risk is likely higher. Should any areas of the soil profile recovered cause concern in terms of visual or olfactoral risk, this will be recorded, and testing completed.

Based on the site area and size of the site, (approximately 5000 m²), we would recommend that the site should be subjected to a sampling density of between 15-20 meter grid pattern or moderate risk pollutants which is broadly in line with that proposed by 10175:2011+A2:2017 and offers a greater density sampling pattern of 10-15 meter grid pattern for high risk pollutant such as Asbestos. As such, we can confirm that a likely 13-17 samples

locations will be required across the site to provide a 'good' spatial density and an additional 33-37 sample locations being tested for Asbestos.

Table 17 Soils Assessment - Targeted Sampling

Feature	Contaminant	Method of Investigation
Hardcore yard areas	Metals, Semi Metals, PAHs, TPHs, Asbestos.	Window Sampler Boreholes Hand Auger Boreholes Trial Pits
Possible ACMs	Asbestos	
Tanks – fuel and fertilizers	Metals, Semi Metals, PAHs, TPHs, Asbestos	

Table 18 Soils Assessment – Spatial Sampling

Feature	Contaminant	Method of Investigation
Farm use (former)	Metals, Semi Metals, PAHs, TPHs, Asbestos, Pesticides	Window Sampler Boreholes Hand Auger Boreholes Trial Pits

Upon completion of on-site sampling and the associated chemical analysis, the soil data will be compared against the Generic Assessment Criteria for residential land with home grown produce derived by AtRisk Soils which has been purchased as a reviewing standard. This has been prepared by Atkins as Soil Screening Values, (SSV's). Additionally, values will be adopted for screening values using LQM / CIEH – Suitable 4 Use Levels in the absence of Atkins adopted values.

17.2 Groundwater Assessment

To gain an understanding of the groundwater system and the level of risk in place, we can confirm that the following works should be completed: -

The Geology within the site should be confirmed.

- The depth of the Geology within the site should be assessed and if ground water is encountered or has the potential to be in place, some assessment of the risk to groundwater and surface water features should be carried out as well as potential human health risk from vapours.
    - Considering the size and nature of the site, the groundwater elevation may be perched at locations and as such, strikes may be local to lenses or pockets of more permeable ground to provide surface water runoff.

Standpipes should be installed across the site, to orientate the groundwater table to identify groundwater flow direction. Three standpipes should be installed for groundwater assessment such that orientation of the groundwater table can be undertaken.

- We would recommend that the installation of the boreholes at the site should be completed in order determine the groundwater elevation, if present. The boreholes should be left for a minimum period of one week to allow the groundwater to reach equilibrium at which time, purging of the standpipe well should be completed to consist of a minimum of 3 well volumes removed from the standpipes prior to samples

being recovered. Should groundwater be identified, sampling of the groundwater can be completed and retained in appropriate containers dependent upon the analysis proposed. The sample should then be sent to the analytical chemist for assessment in appropriate transport conditions.

- It is possible that groundwater assessments may require extending the standpipes through any superficial deposits suggested by the Envirocheck report.
- Considering the size and nature of the site should ground water risk be recorded within the site area each borehole should be sampled and tested for the range of pollutants as identified within this report. The potential risks should be initially assessed against the UK Drinking Water standard as a Tier 1 assessment Criteria with possible further assessments required where heavy contamination or risk deemed in place. Groundwater samples should be compared against the EQS standards, (Environmental Quality Standards).
- The assessment of groundwater will also be used to consider the risks to surface water features and whether the site may impact of this feature.
- Risk assessments A should be tested for so the extent of pollutants can be identified within the groundwater sample.

17.3 Land Gas Assessment

Limited sources of land gases are in place for the site area, should significant made ground or organic matter be encountered within the site area reassessment may be required, although for the information collect to date the risk of this is low.

17.4 Vapour Risk Assessment

Considering the potential for vapour risk to be in place from various source as noted below, the following risk are in place.

Table 19 Vapour Risk Assessment - Response Zone

Feature	Targeted Response Zone	Location to Target	Vapour risk
Farm use (former)	Made Ground	Site wide	TPHs
Hardcore yard areas	Made Ground	Site wide	TPHs
Tanks – fuel and fertilizers	Made Ground	Around the features	TPHs

Considering the above, we would suggest that soil testing is undertaken to assess whether contamination that may promote a vapour risk is in place within the site area and the groundwater.

17.5 Working Brief

It should be noted that this investigation is undertaken to identify the extent of contamination because of historic and ongoing use. Should any areas of the site be encountered within the development that appear potentially contaminated through visual or olfactory assessment outside that discussed within this report, consultation with ourselves should be undertaken to identify the risk associated with the material.

Table 20 *Overview of Works*

Receptor	*Scope of Investigation Works Required Assessment of:*			*Proposed Method of Assessment*	*Proposed Site Works to Complete*
	Soils	*Vapour and Gas*	*Ground and Surface Water*		
Human Health	✓	✓	✓	Window Sampling - Soil sampling	Recover samples of the made ground. Assessment of the underlying natural soils to consider contamination. Groundwater Risk Assessment. Vapour Risk Assessment. Analysis of soil samples for GQRA Assessment. Reporting.
Surface Water	✓	X	X	Window Sampling - Soil sampling	Recover samples of the made ground. Assessment of the underlying natural soils to consider contamination. Groundwater Risk Assessment. Vapour Risk Assessment. Analysis of soil samples for GQRA Assessment. Reporting.
Ground Water	✓	X	X		
Services & Building	✓	✓ #	X	Window Sampling - Soil sampling	Recover samples of the made ground. Vapour Risk Assessment. Groundwater Assessment. Analysis of soil samples for GQRA Assessment. Reporting.
Geotechnical Assessment	✓	N/A	X	Window Sampling	Recover samples of the natural soils for laboratory testing. Assessment of shallow soils for conventional foundation. Consider deeper or piled foundations. Reporting.

NB * Initial assessments of the site should be undertaken using Leachate Testing and water sampling if required.
\# Complete soils testing to assess if vaporous contamination is in place within the site area.

APPENDIX ONE

ADDITIONAL INFORMATION

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 516992,270311



This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**

Transport | **Docks** | **Luftwaffe targets**

Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirm that there is a low potential for UXO to be present on your site, then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to pdsa@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgement. The copyright remains with Zetica Ltd.

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	**517003/270319**	**25 November 2025 12:24**

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. https://flood-map-for-planning.service.gov.uk/os-terms



Environment Agency

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
517003/270319

Scale
1:2,500

Created
25 Nov 2025 12:25

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60 m

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APPENDIX TWO

CONCEPTUAL MODEL

HESI
Herts & Essex Site Investigations

Unit J8 | Peek Business Park | Woodside | Bishops Stortford | CM23 5RG
01920 822233 | www.hesi.co.uk | info@hesi.co.uk
Geotechnical Assessments | Environmental Assessments | Desktop Studies | Contamination Analysis

Appendix No	2
Sheet No	1
Job No	19950
Date	Nov 2025

Redwood Lodge Farm, Grafham Road, Ellington PE28 0AP

Site Conceptual Model - Proposed Site Plan

Potential Pathways

Human Heath

1. Direct contact with contaminants in soil/dust or water
2. Inhalation of contaminants through soil/dust/particles
3. Dermal Contact
4. Ingestion of home grown produce
5. Ingestion of contaminated water through water main pipework
6. Inhalation of Land Gases / Vapours From Soils
7. Inhalation of Vapours from Groundwater
8. Migration to off site Adjoining Land Owners

Flora

9. Plant uptake & direct contact with soil

Controlled Surface Water, Ground Water & Abstraction Well

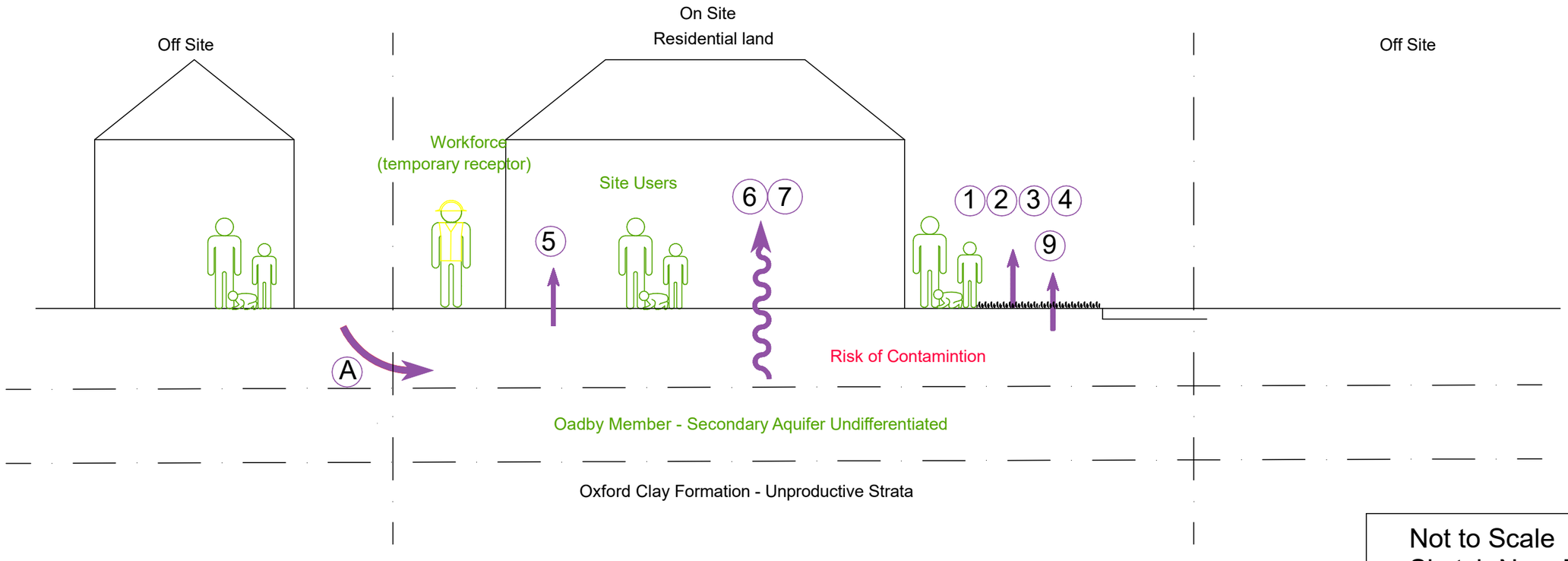
10. Leaching, lateral migration of shallow groundwater to a target receptor

Off Site Sources

A. Migration of contamination to the site area
B. Migration of land gases/ vapours to the site area
C. Migration of contaminated groundwater to the site area

Key

Purple =Possible pathways
Green =Possible receptors
Red =Possible sources
Grey = Not in place within this site



Not to Scale
Sketch No. : DTS / 19950 / 02 / 01

APPENDIX THREE

SITE PLANS

HESI
Herts & Essex Site Investigations
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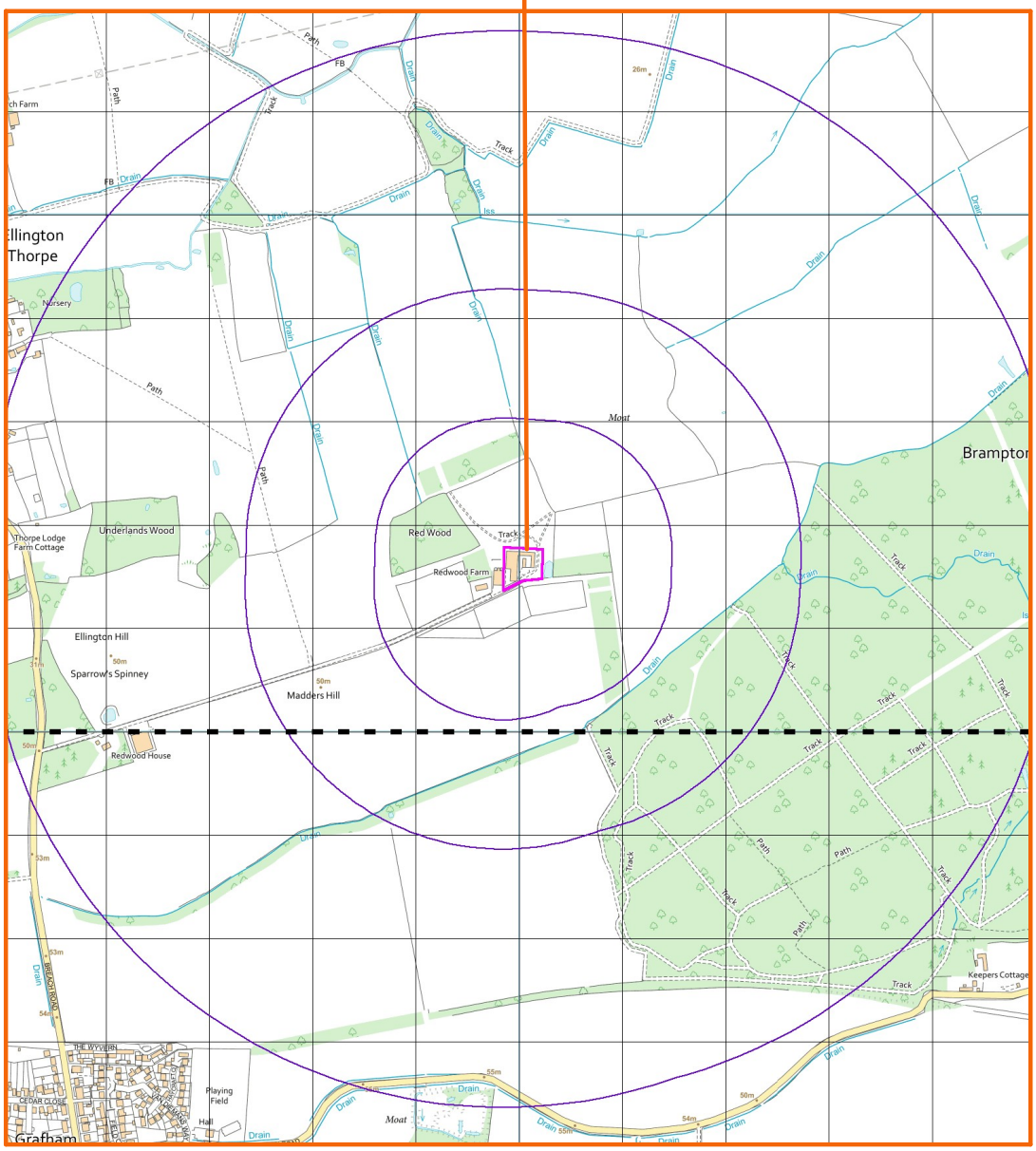
Geotechnical Assessments | Environmental Assessments | Desktop Studies | Contamination Analysis

Redwood Lodge Farm, Grafham Road, Ellington PE28 0AP

Location Plan

N

The site



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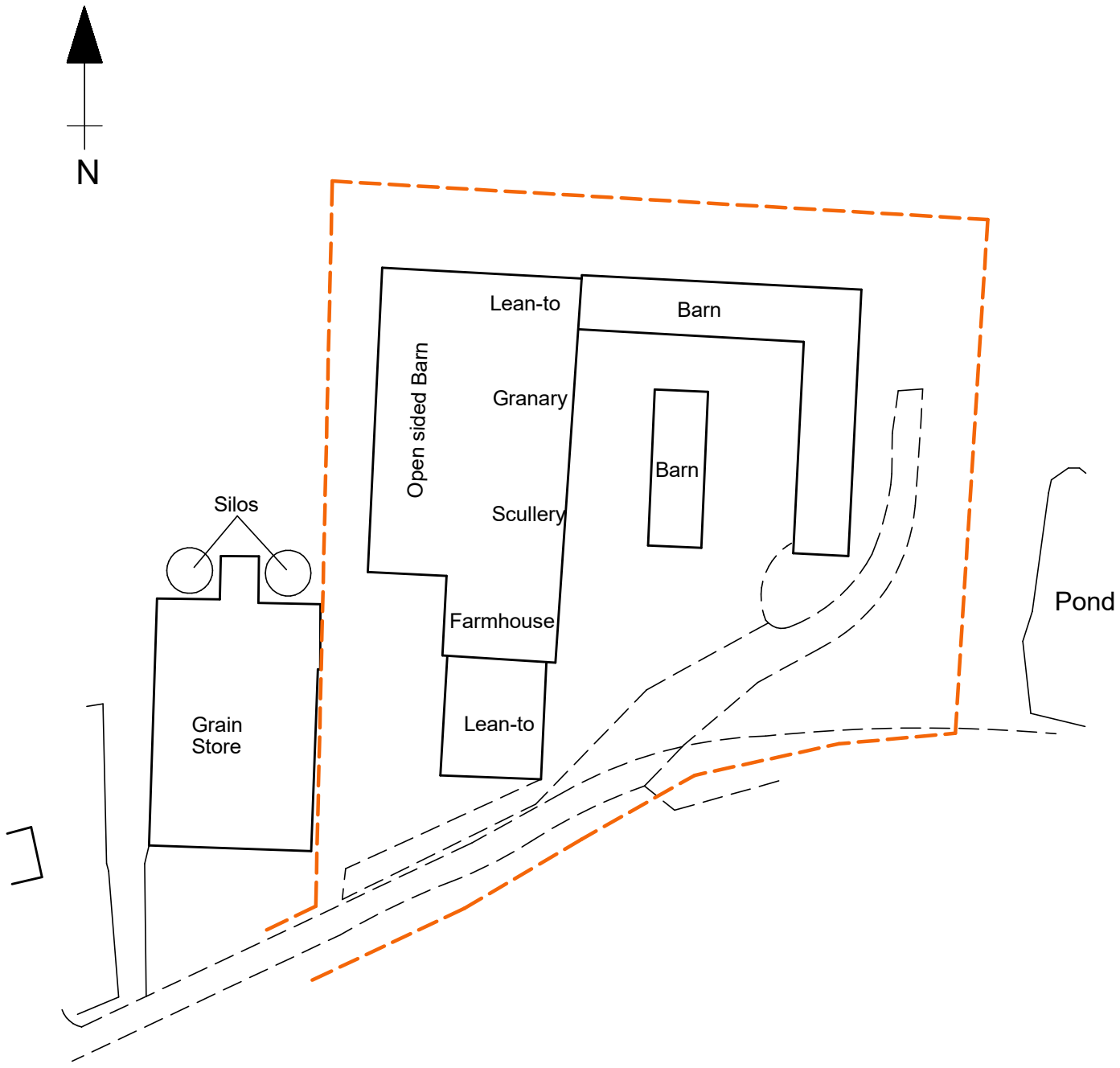
Appendix No	3
Sheet No	2
Job No	
Date	Nov 2025

Redwood Lodge Farm, Grafham Road, Ellington PE28 0AP

Existing Site Plan



Not to Scale
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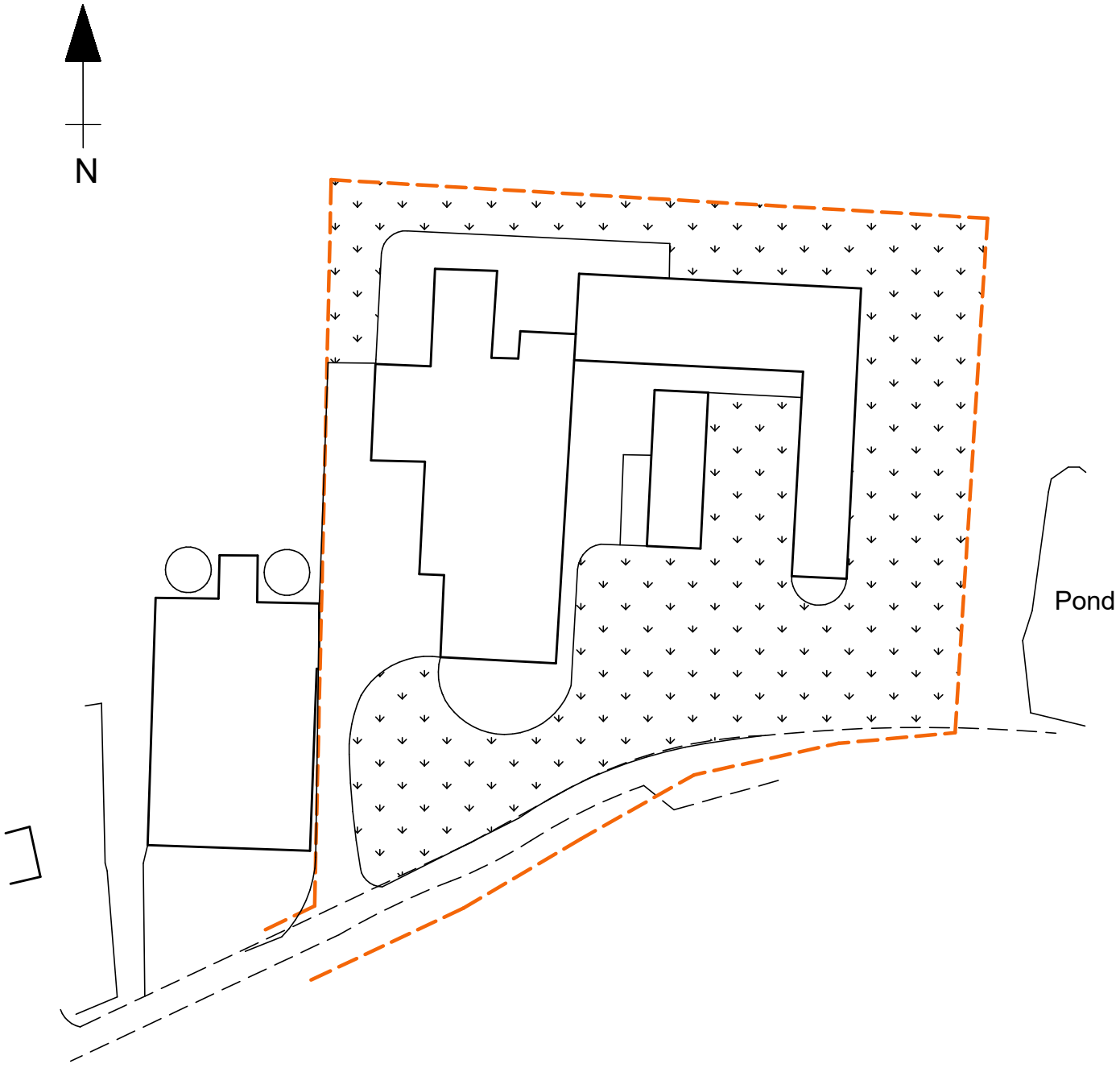
Appendix No	3
Sheet No	2
Job No	
Date	Nov 2025

Redwood Lodge Farm, Grafham Road, Ellington PE28 0AP

Proposed Site Plan



Not to Scale
Sketch No. : DTS / 19950 / 03 / 03