



DESK STUDY REPORT

for the site at

HURST FARM, TURNERS HILL ROAD



CRAWLEY DOWN, WEST SUSSEX

RH10 4HN

on behalf of

WATES LAND AND DEVELOPMENT

Desk Study Report

Report:	DESK STUDY REPORT
Site:	HURST FARM, TURNERS HILL ROAD, CRAWLEY DOWN, WEST SUSSEX
Client:	WATES LAND AND DEVELOPMENT
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CONTENTS

1.0	INTRODUCTION.....	1
1.1	General.....	1
1.2	Form of Development.....	1
1.3	Objectives.....	1
1.4	Standards and Guidance.....	1
1.5	Conditions.....	2
2.0	DESK STUDY.....	4
2.1	Site Walkover/Description.....	4
2.2	Historical Mapping.....	5
2.3	Geology.....	6
2.4	Hydrogeology.....	6
2.5	Hydrology.....	7
2.6	Radon.....	7
2.7	Environmental Data.....	8
2.8	Agricultural Designation.....	9
2.9	Soil Chemistry.....	9
2.10	Sensitive Land Uses.....	10
2.11	Geotechnical Data.....	11
2.12	Landfill and Waste Management Facilities.....	11
2.13	Asbestos.....	12
2.14	Previous Ground Investigations.....	12
2.15	Unexploded Ordnance (UXO).....	13
2.16	Climate Change.....	13
2.17	Potential Contamination Summary.....	13
2.18	Ground Gas and Vapour Summary.....	14
3.0	PRELIMINARY ASSESSMENT.....	15
3.1	Geotechnical Risk Assessment.....	15
3.1.1	Potential Geotechnical Issues.....	15
3.2	Preliminary Environmental Conceptual Site Model & Risk Assessment.....	15
3.2.1	Methodology.....	15
3.2.2	Summary of Plausible Sources.....	16
3.2.3	Summary of Plausible Pathways.....	17
3.2.4	Summary of Plausible Receptors.....	17
3.3	Preliminary Environmental Risk Assessment Summary.....	22
3.4	Preliminary Geotechnical Risk Assessment Summary.....	22

FIGURES

FIGURE 1	Site Location Plan
FIGURE 2	Exploratory Hole Location Plan (Existing Layout)
FIGURE 3	Exploratory Hole Location Plan (Proposed Layout)

APPENDICES

APPENDIX A	Site Walkover Record, Desk Study Information
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1.0 INTRODUCTION

1.1 General

Geo-Environmental Services Limited (Geo-Environmental) was instructed by Wates Land and Development to undertake an investigation of the geotechnical and geo-environmental factors pertaining to proposed redevelopment of the site at Hurst Farm, Turners Hill Road, Crawley Down, West Sussex, RH10 4HN (herein referred to as 'the site'). The site's location is presented in Figure 1.

1.2 Form of Development

The site is proposed to be developed with a care home with communal gardens and soft landscaping, access road and associated infrastructure.

1.3 Objectives

The investigation was to comprise a desk study of geotechnical and environmental factors pertaining to the site, including a site walkover survey, a review of available historical maps and an examination of other sources of geo-environmental and geotechnical information.

A Preliminary Risk Assessment (PRA) was to be undertaken as part of the desk study in accordance with Land Contamination Risk Management (LCRM). A provisional UXO Threat Assessment was also to be undertaken as part of the desk study. The objective of the risk assessment was to evaluate plausible pollutant linkages with respect to the proposed development, adjacent land uses, and the wider environment, in the context of planning, immediate liabilities under the Environmental Protection Act 1990, and risks posed to Controlled Waters under the Water Resources Act 1991.

1.4 Standards and Guidance

Where practicable, the ground investigation and subsequent geotechnical and environmental assessments were undertaken in accordance with the following documents and guidance:

- British Standards Institute - Code of Practice for Earth Retaining Structures (BS8002:2015).
- British Standards Institute - Code of Practice for Site Investigations (BS5930:2015+A1:2020).
- British Standards Institute - Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings (BS8485:2015+A1:2019).
- British Standards Institute - Eurocode 7 - Geotechnical Design - Parts 1 & 2 (BS EN1997-1:2004 & BS EN1997-2:2007).
- British Standards Institute - Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs) (BS8576:2013).
- British Standards Institute - Investigation of Potentially Contaminated Sites - Code of Practice (BS10175:2011+A2:2017).
- British Standards Institute - Soils for Civil Engineering Purposes (BS1377:1990).
- British Standards Institute - Specification for Topsoil and Requirements for Use (BS3882:2015).
- Building Research Establishment - Soakaway Design - DG 365 (2016).
- Building Research Establishment - The Performance of Building Materials in Contaminated Land (BRE255) (1994).
- Construction Industry Research and Information Association - Assessing risks posed by hazardous ground gases to buildings (C665) (2007).
- Department for Environment Food and Rural Affairs and CL:AIRE - Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (SP1010) (2014).



- Department of Environment - Industry Profiles (1995 - 1996).
- Environment Agency - Guidance for waste destined for disposal in landfills (2006).
- Environment Agency - Guidance on Requirements for Land Contamination Reports (2005).
- Environment Agency - Land Contamination Risk Management (LCRM) (2025).
- London Borough of Hammersmith and Fulham - The Local Plan (2018)
- Ministry of Housing, Communities and Local Government - National Planning Policy Framework (2023).
- National House Building Council, Environment Agency & Chartered Institute of Environmental Health - Guidance for the Safe Development of Housing on Land Affected by Contamination (R&D Publication 66) (2008).
- National House Building Council - Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present (10627-R01[04]) (2007).
- National House Building Council - Standards, Chapter 4.1 Land Quality - Managing Ground Conditions (2025).
- National House Building Council - Standards, Chapter 4.2 Building Near Trees (2025).

1.5 Conditions

This report does not purport to be a “Geotechnical Design Report” as defined in Clause 2.8 of Eurocode 7 (Geotechnical Design BS EN 1997-1:2004) and some of the data used to support this preliminary geotechnical assessment may not be fully compliant with that design code. It is considered possible that further detailed ground investigations could be required to facilitate the detailed geotechnical design process and should be carried out on a structure specific basis if necessary.

The data collected from the investigations have been used to provide an interpretation of the geotechnical and/or environmental conditions pertaining to the site. The recommendations and opinions expressed in this report are based on the data obtained. Geo-Environmental takes no responsibility for conditions that either have not been revealed in the available records, or that occur between or under points of physical investigation. Whilst every effort has been made to interpret the conditions, such information is only indicative and liability cannot be accepted for its accuracy.

It should be noted that in particular the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. Additionally, the absence of asbestos noted during the site walkover or within any soil samples analysed does not guarantee the absence of asbestos within buildings, within or bonded to concrete, as discrete burials, or within the soil mass elsewhere within a site. This report must not be taken as, or assumed to imply, any guarantee that a site is free of hazardous or potentially contaminative materials.

Information contained in this report is intended for the use of the Client and Geo-Environmental can take no responsibility for the use of this information by any party for uses other than that described in this report. Geo-Environmental makes no warranty or representation whatsoever express or implied with respect to the use of this information by any third party. Geo-Environmental does not indemnify the Client or any third parties against any dispute or claim arising from any finding or other result of this investigation report or any consequential losses.

Assessment criteria or other parameters developed for the evaluation of contamination on this site are based on a number of assumptions regarding exposure and toxicology. Exposure to contaminants and levels of adverse effects may therefore vary. Whilst reasonable care and expertise has been employed in the development of such criteria, no liability is accepted in this respect. Other criteria or guidance on the development of assessment criteria may be published in the future, and no liability is accepted in this respect.

This report remains the property of Geo-Environmental and the Client has no rights to, or reliance upon this document or supporting documents until such time as payment has been received in full for all invoices for works



Desk Study Report

undertaken in connection with this report.



2.0 DESK STUDY

The findings of the Phase I desk study are presented in the following section. A copy of the historical maps and other information obtained as part of the desk study are presented in Appendix A. Comments made in the following section regarding possible ground conditions on the site are based purely on the findings of the desk study.

2.1 Site Walkover/Description

At the time of the site walkover, the site comprised an irregular shaped parcel of land centred on NGR 533607, 138077 and extending to c.2.22 hectares. The site appeared mostly flat and level although the easternmost part of the site sloped down gently to a farmyard with a change in height of between 0.5m and 1.0m. The southeastern side was cut to create a level area for the farmyard buildings. The northwesternmost portion sloped down gently towards the north-west. Within the westernmost and northwesternmost portions, adjacent properties were c.0.5m to 1.0m lower than that part of the site.

The site consisted of residential properties with gardens and parking along with the main access within the eastern portion. To the west there was an area fenced off as a chicken run along with a chicken coop, directly opposite was a modern steel barn with a rusty sign 'Pauls Stationary Power Museum', however the contents included a telehandler, tractors, a few items of old machinery and a conveyor.

To the west of the chicken run and museum were two large rectangular buildings, which had formerly been used for rearing chickens. The northern building had been partly converted into a country store although it was understood this had closed down twelve months previous. Behind the shop were toilets, a preparation area and a large walk-in refrigerator. Adjacent to the former shop was an area of hardstanding that had been used for car parking. Inside, to the rear of the shop, various vehicles were stored, no staining of the concrete floor was noted. The western part of the building was dilapidated with a potential corrugated asbestos cement roof, guttering and some side panels. This area was not entered due to its condition however, looking through a doorway a trailer, tyres and a small amount of scrap metal were noted to be stored within it.

The southern rectangular building was in a derelict condition with parts of the potential corrugated asbestos cement roof, asbestos guttering and asbestos side panels having collapsed within its footprint. The eastern and westernmost ends of the building were still in use by the landowner however, due to the buildings condition these areas were not entered. Immediately east of the building was a small outbuilding made of potential asbestos cement board, this was in better condition but was locked. The contents of the building were unknown. Between the southern building and outbuilding was a refrigerated trailer and scrap farm equipment. Between these buildings and the museum was a lawned area, a poly tunnel, former poly tunnel and a small dry pond. To the south of the southern building was a lawned area with mostly scrap machinery, empty oil drums and many pallets. Between the two central buildings was a portacabin, former HGV trailer, scrap machinery and empty drums. One of the drums was labelled Gas Oil. Dividing the two buildings was an access track leading to the west.

To the west of the two main buildings was a more recent open sided barn with machinery stored including an old excavator, tractor, wood splitter and tractor forks. In addition, there were tonne sacks of split firewood, stacked lengths of timber and various scrap items. Immediately in front of the barn were several large overgrown stockpiles with bits of scrap machinery and an old storage container. Beyond the stockpiles was a bonfire area and more scrap machinery. The northern portion was formed of a field with three large empty chicken coops. Some drainage covers were noted, it was believed that these storm drains discharged to a ditch to the north, a pond was also noted within the northwestern portion within a wooded area. A cesspit was also noted immediately northeast of the farmyard. The westernmost portion was formed of woodland and was part of a greater area of woodland.



Desk Study Report

The surrounding area comprised a strip of woodland with a ditch and residential properties beyond to the north, Turners Hill Road and residential properties to the east, and new residential housing estate, woodland and fields to the south and woodland to the west.

The site was bound by mature trees, hedges, fencing and temporary electric fencing, site access was via Turners Hill Road to the east.

2.2 Historical Mapping

Historical maps dating back to 1874 were obtained as part of the Groundsure dataset. A summary of the apparent key features observed on the map extracts both on the site and within the local area is presented within Table 2.1.

Date	On-site	Off-site
1874 1:2,500	The site was shown to predominantly form Pescotts Wood, with the easternmost portion forming part of a field.	The surrounding land comprised part of Pescotts Wood, Westlands Farm and a field network to the north, a field with a well within it, a scattering of residential properties and a nursery to the east, Pescotts Wood with fields beyond to the south, and Pescotts Wood to the west.
1874 1:10,560	No significant changes noted.	No significant changes noted.
1895-96 1:10,560	No significant changes noted.	No significant changes noted.
1896 1:10,560	No significant changes noted.	No significant changes noted.
1897- 1898 1:2,500	No significant changes noted.	No significant changes noted.
1909- 1910 1:10,560	No significant changes noted.	No significant changes noted.
1910 1:2,500	No significant changes noted.	No significant changes noted.
1914 1:10,560	No significant changes noted.	No significant changes noted.
1937 1:2,500	The easternmost portion of the site included a residential property.	There had been a small amount of residential development to the southeast.
1948 1:10,560	No significant changes noted.	No significant changes noted.
1959 1:2,500	The majority of the woodland had been cleared, with only the westernmost portion wooded. Within the easternmost portion of the formerly wooded area were three agricultural buildings. In addition, three outbuildings were indicated adjacent to the residential property.	There had been some residential development to the north, east and southeast.
1963 1:10,560	No significant changes noted.	No significant changes noted.



Date	On-site	Off-site
1968 1:10,560	No significant changes noted.	No significant changes noted.
1974 1:10,000	Two long poultry houses were noted centrally, the footprint of the buildings were commensurate with those observed during the site walkover.	No significant changes noted.
1974- 1976 1:2,500	No significant changes noted.	No significant changes noted.
1987 1:2,500	In addition to the poultry houses, a further four agricultural buildings were noted.	No significant changes noted.
1987- 1990 1:2,500	The open space around the poultry houses had been subdivided into four areas.	A garage was noted c.130m southeast.
1992 1:10,000	The agricultural buildings were no longer indicated.	No significant changes noted.
1993 1:2,500	The four former agricultural buildings were replaced with a single large building. A smaller building was indicated adjacent to the southern poultry house. The residential property had been substantially extended.	No significant changes noted.
2001 1:10,000	No significant changes noted.	No significant changes noted.
2010 1:10,000	An agricultural building was noted within the southwest, while two smaller buildings were noted within the north.	No significant changes noted.
2025 1:10,000	No significant changes noted.	There had been some residential development immediately to the southeast of the site.

Table 2.1 Summary of Historical Map Extracts

The site originally formed woodland and part of a field c.1874, prior to a residential property being built on the field c.1937, the woodland being cleared c.1959 and poultry houses constructed c.1974. between 1959 and 2010 various agricultural buildings were constructed around the site. No other significant changes were noted.

The surrounding area initially formed woodland, farmland, a scattering of residential properties and a nursery c.1874. Some residential development was noted c.1937, c.1959 and c.2025. A garage was noted 130m southeast c.1987, due to the small-scale mapping from c.2001, it was unclear if the garage was still in use. No other significant off-site changes were noted.

2.3 Geology

Published geological records indicate that the ground conditions are likely to comprise Upper Tunbridge Wells Sand.

The Upper Tunbridge Wells Sand consists of variegated soft mudstones, silts, thinly bedded sandstones and occasional clay ironstones. The clay bands usually weather to red and the silts to mottled grey and orange.

2.4 Hydrogeology



With reference to Groundsure data, the bedrock deposits were classified as a Secondary A Aquifer.

Secondary A Aquifers permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

According to information provided from the Environment Agency the site was not indicated to be located within a Source Protection Zone (SPZ). An SPZ is a protection zone placed around a well or borehole that supplies groundwater of potable quality.

There were no groundwater abstractions, discharge consents to ground/groundwater or pollution incidents to groundwater recorded by the Groundsure dataset within 500m of the site boundary.

The Groundsure data indicated that the site was not in an area which has the potential for groundwater flooding of property to occur.

2.5 Hydrology

Two surface water features were indicated to be on-site, these were located around northern and western site boundaries. In addition, a ditch was noted within the eastern portion of the site adjacent to the residential property. Running north to south.

No surface water abstractions were recorded by the Groundsure dataset within 500m of the site boundary.

One discharge to controlled waster was identified within 500m of the site:

- 444m SE – Team Fuels Depot, Crawley Down, miscellaneous discharges to freshwater river, revoked 04/07/1996.

One pollution incident to surface water was recorded within 500m of the site boundary:

- 460m SE – Atmospheric pollutants and effects (droplets), category 4 no impact, 25/08/2003.

The site was not indicated to be within an area at risk of flooding from rivers or seas without defences.

The site was at a high risk of flooding from surface water within the central and western portions of the site with a 1 in 30 year return, greater than 1.0m. It is recommended that a detailed flood risk assessment be commissioned for the site if one hasn't already been completed.

2.6 Radon

Reference has been made to the Groundsure dataset which indicates the site to be situated in a lower probability radon area (<1% of homes are estimated to be at or above the Action Level).

The report indicates that radon protection measures are not required in the construction of new dwellings or extensions on site.

**2.7 Environmental Data**

Searches of other various environmental databases were made as part of the desk study, including air pollution control sites, Part IIA contaminated land, Integrated Pollution Control (IPC) and Integrated Pollution Prevention and Control (IPPC) site, registered radioactive substances, COMAH sites, explosives sites, Notification of Installations Handling Hazardous Substances (NIHHS) sites, planning permissions for sites involving hazardous substances, contemporary trade directories and fuel station registers.

The desk study identified 15No. historical industrial land uses within 500m of the site, details of which are presented in Table 2.1

Distance and Direction (m)	Land Use	Dates Present
14m East	Nursery	1948
14m East	Nursery	1910
14m East	Nursery	1896
63m Northeast	Nursery	1914
63m Northeast	Nursery	1896
63m Northeast	Nursery	1874
64m Northeast	Nursery	1914
65m Northeast	Nurseries	1992
65m Northeast	Nurseries	1974
65m Northeast	Nurseries	1963
65m Northeast	Nursery	1968
361m East	Smithy	1914
363m East	Smithy	1914
477m North	Unspecified Tank	1948
491m North	Unspecified Tank	1992

Table 2.1 Historical Industrial Land Uses within 500m

The desk study identified 2No. recent industrial land uses within 250m of the site, details of which are summarised in Table 2.2.

Location	Company	Activity	Category
On-site	Family Cook	Poultry Farming, Equipment and Supplies	Farming
164m SE	Electricity Sub-station	Electrical Features	Infrastructure

Table 2.2 Summary of the recent industrial land uses within 500m of site

The desk study identified 6No. historical tank records within 500m of the site, details of which are presented in Table 2.3 below.

Distance and Direction (m)	Land Use	Dates Present
431m E	Tanks	1968
431m E	Tanks	1990
431m E	Tanks	1983
431m E	Tanks	1980
489m N	Unspecified Tank	1937
490m N	Unspecified Tank	1959

Table 2.3 Historical Tanks within 500m



Desk Study Report

The desk study identified 2No. historical energy features within 500m of the site, details of which are presented in Table 2.4 below.

Distance and Direction (m)	Land Use	Dates Present
322m NE	Electricity Sub-Station	1987
324m NE	Electricity Sub-Station	1993

Table 2.4 Historical Energy Feature within 500m

The desk study did not identify any historical petrol stations or historical military land within 500m of the site.

The desk study information identified 6No. historical garages within 500m of the site.

Distance and Direction (m)	Land Use	Dates Present
129m SE	Garage	1976-1990
267m N	Garage	1993
388m E	Forge Garage	1990
389m E	Garage	1980-1983
390m E	Forge Garage	1995
390m E	Forge Garage	1968

Table 2.5 Historical Garages within 500m

2.8 Agricultural Designation

The Groundsure dataset indicates that the agricultural land classification for the site as Grade 4, poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

2.9 Soil Chemistry

A large portion of the UK's urban soils have naturally elevated concentrations of some potentially harmful chemicals. In some cases, these exceed Atkins' ATRISK Soils Screening Values (SSV) and/or DEFRA's Category 4 Screening Levels (C4SLs). A summary of the estimated urban soil chemistry for the area is presented in Table 2.5.

Determinand	Concentration (mg/kg)	In Excess of SSV/C4SL*?
Arsenic	15	No
Cadmium	1.8	No
Chromium	60 - 90	No
Lead	100	No
Nickel	15 - 30	No

Table 2.5 Summary of Estimated Site Geochemistry

*Comparative threshold concentrations are for a residential end use without plant uptake and a soil organic matter content of 6%

It should be noted that these values are not necessarily representative of the site's soil chemistry and do not account for the site's historic use, or potential presence or condition of any Made Ground. Furthermore, screening values are dependent on pH and soil organic matter content. Therefore, concentrations of specific determinands and the utilised screening values cannot be determined without site specific investigation and analysis.



2.10 Sensitive Land Uses

A search was made of environmentally sensitive areas, including areas of green belt, scenic or natural beauty, parks, reserves, nitrate zones, protected conservation and scientific areas identified as part of the Groundsure dataset.

8No. areas of designated ancient woodland were recorded within 500m of the site:

- On-site – Pescotts Wood West, ancient and semi-natural woodland.
- On-site – Pescotts Wood East, ancient and semi-natural woodland.
- 118m West – Wins Wood, ancient and semi-natural woodland.
- 143m Northwest – Westlands Wood, ancient and semi-natural woodland.
- 194m Southwest – Bushy Wood, ancient and semi-natural woodland.
- 254m South – Kiln Wood, ancient and semi-natural woodland.
- 408m North – Westlands Wood Ext2, ancient and semi-natural woodland.
- 451m Southeast – Front Wood, ancient and semi-natural woodland.

Four nitrate vulnerable zones were identified within 500m of the site boundary:

- 15m East – Medway at Weir Wood, surface water.
- 138m Northeast – Eden Brook East of Lingfield, surface water.
- 307m East – Eden Brook East of Lingfield, surface water.
- 404m Southeast – Medway at Weir Wood, surface water.

The site was within a SSSI Impact Risk Zone – Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Two listed buildings were recorded within 500m of the site:

- 19m North – Westlands, grade 2, listed 11/05/1983.
- 137m East – Heatherwood South and Heatherwood West (formerly Oaklawn), grade 2, listed 16/06/2009.

Sixteen priority habitat inventory areas were identified within 250m of the site:

- On-site – deciduous woodland.
- On-site – deciduous woodland.
- On-site – deciduous woodland.
- 18m North – deciduous woodland.
- 37m Northeast – no main habitat but additional habitats present.
- 54m North – deciduous woodland.
- 64m Northeast – deciduous woodland.
- 67m East – deciduous woodland.
- 87m South – deciduous woodland.
- 88m East – deciduous woodland.
- 107m West – deciduous woodland.
- 111m West – deciduous woodland.
- 144m North – deciduous woodland.



Desk Study Report

- 148m North – deciduous woodland.
- 198m East – deciduous woodland.
- 221m North – deciduous woodland.

2.11 Geotechnical Data

The site was located within an area considered by the Coal Authority as an area that might not be affected by coal mining activity.

National databases for several different geological hazards have been compiled by the BGS, and a summary of the hazard data pertaining to the site itself is presented in Table 2.6.

Hazard	Designation
Non-coal mining	None recorded within 500m of the site
Collapsible ground	Very low
Compressible ground	Negligible
Ground dissolution	Negligible
Landslide	Very low
Running sand	Negligible
Shrinking and Swelling clay	Negligible

Table 2.6 Summary of BGS Geological Hazards

With reference to the Groundsure dataset, no BGS Mineral Sites, areas of mining instability, man-made mining cavities or natural cavities were identified within 250m of the site boundary.

2.12 Landfill and Waste Management Facilities

A search of BGS recorded landfill sites, IPC registered waste sites, licensed waste management facilities, local authority recorded landfill sites, other registered landfill sites, potentially infilled land (water and non-water), waste transfer stations, and other waste treatment or disposal sites was undertaken as part of the desk study. Such sites may form an artificial source of ground gases, such as carbon dioxide and methane, where wastes are buried or disposed of to landfill.

One historical landfill (EA/NRW records) was identified within 500m of the site boundary:

- 411m North – Hillcrest, Cawley Down, inert waste, last recorded 31/12/1982.

The desk study identified 8No. waste exemptions within 250m of the site, details of which are outlined within Table 2.7.

Location	Site	Reference	Category	Sub-Category	Description
On-site	Hurst Farm	WEX185696	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a plant health notice
On-site	Hurst Farm	WEX185696	Disposing of waste exemption	On a farm	Burning waste in the open



Location	Site	Reference	Category	Sub-Category	Description
On-site	Hurst Farm	WEX026983	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a plant health notice
On-site	Hurst Farm	WEX026983	Disposing of waste exemption	On a farm	Burning waste in the open
On-site	Hurst Farm	EPR/CE082PN/A001	Disposing of waste exemption	Agricultural waste only	Deposit of agricultural waste consisting of plant tissue under a plant health notice
On-site	Hurst Farm	WEX315553	Disposing of waste exemption	On a farm	Buring waste in the open
On-site	Hurst Farm	WEX315553	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a plant health notice

Table 2.7 Summary of Waste Exemptions within 250m of site

Given the location and type of exemptions, these waste exemptions could have resulted in localised adverse or detrimental effect on the subject site with the residues from the burning of waste on-site forming a potential contamination source.

2.13 Asbestos

Potential asbestos containing materials (ACMs) were identified on the site during the site walkover within the fabric of the existing buildings.

Consideration for the potential for asbestos to be present within the Made Ground, shallow soils and any stockpiles, etc. on the site should be given when designing any site investigations, therefore asbestos identification should be included within the suite of testing of contaminants on site. The absence of asbestos identified as part of the site walkover is not a guarantee of the absence of asbestos elsewhere on a site.

Consideration for the potential for asbestos to be present within the shallow soils or entrained within or below concrete on the site should be given when designing any site investigations, therefore asbestos identification should be included within the suite of testing of contaminants on site. The absence of asbestos in soil samples analysed is not a guarantee of the absence of asbestos elsewhere on a site.

2.14 Previous Ground Investigations

Geo-Environmental was not made aware of any previous investigations into the subject site however, Geo-Environmental has previously undertaken investigations of the adjacent site for which site is to adjoin to. For



further details please refer to reports desk study GE21953/DSR/DEC23, ground appraisal GE21953-GAR-JAN24, letter report GE21953 – LRv1AP240203, and ground investigation report GE22817-GIR-APR25.

2.15 Unexploded Ordnance (UXO)

As part of the Desk Study process for the adjacent site (forming part of the same development), a Preliminary UXO Risk Assessment had been commissioned.

The summary and conclusions were as follows:

During WWII, the site was situated in the Rural District of Cuckfield. According to official Home Office bombing statistics, this district sustained an overall very-low density of bombing with an average of 9.3 items of ordnance dropped per 1,000 acres.

Given the size of the site, it has not proven possible to determine if the site was bombed at this preliminary stage. OS mapping shows the site as being predominantly undeveloped during WWII, meaning a likely limited level of access or post-raid UXO checks during WWII. Infrequent access may increase the likelihood that obvious indicators of UXO, such as entry holes or craters, may have gone unnoticed and unreported.

Due to this anticipated poor wartime access, alongside the large scale of the site footprint, the lack of bombing-related information available at this preliminary stage, and the proximity of the site to a light anti-aircraft gun emplacement, the possibility of on-site UXO contamination cannot currently be confidently discounted at this stage.

2.16 Climate Change

Climate change is a factor for consideration under LCRM. Current climate models are showing an increase in extreme weather patterns, with extended periods of warm dry weather and/or extreme wet weather and flooding.

The effect of extreme and/or extended dry weather and extreme wet weather and flooding should be considered further as part of the proposed works. As such, the potential risk of mobilising contaminants if identified in relation to flooding, overland flow and high groundwater should be considered as part of the assessment. Consideration of the effect of extreme and/or extended dry weather should also be considered further as part of the proposed works in terms of an assessment of potential for contamination if/where contaminants are identified. However, the risks associated which such periods would only apply where contamination has been identified/is present which would be considered as part of the wider contamination assessment of the site.

2.17 Potential Contamination Summary

The site originally formed woodland and part of a field c.1874, prior to a residential property being built on the field c.1937, the woodland being cleared c.1959 and poultry houses constructed c.1974. between 1959 and 2010 various agricultural buildings were constructed around the site.

The surrounding area initially formed woodland, farmland, a scattering of residential properties and a nursery c.1874. Some residential development was noted, and a garage was noted 130m southeast.

Not all of these land uses are specifically covered by the National House Building Council (NHBC), Environment Agency (EA) and Chartered Institute of Environmental Health (CIEH) publication 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (2008), which provides a summary of industrial profiles (1995-1996) published by the former Department of the Environment (DoE) (now part of the Department for Environment, Food and Rural Affairs (DEFRA)). However, there are entries for the following:



- *Road vehicle fuelling, service and repair – garages and filling stations. As no fuel filling stations were recorded, it was likely that the garage was for the repairing of vehicles, contaminants of concern would be oils, lead, copper and other metals, unburnt fuel, PAHs, ethylene glycol from anti-freeze, brake fluids, solvents and paints.*

In addition, from the farms day to day use, the near surface soils may have been impacted by heavy metals, inorganic pollutants such as heavy metals and semi-metals, cyanide, nitrate, sulphide, sulphate, asbestos, boron and pH, and organic pollutants such as hydrocarbons, poly-aromatic hydrocarbons (PAHs), phenols and pesticides.

2.18 Ground Gas and Vapour Summary

No areas of landfill were identified on-site, with a historical landfill identified 411m north which was licenced to accept inert material and closed in 1982, no waste management sites, or potentially infilled land were identified by the desk study within a 250m radius of the site boundary. However, given the site's history as farmyard, there is the potential that hydrocarbon leakages/spillages may have occurred on site and within the surrounding area from a garage although the distance of the garage from the site is likely to largely mitigate the risk from that source.

Hydrocarbon impacted soils can form a source of elevated methane and vapours (volatile organic compounds [VOCs]).



3.0 PRELIMINARY ASSESSMENT

Based on the findings of the desk study, the following sections summarise the anticipated geotechnical and environmental factors likely to impact the site.

3.1 Geotechnical Risk Assessment

3.1.1 Potential Geotechnical Issues

Hazards identified as being potentially present on site could have implications for foundation design and construction. A summary of commonly occurring geotechnical hazards is given in Table 3.1. The following potential geotechnical hazards would all require confirmation by intrusive investigation.

Geotechnical Hazard	Probability	Justification/Engineering Implications
Lateral changes in ground conditions	Likely	It is likely that the Upper Tunbridge Wells Sand Formation will vary laterally across the site and may affect foundation design, construction and zoning.
Shrinkable soils	Likely	Any more cohesive horizons of the Upper Tunbridge Wells Sand Formation will be shrinkable, which may affect foundation design and construction.
Significant depths of Made Ground	Likely	The site has undergone a previous phase of development (farmyard), as such significant thicknesses of Made Ground may be present, which may affect foundation design and construction.
Aggressive chemical ground conditions (sulphates)	Likely	The possible presence of naturally occurring aggressive chemical ground conditions which may affect foundation design and construction.
Suitability of soakaways	Low	The underlying Upper Tunbridge Wells Sand Formation is likely to be permeable but only in limited horizons.
Shallow groundwater	Likely	The bedrock geology was considered to be a Secondary A Aquifer, as such the presence of shallow groundwater beneath the site is considered to be likely.

Table 3.1 Potential Geotechnical Hazards

3.2 Preliminary Environmental Conceptual Site Model & Risk Assessment

3.2.1 Methodology

A Preliminary Risk Assessment ('PRA') and Conceptual Site Model ('CSM') have been prepared in accordance with LCRM based on information obtained as part of the desk study. Possible risks associated with potential sources of contamination and sensitive receptors identified have been qualitatively assessed following a source-pathway-receptor ('Pollutant Linkage') approach in accordance with current UK protocols.

A risk of harm may only exist where a plausible pollutant linkage is present, and where the quantity or concentration of a contaminant is sufficient so as to pose harm. Under the statutory definition, "Contamination" may only strictly exist where contaminants pose a risk of harm to a receptor. The risk classification has been assessed in accordance with CIRIA C552 (Rudland et al., 2001). A summary of how the risks are derived and their definitions is presented in Tables 3.2 and 3.3.



		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

Table 3.2 Risk Ratings Matrix

Risk Rating	Definitions
Very high risk	<p>There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening.</p> <p>This risk, if realised, is likely to result in a substantial liability.</p> <p>Urgent investigation (if not already undertaken) and remediation are likely to be required.</p>
High risk	<p>Harm is likely to arise to a designated receptor from an identified hazard</p> <p>Realisation of the risk is likely to present a substantial liability.</p> <p>Urgent investigation (if not already undertaken) is required and remediation works may be necessary in the short term and are likely over the longer term.</p>
Moderate risk	<p>It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.</p>
Moderate to low risk	<p>It is possible that harm could arise to a designated receptor from an identified hazard. However, it is unlikely that any such harm would be severe, or if any harm were to occur it is probable that the harm would be relatively mild.</p>
Low risk	<p>It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.</p>
Very low risk	<p>There is low possibility that harm could arise to a receptor. In the event of such harm being realised it is likely to be minor.</p>

Table 3.3 Risk Rating Definitions

3.2.2 Summary of Plausible Sources

Possible sources of contamination identified from the desk study are summarised in Table 3.4.

Source	Description	Contaminants
On site Made Ground (if present), and shallow soils	The general quality of shallow natural soils and Made Ground (from previous site uses and aerial deposition) could be impacted by the presence of contamination.	Possible elevated concentrations of heavy metals, metalloids, sulphates, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), asbestos, pesticides.
Ground gases	Possible presence of Made Ground beneath the site (only considered a viable source of ground gas if significant proportions of organic material are identified). Potential for fuel spillages and leaks from farm machinery.	Elevated methane, carbon dioxide, depleted oxygen, and vapours.



Source	Description	Contaminants
Naturally occurring aggressive ground conditions	Naturally occurring compounds in the ground which could damage buried concrete.	Possible elevated sulphate concentrations.

Table 3.4 Possible Sources of Contamination

3.2.3 Summary of Plausible Pathways

The plausible pathways are summarised in Table 3.5. These pathways are based on the proposed end use (residential without plant uptake).

Pathway	Description
Direct Contact	Ingestion of soil particles, inhalation of soil derived dust (including tracked back dust), dermal contact.
Inhalation	Inhalation of soil dust both inside and outside of buildings.
	Inhalation of ground gas/vapours within buildings.
Vertical & Lateral Migration	Contaminant movement both vertically through leaching/gravity and horizontally along preferential pathways, e.g. services trenches, more permeable bedded strata or within groundwater.
Shallow Groundwater	Shallow groundwater or perched water may be present within the underlying soils. Where shallow/perched water is present or infiltration (percolation of water through contaminated soils) through the site occurs, this could result in the vertical and lateral (including near surface runoff/overland flow) migration of contaminants.
Chemical Attack	Attack of buried plastics and concrete by aggressive ground conditions.
Root Uptake	Uptake of soil and waterborne contaminants by plants.
Flooding	The site was at a high risk of flooding from surface water within the central and western portions of the site with a 1 in 30 year return, greater 1.0m.

Table 3.5 Possible Contamination Pathways

3.2.4 Summary of Plausible Receptors

Plausible receptors associated with the site and its redevelopment, identified or otherwise discounted, are summarised in Table 3.6.

Receptor	Description	Comments
End Users	Users of the proposed development.	The proposed development is understood to comprise a care home with communal/amenity soft landscaping.
Soft Landscaping	Possible areas of planting including lawns, shrubs, trees, etc.	Soft landscaping is proposed.
Built Environment	Buried concrete for foundations and plastics for potable water supply pipes may be laid in contact with contaminated soils.	Aggressive ground conditions and limited Made Ground may be present beneath the site.
Adjacent Land Users	Sensitive land uses identified within the immediate vicinity.	Adjacent land use is predominantly agricultural and residential.
Groundwater	Controlled waters contained within the aquifer(s) beneath the site.	The site overlies a Secondary A Aquifer. The site is not located within a Source Protection Zone.
Surface Water	Controlled Waters within lakes, rivers, and ponds, etc., or coastal waters.	The nearest surface water features were on-site forming ditches.
Ecological Receptors	Sensitive areas of ecological significance.	The site was within a nitrate vulnerable zone and adjacent to ancient woodland.



Table 3.6 Possible Receptors of Contamination

Site workers involved in the preparation and construction of the development have not been considered further in this assessment as the Principal Contractor is duty bound under the current CDM Regulations to undertake their own risk assessments with respect to their employees.

Whilst the above sources and receptors have been identified, Table 3.7 summarises the identified plausible pollution linkages and a qualitative assessment of the risks based on the desk study research.



Desk Study Report

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
On site - Contaminants of concern within Made Ground (if present) and shallow soils	End users	Direct contact	Likely	Mild	Moderate to Low Future users of the development may come into direct contact with soils within soft landscaping. Sampling and chemical testing required to assess the risk.
	Soft Landscaping	Root uptake	Likely	Minor	Low Where communal gardens/soft landscaping is proposed on the site, root uptake is possible. No clear evidence of harm to existing vegetation was observed. Sampling and chemical testing required to assess the risk.
	Adjacent land users	Direct contact	Unlikely	Mild	Very Low Adjacent site users are unlikely to come into contact with soils. Sampling and chemical testing required to assess the risk.
	Water supply pipes	Direct contact	Likely	Minor	Low Water supply pipes would come into contact with impacted or aggressive soils depending upon depth of installation and extent of soil impact. Sampling and chemical testing required to assess the risk.
	Buildings and infrastructure	Direct contact	Likely	Minor	Low Foundations and utilities will be placed within potentially aggressive soils. Sampling and chemical testing required to assess the risk.
	Groundwater	Vertical migration	Low	Mild	Low The site overlies a Secondary A Aquifer. The site is not located within Source Protection Zone. Significant potentially mobile contamination is not anticipated to be present on site. Sampling and chemical testing required to assess the risk.



Desk Study Report

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
	Surface Water	Lateral migration	Low	Mild	Low Surface water features were noted on-site, forming ditches. Sampling and chemical testing required to assess the risk.
Naturally occurring aggressive ground conditions	End users	Direct contact and inhalation / ingestion of soil derived dust	Low	Minor	Very Low No naturally occurring potential sources which could harm human health have been identified.
	Adjacent land users	Direct contact	Unlikely	Minor	Very Low No potential sources which could harm human health have been identified.
	Water supply pipes	Direct contact	Likely	Minor	Low Services will be placed within soils which may be an aggressive environment which may require specific pipework. Sampling and chemical testing required to assess the risk.
	Buildings and Infrastructure	Direct contact	Likely	Minor	Low Foundations will be placed within soils which may be an aggressive environment for concrete. Sampling and chemical testing required to assess the risk.
Ground gases from any organic rich Made Ground or from fuel spillages and leaks from farm machinery	End Users	Inhalation	Low	Mild	Low Future users may inhale potential ground gases produced by sources including potentially organic rich Made Ground. Extensive or deep Made Ground on site sufficient for significant ground gas generation is not expected to be present. However, there may have been localised leaks of fuel from farm machinery.
	Buildings and infrastructure	Gas accumulation and potential explosion of	Unlikely	Minor	Very Low Extensive putrescible material sufficient for significant methane production is not anticipated at the site.

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
		flammable gases			

Table 3.7 Plausible Pollutant Linkages & Qualitative Risk Assessment

3.3 Preliminary Environmental Risk Assessment Summary

The PRA and CSM developed from the information gathered as part of the desk study process have identified several plausible pollutant linkages that exist in relation to the proposed redevelopment of the site. However, the preliminary risk rating for each linkage has been classified as ranging between very low and moderate.

The potential pollutant linkages established within this desk study are not considered to prevent development on the subject site but could require investigation and assessment to support further characterisation, calibration of the CSM and where/if necessary, determine a remedial strategy to reduce, remove or otherwise control any risk within the site to key receptors.

In order to progress this assessment in line with the National Planning Policy Framework, to provide further characterisation of the site and refinement of the PRA and CSM, it is recommended that intrusive investigation and associated testing is undertaken to confirm the findings of the desk study and to provide a robust risk assessment for the site and proposed redevelopment.

3.4 Preliminary Geotechnical Risk Assessment Summary

The site is anticipated to be underlain by the Upper Tunbridge Wells Sand Formation. Given the site's development history, the presence of significant depths of Made Ground cannot be discounted.

Conventional foundations may be suitable for a low-rise development on the site depending on depth of Made Ground and competence of the underlying strata. For medium to high rise developments or structures with higher loadings, a piled foundation solution may be required.

The viability of soakaways is likely to be limited on site given the potential cohesive nature of the underlying near surface soils (Upper Tunbridge Wells Sand Formation). However, deeper soakaways may be viable within the sandstone of the Upper Tunbridge Wells Sand Formation, depending on the depth of groundwater within the rock.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The desk study has shown the subject site historically formed woodland and part of a field c.1874, prior to a residential property being built in the field c.1937, the woodland being cleared c.1959 and poultry house construction c.1974. Various agricultural buildings were constructed between 1959 and 2010. The surrounding area was initially formed woodland, farmland, a scattering of residential properties and a nursery c.1874. Some residential development was noted c.1937, c.1959 and c.2025. A garage was noted 130m southeast c.1987, due to the small-scale mapping from c.2001, it was unclear if the garage was still in use.

The site walkover identified the site to comprise residential properties with gardens and parking along with the main access within the eastern portion. To the west there was an area fenced off as a chicken run along with a chicken coop, directly opposite was a modern steel barn with a rusty sign 'Pauls Stationary Power Museum'. Rectangular buildings onsite were noted as dilapidated with a potential corrugated asbestos cement roof, guttering and some side panels.

The risk assessment identified risk ranging between very low and moderate. Moderate risk has been assigned in relation to on-site shallow contaminated soils and end users.

4.2 Recommendations

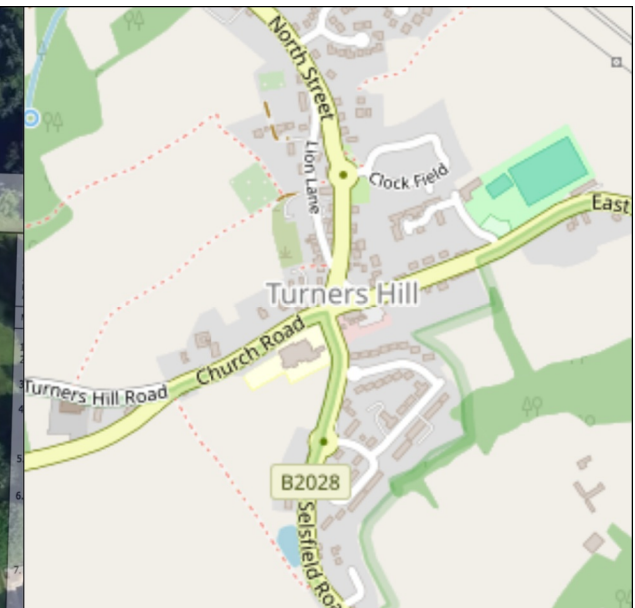
At this stage and based on the findings of the desk study and preliminary risk assessment. The following is recommended to inform the contamination assessment, to confirm the findings of the Preliminary Risk Assessment (PRA) and Conceptual Site Model (CSM) and detailed design works in relation to the proposed development.

- Completion of an Intrusive Phase 2 Investigation including gas and groundwater monitoring to assess, BRE365 soakage testing, environmental sampling and laboratory testing and geotechnical laboratory testing.

FIGURE 1

Site Location Plan





Legend

- Site Boundary
- Features Proposed



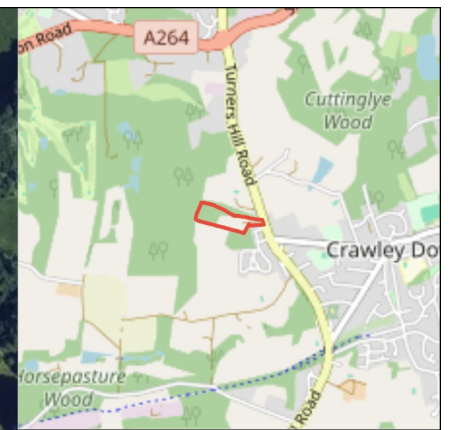
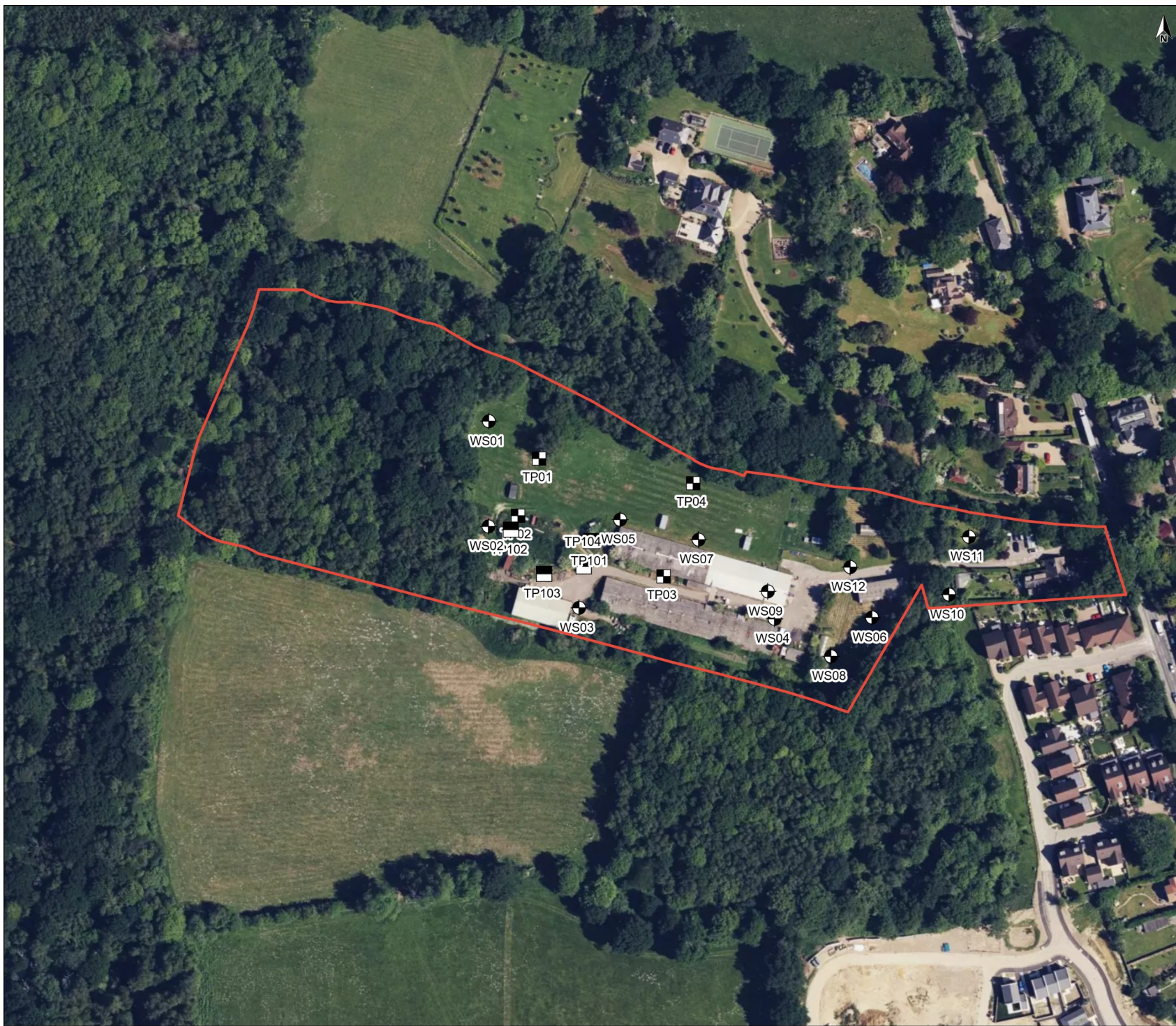
Geo-Environmental
Produced by **Datanest.earth**

Title: site location Plan		
Client: Wates		Size: A3
Project: Hurst Farm, Crawley Down	Drawn: TD	Figure No.: 1
Date: 01-07-2025	Checked: RG	
Proj No: GE23261	Scale: 1:1300	Version: draft

FIGURE 2

Exploratory Hole Location Plan (Existing Layout)





Legend

- Site Boundary
- Dynamic Sampler Boreholes
- Bund and Machinery Pits
- Trial Pits

0 25 m 50 m
© Mapbox

Geo-Environmental
Produced by **Datanest.earth**

Title: Site Investigation Plan		
Client: Wates		Size: A4
Project: Hurst Farm, Crawley Down	Drawn: AP	Figure No.: 2
Date: 15-07-2025	Checked: JT	
Proj No: GE23261	Scale: 1:2344	Version: FINAL