

Meadow Environmental Consulting

Phase I Environmental Assessment – Desk Study and Walkover Survey (LCRM Stage 1 Tier 1 Risk Assessment)

Site: Stable at Jacques Court, Fir Tree Hill, Bladbean,
near Canterbury, Kent CT4 6NB



Prepared for: Mr Peter Bell

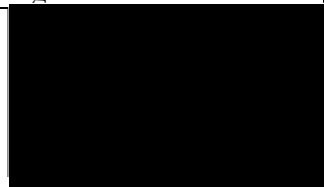
Date: 15th December 2023

CLIENT: Mr Peter Bell

SITE: Stable at Jacques Court, Fir Tree Hill, Bladbean, near Canterbury, Kent
CT4 6NB

PROJECT REFERENCE: 23-129/P1

DATE: 15th December 2023

Report: Phase I Environmental Assessment – Desk Study and Walkover Survey (LCRM Stage 1, Tier 1 Risk Assessment)				
	Name	Position	Signature	Date
Prepared by	Keith Huxley	Head of Meadow Environmental Consulting		15/12/2023
Revision: Final Report				

This report has been prepared within the terms and scope of the contract between Meadow Environmental Consulting (the company) and the client, and specifically to the client's project. This report is confidential to the client and the company accepts no responsibility or liability for any loss or damage of whatever nature in the event that this report is relied upon by a third party or is issued for any purpose for projects for which it was not originally commissioned and outside the scope of this report. Any such party relies upon this report solely at their own risk.

CONTENTS & EXECUTIVE SUMMARY

	Page No
1. Introduction.....	1
2. The Site and Surrounding Areas.....	1
2.1 Location and Setting.....	1
2.1.1 Walkover Survey.....	2
2.2 Hydrology.....	3
3. Historical Site Use.....	3
3.1 1872 to 1907.....	3
3.2 1939 to 1957.....	3
3.3 1972 to Date.....	3
3.4 Planning and Uses.....	4
4. Environmental Sensitivity.....	5
4.1 Site Sensitivity.....	5
4.2 Flooding.....	6
4.3 Potentially Contaminative Use.....	6
4.4 Landfill and Waste Transfer Sites.....	7
4.5 Hydrogeology.....	7
4.6 Geology.....	8
5. Discharge Consents, Water Abstractions and Pollution Incidents.....	9
5.1 Discharge Consents.....	9
5.2. Abstraction Consents.....	9
5.3 Pollution Incidents, Inventories and Permits.....	9
6. Subsidence, Mining Hazards and Radon.....	10
6.1 Subsidence	10
6.2 Mining	10
6.3 Radon.....	11

7. Recommendations.....	12
7.1 General.....	12
7.2 On-Site Contamination Impact.....	12
7.3 Off-Site Contamination Impact.....	13
7.4 Conceptual Model.....	13
7.4.1 Source(s).....	13
7.4.2 Pathway(s).....	13
7.4.3 Receptor(s).....	14
7.4.4 Assessment of Risk.....	15
7.5 Investigation Work Recommended.....	17
7.5.1 General.....	17
7.6 Excavated Soils.....	18
7.7 Additional Notes.....	18

APPENDICES

APPENDIX 1 Site Plans (5 pages)

APPENDIX 2 Historic Aerial Photographs (9 pages)

APPENDIX 3 Site Photographs (3 pages)

APPENDIX 4 Historical Maps (16 pages)

1872 (1:10560)
1873 (1:2500)
1896 (1:10560)
1898 (1:2500)
1906 (1:10560)
1907 (1:2500)
1939-40 (1:10560)
1939 (1:2500)
1957 (1:10560)
1972 (1:2500)
1977 (1:10000)
1992 (1:2500)
2001 (1:10000)
2003 (1:1250)
2010 (1:10000)
2023 (1:10000)

APPENDIX 5 Groundsure Enviro and Geo Insight
Report (93 pages)

APPENDIX 6 Conceptual Model (1 page)

Executive Summary

Meadow Environmental Consulting was instructed by APX Architecture on behalf of Mr Peter Bell to carry out a Preliminary Environmental Risk Assessment (desk study and walkover survey) of the site at:

Stable at Jacques Court, Fir Tree Hill, Bladbean, near Canterbury, Kent CT4 6NB

A planning application has been submitted to Folkestone and Hythe District Council (reference 22/1683/FH). A desk study report is required to address condition 3(1) of the granted application and is also required to address various sections of the National Planning Policy Framework (Revised NPPF 2021).

The site is on the south side of Fir Tree Hill and is in the grounds to Jacques Court, which is a residential house with its private gardens and outbuildings. The site is occupied by a disused stable and its surrounds which are part of the gardens to Jacques Court. It is proposed to convert the stable and construct an extension to the stable to create a residential annex accommodation to the main house. The new dwelling will share the existing parking to the main house with pedestrian access via the grounds of the house.

From the investigations carried out for this desk study the site has been developed with a stable since at least the early 1870's and the stable that is to be converted since 1911. The surrounds to the stable have also been within the private gardens to Jacques Court since at least the early 1870's although the house dates from c1620. The stable building has only been used as a stable.

The immediate surrounding areas have been part of the gardens to Jacques Court with outbuildings and barns to the east since at least the early 1870's. The layout and size of the outbuildings to the east changed to the current layout between 1960 and 1990. The houses in the area have also mostly all existed since at least the early 1870's with the further environs being farmland that remains to date.

The predominant underlying bedrock geology is The Lewes Nodular Chalk Formation (hard to very hard nodular chalk interbedded with soft to medium hard chalk and marls) of very high permeability with head (clay and silt) drift deposits and thus the site is overlying a principal aquifer (major aquifer) and is within a groundwater source protection zone (SPZ3, total catchment).

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

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

There is one current groundwater abstraction in the area (within 2km). This is for public potable water supplies located 1.1km from the site. There are no groundwater abstractions for other uses.

The findings of this report indicates that there are unlikely to be contaminants on the site at unacceptable levels for the proposed residential development, the site represents a **very low environmental risk** and that a phase II intrusive investigation (LCRM Stage 1, Tier 2/Tier 3 Risk Assessment) of the site is not required.

1. Introduction

Meadow Environmental Consulting was instructed by APX Architecture on behalf of Mr Peter Bell to carry out a Preliminary Environmental Risk Assessment (desk study and walkover survey) of the site at; Stable at Jacques Court, Fir Tree Hill, Bladbean, near Canterbury, Kent CT4 6NB (grid reference at the centre of the Jacques Court property is 617386 146260). The grid reference at the centre of the development area (the site) is 617399 146261. The site is approximately 142 metres above ordnance datum (AOD) in the very small village of Bladbean, Kent.

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

The main sources of the information are, but not limited to; The Environment Agency (EA), Ordnance Survey, The Coal Authority, British Geological Survey, Natural England, Public Health England and The Health and Safety Executive.

The site is on the south side of Fir Tree Hill and is in the grounds to Jacques Court, which is a residential house with its private gardens and outbuildings (stables and barns). The site is occupied by a disused stable and its surrounds which are part of the gardens to Jacques Court. It is proposed to convert the stable and construct an extension to the stable to create a residential annex accommodation to the main house. The existing house, gardens and outbuildings will all remain. The new dwelling will share the existing parking to the main house with pedestrian access via the grounds of the house.

Site plans showing the site location, existing layout, proposed layout, proposed floor plan and 3D image of the proposed layout are shown in appendix 1, site plans (p1 to p4).

2. The Site and Surrounding Areas

2.1 Location and Setting

The Jacques Court property covers a total area of approximately 0.53ha (5300m²) and is on the south side of Fir Tree Hill in the very small village of Bladbean, near Canterbury. Canterbury city centre is approximately twelve miles to the north. The development area (the site) covers an area of 0.04ha (400m²).

It is located in an area of predominantly very low density residential and agricultural use.

Aerial photographs of the site ranging from 1999 to 2021 are shown in the Groundsure Enviro and Geo Insight Report in appendix 5 (p9 to p13).

Immediately to the north of the site are part of the garden to the house, a barn that is used as a garage, an additional barn and stables. The main house is approximately 7m from the site to the northwest at its nearest point and a stable building is approximately 6m to the northeast. The garage is approximately 20m from the site. Beyond the buildings is Fir Tree Hill, which is approximately 40m from the site. On the opposite side of Fir Tree Hill are two residential houses, Well House and The Oast with their private gardens. Farmland is beyond the gardens approximately 70m from the site.

Immediately to the west of the site is part of the garden to the house. Immediately beyond the garden approximately 25m from the site is Park Gate Road with a pair of Cottages beyond (1 and 2 Jacques Court Cottages). Farmland is beyond the gardens to the cottages approximately 100m from the site.

Immediately to the south of the site is part of the garden to the house that extends to approximately 40m from the site. Beyond the garden is farmland. To the southwest on the opposite side of Park Gate Road approximately 75m from the site are a pair of houses (West Winds and New Jacques Court Cottage) with farmland beyond.

Immediately to the east of the site is an access drive to a few agricultural barns. The nearest barn is approximately 20m from the site. Beyond the barns approximately 60m from the site at the nearest point is farmland and part of Fir Tree Hill, which runs south-easterly from the barns. Farmland is approximately 40m to the southeast of the site beyond one of the barns.

2.1.1 Walkover Survey

The walkover survey was carried out on the 12th December 2023. At the time of the walkover survey the site was in full use for residential uses as part of the garden area to Jacques Court. The stable that is to be converted was being used as a stable although only periodically. Anecdotal evidence from the existing owner, who has lived at the property for forty five years, suggests that the stable was built in 1911 replacing a previous stable (also see section 3.1).

The stable had brick and flint walls with a timber framed dual pitched tiled roof and a concrete slab floor. The building was in a good condition. The building was sectioned off into three stables, a small area for ancillary equipment and a tack room.

A concrete access path was immediately to the east of the building. The areas around the remainder of the building were well kept lawns with small hedges, shrubs and established trees that were part of the existing garden to Jacques Court.

All the vegetation on and adjacent to the site appeared to be in a very healthy condition.

The north, south and west boundaries were open to the garden to Jacques Court. The east boundary had a timber post and rail fence.

There were no above ground fuel tanks on or adjacent to the site and there was no evidence of any former above ground fuel tanks on or adjacent to the site. There were no below ground fuel tanks on or adjacent to the site. There was an above ground fuel tank at the west elevation of one of the nearby barns to the east, which was approximately 30m from the site. The tank was on a concrete block plinth with no observed leaks.

A site plan showing the existing and proposed layout and the immediate surrounding areas is shown in appendix 1 (p5). Also shown on this site plan are the locations and view direction of the photographs of the site that were taken during the walkover survey. The site photographs are shown in appendix 3.

There are no current or former fuel stations within 250m.

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

This is all shown in appendix 5 (section 4).

2.2 Hydrology

There are no surface water features on, adjacent or near to the site (within 100m).

This is shown in appendix 5 (section 6).

3. Historical Site Use

3.1 1872 to 1907

The study of the historical maps of the site, some of which can be found in appendix 4, Historical Maps, shows that the site was developed in 1872 with an outbuilding (layout as existing) at the location of the existing stable that remains to date. The surrounds were the garden areas to the house, which was also built at this date. Anecdotal evidence from the existing owner suggests that the original part of the house and outbuildings were built c1620.

All of the roads in the area were constructed and followed the same routes that remain to date. The house, its private gardens and the most of the outbuildings that remain to date were also built at this date as mentioned above. Most of the houses in the area were also built, including Well House and the building that is now The Oast to the north, and the houses that are now 1 and 2 Jacques Court Cottages further to the west. A barn was marked just to the east of the site at this date. The buildings were marked as Bladbean Farm.

The site and immediate surrounding areas generally remained unchanged until at least 1907 although the garden area to the south and southwest of the site was a small orchard associated with the house.

3.2 1939 to 1957

By 1939 the site and most of the immediate surrounding area remained unchanged although a small sheepwash was marked immediately to the east of the barn just to the east, what was approximately 50m from the site and another barn (open sided) had been built just to the southeast. The buildings were marked as Jacques Court and the house had been extended. Anecdotal evidence from the existing owner suggests that the house was extended in 1911 and the existing stable on the site was also built at this date.

The site and surrounding areas remained unchanged until at least 1957.

3.3 1972 to Date

By 1972 a greenhouse had been built just to the north of the site. The site and the remainder of the house and its surrounds remained unchanged. More outbuildings had been built to the east, southeast and northeast and the small sheepwash was no longer marked. Further to the southwest the houses West Winds and New Jacques Court Cottage had been built.

The site and surrounding areas remained unchanged until at least 1992.

By 2003 the greenhouse was no longer marked and the building that is a stable just to the northeast had also been built. Some of the outbuildings to the east had been demolished and the layout of the buildings is what remains to date.

According to the OS mapping site and immediate surrounding areas have remained unchanged to date.

An assessment of historic aerial photographs shows that the site was developed in 1940 with the stable that remains to date and the surrounds were part of the private garden to Jacques Court as it is at present. The house and most of the existing outbuildings were also built. The site, the house, its outbuildings and the buildings to the east remained unchanged until at least 1960 although the greenhouse just to the north had been built by this date. By 1990 the site, the house and outbuildings at Jacques Court and the outbuildings to the east were all which remains to date.

Copies of the historical aerial photographs are shown in appendix 2 and 5.

3.4 Planning & Uses

Following an assessment of Folkestone and Hythe District Council planning website there has been two historical planning applications for Jacques Court and none for the development site apart from the current proposal, which has been submitted and granted (reference 22/1683/FH). Council online records for the area date from at least 1977.

Date	Planning Details
1977	Demolition of outbuildings and erection of a double garage with the construction of vehicular access – granted (Jacques Court House)
1987	Erection of garage – granted (Jacques Court House)

The current land use data indicates that there are no current or recent ‘industrial sites’ on or within 250m of the site.

There are no electrical sub stations on or within 250m of the site.

This is all shown in appendix 5 (section 4).

4. Environmental Sensitivity

4.1 Site Sensitivity

The site is not within a site of special scientific interest (SSSI), special protection area (SPA), a special area of conservation (SAC), RAMSAR (wetlands) site, a nature reserve, ancient woodland, an area of greenbelt land, a biosphere reserve, forest park, a marine conservation zone (MCZ) or a nitrate vulnerable zone.

The site is within a SSSI Impact Risk Zone and this should be borne in mind with any potential planning applications and the local authority may need to be consulted. The site is within a Nutrient Impact Area.

This is all shown in appendix 5 (section 10).

The site is not within a conservation area, national park, a registered park/garden or a world heritage site. There are also no scheduled monuments within 100m.

The site is within an area of outstanding natural beauty, Kent Downs.

There is one listed building in the area. This is Jacques Court immediately to the north, which is a grade 2 listed building. The proposed development is unlikely to affect this building although its proximity to the site should be borne in mind during the groundworks particularly with regard to the use of vibrating equipment, if applicable.

This is all shown in appendix 5 (section 11).

The agricultural land classification for the area is recorded as grade 2 land. Grade 2 land is very good quality agricultural land. "Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1." (reference Natural England).

This is all shown in appendix 5 (section 12).

The site is not within a designated habitat area. (reference Natural England).

There is a designated habitat area (habitat not specified) further to the west approximately 200m from the site. The proposed development is unlikely to affect this habitat.

This is all shown in appendix 5 (section 13).

4.2 Flooding

The highest risk of flooding from rivers and sea (RoFRaS) shows that the risk is '**Very Low**'.

"The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance)." (reference EA).

There are no flood defences within 250m.

There are no recorded flooding events on or within 250m of the site since records began in 1946.

This is all shown in appendix 5 (section 7).

The highest risk of surface water flooding on the site and in the immediate area (within 50m) is negligible. (reference Ambiental Risk Analytics).

Ambiental Risk Analytics surface water (pluvial) flood map identifies areas likely to flood as a result of extreme rainfall events, typically this is topographical low spots which are naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

This is all shown in appendix 5 (section 8).

The potential for groundwater flooding is classed as low on the site and in the immediate area.

Low indicates that "Groundwater levels have the potential to impact basement structures in <1 in 100 year event." (reference Ambiental Risk Analytics).

This is shown in appendix 5 (section 9).

4.3 Potentially Contaminative Use

The site is not within an area of potentially contaminative use from past industrial use and there are no past 'industrial' uses within 250m.

There are no major historical energy features within 250m.

This is all shown in appendix 5 (sections 1 and 2).

The railway infrastructure information in appendix 5, section 22 shows that there are no existing railways, former railways, tunnels or proposed railways on the site or within 250m.

There are no areas of reclaimed ground, made ground, infilled ground, disturbed ground, worked ground and/or landscaped ground within 500m of the site (see appendix 5, section 15).

4.4 Landfill and Waste Transfer Sites

There are no current EA registered licensed landfill sites or local authority registered licensed landfill sites within 250m.

There are no EA registered historical licensed landfill sites in the area.

There are no waste exemption licence sites within 250m.

There are no other current or former licensed waste sites within 250m.

This is all shown in appendix 5 (section 3).

4.5 Hydrogeology

The site is classified by the EA as overlying unproductive strata within the superficial geology. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site is classified by the EA as overlying a principal aquifer within the bedrock geology on the site.

These are layers of rock or drift deposits that have high intergranular and/or fracture permeability; meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer. (reference EA).

The site therefore could be classed as overlying a principal (major) aquifer.

The groundwater vulnerability is classed as medium. Medium indicates that “Intermediate between high and low vulnerability.” (reference British Geological Survey (BGS)/EA).

Low indicates that “Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.”

High indicates that “Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.”

“Infiltration value (surface); 40% to 70%, Dilution value 300mm to 550mm/year. Aquifer type (superficial); unproductive, Vulnerability; unproductive, Thickness; 3m to 10m, Recharge potential; low, Aquifer type (bedrock); principal, Vulnerability; medium, flow mechanism – well connected fractures”. (reference BGS/EA).

The site is within a groundwater source protection zone (SPZ). The site is within a SPZ3, total catchment (reference EA).

A SPZ3 is defined as “The total area needed to support the abstraction or discharge from the protected groundwater source. In geological settings where a confining layer is present, this is indicated as Zone 3c.” (reference EA).

This is all shown in appendix 5 (section 5).

4.6 Geology

According to geological information, BGS sheet 289, Canterbury, the site is underlain by Middle Chalk with head brickearth drift deposits.

This is also shown on the superficial deposits and landslips information in appendix 5, section 15, which shows that there are superficial deposits on the site and in the area (within 500m).

The areas marked are:

Area 1 (on site) is head deposits (clay and silt)

Area 2 (70m E) is The Clay with Flints Formation (clay, silt, sand and gravel)

Area 3 (390m NE) is head deposits (clay, silt, sand and gravel)

Area 4 (470m W) is head deposits (silt and gravel)

There are no areas of landslide deposits within 500m.

The bedrock and faults map in appendix 5, section 15 shows that The Lewes Nodular Chalk Formation (hard to very hard nodular chalk interbedded with soft to medium hard chalk and marls) is the bedrock geology on the site of very high permeability (area 1 on the map).

The other area marked is:

Area 2 (470m W) is The New Pit Chalk Formation (firm to moderately hard white blocky chalk with marls).

There are no fault lines marked within 500m.

There is one previously drilled borehole within 250m of the site (see appendix 5, section 16).

This was drilled 50m north/northwest of the site on Jacques Court to a depth of 93.5m. The drilling date is not known and details of the strata encountered are not recorded although “drift, upper chalk and middle chalk” are recorded but no depths.

The rest water levels have been recorded as follows:

Month and Year Monitored	Rest Water Level (m)
June 1929	60.2
October 1929	53.4
October 1944	Dry
December 1944	51.8
February 1945	71.8
July 1948	52.3
May 1958	68.9

It was recorded in 1945 that the well was disused

5. Discharge Consents, Water Abstractions and Pollution Incidents

5.1 Discharge Consents

There are no current or former licensed discharge consent points within 250m of the site.

This is all shown in appendix 5 (section 4).

5.2 Abstraction Consents

There is one current or former groundwater abstraction consent for potable water supplies or other uses within 2000m of the site.

This is a current consent located 1140m southeast of the site for public potable water supplies at Worlds Wonder Pumping Station.

There are no current or former surface water abstraction consents for potable water supplies and/or other uses within 2000m of the site.

This is all shown in appendix 5 (section 5, p33, the map shows abstractions up to 500m only)

5.3 Pollution Incidents, Inventories and Permits

There are no recorded pollution incidents within 250m of the site.

There are no pollution inventories within 250m.

There are no Control of Major Accident Hazards (COMAH) sites within 250m.

There are no radioactive substance authorisations or regulated explosive sites within 250m.

There are no historical licensed industrial activities (IPC) within 250m.

There are no licensed industrial activities (Part A(1)) within 250m.

There are no licensed pollutant release (Part A(2)/B) within 250m.

There are no List 1 or List 2 dangerous substances records within 250m.

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

This is all shown in appendix 5 (section 4).

6. Subsidence, Mining Hazards and Radon

6.1 Subsidence

The clay swelling/shrinking subsidence hazard is classed as 'low hazard' (soils that are predominantly medium plasticity) although this would depend on the localised clay content.

The running sand stability hazard is classed as 'negligible hazard'.

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

The collapsible ground stability hazard is classed as 'moderate hazard'. Moderate hazard indicates that "deposits with potential to collapse when loaded and saturated are probably present in places".

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

The ground dissolution subsidence hazard is classed as 'very low hazard'.

This is all shown in appendix 5 (section 17).

6.2 Mining Hazards

There are no surface ground workings on the site or in the area (within 250m).

There are no BritPits (British Pits, active and closed surface and underground mineral workings) within 250m.

There are no underground workings on the site or within 250m.

There are no non coal mining cavities within 250m and the site is within a category 'A' area for the non coal mining activity. Category 'A' – "Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered. Presence of past underground mining is not known to have occurred. Areas are categorised on the basis that the rock types present are known to have been worked in other areas. Areas therefore have the potential for underground mining but there is little or no evidence of mining activity." (reference BGS).

The site is within an area that may be affected by past, current or future coal mining.

The site is within the area of the Kent Coalfield although no coal mining was carried out in the immediate area or further environs before the closure of the Kent pits in the 1980's and it is unlikely that any future coal mining will be carried out in the area or the wider area. The nearest pit head to the site was Snowdown, which was approximately six and a half miles to the northeast. Further investigation into the coal mining activity is outside the scope of this report. However, further information can be obtained from The Coal Authority if required.

There are no natural cavities within 250m of the site.

This is all shown in appendix 5 (sections 18 and 19).

6.3 Radon

There are between 1% and 3% of properties* in the area that are above the action level for radon and therefore radon protection measures are not necessary in new buildings and/or extensions.

* Estimated percentage of dwellings exceeding the Radon Action Level. The highest radon reading within the buffer is provided. This data is the highest resolution radon dataset available for the UK, produced to a 50m accuracy. This data has been pre-buffered to account for the relative accuracy and other uncertainties, so no additional buffering on site is required. The findings of this section should supersede any estimations derived from the Indicative 1km Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households (reference BGS and Public Health England).

This is shown in appendix 5 (section 20).

7. Recommendations

7.1 General

From the investigations carried out for this desk study the site has been developed with a stable since at least the early 1870's and the stable that is to be converted since 1911. The surrounds to the stable have also been within the private gardens to Jacques Court since at least the early 1870's although the house dates from c1620. The stable building has only been used as a stable.

The immediate surrounding areas have been part of the gardens to Jacques Court with outbuildings and barns to the east since at least the early 1870's. The layout and size of the outbuildings to the east changed to the current layout between 1960 and 1990. The houses in the area have also mostly all existed since at least the early 1870's with the further environs being farmland that remains to date.

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

The site overlies a principal aquifer (major aquifer) and is within a groundwater source protection zone (SPZ3, total catchment).

The Lewes Nodular Chalk Formation (hard to very hard nodular chalk interbedded with soft to medium hard chalk and marls) is the bedrock geology on the site of very high permeability with head drift deposits (clay and silt).

There is one current groundwater abstraction in the area (within 2km). This is for public potable water supplies located 1.1km from the site. There are no groundwater abstractions for other uses.

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

It is proposed that the surface water drainage for the converted and new building for the new annex dwelling will be discharged via a new surface water soakaway that will be installed on or adjacent to the site.

It is proposed that the foul drainage for the new dwelling will be discharged via a new package treatment plant with the final treated effluent discharged via a new soakaway that will also be installed on or adjacent to the site.

The site is not within a flood risk area.

7.2 On-Site Contamination Impact

From the investigations carried out for this desk study it is unlikely that the site has been impacted to unacceptable levels for residential end uses from its former and current uses as a stable and the private gardens to Jacques Court.

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

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

7.3 Off-Site Contamination Impact

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

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

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

7.4 Conceptual Model

Using the Contaminated Land Exposure Assessment (CLEA) model and associated Environment Agency Land Contamination Risk Management guidance (LCRM) framework to assess sites, a Source – Pathway – Receptor approach is used.

Source – “a contaminant or pollutant that is in, on or under the land and that has the potential to cause harm or pollution”

Pathway – “route by which a receptor is or could be affected by a contaminant”

Receptor – “something that could be adversely affected by a contaminant, for example a person, controlled waters, an organism, an ecosystem, or Part 2A receptors such as buildings, crops or animals”

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

7.4.1 Source(s)

The possible sources of contamination on this site are:

There are no expected contaminants at unacceptable levels on the site.

7.4.2 Pathway(s)

It is proposed to convert the stable and construct an extension to the stable to create a residential annex accommodation to the main house with a garden area (as existing). Parking will be the existing parking at Jacques Court.

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

Ingestion of soils/groundwater/surface water

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

Dermal contact with soils/groundwater/surface water

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

Leachate via soakaways (if applicable)

Leachate via infiltration

The potential pathways for this site are:

Ingestion of soils

Ingestion of dusts (indoors and outdoors)

Dermal contact with soils

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

Leachate via soakaways

Leachate via infiltration

7.4.3 Receptor(s)

The potential receptors and associated risks for this site are:

Construction staff – very low risk

Residents on site – very low risk (no existing impact to the current livestock or owners that have owned the site for forty five years)

Residents and farm staff off site – very low risk (no apparent current impact)

Existing and new building and below ground services – very low risk (existing below ground services not impacted since construction in 1911)

Nearby dwellings – very low risk (no apparent current impact)

Groundwater (principal aquifer and SPZ) – very low risk via new surface water and final treated effluent soakaways and infiltration (no expected leachable contaminants at unacceptable levels)

7.4.4 Assessment of Risk

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

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

Classification of Consequence

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

Classification of Consequence (cont)

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

Classification of Probability

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

Matrix of Consequence against Probability to determine Risk Classification

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

A schematic diagram of the conceptual model for the site dated 15/12/23 is shown in appendix 6, conceptual model.

7.5 Investigation Work Recommended

7.5.1 General

As outlined above it is unlikely that there are any sources of contamination on this site that could have impacted the site soils to unacceptable levels for the proposed residential end use from the on site past or current uses.

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

The risk to human health could be classed as very low (worse case consequence – minor: worse case probability – unlikely).

The risk to the existing and new building and below ground services could be classed as very low (worse case consequence – minor: worse case probability – unlikely).

The site overlies a principal aquifer (major aquifer) and is within a source protection zone (SPZ3, total catchment) although there are no groundwater abstractions or surface water abstractions within 1km of the site. It is proposed that the surface water drainage for the new building will be discharged via a new surface water soakaway that will be installed on or adjacent to the site.

It is proposed that the foul drainage for the new building will be discharged via a new package treatment plant with the final treated effluent discharged via a new soakaway that will also be installed on or adjacent to the site.

There are no expected sources of leachable contamination at unacceptable levels on the site.

The risk to controlled waters now and on completion of the development could be classed as very low (worse case consequence – minor: worse case probability – unlikely).

It is therefore not necessary to carry out a phase II intrusive investigation of the site (EA LCRM stage 1 tier 2/3 contaminated land investigation). LCRM (Land Contamination Risk Management, published October 2020 and last updated April 2021).

7.6 Excavated Soils

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

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

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

7.7 Additional Notes

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

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

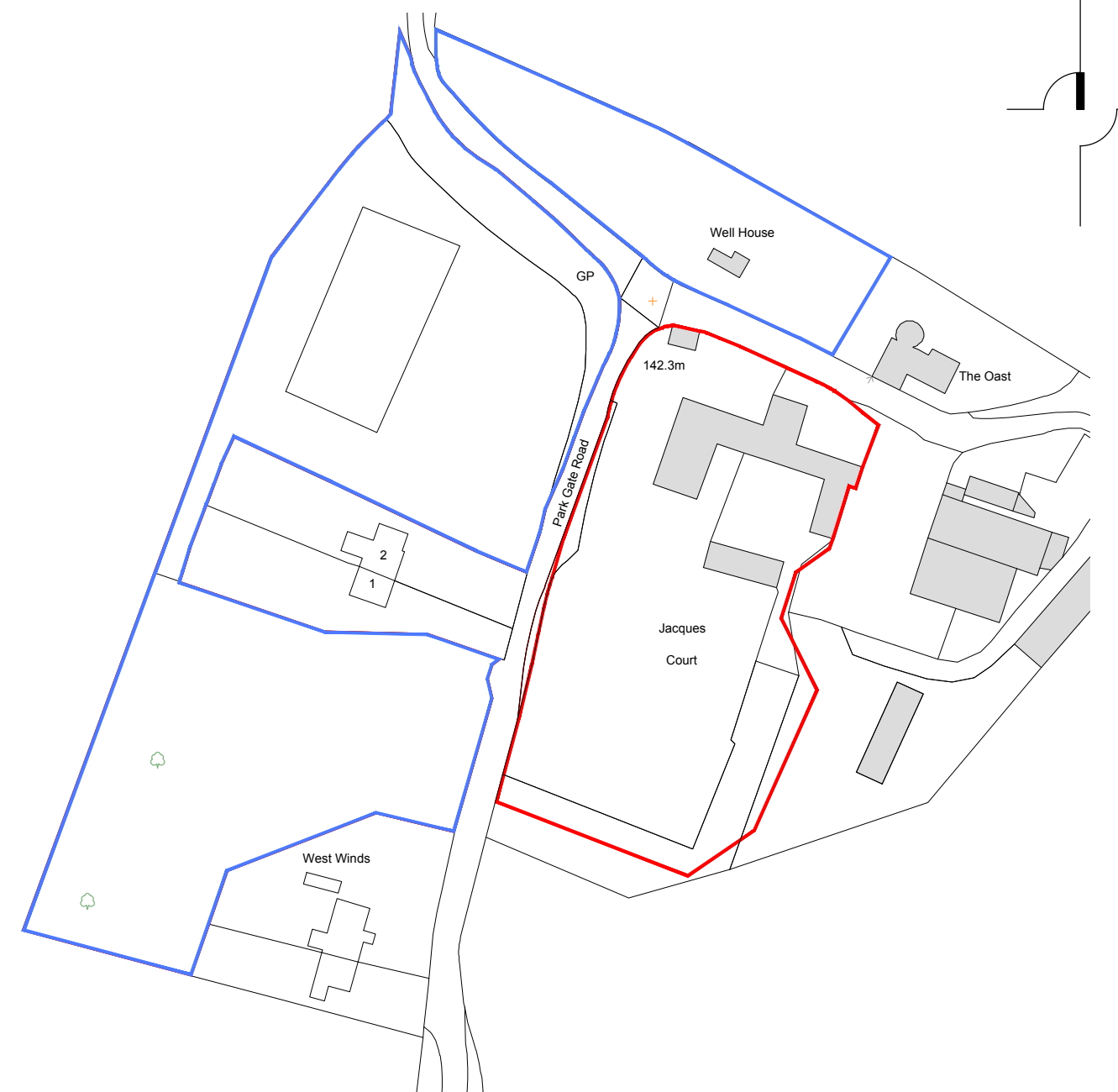
The ground stability hazards in section 6.1 and associated comments where applicable are the opinion of the BGS based on the expected geology.

A copy of this report should be forwarded to Folkestone and Hythe District Council or other regulators/insurers if applicable for their consideration and approval.

K.D.Huxley CSci CChem MRSC MEnvSc RSoBRA
Date: 15/12/23

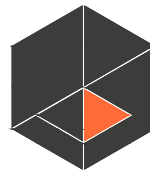
APPENDIX 1

SITE PLANS



Block Plan (Scale 1:500)

Location Plan (Scale 1:1250)

Rev	Date	Description	APX ARCHITECTURE		Client / Project		Drawing Description	
			 Kemp House, 160 City Road, London. EC1V 2NX		Conversion of Stable Block Jacques Court Park Gate Road Bladbean Kent CT4 6NB		Site Location Plan and Block Plan as Existing	
					Scale		Date	
					1:500/1250@A3		August 2022	
					Drawing Number		Revision	
					22_35_01		A	



Rev	Date	Description
A	05_09_22	Client comments



Client / Project

Conversion of Stable Block at
Jacques Court
Park Gate Road
Bladbean
Kent
CT4 6NB

Drawing Description

Proposed Site Plan

Scale

1:200@ A3

Drawing Number

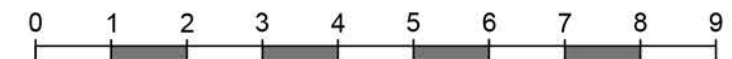
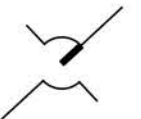
22_35_04

Date

August 2022

Revision

A



Rev	Date	Description
A	05_09_22	Client comments



Client / Project
 Conversion of Stable Block at
 Jacques Court
 Park Gate Road
 Bladbean
 Kent
 CT4 6NB

Drawing Description
 Proposed Ground Floor Plan

Scale
 1:100@ A3

Drawing Number
 22_35_15

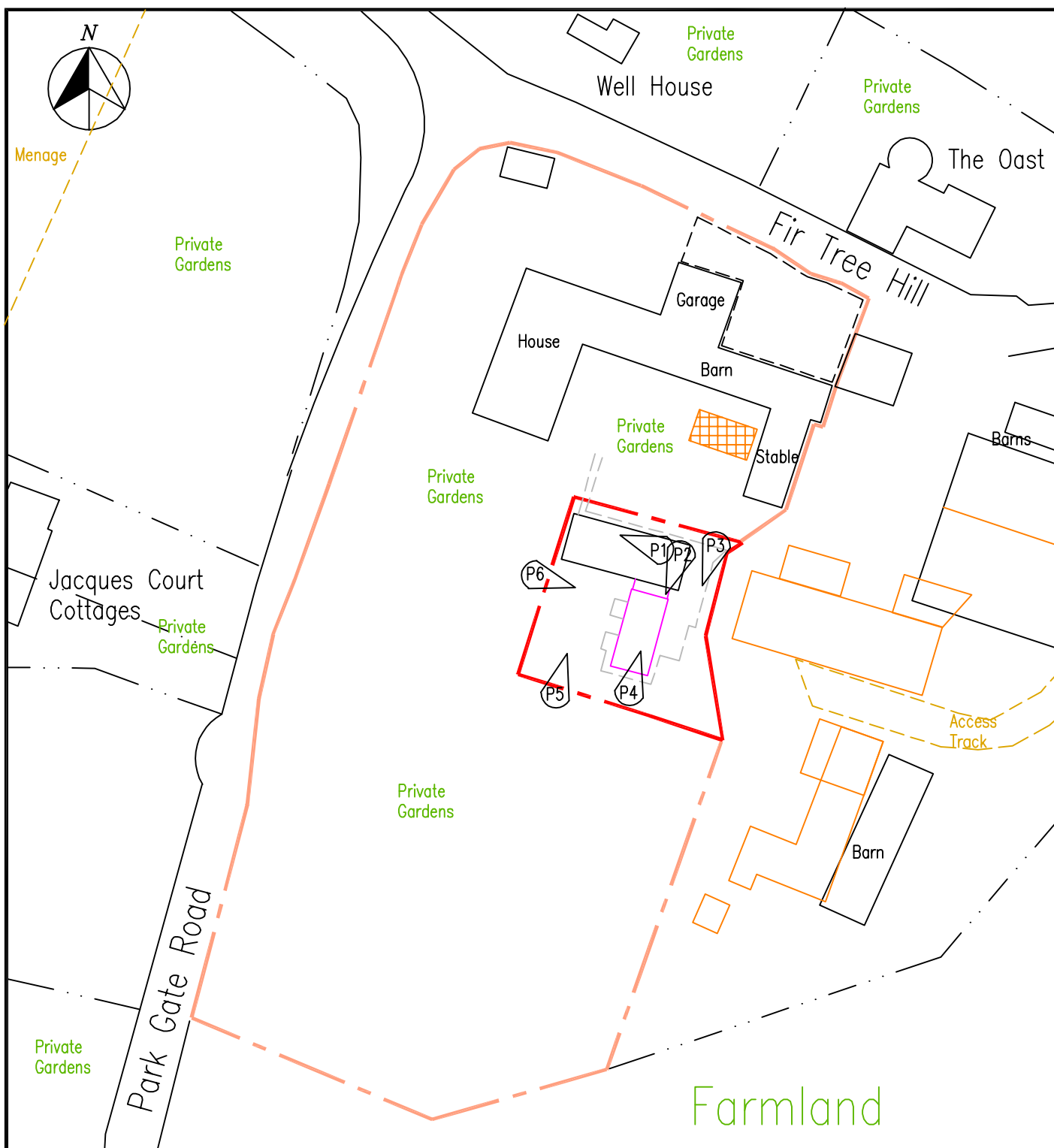
Date
 August 2022

Revision

A



Aerial view of the site looking North-East.



Key:



Existing Buildings



Former Buildings



New Building



Proposed Paths
and Patios



Existing Parking
to be Utilised

Scale: NTS

Drawn: KDH

Site: Stable at Jacques Court, Bladbean CT4 6NB

Report: 23-129/P1

Title: Phase 1 Contamination Investigation (Desk Study)

Figure No: 1

APPENDIX 2

HISTORIC AERIAL PHOTOGRAPHS

All aerial photographs below courtesy of Google Earth

AERIAL PHOTOGRAPH 1 (1940)



AERIAL PHOTOGRAPH 2 (1960)



AERIAL PHOTOGRAPH 3 (1990)



AERIAL PHOTOGRAPH 4 (2003)



AERIAL PHOTOGRAPH 5 (2008)



AERIAL PHOTOGRAPH 6 (2013)



AERIAL PHOTOGRAPH 7 (2017)



AERIAL PHOTOGRAPH 8 (2019)



AERIAL PHOTOGRAPH 9 (2021)



APPENDIX 3

SITE PHOTOGRAPHS

PHOTOGRAPH 1



Inside the stable building (stables area) that is to be converted.

PHOTOGRAPH 2



Inside the stable building (tack room) that is to be converted.

PHOTOGRAPH 3



Looking south/southwest along the east boundary of the site. This area will remain as pedestrian access. The stable to be converted is on the right.

PHOTOGRAPH 4



Looking north/northeast at the east end of the stable building that is to be converted. This area will be occupied by the new extension to the building.

PHOTOGRAPH 5



Looking north/northeast at the central and west end of the stable building that is to be converted. This area will be mostly occupied by the new patio/garden area for the new dwelling. The house Jacques Court is in the background.

PHOTOGRAPH 6



Looking east/southeast along the south elevation of the stable building that is to be converted. This area will be mostly occupied by the new patio/garden area for the new dwelling. The new extension to the building will be in the background.

APPENDIX 4

HISTORICAL MAPS

Site Details:

Jacques Court Fir Tree Hill,
Bladbean, Canterbury, CT4 6NB

Client Ref: CMAPS-CM-1139767-61952-071223
Report Ref: CMAPS-CM-1139767-61952-071223HIS
Grid Ref: 617399, 146260

Map Name: County Series

Map date: 1872

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com

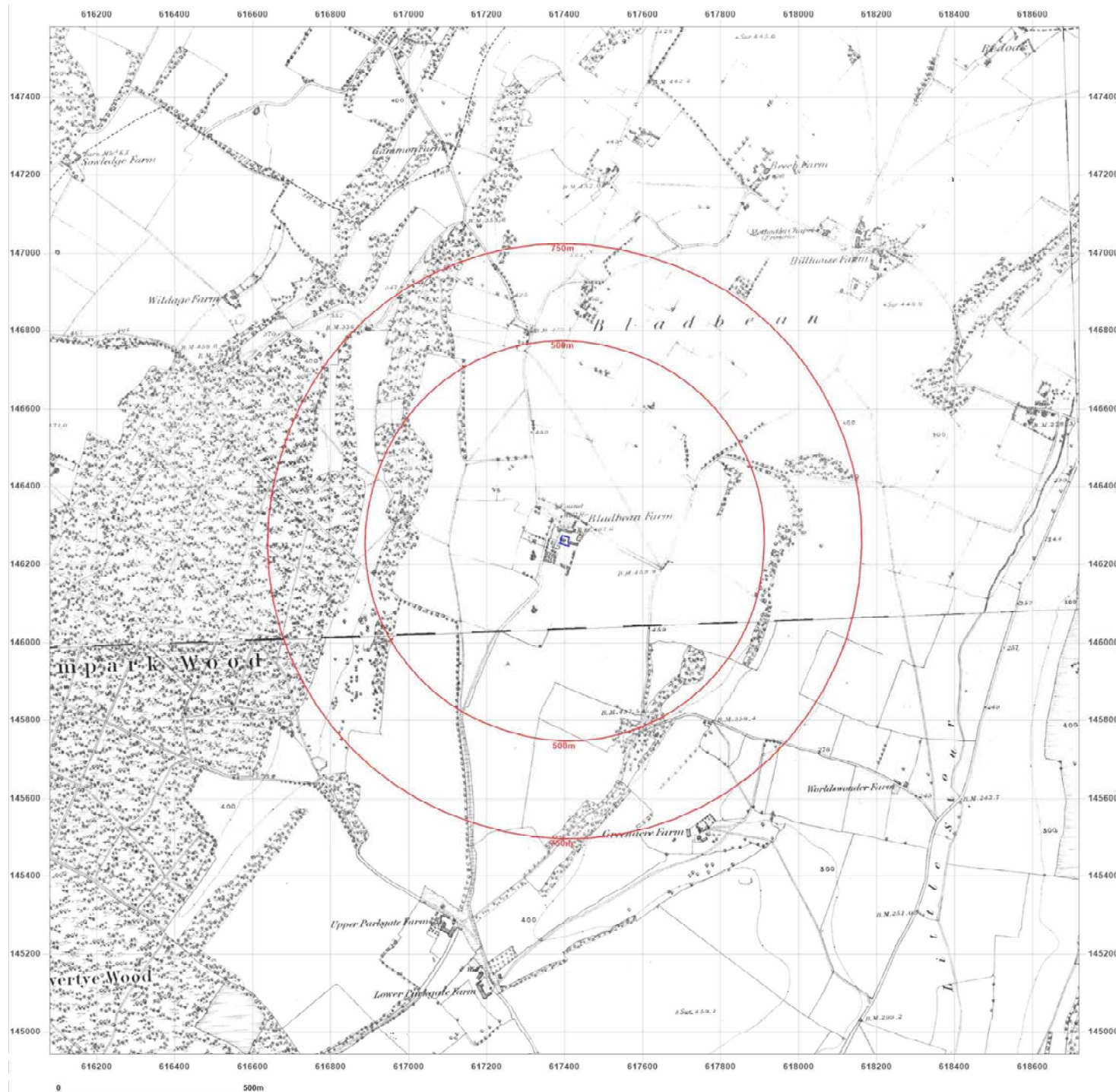


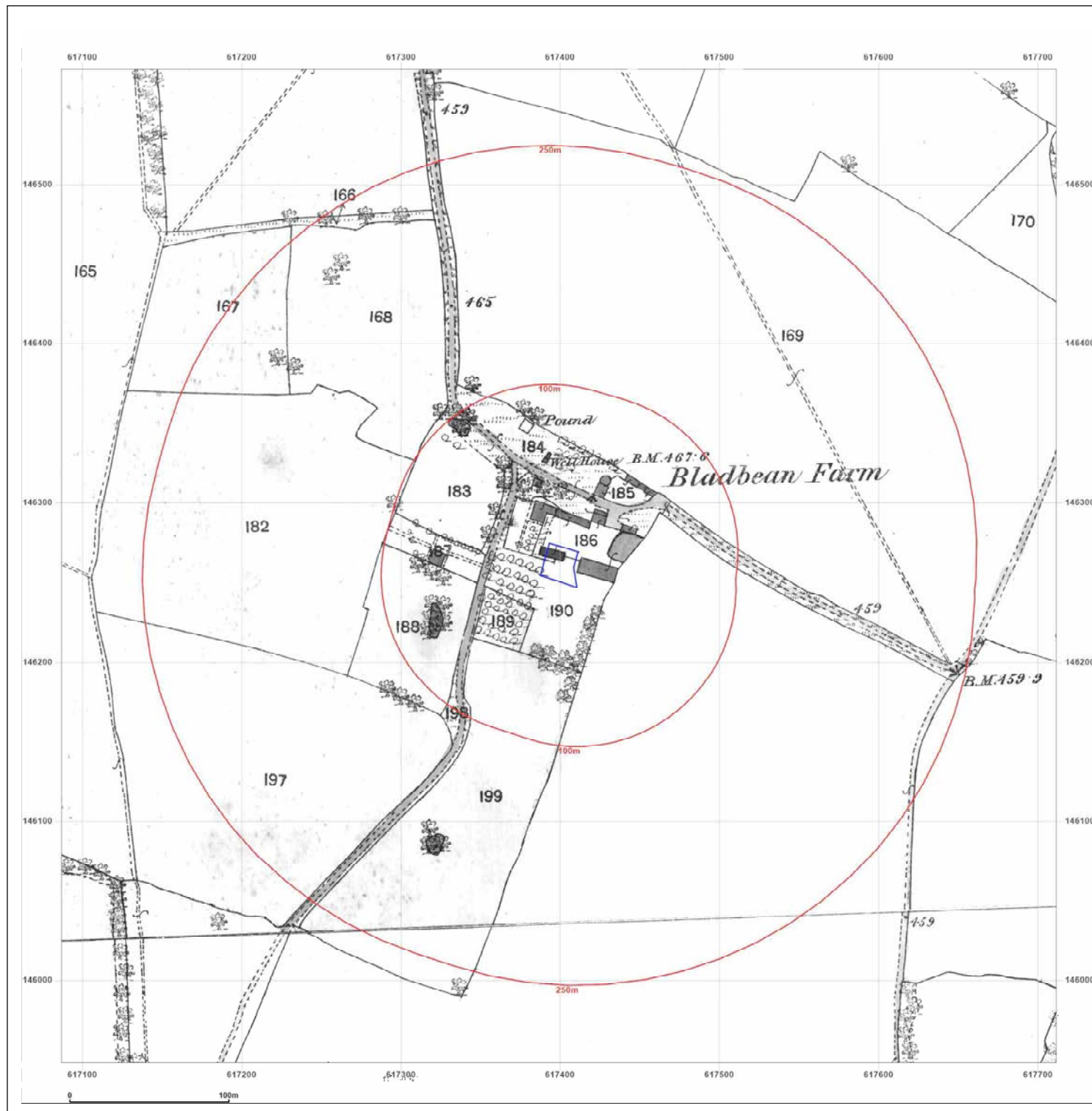
Supplied by:
www.centremapslive.com
groundsure@centremaps.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 December 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



**Site Details:**

Jacques Court Fir Tree Hill,
Bladbean, Canterbury, CT4 6NB

Client Ref: CMAPS-CM-1139767-61952-071223
Report Ref: CMAPS-CM-1139767-61952-071223HIS
Grid Ref: 617399, 146260

Map Name: County Series

Map date: 1873

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1873
Revised 1873
Edition N/A
Copyright N/A
Levelled N/A

Surveyed	1873
Revised	1873
Edition	N/A
Copyright	N/A
Levelled	N/A



Produced by
Groundsure Insights
www.groundsure.com

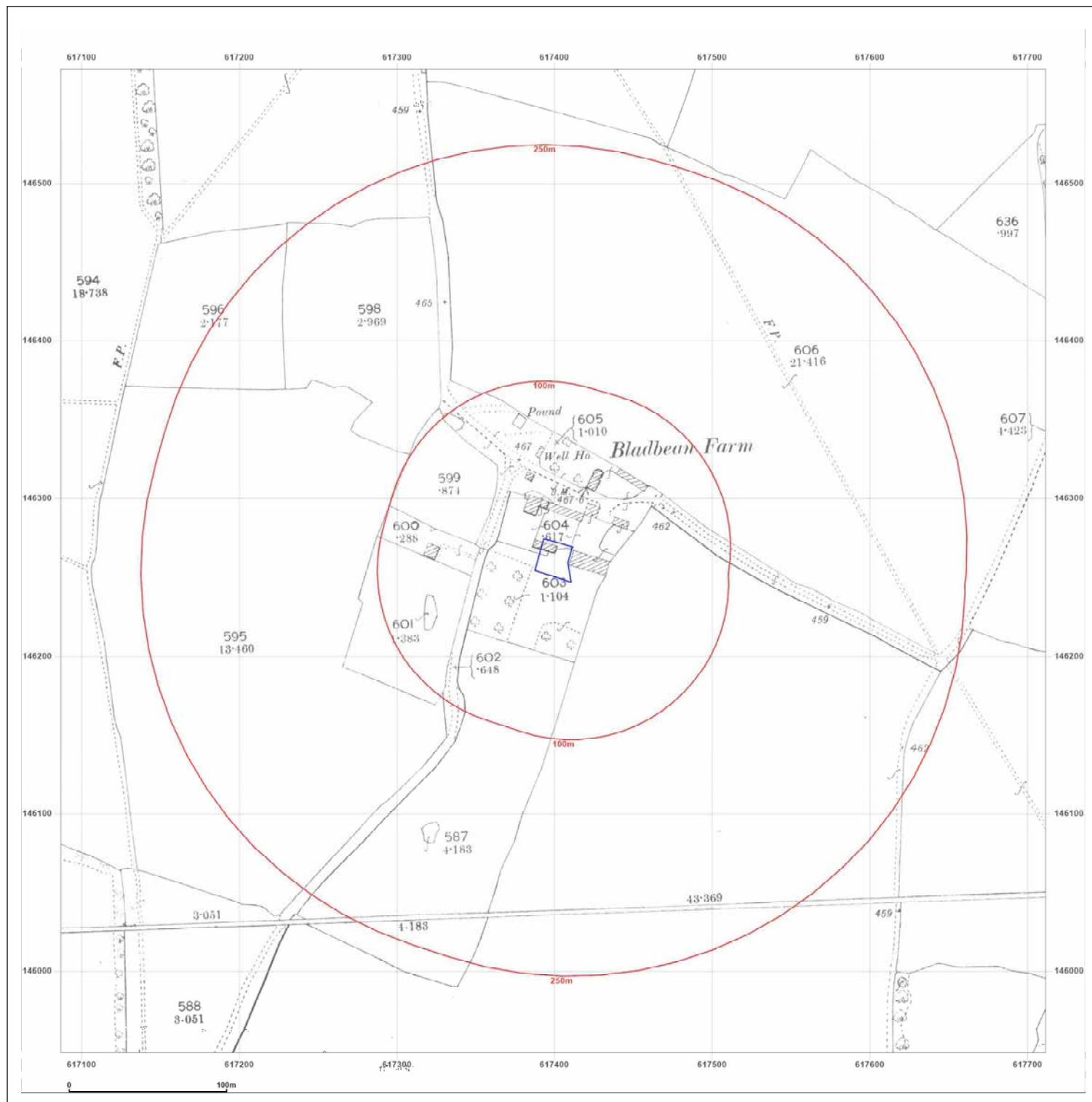


Supplied by:
www.centremapslive.com
groundsurre@centremaps.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 December 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

Jacques Court Fir Tree Hill,
Bladbean, Canterbury, CT4 6NB

Client Ref: CMAPS-CM-1139767-61952-071223
Report Ref: CMAPS-CM-1139767-61952-071223HIS
Grid Ref: 617399, 146260

Map Name: County Series

Map date: 1898

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A



Produced by
Groundsure Insights
www.groundsure.com



Supplied by:
www.centremapslive.com
groundsure@centremaps.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 07 December 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

