

Flood Risk Assessment Report

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

On behalf of Nola Design Limited

Report Reference: GWPR4714/FRA/September 2022			Status: Final
Issue	Prepared By	Checked By	Verified By
V2.01			
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1.0 INTRODUCTION

1.1 General

Ground and Water Limited were instructed by Nola Design on the 17th March 2022 to conduct a Flood Risk Assessment on a potential development site at Thorney Down Farm, Moorhill Road, West End, Southampton SO30 3AY. The scope of the investigation was detailed within the Ground and Water Limited quote (reference GW-0648).

1.2 Aims of the Investigation

The aims and objective of the report was to supply the client with a Flood Risk and Drainage Assessment to support a planning application. Ground and Water Limited undertook this work following the principles of the National Planning Policy Framework and Technical Guidance-Flooding.

This report has been prepared to consider the risk of flooding to the site and to consider measures that may be required to manage this risk. The potential impacts of climate change together with the risk of flooding to others have also been taken into account. The disposal of surface water has also been addressed.

A Flood Risk Assessment report has been prepared to support a planning application and such, should be included with any application to the Local Planning Authority who will undoubtedly consult with Environment Agency during the planning process.

Ground and Water Limited has prepared this report following the principles of the National Planning Policy Framework (NPPF) and Technical Guidance-Flooding, published March 2012 (updated 2020/2021), and Planning Practice Guidance (PPG) for Flooding published in March 2014. Details on the legislative background are provided in Appendix A.

This report has been prepared based on the terms, conditions and limitations outlined within Appendix A.

This version of the report (V2.01) supersedes the previously issued version (V1.01).

2.0 SITE SETTING

2.1 Site Location

The site comprised a 20,700m² roughly rectangular shaped plot of land, with a north-east to south-west orientation, located along the eastern side of Moonhill Road. The site was located within Eastleigh, a mainly residential town in the south of Hampshire. An approximate grid reference for the centre of the site is SU47367 13073. A Site Location Plan is provided within Figure 1 and a plan showing the site development area is given within Figure 2.

2.2 Site Description

At the time of reporting the site consisted of a disused farm, with a large area of soft landscaping to the northeast. Some partly demolished buildings were noted to the northwest. An aerial view of the site showing an approximate site boundary is given within Figure 3.

2.3 Site Topography

The site was sloping to the northeast. The southwest of site was noted to be at 68.52m AOD. The centre of site it was noted to be at 62.65m AOD. Towards the northwest of site was noted to be at 52.79m AOD. A topographic map can be seen in Figure 4.

2.4 Proposed Development

At the time of reporting, September 2022, the proposed development was understood to comprise the development of a touring park on the lower terrace of the site. A communal toilet facility block, with a finished floor level of 61.20m AOD, was also proposed.

2.5 Geology

The BGS Solid and Drift Geological Map for the Area (Sheet Number 315) revealed that the site was underlain by the Wittering Formation bedrock in the northern/western portion of site. The southern/eastern portion was underlain by the London Clay Formation bedrock. In the north-eastern of site the Whitecliff Sand Member was noted. 72m west to site 9th River Terrace Deposits were recorded.

2.5.1 Nearby BGS Borehole Records

A BGS Borehole Record (references SU41SE50) was noted ~604m east of the site, recorded a capping of Topsoil to 0.20m bgl followed by stiff grey and brown sandy clay with traces of organic matter to 0.40m bgl. Followed by a stiff grey and brown sandy clay with some gravel to 1.52m bgl followed by stiff light grey sandy clay with some brown sand to 1.82m bgl. Underlain by a firm light grey sandy clay to ~2.74m bgl underlain by a firm fissured light grey- brown sandy clay with pockets of brown sand for the remainder of the borehole a depth of ~4.57m bgl. No groundwater was encountered.

2.6 Hydrogeology and Hydrology

The DEFRA online maps indicated that the site was located on secondary A aquifer associated with the Wittering Formation in the north/western portion. The southern/eastern portion was located on an unproductive aquifer associated with the London Clay Formation bedrock. No designation was given to superficial deposits due to their likely absence.

Based on this, it was anticipated that groundwater was perched on top of the secondary A bedrock

Aquifer within Made Ground/Topsoil. The main groundwater table though is expected within the Secondary A aquifer.

It was considered that the groundwater was flowing southwards towards the Southampton water and in alignment with local topography. Perched water was also likely to be found within the Made Ground and or within silty/sandy bands of the Wittering Formation/London Clay Formation, especially after periods of intense or prolonged rainfall.

The nearest surface water features were unnamed streams along the northern site boundary, and southern site boundary, which converged just off-site to the north-east; however, new earthworks which form part of the Boundary Lakes Golf Course were built across these watercourses and have severed the natural overland flow routes. A single 225mm diameter pipe culvert has been installed through these earthworks to act as an outfall for trapped runoff coming from the touring park site.

3.0 FLOOD RISK

3.1 Environment Agency Flood Risk Zones

National Planning Policy Framework and Technical Guidance-Flooding, published March 2012 (updated February 2019), and Planning Practice Guidance (PPG) for Flooding published in March 2014 provides guidance on assessing flood risk and seeks to guide development away from areas at risk of flooding. The Environment Agency defines a number of 'Flood Zones' based on the probability of flooding and provides guidance on the most appropriate forms of development within each zone. The Environment Agency's primary concern is that lives are not put at risk and that the possibility of pollution is reduced to acceptable levels. It is not so concerned about damage to property. The Flood Zones are summarised below.

Environment Agency Defined Flood Zones		
Zone	Annual Probability of Flooding In Any Year	
	Fluvial Flooding	Tidal Flooding
Zone 1 Low Probability	Less than 1 in a 1000 (<0.1%)	Less than 1 in a 1000 (<0.1%)
Zone 2 Medium Probability	Between 1 in 1000 and 1 in 100 (0.1% - 1%)	Between 1 in 1000 and 1 in 200 (0.1% - 0.5%)
Zone 3a High Probability	Greater than 1 in 100 (>1%)	Greater than 1 in 200 (>0.5%)
Zone 3b Functional Floodplain	Greater than 1 in 20 (>5%)	n/a

These zones do not take account of any flood defences that may exist as these could be overtopped or breached by a more severe flood event than designed for or maintained against.

3.2 Site Specific Review

Examination of the Environment Agency records showed that the site fell within a Flood Zone 1 (an area with a low probability of fluvial or coastal flooding). The site was not protected by flood defences or benefiting from flood storage. The EA Flood Map for Planning can be viewed within Figure 5. The GroundSure Datasheet, presented in Appendix B of this report, revealed that no flood defences were located within 250m of the site. In accordance with the Environment Agency Data the site was not currently protected by any formal defences and there was no flood alleviation work planned for the area.

The extent of flooding from surface water was shown to be very low risk for the majority of the site; However, in close proximity to the south-eastern site boundary was a strip which was noted to be at medium to high risk of surface water flooding. These can be seen in Figure 6. With reference to the Environmental Agency correspondence, the product 4 map for surface water flooding also shows the majority of site is classified as having a very low-risk for surface water flooding. Whereas the south – east of site was classified as having a medium to high risk of surface water flooding.

A local area of surface water ponding along the southern site boundary was assessed to self drain in a north-easterly direction along the toe of the embankment to the A334, before draining north west along the toe of the adjacent fill embankment formed by the new earthworks along the eastern site boundary. During a recent site visit we observed a 225mm diameter pipe installed through this new fill embankment to roughly mimic the original flow paths. We have no information or calculations to advise whether it has been appropriately designed but as things stand, this pipe culvert is currently

the only means of draining this development site.

Based on a review of the GroundSure Data sheet, there were no historical flood events on-site or within a 250m radius.

A review of the Environmental agency maps show that the site was not located in area that was at risk of flooding from reservoirs, as shown by Figure 7.

The ground conditions encountered during the Ground and Water Ground Investigation (GWPR4714/ILR/March 2022) did generally conform the anticipated geology from the examination of the geology map. A capping of Topsoil was noted overlying the bedrock Wittering formation.

The succession of conditions and description of soils encountered in the trial holes in descending order is tabulated below.

Summary of Strata Encountered (TP1 – TP4 & WS1 – WS2)			
Strata	Top Depth (m bgl)	Base Depth (m bgl)	Thickness (m)
TOPSOIL (All locations): Dark brown clayey gravelly fine to coarse SAND. Gravel was sub-angular to sub-rounded fine to medium flint.	GL	0.30 – 0.60	0.30 – 0.60
WITTERING FORMATION (All Locations): Orange and grey slightly gravelly sandy CLAY. Sand was fine to medium. Gravel was sub-angular fine to medium flint	0.30 – 0.60	>0.90 - 4.10	>0.60 – 3.50
WITTERING FORMATION (WS1 & WS2): Dark grey sandy CLAY. Sand was fine to medium.	2.50 - 4.10	>5.45	>2.95 - >1.35

Ground water strikes were encountered within WS1 and WS2 a tabulated summary can be seen below.

Summary of Groundwater (m bgl)	
Trial Hole	Groundwater Depth (m bgl)
WS1	1.50
WS2	2.00

Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The investigation was undertaken in March 2022 when groundwater levels are likely to be falling from their annual maximum (highest elevation). Exact groundwater levels may only be determined through long term measurements from monitoring wells installed on-site.

3.3 Groundsure Datasheet Review

Groundsure Datasheets were obtained for the site. A copy of the datasheets is presented in Appendix B and a summary is given in the table below.

Groundsure Datasheet Summary	
Source	Nearest Distance from Site/Dated/Type
River and Coastal Flooding	
Risk of Flooding from Rivers and Sea (ROFRaS)	No records onsite or within a 250m radius.
Historical Flood Events	No records on site or within a 250m radius.

Groundsure Datasheet Summary	
Source	Nearest Distance from Site/Dated/Type
Flood Defences	No records on site or within a 250m radius.
Areas Benefiting from Flood Defences	No records on site or within a 250m radius.
Flood Storage Areas	No records on site or within a 250m radius.
River and Coastal Flooding – Flood Zones	
Environmental Agency Zone 2 Floodplains	No records on site or within a 50m radius
Environmental Agency Zone 3 Floodplains	No records on site or within a 50m radius
Surface Water (Pluvial) Flooding	
Surface Water (Pluvial) Flooding	Highest risk on-site and within 50m is 1 in 30 year, 0.3m - 1.0m
Maximum flood depths for a range of return periods on-site (Surface Water Flooding)	
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m
Groundwater Flooding	
Groundwater Flooding	Highest risk on-site is Negligible and within 50m is Low
Hydrology	
Water Network (OS MasterMap)	9 records of watercourse contains water year round (in normal circumstances) 79m southeast, 144m northwest, 153m north, 174m north, 217m north, 220m north, 225m north, 240m north and 243m north.
Surface Water Features	4 recorded within a 250m radius
WFD Surface Water Body Catchment	Coastal catchment, onsite (not apart of a river WB catchment)
WFD Surface Water Bodies	None recorded in a 250m radius
WFD Groundwater Bodies	1 recorded onsite, south east Hants Bracklesham Group

3.4 Vulnerability Classification

Table 2 of PPG (Planning Practice Guidance published in March 2014) defines the ‘Flood Risk Vulnerability Classification’ of a particular land use. This classification was based partly on DEFRA/Environment Agency research on flood risk to people and also the need of some uses to keep functioning during flooding.

The site’s vulnerability classification was **‘vulnerable’**. The proposed development will stay **‘more vulnerable’** as the proposed development included a caravan touring site for short-let caravans and camping.

3.5 Sequential Test

NPPF and PPG require that at all stages of planning; a Sequential Test is completed with the aim of steering new development to areas at the lowest probability of flooding (Zone 1). The Sequential Test would normally be completed by the Local Planning Authority (LPA). The Sequential Test should be applied to the whole local planning authority area to increase the possibilities of accommodating development which is not exposed to flood risk. If it is not possible for development to be located in zones with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied.

The following data has been provided for the Sequential Test:

Sequential Test:

The basic approach seeks to direct development towards areas least prone to flooding, and that applies particularly to more vulnerable forms of development. In adopting this approach, the nature of flood risk is also relevant along with measures of flood resistance and resilience, which may be included within any proposed development.

To ensure that the above approach is correctly assessed when LPAs considered planning applications for development within areas of Flood Risk, any submitted flood risk assessment will need to include Sequential and Exception tests.

At the time of reporting, July 2022, the proposed development was understood to comprise of the construction of a caravan touring park in the east of site with a communal block in the centre.

Application of the sequential test revealed the development is already contained within a Flood Zone 1; therefore the sequential test is passed and an exception test is not required.

3.6 Modelled Flood Levels and Depths

The correspondence provided by the Environment Agency can be viewed in Appendix C highlighted the site was situated in the area with no detailed flood modelling data and therefore a flood risk product was not available. The correspondence provided by the Environment Agency can be viewed in Appendix C.

3.6.1 Surface Water Flooding Analysis

With reference to the online EA Surface Water flooding map provided in Figure 6 the majority of the site is classified as having very low risk of surface water flooding. However, to the south of site is shown as having a medium to high extent of surface water flooding. It was determined the site and its surrounding areas were at most risk posed from a medium risk flooding event shown in Figure 8. The expected depth of flooding resulting from a medium risk event for the site was expected to be 450mm towards the south where the proposed communal building is located.

The EA online guidance “Flood Risk Assessments: Climate Change Allowances” sets out the climate change allowances for peak rainfall intensity. Using the anticipated flooding depth of 450mm for a medium risk event, the following peak rainfall intensity allowances have been calculated in the table below.

East Hampshire Management Catchment 3.3% annual exceedances rainfall event				
Category	Total Potential Change (2050s)		Total Potential Change (2070s)	
Upper end	35%	607.50mm	40%	630mm
Central	20%	540mm	35%	607.50mm

East Hampshire Management Catchment 1% annual exceedances rainfall event				
Category	Total Potential Change (2050s)		Total Potential Change (2070s)	
Upper End	40%	607.50mm	45%	652.50mm
Central	20%	540mm	25%	562.50mm

Given the information provided above it was considered future impacts of peak rainfall intensity due

to climate change may impact the proposed development and end-users. Appropriate resilience measures are recommended and are outlined within Section 5 of this report.

3.7 Flood Risk to and from Other Sites

Methods of keeping the flood risk to a minimum can be applied by the correct implementation of Sustainable Urban Drainage Systems (SUDS).

The majority of new developments are encouraged to use SUDS to manage surface water drainage. This ensures that any volumes and peak flow rates of surface water leaving a developed site are no greater than the rates prior to the proposed development unless specific off-site arrangements are made and result in the same effect.

The SUDS techniques considered appropriate for the on-site conditions are detailed below, a discussion on the practical application onto the site has been included for general reference:

- **Below surface depressions:** Designed to capture excess runoff and encourage water to soak into the ground. The shallow depressions can be used for public open space or green spaces that fill only during intense rainfall events.
- **Green roofs:** A roof that has a growing medium placed on top and vegetation on its surface allowing rainwater uptake from plants and evapotranspiration allowing rainwater to be removed at source;
- **Permeable hardstanding:** Hardstanding finishes that allow water to cumulatively soak into the ground through void spaces between the solid parts reducing overall surface runoff. Permeable paving can also filter water as it percolates through, improving water quality;
- **Pervious Surface in Combination with Aggregate Sub-base and/or Geocellular/Modular Storage:** A geocellular/modular or permeable paving approach could be utilised within the associated access roads, parking area and pavements.
- **Swales:** Installation of shallow vegetated channels, typically at the roadside, to convey or store surface water from the land. They also promote natural infiltration of water into the ground; and
- **Alleviation/attenuation basin:** A depression or excavated area designed to store water during a store event and release it slowly in a controlled way. Attenuation basins can permanently store water such as a pond or wetland features or remain dry but filling during an extreme rainfall event.

The above methods can be used individually but it is recommended that a combination of all the above methods is utilised onsite in order to create a holistic drainage solution.

4.0 CONCLUSIONS AND RECOMMENDATIONS

To reduce the flood risk posed to this site, the following recommendations and measures are suggested when assessing the implications and design constraints imposed on the site, existing flood levels and other site constraints:

4.1 Risk to the Surrounding Area

Regarding the change of the site use consisting of the construction of a single storey and use of the site as caravan camping site, there is an increase of hardstanding and building footprint; therefore, the floodplain capacity of the site would be less, potentially resulting in an increased risk of flooding to the surrounding area; however, the change in footprint is relatively small compared to the river basin size, and any reduction of floodplain capacity can be offset by SUDS. **Given this, it was considered unlikely that the change in footprint would have a significant increased risk of flooding to surrounding areas, for the flood levels anticipated.**

4.2 Recommended Flood Resistance and Resilience Measures Level

As the communal toilet facility block will have a finished floor level of 61.20m AOD, flood levels are not anticipated to raise to this level, as the natural ground falls away steeply to the east, with the level along the eastern site boundary being 52.50m AOD. On this basis, no flood resistance measures, resilience measures and excavation routes are considered necessary.

4.3 Groundwater Recommendations

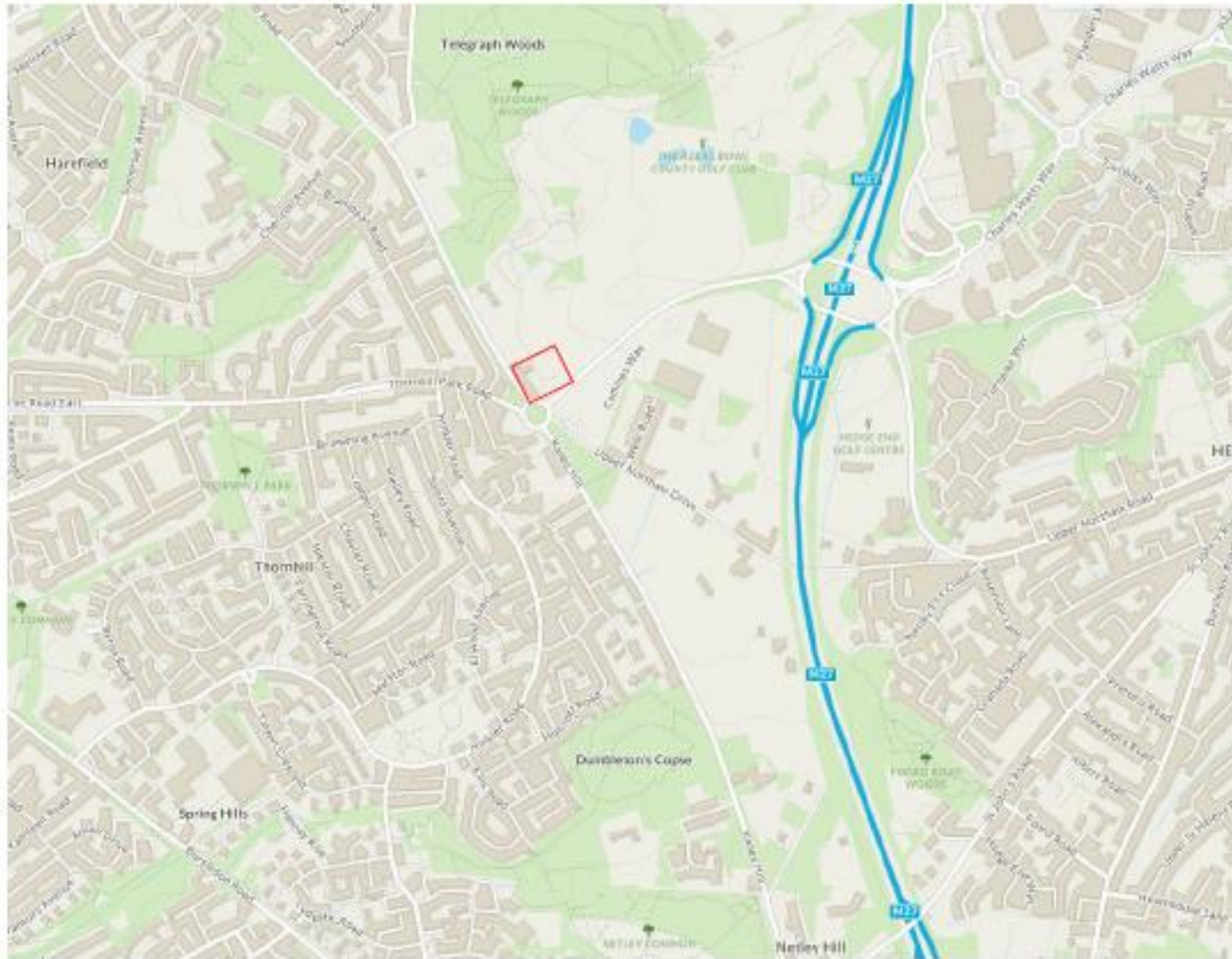
There is a potential for encountering groundwater during any excavations. There is also a risk from groundwater flooding. During the previous investigation undertaken in March 2022 groundwater strikes were noted between 1.50m – 2.00m bgl within WS1 – WS2 (GWPR4714/ILR/March 2022). Changes in groundwater level occur for a number of reasons including seasonal effects and variations in drainage. The investigation was undertaken in March 2022 when groundwater levels are likely to be falling their annual maximum (highest elevation). Exact groundwater levels may only be determined through long term measurements from monitoring wells installed on-site. This groundwater was believed to be perched on top of the Unproductive Strata comprising the cohesive London Clay Formation. This should be taken into the final design.

4.4 Drainage Systems

No previous drainage was present onsite.

The anticipated underlying geology was likely to not be suitable for traditional soakaways for surface water disposal. It was anticipated that the proposed system would comprise of connection to the mains sewer system.

FIGURES



 **Figure 2: Site Development Area**

Not to Scale

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

Nola Design Limited

September 2022

Figure 1: Site Location Plan

GWPR4714





Site boundary

Not to Scale

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

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September 2022

Figure 2: Site Development Area

GWPR4714





◇ Site boundary

Not to Scale

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

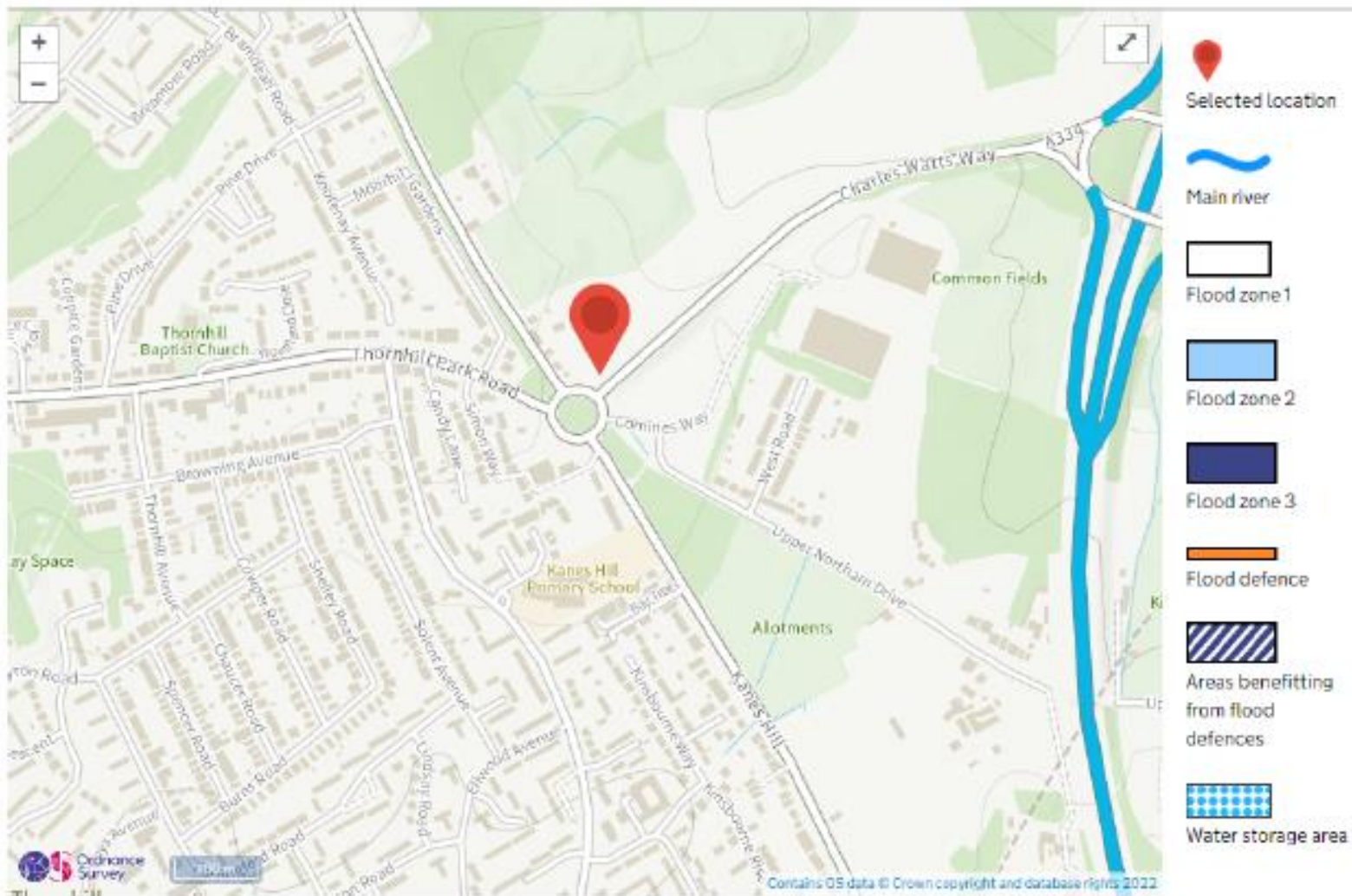
Nola Design Limited

September 2022

Figure 3: Aerial View of the Site

GWPR4714





Not to Scale

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

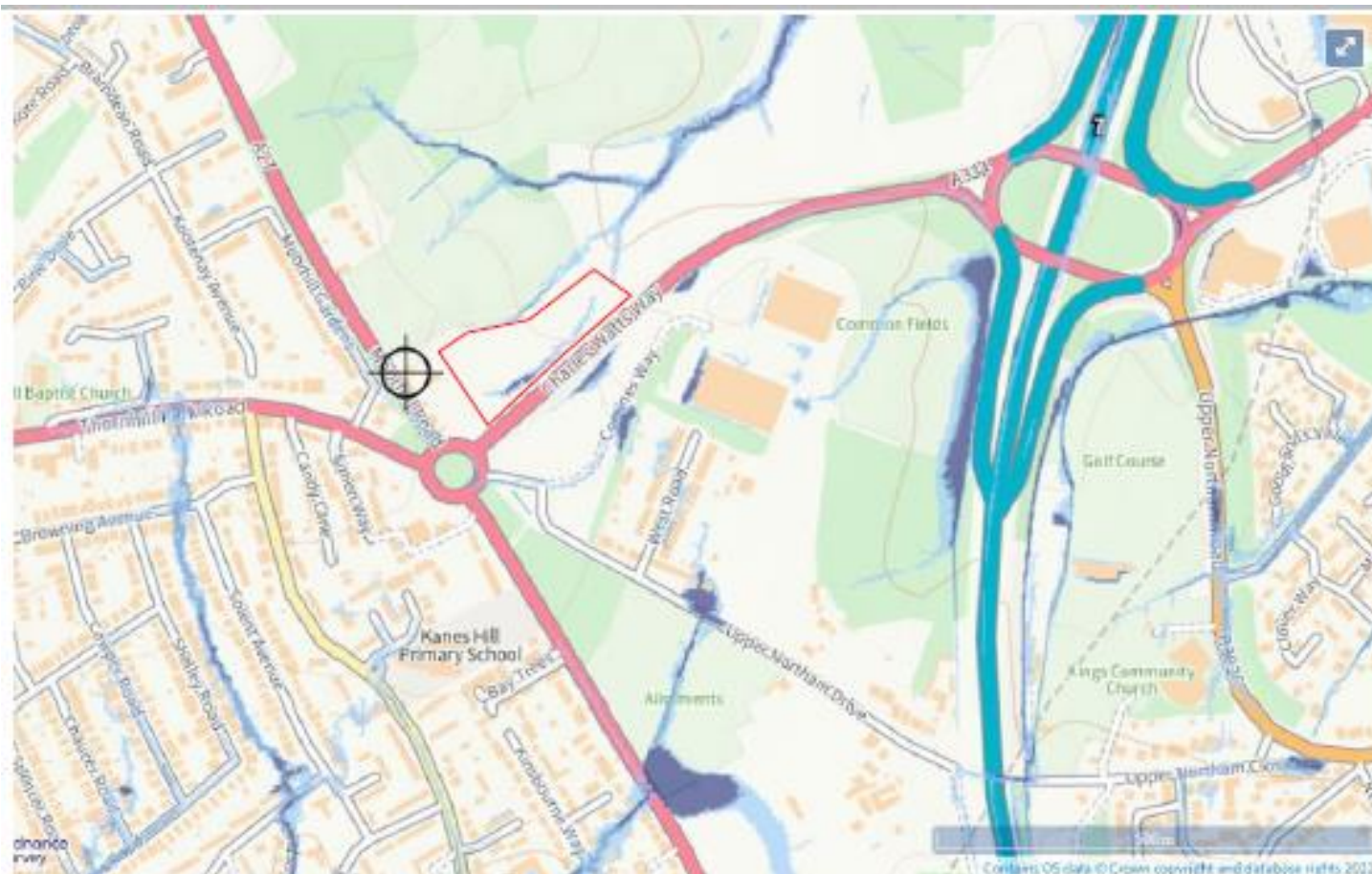
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Figure 5: Flood Map For Planning

GWPR4714





Not to Scale

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

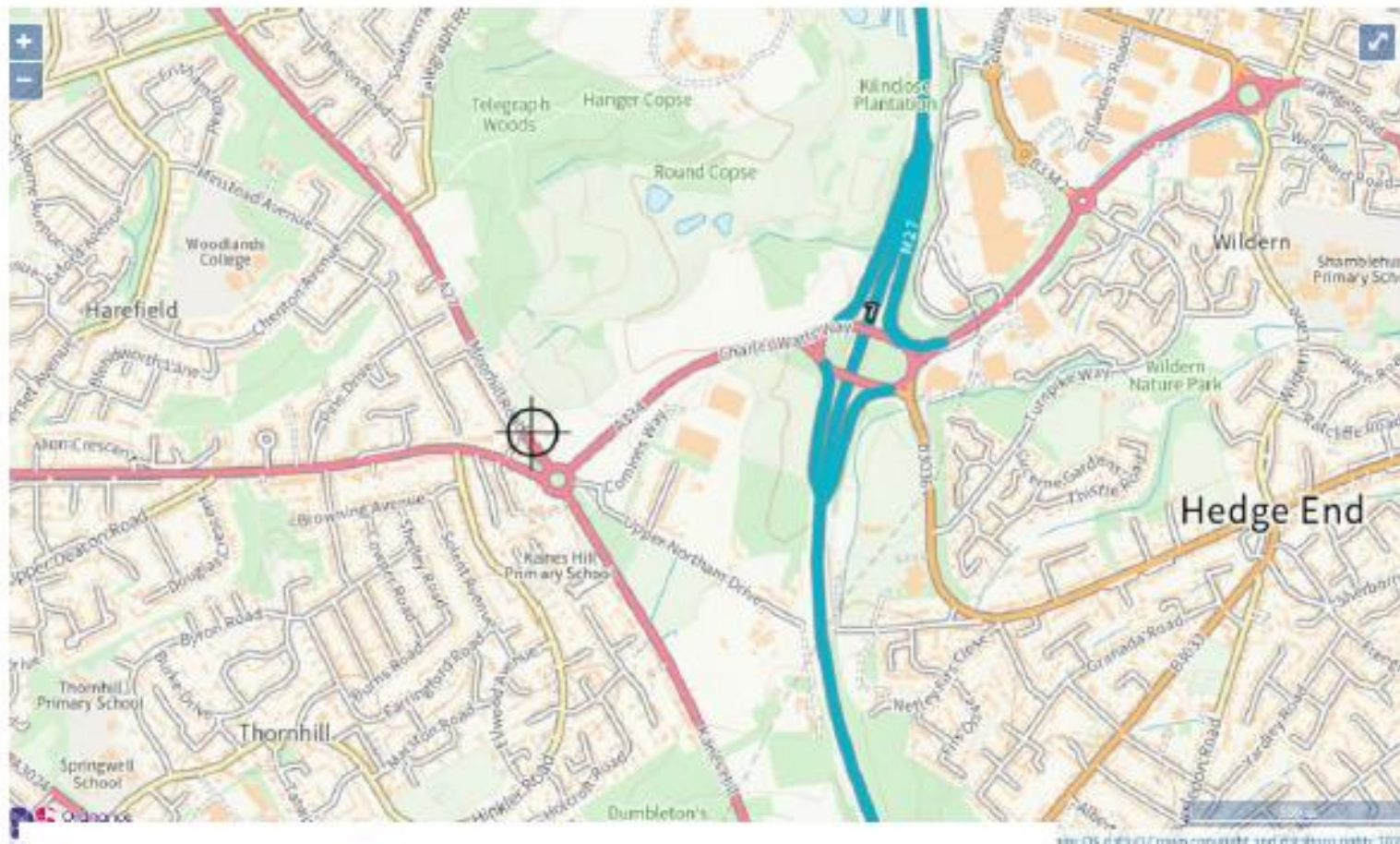
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September 2022

Figure 6: Surface Water Flooding Map

GWPR4714





● when river levels are normal ● when there is also flooding from rivers ⊕ Location you selected

Not to Scale

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

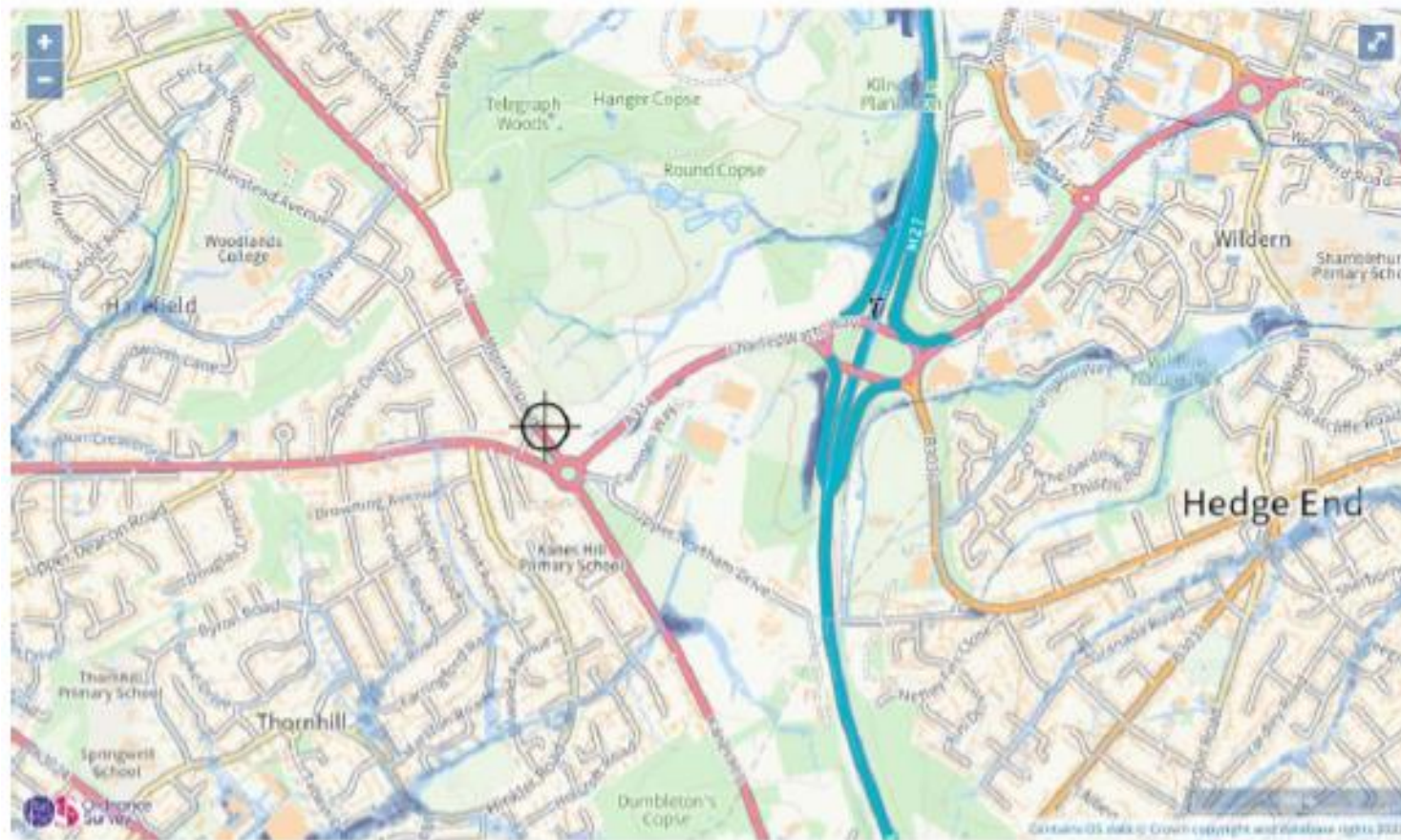
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September 2022

Figure 7: Reservoir Flooding Map

GWPR4714





Surface water flood risk: water depth in a low risk scenario
Flood depth (millimetres)

Over 900mm 300 to 900mm Below 300mm Location you selected

Not to Scale

Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY

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Figure 8: Surface Water Flooding Map (Low Risk; Depth)

GWPR4714



APPENDIX A: Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly, any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report ("you" or "the Recipient") are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must take into account any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the

context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist. It was not part of the scope of this report to comment on environment/contaminated land considerations.

The conclusions and recommendations relate to Thorney Down Farm, Moorhill Road, Westend, Southampton SO30 3AY.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

The conclusions and recommendations relate to the proposed development at 79 Warwick Avenue, Westminster, W9 2PP.

Legislative Background

National Planning Policy Framework and Technical Guidance-Flooding was published March 2012 and updated in February 2019. Planning is the current legislation that controls Flooding and associated Flood risk. It requires that consideration should be given to Flood Risk Assessment in the planning process. The guidance states that any flood risk assessment should:

- Identify land at risk from and the degree of risk of flooding from a river, watercourse, sea or other sources in the area;
- Consider the risk of flooding arising from the development in addition to the risk of flooding to the development;
- Take the impact of climate change into account;
- Consider both the potential adverse and beneficial effects of flood risk management infrastructure;
- Consider the vulnerability of those that could occupy and use the proposed development, taking account of the sequential and exception test and the vulnerability classification, including arrangements for safe access;
- Consider and quantify different types of flooding and identify flood risk reduction measures so that the assessments are fit for the purpose of the decisions being made;
- Consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes;
- Include the assessment of the remaining risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular development or land use;
- Consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of development may affect drainage systems;
- Be supported by appropriate data and information, including historical information on previous event.

This is the information that should be included in an FRA which the Environment Agency has requested. The Environment Agency is the regulatory body with regard to Flood Risk Assessments.

APPENDIX B: GroundSure Datasheets

THORNEYDOWN FARM, MOORHILL ROAD, WEST END, SO30 3AY

Order Details

Date: 08/07/2022

Your ref: GWPR4714

Our Ref: GS-8887582

Site Details

Location: 447390 113115

Area: 2.07 ha

Authority: [Eastleigh Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 5

OS MasterMap site plan

p.10

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
11	1.1	10k Availability	Identified (within 500m)				
12	1.2	Artificial and made ground (10k)	0	0	0	1	-
13	1.3	Superficial geology (10k)	0	0	1	0	-
14	1.4	Landslip (10k)	0	0	0	0	-
15	1.5	Bedrock geology (10k)	2	1	0	1	-
16	1.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
17	2.1	50k Availability	Identified (within 500m)				
18	2.2	Artificial and made ground (50k)	0	0	0	1	-
19	2.3	Artificial ground permeability (50k)	0	0	-	-	-
20	2.4	Superficial geology (50k)	0	0	1	0	-
21	2.5	Superficial permeability (50k)	None (within 50m)				
21	2.6	Landslip (50k)	0	0	0	0	-
21	2.7	Landslip permeability (50k)	None (within 50m)				
22	2.8	Bedrock geology (50k)	3	0	0	1	-
23	2.9	Bedrock permeability (50k)	Identified (within 50m)				
23	2.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
24	3.1	BGS Boreholes	1	3	5	-	-
Page	Section	Natural ground subsidence					
26	4.1	Shrink swell clays	Moderate (within 50m)				
28	4.2	Running sands	Low (within 50m)				
30	4.3	Compressible deposits	Negligible (within 50m)				
31	4.4	Collapsible deposits	Very low (within 50m)				
32	4.5	Landslides	Low (within 50m)				
34	4.6	Ground dissolution of soluble rocks	Negligible (within 50m)				



Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
35	5.1	Natural cavities	0	0	0	0	-
36	5.2	<u>BritPits</u>	0	0	0	1	-
36	5.3	Surface ground workings	0	0	0	-	-
36	5.4	Underground workings	0	0	0	0	0
36	5.5	Historical Mineral Planning Areas	0	0	0	0	-
37	5.6	Non-coal mining	0	0	0	0	0
37	5.7	Mining cavities	0	0	0	0	0
37	5.8	JPB mining areas	None (within 0m)				
37	5.9	Coal mining	None (within 0m)				
37	5.10	Brine areas	None (within 0m)				
38	5.11	Gypsum areas	None (within 0m)				
38	5.12	Tin mining	None (within 0m)				
38	5.13	Clay mining	None (within 0m)				
Page	Section	Radon					
39	6.1	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
40	7.1	<u>BGS Estimated Background Soil Chemistry</u>	4	4	-	-	-
40	7.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
41	7.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
42	8.1	Underground railways (London)	0	0	0	-	-
42	8.2	Underground railways (Non-London)	0	0	0	-	-
42	8.3	Railway tunnels	0	0	0	-	-
42	8.4	Historical railway and tunnel features	0	0	0	-	-
42	8.5	Royal Mail tunnels	0	0	0	-	-
43	8.6	Historical railways	0	0	0	-	-
43	8.7	Railways	0	0	0	-	-
43	8.8	Crossrail 1	0	0	0	0	-



43	8.9	Crossrail 2	0	0	0	0	-
43	8.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 05/04/2020

Site Area: 2.07ha



Contact us with any questions at:



Date: 8 July 2022

Recent site history - 2017 aerial photograph



Capture Date: 21/06/2017

Site Area: 2.07ha



Contact us with any questions at:



Date: 8 July 2022

Recent site history - 2013 aerial photograph



Capture Date: 04/06/2013

Site Area: 2.07ha



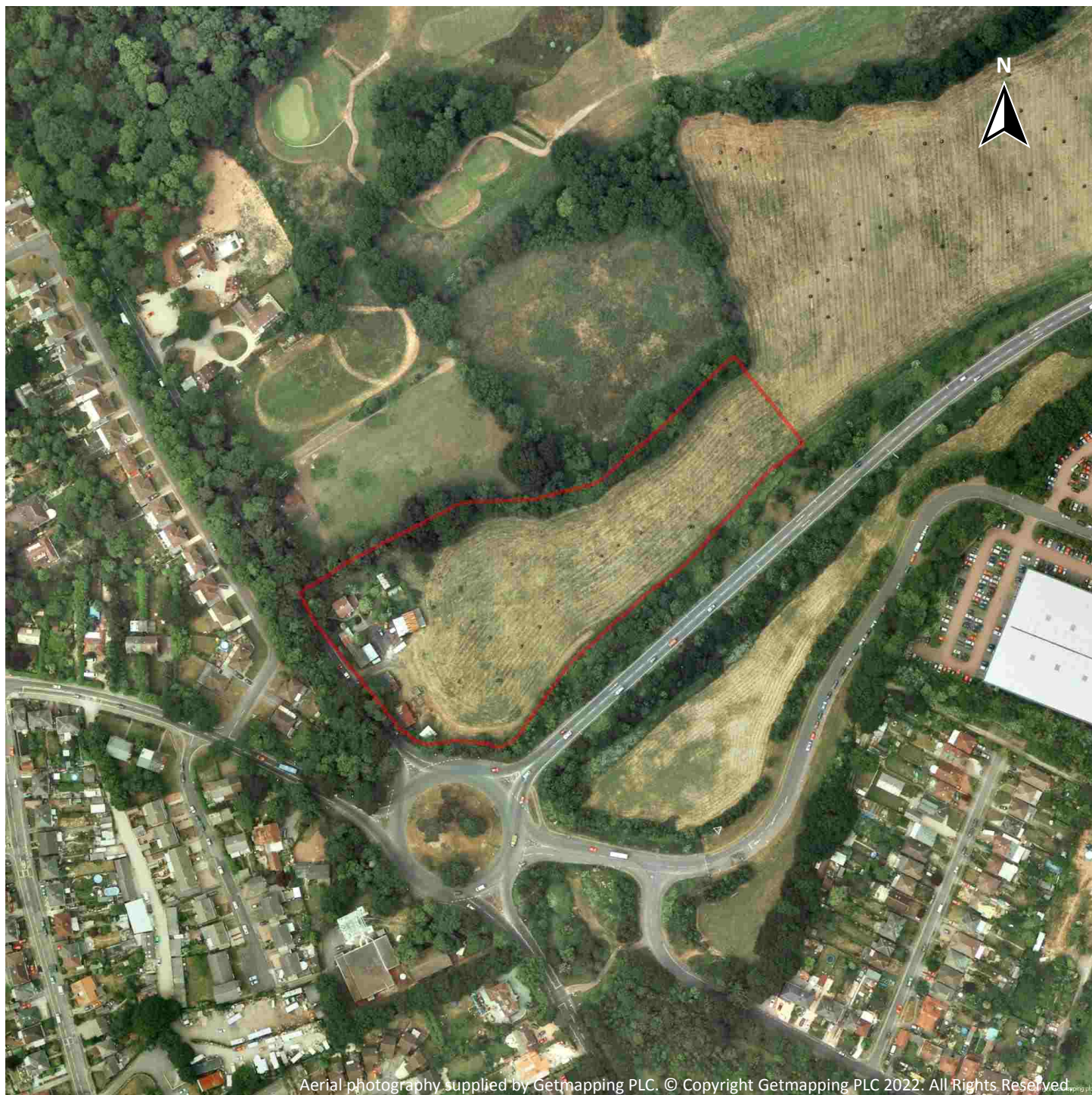
Contact us with any questions at:



Date: 8 July 2022



Recent site history - 2005 aerial photograph



Capture Date: 23/06/2005

Site Area: 2.07ha



Contact us with any questions at:



Date: 8 July 2022

Recent site history - 1999 aerial photograph



Capture Date: 27/07/1999

Site Area: 2.07ha



Contact us with any questions at:



Date: 8 July 2022

OS MasterMap site plan



Site Area: 2.07ha

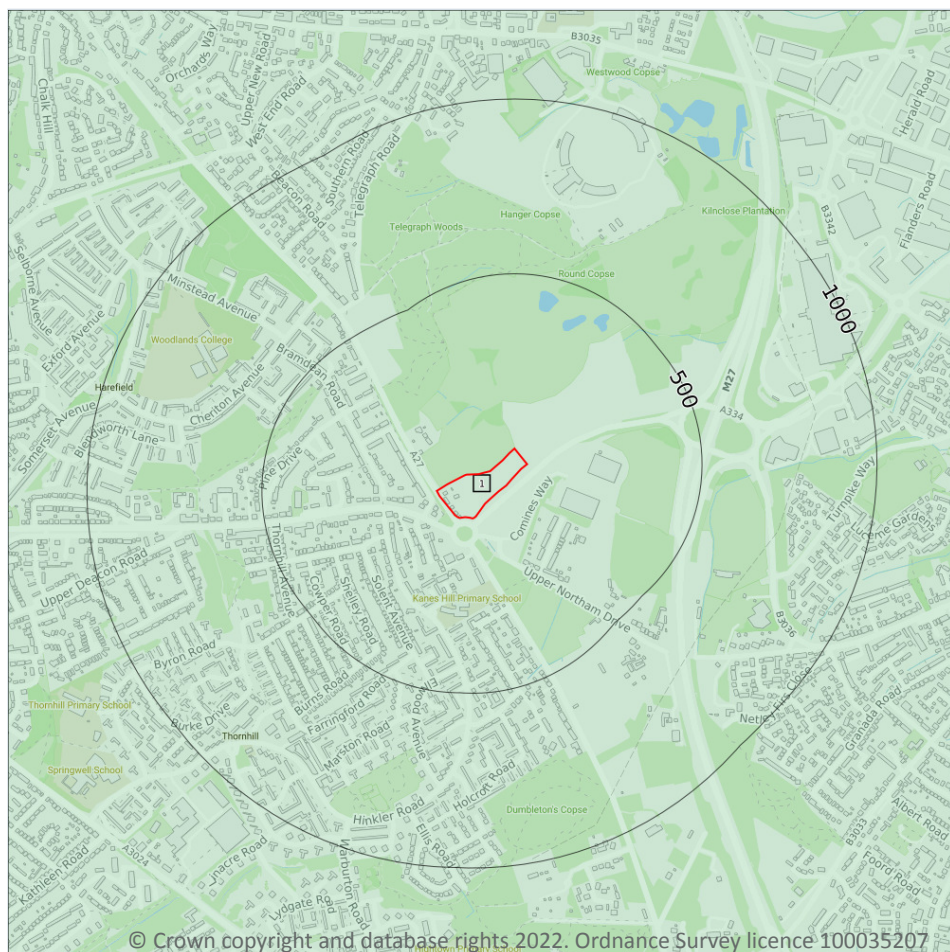


Contact us with any questions at:



Date: 8 July 2022

1 Geology 1:10,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- Full coverage
 - Partial coverage
 - No coverage

1.1 10k Availability

Records within 500m

1

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

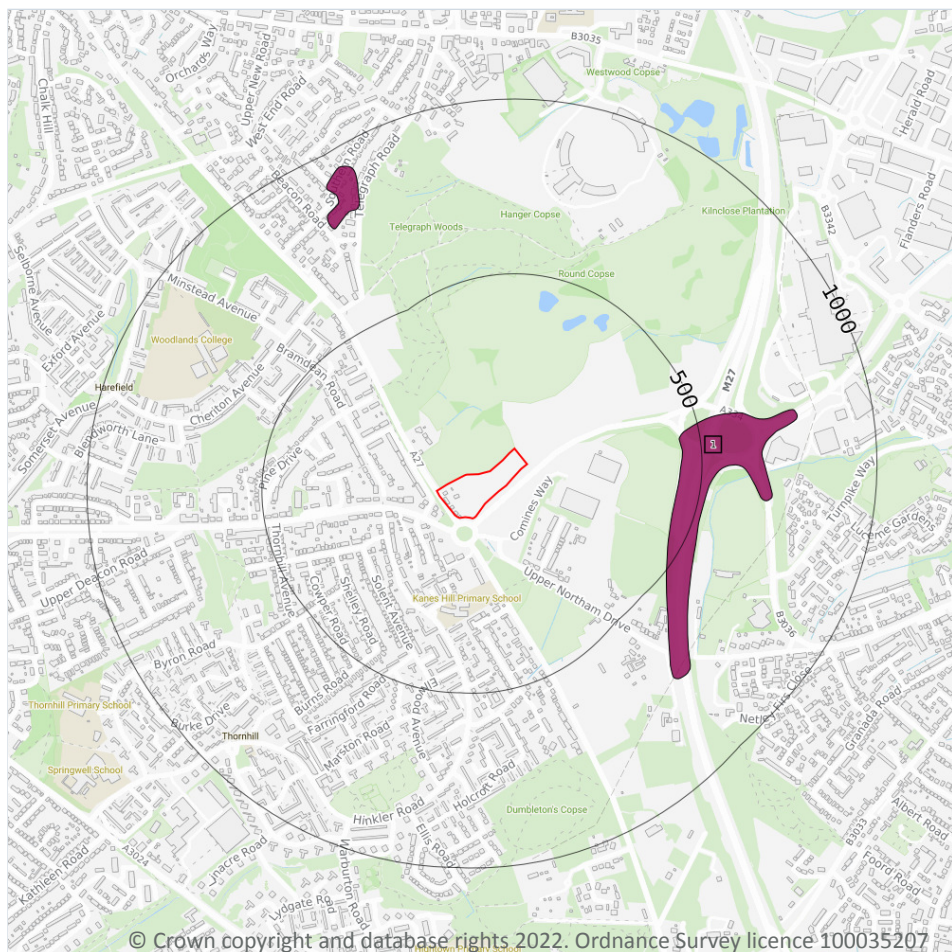
Features are displayed on the Geology 1:10,000 scale - Availability map on **page 11**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SU41SE

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Artificial and made ground



— Site Outline
Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

1.2 Artificial and made ground (10k)

Records within 500m

1

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

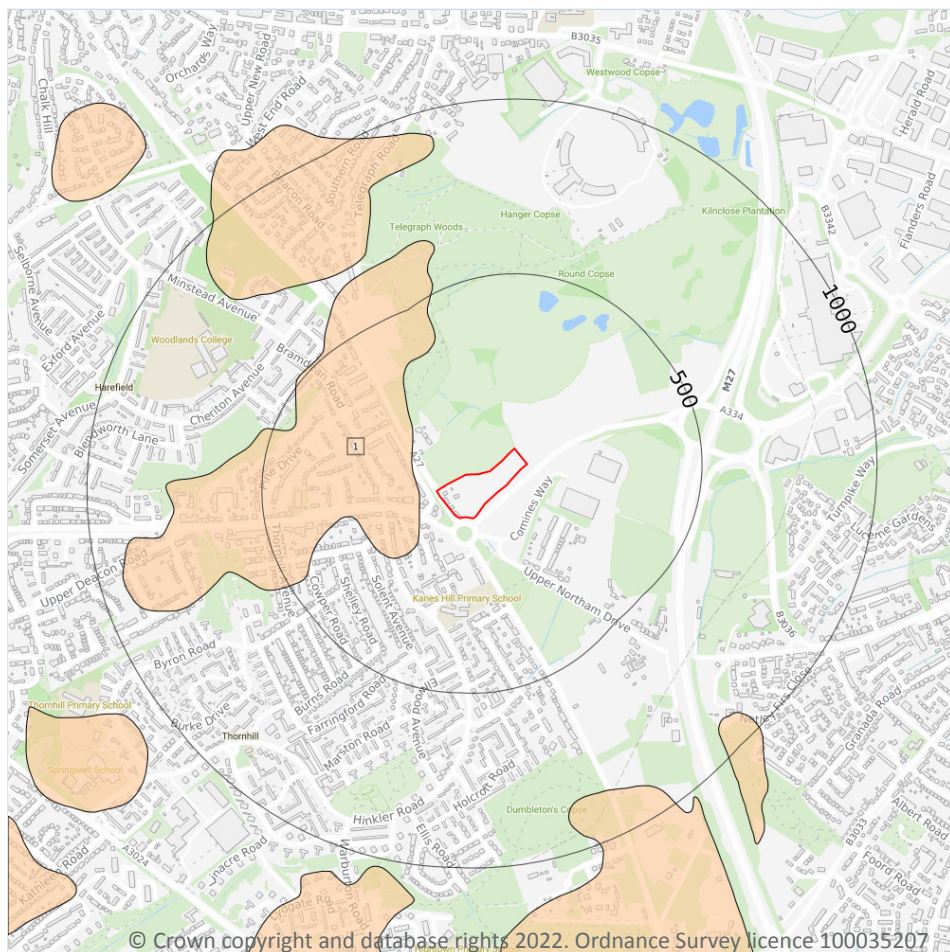
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 12**

ID	Location	LEX Code	Description	Rock description
1	435m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

1.3 Superficial geology (10k)

Records within 500m

1

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 13**

ID	Location	LEX Code	Description	Rock description
1	51m W	RTD9-XSV	River Terrace Deposits, 9 - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.



1.4 Landslip (10k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.



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1.5 Bedrock geology (10k)

4

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 15**

ID	Location	LEX Code	Description	Rock age
1	On site	WTT-CLSISA	Wittering Formation - Clay, Silt And Sand	Lutetian Age - Ypresian Age
2	On site	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch
3	17m NW	WHI-SSCL	Whitecliff Sand Member - Sand, Silt And Clay	Palaeogene Period
4	476m N	EA-SSCL	Earnley Sand Formation - Sand, Silt And Clay	Lutetian Age

This data is sourced from the British Geological Survey.

1.6 Bedrock faults and other linear features (10k)

Records within 500m

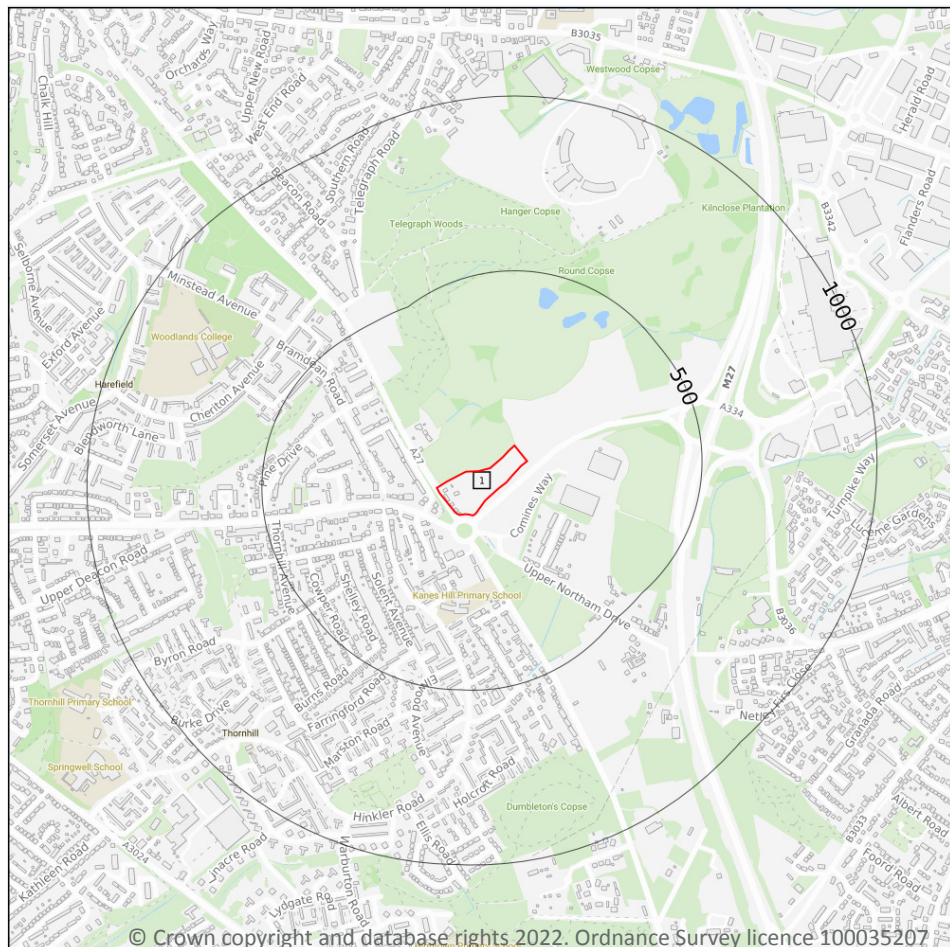
0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.



2 Geology 1:50,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- Geological map tile

2.1 50k Availability

Records within 500m

1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

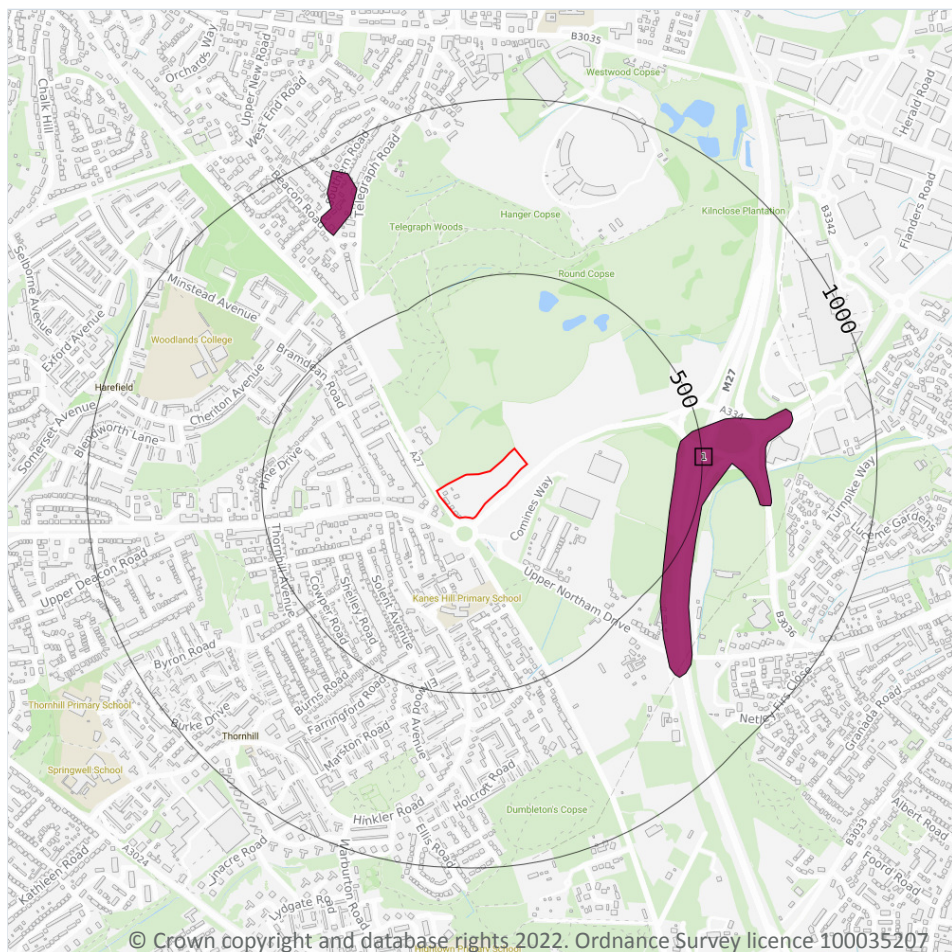
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 17**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW315_southampton_v4

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Artificial and made ground



- Site Outline**
- Search buffers in metres (m)**
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

2.2 Artificial and made ground (50k)

Records within 500m

1

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 18**

ID	Location	LEX Code	Description	Rock description
1	422m E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

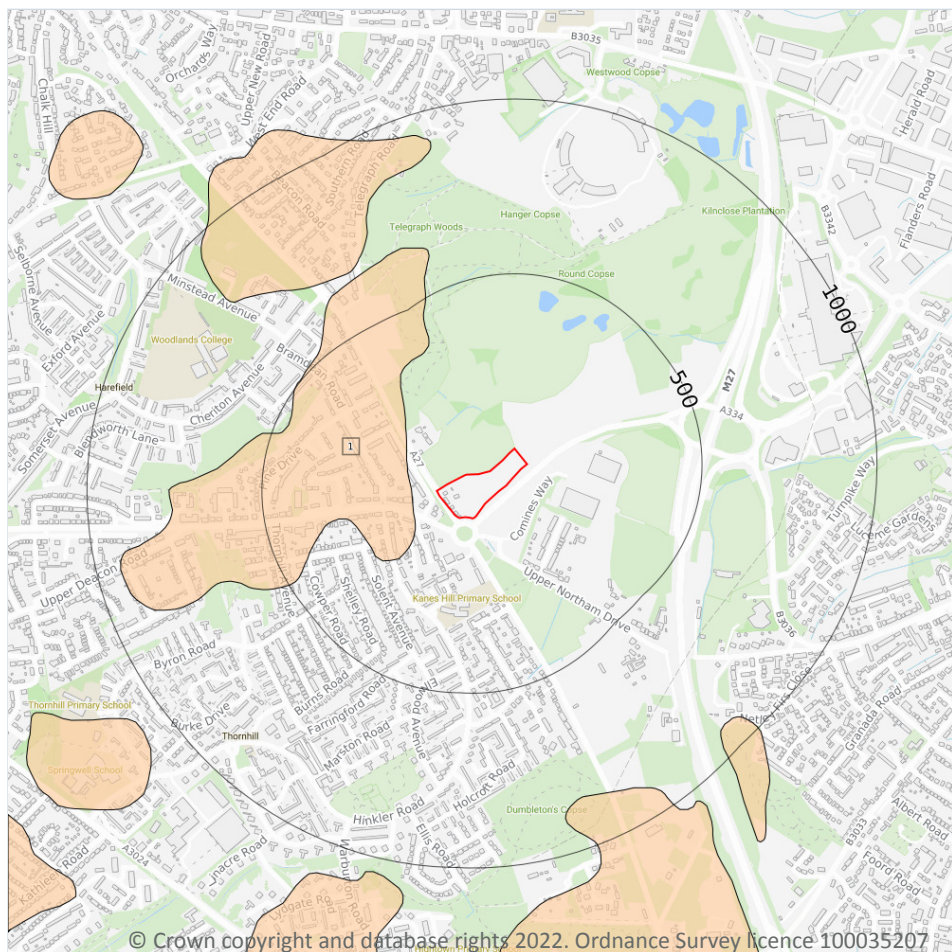
This data is sourced from the British Geological Survey.



Records within 50m	0
--------------------	---

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

2.4 Superficial geology (50k)

Records within 500m

1

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

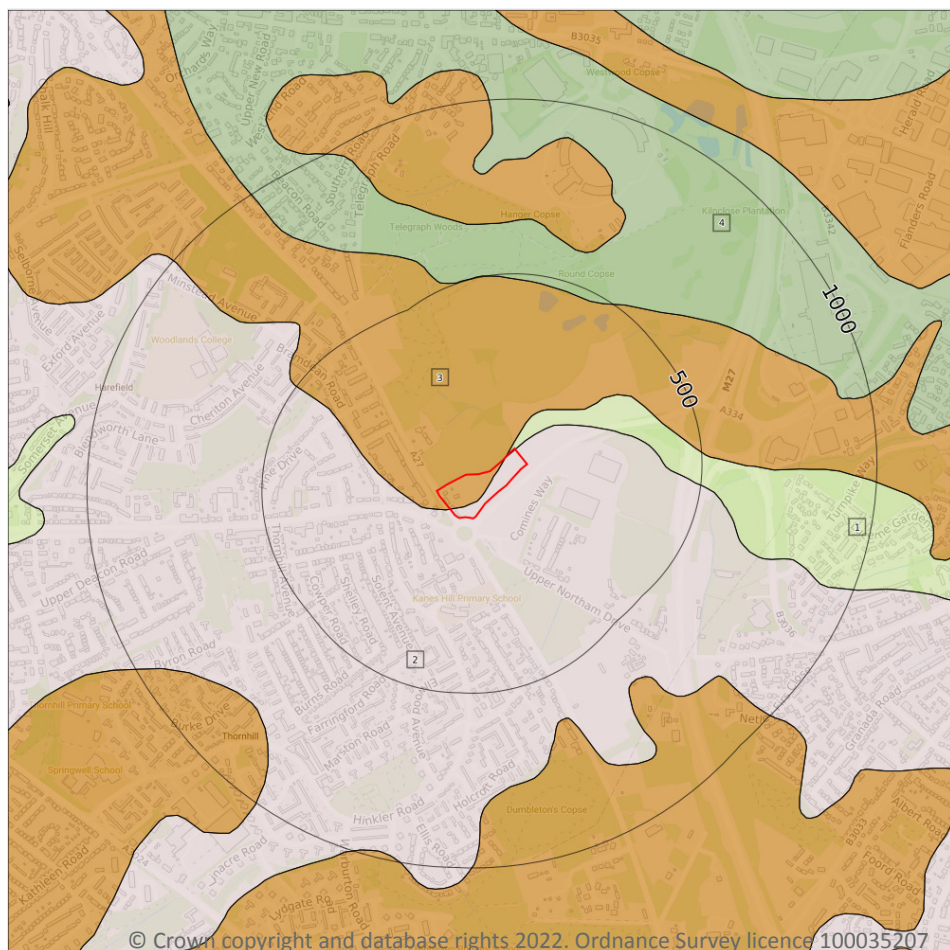
Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 20**

ID	Location	LEX Code	Description	Rock description
1	72m W	RTD9-XSV	RIVER TERRACE DEPOSITS, 9	SAND AND GRAVEL

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

2.8 Bedrock geology (50k)

Records within 500m

4

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 22**

ID	Location	LEX Code	Description	Rock age
1	On site	WHI-S	WHITECLIFF SAND MEMBER - SAND	-
2	On site	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN
3	On site	WTT-XSZC	WITTERING FORMATION - SAND, SILT AND CLAY	YPRESIAN
4	472m N	EA-XSZC	EARNLEY SAND FORMATION - SAND, SILT AND CLAY	LUTETIAN



This data is sourced from the British Geological Survey.

2.9 Bedrock permeability (50k)

Records within 50m

3

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	High	Low
On site	Mixed	Moderate	Very Low
On site	Intergranular	High	High

This data is sourced from the British Geological Survey.

2.10 Bedrock faults and other linear features (50k)

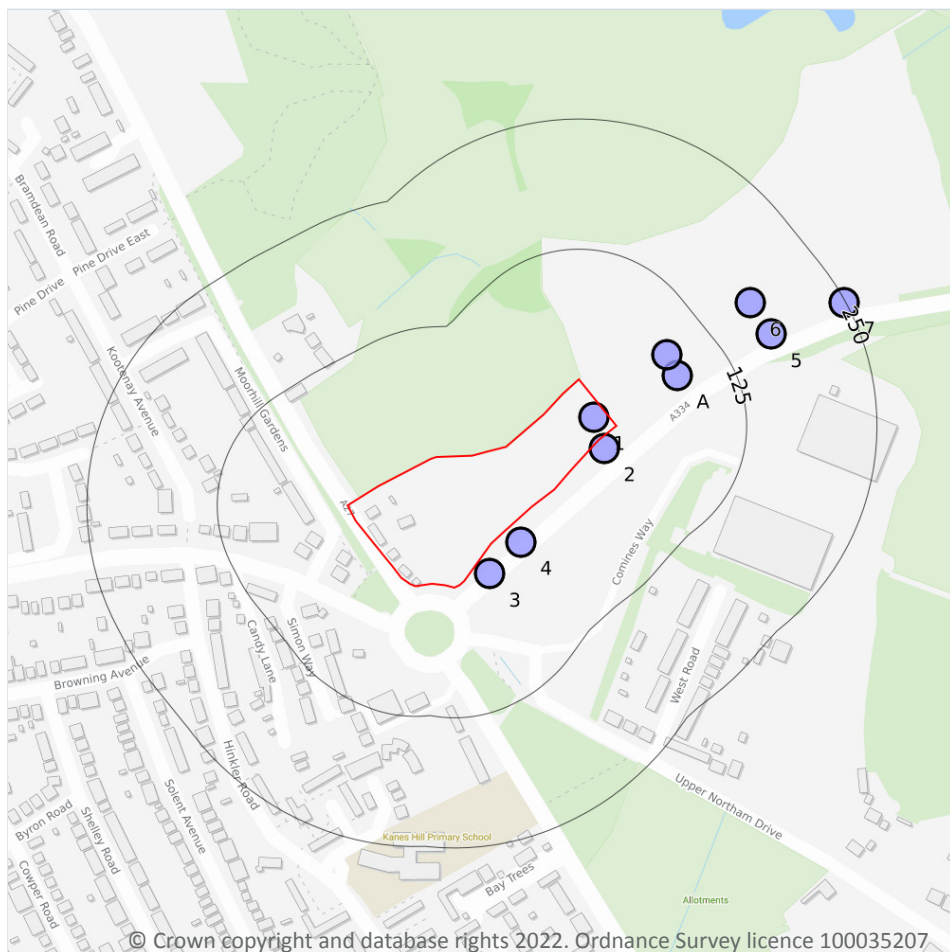
Records within 500m

0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

3 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

3.1 BGS Boreholes

Records within 250m

9

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 24**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	447510 113190	WEST END MIN OF TRANSPORT BH86	9.14	N	410345
2	10m SE	447520 113160	WEST END MIN OF TRANSPORT BH87	9.14	N	410346
3	16m SE	447410 113040	WEST END MIN OF TRANSPORT BH84	4.57	N	410343

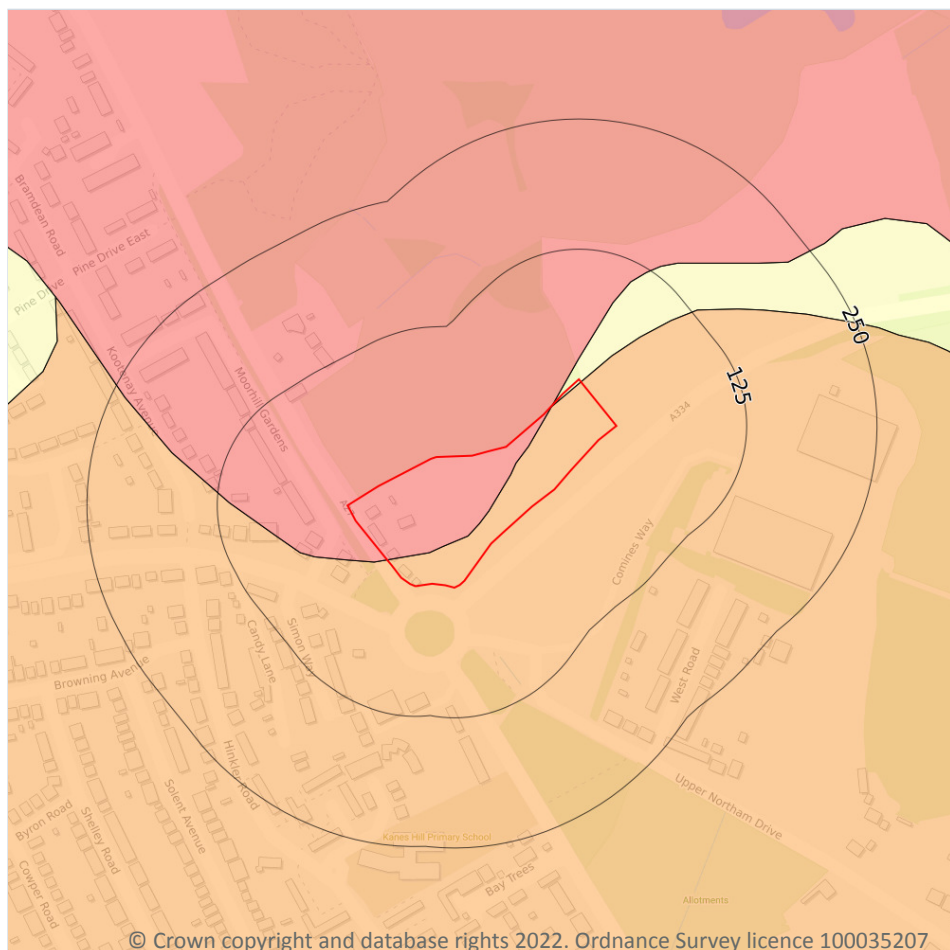


ID	Location	Grid reference	Name	Length	Confidential	Web link
4	19m SE	447440 113070	WEST END MIN OF TRANSPORT BH85	5.79	N	410344
A	76m NE	447590 113230	WEST END MIN OF TRANSPORT BH89	7.92	N	410348
A	81m NE	447580 113250	WEST END MIN OF TRANSPORT BH88	7.92	N	410347
5	173m NE	447680 113270	WEST END MIN OF TRANSPORT BH91	5.79	N	410350
6	174m NE	447660 113300	WEST END MIN OF TRANSPORT BH90	5.79	N	410349
7	249m NE	447750 113300	WEST END MIN OF TRANSPORT BH92	4.57	N	410351

This data is sourced from the British Geological Survey.



4 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

4.1 Shrink swell clays

Records within 50m

3

The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 26**

Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
On site	Low	Ground conditions predominantly medium plasticity.
On site	Moderate	Ground conditions predominantly high plasticity.



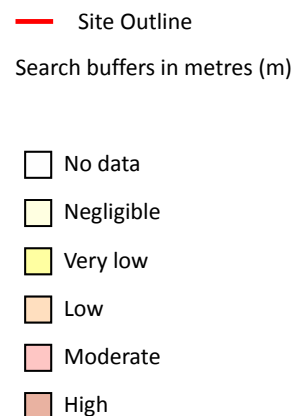
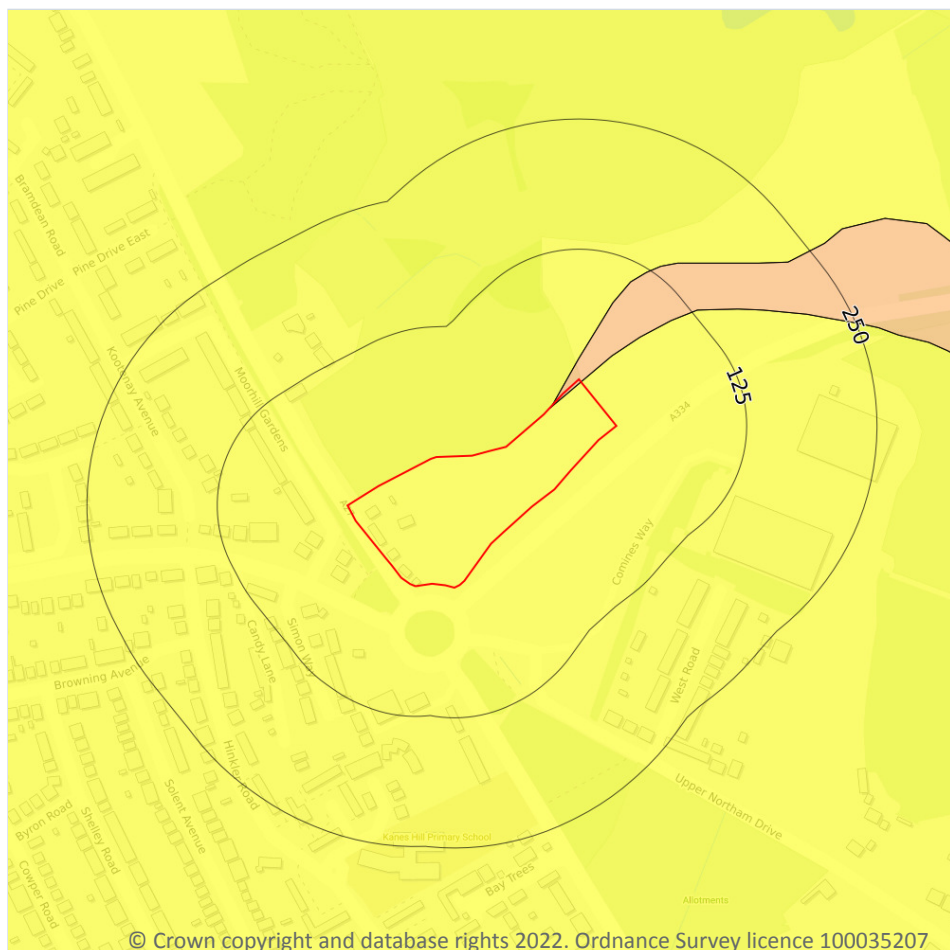


[REDACTED]

[REDACTED]

27

Natural ground subsidence - Running sands



4.2 Running sands

Records within 50m

2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 28**

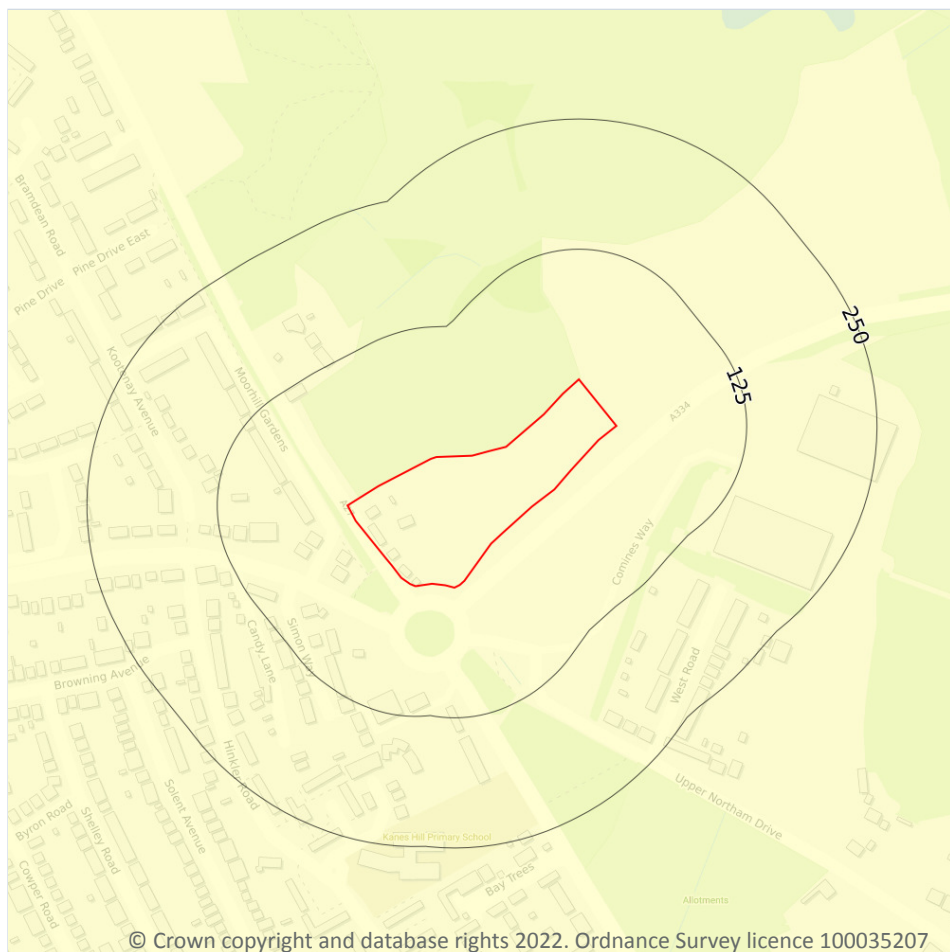
Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

Location	Hazard rating	Details
On site	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

4.3 Compressible deposits

Records within 50m

1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

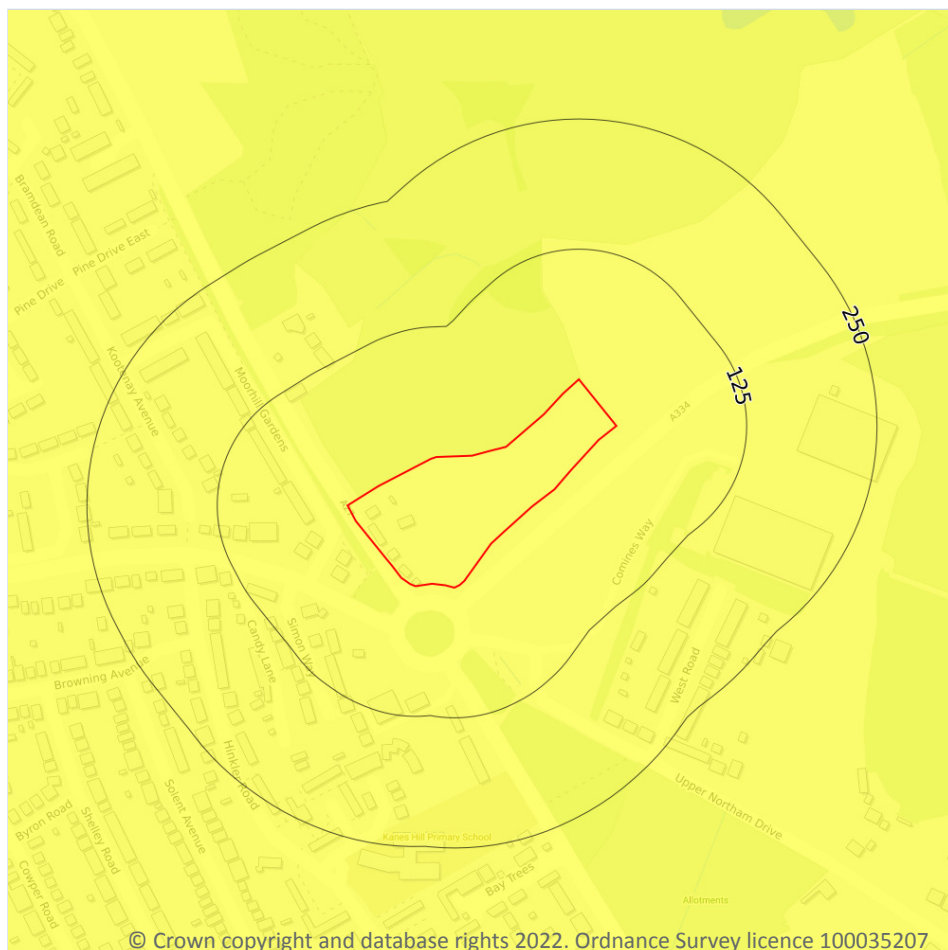
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 30**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

4.4 Collapsible deposits

Records within 50m

1

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

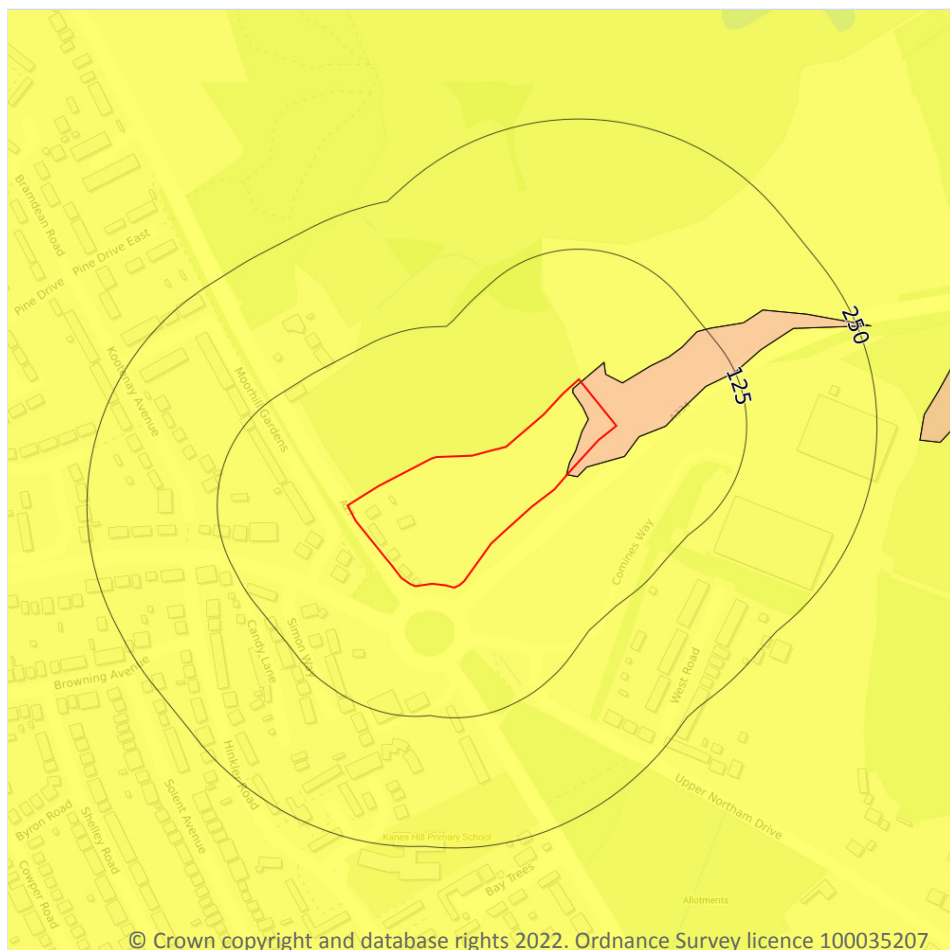
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 31**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

4.5 Landslides

Records within 50m

2

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 32**

Location	Hazard rating	Details
On site	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

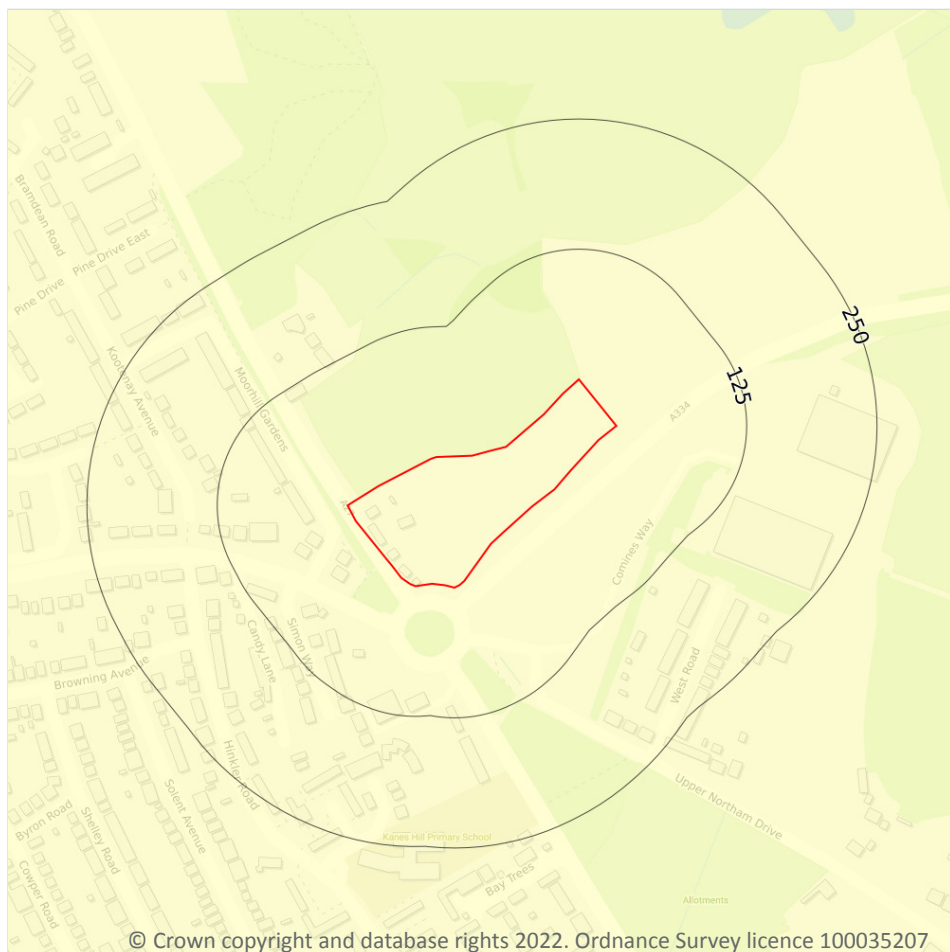


Location	Hazard rating	Details
On site	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



- Site Outline
- Search buffers in metres (m)
- No data
 - Negligible
 - Very low
 - Low
 - Moderate
 - High

4.6 Ground dissolution of soluble rocks

Records within 50m

1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

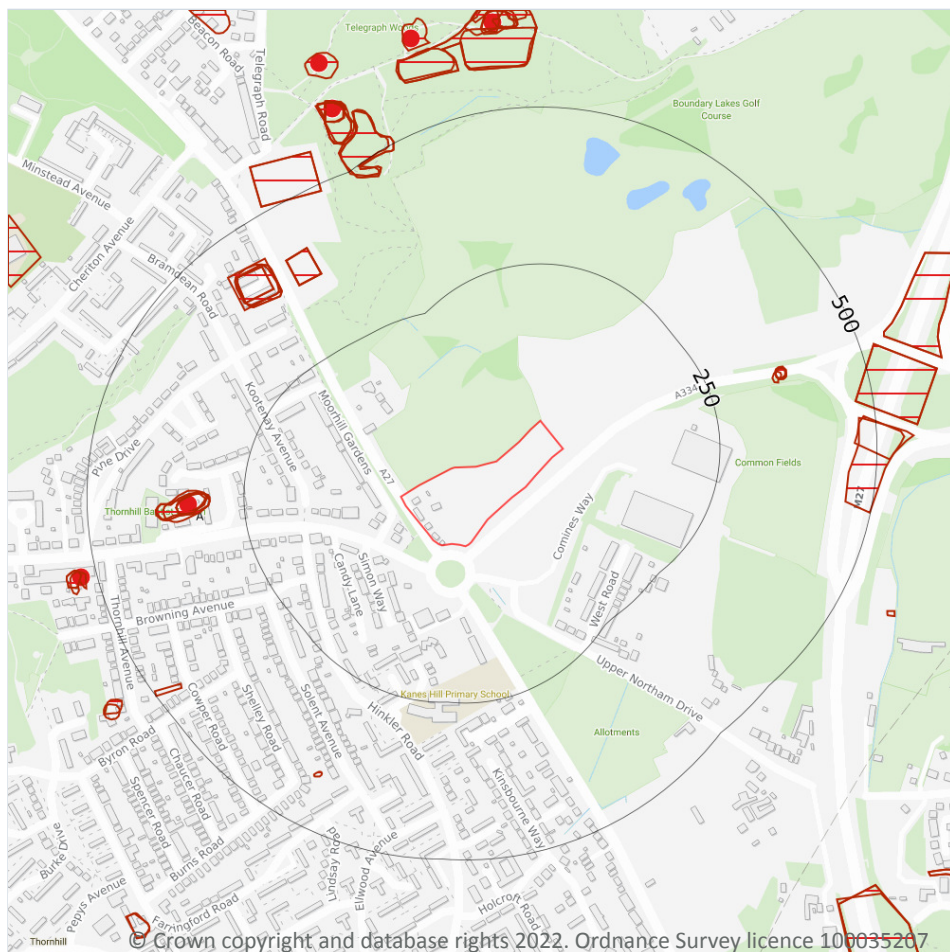
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 34**

Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.



5 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

5.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

5.2 BritPits

Records within 500m

1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on [page 35](#)

ID	Location	Details	Description
A	338m W	Name: Thornhill Park Gravel Pit Address: Thornhill, SOUTHAMPTON, Hampshire Commodity: Sand & Gravel Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

5.3 Surface ground workings

Records within 250m

0

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

This data is sourced from Ordnance Survey/Groundsure.

5.4 Underground workings

Records within 1000m

0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This data is sourced from Ordnance Survey/Groundsure.

5.5 Historical Mineral Planning Areas

Records within 500m

0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.



5.6 Non-coal mining

Records within 1000m

0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

5.7 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

5.8 JPB mining areas

Records on site

0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

5.9 Coal mining

Records on site

0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

5.10 Brine areas

Records on site

0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.



5.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

5.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

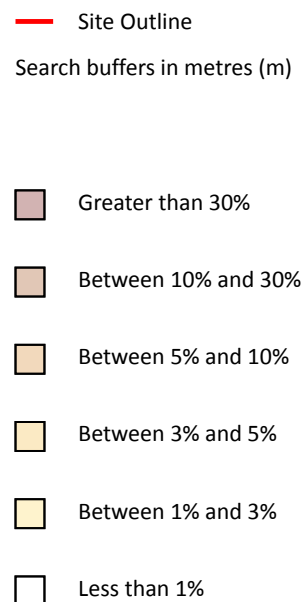
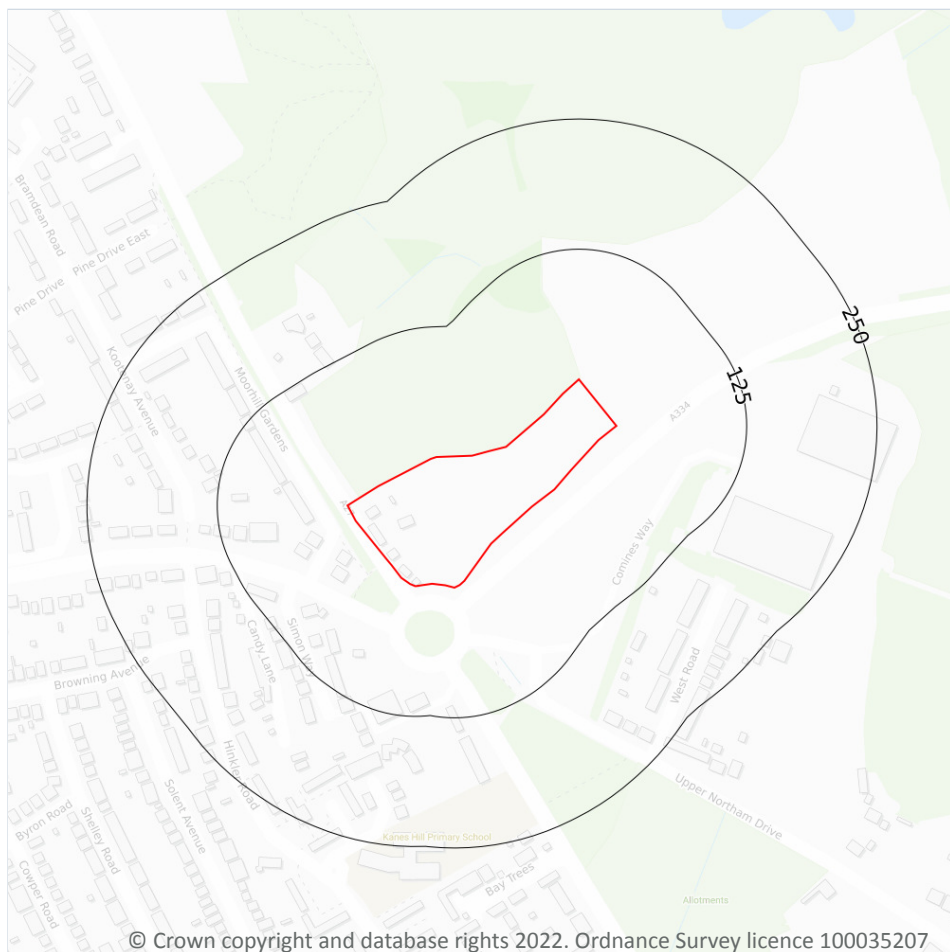
5.13 Clay mining

Records on site	0
-----------------	---

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

6 Radon



6.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative 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.

Features are displayed on the Radon map on **page 39**

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**

This data is sourced from the British Geological Survey and Public Health England.



7 Soil chemistry

7.1 BGS Estimated Background Soil Chemistry

Records within 50m

8

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
3m NE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
26m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
26m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
28m NE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

7.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.



7.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.



8 Railway infrastructure and projects

8.1 Underground railways (London)

Records within 250m**0**

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

8.2 Underground railways (Non-London)

Records within 250m**0**

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

8.3 Railway tunnels

Records within 250m**0**

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

8.4 Historical railway and tunnel features

Records within 250m**0**

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

8.5 Royal Mail tunnels

Records within 250m**0**

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.



This data is sourced from Groundsure/the Postal Museum.

8.6 Historical railways

Records within 250m

0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

8.7 Railways

Records within 250m

0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

8.8 Crossrail 1

Records within 500m

0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

8.9 Crossrail 2

Records within 500m

0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

8.10 HS2

Records within 500m

0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 Ltd.



Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see <https://www.groundsure.com/sources-reference>.

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THORNEYDOWN FARM, MOORHILL ROAD, WEST END, SO30 3AY

Order Details

Date: 08/07/2022

Your ref: GWPR4714

Our Ref: GS-8888971

Site Details

Location: 447390 113115

Area: 2.07 ha

Authority: [Eastleigh Borough Council](#)



Summary of findings

p. 2 **Aerial image**

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OS MasterMap site plan

p.11 groundsure.com/insightuserguide

Contact us with any questions at:

