



Design & Access Statement

E04759

APPENDIX B-1 Part 1

Land Survey

6671 - P1 Desk Study Report (Final)

PHASE 1: CONTAMINATED LAND & GEOTECHNICAL DESK STUDY REPORT

**Proposed Educational Development
Ranikhet Academy, Spey Road, Tilehurst, Reading**

Prepared for: Hampshire County Council

Date: April 2020

Report No: 6671



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REPORT TITLE : Phase 1
Contaminated Land & Geotechnical
Desk Study Report:

Proposed Educational Development

Ranikhet Academy, Spey Road, Tilehurst, Reading

REPORT STATUS : Final

REVISION : 01 (June 2020 incorporating HCC comments)

JOB NUMBER : 6671

DATE : April 2020

PREPARED BY :



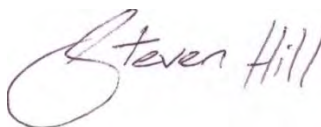
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Executive Summary

Proposals		Reading Borough Council is proposing the construction of a new school within land at Ranikhet Academy, Spey Road, Tilehurst, Reading. The proposed development will consist of the demolition of the pre-existing school and construction of a new school and associated infrastructure.
Geology		The Geological Map of the area shows the northern half of the site to be underlain by the Seaford and Newhaven Chalk Formation. The BGS describes the formation as typically comprising of soft to medium hard, smooth white chalks with conspicuous semi-continuous nodular and tabular flint seams. The Southern half of the site comprises the Lambeth Group, which typically comprises sequences mainly of clay, some silty or sandy, with some sands and gravels, minor limestones and lignites and occasional sandstone and conglomerate. No Superficial deposits are shown to overlie the bedrock geology of the area. However, Head deposits and Winter Hill Gravel deposits outcrop to the north and south ~174m and 185m respectively. The Winter Hill Gravel deposits typically comprise of Gravel, variably clayey and sandy. The Head deposits contain variable amounts of clay, silt, sand or gravel. Due to the nature and history of the site the presence of significant Made Ground is expected due to the cut and fill across the site.
Mining		In summary, the risk from underground and/or surface mining activity is likely to be Moderate due to localised chalk, clay and gravel pits in the surrounding area.
Preliminary Geotechnical Risk Assessment		The preliminary geotechnical risk assessment has revealed that a Moderate risk is present from geotechnical aspects, with particular risk specifically associated with the potential for historic mining, dissolution features, significant made ground, frost heave from underlying shallow deposits and variable geology.
Recommendations		In order to confirm the above preliminary geotechnical risk assessment, it is recommended that a Phase 2 Intrusive Site Investigation is undertaken in order to determine the ground conditions and confirm relevant geotechnical aspects/ contamination.
Potential Sources of Contamination	On-site	Historically, the site has comprised of farmland until the early 1910s. In the 1910's a golf course was present to the early 1930's, allotment gardens from early 1930s until 1970. In 1970, Dee Side Primary School was established, the school had a name change in the mid 1970's to Ranikhet Academy, which is still present to this day. Present day and historical uses of the site have a number of potential contamination sources including Allotments, Car Parking areas and Potential made ground.
	Off-site	Historically, the surrounding area (<250m) has comprised of allotment gardens, woodland area, and localised surface gravel pits. From the early 1930s to the 1970s large residential developments and associated infrastructure were constructed in the surrounding area. Present day and historical uses of the surrounding area have a number of potential contamination sources including Brick and Tile Works.
	Gas Migration	Due to the presence of potential influencing significant Made Ground based on cut and fill features present, the presence of ground gas cannot be ruled out.
Preliminary Human Health & Environmental Risk Assessment		The preliminary human health and environmental risk assessment has revealed that due to the sites and surrounding areas current and past land uses that a Moderate risk is present from contamination present beneath the site, with particular risk specifically associated with the Allotments, Car Parking areas and Potential made ground. In addition, a Low risk is present from the migration of radon gas, a Low risk from the migration of landfill gas and a Low to Moderate risk from the migration of ground gas
Recommendations		Based on a Moderate overall risk rating, in order to confirm the above preliminary human health and environmental risk assessment it is recommended that a Phase 2 Ground Investigation is undertaken comprising site specific soil chemical testing in order to determine the ground conditions, soil chemistry and any environmental liability associated with the site.

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Drawing 4.1: Preliminary Conceptual Site Model

SECTION 1 Introduction and Proposed Development

Reading Borough Council is proposing the construction of a new school within land at Ranikhet Academy, Spey Road, Tilehurst, Reading. The proposed development will include demolition of the pre-existing school and construction of a new school and associated infrastructure.

Hampshire County Council are the Consulting Engineers for the proposed development.

Terra Firma (South) have been commissioned as Geotechnical and Geo-Environmental Engineers to carry out a Phase 1 Contaminated Land & Geotechnical Desk Study of the site.

The main objectives of the desk study were to:

- Undertake a walk over survey of the site in order to identify relevant features.
- Investigate the history of the site by referring to old Ordnance Survey Maps.
- Determine the likely geological conditions beneath the site including soil/rock types, groundwater and if Made Ground is likely to be present beneath the site.
- Identify any potential risks associated with past uses of the site.

Based on the desk study information, the following assessment is to be made:

- Identify the likely potential environmental liabilities at the site associated with any soil and groundwater contamination from past site uses.
- Identify if ground gas emissions either from the site or surrounding areas is likely to be present.
- Identify the likely potential geo-technical liabilities at the site associated with any ground stability issues.

The desk study has been undertaken in accordance with the following advisory guidance:

- Model Procedures for the Management of Contaminated Land (CLR11): 2004
- Investigation of Potentially Contaminated Sites – CoP (BS 10175): 2011 + A2: 2017
- Guidance for the Safe Development of Housing on Land Affected by Contaminated Land – NHBC (R&D Publication 66): 2008
- Code of Practice for Ground Investigations (BS5930): 2015

1.1 Limitations and Exceptions of Investigation

Hampshire County Council has requested that a Phase 1 Contaminated Land & Geotechnical Desk Study be performed in order to determine the past history, likely ground conditions and possibility of contamination and ground gasses beneath the site.

The Phase 1 Contaminated Land & Geotechnical Desk Study was conducted and this report has been prepared for the sole internal reliance of Hampshire County Council and their design and construction team. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Terra Firma (South). If an unauthorised third party comes into possession of this report, they rely on it at their peril and the authors owe them no duty of care and skill.

The report represents the findings and opinions of experienced geo-environmental and geo-technical consultants. Terra Firma (South) does not provide legal advice and the advice of lawyers may also be required.

SECTION 2 Review of Existing Data

2.1 Physical Setting

The proposed development is to be located within present property boundaries of Ranikhet Academy, Reading, Berkshire, RG30 4ED.

The site is centred approximately on National Grid Reference (NGR) SU 68377 73603. The site location is presented in **Drawing 2.1** below.



Drawing 2.1: Site Location Plan

The site is rectangular in shape with a plan area of approximately 1.812 hectares and sits between approximately 59-54 m above ordnance datum (aod).

The site has been cut and filled across several different levels separated by retaining walls to create flat plateaus for the current development. The playing fields to the south are elevated approximately 3-5m higher than the school buildings and car park to the north. The topography of the surrounding area slopes West to East towards Reading town centre.

The surrounding area around the perimeter of the School comprises residential properties, predominantly consisting of blocks of multi-storey flats and associated infrastructure. To the South east is Radis Community Centre comprising assisted living facilities.

2.1.1 Current Use and Site Conditions

Site reconnaissance was undertaken by a Terra Firma (South) Engineer on the 5th of June 2020. At the time of the reconnaissance the site was occupied by the existing school buildings and associated hard and soft landscaping. The northern half comprised several school buildings with external areas of soft landscaping and hardstanding for parking of vehicles. The southern half was occupied by an all-weather sports pitch, an asphalt covered court and areas of soft landscaping with playground furniture. Some trees up to 5m in height were present within the site.

The southern half of the site slopes gently to the south with cut and fill seemingly undertaken to form the flat profiles of the all-weather sports pitch and asphalt court. Retaining walls were present along the northern and western sides of the court and southern side of the all-weather pitch. The northern half of the site was flat.

During the walk-over survey the following photographs were taken:

Table 2.1: Walk-over Survey Photographs



Photo 1: School buildings and car park in northern section



Photo 2: School buildings and soft landscaping in northern section



Photo 3: Asphalt court with all weather pitch above (behind) it.

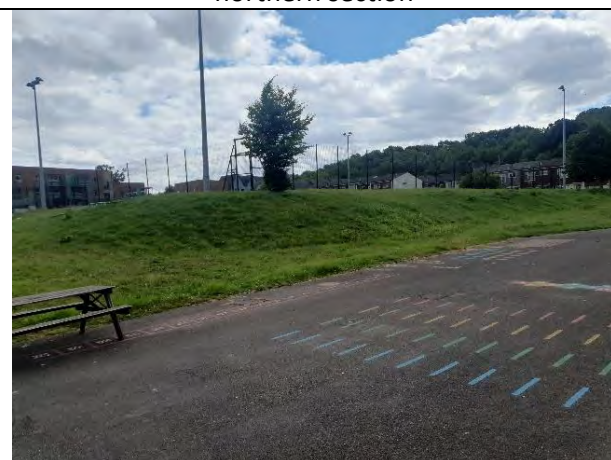


Photo 4: All weather pitch

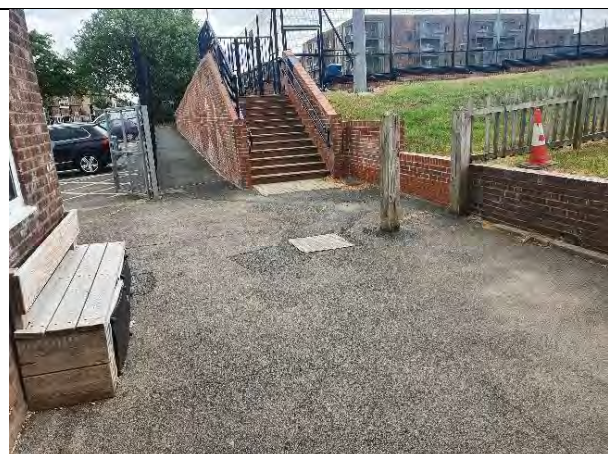


Photo 5: Retaining walls along northern and western edges of asphalt court.



Photo 6: Playground furniture in southern half.

2.1.2 Current Land Uses

The following potentially current contaminative land uses are within 250m of the site:

Table 2.2 Potentially Contaminative Land Uses (Current)			
Land Use	Activity	Distance from Site (m)	Direction
Infrastructure and Facilities	Electrical Features (Electricity Sub Station)	24	SE
Infrastructure and Facilities	Electrical Features (Electricity Sub Station)	88	E
Infrastructure and Facilities	Electrical Features (Electricity Sub Station)	100	NW
Infrastructure and Facilities	Electrical Features (Electricity Sub Station)	136	SE
Infrastructure and Facilities	Gas Features (Gas Governor)	149	N
Infrastructure and Facilities	Electrical Features (Electricity Sub Station)	153	E
Infrastructure and Facilities	Electrical Features (Electricity Sub Station)	227	SE
Infrastructure and Facilities	Electrical Features (Electricity Sub Station)	240	NE
Central and Local Government	Fire Brigade Stations	249	SE

There is one Petrol & Fuel Sites located within 250m of the site:

1. (Obsolete) - 247m, SE – Status: Obsolete, LPG: N/A

There are no National Grid High Voltage Underground Electricity Transmission Cables or High-Pressure Gas Transmission Pipelines within 250m of the site.

2.2 Historical Setting

The history of the site has been traced using historic maps from a GroundSure MapInsight Report and from historical land use database information obtained from a GroundSure Enviroinsight Report.

The reports are presented in **Annex A**, with key years and information being discussed below:

Table 2.3 Site History

Map Edition	Scale	Key Features On-site	Key Features Off-site (<250m)
1878-1881	1:2,500 1:10,560	Farm field/ grass	-Old Gravel pit to the NE/E of site ~50m. -Lousehill Copse woodland to the SW approx. 100-200m. -Norcot Kiln (brick and tile) works approx. 200 NW of site.
1889-1900	1:2,500 1:10,560	-No major changes to previous map edition.	-No major changes to previous map edition.
1911	1:2,500 1:10,560	-Golf Course on site.	-Allotment gardens to the SE approx. 150-200m.
1932-1938	1:2,500 1:10,560	-Allotment gardens on site.	-Along 'Lawrence road' where previously was brick and tile kiln now residential plot. -Houses developed to the NE -Possible military base to the South approx. 100m. -Possible further Gravel pits 125m to the South -Allotment gardens to the East
1961-1962	1:1,250 1:2,500 1:10,560	-No change since previous map edition.	-To the NW and SE residential development properties have expanded, -Woodland area to the S/SW.
1967-1971	1:1,250	-No change since previous map edition.	-Large residential property development to the S, SE and E.
1971	1:1,250	-Primary school – 'Dee Road' developed on site.	-Residential expansion to the north, east, south and west.
1974-1977	1:1,250 1:10,000	-Expansion eastwards of the existing school building. -Name change to 'Ranikhet Academy'	-No major changes to previous map edition.
1987-1993	1:1,250 1:10,000	-Swimming pool constructed South of school building.	-No major changes to previous map edition.
2003-2010	1:1,250 1:10,00	Infilling of swimming pool south of school building and development of playing fields to the South.	-No major changes to previous map edition.

The following specific historic contaminative land uses are within 250m of the site:

Table 2.4: Potentially Contaminative Land Uses (Historic)

Land Use	Date	Distance from Site (m)	Direction
Old Gravel Pits	1898-1910	35	E
Unspecified Pit	1938-1960	49	NE
Unspecified Pit	1932	53	NE
Unspecified Pit	1960	79	NE
Unspecified Ground Workings	1938	81	NE
Clay Pit	1932	92	S
Unspecified Heap	1960	99	S
Unspecified Ground Workings	1960	102	SE
Clay Pit	1938	103	S
Unspecified Pit	1960	109	S

Unspecified Tank	1960	116	SE
Unspecified Tank	1932-1938	117	SE
Clay Pit	1960	127	SW
Fire Station	1974-1991	169	SE
Unspecified Heap	1938-1960	186	SE
Brick and Tile Works	1910	186	NW
Brick and Tile Kiln Works	1898	205-206	NW
Old Gravel Pit	1898	216	NE
Old Gravel Pit	1898-1910	221	NE
Unspecified Pit	1938	221	NE
Unspecified Pit	1960	225	NE
Unspecified Pit	1932	228	NE

The following historical tanks are within 250m of the site:

Table 2.5: Historical Tanks			
Land Use	Date	Distance from Site (m)	Direction
Unspecified Tank	1932	119	SE

The following historical energy features are within 50m of the site:

Table 2.6: Historical Energy Features			
Land Use	Date	Distance from Site (m)	Direction
Electricity Substation	1971-1993	27	SE

The substation is of an age where transformers used Poly Chlorinated Biphenyls (PCBs), however, given viscous nature, contamination will be localised and not have migrated far from the source of leakage / spillage and is not considered a risk to the site.

There are no historical petrol and fuel sites within 250m of the site.

There are no historical garage and motor vehicle repair sites within 250m of the site.

2.2.1 Preliminary UXO Risk Assessment

Mapping and anecdotal evidence suggests a military barracks approx. 100m to the south.

Based on the historical setting of the site and UXB Risk Maps (Zetica maps), little or no military activity has been recorded within the area. Therefore, the risk from Unexploded Ordnance (UXO) is considered to be low.

2.3 Geological Setting

2.3.1 Geology

The 1:50,000-scale Geological Map of the area shows the site to be underlain by two different geological formations.

The Northern half of the site comprises the Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated). Described by the British Geological Society lexicon as comprising of soft to medium hard, smooth white chalks with conspicuous semi-continuous nodular and tabular flint seams including abundant Zoophycos flints. Hardgrounds and thin marls are known from the lowest beds. Some flint nodules are large to very large.

The Southern half of the site comprises of the Lambeth Group. This is described by the BGS as vertically and laterally variable sequences mainly of clay, some silty or sandy, with some sands and gravels, minor limestones and lignites and occasional sandstone and conglomerate.

No Superficial deposits are shown to overlie the bedrock geology of the area. However, Head deposits and Winter Hill Gravel deposits outcrop to the north and south ~174m and 185m respectively. The Winter Hill Gravel deposits typically comprise of Gravel, variably clayey and sandy. The Head deposits contain variable amounts of clay, silt, sand or gravel.

Due to the nature and history of the site the presence of significant Made Ground is expected due to the cut and fill across the site.

The British Geological Survey (BGS) online database has been consulted. There are no exploratory holes close enough to give pertinent information.

2.3.2 Aggressive Ground Conditions

Natural Ground

In natural ground, sulphates most commonly occur in the form of hydrated calcium sulphate (gypsum). The likelihood of sulphates being present in natural ground depends on the geological strata, weathering and groundwater flow. With reference to Figure C2 of BRE SD1: 2005 'Concrete in aggressive ground', the geological strata most likely to have substantial sulphate concentrations are ancient sedimentary clays, including Mercia Mudstone, Lower Lias Clay, Kimmeridge Clay, Oxford Clay, Wealden Clays, Gault Clay and London Clay.

The Geological Formation beneath the Southern half of site comprises the Lambeth Group, therefore combined with the inspection of any exposures, the presence of sulphates cannot be ruled out.

Brownfield

Fill materials found on site, or brought in during construction, may contain substantial quantities of sulphates. In addition, colliery spoil, slag, clinker and demolition waste often contain variable amounts of common sulphates.

2.3.3 Radon

Radon is a naturally occurring radioactive gas which is produced by the radioactive decay of radium, which in turn is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks. Radon released from rocks and soils is quickly diluted in the atmosphere. However, radon that enters enclosed spaces such as buildings can reach high concentrations and pose a hazard to human health. The Government has adopted an Action Level for radon in homes of 200 Becquerel's per cubic metre (Bq/m³). Where the radon levels exceed the Action Level, remedial measures are required to reduce the concentration.

The property is not in a Radon Affected Area as defined by the Health Protection Agency (HPA).

BR211 by the Building Research Establishment (BRE) indicates that new buildings and extensions within the site's boundaries require No Radon Protection measures under the current Building Regulations.

2.3.4 Karstic Features

All chalk formations are susceptible to the formation of karstic or solution features.

Based on the Geological Map of the area, the site is underlain by chalk formations and so, combined with the presence of near-by historic chalk pits, it is concluded that the risk is moderate. There is a higher risk of chalk dissolution when close to the Lambeth Group boundary.

2.3.5 Mining

Coal Mining

There are no coal mining areas within 75m of the site.

Non-Coal Mining

The following non-coal mining information is supplied by the BGS:

Chalk: Onsite, class B – Localised small-scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered.

In addition, localised historic quarries of Clay, Gravel and Chalk commodity are noted within the surrounding area.

Brine Affected Areas

There are no brine affected areas within 75m of the site.

In summary, the risk from underground and/or surface mining activity is likely to be moderate.

2.3.6 Ground Stability Hazards

Based upon BGS GeoSure data the risk from various ground stability hazards has been assessed below. Where applicable, two results have been given based on the two formations encountered underlying the site: Lambeth Group and the Chalk Formation.

Table 2.7 Ground Stability Hazards

Potential Hazard	Maximum Hazard Rating
Shrink-Swell	Chalk Formation: Negligible Risk – Ground conditions predominantly non-plastic. Lambeth Group: Moderate Risk – Ground conditions predominantly high plasticity.
Landslides	Chalk Formation: Negligible Risk – Slope instability problems are not thought to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered. Lambeth Group: Very low Risk - Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.
Soluble Rocks	Chalk Formation: Moderate Risk – Soluble rocks are present within the ground. Many dissolution features may be present. Potential for difficult ground conditions are at a level where they should be considered. Potential for subsidence is at a level where it may need to be considered. Lambeth Group: Low Risk – Soluble rocks are present within the ground. Some dissolution features may be present. Potential for difficult ground conditions are at a level where they may be considered, localised subsidence need not be considered except in exceptional circumstances.
Compressible Ground	Negligible Risk – Compressible strata are not thought to occur.
Collapsible Rocks	Very low Risk – Deposits with potential to collapse when loaded and saturated are unlikely to be present.
Running Sand	Chalk Formation: Negligible Risk – Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on land use due to running conditions. Lambeth Group: Very low Risk - Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

2.4 Environmental Setting

A GroundSure EnviroInsight Report has been obtained for the site and is presented in **Annex A**, with key information being discussed below:

2.4.1 Hydrology and Flooding

As mentioned in Section 2.1, the topography of the surrounding area typically slopes from West to East towards Reading. Therefore, the inferred direction of surface and groundwater flow is likely to be Easterly in direction, following the natural topography of the area.

These waters will probably be collected by the nearest surface water feature, indicated as an inland river, located approximately 114 m to the SW of the site.

Environment Agency records show the site to lie within a Flood Zone 1 for nearby surface water bodies.

Environment Agency records show that the site lies in a Zone 1 Floodplain. A Zone 1 Floodplain is land assessed as having less than a 0.1 per cent (1 in 1000) chance of flooding occurring each year.

The Environmental Agency (EA) Risk of Flooding from Rivers and the Sea (RoFRas) data indicates the site is in an area assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any given year.

There are no flood defences, areas benefiting from flood defences or flood storage areas within 250m of the site.

The site is considered to have a negligible susceptibility to groundwater flooding based on the underlying geological conditions.

2.4.2 Hydrogeology

The Aquifer Designation Map for the area shows the underlying Bedrock Geology beneath the site to comprise a Principal and Secondary Aquifer within the Chalk and Lambeth Group, respectively.

Principal Aquifers consist of 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.

Secondary Aquifers include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into three types and beneath the site the aquifer is classed as a 'Secondary A'. These aquifers consist of permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

There is no groundwater, surface water or potable water abstraction licenses located within 250m of the site.

Source Protection Zones (SPZs) have been defined for a number of groundwater sources such as wells, boreholes and springs which are used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area, the closer the activity, the greater the risk. SPZs are typically defined as three main zones (inner, outer and total catchment).

The site does not lie within 1km of a Source Protection Zone (SPZ) or a zone of special interest resulting in no restrictions by the EA on activities that may pollute water supplies.

The following information on groundwater vulnerability and soil leaching potential is present within 250m of the site:

1. Secondary Aquifer, onsite, High vulnerability, low leaching potential.
2. Principle Aquifer, onsite, High vulnerability, low leaching potential.

2.4.3 Environmental Permits, Incidents and Registers

There are no industrial sites holding environmental permits and/or authorisations within 250m of the site.

There are no discharge consents currently in place within 250m of the site.

There are no records of Control of Major Accident Hazards (COMAH) and Notification of Installations Handling Hazardous Substances (NIHHS) sites within 250m of the site.

There is 1 Environment Agency recorded List 1 or 2 pollution incidents within 250m of the site:

1. Oils and Fuel: Category 4 (No impact) – 62m, SW

There are no sites determined as Contaminated Land under Part IIA EPA within 250m of the site.

2.4.4 Landfill Sites

There are no active or historic landfill sites are within 250m of the site.

There are no licensed waste management facilities or registered waste transfer sites are located within 250m of the site.

2.4.5 Sensitive Land Use

There are two designated environmentally sensitive sites within 250m of the site:

1. Local Nature Reserves, Lousehill Copse, 105m, SW
2. Nitrate Vulnerable Zones, Thames Wallingford to Caversham NVZ, Surface water, Onsite

2.4.6 Anticipated Soil Chemistry

The BGS has been commissioned by Defra to provide guidance on what are 'normal' levels of contaminant concentrations in English soils in support of the revision of the Part 2A Contaminated Land Statutory Guidance. Anticipated soil concentrations for a number of common contaminants have been published. Concentrations relevant to the site location have been detailed below:

Table 2.8 Anticipated Soil Chemistry				
Contaminant	Anticipated Soil Concentration (mg/kg)	Soil Guideline Value (mg/kg)		
		Residential	Commercial	Source
Arsenic	15	37	640	C4SL
Cadmium	1.8	22	410	C4SL
Copper	97.6-248	2400	68000	S4UL
Nickel	15-30	180	980	S4UL
Lead	100	200	2330	C4SL

Table 2.8 Notes:

- C4SL –Category 4 Screening Levels (with consumption of home-grown produce)
- S4UL – Suitable 4 Use Levels (with consumption of home-grown produce)

All of the given determinants have anticipated concentrations on the site that are below the recognised levels for the relevant commercial scenario.

SECTION 3 Preliminary Geotechnical Risk Assessment

A preliminary geotechnical risk assessment is presented below, based upon desk study information and existing site data.

Table 3.1: Preliminary Geotechnical Risk Assessment					
Geotechnical Aspect	Ground Conditions	Hazard	Potential Impact		Preliminary Risk Assessment
Underground Voids	Mining, Natural Cavities, Other Voids	Collapse, Subsidence and Ground Instability	Surface deformation & Structural Damage	Slowdown of construction, design changes, project delays, time/cost implications	Moderate Risk – Based on BGS GeoSure Soluble & Collapsible Rocks Hazard Rating and above Mining and Karst Assessment
Slopes & Earthworks	Steep Slopes, Embankment/Cutting Stability	Slope Failure and Ground Instability	Site Stability, Surface Deformation & Structural Damage		Low to Moderate Risk – Based on BGS GeoSure Landslides and Running Sand Hazard Rating and topography
Foundations & Sub-structures	Soft/loose and compressible soils, Shrinkable Soils, Aggressive Ground	Unsuitable Strata, Settlement, Attack on Buried Structures and Ground Instability	Excess Settlement, Structural Damage		Moderate Risk – Based on BGS GeoSure Compressible Ground and Shrink-Swell Hazard Rating and geology / aggressive ground conditions
Floor Slabs & Road Pavements	Soft/loose and Compressible, Frost Susceptible Soils	Unsuitable Strata, Low CBR, Frost Heave	Structural Damage, Alternative Design		Moderate Risk – Based on BGS GeoSure Compressible Ground and Shrink-Swell Hazard Rating, geology and presence of trees
Drainage & Flooding	High/Low Permeability, High Groundwater, Watercourse	Ineffective Attenuation/ Soakaways, Buoyancy, Effects Levels, Flooding	Settlement, Flooding		Low to Moderate Risk – Based on geology, geomorphology, hydrology, flooding and hydrogeology
Temporary Works & Construction Issues	Soft/loose or Unstable Strata, Hard Strata or Obstruction, High Groundwater	Excavation Instability, Hard Digging, Water Inundation	Collapse, Increased Costs		Low to Moderate Risk – Based on BGS Running Sand GeoSure Hazard Rating and geology
OVERALL RISK RATING					
The preliminary geotechnical risk assessment has revealed that a Moderate risk is present from geotechnical aspects, with particular risk specifically associated with the potential for historic mining, dissolution features, significant made ground, heave and variable geology.					

In order to confirm the above preliminary geotechnical risk assessment, it is recommended that a Phase 2 Intrusive Site Investigation is undertaken in order to determine the ground conditions and confirm relevant geotechnical aspects.

SECTION 4 Preliminary Contamination Risk Assessment

The following sub-sections detail a Preliminary Risk Assessment (PRA), based upon the desk study information.

4.1 General

Environmental Protection Act

The contaminated land regime is set out in Part IIA of the Environmental Protection Act (EPA) 1990 and was introduced on the 1st April 2000 in England and 1st July 2001 in Wales. A similar regime was introduced in Scotland on 14th July 2000.

Part IIA was introduced to achieve two aims:

- (1) The identification of contaminated land
- (2) The remediation of contaminated land that poses an unacceptable risk to human health and/or the environment

Under Part IIA the statutory definition of 'contaminated land' is:

"any land which appears to the local authority in whose area it is situated, to be in such a condition, by reason of substances in, on, or under the land, that:

- (a) Significant harm is being caused or there is a significant possibility of such harm being caused; or
- (b) Pollution of controlled waters is being, or is likely to be, caused."

Planning Policy Framework

The contaminated land regime in Part IIA was introduced specifically to address the historical legacy of land contamination and is not directed to assessing the risks in relation to a future use of the land that would require a specific grant of planning permission. Therefore, Part IIA would not normally apply where land is being managed within the normal cycle of land redevelopment and regeneration. In this case, planning and development control will continue to be the primary means of control.

Land contamination, or the possibility of it, is a material consideration for the purposes of town and country planning (Town and Country Planning Act 1991). Current planning control on contaminated land is set out in The National Planning Policy Framework (NPPF).

The NPPF sets out the Governments planning policies for England and how these should be applied and states that:

- The natural environment should be conserved and enhanced by remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land,
- In preparing to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Plans should allocate land with the least environmental or amenity value, and
- Planning policies and decisions should encourage the effective use of land by re-using land that has previously been developed (Brownfield land), provided that it is not of high environmental value.

Where a new development is taking place, it will be the responsibility of the developer to carry out the necessary remediation. In most cases, the enforcement of any remediation requirements would be through planning conditions and building control, rather than through a remediation notice issued under Part IIA.

This report has been written with the precautionary regime of planning and The NPPF in mind.

The Concept of Risk

For land to be classified as 'Contaminated Land' there must be a '**pollutant linkage**'. A pollutant linkage requires three essential elements:

- (1) A **CONTAMINANT** (hazard) – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of **controlled waters**
- (2) A **RECEPTOR** (target) – something which could be adversely affected by a contaminant
- (3) A **PATHWAY** – a route or means which either allows the contaminant to cause significant harm to that receptor, or that there is a significant possibility of such harm being caused to the receptor, or that pollution of controlled waters is being or likely to be caused.

The term 'Risk' is widely used in different contexts and situations, but a prescriptive definition is given by the Guidelines for Environmental Risk Assessment and Management (DEFRA *et al*, 2000):

'Risk is a combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence'.

A 'Hazard' is defined as '*a property or situation that in particular circumstances could lead to harm*'.

The classification of consequences and probability and determining the risk category are defined in the following sections.

4.1.1 Classification of Consequence

Table 4.1: Classification of Consequence	
Classification	Definition
Severe	• Short term (acute) risk to human health likely to result in significant harm • Short term risk to controlled waters • Catastrophic damage to buildings/structures • Short term risk to an ecosystem or organism within the particular ecosystem
Medium	• Chronic damage to human health (long term risk) • Pollution of a sensitive water resource • A significant change in an ecosystem or organism within the ecosystem
Mild	• Pollution of non-sensitive water resources • Significant damage to buildings/structures
Minor	• Harm (not necessarily significant) which may result in financial loss • Non-permanent health effects to humans (easily prevented by PPE for example) • Easily repairable effects of structural (building) damage

4.1.2 Classification of Probability

Table 4.2: Classification of Probability	
Classification	Definition
High	- There is a complete pollution linkage and an event appears very likely to occur in the short term and is inevitable in the long term. - Evidence of harm to the receptor
Medium	- There is a complete pollution linkage which means that it is probable that an event will occur - The event is not inevitable but possible in short term and likely in the long term
Low	- There is a complete pollution linkage and circumstances are possible under which an event could occur - It is not certain that an event will occur in the long term, and it is less likely to occur in the short term
Negligible	There is a complete pollution linkage but circumstances are such that it is improbable that an event would occur even in the long term

4.1.3 Risk Assessment Matrix

By comparing the consequences of a risk and the probability of the risk of a pollution linkage, the likely risk category can be determined as shown in Table 3.3 below.

Table 4.3: Risk Assessment Matrix					
Increasing acceptability →		Consequence			
		Severe	Medium	Mild	Minor
Probability	High	High	High	Medium / Low	Near zero
	Medium	High	Medium	Low	Near zero
	Low	High / medium	Medium / Low	Low	Near zero
	Negligible	High / medium / Low	Medium / Low	Low	Near zero

High Risk

There is a high probability that severe harm could risk a receptor, or there is evidence that a receptor is being harmed. The risk if realised is likely to result in liability, and urgent investigation or remediation will be required.

Medium Risk

It is probable that harm will arise to a receptor. However, it is relatively unlikely that such harm would be severe, or if harm does occur the harm is likely to be relatively mild. Investigation will be required to determine the liability, and some remedial works may be required in the long term.

Low Risk

It is possible that harm may arise to a receptor, but it is likely that the harm would be mild.

Near Zero Risk

There is a very low risk of harm to the receptor. In the event of harm being realised the harm is not likely to be severe.

4.2 Preliminary Site Conceptual Model

The preceding sections enable a preliminary conceptual model of the site to be drawn up, to illustrate the likely ground conditions beneath the site together with a preliminary assessment of the nature of any underlying aquifers and groundwater movement. The preliminary site conceptual model is used as a model for the design and implementation of the site investigation, whereby areas of potential contamination can be targeted as well as investigating the site as a whole.

4.2.1 Potential Sources of Contamination

The potential contamination beneath the site, whether in the matrix of soil or groundwater will be related to the sites past use.

On-site Sources

Historically, the site has comprised of farmland until the early 1910s. In the 1910's a golf course was present to the early 1930's, allotment gardens from early 1930s until 1970. In 1970 Dee Side Primary School was established, the school had a name change in the mid 1970's to Ranikhet Academy which is still present to this day.

Present day and historical uses of the site have several potential contamination sources. These include Allotments, Car Parking areas and Potential made ground, which has been discussed in more detail below:

Allotments

The potential for the use of pesticides cannot be ruled out. Typical contaminants associated with the use of pesticides at the site during the period of activity include:

- Historic arsenical pesticides including lead arsenate (Heavy Metals)
- Sheds/ outbuildings - potential for presence of asbestos (cement sheet roof etc).

Car Parking Areas

Due to the presence of car parking areas, the possibility of localised contamination associated with hydrocarbon spillages/leaks from vehicle engines cannot be ruled out in these areas.

Typical contaminants associated with possible poor husbandry of vehicles parked at the site include:

- Petroleum Hydrocarbons (PH's)
- Presence of PAH contamination from tar within asphalt areas.

Potential Made Ground

The presence of a significant thickness of made ground of unknown composition associated with site development and the nature of the fill used for site levelling cannot be ruled out as a potential source of contamination. Onsite there is a swimming pool which has been infilled.

Typical contaminants associated with the possible made ground on-site include:

- Heavy Metals
- Poly-Aromatic Hydrocarbons (PAH's)

- Asbestos

In addition, any redevelopments that have occurred on site may contribute to made ground being found on the site. Cut and fill features are present on site therefore some made ground is expected.

Off-site Sources

Historically, the surrounding area (<250m) has typically comprised of several allotment gardens, woodland area to the southwest, and localised surface gravel pits. From the early 1930s to the 1970s large residential developments and associated infrastructure developed in the surrounding area around site.

Present day and historical uses of the surrounding area have a number of potential contamination sources including Allotments, Brick and Tile Works, which has been discussed in more detail below:

Allotments

See above allotment details within onsite sources.

Brick and Tile Works

The near-by brickworks historically used the underlying clay to produce bricks via a prepare, dry and fired (kiln) techniques. Typical contaminants associated with the Brick Works include:

- Heavy Metals
- Poly-Aromatic Hydrocarbon (PAH's)

Electricity Sub-Station

Most electrical sub-stations contain transformers and capacitors, which depending on their age use a dielectric fluid based on Poly-Chlorinated Biphenyls (PCBs). These products, although having fire-resistant and other properties required for use in electrical equipment, are linked to the toxic nature of PCBs and their potential contamination, as a result of leaks.

While PCBs have not been manufactured in the UK since 1977 and were banned from new electrical equipment since 1985, the potential or actual release of PCBs into the environment has not, since PCBs are still present in existing equipment. The Stockholm Convention allows existing equipment to be maintained until 2025 (while PCB-free replacements are being introduced).

As the electricity sub-station in the south west of the site pre-dates 1985 the risk of PCB contamination cannot be ruled out. However, mobility of PCB's is very limited and given the distance of the substation to the site boundary (>25m) it is not considered to be influencing the site.

Landfill/Ground Gas

Due to the potential presence of a significant thickness of made ground, the presence of ground gas cannot be ruled out.

4.2.2 Potential Pollution Linkages

The potential pollution linkages relating to human health and the wider environment are as follows:

Human Health

1. Ingestion of soil and soil dust
2. Consumption of site grown produce
3. Contaminant permeation of drinking water pipes and ingestion of contaminated water supply
4. Inhalation of soil particles, dust, asbestos and vapours, both indoors and outdoors
5. Dermal contact (Inc. eye uptake) with soil, soil dust and water
6. Inhalation of landfill / ground gas, accumulation and risk of explosion

Aquatic Environment

1. Surface water runoff
2. Migration of surface water into underlying soils and groundwater
3. Leaching of contaminants via groundwater transport into the wider aquatic environment – surface waters and groundwater

Ecology

1. Phytotoxic substances may inhibit healthy plant growth
2. Poisonous, carcinogenic, genotoxic substances may affect wildlife
3. Surface runoff can introduce contamination / allow contamination to migrate

Buildings

1. Chemical attack of buried structures (concrete, steel etc.)

4.2.3 Potential Receptors

The potential receptors of any contamination and ground gas are considered to be:

1. Site end users – School pupils, teachers and Visitors
2. Construction workers
3. Neighbouring site users and passers-by
4. The aquatic environment - surface waters, perched and deep groundwater
5. Building Materials - sulphates in the ground can damage building materials
6. Flora and Fauna upon the site is potentially at risk from Phytotoxic contaminants

4.3 Preliminary Human Health and Environmental Risk Assessment

A Preliminary Human Health and Environmental Risk Assessment aims to make initial assumptions about potential risks posed towards the human health and to the environment during all stages of the development.

Where it is assumed that a potential pollution pathway exists, there is a potential source, a potential receptor and a likely pathway which links the two. This qualitative risk assessment can then be refined into a quantitative risk assessment once any site investigation and laboratory soil chemical testing/environmental assessment has been undertaken.

Table 4.4: Preliminary Human Health and Environmental Risk Assessment

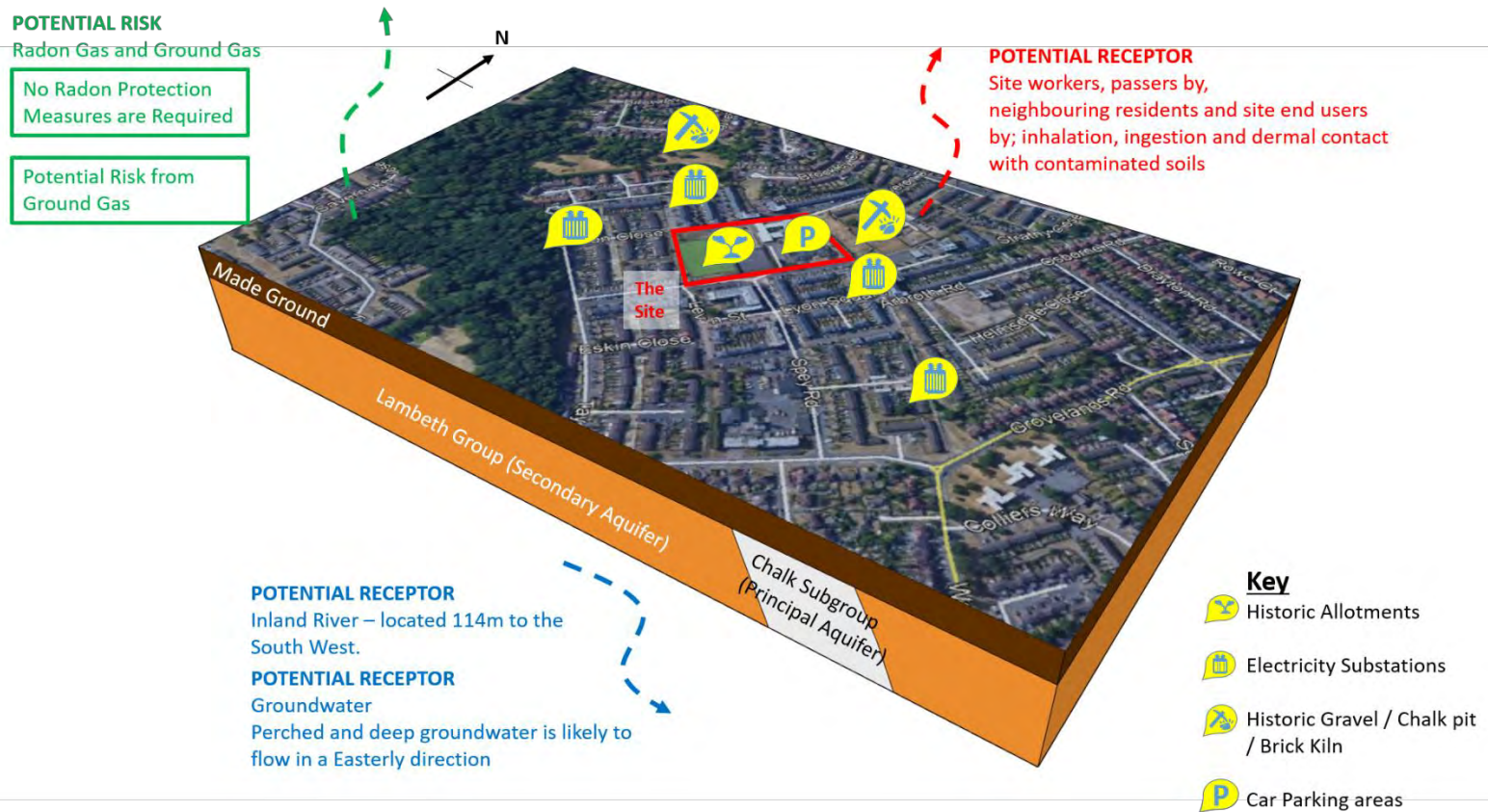
Potential Source	Potential Pathway	Potential Receptor	Preliminary Risk Assessment	
Human Health				
Subsurface Soil	Ingestion of soil and soil dust	Site end users - School pupils, teachers and Visitors	On-Site Sources	Moderate Risk - Due to the presence of 3No. identified on-site contaminative sources (<i>Allotments, Car Parking areas and Potential made ground.</i>)
	Off-site Sources		Low to Moderate Risk - Due to the presence of identified off-site contaminative sources within influencing distance of the site (<i>Allotments, Brick and Tile Works</i>).	
	Ingestion of potable water. Permeation of drinking water pipes	Construction workers	Moderate Risk - Based on above contaminative sources details. COSHH assessment, good level of PPE/ hygiene, dust suppression measures and measures to avoid runoff and accidental spillages	
	Inhalation of soil dust and vapours			
	Dermal contact with soils	Passers-by and neighbouring site users	Low to Moderate Risk - Based on above contaminative sources details.	
Radon gas	Inhalation. Migration and accumulation of gas indoors.	Site end users - School pupils, teachers and Visitors	Low Risk - The BGS indicates that the site lies within an area where No radon protection measures may be required.	
Landfill Gas	Migration into indoor spaces, inhalation and explosive build up	Site end users – School pupils, teachers and Visitors	Low Risk - No historic or active landfills are present with 250m of the site.	
Ground gases	Migration into indoor spaces, inhalation and explosive build up	Site end users – School pupils, teachers and Visitors	Low to Moderate Risk – Due to the potential for significant Made Ground.	
Aquatic Environment				
Subsurface Soil	Surface runoff and leaching into groundwater	Groundwater beneath the site	Low to Moderate Risk – Based on above contaminative sources details and presence of a Principal and Secondary Aquifer within the Chalk and Lambeth Group underlying aquifer.	

Subsurface Soil	Groundwater transport	Inland River, 114m SW	Low to Moderate Risk – Based on above contaminative sources details and the distance to the nearest surface water body (114m).
Subsurface Soil	Groundwater transport	Principal and Secondary Aquifer within the Chalk and Lambeth Group	Low to Moderate Risk – Based on above contaminative sources details and presence of a Principal and Secondary Aquifer within the Chalk and Lambeth Group underlying aquifer.
Ecology			
Subsurface Soil	Uptake of phytotoxic contaminants Surface Runoff	Vegetation	Low Risk – Based on above contaminative sources details and site setting.
Subsurface Soil	Ingestion of poisonous substances Surface Runoff	Wildlife	Low Risk – Based on above contaminative sources details and site setting.
Building Materials			
Subsurface Soil	Aggressive Ground Conditions	Building Materials	Low Risk – Correct class of concrete to be chosen based on appropriate testing
OVERALL RISK RATING			
The preliminary human health and environmental risk assessment has revealed that due to the sites and surrounding areas current and past land uses that a Moderate risk is present from contamination present beneath the site, with particular risk specifically associated with the Allotments, Car Parking areas and Potential made ground. In addition, a Low risk is present from the migration of radon gas, a Low risk from the migration of landfill gas and a Low to Moderate risk from the migration of ground gas.			

Based on a **Moderate** overall risk rating, in order to confirm the above preliminary human health and environmental risk assessment it is recommended that a Phase 2 Ground Investigation is undertaken comprising site specific soil chemical testing in order to determine the ground conditions, soil chemistry and any environmental liability associated with the site.

4.3.1 Preliminary Illustrative Site Conceptual Model

The following illustration represents a theorised model through the site. The drawing is generalised and not to scale.



Drawing 4.1: Preliminary Conceptual Site Model

SECTION 5 Recommended Phase 2 Ground Investigation

Following relaxation of the COVID restrictions it is recommended that a site walk-over survey is undertaken to confirm the Phase 1 Risk Assessment and recommended Phase 2 Ground Investigation.

As the development proposals and associated infrastructure have yet to be confirmed the recommended Phase 2 Ground Investigation at this stage should be considered indicative only. Once the development proposals have been confirmed the recommended Phase 2 Ground Investigation can then be firmed up.

5.1 Geo-Environmental

Based upon the desk study, potential environmental liabilities were identified on-site associated with the Allotments, Car Parking areas and Potential made ground and Gas Migration.

Therefore, significant levels of contamination could not be ruled out due to the sites historical past use within these areas.

If following confirmation of the development design proposals any development or associated infrastructure are located within or adjacent the above areas then it is therefore recommended that a Phase 2 geo-environmental site investigation be undertaken.

The main objectives of the Phase 2 geo-environmental assessment programme are to:

- Provide a summary of the environmental conditions at the site, together with any necessary remediation works to render the site fit for its intended use.

It is recommended that the Phase 2 site investigations comprise trial pitting and/or boreholes at specific locations targeting the above potential environmental liabilities and potential gas migration.

Standpipes should be installed to a sufficient depth and an appropriate gas monitoring regime implemented:

1. Post-investigation gas monitoring undertaken in line with current best practise guidance such as BS8476: 2013 and BS8485 (2015).

Soil samples, should be obtained for chemical testing to include the following contaminant suites based on the previous identified industrial processes on-site or within influencing distance of the site:

1. **Heavy Metals** (As, Cd, Cr, Cu, Pb, Ni, Se, Zn and Mercury)
2. **Inorganics** (Cyanide, Sulphate, Sulphide, Sulphur and pH)
3. **Organics**
 - a. Poly-Aromatic Hydrocarbons (PAH's)
 - b. Petroleum Hydrocarbons (PH's)
 - c. Phenols
 - d. Pesticides Screen
4. **Other** (Asbestos Screening/Quantification)

A full utility search should be undertaken before any site works commence.

5.2 Geo-technical

Based upon the desk study, potential geotechnical liabilities were identified. Therefore, it is recommended that a Phase 2 Geotechnical Ground Investigation comprising trial pits and/or boreholes is undertaken.

The main objectives of the geo-technical site investigation are to:

- Determine the type, strength and bearing characteristics of the shallow superficial and underlying solid geology.
- Provide recommendations for a suitable and economic foundation/floor slab solution for the proposed development.
- Provide recommendations with regard to any other geo-technical aspects pertaining to the development, such as soakaway, retaining wall and/or highway design.

Annex A: Groundsure Report

RANIKHET ACADEMY, RANIKHET PRIMARY SCHOOL, SPEY ROAD, TILEHURST, READING, RG30 4ED

Order Details

Date: 07/04/2020
Your ref: 6671_-_Ranikhet_Academy
Our Ref: GS-6731695
Client: TerraFirma (South)

Site Details

Location: 468348 173573
Area: 1.81 ha
Authority: [Reading Borough Council](#)



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Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	<u>Historical industrial land uses</u>	0	4	23	67	-
17	1.2	<u>Historical tanks</u>	0	0	1	15	-
18	1.3	<u>Historical energy features</u>	0	1	13	24	-
20	1.4	Historical petrol stations	0	0	0	0	-
20	1.5	Historical garages	0	0	0	0	-
20	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
21	2.1	<u>Historical industrial land uses</u>	0	5	28	86	-
26	2.2	<u>Historical tanks</u>	0	0	1	22	-
27	2.3	<u>Historical energy features</u>	0	2	24	44	-
30	2.4	Historical petrol stations	0	0	0	0	-
30	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
31	3.1	Active or recent landfill	0	0	0	0	-
31	3.2	Historical landfill (BGS records)	0	0	0	0	-
32	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
32	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
32	3.5	Historical waste sites	0	0	0	0	-
32	3.6	Licensed waste sites	0	0	0	0	-
32	3.7	<u>Waste exemptions</u>	0	0	2	5	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
34	4.1	<u>Recent industrial land uses</u>	0	1	8	-	-
35	4.2	<u>Current or recent petrol stations</u>	0	0	1	0	-
35	4.3	Electricity cables	0	0	0	0	-
36	4.4	Gas pipelines	0	0	0	0	-
36	4.5	Sites determined as Contaminated Land	0	0	0	0	-



36	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
36	4.7	Regulated explosive sites	0	0	0	0	-
36	4.8	Hazardous substance storage/usage	0	0	0	0	-
37	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
37	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
37	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	0	1	-
37	4.12	Radioactive Substance Authorisations	0	0	0	0	-
38	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
38	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
38	4.15	Pollutant release to public sewer	0	0	0	0	-
38	4.16	List 1 Dangerous Substances	0	0	0	0	-
38	4.17	List 2 Dangerous Substances	0	0	0	0	-
39	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	1	2	-
39	4.19	Pollution inventory substances	0	0	0	0	-
39	4.20	Pollution inventory waste transfers	0	0	0	0	-
40	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
41	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
43	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
45	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
46	5.4	<u>Groundwater vulnerability- soluble rock risk</u>	Identified (within 0m)				
46	5.5	Groundwater vulnerability- local information	None (within 0m)				
47	5.6	<u>Groundwater abstractions</u>	0	0	0	0	14
51	5.7	Surface water abstractions	0	0	0	0	0
51	5.8	<u>Potable abstractions</u>	0	0	0	0	3
52	5.9	Source Protection Zones	0	0	0	0	-
52	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
53	6.1	<u>Water Network (OS MasterMap)</u>	0	0	4	-	-



54	6.2	<u>Surface water features</u>	0	0	3	-	-
54	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
55	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
55	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
56	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
56	7.2	Historical Flood Events	0	0	0	-	-
56	7.3	Flood Defences	0	0	0	-	-
56	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
57	7.5	Flood Storage Areas	0	0	0	-	-
58	7.6	Flood Zone 2	None (within 50m)				
58	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
59	8.1	<u>Surface water flooding</u>	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
61	9.1	<u>Groundwater flooding</u>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
62	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
63	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
63	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
63	10.4	Special Protection Areas (SPA)	0	0	0	0	0
63	10.5	National Nature Reserves (NNR)	0	0	0	0	0
64	10.6	<u>Local Nature Reserves (LNR)</u>	0	0	1	3	2
64	10.7	<u>Designated Ancient Woodland</u>	0	0	0	0	4
65	10.8	Biosphere Reserves	0	0	0	0	0
65	10.9	Forest Parks	0	0	0	0	0
65	10.10	Marine Conservation Zones	0	0	0	0	0
65	10.11	Green Belt	0	0	0	0	0
65	10.12	Proposed Ramsar sites	0	0	0	0	0



66	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
66	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
66	10.15	Nitrate Sensitive Areas	0	0	0	0	0
66	10.16	<u>Nitrate Vulnerable Zones</u>	1	0	0	0	0
68	10.17	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
69	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
70	11.1	World Heritage Sites	0	0	0	-	-
70	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
70	11.3	National Parks	0	0	0	-	-
70	11.4	Listed Buildings	0	0	0	-	-
71	11.5	Conservation Areas	0	0	0	-	-
71	11.6	Scheduled Ancient Monuments	0	0	0	-	-
71	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
72	12.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
73	12.2	Open Access Land	0	0	0	-	-
73	12.3	Tree Felling Licences	0	0	0	-	-
73	12.4	Environmental Stewardship Schemes	0	0	0	-	-
73	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
74	13.1	<u>Priority Habitat Inventory</u>	0	0	5	-	-
75	13.2	<u>Habitat Networks</u>	0	0	1	-	-
75	13.3	Open Mosaic Habitat	0	0	0	-	-
75	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
76	14.1	<u>10k Availability</u>	Identified (within 500m)				
77	14.2	<u>Artificial and made ground (10k)</u>	0	0	3	4	-
79	14.3	<u>Superficial geology (10k)</u>	0	0	2	4	-

80	14.4	Landslip (10k)	0	0	0	0	-
81	14.5	<u>Bedrock geology (10k)</u>	2	1	1	0	-
82	14.6	<u>Bedrock faults and other linear features (10k)</u>	0	1	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
83	15.1	<u>50k Availability</u>	Identified (within 500m)				
84	15.2	<u>Artificial and made ground (50k)</u>	0	0	2	3	-
85	15.3	Artificial ground permeability (50k)	0	0	-	-	-
86	15.4	<u>Superficial geology (50k)</u>	0	0	2	4	-
87	15.5	Superficial permeability (50k)	None (within 50m)				
87	15.6	Landslip (50k)	0	0	0	0	-
87	15.7	Landslip permeability (50k)	None (within 50m)				
88	15.8	<u>Bedrock geology (50k)</u>	2	0	1	0	-
89	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
89	15.10	<u>Bedrock faults and other linear features (50k)</u>	0	1	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
90	16.1	<u>BGS Boreholes</u>	0	0	5	-	-
Page	Section	Natural ground subsidence					
92	17.1	<u>Shrink swell clays</u>	Moderate (within 50m)				
93	17.2	<u>Running sands</u>	Very low (within 50m)				
95	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
96	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
97	17.5	<u>Landslides</u>	Very low (within 50m)				
99	17.6	<u>Ground dissolution of soluble rocks</u>	Moderate (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
101	18.1	<u>Natural cavities</u>	0	0	0	1	-
102	18.2	<u>BritPits</u>	0	0	7	11	-
105	18.3	<u>Surface ground workings</u>	0	5	22	-	-
106	18.4	<u>Underground workings</u>	0	0	0	1	0
106	18.5	<u>Historical Mineral Planning Areas</u>	0	1	0	2	-



<u>107</u>	<u>18.6</u>	<u>Non-coal mining</u>	1	0	0	0	1
<u>107</u>	<u>18.7</u>	<u>Mining cavities</u>	0	0	1	2	6
108	18.8	JPB mining areas	None (within 0m)				
108	18.9	Coal mining	None (within 0m)				
108	18.10	Brine areas	None (within 0m)				
109	18.11	Gypsum areas	None (within 0m)				
109	18.12	Tin mining	None (within 0m)				
109	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
<u>110</u>	<u>19.1</u>	<u>Radon</u>	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
<u>111</u>	<u>20.1</u>	<u>BGS Estimated Background Soil Chemistry</u>	3	2	-	-	-
111	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
111	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
112	21.1	Underground railways (London)	0	0	0	-	-
112	21.2	Underground railways (Non-London)	0	0	0	-	-
112	21.3	Railway tunnels	0	0	0	-	-
112	21.4	Historical railway and tunnel features	0	0	0	-	-
112	21.5	Royal Mail tunnels	0	0	0	-	-
113	21.6	Historical railways	0	0	0	-	-
113	21.7	Railways	0	0	0	-	-
113	21.8	Crossrail 1	0	0	0	0	-
113	21.9	Crossrail 2	0	0	0	0	-
113	21.10	HS2	0	0	0	0	-

Recent aerial photograph



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Capture Date: 20/04/2015

Site Area: 1.81ha



Recent site history - 2013 aerial photograph

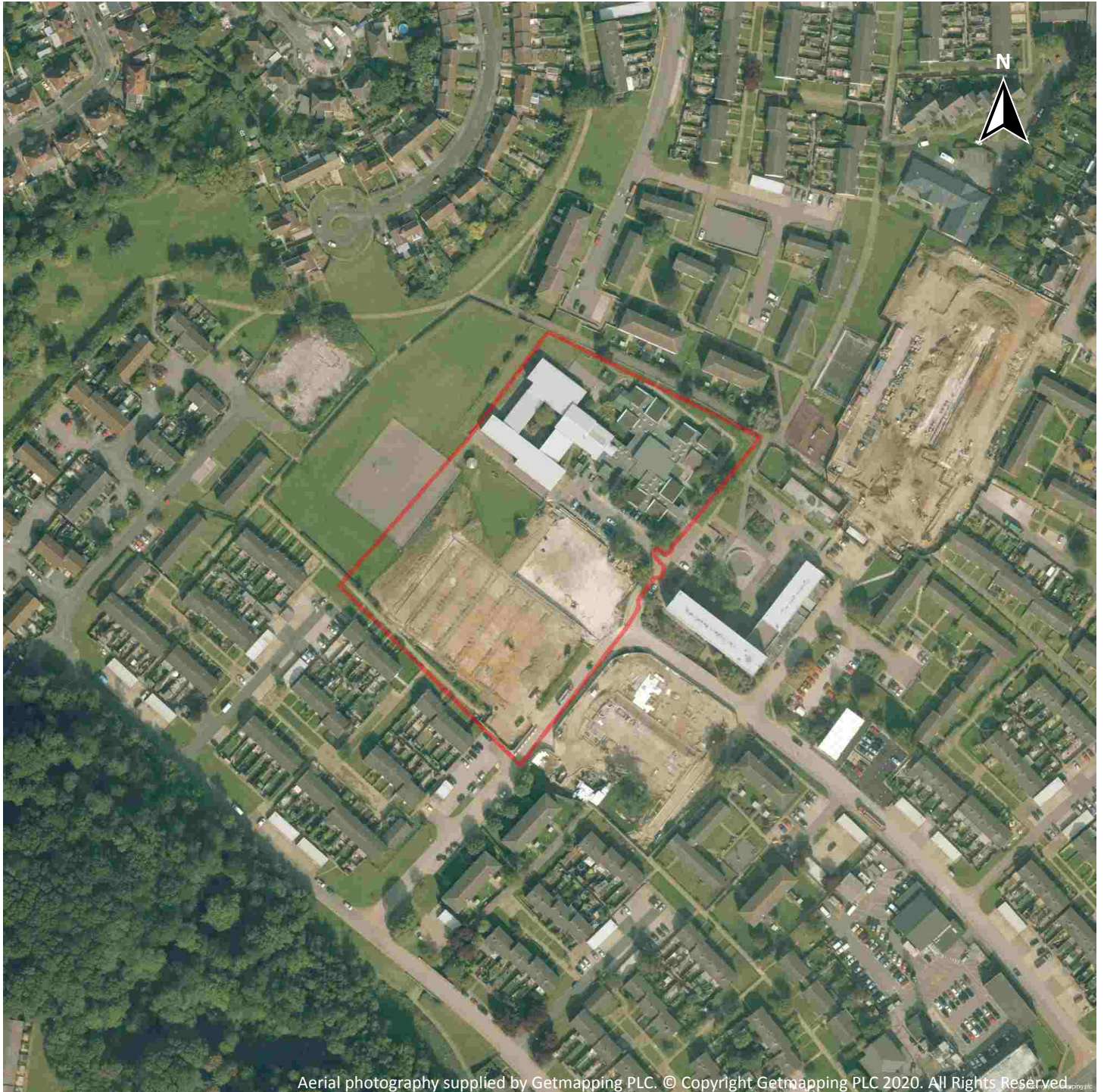


Capture Date: 08/07/2013

Site Area: 1.81ha



Recent site history - 2010 aerial photograph

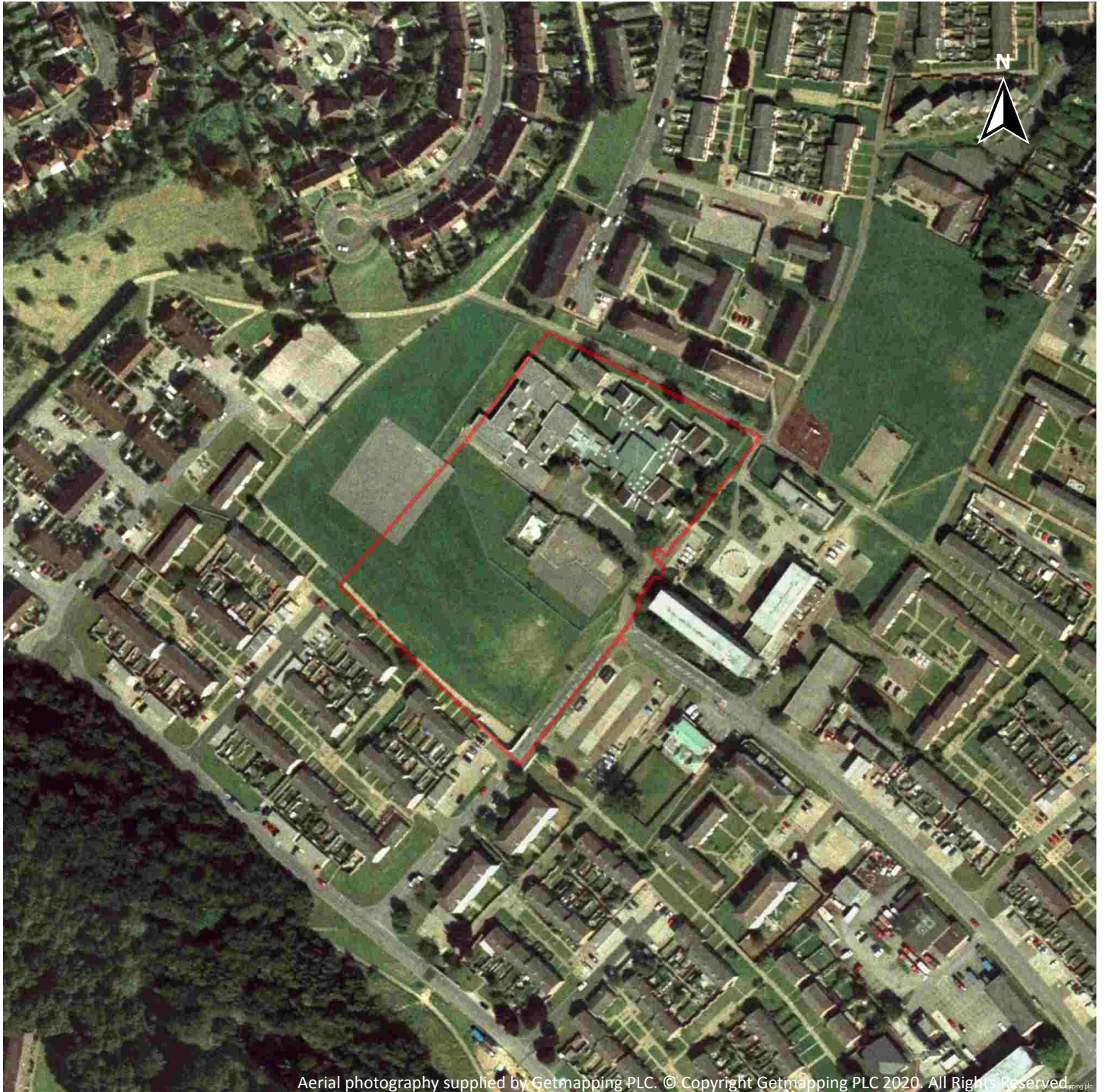


Capture Date: 22/09/2010

Site Area: 1.81ha



Recent site history - 1999 aerial photograph



Capture Date: 04/09/1999

Site Area: 1.81ha



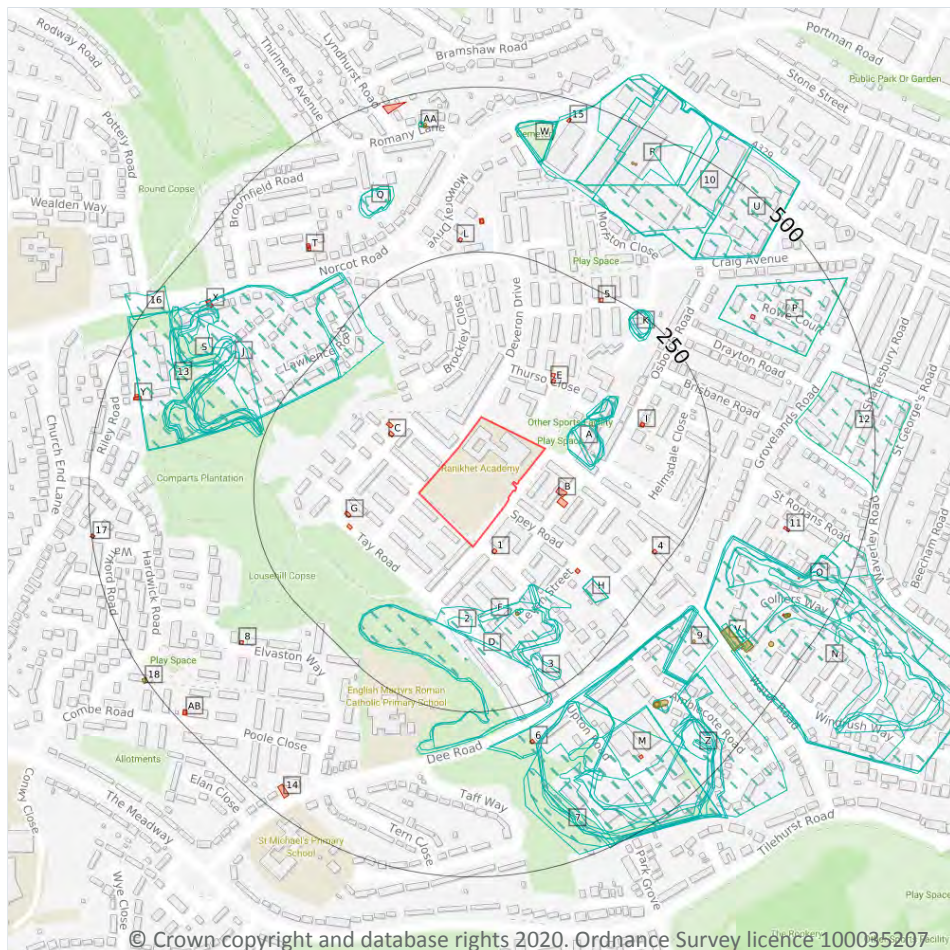
OS MasterMap site plan



Site Area: 1.81ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

1.1 Historical industrial land uses

Records within 500m

94

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	35m E	Old Gravel Pits	1910	1933320



ID	Location	Land use	Dates present	Group ID
A	35m E	Old Gravel Pits	1898	1951429
A	35m E	Old Gravel Pits	1898	1964608
A	49m NE	Unspecified Pit	1938 - 1960	1885875
A	53m NE	Unspecified Pits	1932	1913302
A	79m NE	Unspecified Pit	1960	1879435
A	81m NE	Unspecified Ground Workings	1938	1852506
D	92m S	Clay Pit	1932	1928015
F	99m S	Unspecified Heap	1960	1869745
F	102m SE	Unspecified Ground Workings	1960	1852505
D	103m S	Clay Pit	1938	1959741
2	109m S	Unspecified Pit	1960	1879437
F	116m SE	Unspecified Tank	1960	1914816
F	117m SE	Unspecified Tank	1932 - 1938	1934632
D	127m SW	Clay Pit	1960	1898370
H	169m SE	Fire Station	1982 - 1991	1948977
H	169m SE	Fire Station	1974	1967623
3	186m SE	Unspecified Heap	1938 - 1960	1957455
J	186m NW	Brick and Tile Works	1910	1932779
J	205m NW	Brick and Tile Kiln Works	1898	1872187
J	206m NW	Brick and Tile Works	1898	1922208
K	216m NE	Old Gravel Pit	1898	1930313
K	221m NE	Old Gravel Pit	1898	1885274
K	221m NE	Old Gravel Pit	1910	1900115
K	221m NE	Unspecified Pit	1938	1961918
K	225m NE	Unspecified Pit	1960	1961296
K	228m NE	Unspecified Pit	1932	1926620
J	253m W	Unspecified Ground Workings	1898	1927563
J	253m W	Unspecified Pits	1932	1942599



ID	Location	Land use	Dates present	Group ID
J	255m W	Unspecified Ground Workings	1938	1887817
J	256m W	Unspecified Pit	1898	1879436
J	256m W	Unspecified Ground Workings	1910	1910366
J	267m NW	Unspecified Ground Workings	1960	1942997
M	273m SE	Unspecified Works	1960	1860431
M	274m SE	Unspecified Pit	1960	1894694
M	276m SE	Brick and Tile Works	1932	1928183
M	276m SE	Brick and Tile Works	1938	1966134
M	279m SE	Brick and Tile Works	1898	1905677
M	279m SE	Unspecified Pits	1938	1862960
M	280m SE	Unspecified Ground Workings	1932	1953068
M	281m SE	Brick and Tile Works	1910	1961293
M	284m SE	Brick and Tile Kiln Works	1898	1872189
N	310m SE	Unspecified Works	1960	1860432
N	311m SE	Brick Tile and Pottery Works	1932 - 1938	1968037
N	314m SE	Brick Tile and Pottery Works	1910	1940656
M	320m S	Unspecified Depot	1982 - 1991	1896981
O	325m SE	Unspecified Ground Workings	1960	1964196
N	326m SE	Clay Pits	1932 - 1938	1890185
P	329m NE	Unspecified Depot	1974	1896250
P	329m NE	Unspecified Depot	1982	1963815
Q	346m NW	Old Gravel Pit	1898	1909234
Q	346m NW	Unspecified Pit	1932	1921900
7	347m S	Unspecified Ground Workings	1982 - 1991	1933424
M	348m SE	Unspecified Workings	1991	1868145
Q	349m NW	Unspecified Pit	1938	1894146
Q	349m NW	Old Gravel Pit	1910	1954702
R	350m NE	Unspecified Works	1960	1890044



ID	Location	Land use	Dates present	Group ID
R	355m NE	Unspecified Works	1982	1918940
10	356m NE	Unspecified Works	1991	1898814
R	356m NE	Unspecified Works	1974	1924394
S	360m NW	Unspecified Ground Workings	1910	1961550
M	360m SE	Unspecified Tank	1960	1911151
S	362m NW	Unspecified Ground Workings	1938 - 1960	1937026
M	363m SE	Unspecified Tanks	1932 - 1938	1887917
M	363m SE	Unspecified Tank	1910	1962785
U	366m NE	Unspecified Works	1982	1938954
S	366m NW	Unspecified Ground Workings	1898	1915775
V	374m SE	Unspecified Tanks	1898	1920034
M	374m SE	Unspecified Tank	1960	1858263
V	378m SE	Tanks	1898	1873011
V	380m SE	Unspecified Tanks	1932	1903827
12	381m E	Cycle Works	1898	1942143
R	384m NE	Pulsometer Works	1932	1886017
R	384m NE	Pulsometer Works	1938	1947950
M	385m SE	Unspecified Pit	1910	1902681
N	387m SE	Unspecified Ground Workings	1910	1918240
W	393m N	Burial Ground	1900	1932146
W	395m N	Burial Ground	1960	1969063
13	395m NW	Unspecified Ground Workings	1910	1942142
U	397m NE	Unspecified Works	1974	1954097
V	398m SE	Unspecified Tanks	1938	1952378
V	398m SE	Unspecified Tanks	1910	1968460
W	398m N	Burial Ground	1910 - 1938	1936644
W	399m N	Burial Ground	1900	1908264
N	407m SE	Brick Tile and Pottery Works	1898	1944215

ID	Location	Land use	Dates present	Group ID
N	429m SE	Unspecified Ground Workings	1898	1888063
R	430m NE	Iron Works	1910	1860870
V	442m SE	Unspecified Tank	1938	1858261
R	445m NE	Burial Ground	1901	1874399
Z	445m SE	Miniature Rifle Range	1938 - 1960	1887342
Z	447m SE	Miniature Rifle Range	1932	1924703
AA	449m N	Unspecified Tank	1960	1942660
AA	450m N	Unspecified Tank	1932 - 1938	1950888
16	466m NW	Cuttings	1938 - 1960	1941572

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

16

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
F	119m SE	Unspecified Tank	1932	305863
9	350m SE	Unspecified Tank	1932	305862
M	362m SE	Tanks	1932	310587
M	362m SE	Unspecified Tank	1899 - 1911	317299
V	378m SE	Tanks	1899 - 1911	312715
V	415m SE	Tanks	1932	310586
O	430m SE	Unspecified Tank	1911	305860
V	441m SE	Unspecified Tank	1932	312929
R	445m NE	Unspecified Tank	1960 - 1982	322184



ID	Location	Land use	Dates present	Group ID
V	445m SE	Unspecified Tank	1961	319412
V	445m SE	Unspecified Tank	1960	312690
R	445m NE	Unspecified Tank	1913	305914
AA	446m N	Unspecified Tank	1897	317310
V	448m SE	Unspecified Tank	1911	305861
AA	448m N	Unspecified Tank	1897 - 1936	324745
18	499m SW	Unspecified Tank	1961	318871

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

38

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	27m SE	Electricity Substation	1971 - 1993	198551
B	53m SE	Electricity Substation	1971 - 1987	203696
B	64m SE	Electricity Substation	1993	189835
C	87m NW	Electricity Substation	1993	189834
E	94m NE	Electricity Substation	1993	189836
C	97m NW	Electricity Substation	1971 - 1987	209429
E	102m NE	Electricity Substation	1971 - 1987	210347
G	108m W	Electricity Substation	1971 - 1987	198000
G	113m SW	Electricity Substation	1993	189816
H	144m SE	Electricity Substation	1971 - 1993	205465
I	148m E	Electricity Substation	1990 - 1994	202132



ID	Location	Land use	Dates present	Group ID
I	148m E	Electricity Substation	1970	208951
4	224m SE	Electricity Substation	1981 - 1993	208191
5	236m NE	Electricity Substation	1970 - 1994	207449
L	267m N	Electricity Substation	1967	189843
L	292m N	Electricity Substation	1987 - 1993	196966
L	294m N	Electricity Substation	1971	211713
6	305m S	Electricity Substation	1971 - 1993	200964
8	348m SW	Electricity Substation	1969 - 1993	201634
T	361m NW	Electricity Substation	1993	208675
T	364m NW	Electricity Substation	1967 - 1971	211468
T	366m NW	Electricity Substation	1987	211343
P	369m NE	Electricity Substation	1994	189833
11	381m E	Electricity Substation	1981 - 1993	211417
M	405m SE	Electricity Substation	1971 - 1981	203314
X	420m NW	Electricity Substation	1969 - 1983	203095
X	421m NW	Electricity Substation	-	187699
X	421m NW	Electricity Substation	1978	211389
V	439m SE	Electricity Substation	1981 - 1993	207327
Y	444m W	Electricity Substation	-	187700
Y	445m W	Electricity Substation	1969 - 1983	208831
Y	449m W	Electricity Substation	1978	195280
14	461m SW	Electricity Substation	1971 - 1993	210859
15	465m N	Electricity Substation	1982 - 1993	212200
AA	481m N	Electricity Substation	1960 - 1993	198802
AB	481m SW	Electricity Substation	1993	198476
AB	482m SW	Electricity Substation	1969 - 1971	197087
17	495m W	Electricity Substation	1969 - 1993	199857

This data is sourced from Ordnance Survey / Groundsure.



1.4 Historical petrol stations

Records within 500m**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m**0**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

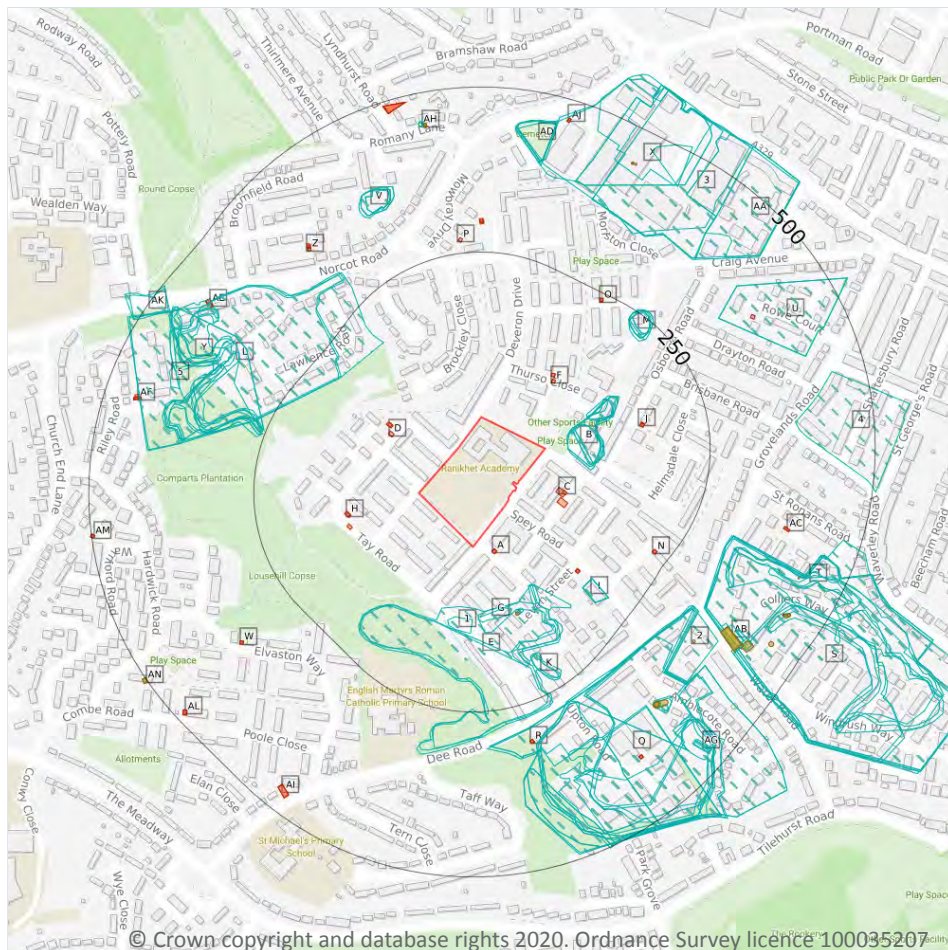
1.6 Historical military land

Records within 500m**0**

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

2.1 Historical industrial land uses

Records within 500m

119

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
B	35m E	Old Gravel Pits	1910	1933320
B	35m E	Old Gravel Pits	1898	1951429
B	35m E	Old Gravel Pits	1898	1964608



ID	Location	Land Use	Date	Group ID
B	49m NE	Unspecified Pit	1960	1885875
B	49m NE	Unspecified Pit	1938	1885875
B	53m NE	Unspecified Pits	1932	1913302
B	53m NE	Unspecified Pits	1932	1913302
B	79m NE	Unspecified Pit	1960	1879435
B	81m NE	Unspecified Ground Workings	1938	1852506
E	92m S	Clay Pit	1932	1928015
G	99m S	Unspecified Heap	1960	1869745
G	102m SE	Unspecified Ground Workings	1960	1852505
E	103m S	Clay Pit	1938	1959741
1	109m S	Unspecified Pit	1960	1879437
G	116m SE	Unspecified Tank	1960	1914816
G	117m SE	Unspecified Tank	1932	1934632
G	118m SE	Unspecified Tank	1938	1934632
E	127m SW	Clay Pit	1960	1898370
I	169m SE	Fire Station	1991	1948977
I	169m SE	Fire Station	1982	1948977
I	169m SE	Fire Station	1974	1967623
K	186m SE	Unspecified Heap	1960	1957455
L	186m NW	Brick and Tile Works	1910	1932779
K	188m SE	Unspecified Heap	1938	1957455
L	205m NW	Brick and Tile Kiln Works	1898	1872187
L	206m NW	Brick and Tile Works	1898	1922208
M	216m NE	Old Gravel Pit	1898	1930313
M	221m NE	Unspecified Pit	1938	1961918
M	221m NE	Old Gravel Pit	1910	1900115
M	221m NE	Old Gravel Pit	1898	1885274
M	225m NE	Unspecified Pit	1960	1961296



ID	Location	Land Use	Date	Group ID
M	228m NE	Unspecified Pit	1932	1926620
M	228m NE	Unspecified Pit	1932	1926620
L	253m W	Unspecified Ground Workings	1898	1927563
L	253m W	Unspecified Pits	1932	1942599
L	253m W	Unspecified Pits	1932	1942599
L	255m W	Unspecified Ground Workings	1938	1887817
L	256m W	Unspecified Pit	1898	1879436
L	256m W	Unspecified Ground Workings	1910	1910366
L	267m NW	Unspecified Ground Workings	1960	1942997
Q	273m SE	Unspecified Works	1960	1860431
Q	274m SE	Unspecified Pit	1960	1894694
Q	276m SE	Brick and Tile Works	1932	1928183
Q	276m SE	Brick and Tile Works	1932	1928183
Q	276m SE	Brick and Tile Works	1938	1966134
Q	279m SE	Brick and Tile Works	1898	1905677
Q	279m SE	Unspecified Pits	1938	1862960
Q	280m SE	Unspecified Ground Workings	1932	1953068
Q	280m SE	Unspecified Ground Workings	1932	1953068
Q	281m SE	Brick and Tile Works	1910	1961293
Q	284m SE	Brick and Tile Kiln Works	1898	1872189
S	310m SE	Unspecified Works	1960	1860432
S	311m SE	Brick Tile and Pottery Works	1938	1968037
S	311m SE	Brick Tile and Pottery Works	1932	1968037
S	311m SE	Brick Tile and Pottery Works	1932	1968037
S	314m SE	Brick Tile and Pottery Works	1910	1940656
Q	320m S	Unspecified Depot	1991	1896981
Q	321m S	Unspecified Depot	1982	1896981
T	325m SE	Unspecified Ground Workings	1960	1964196



ID	Location	Land Use	Date	Group ID
S	326m SE	Clay Pits	1938	1890185
S	327m SE	Clay Pits	1932	1890185
U	329m NE	Unspecified Depot	1982	1963815
U	329m NE	Unspecified Depot	1974	1896250
V	346m NW	Old Gravel Pit	1898	1909234
V	346m NW	Unspecified Pit	1932	1921900
V	346m NW	Unspecified Pit	1932	1921900
Q	347m S	Unspecified Ground Workings	1991	1933424
Q	347m S	Unspecified Ground Workings	1982	1933424
Q	348m SE	Unspecified Workings	1991	1868145
V	349m NW	Unspecified Pit	1938	1894146
V	349m NW	Old Gravel Pit	1910	1954702
V	349m NW	Old Gravel Pit	1898	1909234
X	350m NE	Unspecified Works	1960	1890044
X	355m NE	Unspecified Works	1982	1918940
3	356m NE	Unspecified Works	1991	1898814
X	356m NE	Unspecified Works	1974	1924394
Y	360m NW	Unspecified Ground Workings	1910	1961550
Q	360m SE	Unspecified Tank	1960	1911151
Y	362m NW	Unspecified Ground Workings	1938	1937026
Q	363m SE	Unspecified Tanks	1932	1887917
Q	363m SE	Unspecified Tank	1910	1962785
Q	363m SE	Unspecified Tanks	1938	1887917
Y	365m NW	Unspecified Ground Workings	1960	1937026
AA	366m NE	Unspecified Works	1982	1938954
Y	366m NW	Unspecified Ground Workings	1898	1915775
AB	374m SE	Unspecified Tanks	1898	1920034
Q	374m SE	Unspecified Tank	1960	1858263



ID	Location	Land Use	Date	Group ID
AB	378m SE	Tanks	1898	1873011
AB	380m SE	Unspecified Tanks	1932	1903827
4	381m E	Cycle Works	1898	1942143
X	384m NE	Pulsometer Works	1938	1947950
X	384m NE	Pulsometer Works	1932	1886017
Q	385m SE	Unspecified Pit	1910	1902681
S	387m SE	Unspecified Ground Workings	1910	1918240
AD	393m N	Burial Ground	1900	1932146
AD	395m N	Burial Ground	1960	1969063
5	395m NW	Unspecified Ground Workings	1910	1942142
AA	397m NE	Unspecified Works	1974	1954097
AB	398m SE	Unspecified Tanks	1938	1952378
AB	398m SE	Unspecified Tanks	1910	1968460
AD	398m N	Burial Ground	1938	1936644
AD	398m N	Burial Ground	1932	1936644
AD	398m N	Burial Ground	1910	1936644
AD	399m N	Burial Ground	1900	1908264
S	407m SE	Brick Tile and Pottery Works	1898	1944215
S	412m SE	Brick Tile and Pottery Works	1898	1944215
S	429m SE	Unspecified Ground Workings	1898	1888063
X	430m NE	Iron Works	1910	1860870
S	434m SE	Unspecified Ground Workings	1898	1888063
AB	442m SE	Unspecified Tank	1938	1858261
X	445m NE	Burial Ground	1901	1874399
AG	445m SE	Miniature Rifle Range	1960	1887342
AG	447m SE	Miniature Rifle Range	1932	1924703
AG	448m SE	Miniature Rifle Range	1938	1887342
AH	449m N	Unspecified Tank	1960	1942660



ID	Location	Land Use	Date	Group ID
AH	450m N	Unspecified Tank	1938	1950888
AH	450m N	Unspecified Tank	1932	1950888
AK	466m NW	Cuttings	1938	1941572
AK	470m NW	Cuttings	1960	1941572

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

23

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
G	119m SE	Unspecified Tank	1932	305863
2	350m SE	Unspecified Tank	1932	305862
Q	362m SE	Tanks	1932	310587
Q	362m SE	Unspecified Tank	1899	317299
Q	362m SE	Unspecified Tank	1911	317299
AB	378m SE	Tanks	1899	312715
AB	378m SE	Tanks	1911	312715
AB	415m SE	Tanks	1932	310586
T	430m SE	Unspecified Tank	1911	305860
AB	441m SE	Unspecified Tank	1932	312929
X	445m NE	Unspecified Tank	1973	322184
X	445m NE	Unspecified Tank	1982	322184
AB	445m SE	Unspecified Tank	1961	319412
AB	445m SE	Unspecified Tank	1960	312690
X	445m NE	Unspecified Tank	1960	322184
X	445m NE	Unspecified Tank	1913	305914



ID	Location	Land Use	Date	Group ID
AH	446m N	Unspecified Tank	1897	317310
AB	448m SE	Unspecified Tank	1911	305861
AH	448m N	Unspecified Tank	1934	324745
AH	448m N	Unspecified Tank	1936	324745
AH	448m N	Unspecified Tank	1897	324745
AN	499m SW	Unspecified Tank	1961	318871
AN	499m SW	Unspecified Tank	1961	318871

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

70

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
A	27m SE	Electricity Substation	1971	198551
A	27m SE	Electricity Substation	1993	198551
C	53m SE	Electricity Substation	1987	203696
C	62m SE	Electricity Substation	1971	203696
C	64m SE	Electricity Substation	1993	189835
D	87m NW	Electricity Substation	1993	189834
F	94m NE	Electricity Substation	1993	189836
D	97m NW	Electricity Substation	1971	209429
D	98m NW	Electricity Substation	1987	209429
F	102m NE	Electricity Substation	1987	210347
F	103m NE	Electricity Substation	1971	210347
H	108m W	Electricity Substation	1971	198000
H	109m W	Electricity Substation	1987	198000



ID	Location	Land Use	Date	Group ID
H	113m SW	Electricity Substation	1993	189816
I	144m SE	Electricity Substation	1971	205465
I	145m SE	Electricity Substation	1993	205465
J	148m E	Electricity Substation	1990	202132
J	148m E	Electricity Substation	1991	202132
J	148m E	Electricity Substation	1970	208951
J	148m E	Electricity Substation	1994	202132
N	224m SE	Electricity Substation	1981	208191
N	224m SE	Electricity Substation	1993	208191
O	236m NE	Electricity Substation	1970	207449
O	236m NE	Electricity Substation	1990	207449
O	236m NE	Electricity Substation	1991	207449
O	237m NE	Electricity Substation	1994	207449
P	267m N	Electricity Substation	1967	189843
P	292m N	Electricity Substation	1993	196966
P	294m N	Electricity Substation	1971	211713
P	295m N	Electricity Substation	1987	196966
R	305m S	Electricity Substation	1971	200964
R	305m S	Electricity Substation	1993	200964
W	348m SW	Electricity Substation	1971	201634
W	348m SW	Electricity Substation	1993	201634
W	348m SW	Electricity Substation	1969	201634
Z	361m NW	Electricity Substation	1993	208675
Z	364m NW	Electricity Substation	1967	211468
Z	364m NW	Electricity Substation	1971	211468
Z	366m NW	Electricity Substation	1987	211343
U	369m NE	Electricity Substation	1994	189833
AC	381m E	Electricity Substation	1993	211417

ID	Location	Land Use	Date	Group ID
AC	381m E	Electricity Substation	1981	211417
Q	405m SE	Electricity Substation	1981	203314
Q	405m SE	Electricity Substation	1971	203314
AE	420m NW	Electricity Substation	1983	203095
AE	420m NW	Electricity Substation	1969	203095
AE	420m NW	Electricity Substation	1971	203095
AE	421m NW	Electricity Substation	-	187699
AE	421m NW	Electricity Substation	1978	211389
AB	439m SE	Electricity Substation	1993	207327
AB	440m SE	Electricity Substation	1981	207327
AF	444m W	Electricity Substation	-	187700
AF	445m W	Electricity Substation	1983	208831
AF	445m W	Electricity Substation	1969	208831
AF	449m W	Electricity Substation	1978	195280
AF	449m W	Electricity Substation	1971	208831
AI	461m SW	Electricity Substation	1971	210859
AI	461m SW	Electricity Substation	1993	210859
AJ	465m N	Electricity Substation	1993	212200
AJ	466m N	Electricity Substation	1982	212200
AH	481m N	Electricity Substation	1993	198802
AL	481m SW	Electricity Substation	1993	198476
AH	481m N	Electricity Substation	1982	198802
AH	481m N	Electricity Substation	1967	198802
AH	481m N	Electricity Substation	1960	198802
AL	482m SW	Electricity Substation	1969	197087
AL	482m SW	Electricity Substation	1971	197087
AM	495m W	Electricity Substation	1969	199857
AM	495m W	Electricity Substation	1993	199857



ID	Location	Land Use	Date	Group ID
AM	496m W	Electricity Substation	1971	199857

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0
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Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

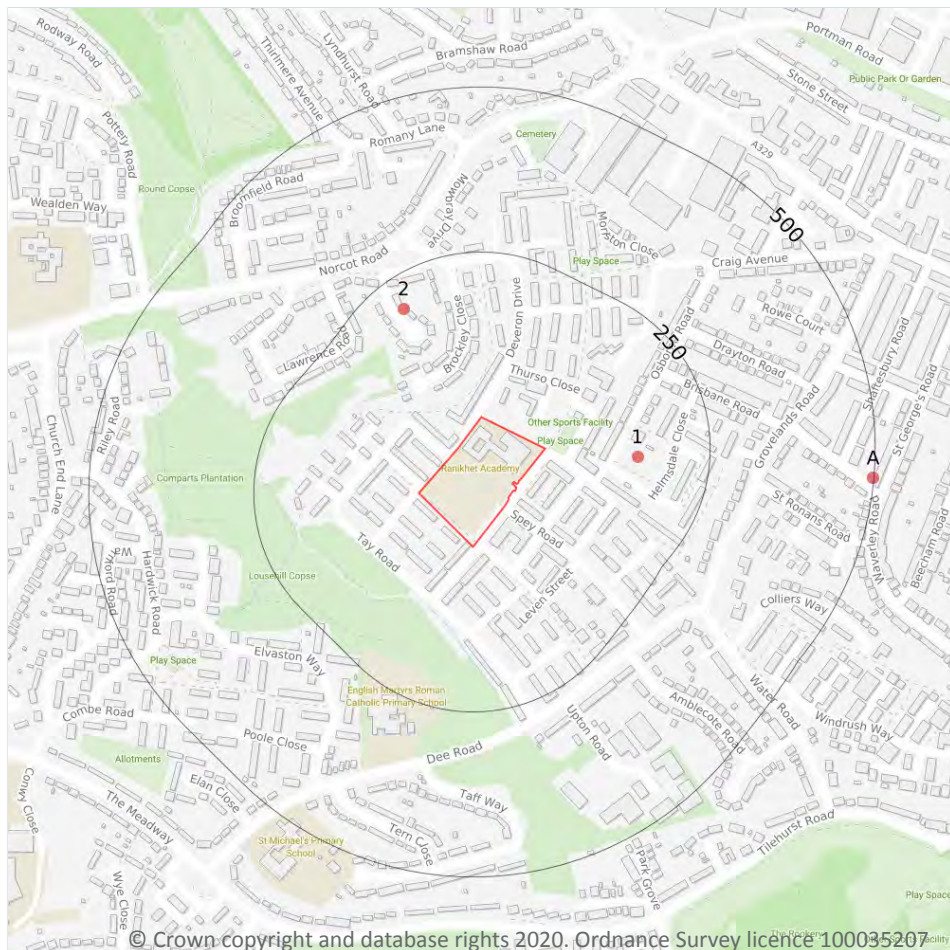
Records within 500m	0
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Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



— Site Outline
Search buffers in metres (m)
● Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.



3.3 Historical landfill (LA/mapping records)

Records within 500m

0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m

0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m

0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m

7

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

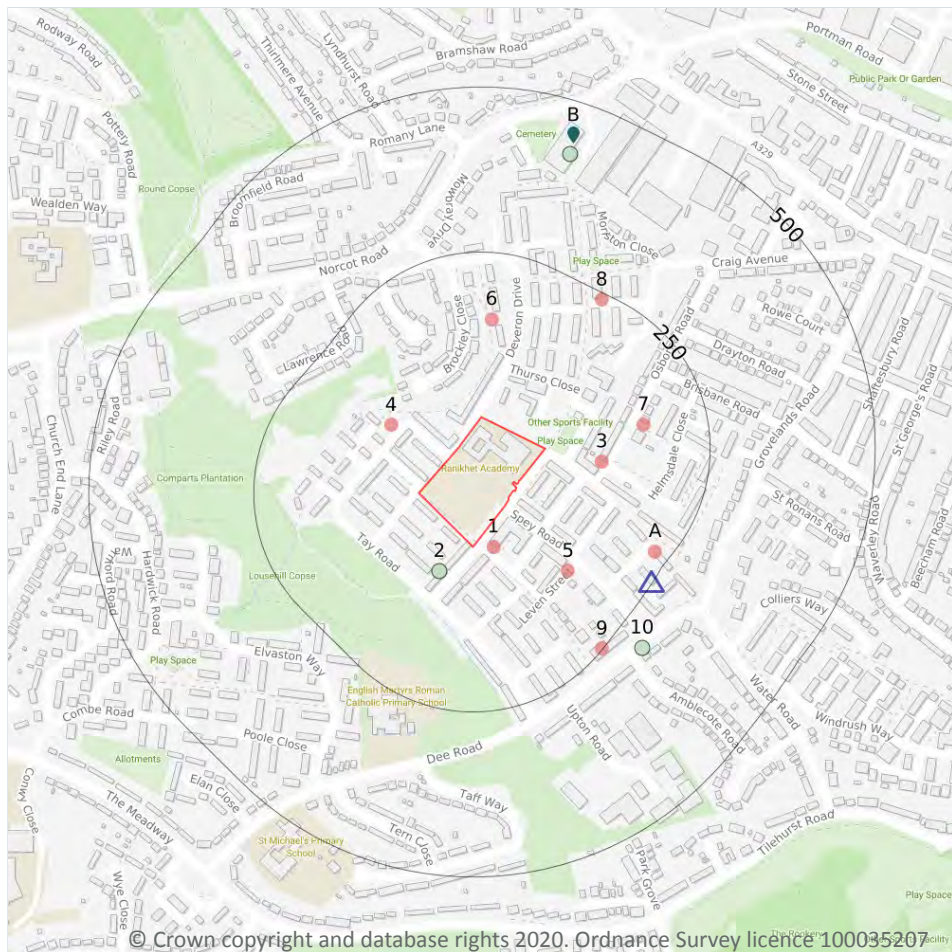
Features are displayed on the Waste and landfill map on **page 31**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	140m E	Willmott Dixon site office Arbroath Road Reading RG30 4EF	EPR/XF0804HC /A001	Using waste exemption	Non- Agricultural Waste Only	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
2	201m NW	Open Space (grassland), Links Drive, Reading, RG30 4YT	WEX171056	Using waste exemption	Not on a farm	Use of waste in construction
A	499m E	128 St. Georges Road READING RG30 2RH	EPR/GH0371B K/A001	Disposing of waste exemption	Non- Agricultural Waste Only	Disposal by incineration
A	499m E	128 St. Georges Road READING RG30 2RH	EPR/GH0371B K/A001	Disposing of waste exemption	Non- Agricultural Waste Only	Burning waste in the open
A	499m E	128 St. Georges Road READING RG30 2RH	EPR/GH0371B K/A001	Storing waste exemption	Non- Agricultural Waste Only	Storage of waste in a secure place
A	499m E	128 St. Georges Road READING RG30 2RH	EPR/GH0371B K/A001	Treating waste exemption	Non- Agricultural Waste Only	Aerobic composting and associated prior treatment
A	499m E	128 St. Georges Road READING RG30 2RH	EPR/GH0371B K/A001	Using waste exemption	Non- Agricultural Waste Only	Use of waste in construction

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Licensed pollutant release (Part A(2)/B)
- Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m

9

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Activity	Category
1	24m SE	Electricity Sub Station	Berkshire, RG30	Electrical Features	Infrastructure and Facilities
3	88m E	Electricity Sub Station	Berkshire, RG30	Electrical Features	Infrastructure and Facilities
4	100m NW	Electricity Sub Station	Berkshire, RG30	Electrical Features	Infrastructure and Facilities



ID	Location	Company	Address	Activity	Category
5	136m SE	Electricity Sub Station	Berkshire, RG30	Electrical Features	Infrastructure and Facilities
6	149m N	Gas Governor	Berkshire, RG30	Gas Features	Infrastructure and Facilities
7	153m E	Electricity Sub Station	Berkshire, RG30	Electrical Features	Infrastructure and Facilities
A	227m SE	Electricity Sub Station	Berkshire, RG30	Electrical Features	Infrastructure and Facilities
8	240m NE	Electricity Sub Station	Berkshire, RG30	Electrical Features	Infrastructure and Facilities
9	249m SE	Dee Road Fire Station	103, Dee Road, Tilehurst, Reading, Berkshire, RG30 4FS	Fire Brigade Stations	Central and Local Government

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m

1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	LPG	Status
A	247m SE	OBSOLETE	Spey Road, Tilehurst, Reading, Reading, RG30 4DQ	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m

0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.



4.4 Gas pipelines

Records within 500m**0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m**0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m

0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m

0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m

1

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
B	449m N	Autotech Reading Ltd, Unit 1 Sterling Way, Norcot Way Industrial Estate, Reading, RG30 6HW	Process: Respraying of Road Vehicles Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m**0**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m**0**

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m**0**

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m

3

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Details	
2	62m SW	Incident Date: 15/07/2002 Incident Identification: 91552 Pollutant: Oils and Fuel Pollutant Description: Gas and Fuel Oils	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
10	295m SE	Incident Date: 13/09/2001 Incident Identification: 30573 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
B	420m N	Incident Date: 13/11/2001 Incident Identification: 42723 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m

0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m

0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



4.21 Pollution inventory radioactive waste

Records within 500m

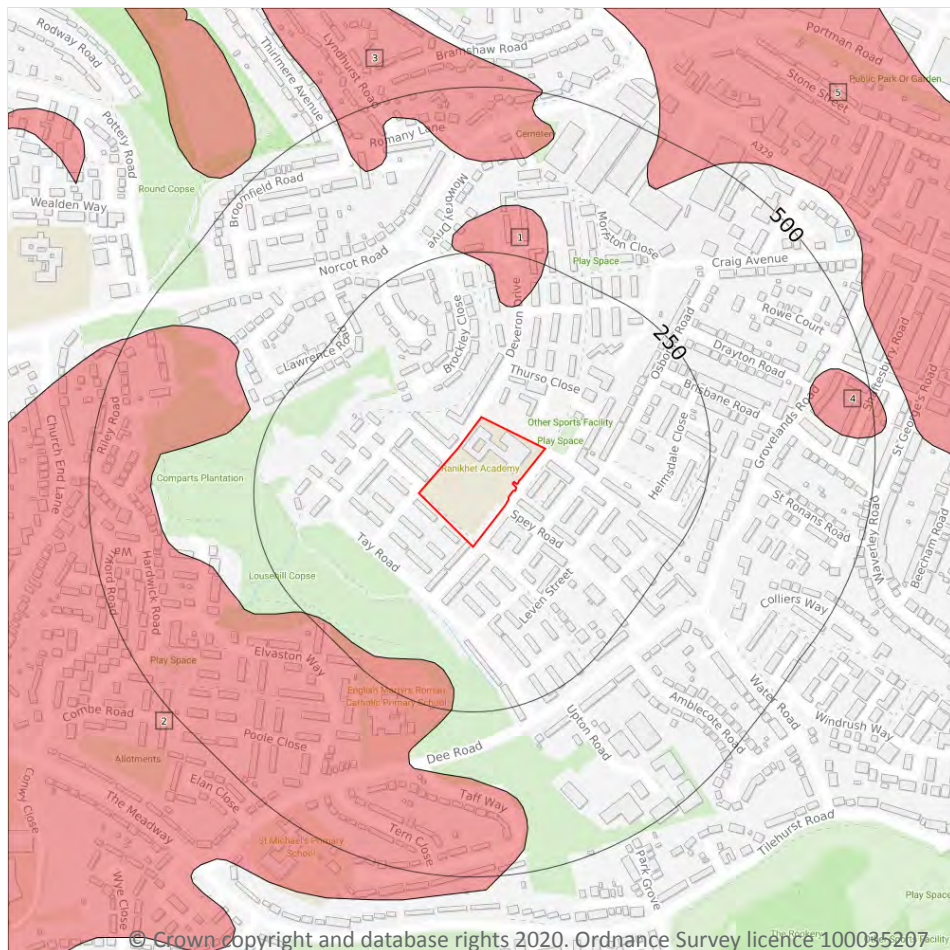
0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.



5 Hydrogeology - Superficial aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m

5

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 41**

ID	Location	Designation	Description
1	172m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	185m S	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

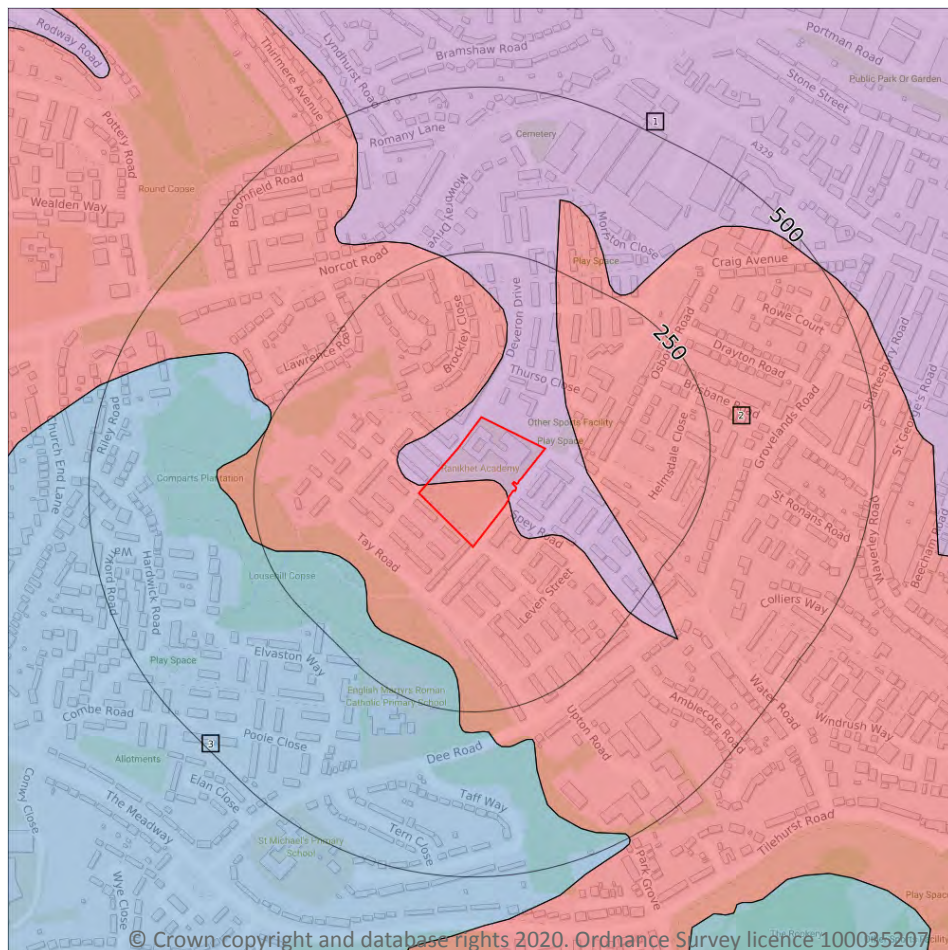


ID	Location	Designation	Description
3	387m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	406m E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	426m NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



- Site Outline**
- Search buffers in metres (m)**
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

3

Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 43**

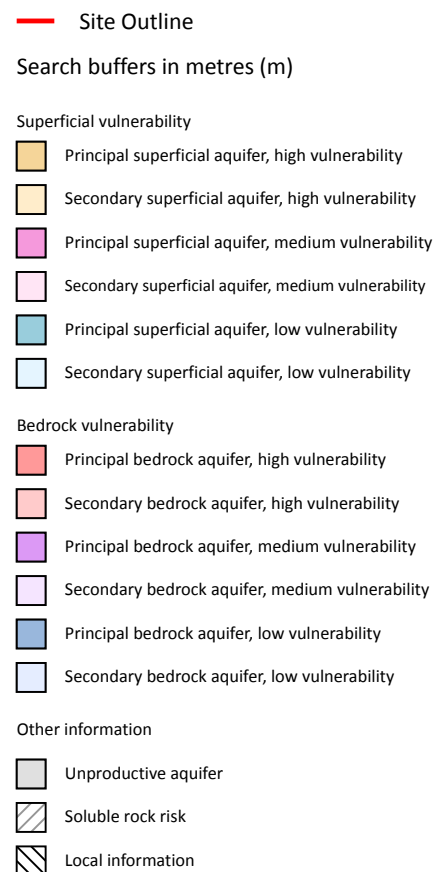
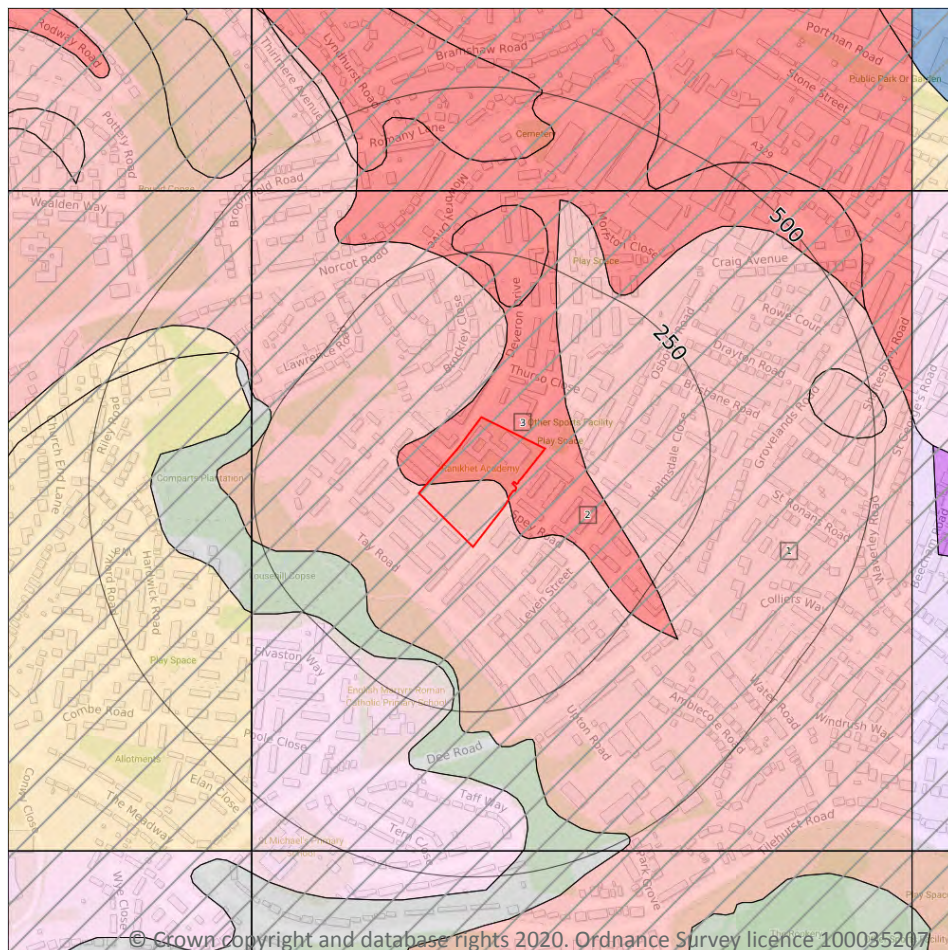
ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

ID	Location	Designation	Description
3	148m SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

2

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - 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.
- Medium - Intermediate between high and low vulnerability.
- Low - 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.

Features are displayed on the Groundwater vulnerability map on **page 45**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
3	On site	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	1
------------------------	----------

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	Very significant soluble rocks are likely to be present with a high possibility of localised subsidence or dissolution-related degradation of bedrock occurring naturally, especially in adverse conditions such as concentrated surface or subsurface water flow.	2.0%

This data is sourced from the British Geological Survey and the Environment Agency.

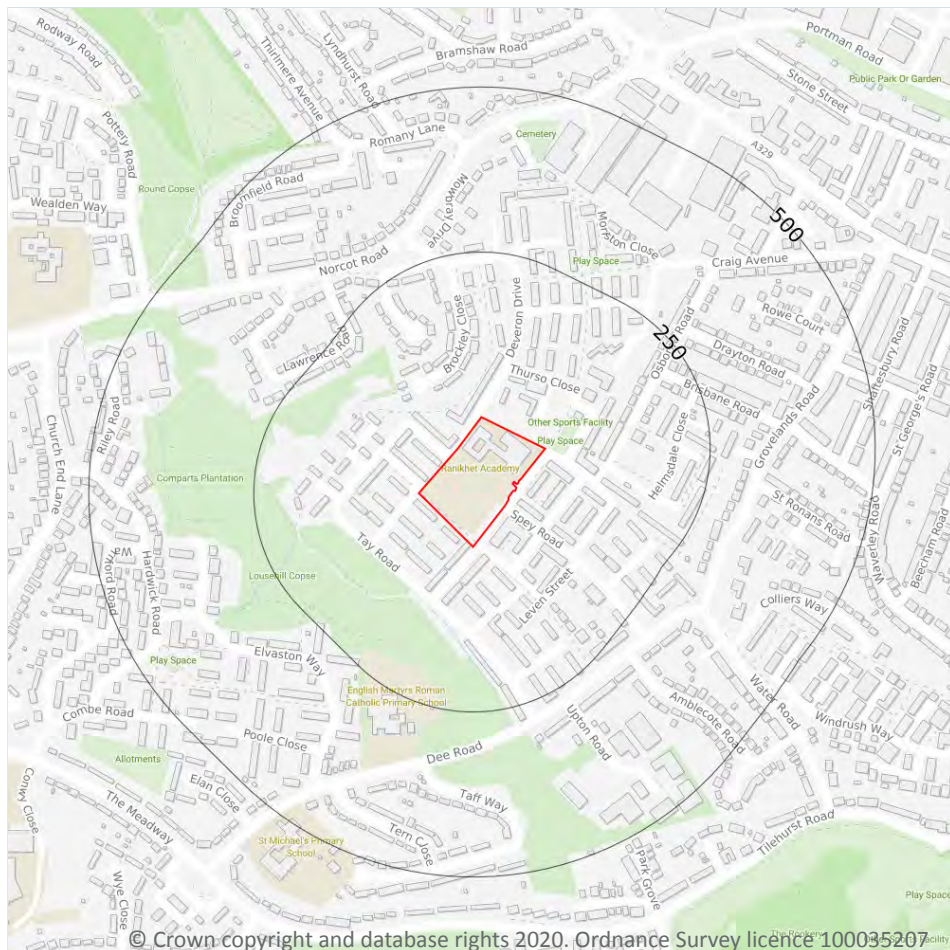
5.5 Groundwater vulnerability- local information

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

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Point features
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

14

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 47**

ID	Location	Details	
-	913m NE	Status: Historical Licence No: 28/39/23/0176 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: SCOURS LANE, READING TOWN F.C, READING Data Type: Point Name: READING TOWN FOOTBALL CLUB Easting: 468700 Northing: 174500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/09/1994 Expiry Date: - Issue No: 100 Version Start Date: 30/09/1994 Version End Date: -
-	913m NE	Status: Historical Licence No: 28/39/23/0176 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: SCOURS LANE, READING TOWN F.C, READING Data Type: Point Name: READING TOWN FOOTBALL CLUB Easting: 468700 Northing: 174500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/09/1994 Expiry Date: - Issue No: 100 Version Start Date: 30/09/1994 Version End Date: -
-	1000m NE	Status: Historical Licence No: 28/39/23/0131 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: SCOURS LANE, READING Data Type: Point Name: PRUDENTIAL IBIS CLUB Easting: 468900 Northing: 174500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 14/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1992 Version End Date: -
-	1000m NE	Status: Historical Licence No: 28/39/23/0131 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: SCOURS LANE, READING Data Type: Point Name: PRUDENTIAL IBIS CLUB Easting: 468900 Northing: 174500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 14/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1992 Version End Date: -
-	1187m NE	Status: Historical Licence No: 28/39/23/0137 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: SCOURS LANE, READING (A - R) Data Type: Point Name: READING BOROUGH COUNCIL Easting: 469100 Northing: 174600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 17/11/1976 Expiry Date: - Issue No: 100 Version Start Date: 17/11/1976 Version End Date: -

ID	Location	Details	
-	1209m NE	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (A) Data Type: Point Name: DRAYTON Easting: 469500 Northing: 174200	Annual Volume (m ³): 9,819 Max Daily Volume (m ³): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -
-	1386m E	Status: Historical Licence No: 28/39/23/0181 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BATTLE HOSPITAL, OXFORD ROAD, READING Data Type: Point Name: WEST BERKSHIRE HEALTH AUTHORITY Easting: 469800 Northing: 173900	Annual Volume (m ³): 136875 Max Daily Volume (m ³): 400 Original Application No: - Original Start Date: 17/01/1992 Expiry Date: - Issue No: 100 Version Start Date: 07/01/1999 Version End Date: -
-	1482m SW	Status: Active Licence No: 28/39/22/0127 Details: Spray Irrigation - Direct Direct Source: THAMES GROUNDWATER Point: CALCOT PARK, READING Data Type: Point Name: CALCOT PARK GOLF CLUB LTD Easting: 467300 Northing: 172400	Annual Volume (m ³): 8,500 Max Daily Volume (m ³): 55 Original Application No: - Original Start Date: 13/06/1966 Expiry Date: - Issue No: 102 Version Start Date: 28/04/2011 Version End Date: -
-	1483m NE	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (C) Data Type: Point Name: DRAYTON Easting: 469700 Northing: 174400	Annual Volume (m ³): 9,819 Max Daily Volume (m ³): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -
-	1483m NE	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (B) Data Type: Point Name: DRAYTON Easting: 469700 Northing: 174400	Annual Volume (m ³): 9,819 Max Daily Volume (m ³): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -



ID	Location	Details	
-	1720m NE	Status: Historical Licence No: 28/39/23/0139 Details: General use relating to Secondary Category (Medium Loss) Direct Source: THAMES GROUNDWATER Point: CHAZEY COURT FARM, MAPLEDURHAM, - TUBEWELL 'A' Data Type: Point Name: EYSTON Easting: 469110 Northing: 175200	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/03/1977 Expiry Date: - Issue No: 101 Version Start Date: 09/09/1999 Version End Date: -
-	1734m NE	Status: Historical Licence No: 28/39/23/0139 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: CHAZEY COURT FARM, MAPLEDURHAM Data Type: Point Name: EYSTON Easting: 469140 Northing: 175200	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 23/03/1977 Expiry Date: - Issue No: 101 Version Start Date: 09/09/1999 Version End Date: -
-	1793m NE	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (E) Data Type: Point Name: DRAYTON Easting: 470100 Northing: 174300	Annual Volume (m ³): 9,819 Max Daily Volume (m ³): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -
-	1929m NE	Status: Active Licence No: 28/39/23/0070 Details: General Farming & Domestic Direct Source: THAMES GROUNDWATER Point: LITTLE JOHN'S FARM, READING (D) Data Type: Point Name: DRAYTON Easting: 470100 Northing: 174600	Annual Volume (m ³): 9,819 Max Daily Volume (m ³): 26.82 Original Application No: - Original Start Date: 09/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 09/01/1967 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.



5.7 Surface water abstractions

Records within 2000m

0

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m

3

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 47**

ID	Location	Details	
-	913m NE	Status: Historical Licence No: 28/39/23/0176 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: SCOURS LANE, READING TOWN F.C, READING Data Type: Point Name: READING TOWN FOOTBALL CLUB Easting: 468700 Northing: 174500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 30/09/1994 Expiry Date: - Issue No: 100 Version Start Date: 30/09/1994 Version End Date: -
-	1000m NE	Status: Historical Licence No: 28/39/23/0131 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: SCOURS LANE, READING Data Type: Point Name: PRUDENTIAL IBIS CLUB Easting: 468900 Northing: 174500	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 14/01/1967 Expiry Date: - Issue No: 100 Version Start Date: 01/05/1992 Version End Date: -

ID	Location	Details	
-	1386m E	Status: Historical Licence No: 28/39/23/0181 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BATTLE HOSPITAL, OXFORD ROAD, READING Data Type: Point Name: WEST BERKSHIRE HEALTH AUTHORITY Easting: 469800 Northing: 173900	Annual Volume (m ³): 136875 Max Daily Volume (m ³): 400 Original Application No: - Original Start Date: 17/01/1992 Expiry Date: - Issue No: 100 Version Start Date: 07/01/1999 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

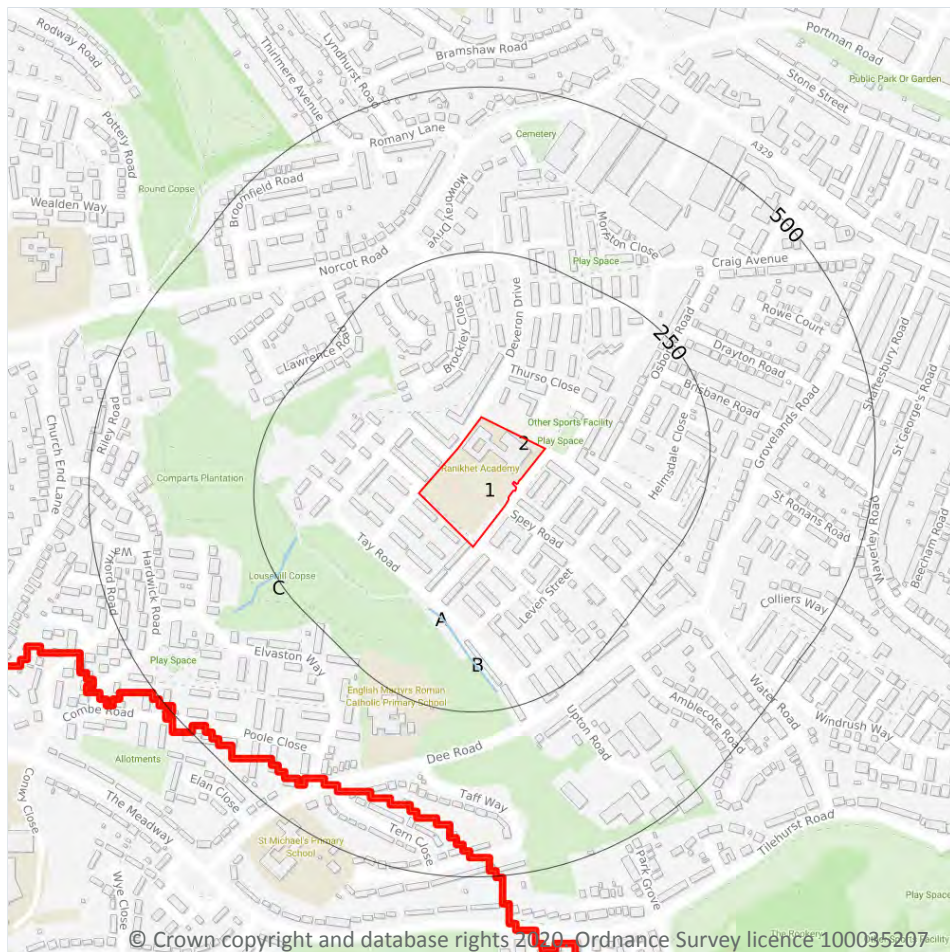
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0
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Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

4

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 53**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	114m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
A	115m SW	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	120m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	196m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

3

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 53**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 53**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	On site	River WB catchment	Thames Wallingford to Caversham	GB106039030331	South Chilterns	Thames and South Chilterns

This data is sourced from the Environment Agency and Natural Resources Wales.



6.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 53**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	992m N	River	Thames Wallingford to Caversham	GB106039030331	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 53**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	On site	Berkshire Downs Chalk	GB40601G600900	Poor	Poor	Poor	2015

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m

0

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).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m

0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m

0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m

0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.



7.5 Flood Storage Areas

Records within 250m

0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m

0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



— Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site

1 in 30 year, Greater than 1.0m

Highest risk within 50m

1 in 30 year, Greater than 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land 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 1,000 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.

Features are displayed on the Surface water flooding map on **page 59**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

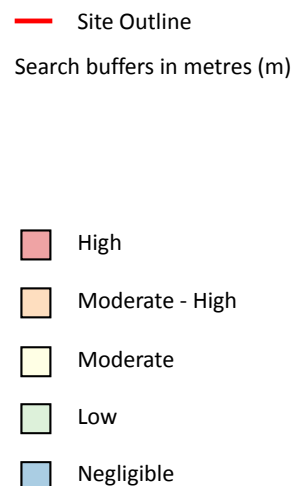
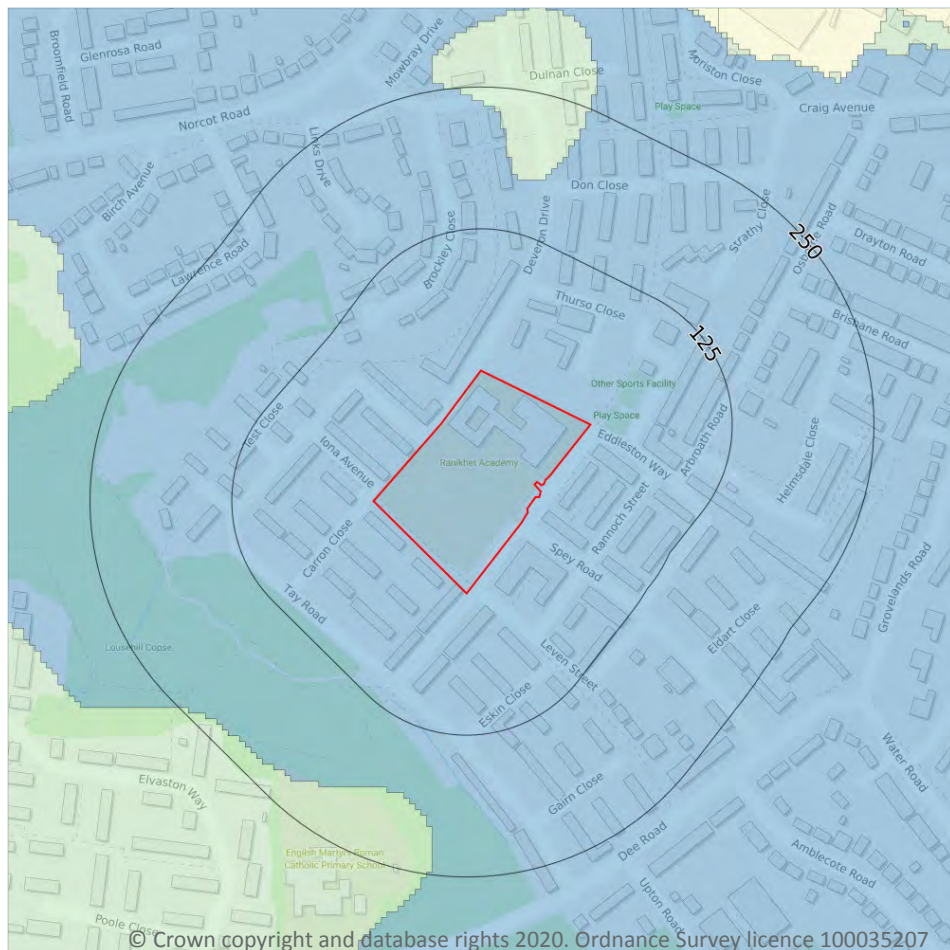
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Greater than 1.0m

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Negligible

Highest risk within 50m

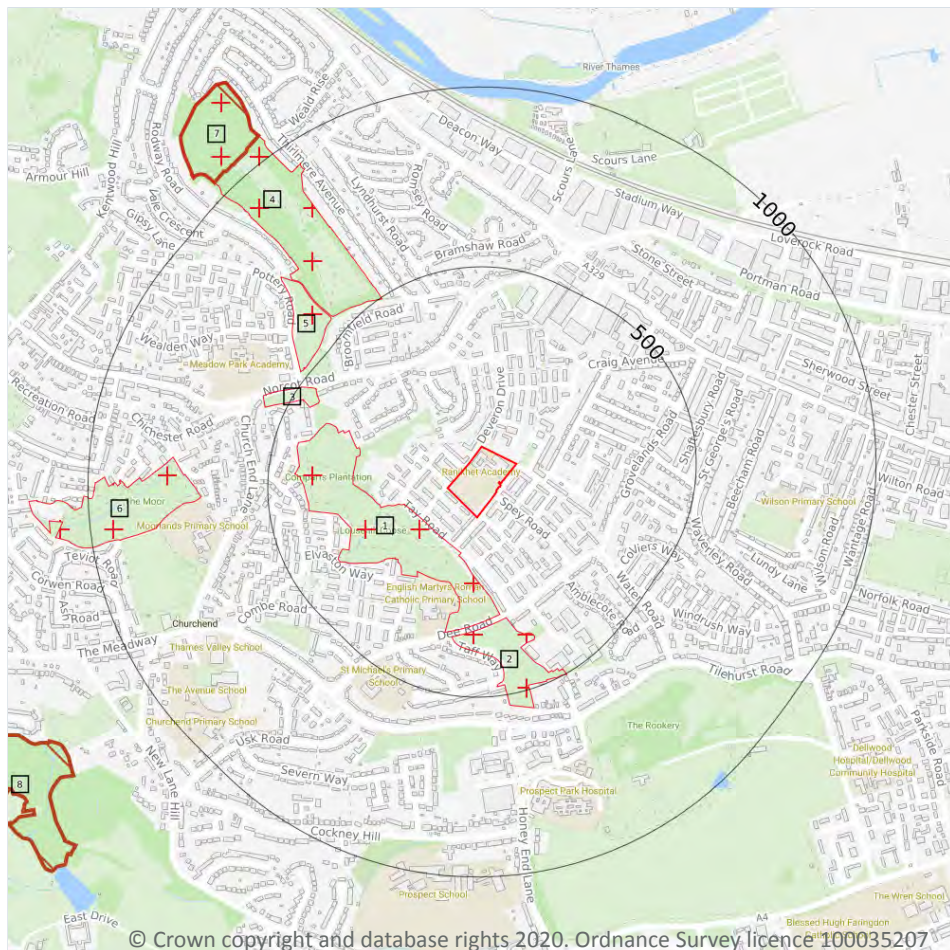
Negligible

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 61**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- + Local Nature Reserves (LNR)
- ▨ Designated Ancient Woodland

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m

6

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 62**

ID	Location	Name	Data source
1	105m SW	Lousehill Copse	Natural England
2	290m S	Lousehill Copse	Natural England
3	430m NW	Lousehill Copse	Natural England
4	496m NW	McIlroy Park	Natural England
5	517m NW	Round Copse	Natural England
6	686m W	Blundells Copse	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m

4

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 62**

ID	Location	Name	Woodland Type
7	1044m NW	KENTWOOD GROVE	Ancient & Semi-Natural Woodland
8	1289m SW	CHURCH END COPSE	Ancient & Semi-Natural Woodland
-	1909m SW	CURTISS WOOD	Ancient & Semi-Natural Woodland
-	1948m N	CHAZEY WOOD	Ancient Replanted Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.



10.8 Biosphere Reserves

Records within 2000m

0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m

0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m

0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m

0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m

0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.



10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

1

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

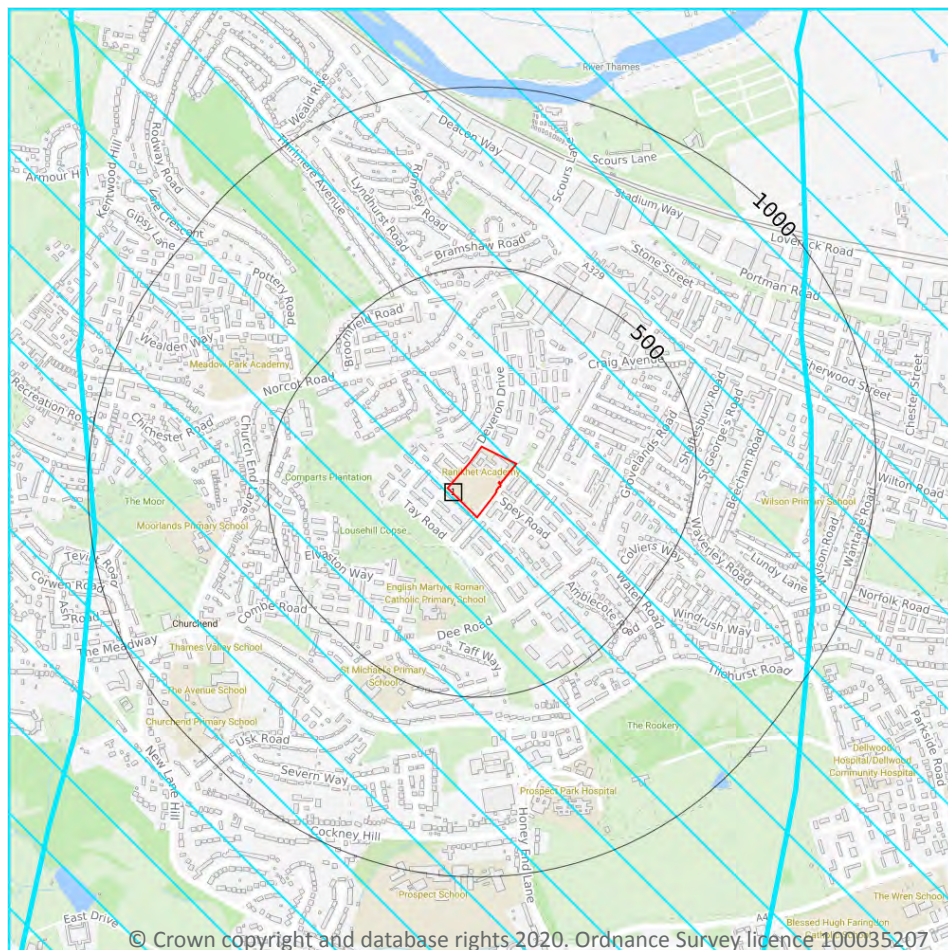
Location	Name	Type	NVZ ID	Status
On site	Thames Wallingford to Caversham NVZ	Surface Water	S481	Existing



This data is sourced from Natural England and Natural Resources Wales.



SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 68**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t. Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
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Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.



This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

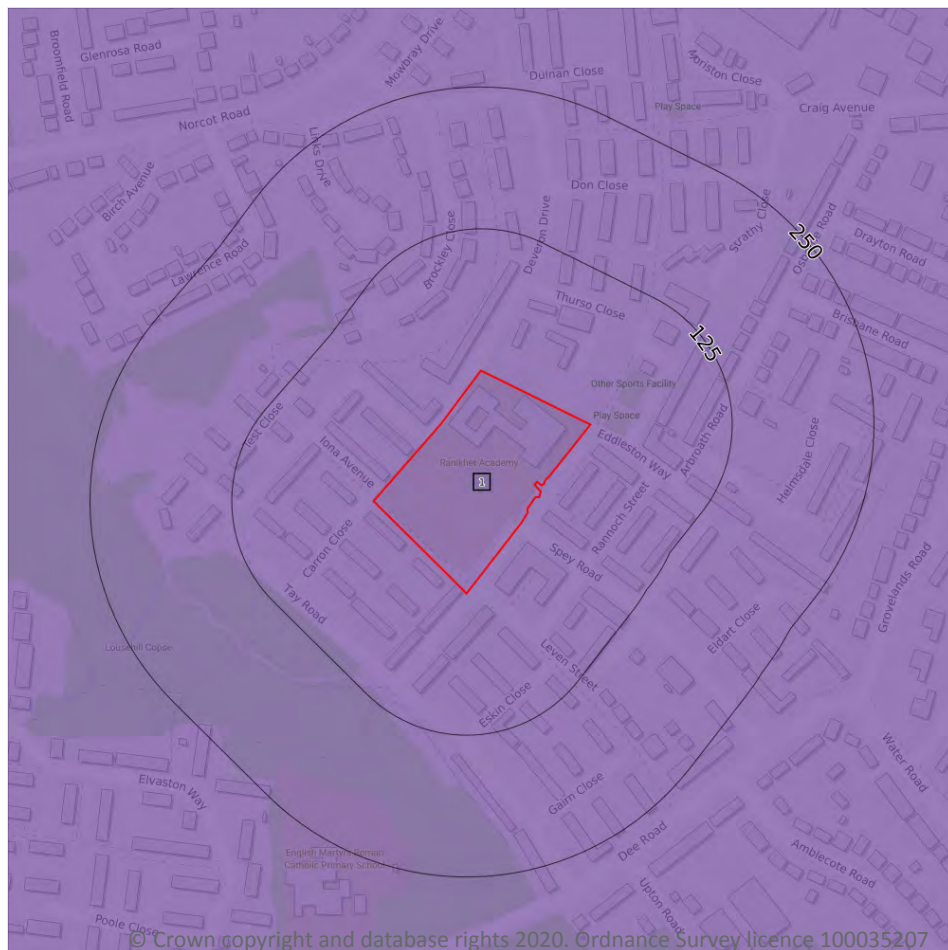
Records within 250m

0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 72**

ID	Location	Classification	Description
1	On site	Urban	-

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m**0**

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m**0**

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m**0**

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment.

This data is sourced from Natural England.

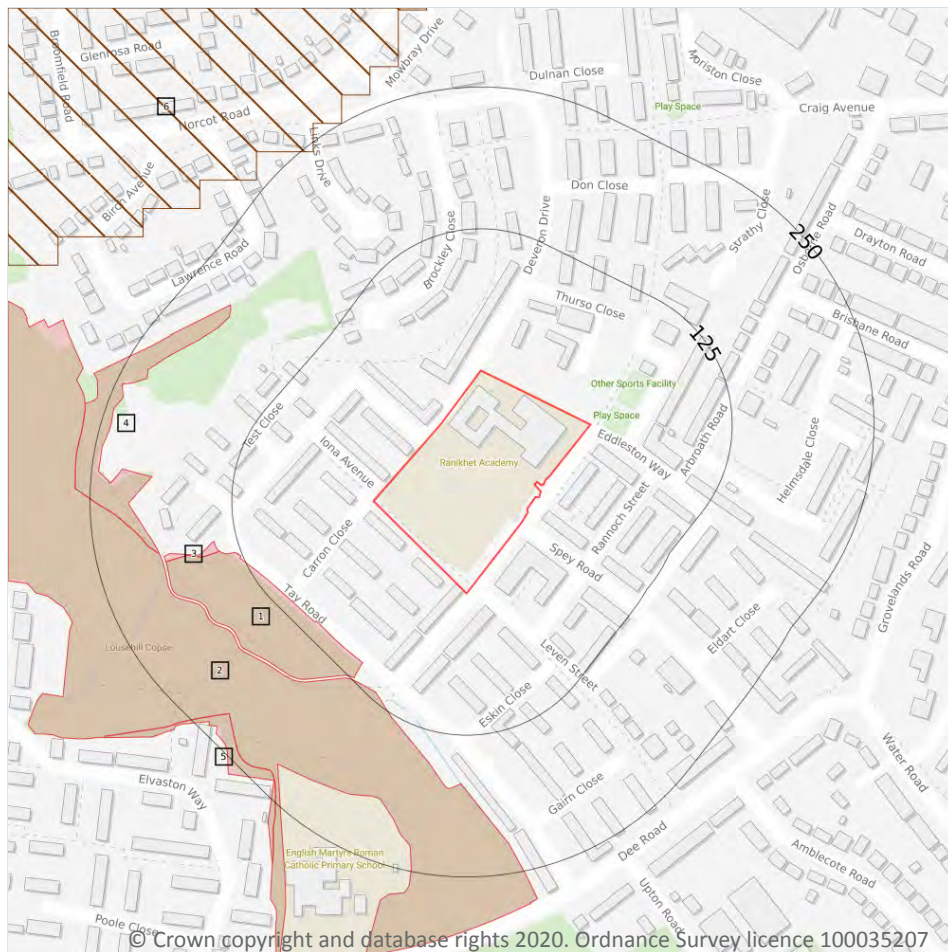
12.5 Countryside Stewardship Schemes

Records within 250m**0**

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



- Site Outline**
- Search buffers in metres (m)**
- Priority Habitat Inventory
 - Open Mosaic Habitat
 - Limestone Pavement Orders
- Habitat Networks**
- Primary Habitat
 - Restorable Habitat
 - Associated Habitats
 - Habitat Restoration-Creation
 - Network Enhancement Zone 1
 - Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

5

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 74**

ID	Location	Main Habitat	Other habitats
1	108m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	118m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	143m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	195m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)



ID	Location	Main Habitat	Other habitats
5	223m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	1
----------------------------	----------

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 74**

ID	Location	Type	Habitat
6	243m NW	Network Enhancement Zone 2	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0
----------------------------	----------

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

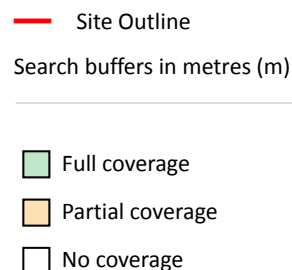
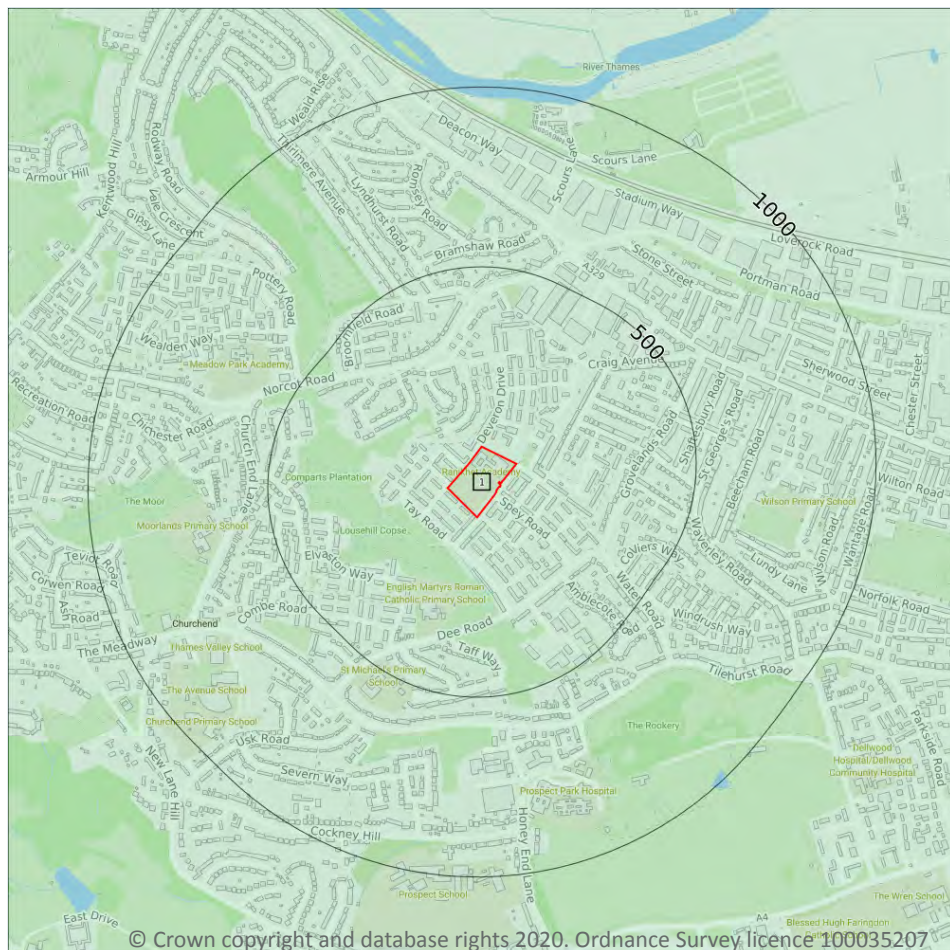
13.4 Limestone Pavement Orders

Records within 250m	0
----------------------------	----------

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



14.1 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.

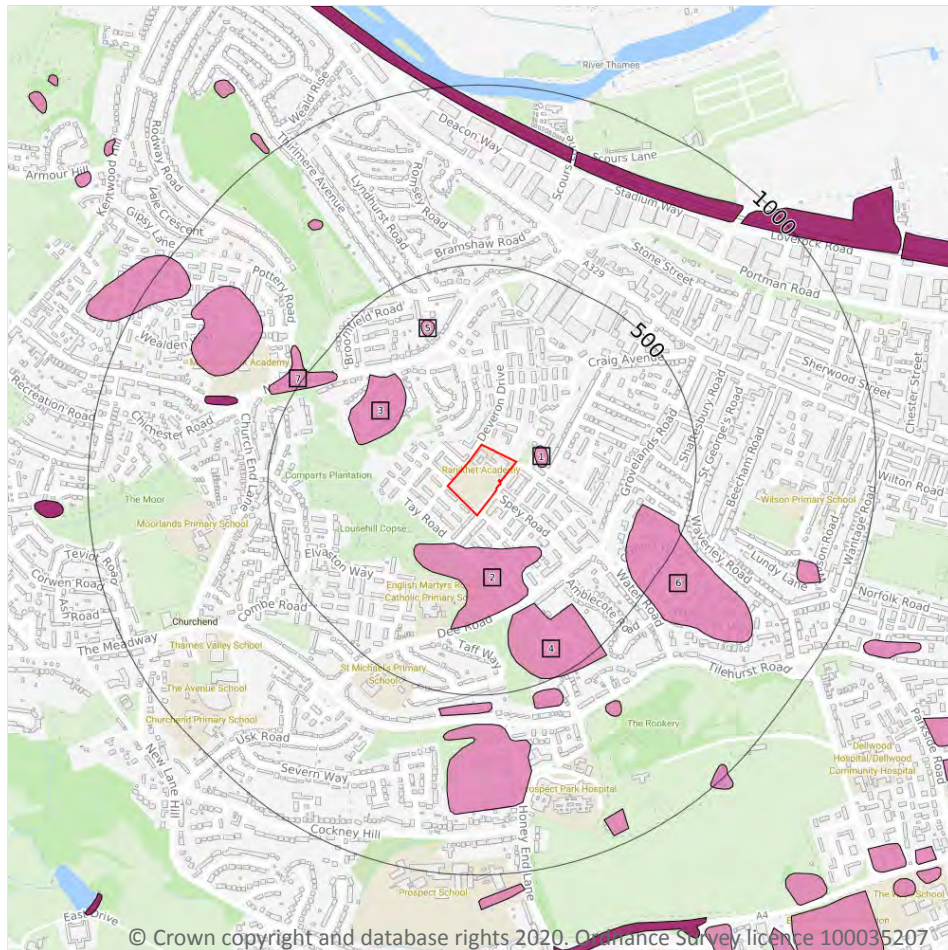
Features are displayed on the Geology 1:10,000 scale - Availability map on **page 76**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	SU67SE

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

14.2 Artificial and made ground (10k)

Records within 500m

7

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 77**

ID	Location	LEX Code	Description	Rock description
1	53m E	WGR-VOID	Worked Ground (Undivided)	Void
2	89m S	WGR-VOID	Worked Ground (Undivided)	Void
3	217m NW	WGR-VOID	Worked Ground (Undivided)	Void
4	290m SE	WGR-VOID	Worked Ground (Undivided)	Void

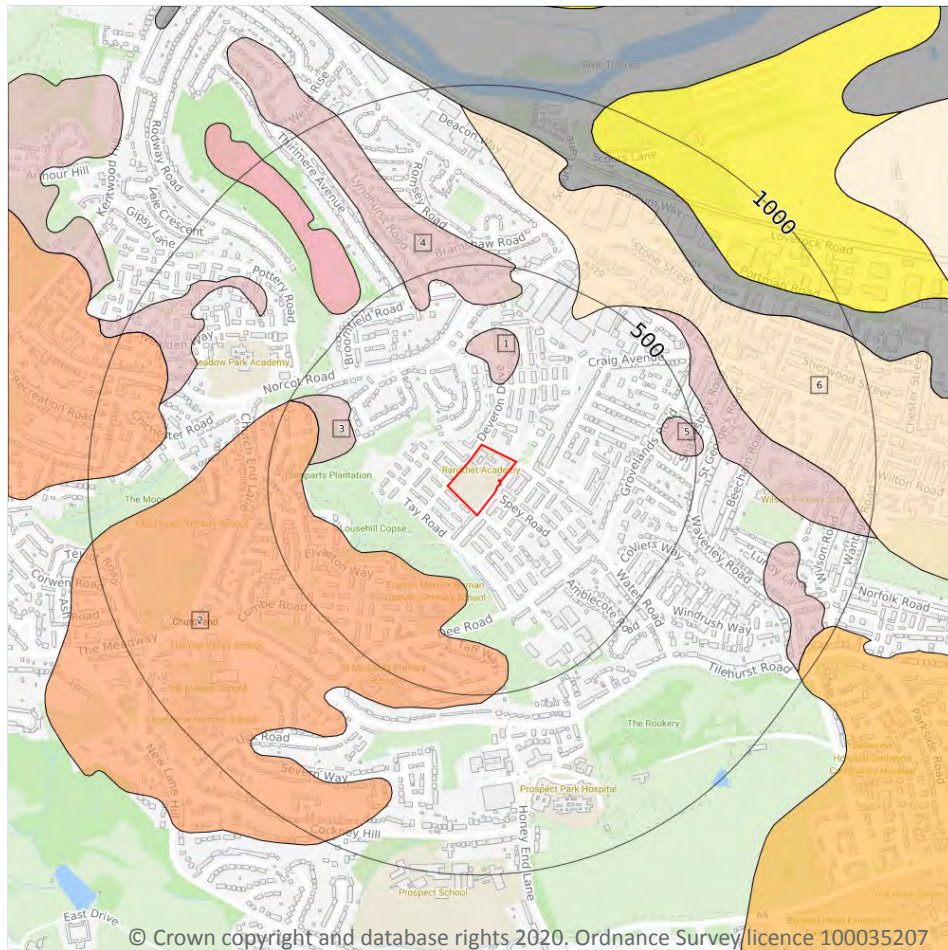


ID	Location	LEX Code	Description	Rock description
5	335m NW	WGR-VOID	Worked Ground (Undivided)	Void
6	364m SE	WGR-VOID	Worked Ground (Undivided)	Void
7	428m NW	WGR-VOID	Worked Ground (Undivided)	Void

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.

14.3 Superficial geology (10k)

Records within 500m

6

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 79**

ID	Location	LEX Code	Description	Rock description
1	174m N	HEAD-XVSZC	Head - Gravel, Sand, Silt And Clay	Gravel, Sand, Silt And Clay
2	186m S	WIHG-XSV	Winter Hill Gravel - Sand And Gravel	Sand And Gravel
3	284m NW	HEAD-XVSZC	Head - Gravel, Sand, Silt And Clay	Gravel, Sand, Silt And Clay



ID	Location	LEX Code	Description	Rock description
4	388m N	HEAD-XVSZC	Head - Gravel, Sand, Silt And Clay	Gravel, Sand, Silt And Clay
5	409m E	HEAD-XVSZC	Head - Gravel, Sand, Silt And Clay	Gravel, Sand, Silt And Clay
6	428m NE	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

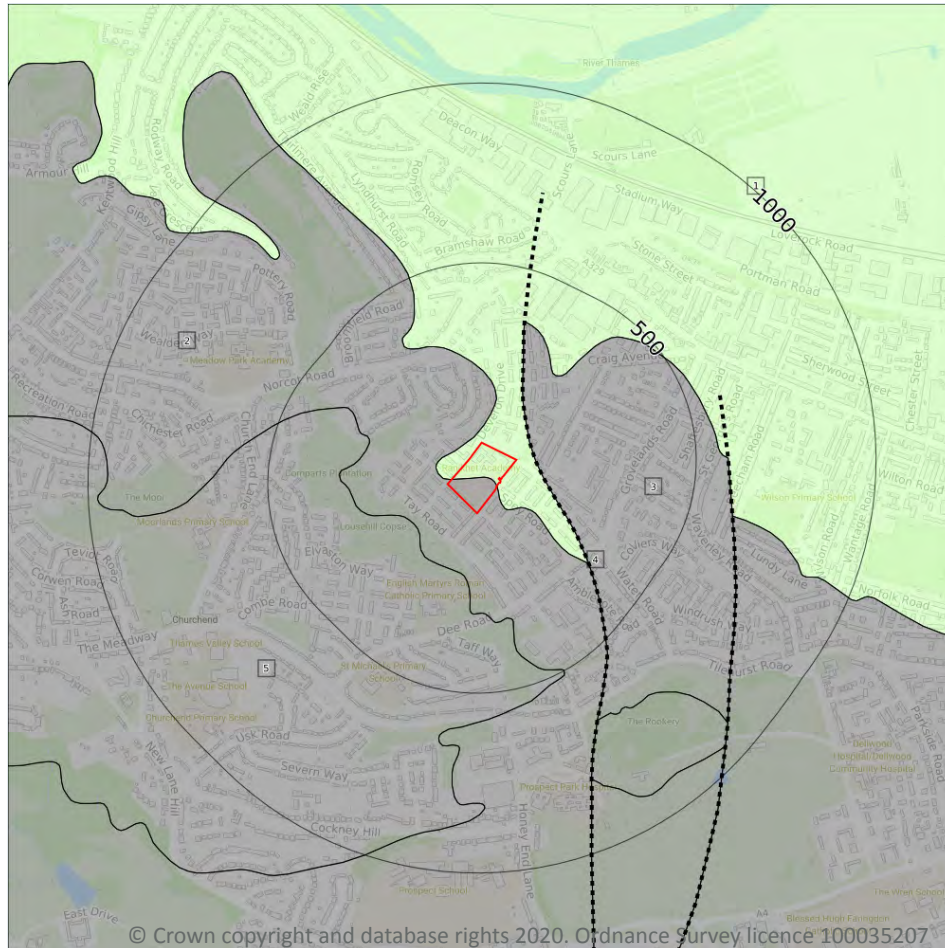
0

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.



Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m

4

Bedrock geology at 1:10,000 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 1:10,000 scale - Bedrock map on **page 81**

ID	Location	LEX Code	Description	Rock age
1	On site	LSNCK-CHLK	Lewes Nodular Chalk Formation, Seaford Chalk Formation And Newhaven Chalk Formation (undifferentiated) - Chalk	Campanian Age - Turonian Age
2	On site	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch

ID	Location	LEX Code	Description	Rock age
3	50m E	LMBE- CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch
5	145m SW	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

1

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.

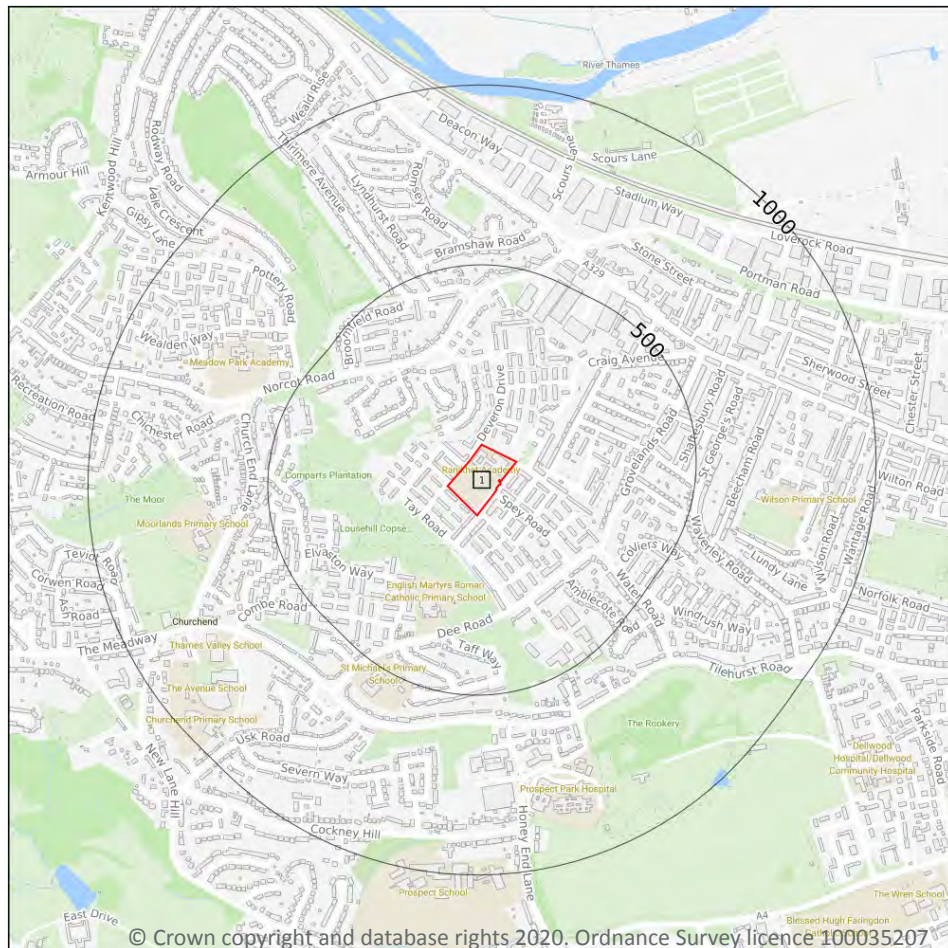
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 81**

ID	Location	Category	Description
4	50m E	FAULT	Normal fault, inferred

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 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.

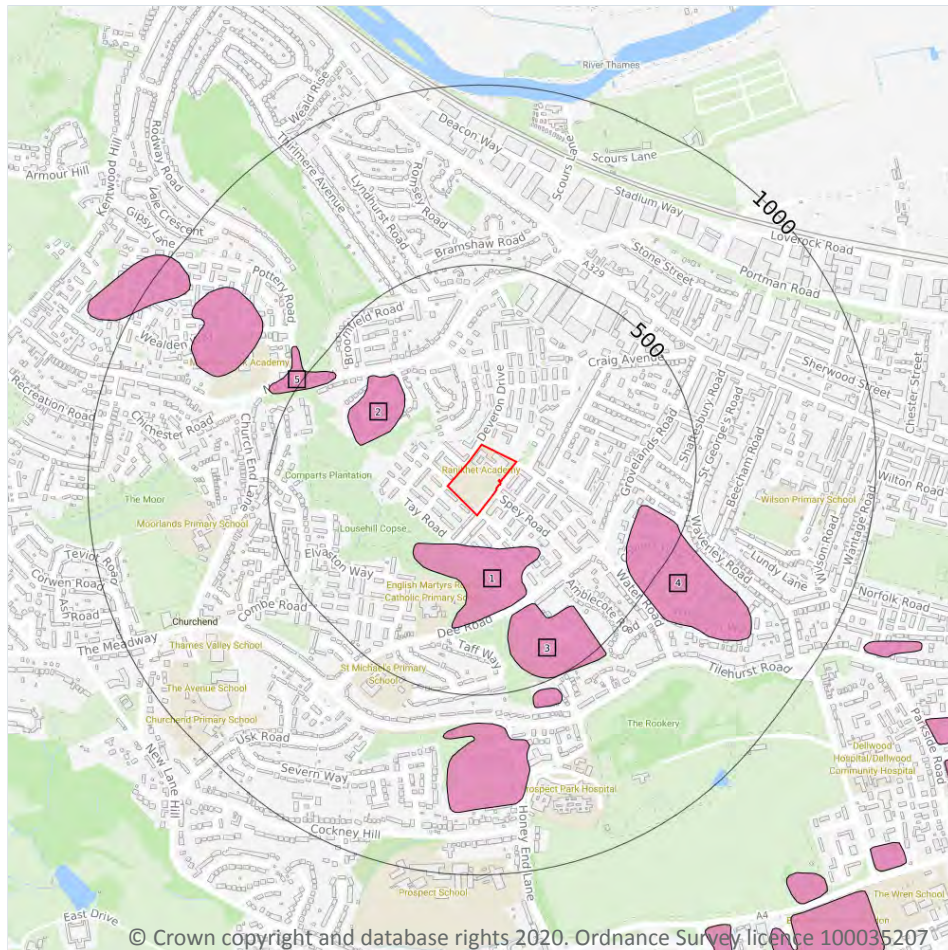
Features are displayed on the Geology 1:50,000 scale - Availability map on **page 83**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	EW268_reading_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

15.2 Artificial and made ground (50k)

Records within 500m

5

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 84**

ID	Location	LEX Code	Description	Rock description
1	87m S	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
2	221m NW	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
3	288m SE	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID
4	365m E	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID



ID	Location	LEX Code	Description	Rock description
5	433m NW	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

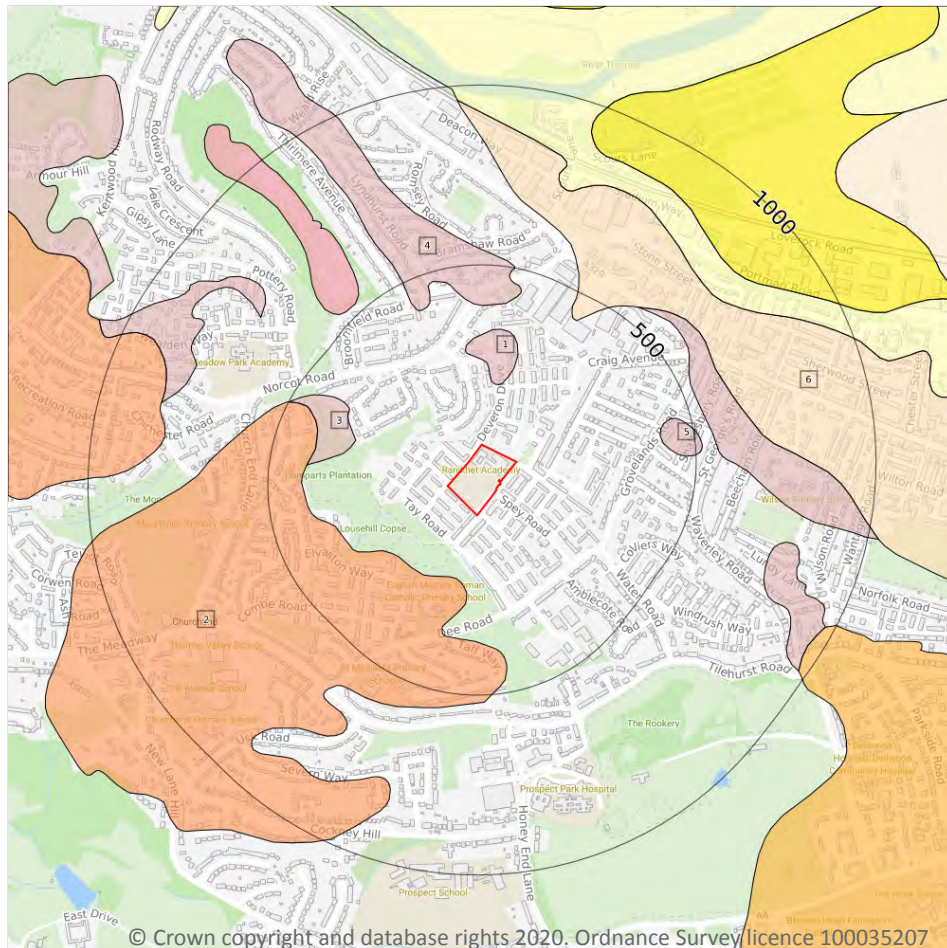
0

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

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.

15.4 Superficial geology (50k)

Records within 500m

6

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 86**

ID	Location	LEX Code	Description	Rock description
1	172m N	HEAD-XVSZC	HEAD	GRAVEL, SAND, SILT AND CLAY
2	185m S	WIHG-XSV	WINTER HILL GRAVEL	SAND AND GRAVEL
3	285m NW	HEAD-XVSZC	HEAD	GRAVEL, SAND, SILT AND CLAY



ID	Location	LEX Code	Description	Rock description
4	387m N	HEAD-XVSZC	HEAD	GRAVEL, SAND, SILT AND CLAY
5	406m E	HEAD-XVSZC	HEAD	GRAVEL, SAND, SILT AND CLAY
6	426m NE	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m

0

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

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m

0

Mass movement deposits on BGS geological maps at 1:50,000 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.

15.7 Landslip permeability (50k)

Records within 50m

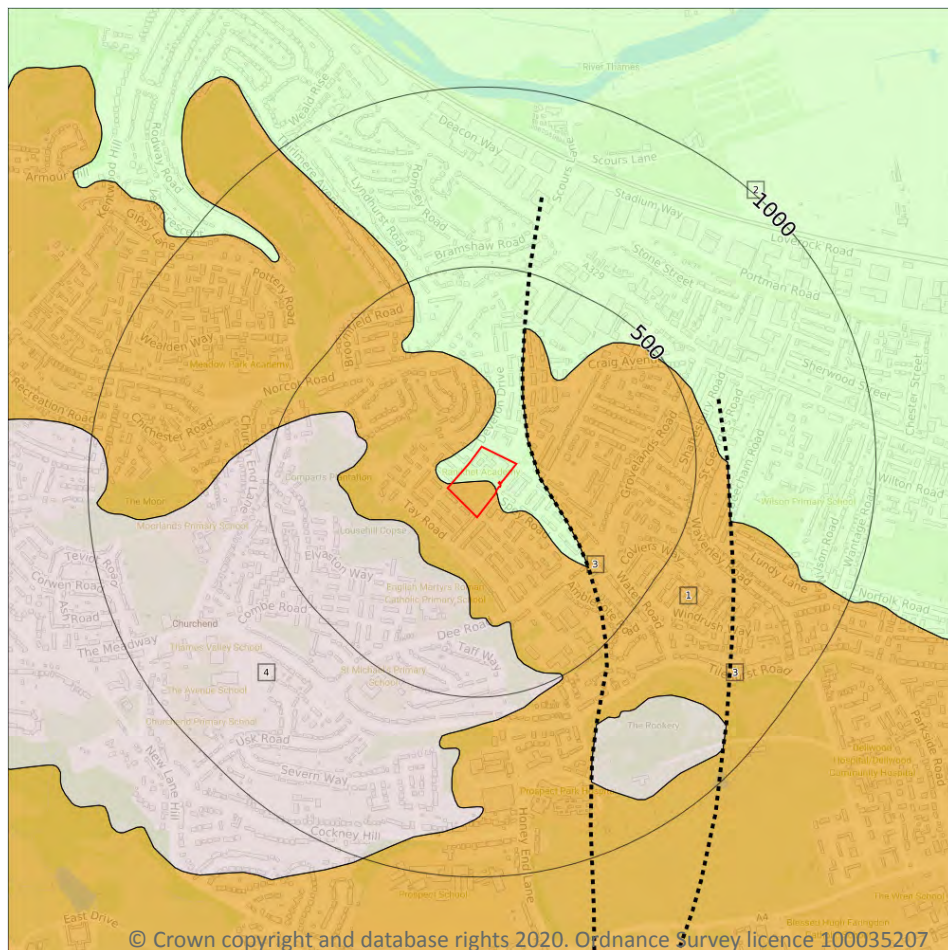
0

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

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.

15.8 Bedrock geology (50k)

Records within 500m

3

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 88**

ID	Location	LEX Code	Description	Rock age
1	On site	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN
2	On site	SNCK-CHLK	SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION (UNDIFFERENTIATED) - CHALK	CONIACIAN
4	148m SW	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

2

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	Fracture	Very High	Very High
On site	Mixed	Moderate	Very Low

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

1

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.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 88**

ID	Location	Category	Description
3	50m E	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m

5

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 90**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	167m SE	468450 173340	COLLIERS BRICKWORKS NORCOT	38.1	N	423820
A	203m SE	468490 173330	FIRE STATION-DEE ROAD-TILEHURST 1	5.0	N	15613431
A	209m SE	468490 173320	FIRE STATION-DEE ROAD-TILEHURST 4	12.0	N	15613442

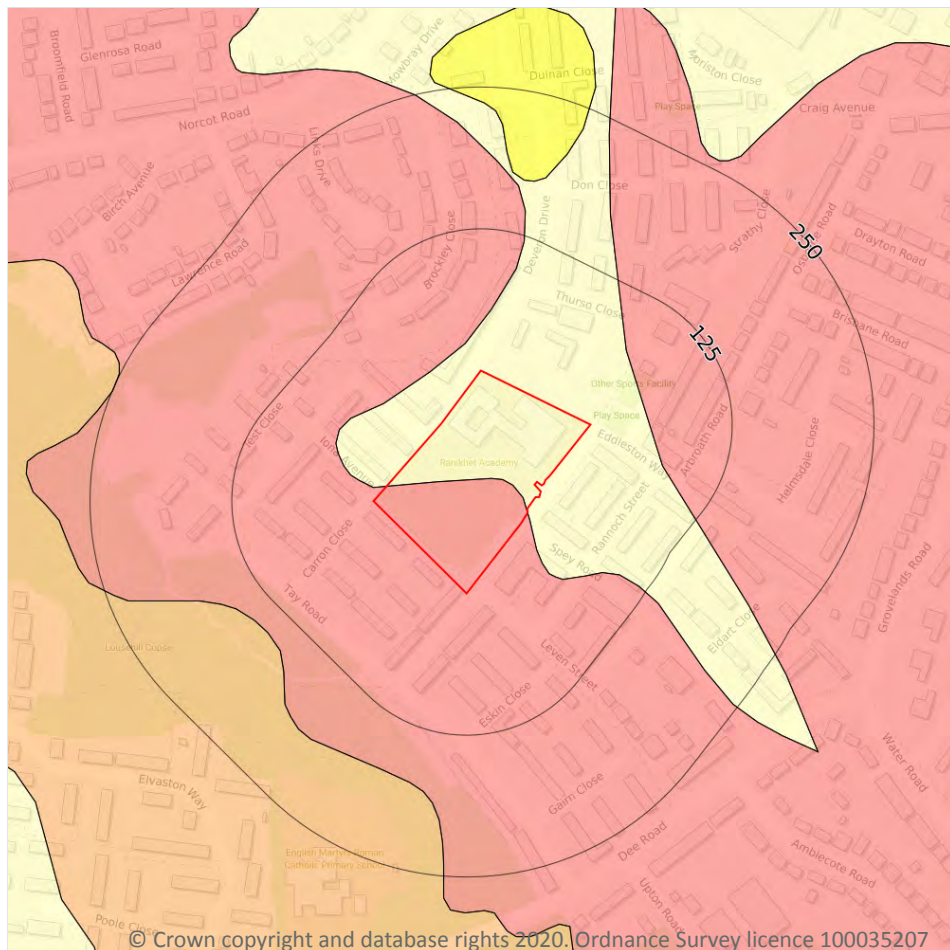


ID	Location	Grid reference	Name	Length	Confidential	Web link
A	216m SE	468490 173310	FIRE STATION-DEE ROAD-TILEHURST 3	4.55	N	15613440
A	231m SE	468510 173310	FIRE STATION-DEE ROAD-TILEHURST 2	6.0	N	15613438

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



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

17.1 Shrink swell clays

Records within 50m

2

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).

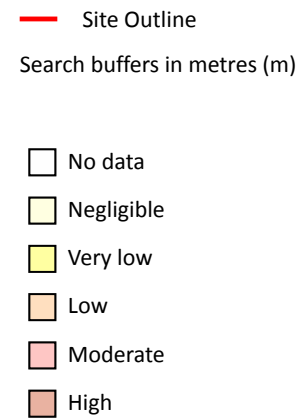
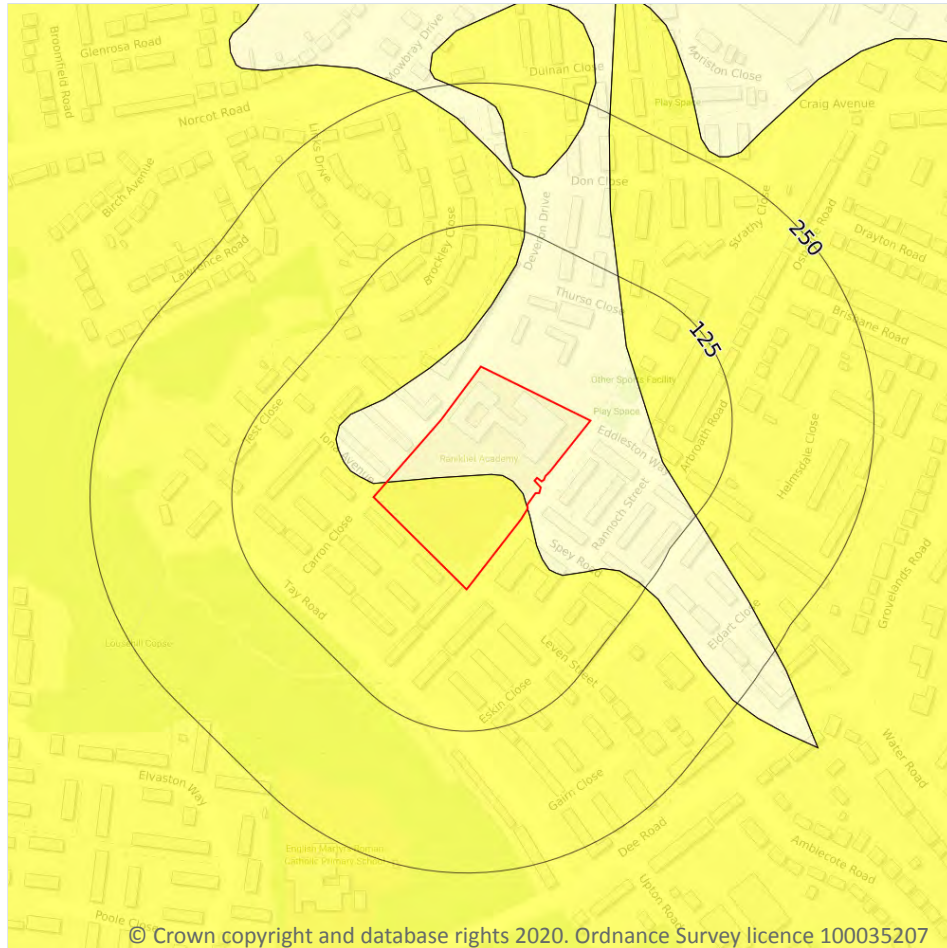
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 92**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



17.2 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 93**

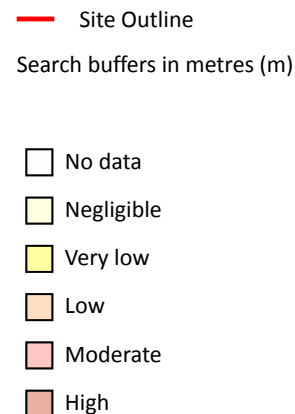
Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

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.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



17.3 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.

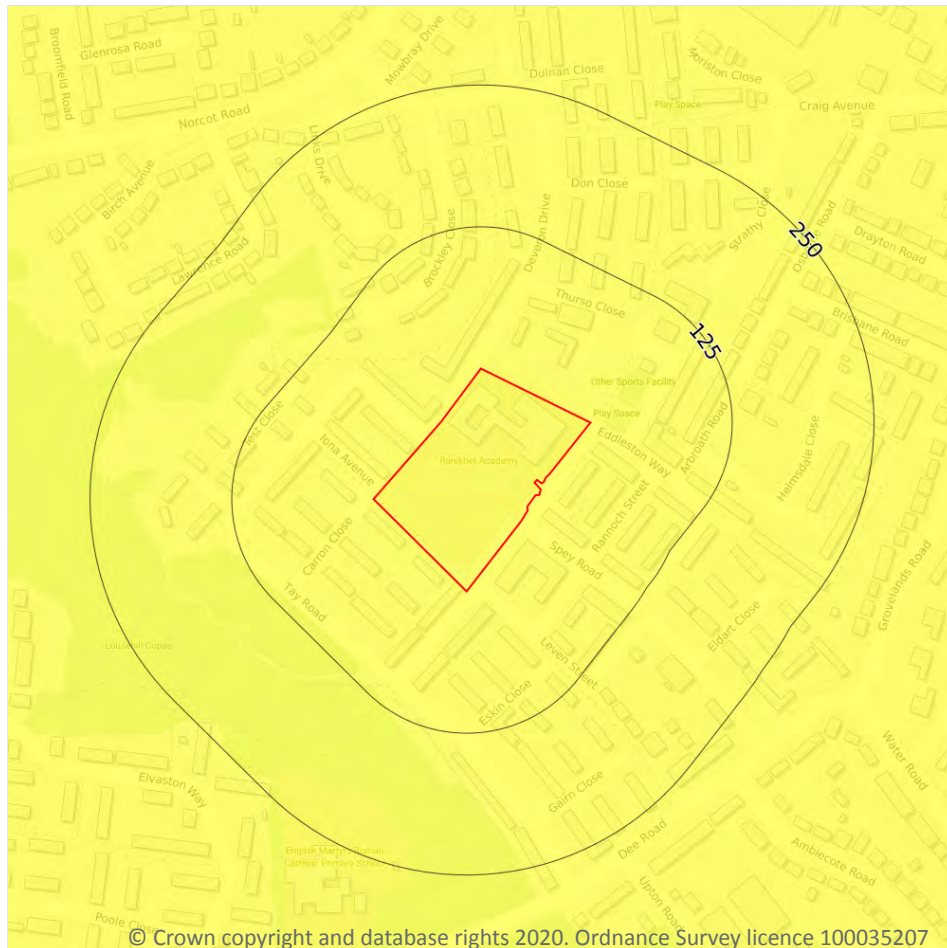
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 95**

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

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17.4 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.

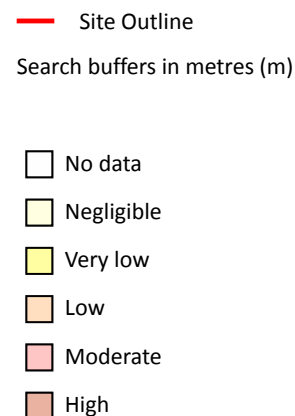
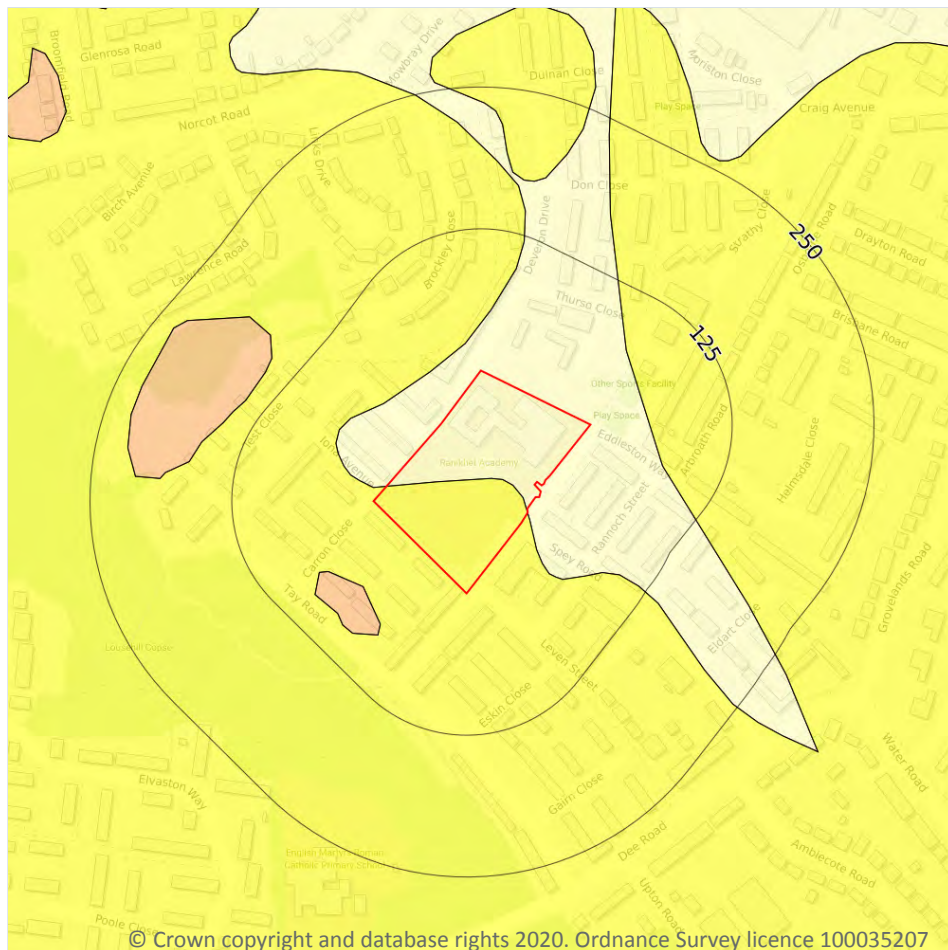
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 96**

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



17.5 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 97**

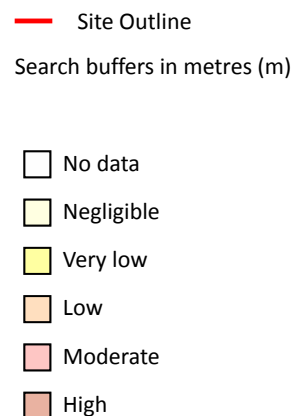
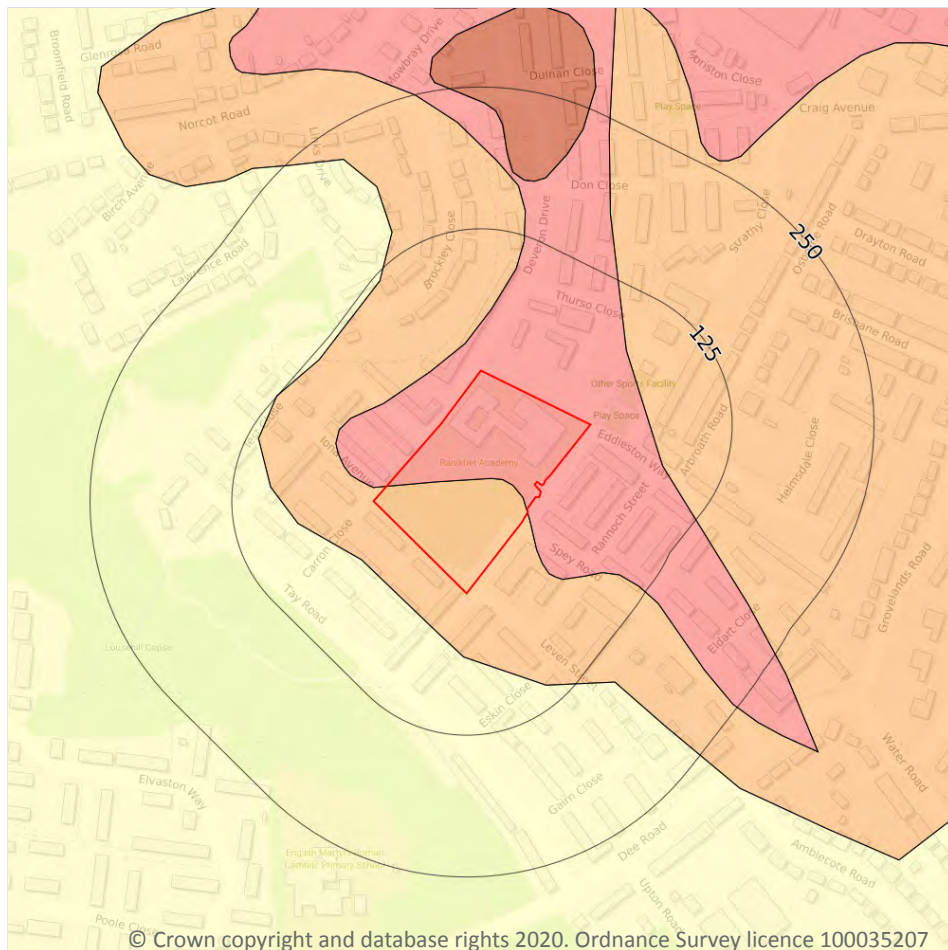
Location	Hazard rating	Details
On site	Negligible	Slope instability problems are not thought to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

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.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



17.6 Ground dissolution of soluble rocks

Records within 50m

3

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 99**

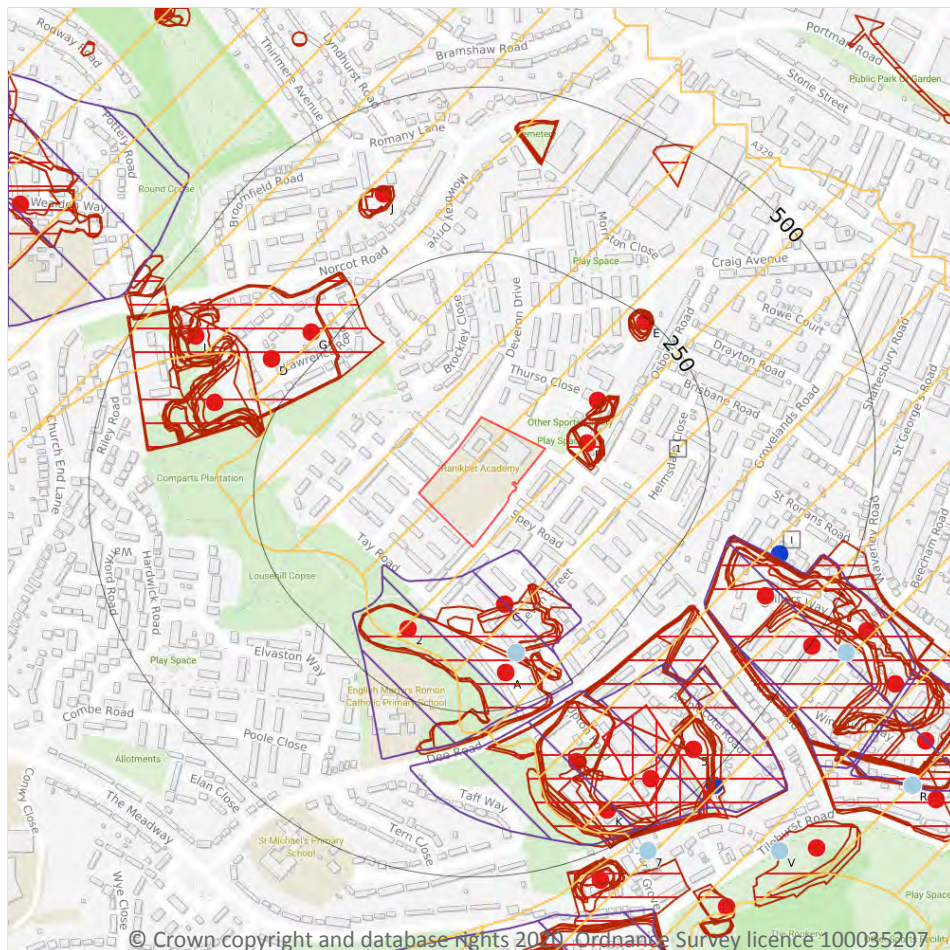
Location	Hazard rating	Details
On site	Low	Soluble rocks are present within the ground. Some dissolution features may be present. Potential for difficult ground conditions are at a level where they may be considered, localised subsidence need not be considered except in exceptional circumstances.

Location	Hazard rating	Details
On site	Moderate	Soluble rocks are present within the ground. Many dissolution features may be present. Potential for difficult ground conditions are at a level where they should be considered. Potential for subsidence is at a level where it may need to be considered.
43m SW	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.



18 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

18.1 Natural cavities

Records within 500m

1

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 101**

ID	Location	Details	Source
I	389m SE	Type: Sinkhole x 1, Solution Pipe x 1 Superficial Geology: Worked Ground Bedrock Geology: Chalk Group, Lambeth Group	Simple Bibliography: Reading Borough Council Full Bibliography: - Confidentiality: Data source can be revealed, data can be used freely

This data is sourced from Peter Brett Associates (PBA).

18.2 BritPits

Records within 500m

18

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 101**

ID	Location	Details	Description
B	64m E	Name: Penham's Shaw Gravel Pit Address: Tilehurst, READING, Berkshire Commodity: Sand & Gravel Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
C	99m SE	Name: Grovelands Brick Tile & Pottery Works Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
B	107m NE	Name: Penham's Shaw Gravel Pit Address: Tilehurst, READING, Berkshire Commodity: Sand & Gravel Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
2	157m SW	Name: Grovelands Brick Tile & Pottery Works Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
A	197m S	Name: Grovelands Brick, Tile & Pottery Works Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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



ID	Location	Details	Description
A	197m S	Name: Grovelands Brick, Tile & Pottery Works Address: READING, Berkshire Commodity: Sand & Gravel Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
E	245m NE	Name: Penham's Shaw Gravel Pit Address: Tilehurst, READING, Berkshire Commodity: Sand & Gravel Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
G	282m NW	Name: Norcot Kiln Address: Tilehurst, READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
D	301m NW	Name: Norcot Kiln Address: Tilehurst, READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
D	338m NW	Name: Norcot Kiln Address: Tilehurst, READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
F	361m SE	Name: Westwood Kiln Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
J	369m NW	Name: Norcot Farm Gravel Pit Address: Tilehurst, READING, Berkshire Commodity: Sand & Gravel Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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



ID	Location	Details	Description
I	401m SE	Name: Grovelands Brick Tile & Pottery Works Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
L	413m NW	Name: Norcot Kiln Address: Tilehurst, READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
L	413m NW	Name: Norcot Kiln Address: Tilehurst, READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
F	442m SE	Name: Westwood Kiln Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
K	447m SE	Name: Westwood Kiln Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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
5	453m SE	Name: Westwood Kiln Address: READING, Berkshire Commodity: Clay & Shale Status: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Type: Ceased 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.



18.3 Surface ground workings

Records within 250m

27

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 101**

ID	Location	Land Use	Year of mapping	Mapping scale
B	35m E	Old Gravel Pits	1910	1:10560
B	35m E	Old Gravel Pits	1898	1:10560
B	35m E	Old Gravel Pits	1898	1:10560
B	49m NE	Unspecified Pit	1960	1:10560
B	49m NE	Unspecified Pit	1938	1:10560
B	53m NE	Unspecified Pits	1932	1:10560
B	53m NE	Unspecified Pits	1932	1:10560
B	79m NE	Unspecified Pit	1960	1:10560
B	81m NE	Unspecified Ground Workings	1938	1:10560
A	92m S	Clay Pit	1932	1:10560
C	99m S	Unspecified Heap	1960	1:10560
A	102m SE	Unspecified Ground Workings	1960	1:10560
A	103m S	Clay Pit	1938	1:10560
A	109m S	Unspecified Pit	1960	1:10560
A	127m SW	Clay Pit	1960	1:10560
A	186m SE	Unspecified Heap	1960	1:10560
D	186m NW	Brick and Tile Works	1910	1:10560
A	188m SE	Unspecified Heap	1938	1:10560
D	205m NW	Brick and Tile Kiln Works	1898	1:10560
D	206m NW	Brick and Tile Works	1898	1:10560
E	216m NE	Old Gravel Pit	1898	1:10560
E	221m NE	Unspecified Pit	1938	1:10560
E	221m NE	Old Gravel Pit	1910	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
E	221m NE	Old Gravel Pit	1898	1:10560
E	225m NE	Unspecified Pit	1960	1:10560
E	228m NE	Unspecified Pit	1932	1:10560
E	228m NE	Unspecified Pit	1932	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	1
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Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 101**

ID	Location	Land Use	Year of mapping	Mapping scale
F	348m SE	Unspecified Workings	1991	1:10000

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	3
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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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 101**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
A	32m SE	Grovelands Tile and pottery Works	Loam with Sand	Surface mineral working	Valid	14/03/47
F	271m SE	Westwood Kiln	Clay, bricks	Surface mineral working	Valid	15/06/51
H	310m SE	Grovelands	Sand, clay, bricks, roofing tiles	Surface mineral working	Valid	Not available

This data is sourced from the British Geological Survey.



18.6 Non-coal mining

Records within 1000m

2

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).

Features are displayed on the Mining, ground workings and natural cavities map on **page 101**

ID	Location	Name	Commodity	Class	Likelihood
1	On site	Not available	Chalk	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
-	1000m NW	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m

9

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 101**

ID	Location	Mine Address	Mineral	Data source	Publisher
A	173m S	'Grovelands'-Excavations (2), Tilehurst, Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
G	284m NW	'Norcot Kiln', Tilehurst, Berkshire	Chalk	-	PhD Thesis, University of Reading
F	447m SE	'Westwood Kiln', Tilehurst, Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
7	531m SE	'Brooklands Kiln', Tilehurst, Berkshire	Chalk	-	PhD Thesis, University of Reading



ID	Location	Mine Address	Mineral	Data source	Publisher
H	551m SE	'Grovelands'-Works Complex, Tilehurst, Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
V	654m SE	'Grovelands'-Excavations (1), Tilehurst, Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
-	664m S	'Prospect Park Works', Tilehurst, Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
R	748m SE	'Reading/berks Brick Co', Tilehurst, Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading
-	798m NW	'Grovelands'-Excavations (3), Tilehurst, Berkshire	Chalk	The Brick-making Industry in Reading: A Temporal & Spatial Analysis	Undergraduate Dissertation, University of Reading

This data is sourced from Peter Brett Associates (PBA).

18.8 JPB mining areas

Records on site	0
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Areas which could be affected by former coal mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0
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Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0
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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.

18.11 Gypsum areas

Records on site	0
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Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
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Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

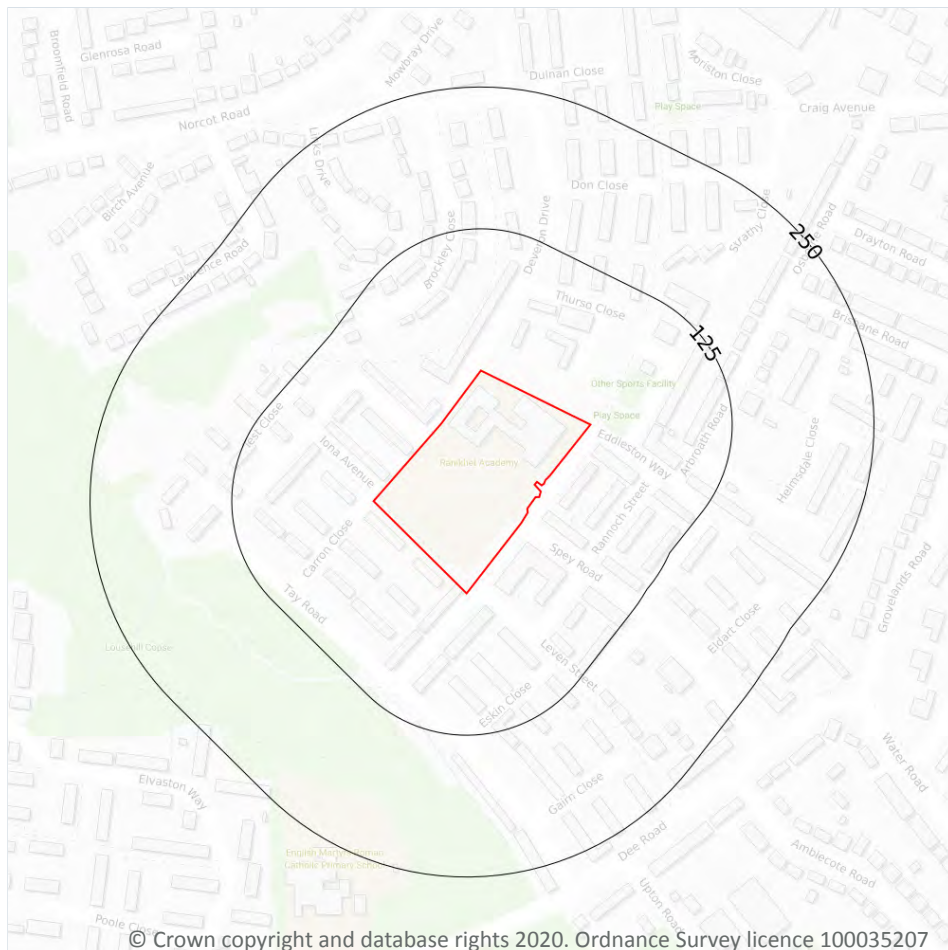
18.13 Clay mining

Records on site	0
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Generalised areas that may be affected by kaolin and ball clay extraction.

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

19 Radon



— Site Outline
Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 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 110**

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.



21 Railway infrastructure and projects

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 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.

21.5 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.

21.6 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.

21.7 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.

21.8 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.

21.9 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.

21.10 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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