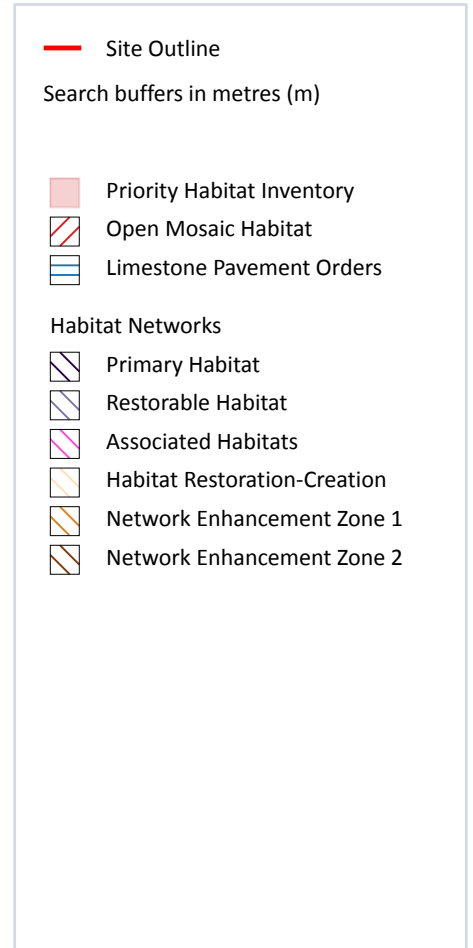
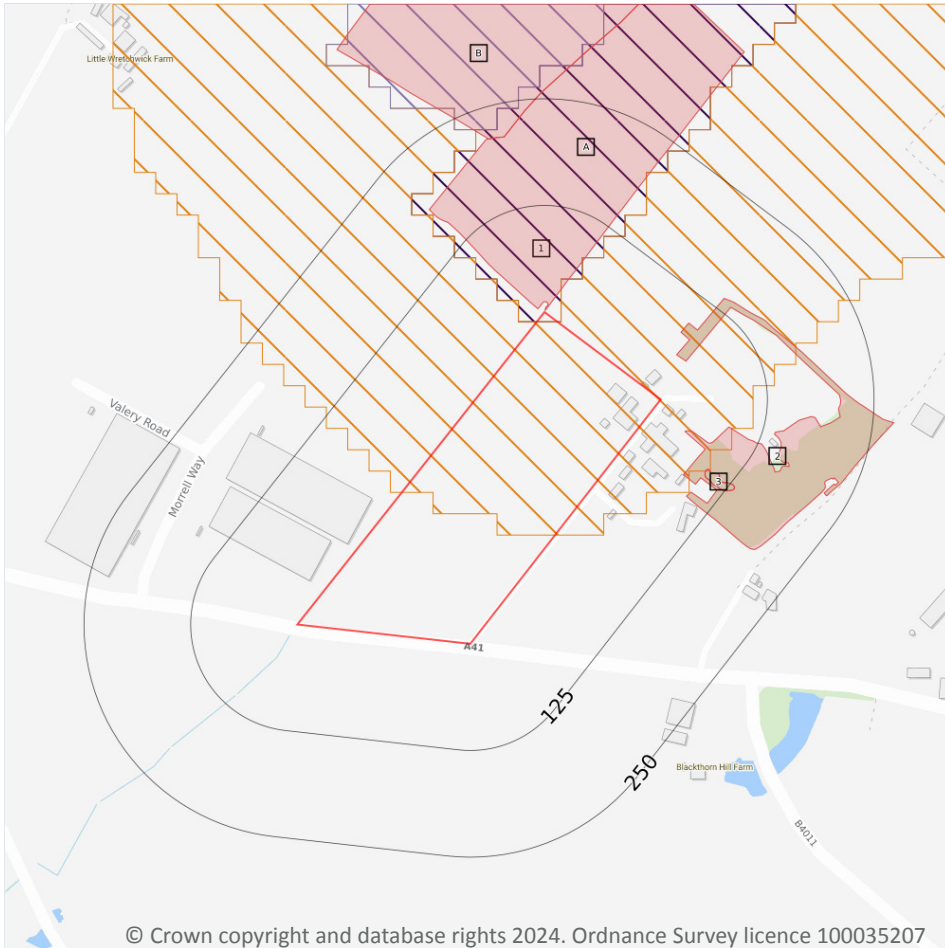


13 Habitat designations



13.1 Priority Habitat Inventory

Records within 250m

4

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 65 >](#)

ID	Location	Main Habitat	Other habitats
A	2m N	Lowland meadows	Main habitat: LMEAD (FEP + HLS)
2	46m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	93m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	211m N	Good quality semi-improved grassland	Main habitat: LMEAD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

3

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 65 >](#)

ID	Location	Type	Habitat
1	On site	Network Enhancement Zone 1	Not specified
A	On site	Primary Habitat	Lowland meadows
B	221m N	Restorable Habitat	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

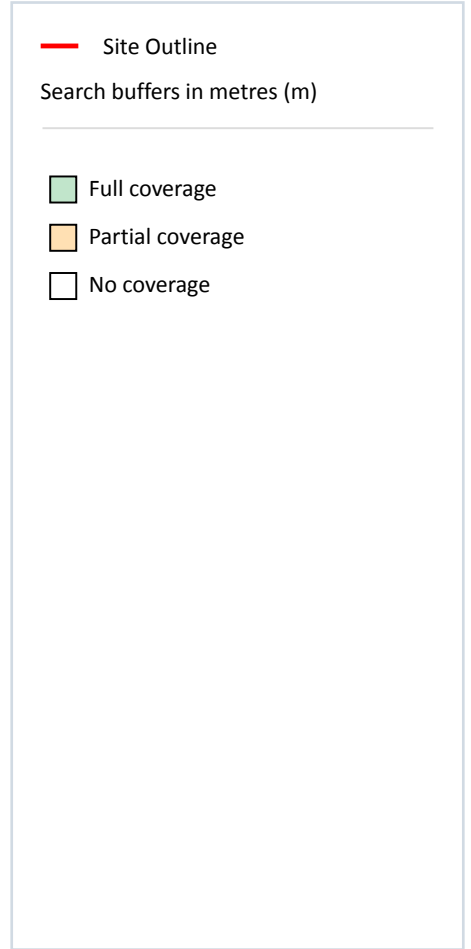
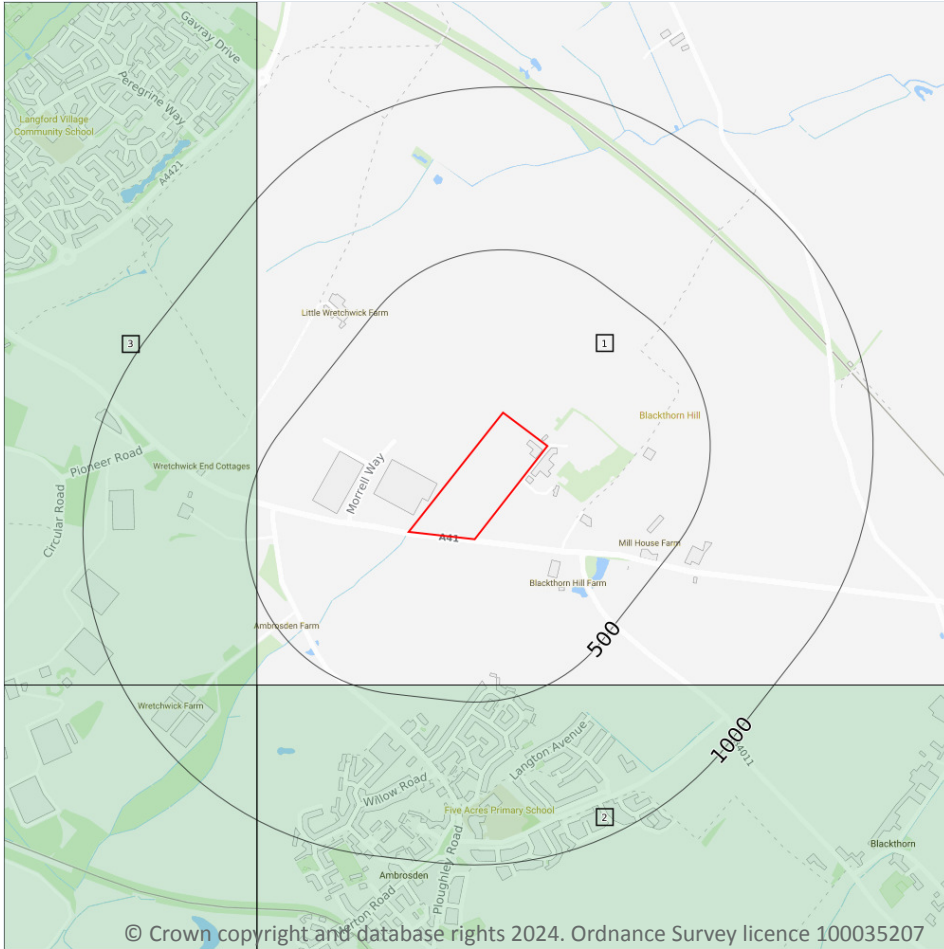
0

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

3

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 67](#) >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov
2	448m S	Full	Full	Full	Full	SP61NW
3	466m W	Full	Full	Full	No coverage	SP52SE

This data is sourced from the British Geological Survey.



Contact us with any questions at:

info@groundsure.com

01273 257 755

Date: 24 July 2024

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

14.2 Artificial and made ground (10k)

Records within 500m

0

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.

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m

0

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.

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

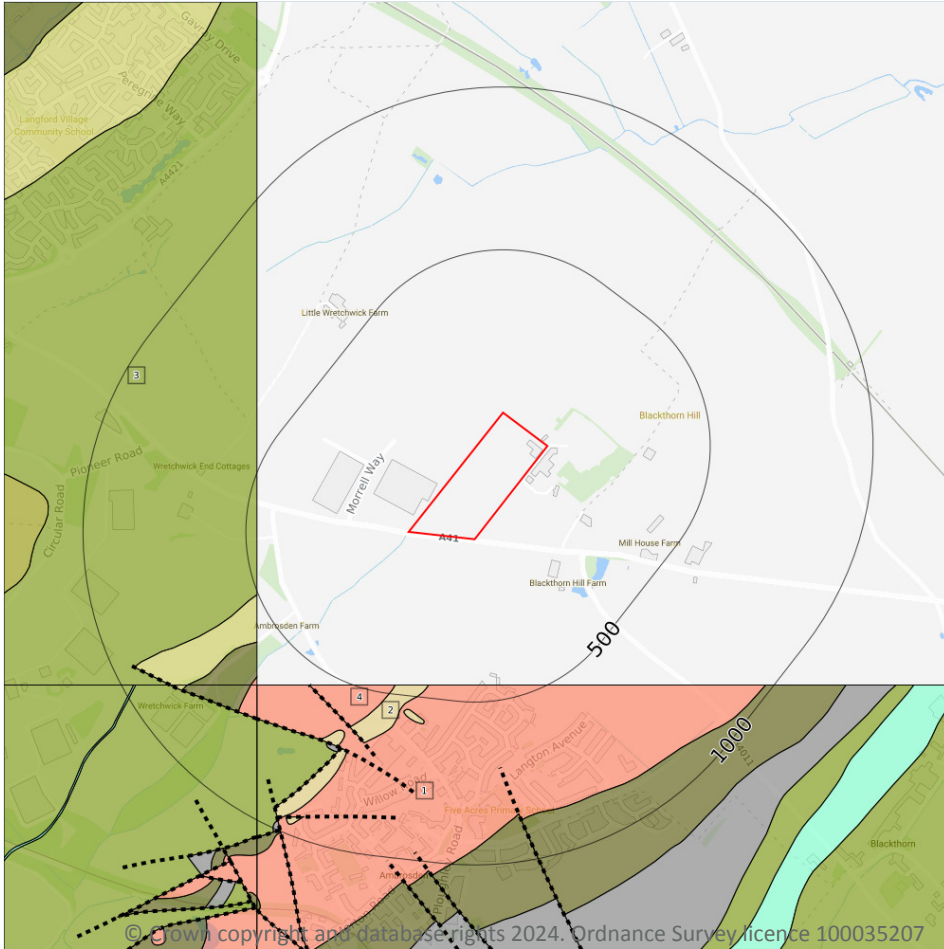
0

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 70](#) >

ID	Location	LEX Code	Description	Rock age
1	448m S	CB-LMST	Cornbrash Formation - Limestone	Callovian Age - Bathonian Age
2	461m S	FMB-LSMD	Forest Marble Formation - Interbedded Limestone And Mudstone	Bathonian Age
3	466m W	PET-MDST	Peterborough Member - Mudstone	Callovian Age

ID	Location	LEX Code	Description	Rock age
4	472m SW	CB-LMST	Cornbrash Formation - Limestone	Callovian Age - Bathonian Age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

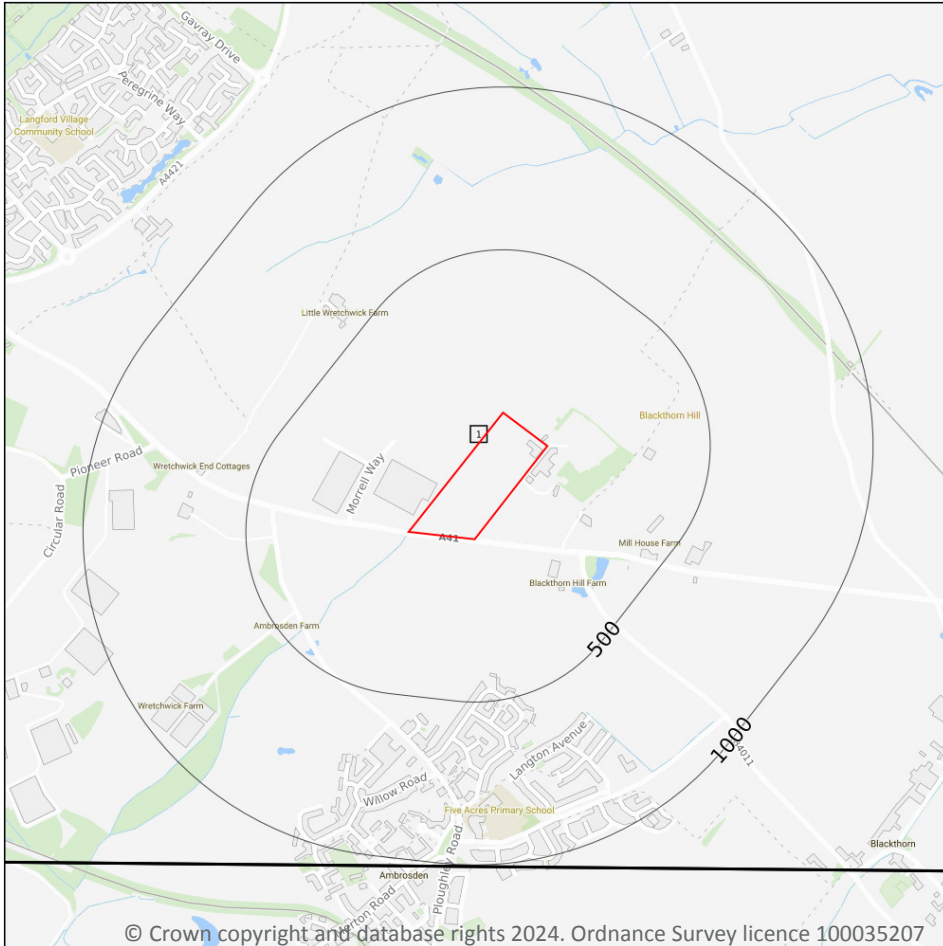
0

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

This data is sourced from the British Geological Survey.



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 72 >](#)

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW219_buckingham_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 **2**

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 73](#) >

ID	Location	LEX Code	Description	Rock description
1	237m SE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
2	389m E	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

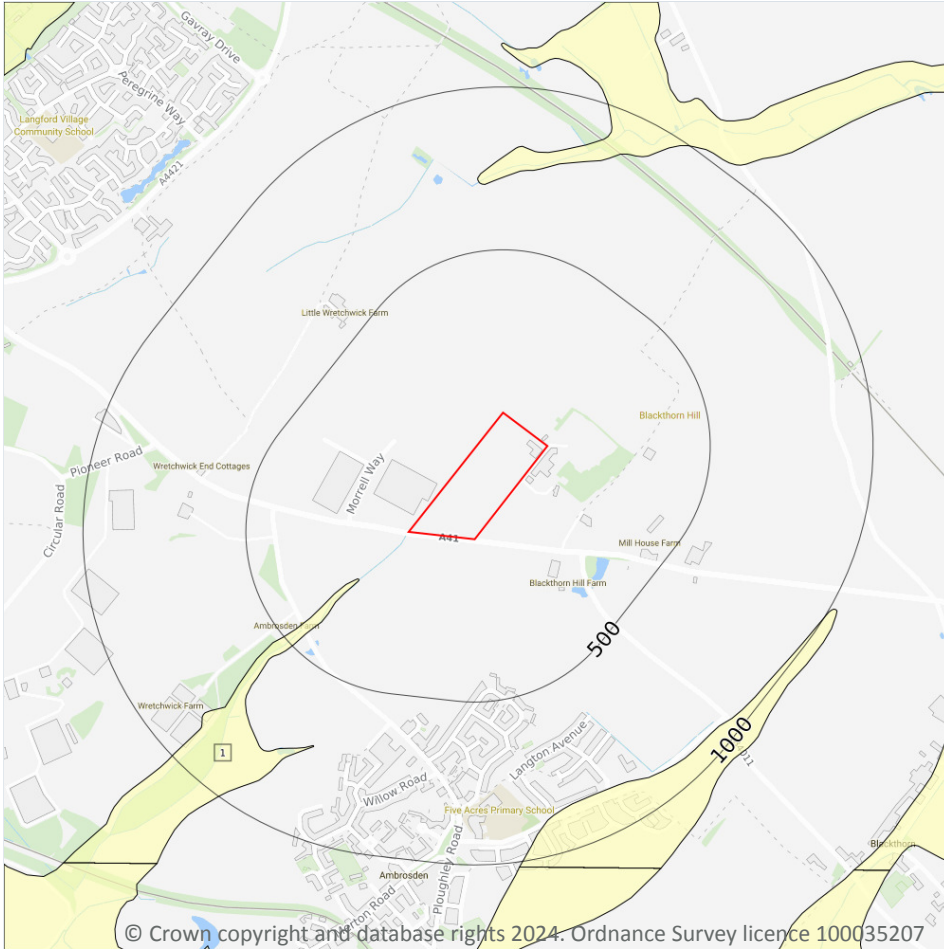
0

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

1

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on [page 75 >](#)

ID	Location	LEX Code	Description	Rock description
1	212m SW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, 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

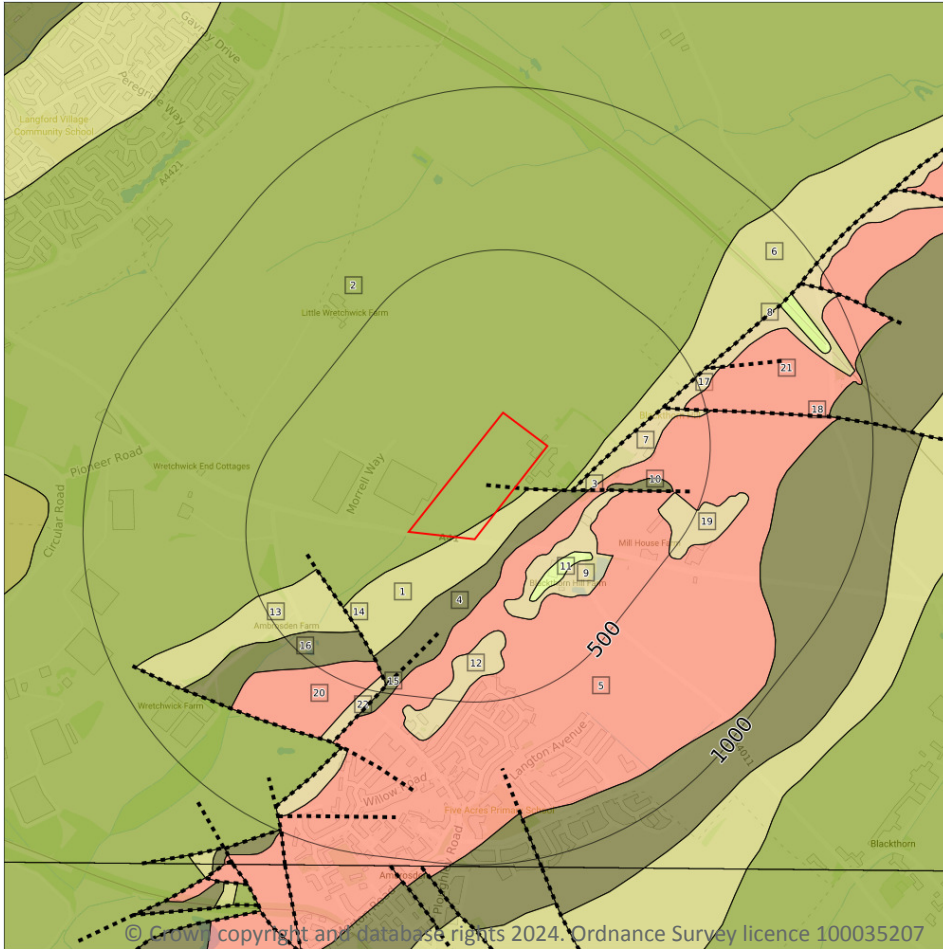
0

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

17

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 77](#) >

ID	Location	LEX Code	Description	Rock age
1	On site	KLS-SDSL	KELLAWAYS SAND MEMBER - SANDSTONE AND SILTSTONE, INTERBEDDED	CALLOVIAN
2	On site	PET-MDST	PETERBOROUGH MEMBER - MUDSTONE	CALLOVIAN
4	76m S	KLC-MDST	KELLAWAYS CLAY MEMBER - MUDSTONE	CALLOVIAN

ID	Location	LEX Code	Description	Rock age
5	113m S	CB-LMST	CORNBRASH FORMATION - LIMESTONE	BATHONIAN
6	126m E	KLB-SDSM	KELLAWAYS FORMATION - SANDSTONE, SILTSTONE AND MUDSTONE	CALLOVIAN
7	144m E	FMB-LSMD	FOREST MARBLE FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED	BATHONIAN
9	182m SE	FMB-LSMD	FOREST MARBLE FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED	BATHONIAN
10	225m E	KLC-MDST	KELLAWAYS CLAY MEMBER - MUDSTONE	CALLOVIAN
11	235m SE	WHL-LMST	WHITE LIMESTONE FORMATION - LIMESTONE	BATHONIAN
12	289m S	FMB-LSMD	FOREST MARBLE FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED	BATHONIAN
13	298m SW	KLS-SDSL	KELLAWAYS SAND MEMBER - SANDSTONE AND SILTSTONE, INTERBEDDED	CALLOVIAN
16	341m SW	KLC-MDST	KELLAWAYS CLAY MEMBER - MUDSTONE	CALLOVIAN
17	373m E	FMB-LSMD	FOREST MARBLE FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED	BATHONIAN
19	392m E	FMB-LSMD	FOREST MARBLE FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED	BATHONIAN
20	410m SW	CB-LMST	CORNBRASH FORMATION - LIMESTONE	BATHONIAN
21	433m E	CB-LMST	CORNBRASH FORMATION - LIMESTONE	BATHONIAN
22	448m SW	FMB-LSMD	FOREST MARBLE FORMATION - LIMESTONE AND MUDSTONE, INTERBEDDED	BATHONIAN

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	Mixed	Moderate	Moderate
On site	Fracture	Low	Very Low

This data is sourced from the British Geological Survey.



15.10 Bedrock faults and other linear features (50k)

Records within 500m

5

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.

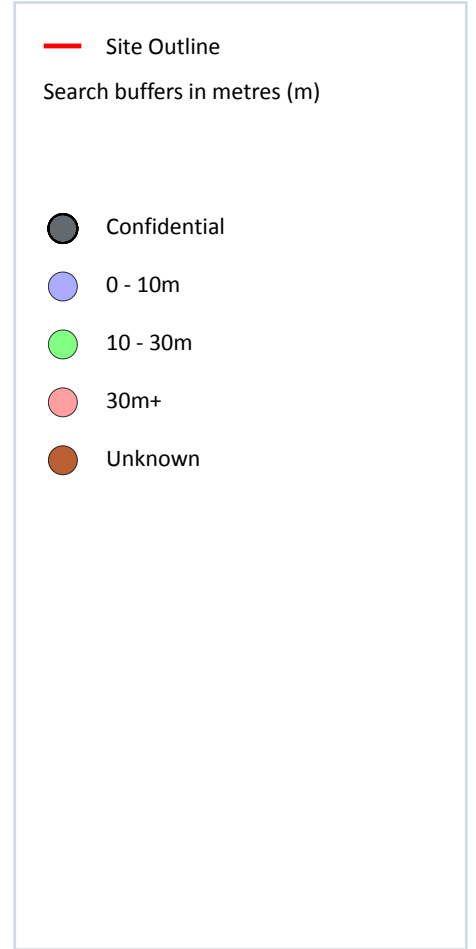
Features are displayed on the Geology 1:50,000 scale - Bedrock map on [page 77 >](#)

ID	Location	Category	Description
3	On site	FAULT	Fault, inferred
8	144m E	FAULT	Fault, inferred
14	298m SW	FAULT	Fault, inferred
15	299m S	FAULT	Fault, inferred
18	373m E	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.



16 Boreholes



16.1 BGS Boreholes

Records within 250m

3

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 80](#) >

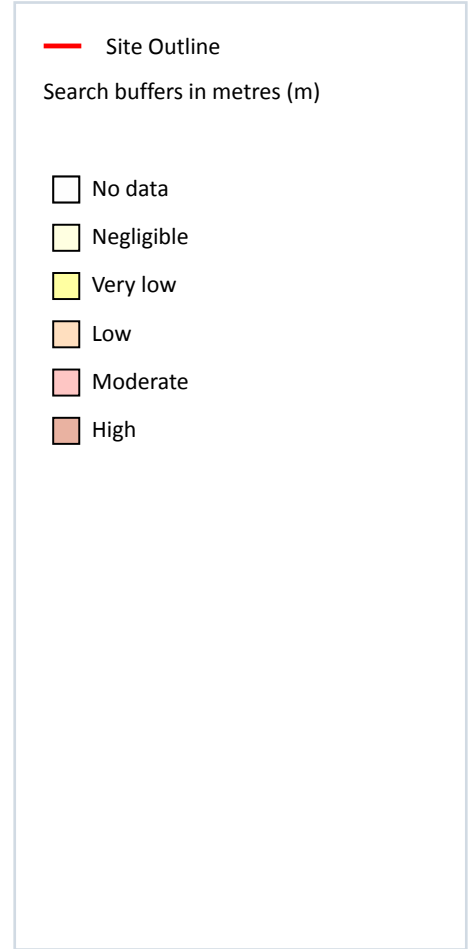
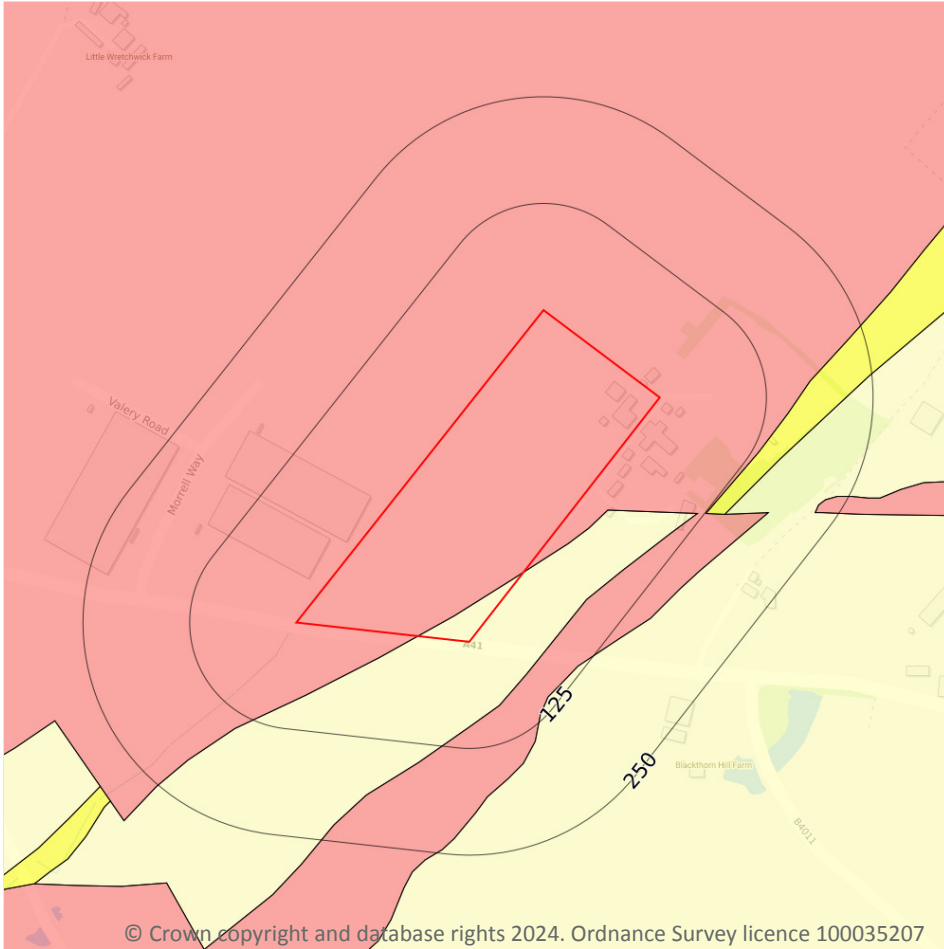
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	157m SE	460870 220450	A41 THAME TURN IMPROVEMENT 1	0.6	N	340746 ↗
2	220m SE	460910 220400	A41 THAME TURN IMPROVEMENT 2	5.0	N	340747 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	245m SE	460950 220410	A41 THAME TURN IMPROVEMENT 3	4.0	N	340748 ↗

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m

2

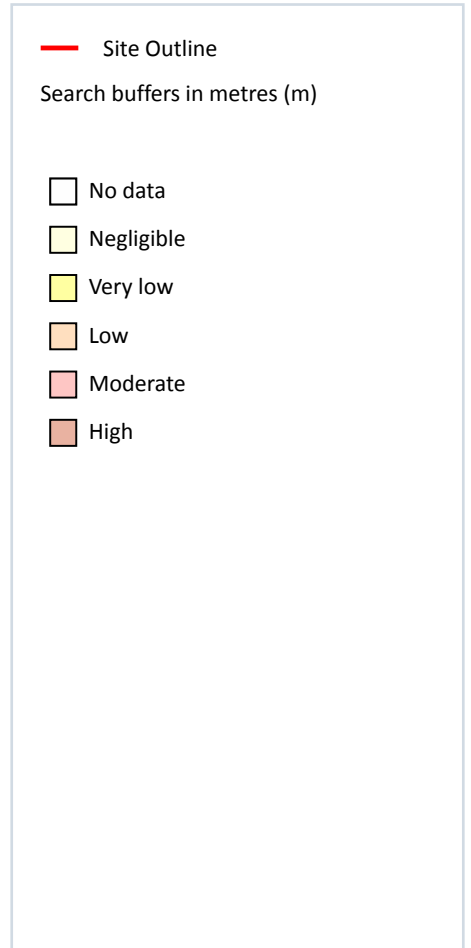
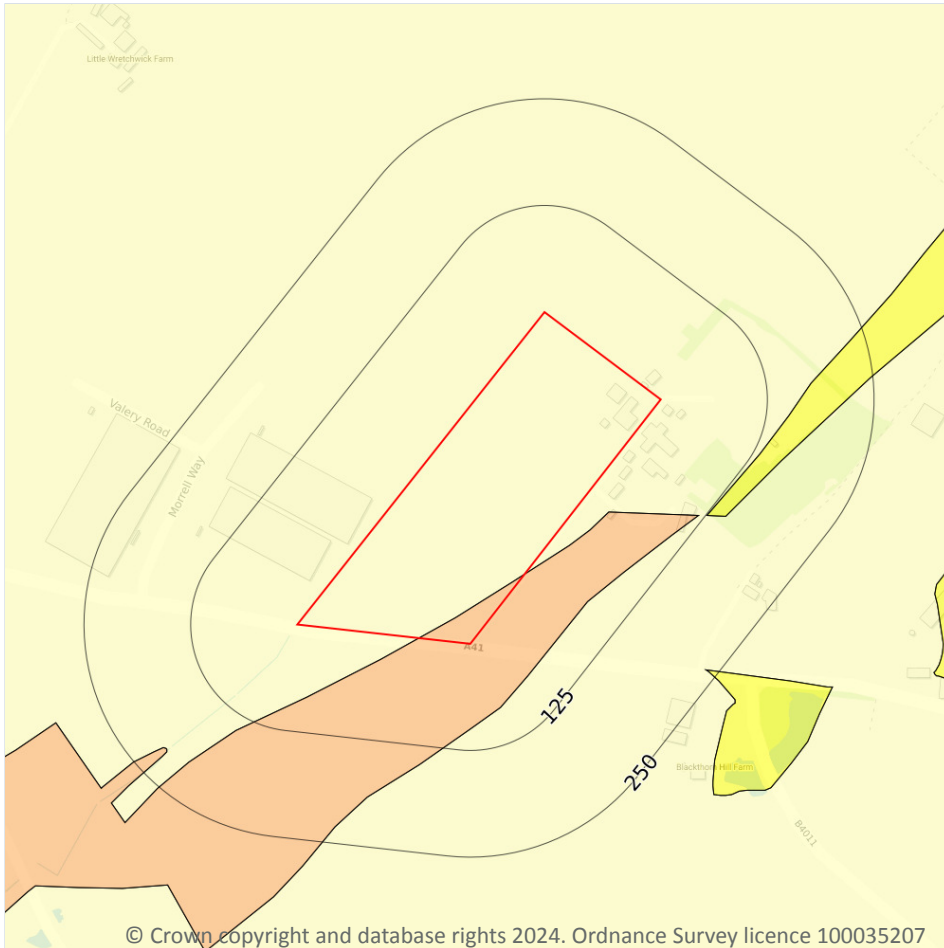
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on [page 82 >](#)

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 83](#) >

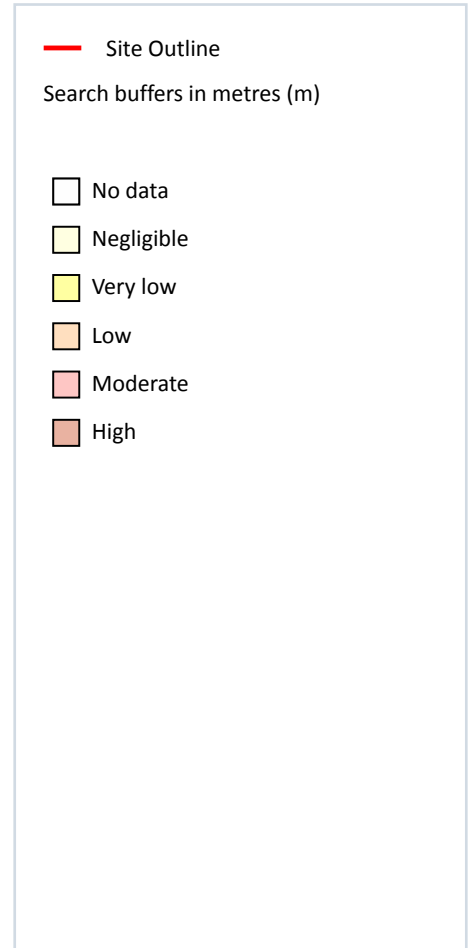
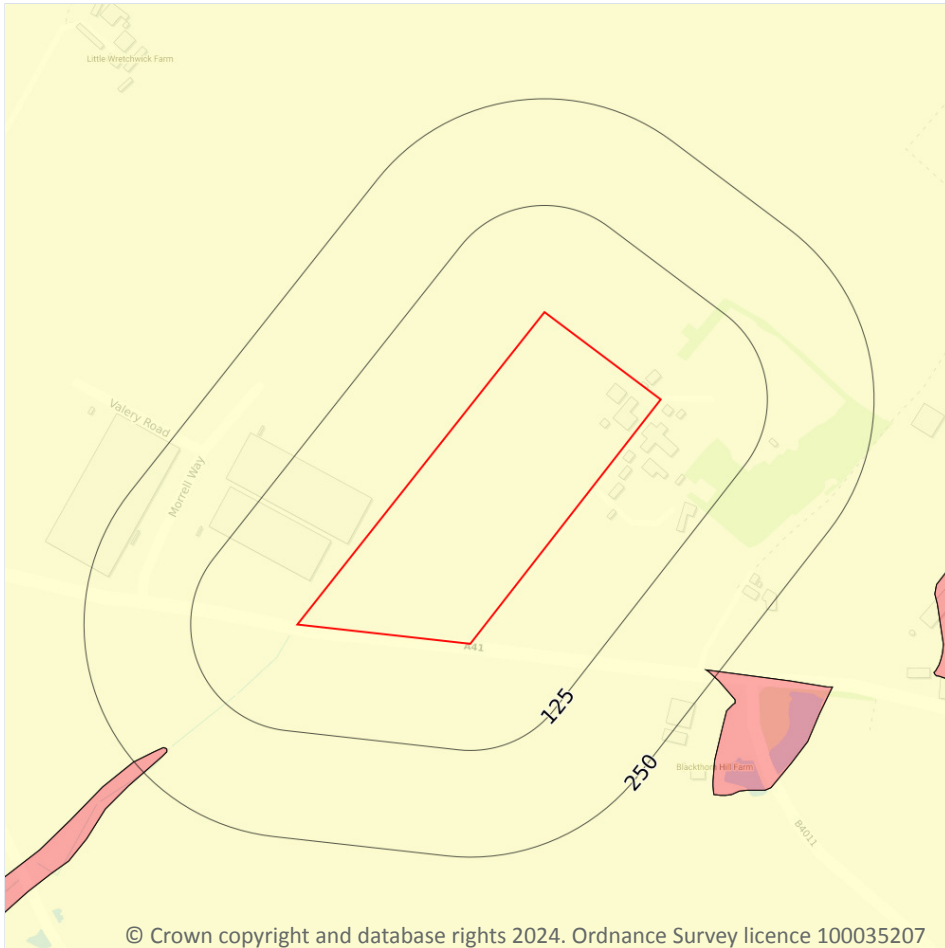
Location	Hazard rating	Details
On site	Negligible	Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

1

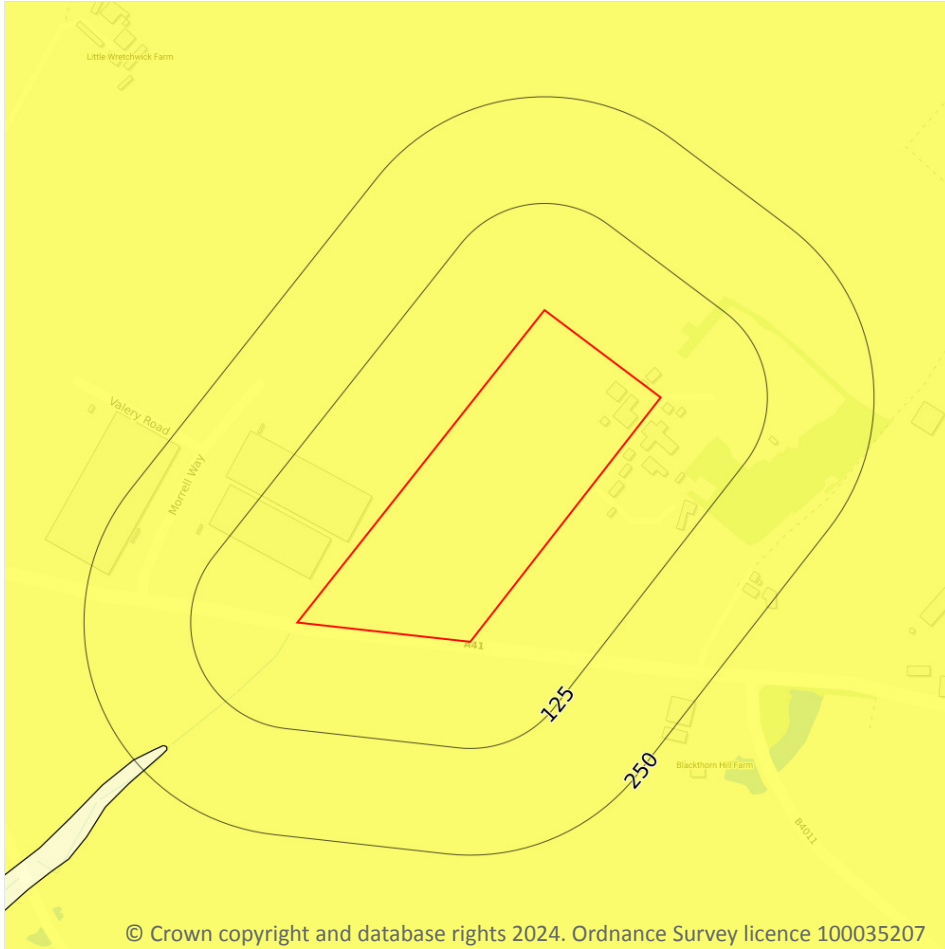
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on [page 85 >](#)

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



17.4 Collapsible deposits

Records within 50m

1

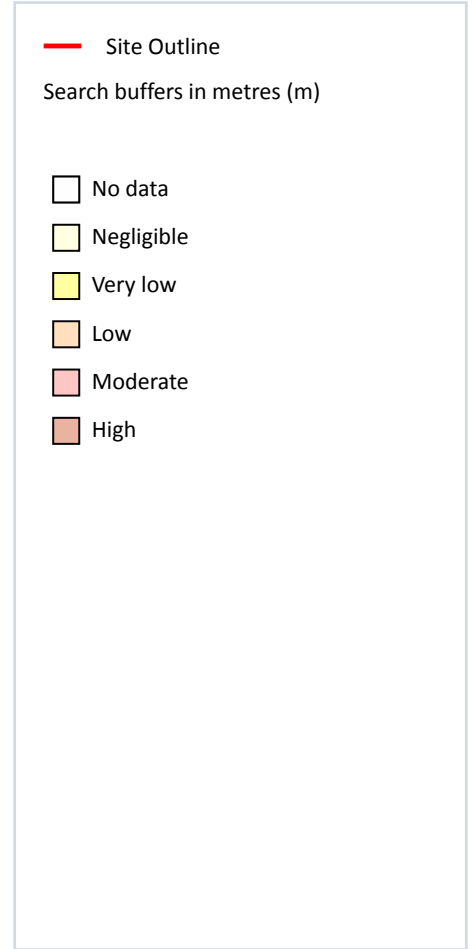
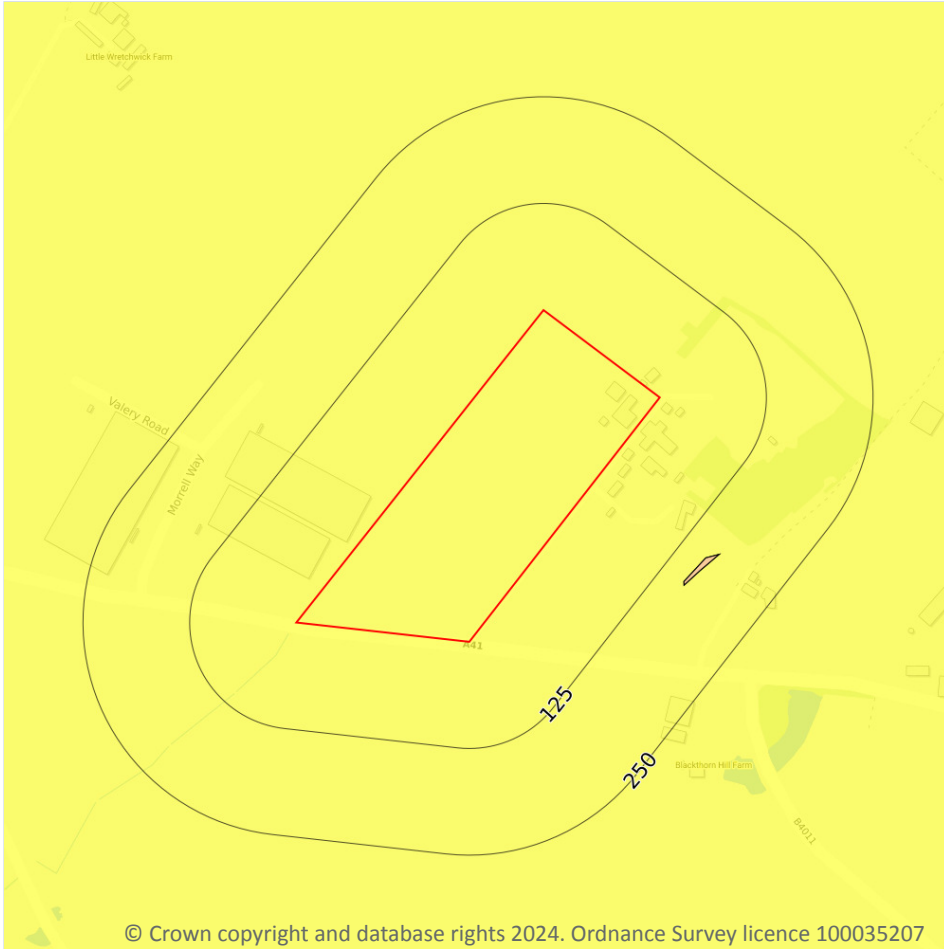
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on [page 86 >](#)

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

1

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.

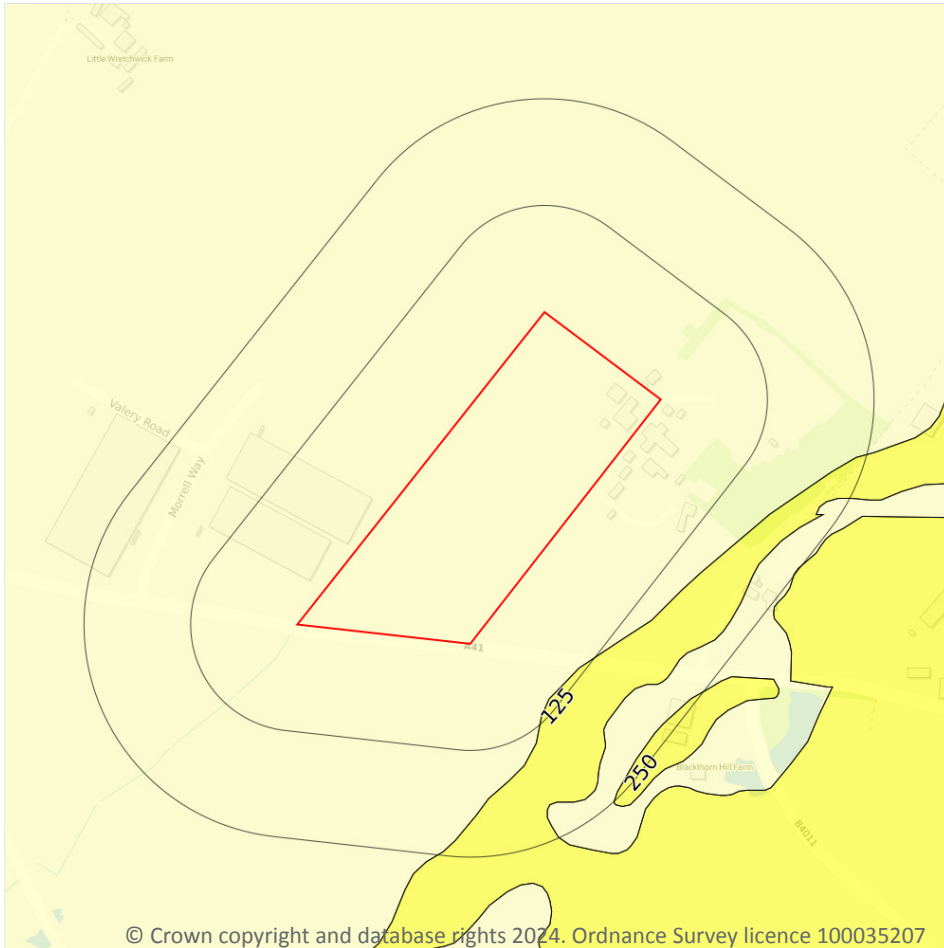
Features are displayed on the Natural ground subsidence - Landslides map on [page 87 >](#)

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

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on [page 88](#) >

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

This data is sourced from the British Geological Survey.



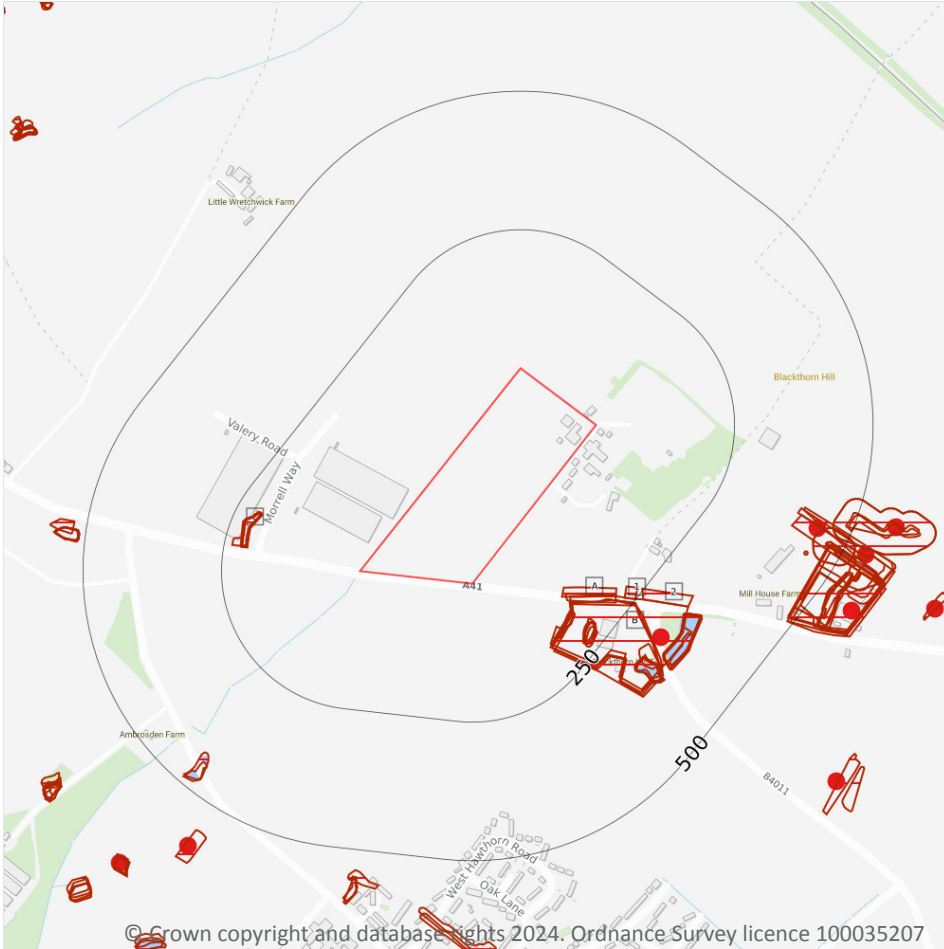
Contact us with any questions at:

info@groundsure.com ↗

01273 257 755

Date: 24 July 2024

18 Mining and ground workings



18.1 BritPits

Records within 500m

2

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 and ground workings map on [page 90](#) >

ID	Location	Details	Description
D	328m SE	Name: Weir Farm Address: Ambrosden, OXFORD, Oxfordshire Commodity: Clay & Shale Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
E	440m E	Name: Weir Farm Address: Ambrosden, OXFORD, Oxfordshire Commodity: Limestone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m

24

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 and ground workings map on [page 90 >](#)

ID	Location	Land Use	Year of mapping	Mapping scale
A	135m SE	Cuttings	1885	1:10560
A	145m SE	Cuttings	1880	1:10560
B	154m SE	Brick and Tile Yard	1885	1:10560
B	159m SE	Disused Brick and Tile Works	1950	1:10560
B	159m SE	Disused Brick and Tile Works	1919	1:10560
B	160m SE	Brick and Tile Works	1898	1:10560
B	162m SE	Disused Brick and Tile Works	1923	1:10560
B	165m SE	Brick and Tile Yard	1880	1:10560
B	172m SE	Pond	1950	1:10560
B	172m SE	Pond	1950	1:10560
B	172m SE	Pond	1919	1:10560
C	203m W	Pond	1923	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
C	204m W	Pond	1982	1:10000
B	205m SE	Unspecified Pit	1885	1:10560
C	205m W	Pond	1950	1:10560
C	205m W	Pond	1919	1:10560
C	207m W	Pond	1950	1:10560
B	207m SE	Unspecified Pit	1950	1:10560
B	209m SE	Unspecified Pit	1950	1:10560
B	209m SE	Unspecified Pit	1919	1:10560
B	211m SE	Unspecified Pit	1923	1:10560
B	217m SE	Unspecified Pit	1880	1:10560
1	223m SE	Cuttings	1885	1:10560
2	247m SE	Cuttings	1885	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m

0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m

0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.



18.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

0

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

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site

0

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m

0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.



18.9 Researched mining

Records within 500m

0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m

0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m

0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site

0

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

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site

0

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



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

18.14 Gypsum areas

Records on site

0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site

0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site

0

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

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



19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m

0

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

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m

0

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

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m

0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m

0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.



This data is sourced from Groundsure.

19.5 National karst database

Records within 500m

0

This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

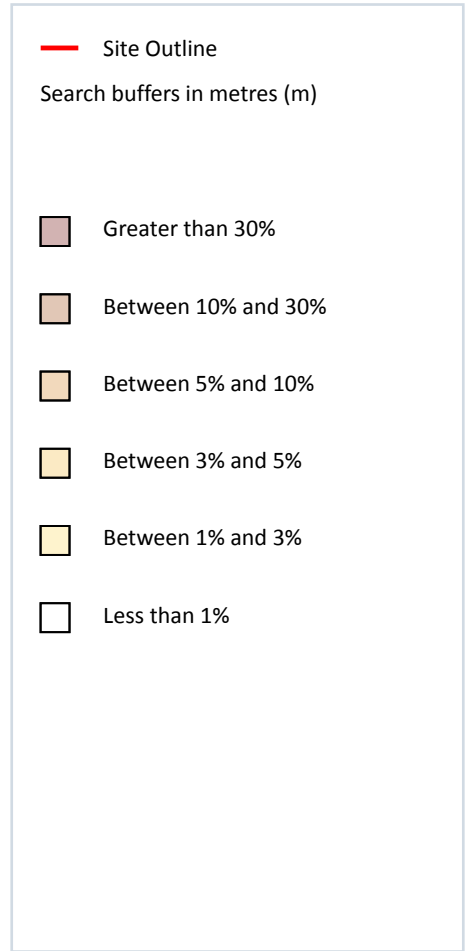
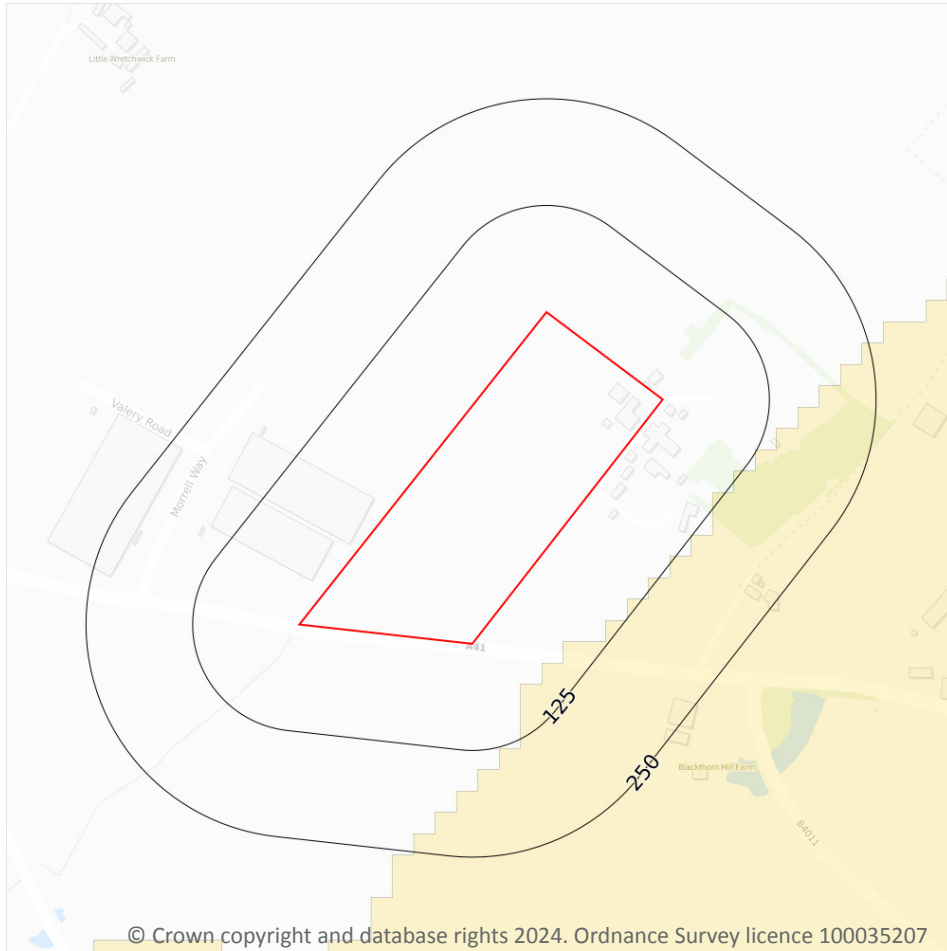
Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.



20 Radon



20.1 Radon

Records on site

1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on [page 98 >](#)

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

This data is sourced from the British Geological Survey and UK Health Security Agency.



Contact us with any questions at:

info@groundsure.com ↗

01273 257 755

Date: 24 July 2024

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m

6

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m

0

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

This data is sourced from the British Geological Survey.



21.3 BGS Measured Urban Soil Chemistry

Records within 50m

0

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

This data is sourced from the British Geological Survey.



22 Railway infrastructure and projects

22.1 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.

22.2 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.

22.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 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.

22.5 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.

22.6 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.

22.7 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.

22.8 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.

22.9 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.

22.10 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.



Contact us with any questions at:

info@groundsure.com ↗

01273 257 755

Date: 24 July 2024

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> ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.



BGS archive records

1" : 219

SP 62 SW 12 - 10

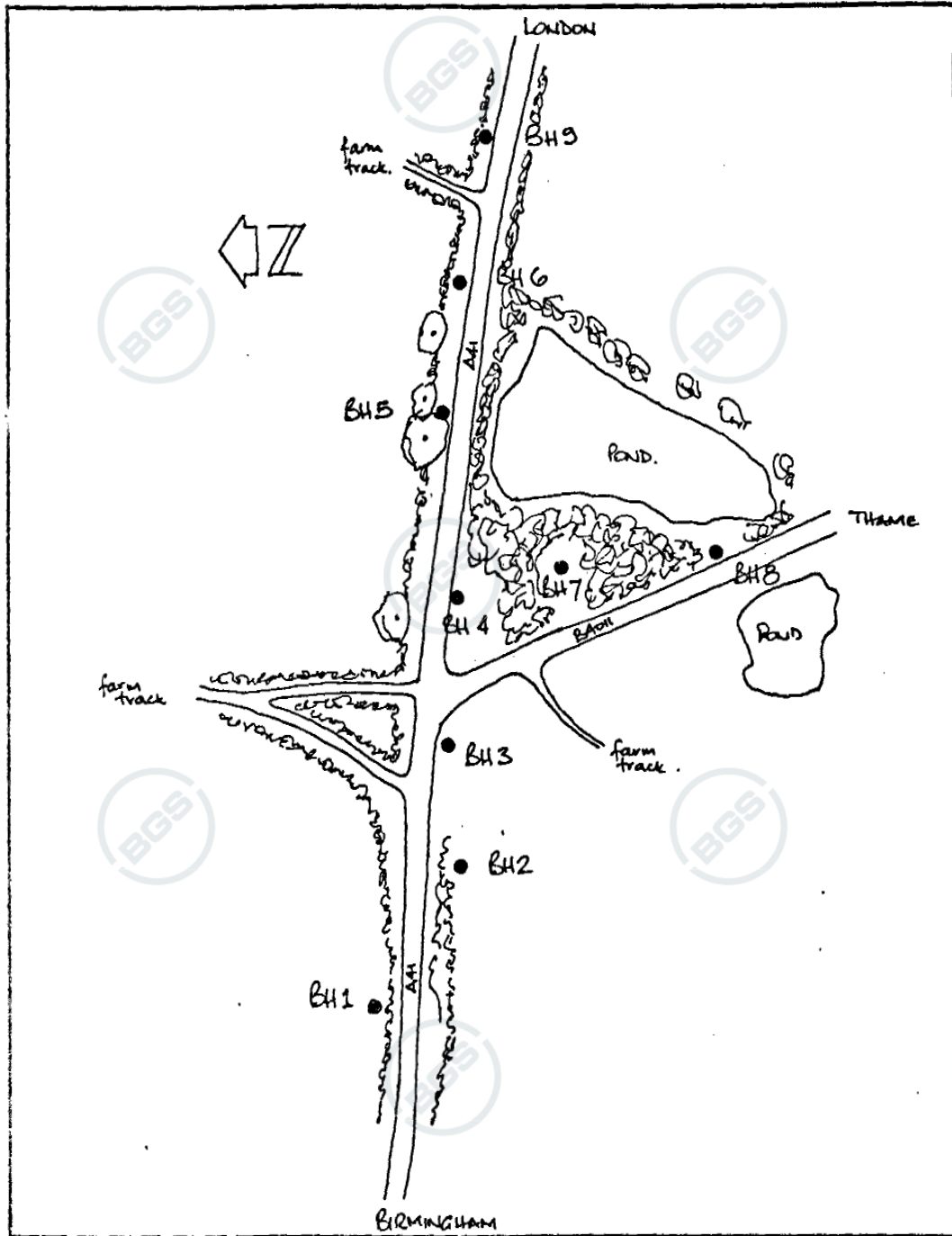
SITE PLAN - SHOWING APPROXIMATE BOREHOLE POSITIONS.



CLIENT OXFORDSHIRE COUNTY COUNCIL.

SITE A41 THAME TURN IMPROVEMENT

SCALE 1 : 2000
(approx.)



TAKEN FROM CLIENT'S DRAWING NOS T72/855a
AND T72/86a, "LONDON-BIRMINGHAM
TRUNK ROAD A41; DETAILED LAYOUT".

GEL JOB No.	FIGURE
2149	1

1" : 219

SP 62 SW 12 - 10

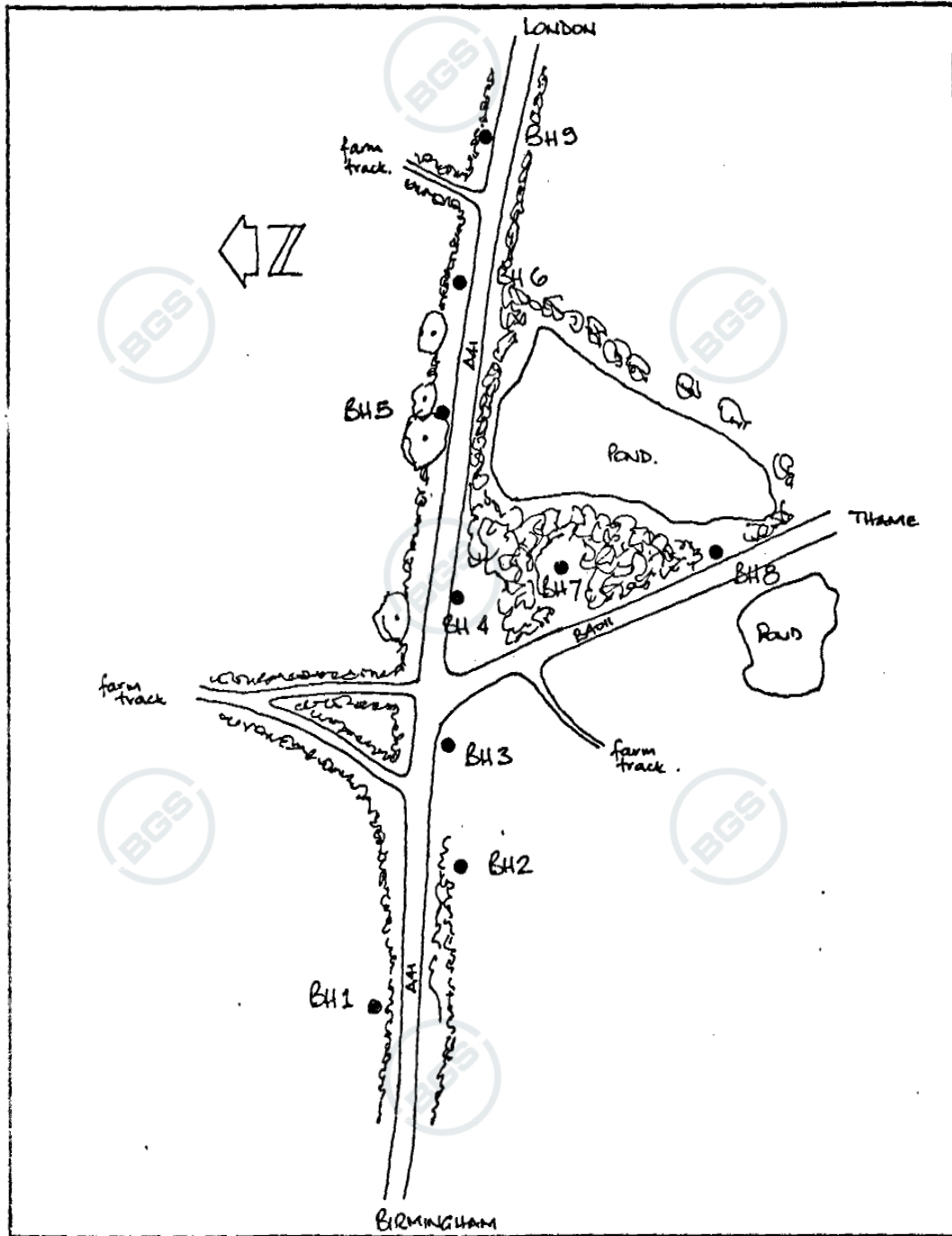
SITE PLAN - SHOWING APPROXIMATE BOREHOLE POSITIONS.



CLIENT OXFORDSHIRE COUNTY COUNCIL.

SITE A41 THAME TURN IMPROVEMENT

SCALE 1 : 2000
(approx.)



TAKEN FROM CLIENT'S DRAWING NOS T72/855a AND T72/86a, "LONDON-BIRMINGHAM TRUNK ROAD A41; DETAILED LAYOUT".

GEL JOB No.	FIGURE
2149	1

Zetica UXB risk maps

UNEXPLODED BOMB RISK MAP



SITE LOCATION

Location: Little Wretchwick Fm, Oxfordshire
Map Centre: 460500,221500



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

LEGEND

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



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

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

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

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

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

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

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

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

If I have any questions, who do I contact?

tel: [+44 \(0\) 1993 886682](tel:+44(0)1993886682) email: uxo@zetica.com web: www.zeticauxo.com

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

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

Appendix E Preliminary geotechnical risk register

Geotechnical hazard identification – desk study stage

Potential geotechnical hazards have been assessed in accordance with the general requirements of ICE/DETR Document 'Managing Geotechnical Risk' and the HE documents CS641 and CD 622. The following pages set out the identified geotechnical risks and hazards which are associated with the proposed development and establish the approach which is to be taken to manage the risks including the geotechnical input and analysis.

Table E.1 is a preliminary assessment of possible geotechnical hazards at the site at Desk Study stage. This information is used to assist with ground investigation design.

Table E.1: Possible geotechnical hazards

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Uncontrolled Made Ground (variable strength and compressibility).	Significant Made Ground is not expected on site as the site has never been developed, however, it is possible that Made Ground is present in the location of infilled ponds and around farm structures.	✓	-
Soft / loose compressible ground (low strength and high settlement potential).	There is potential for soft/ loose soils to be present within the Kellaways Sand Member and Kellaways Clay Member along with the historical ponds on site.	✓	-
Shrink swell of the clay fraction of soils under the influence of vegetation.	The possibility for clay soils of medium to high heave potential to be present on site.	✓	-
Variable lateral and vertical changes in ground conditions.	Regional geology is impacted by a fault which may cause significant changes in geology over short distances	✓	-
High sulfates present in the soils.	The site is underlain by soils which are known to contain pyrite.	✓	-
Adverse chemical ground conditions, (e.g. expansive slag).	Significant Made Ground with potential adverse chemical conditions are not expected to be present on site.	-	✓
Obstructions.	Obstructions (foundations) associated with barn structures are likely present.	✓	-
Existing below ground structures to remain	There are no below ground structures reported on this site.	-	✓

Hazard	Comment	Hazard status based on desk study	
		Could be present and / or affect site (i.e. Plausible)	Unlikely to be present and/or affect site
Shallow groundwater.	Perched groundwater is anticipated on site within the Kellaways Sand Formation,	✓	-
Changing groundwater conditions.			
Risk from erosion.	The site is not in an area considered to be at risk from erosion.	-	✓
Risk from flooding from rivers and the sea.	The site is shown in Flood Zone 1.	-	✓
Surface water flooding	The site is at risk from surface water flooding.	✓	-
Running sands and / or loose Made Ground, leading to difficulty with excavation and collapse of side walls.	Potential for running sand within the Kellaways Sand Member if perched groundwater present at shallow depth.	✓	-
Slope stability issues – general slopes.	Slope stability issues are unlikely at the site.	=	✓
Slope stability issues – retaining walls.		=	✓
Solution features in limestone.	The site is underlain by Cornbrash Formation at depth, but the risk of solution features is low.	=	✓
Cavities in the Superficial Deposits due to solution features.	No superficial deposits are recorded on site.	=	✓
Mining.	There is some evidence of quarrying in the area, but not on the specific site.	=	✓
Relict Slip Surfaces.	It is unlikely that relict slip surfaces will be present beneath the site.	=	✓
Solifluction.	No superficial deposits are recorded on site.	=	✓
Problematic soils (silts and rewetting etc.).	Soft/ loose soils may be present.	✓	=

Appendix F *Plausible source-pathway-receptor
contaminant linkages*

Summary of potential contaminant linkages

Table F.2 lists the plausible contaminant linkages which have been identified. These are considered as potentially unacceptable risks in line with guidelines published in LCRM (2023) and additional risk assessment is required.

Source – Pathway – Receptor Linkages have been assessed in general accordance with guidance in CIRIA Report C552 (Rudland *et al* 2001) but modified to add a 'no linkage' category and to remove low/moderate risk (See Table F.1).

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to site demolition and redevelopment workers, consideration of occupational health and safety issues is beyond the scope of this report and need to be considered separately in the Construction Phase Health and Safety Plan.

Table F.1: Consequence versus probability assessment.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Low risk	Very low risk
	Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
	Unlikely	Low risk	Very low risk	Very low risk	Very low risk
	No Linkage	No risk			

Table F2: Exposure model – final source-pathway-receptor contaminant linkages

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Pesticides and herbicides from agricultural activities	Ingestion, inhalation or direct contact.	Site users.	Low	Medium	Low	There is potential for the presence of pesticides and herbicides in the topsoil as a result of the prolonged agricultural use of the site. Testing during intrusive investigation will be required to confirm the absence or presence.	Contact with these materials is likely (if present) in areas of public open space (POS).
	Inhalation of fugitive dust.	Site users and neighbours.	Low likelihood	Medium	Low		The risk of significant generation of dust is likely only during site development process and can therefore be controlled.
	Root uptake.	Vegetation.	Low likelihood	Medium	Low		Uptake of these are plausible in soft landscaped areas. Chemical testing will be required to confirm presence or absence.
	Surface run-off and leaching through the unsaturated zone.	Groundwater / surface water and possible abstractors.	Low likelihood	Medium	Low		The site is not in a source protection zone.

Cont...

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Hydrocarbon vapours from potential VOC and petroleum hydrocarbon spillages/leaks associated with the use of farm machinery and storage of unknown chemicals within the barn structure	Ingestion, inhalation or direct contact.	Site users.	Likely	Medium	Moderate	There is potential for presence of hydrocarbon derived fuels and lubricants from leaks or spillages from farm vehicles used on site and within containers identified in the barn structure. Testing during intrusive investigation will be required to confirm the absence or presence.	Contact with these materials is likely (if present) in areas of soft landscaping.
	Surface run-off and leaching through the unsaturated zone.	Groundwater / surface water and possible abstractors.	Low	Medium	Low		The site is not in a source protection zone.
	Root uptake.	Vegetation.	Low	Medium	Low		Uptake of these are plausible in soft landscaped areas. Chemical testing will be required to confirm presence or absence.
	Direct contact	Water supply pipes.	Low	Medium	Low		If contamination is identified during investigation, direct contact with buried water supply pipes is likely.
Asbestos fibres and Asbestos Containing Materials from the farm structures in the near surface soils	Inhalation of fugitive fibres.	Site users.	Low	Severe	Moderate	Asbestos may be present in existing buildings, near surface soils and Made Ground on site.	

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Uncontrolled Made Ground in the locations of the infilled ponds in the northern and south-western corners of the site.	Ingestion, inhalation or direct contact.	Site users.	Likely	Medium	Moderate	There is potential for presence of unknown material associated with the infilling of ponds on site. Testing during intrusive investigation will be required to confirm the absence or presence.	Contact with these materials is likely (if present) in areas of soft landscaping.
	Surface run-off and leaching through the unsaturated zone.	Groundwater / surface water and possible abstractors.	Low	Medium	Low		The site is not in a source protection zone.
	Root uptake.	Vegetation.	Low	Medium	Low		Uptake of these are plausible in soft landscaped areas. Chemical testing will be required to confirm presence or absence.
	Direct contact	Water supply pipes.	Low	Medium	Low		If present, direct contact with buried water supply pipes may require barrier pipe
Elevated ground gases (particularly carbon dioxide and methane) from Made Ground materials around metal recycling scrapyard	Migration, build up and asphyxiation.	Site users and neighbours.	Low	Severe	Moderate	Further intrusive investigation and ground gas monitoring will be required to confirm risk.	

Cont.

Sources	Possible Pathways	Receptors	Probability	Consequence	Risk Level	Comments	
Potential contaminants associated with the scrap yard located to the east of the site, including metals, metalloids, PAH and petroleum hydrocarbons.	Ingestion, inhalation or direct contact.	Site users.	Low	Medium	Low	In order to establish risk posed from the scrap yard to the proposed development, testing during intrusive investigation will be required to confirm the absence or presence.	Contact with these materials is likely (if present) in areas of soft landscaping. The proposed development is majority hardstanding, breaking the source-pathway-receptor linkage.
	Surface run-off and leaching through the unsaturated zone.	Groundwater / surface water and possible abstractors.	Low	Medium	Low		The site is not in a source protection zone.
	Root uptake.	Vegetation.	Low	Medium	Low		Uptake of these are plausible in soft landscaped areas. Chemical testing will be required to confirm presence or absence.
Ground gases (carbon dioxide and methane) from organic materials in the ponds immediately north of the site	Inhalation.	End users of the site. Neighbours.	Unlikely	Severe	Low	To be confirmed as part of future ground investigation works	Clay derived shallow strata will likely preclude the horizontal migration of gases.