Groundsure LOCATION INTELLIGENCE

Geo Insight

ANCHOR FARM, ELMHIRST LANE, DODWORTH, BARNSLEY, S75 4LD

Order Details

Date: 19/02/2020

Your ref: Middle_Barn_Anchor_Farm

Our Ref: GS-6630201

Client: Earth-Tech

Site Details

Location: 430512 406264

Area: 0.39 ha

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
11	1.1	10k Availability	Identified (within 500m)				
12	1.2	Artificial and made ground (10k)	0	1	2	4	-
14	1.3	Superficial geology (10k)	0	0	0	0	-
14	1.4	Landslip (10k)	0	0	0	0	-
15	1.5	Bedrock geology (10k)	1	3	11	9	-
17	1.6	Bedrock faults and other linear features (10k)	0	1	12	16	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
19	2.1	50k Availability	Identified (within 500m)				
20	2.2	Artificial and made ground (50k)	0	1	2	2	-
21	2.3	Artificial ground permeability (50k)	0	1	-	-	-
22	2.4	Superficial geology (50k)	0	0	0	0	-
22	2.5	Superficial permeability (50k)	None (within 50m)				
22	2.6	Landslip (50k)	0	0	0	0	-
22	2.7	Landslip permeability (50k)	None (within 50m)				
23	2.8	Bedrock geology (50k)	1	2	9	6	-
25	2.9	Bedrock permeability (50k)	Identified (within 50m)				
25	2.10	Bedrock faults and other linear features (50k)	0	1	6	5	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
27	3.1	BGS Boreholes	0	0	2	-	-
Page	Section	Natural ground subsidence					
28	4.1	Shrink swell clays	Very low (within 50m)				
29	4.2	Running sands	Very low (within 50m)				
31	4.3	Compressible deposits	Moderate (within 50m)				
33	4.4	Collapsible deposits	Very low (within 50m)				
34	4.5	Landslides	Very low (within 50m)				
35	4.6	Ground dissolution of soluble rocks	Negligible (within 50m)				

Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
36	5.1	Natural cavities	0	0	0	0	-
37	**5.2**	**BritPits**	0	0	0	1	-
37	5.3	Surface ground workings	0	0	0	-	-
37	**5.4**	**Underground workings**	0	0	0	8	48
40	5.5	Historical Mineral Planning Areas	0	0	0	0	-
40	**5.6**	**Non-coal mining**	1	0	1	1	0
40	5.7	Mining cavities	0	0	0	0	0
41	5.8	JPB mining areas	None (within 0m)				
41	**5.9**	**Coal mining**	Identified (within 0m)				
41	5.10	Brine areas	None (within 0m)				
41	5.11	Gypsum areas	None (within 0m)				
41	5.12	Tin mining	None (within 0m)				
42	5.13	Clay mining	None (within 0m)				

Page	Section	Radon	
43	**6.1**	**Radon**	Between 1% and 3% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
44	**7.1**	**BGS Estimated Background Soil Chemistry**	2	1	-	-	-
44	7.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
44	7.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
45	8.1	Underground railways (London)	0	0	0	-	-
45	8.2	Underground railways (Non-London)	0	0	0	-	-
45	8.3	Railway tunnels	0	0	0	-	-
45	8.4	Historical railway and tunnel features	0	0	0	-	-
45	8.5	Royal Mail tunnels	0	0	0	-	-
46	8.6	Historical railways	0	0	0	-	-
46	8.7	Railways	0	0	0	-	-
46	8.8	Crossrail 1	0	0	0	0	-

46	8.9	Crossrail 2	0	0	0	0	-
46	8.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 29/06/2018

Site Area: 0.39ha

Recent site history - 2013 aerial photograph

Capture Date: 07/06/2013

Site Area: 0.39ha

Recent site history - 2012 aerial photograph

Capture Date: 26/03/2012

Site Area: 0.39ha

Recent site history - 2009 aerial photograph

Capture Date: 11/09/2009

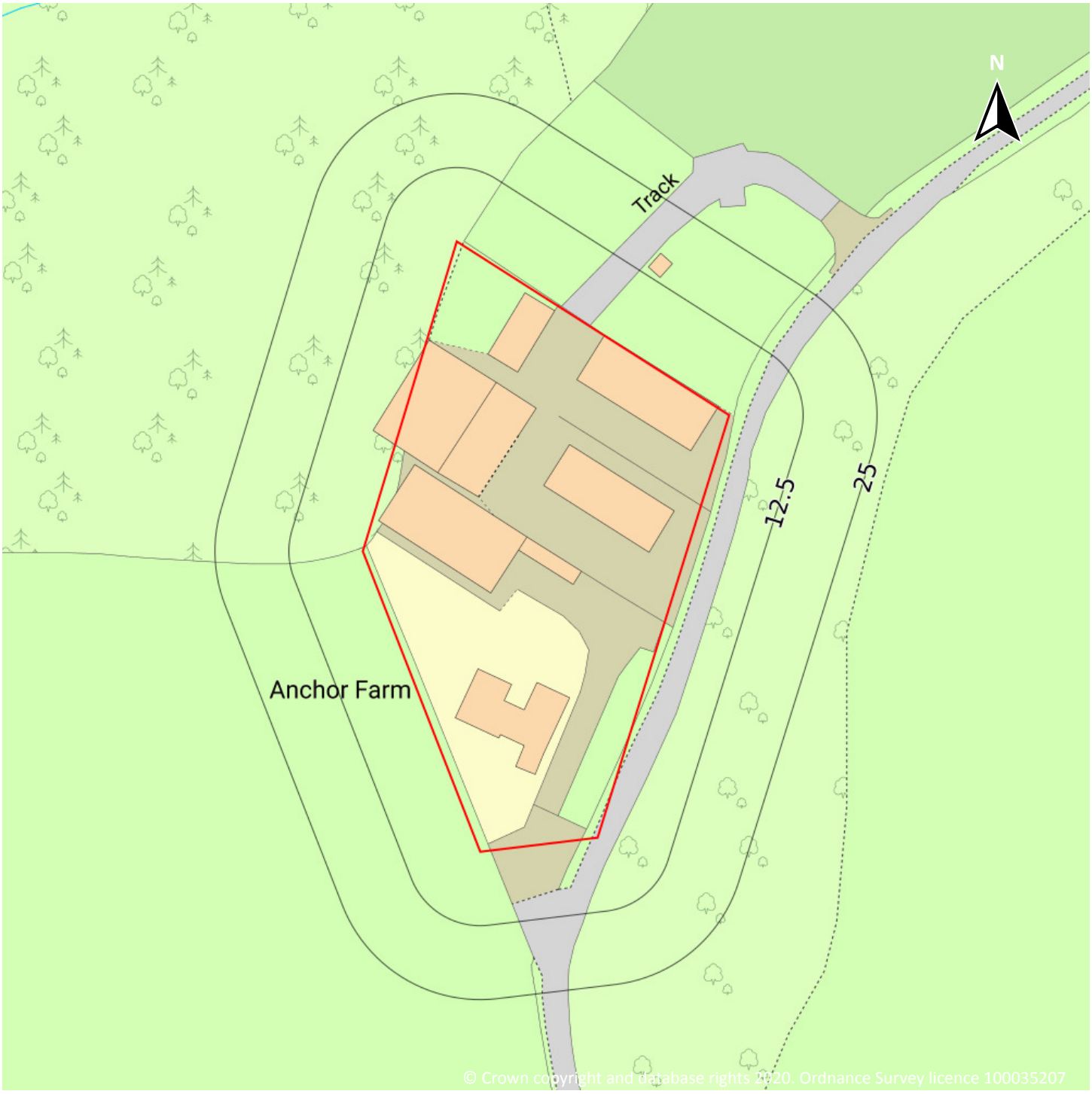
Site Area: 0.39ha

Recent site history - 1999 aerial photograph

Capture Date: 10/07/1999

Site Area: 0.39ha

OS MasterMap site plan



Site Area: 0.39ha

1 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

1.1 10k Availability

Records within 500m	2

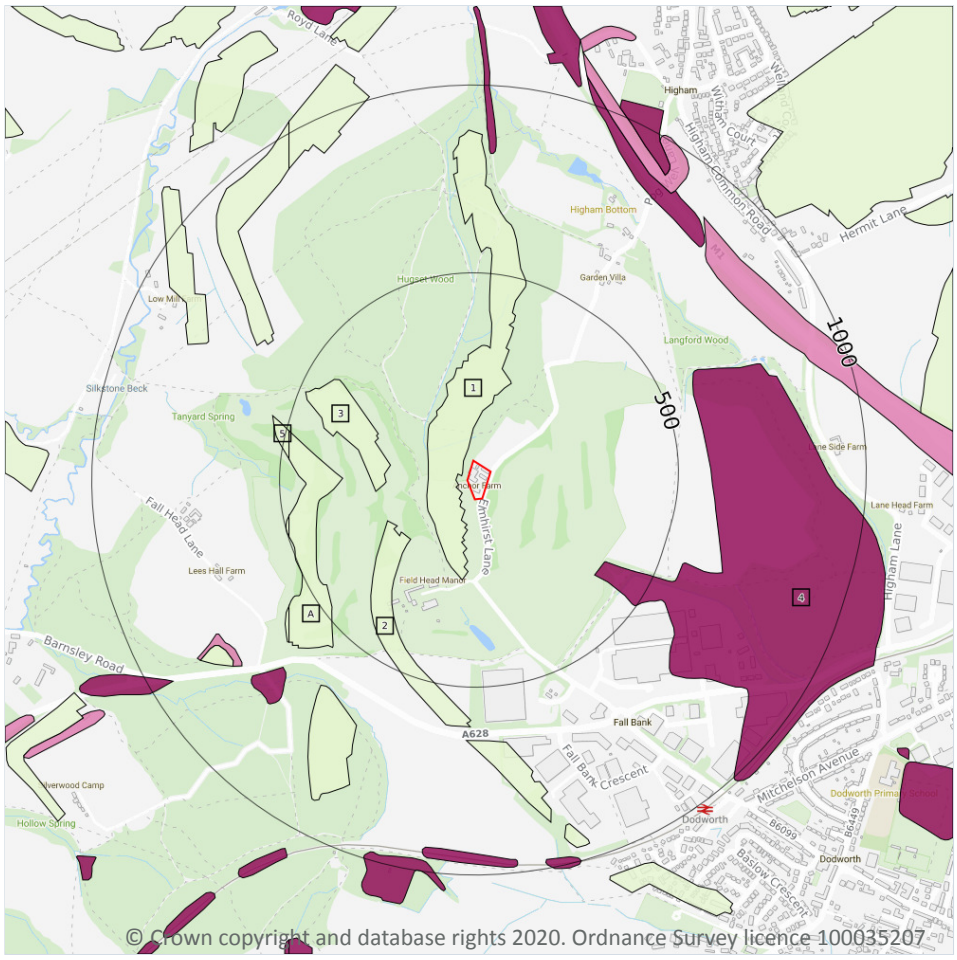
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

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

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SE30NW**
2	475m W	Full	Full	Full	Full	SE20NE

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

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

1.2 Artificial and made ground (10k)

Records within 500m	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 12**

ID	Location	LEX Code	Description	Rock description
1	18m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
2	201m SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
3	209m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
A	332m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
4	362m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	478m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit
A	484m W	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

1.3 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.

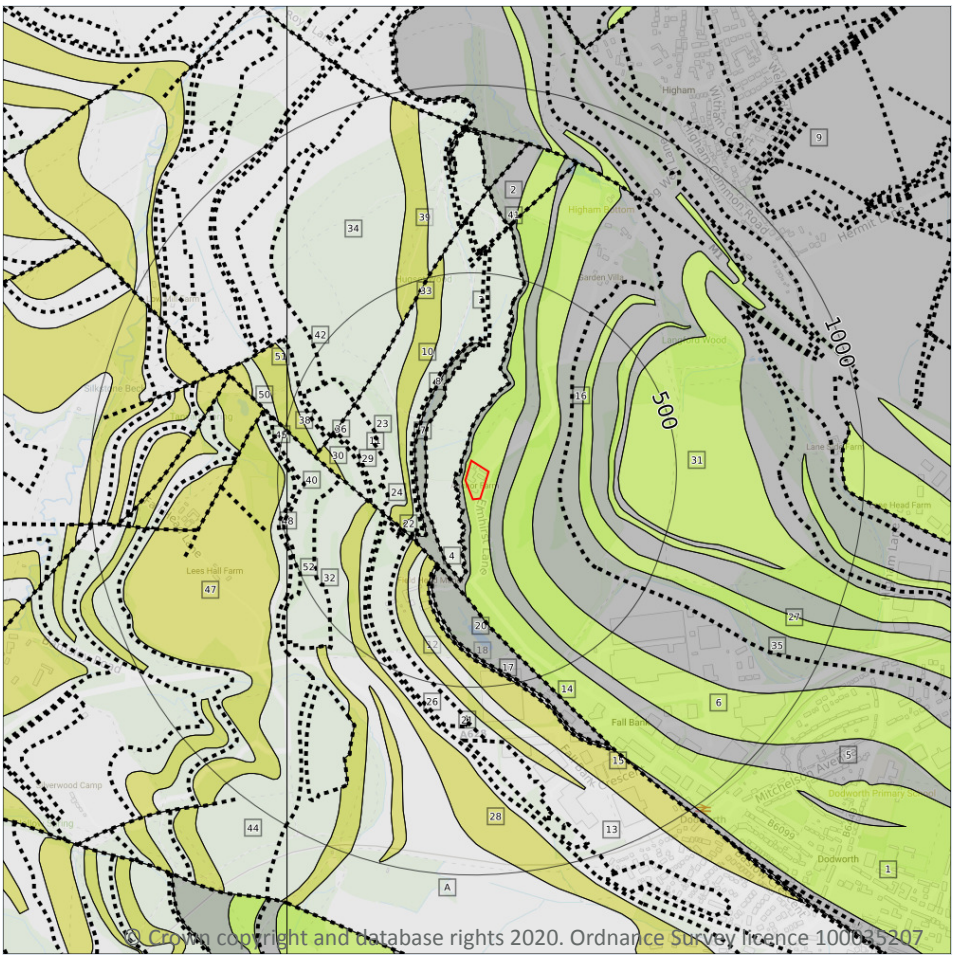
1.4 Landslip (10k)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

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.

1.5 Bedrock geology (10k)

Records within 500m	24

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 15**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-SDST**	**Pennine Middle Coal Measures Formation - Sandstone**	**Bolsovian Sub-age - Duckmantian Sub-age**
2	8m W	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age

ID	Location	LEX Code	Description	Rock age
3	18m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
5	29m E	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
6	70m E	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
9	141m E	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
10	148m W	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
11	162m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
12	188m SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
13	188m SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
15	189m SW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
18	198m SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
20	201m SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
27	241m E	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
28	246m W	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
A	266m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
30	316m W	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
31	320m E	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
34	343m NW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
38	399m W	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
39	410m NW	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
44	475m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
47	481m W	PKR-SDST	Parkgate Rock - Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
51	493m W	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

1.6 Bedrock faults and other linear features (10k)

Records within 500m	**29**

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.

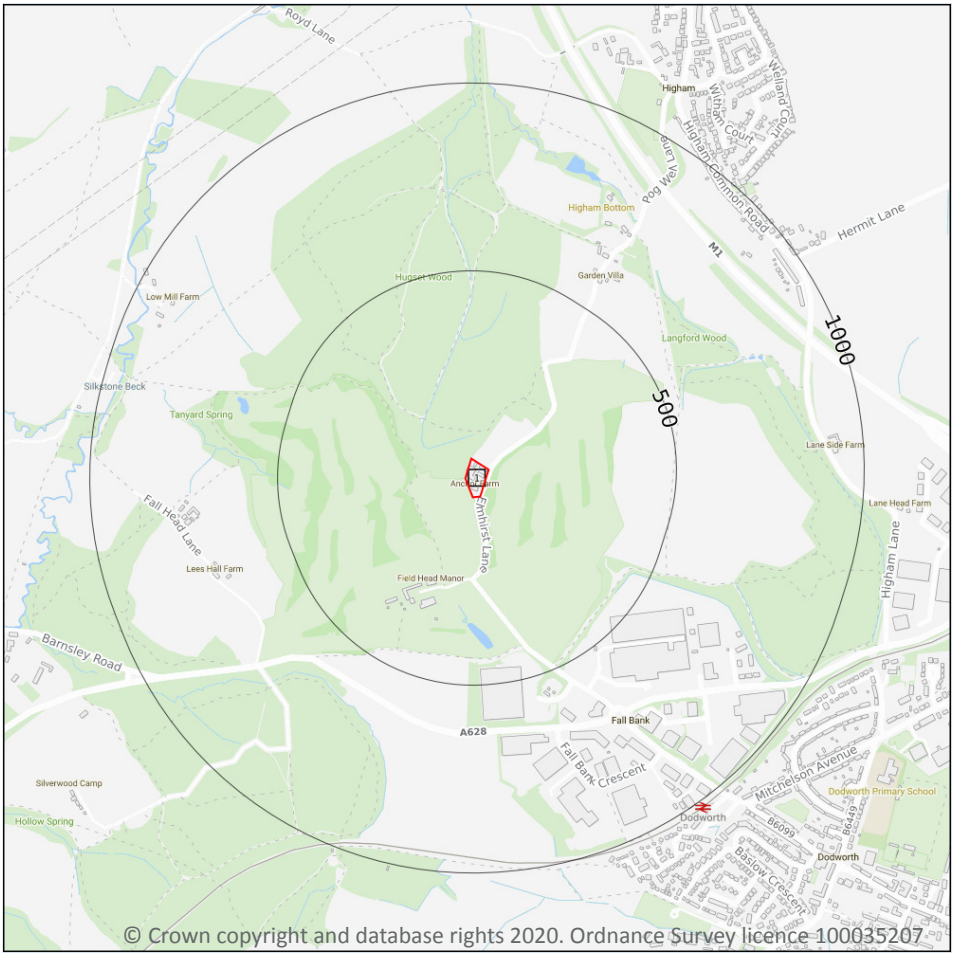
Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 15**

ID	Location	Category	Description
4	18m W	ROCK	Coal seam, observed
7	131m W	FOSSIL_HORIZON	Fossil horizon, marine band
8	138m W	ROCK	Coal seam, observed
14	188m SW	FAULT	Normal fault, inferred
16	191m E	ROCK	Coal seam, observed
17	198m SW	ROCK	Coal seam, inferred
19	201m SW	FOSSIL_HORIZON	Fossil horizon, marine band
21	201m SW	ROCK	Coal seam, observed
22	205m W	ROCK	Ironstone bed, inferred
23	209m W	ROCK	Coal seam, observed
24	211m W	ROCK	Ironstone bed, inferred
25	214m SW	ROCK	Coal seam, observed
26	234m W	ROCK	Coal seam, observed
29	257m W	ROCK	Coal seam, observed
32	332m W	ROCK	Coal seam, observed
33	343m NW	FAULT	Normal fault, inferred
35	364m SE	ROCK	Coal seam, inferred
36	374m W	ROCK	Coal seam, observed
37	381m W	ROCK	Coal seam, observed

ID	Location	Category	Description
40	429m W	ROCK	Coal seam, observed
41	440m N	ROCK	Coal seam, observed
42	441m NW	ROCK	Ironstone bed, inferred
43	455m W	ROCK	Coal seam, observed
45	476m W	ROCK	Coal seam, inferred
46	478m W	ROCK	Coal seam, observed
48	481m W	ROCK	Coal seam, inferred
49	484m W	ROCK	Coal seam, observed
50	493m W	FAULT	Normal fault, inferred
52	494m W	ROCK	Coal seam, observed

This data is sourced from the British Geological Survey.

2 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

2.1 50k Availability

Records within 500m	1

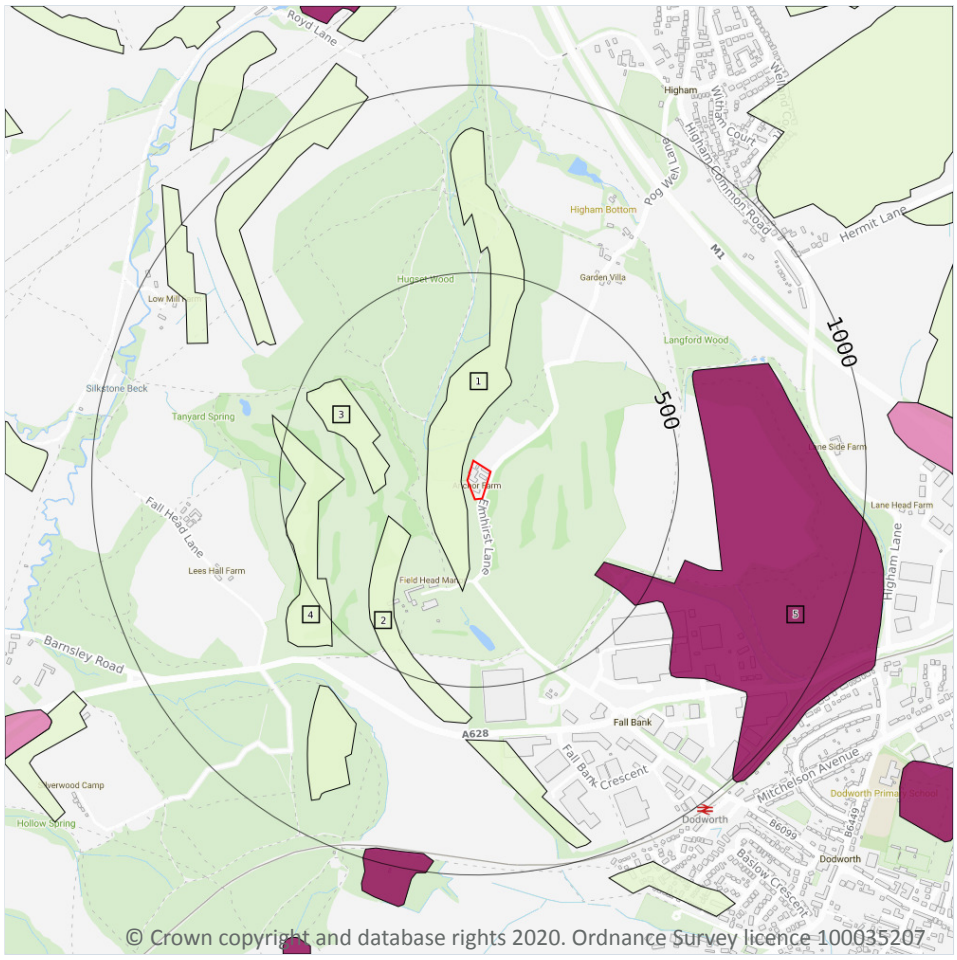
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 19**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW087_barnsley_v4**

This data is sourced from the British Geological Survey.

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



Site Outline

Search buffers in metres (m)

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

2.2 Artificial and made ground (50k)

Records within 500m	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 20**

ID	Location	LEX Code	Description	Rock description
1	17m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
2	196m SW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	210m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
4	328m W	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

ID	Location	LEX Code	Description	Rock description
5	362m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

2.3 Artificial ground permeability (50k)

Records within 50m	**1**

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).

Location	Flow type	Maximum permeability	Minimum permeability
16m N	Mixed	Very High	Low

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

2.4 Superficial geology (50k)

Records within 500m	0

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.

This data is sourced from the British Geological Survey.

2.5 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.

2.6 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.

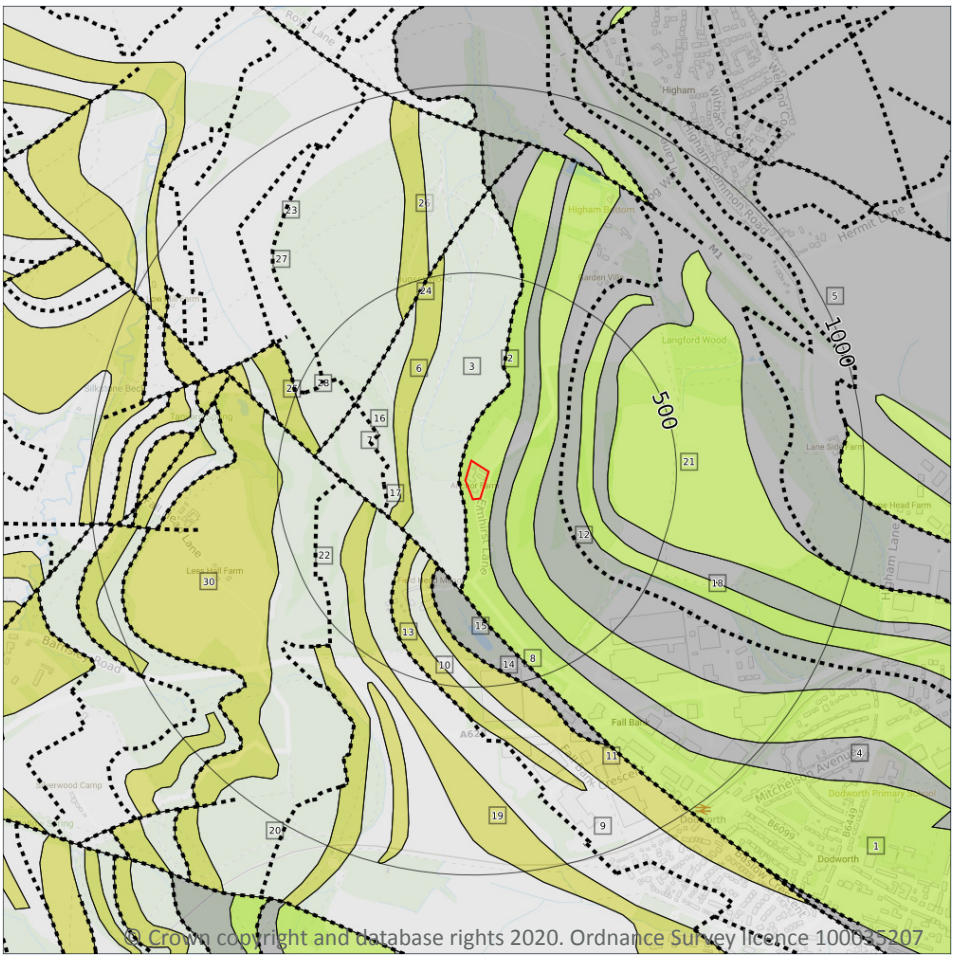
2.7 Landslip permeability (50k)

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.

2.8 Bedrock geology (50k)

Records within 500m **18**

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 23**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-SDST**	**PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE**	**WESTPHALIAN**
3	17m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
4	31m E	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
5	144m E	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	148m W	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
7	177m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	188m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10	188m SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
11	191m SW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
15	201m SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
18	237m E	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
19	247m W	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
20	272m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	317m E	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
23	343m NW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
25	394m W	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
26	412m NW	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
30	487m W	PKR-SDST	PARKGATE ROCK - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

2.9 Bedrock permeability (50k)

Records within 50m	**3**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**High**	**Moderate**
16m NW	Fracture	High	Low
31m NE	Fracture	Moderate	Low

This data is sourced from the British Geological Survey.

2.10 Bedrock faults and other linear features (50k)

Records within 500m	**12**

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 23**

ID	Location	Category	Description
2	17m W	ROCK	Coal seam, inferred
8	188m SW	FAULT	Fault, inferred
12	193m E	ROCK	Coal seam, inferred
13	196m SW	ROCK	Coal seam, inferred
14	201m SW	ROCK	Coal seam, inferred
16	210m W	ROCK	Coal seam, inferred
17	215m W	ROCK	Coal seam, inferred
22	328m W	ROCK	Coal seam, inferred
24	343m NW	FAULT	Fault, inferred, displacement unknown
27	446m NW	ROCK	Ironstone bed, inferred
28	446m NW	ROCK	Coal seam, inferred
29	478m W	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

3 Boreholes

Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

3.1 BGS Boreholes

Records within 250m	2

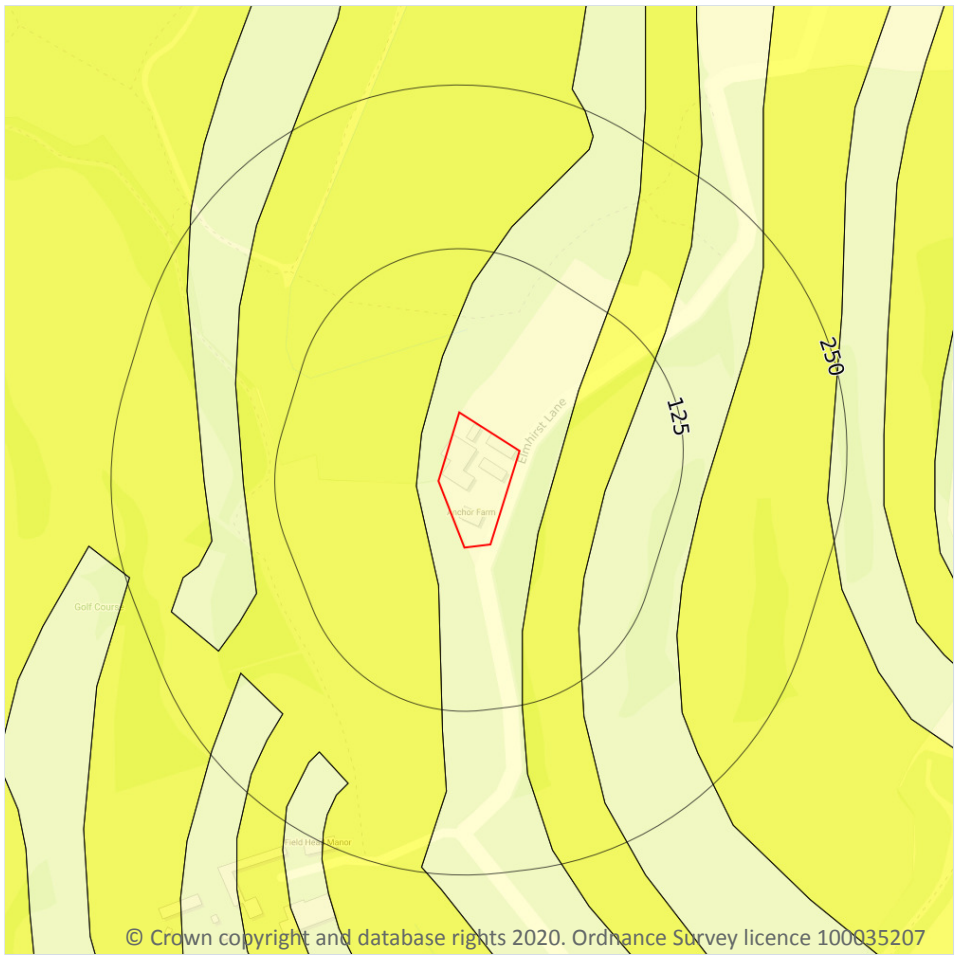
The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several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

Features are displayed on the Boreholes map on **page 27**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	230m S	430430 405990	SILKSTONE GOLF COURSE, ELMHIRST LANE	54.4	N	14741382
A	230m S	430430 405990	SILKSTONE GOLF CLUB (ABANDONED BH)	119.0	N	15021325

This data is sourced from the British Geological Survey.

4 Natural ground subsidence - Shrink swell clays



4.1 Shrink swell clays

Records within 50m	2

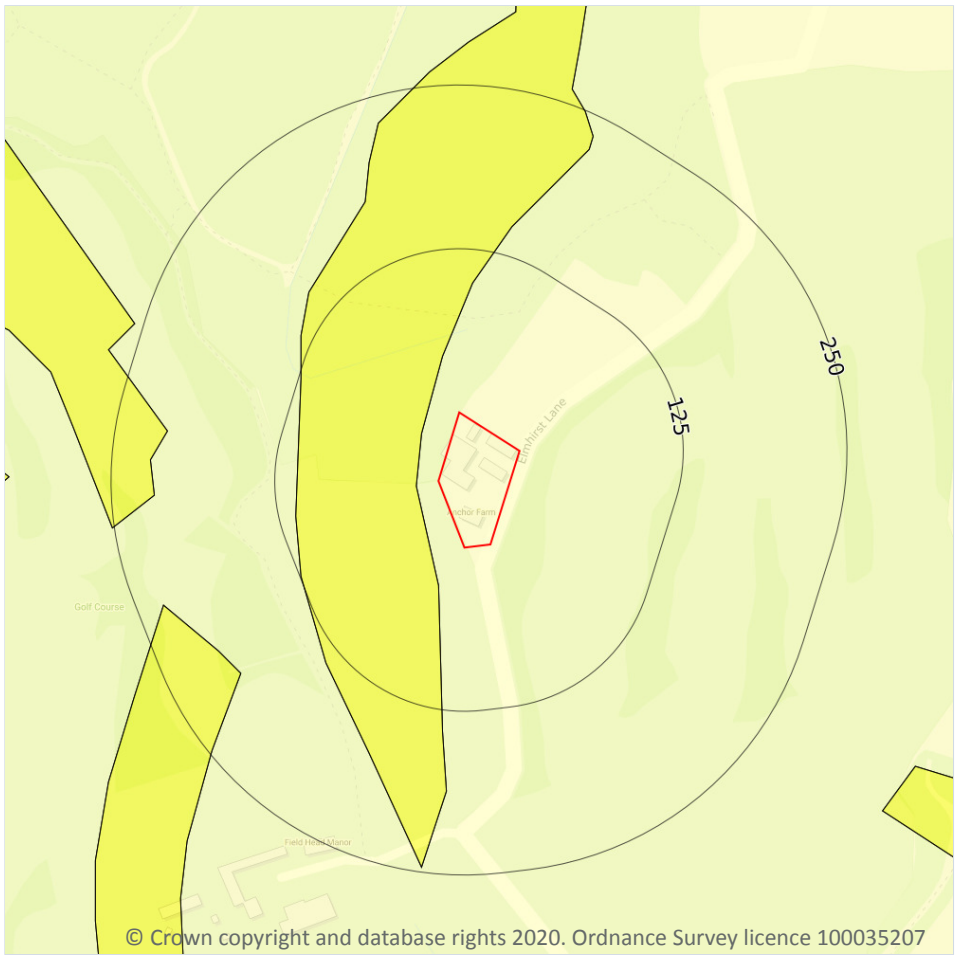
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 28**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
16m W	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.2 Running sands

Records within 50m	2

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

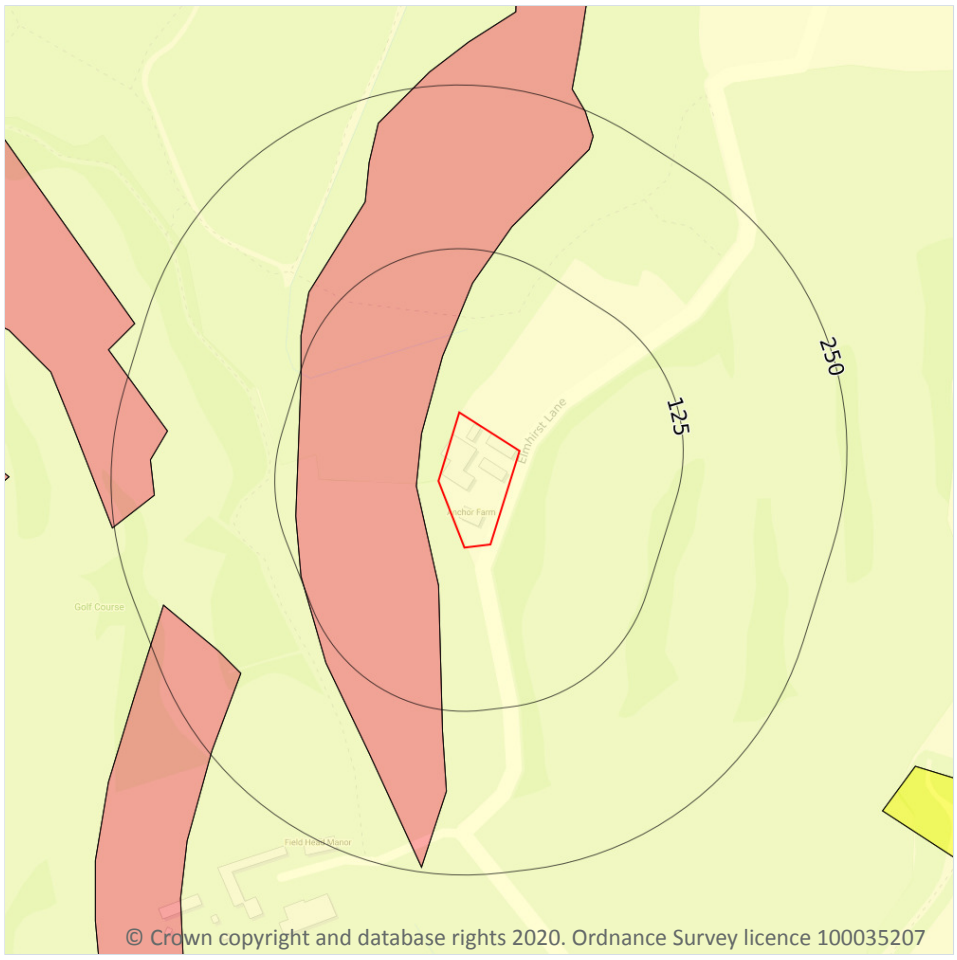
Features are displayed on the Natural ground subsidence - Running sands map on **page 29**

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
16m W	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



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.3 Compressible deposits

Records within 50m	2

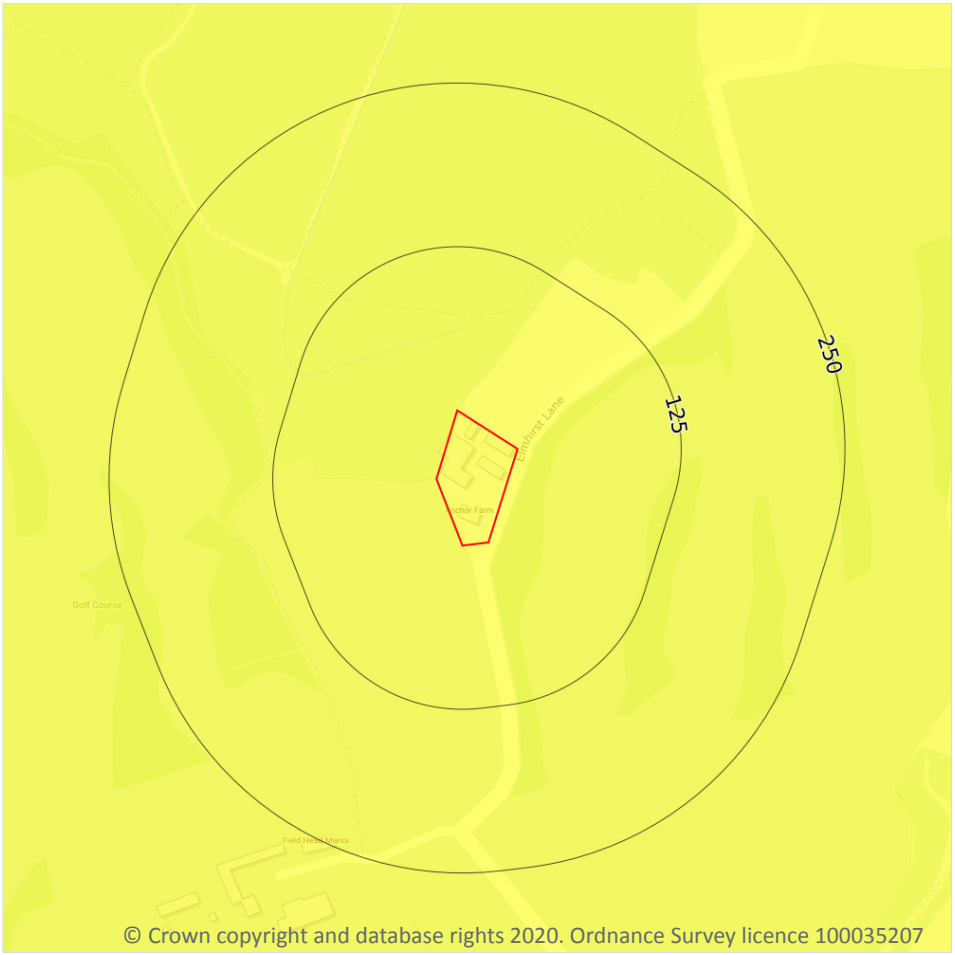
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

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

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
16m W	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.4 Collapsible deposits

Records within 50m	**1**

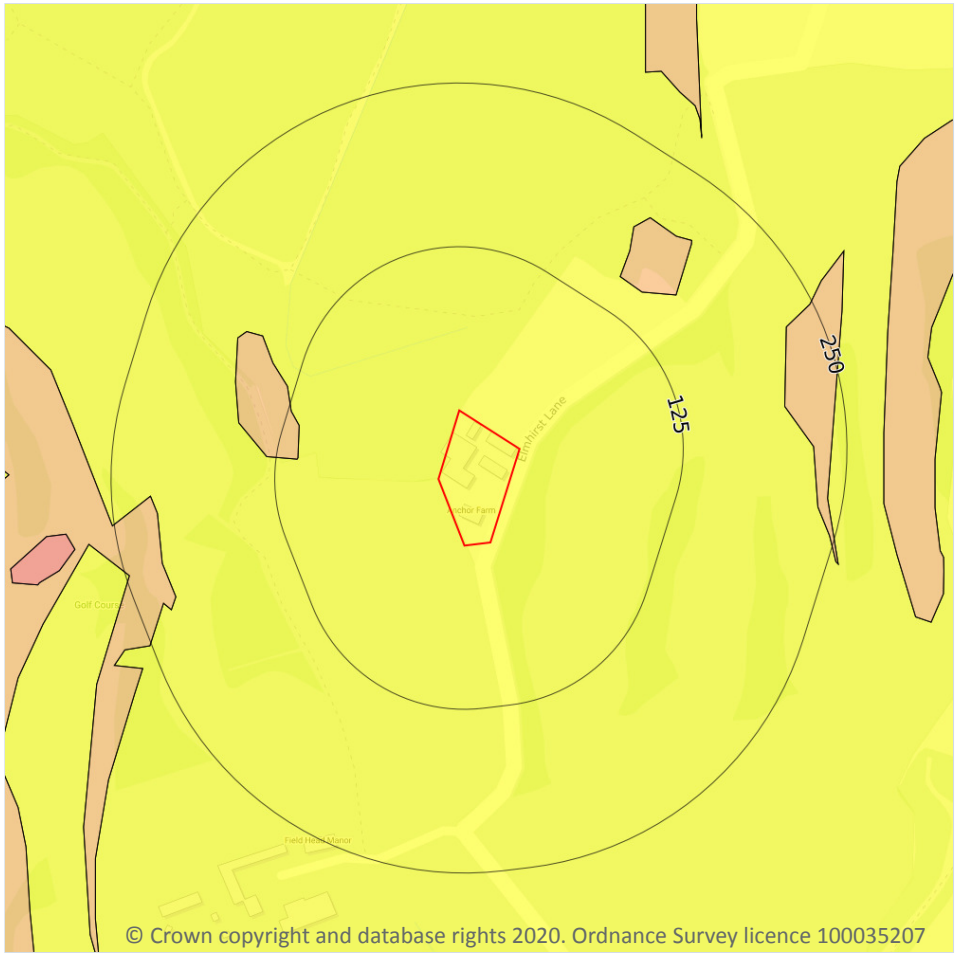
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 33**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.5 Landslides

Records within 50m	1

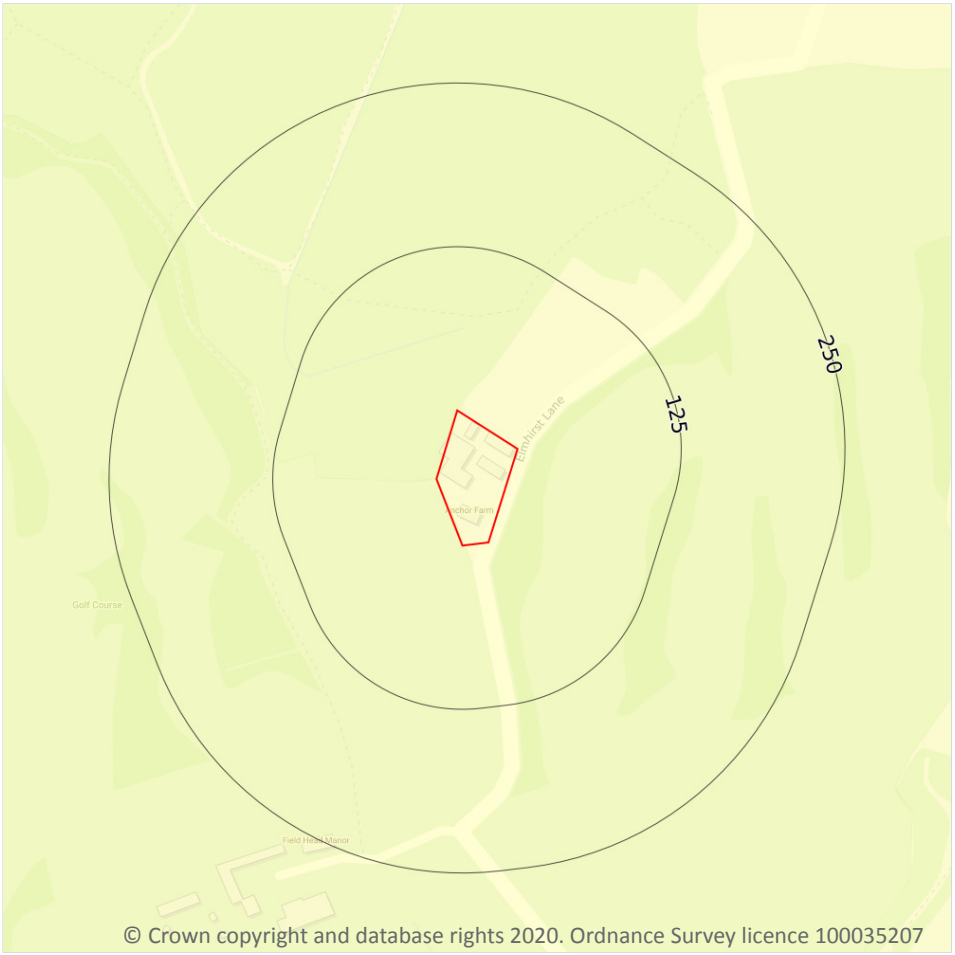
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 34**

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



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

4.6 Ground dissolution of soluble rocks

Records within 50m	1

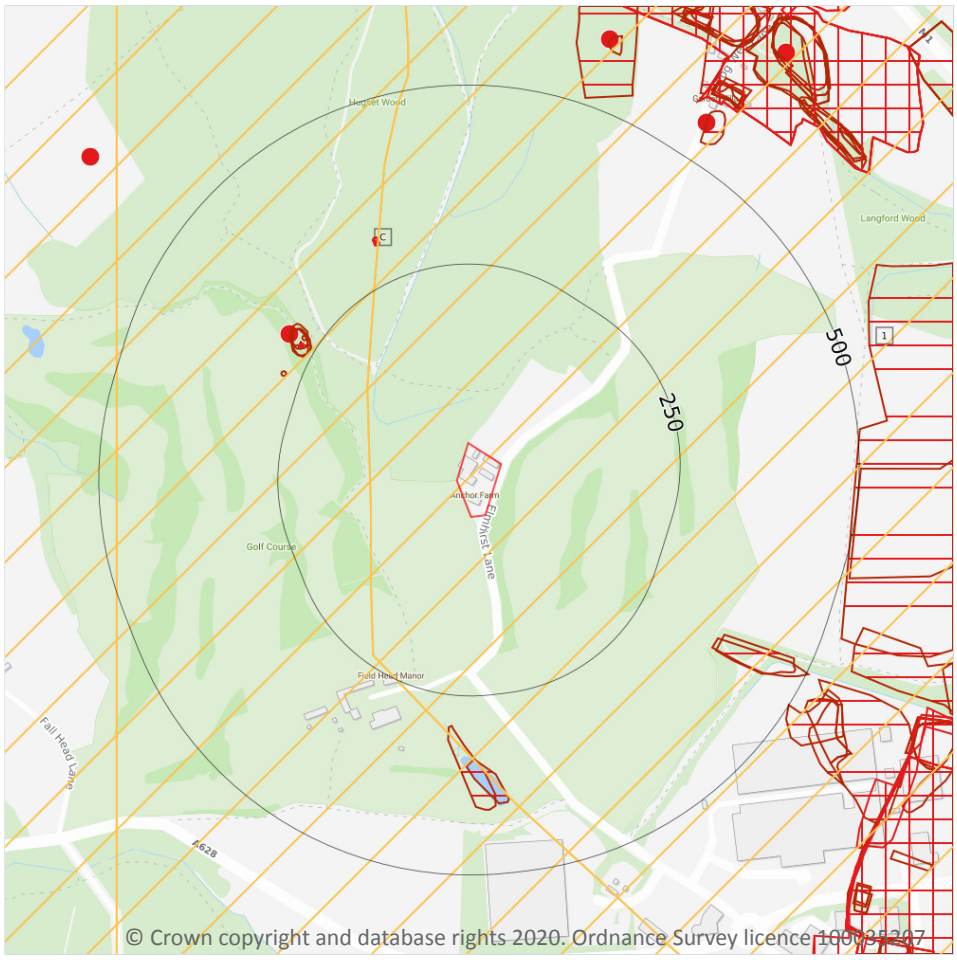
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 35**

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

This data is sourced from the British Geological Survey.

5 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

Non Coal Mining

Sporadic underground mining of restricted extent possible

Localised small scale underground mining possible

Small scale mining possible

Underground mining known or likely within or in close proximity

Underground mining known within or in very close proximity

5.1 Natural cavities

Records within 500m	0

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

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

5.2 BritPits

Records within 500m	1

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 36**

ID	Location	Details	Description
A	292m NW	Name: Elmhirst Pits Address: Silkstone, BARNSLEY, South Yorkshire Commodity: Coal, Deep Status: Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	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.

5.3 Surface ground workings

Records within 250m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

5.4 Underground workings

Records within 1000m	56

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 36**

ID	Location	Land Use	Year of mapping	Mapping scale
A	267m NW	Air Shaft	1904	1:10560
C	303m NW	Air Shaft	1929	1:10560
C	303m NW	Air Shaft	1904	1:10560
C	308m NW	Disused Air Shaft	1993	1:10000
C	308m NW	Disused Air Shaft	1973	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
C	308m NW	Disused Air Shaft	1966	1:10560
C	308m NW	Disused Air Shaft	1982	1:10000
C	308m NW	Air Shaft	1951	1:10560
H	576m NE	Colliery	1891	1:10560
H	587m NE	Disused Colliery	1904	1:10560
K	659m SE	Unspecified Mine	1973	1:10000
-	662m N	Air Shaft	1929	1:10560
-	668m N	Air Shaft	1951	1:10560
O	670m SE	Old Collieries	1938	1:10560
9	670m SE	Collieries	1951	1:10560
K	674m SE	Unspecified Mine	1966	1:10560
O	683m SE	Old Collieries	1904	1:10560
O	683m SE	Colliery	1891	1:10560
Q	743m NE	Unspecified Mine	1973	1:10000
Q	743m NE	Unspecified Mine	1966	1:10560
-	750m NE	Unspecified Shafts	1929	1:10560
-	752m NE	Unspecified Shafts	1951	1:10560
-	756m NE	Unspecified Shafts	1929	1:10560
-	758m NE	Unspecified Shafts	1951	1:10560
-	800m N	Disused Air Shaft	1993	1:10000
-	800m N	Disused Air Shaft	1973	1:10000
-	800m N	Disused Air Shaft	1966	1:10560
-	800m N	Disused Air Shaft	1982	1:10000
-	800m N	Air Shafts	1951	1:10560
-	836m NE	Air Shaft	1929	1:10560
-	836m NE	Air Shaft	1904	1:10560
-	837m NE	Air Shaft	1951	1:10560
-	838m NE	Disused Air Shaft	1993	1:10000

ID	Location	Land Use	Year of mapping	Mapping scale
-	838m NE	Disused Air Shaft	1973	1:10000
-	838m NE	Disused Air Shaft	1966	1:10560
-	838m NE	Disused Air Shaft	1982	1:10000
-	852m N	Air Shafts	1929	1:10560
-	855m N	Air Shafts	1951	1:10560
-	883m SE	Unspecified Shaft	1951	1:10560
-	884m SE	Unspecified Shaft	1938	1:10560
-	886m N	Disused Air Shaft	1993	1:10000
-	886m N	Disused Air Shaft	1973	1:10000
-	886m N	Disused Air Shaft	1966	1:10560
-	886m N	Disused Air Shaft	1982	1:10000
-	890m N	Air Shafts	1929	1:10560
-	890m N	Air Shaft	1904	1:10560
-	953m S	Colliery	1938	1:10560
-	959m S	Disused Colliery	1951	1:10560
-	965m N	Air Shaft	1929	1:10560
-	967m N	Disused Air Shaft	1993	1:10000
-	967m N	Disused Air Shaft	1973	1:10000
-	967m N	Disused Air Shaft	1966	1:10560
-	967m N	Disused Air Shaft	1982	1:10000
-	969m N	Air Shaft	1951	1:10560
-	994m NW	Colliery	1891	1:10560
-	994m NW	Colliery	1929	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

5.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

5.6 Non-coal mining

Records within 1000m	3

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 36**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Iron Ore (Bedded)**	**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**
2	121m W	Sheffield Area	Vein Mineral/Iron ore	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
3	475m W	Sheffield Area	Vein Mineral/Iron ore	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

This data is sourced from the British Geological Survey.

5.7 Mining cavities

Records within 1000m	0

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

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

5.8 JPB mining areas

Records on site	0

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.

5.9 Coal mining

Records on site	1

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

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

5.10 Brine areas

Records on site	0

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

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

5.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

5.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

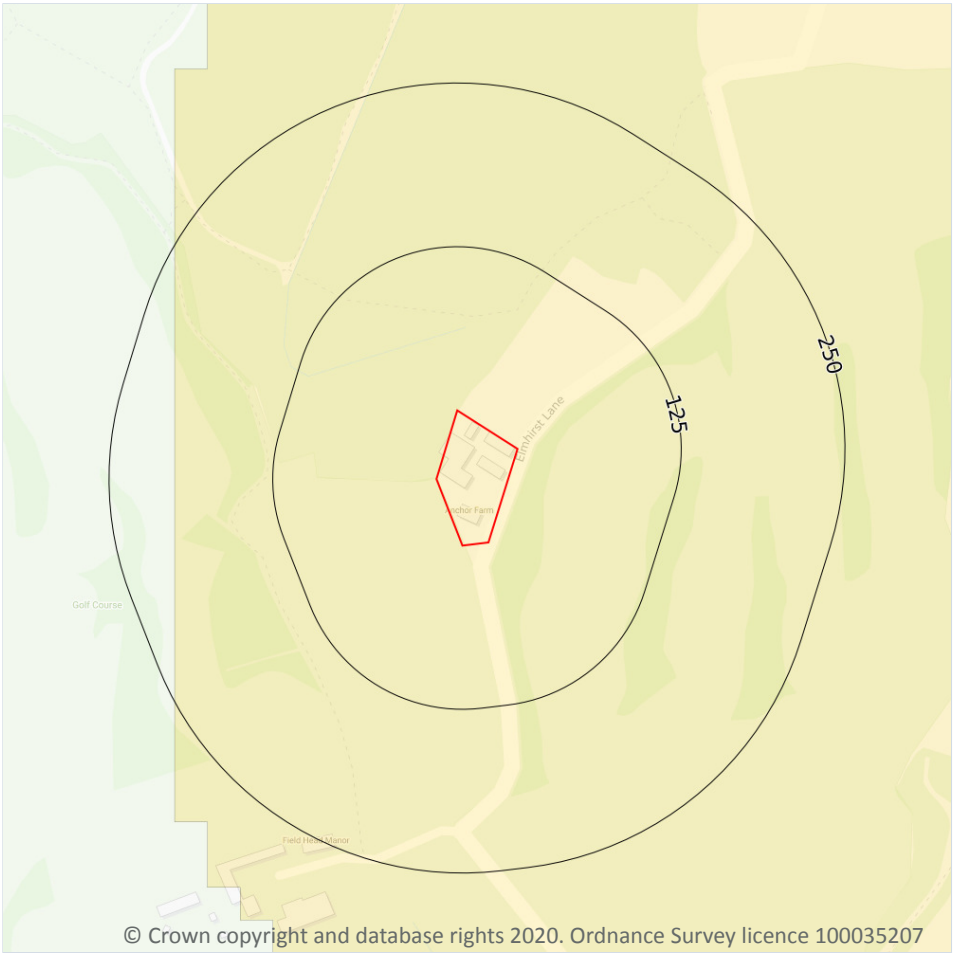
5.13 Clay mining

Records on site	0

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

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

6 Radon



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%

6.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 43**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 1% and 3%**	**None**

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

7 Soil chemistry

7.1 BGS Estimated Background Soil Chemistry

Records within 50m	3

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 km^2. 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 km^2; 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	**25 - 35 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**25 - 35 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
46m E	15 - 25 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.

7.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

7.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

8 Railway infrastructure and projects

8.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

8.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

8.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

8.4 Historical railway and tunnel features

Records within 250m	0

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

This data is sourced from Ordnance Survey/Groundsure.

8.5 Royal Mail tunnels

Records within 250m	0

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

This data is sourced from Groundsure/the Postal Museum.

8.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

8.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

8.8 Crossrail 1

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

8.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

8.10 HS2

Records within 500m	0

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

This data is sourced from HS2 ltd.

Data providers

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

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