Jomas Associates Ltd

Lakeside House, 1 Furzeground Way,
Stockley Park, UB11 1BD

Report Reference: HMD-377-4439260

Your Reference: P1207J1245-1

Report Date 3 Nov 2017

Report Delivery Method: Email - pdf

Geo Insight

Address: 38, GLENLOCH ROAD, LONDON, NW3 4DN

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on +44843 289 2187 quoting the above report reference number.

Yours faithfully,

Jomas Associates Ltd

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**38, GLENLOCH ROAD, LONDON, NW3 4DN**
Date:	**3 Nov 2017**
Reference:	**HMD-377-4439260**
Client:	**Jomas Associates Ltd**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	07-Jun-2015
Grid Reference:	527165,184970
Site Size:	0.01ha

Contents Page

Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and Faults	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of faults within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	No
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	No
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and Faults	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of faults within 500m of the study site boundary?	No

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	0	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	9	12	49
4.3 Current Ground Workings	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	8	21
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Moderate
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Negligible

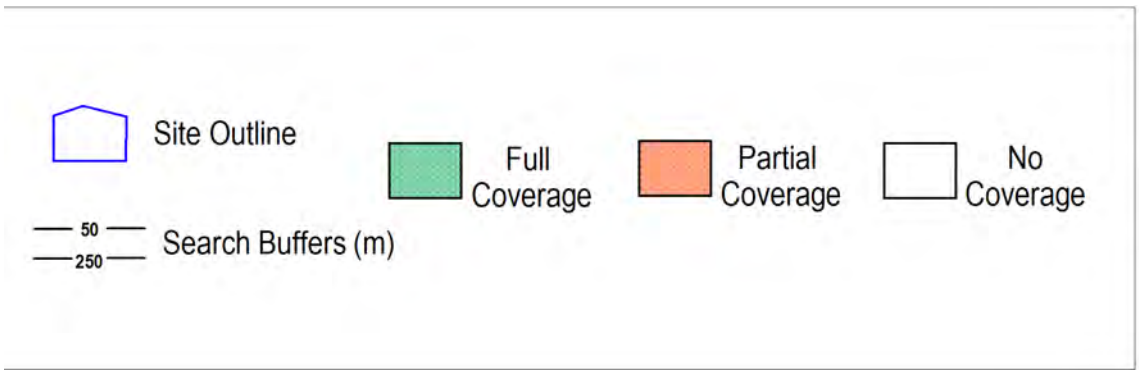
Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	2

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	1	2	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	3	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	43	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	8	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability

1_10,000 Availability Legend



Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	19.0	Some deposits are mapped	Full	Full	No coverage

Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

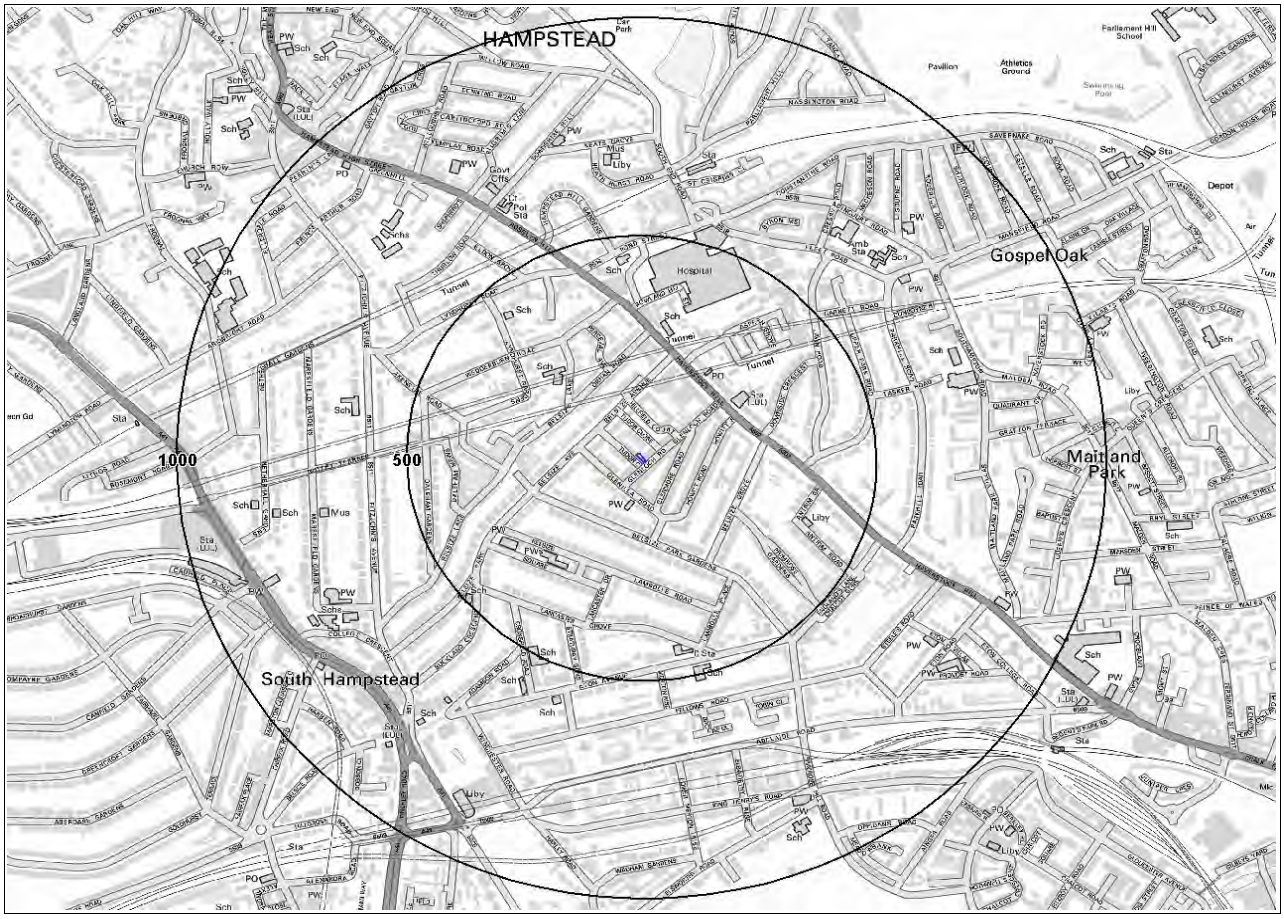
1 Geology (1:10,000 scale).

1.1 Artificial Ground Map (1:10,000 scale)

NW N NE

W E

SW S SE



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

1. Geology 1:10,000 scale

1.1 Artificial Ground

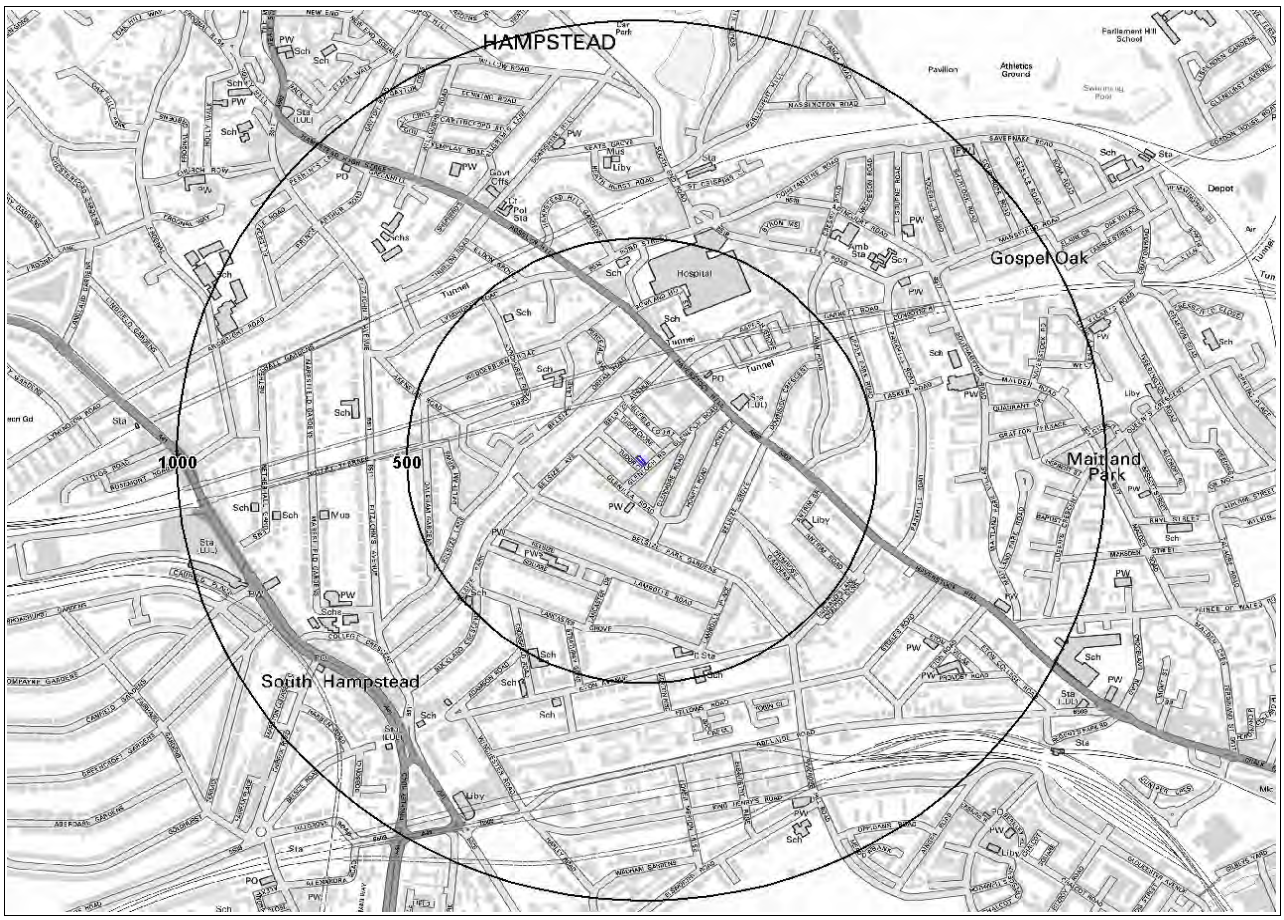
The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2 Superficial Deposits and Landslips Map (1:10,000 scale)

NW N NE



W E

SW S SE

Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

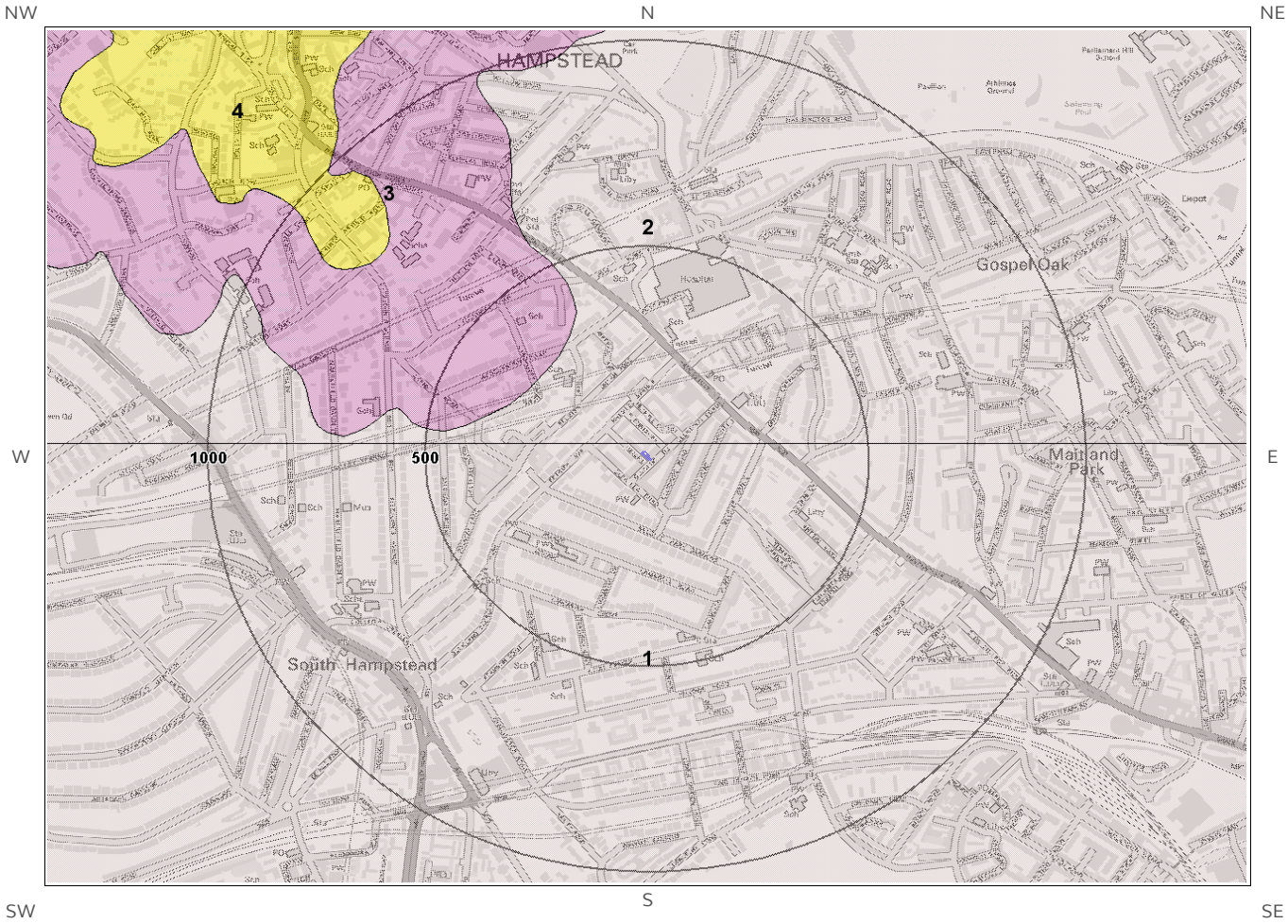
No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and Faults Map (1:10,000 scale)



Bedrock and Faults Legend

Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and Faults

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LC-CLAY	London Clay Formation - Clay	Eocene Epoch
2	19.0	N	LC-CLAY	London Clay Formation - Clay	Eocene Epoch
3	299.0	NW	CLGB-SDST	Claygate Member - Sandstone	Eocene Epoch

1.3.2 Faults

Are there any records of Faults within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

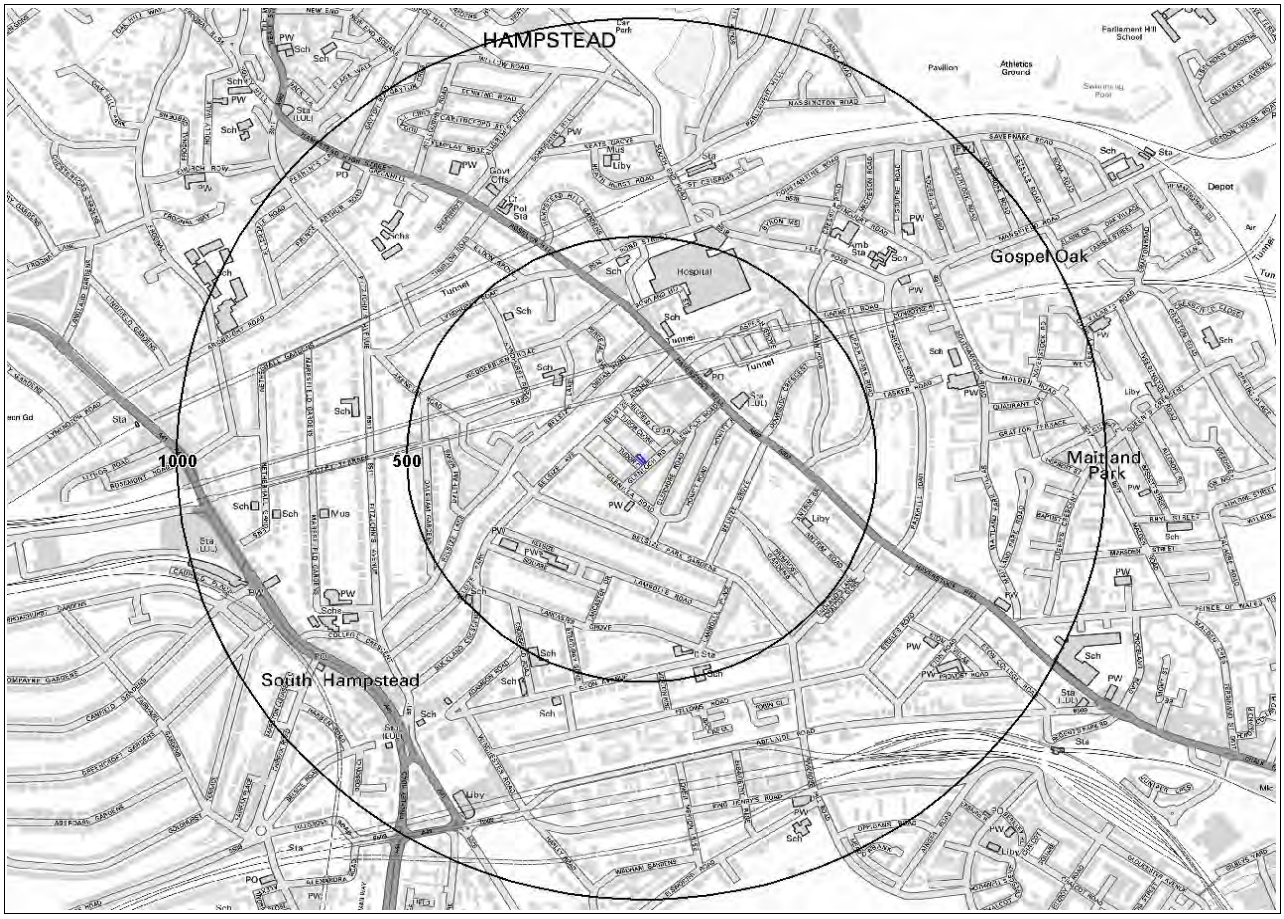
2 Geology 1:50,000 Scale

2.1 Artificial Ground Map

NW N NE

W E

SW S SE



Ground Workings Legend

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 256

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

Database searched and no data found.

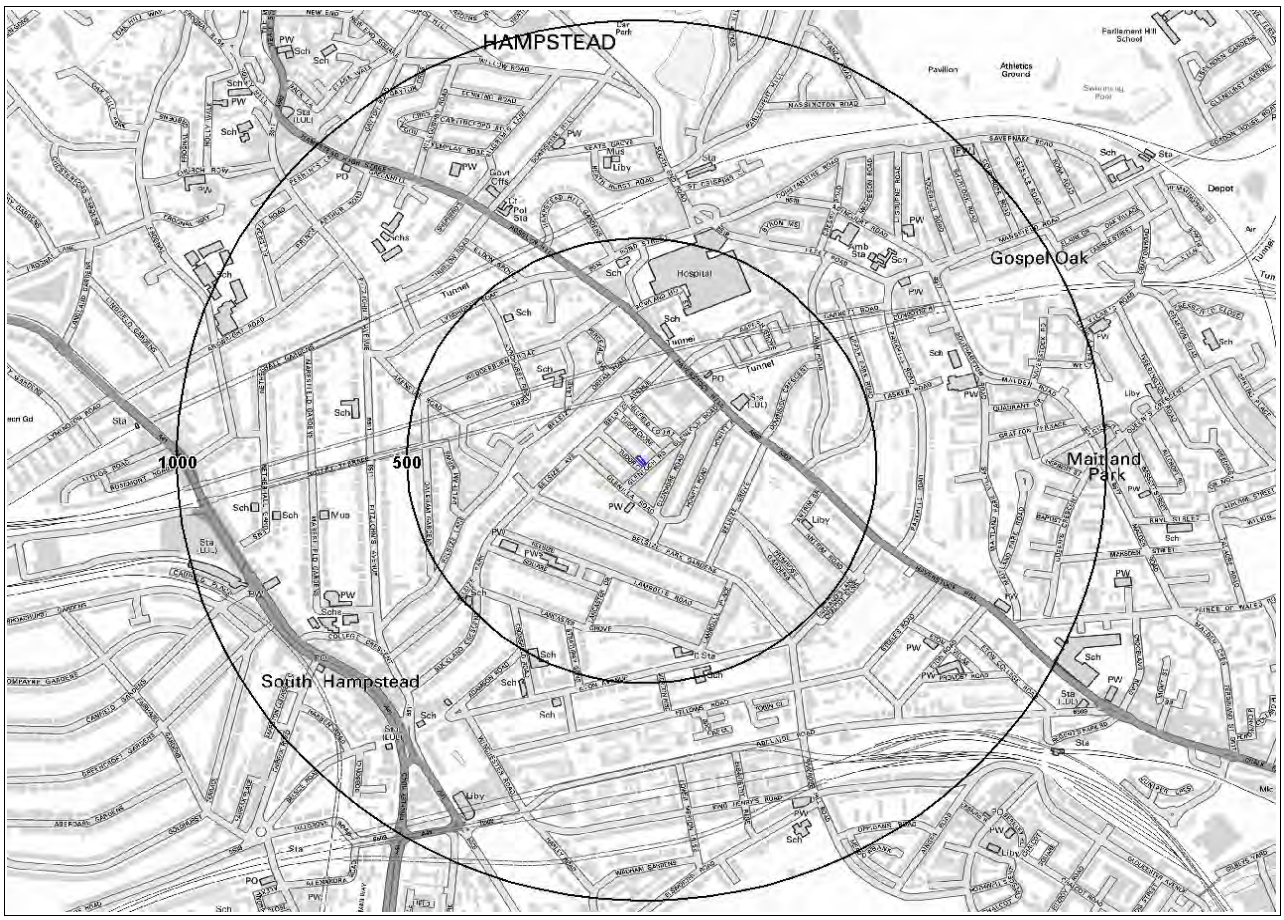
2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips Map (1:50,000 scale)

NW N NE



W E

SW S SE

Ground Workings Legend

Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? No

Database searched and no data found.

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? No

Database searched and no data found.

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

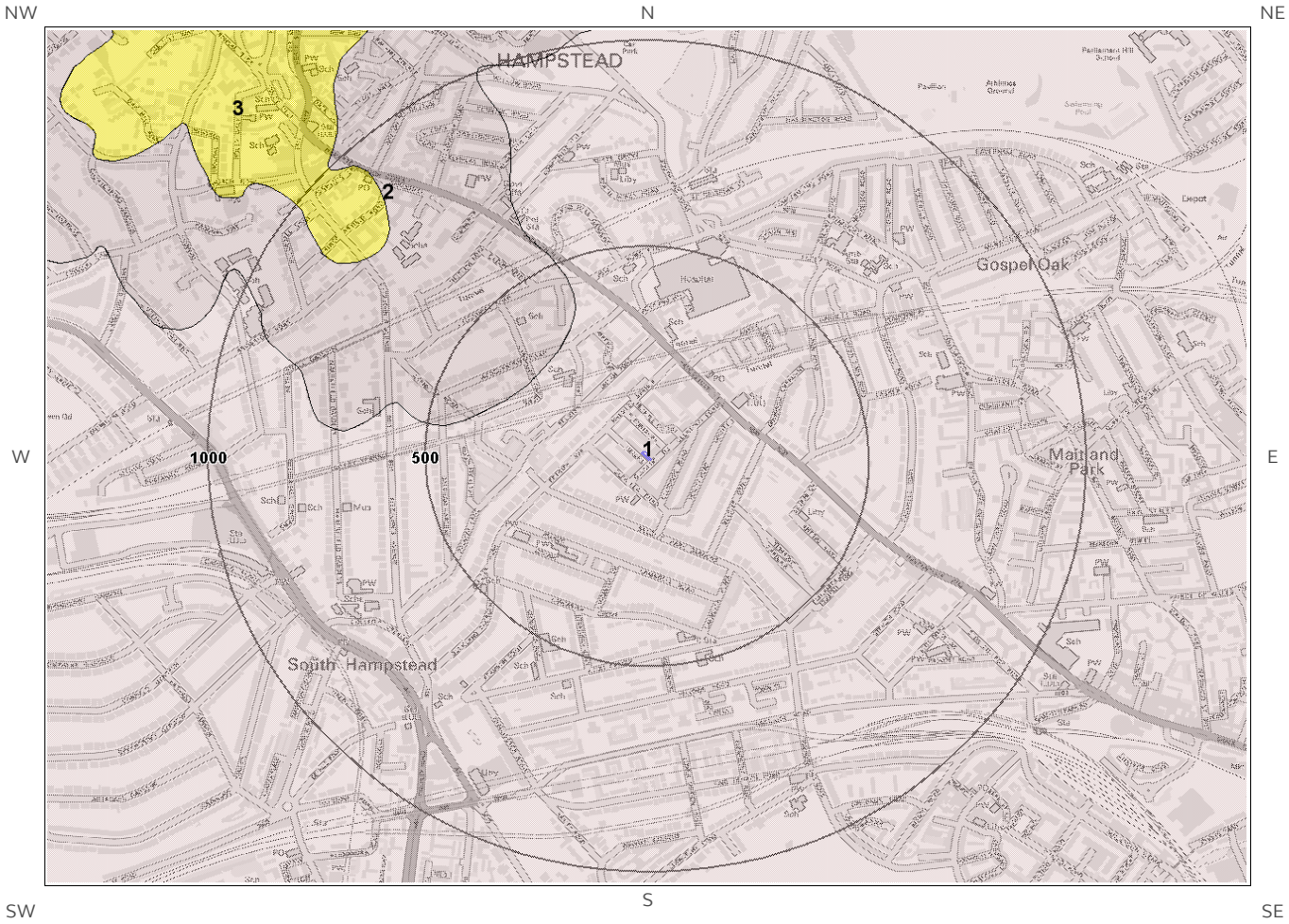
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and Faults Map (1:50,000 scale)



Ground Workings Legend

Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 256

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN
2	308.0	NW	CLGB-XCZS	CLAYGATE MEMBER - CLAY, SILT AND SAND	YPRESIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Moderate	Very Low
19.0	N	Mixed	Moderate	Very Low

2.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

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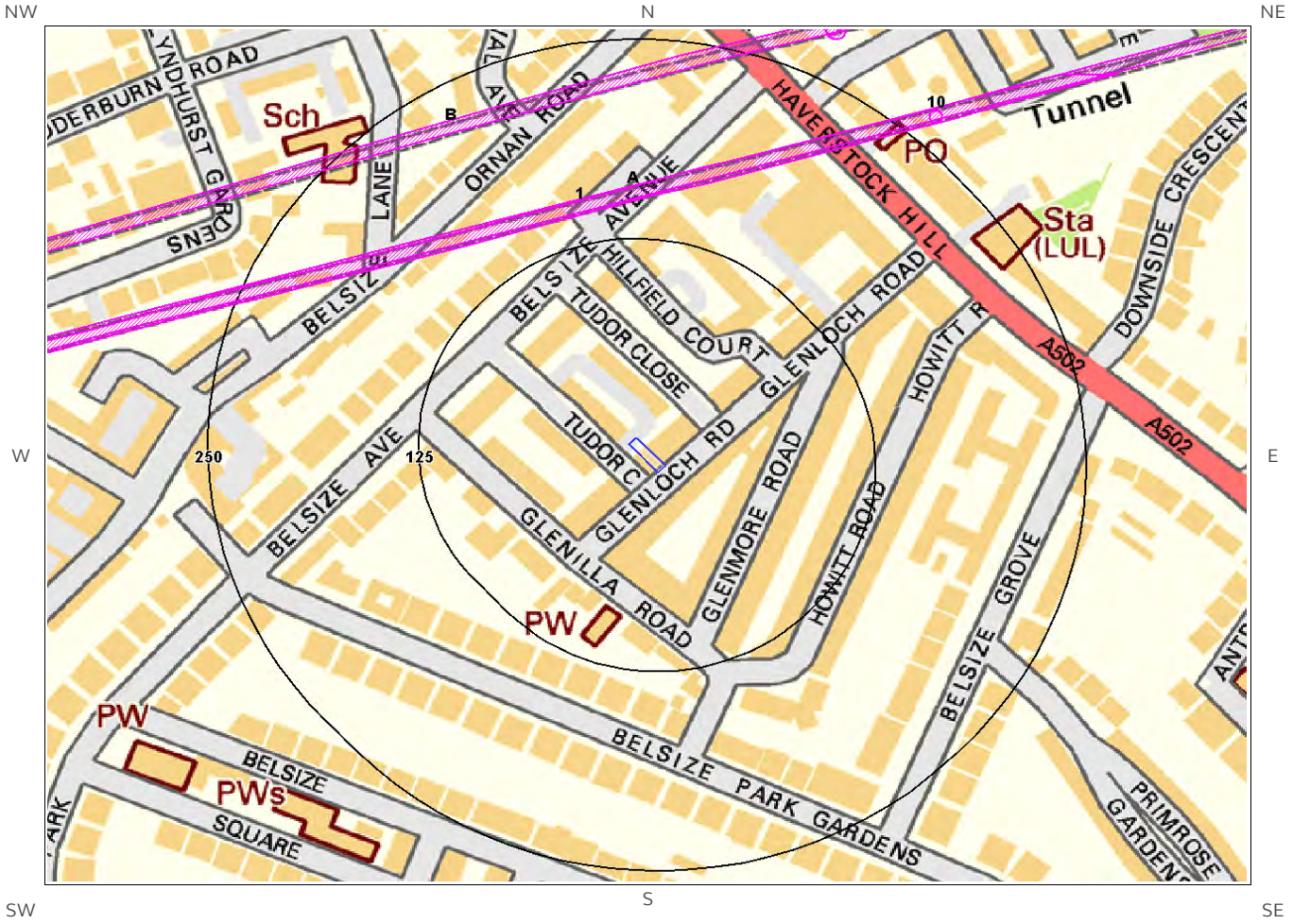
4 Ground Workings Map



Ground Workings Legend

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? No

Database searched and no data found.

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
1	144.0	N	526842 185044	Tunnel	1866
2A	145.0	N	527203 185151	Tunnel	1995
3A	145.0	N	527203 185151	Tunnel	1974
4A	145.0	N	527203 185151	Tunnel	1958
5A	145.0	N	527203 185151	Tunnel	1965
6B	214.0	N	527029 185170	Tunnel	1995
7B	214.0	N	527029 185170	Tunnel	1974
8B	214.0	N	527029 185170	Tunnel	1965
9B	214.0	N	527029 185170	Tunnel	1958
10	265.0	NE	527336 185182	Unspecified Shaft	1866
11C	276.0	NE	527277 185236	Air Shaft	1912
12C	278.0	NE	527274 185237	Air Shaft	1940
13C	283.0	NE	527282 185240	Air Shaft	1920

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	402.0	W	526752 185021	Unspecified Shaft	1866
Not shown	417.0	NE	527466 185268	Air Shaft	1912
Not shown	423.0	NE	527471 185273	Air Shaft	1920
Not shown	455.0	W	526706 185071	Air Shaft	1920
Not shown	480.0	W	526419 184933	Tunnels	1968
Not shown	480.0	W	526419 184933	Tunnels	1973
Not shown	480.0	W	526419 184933	Tunnels	1989
Not shown	480.0	W	526419 184933	Tunnels	1957
Not shown	533.0	NW	526647 185330	Tunnel	1995
Not shown	533.0	NW	526647 185330	Tunnel	1974
Not shown	533.0	NW	526647 185330	Tunnel	1965
Not shown	533.0	NW	526845 185427	Tunnel	1958
Not shown	647.0	NW	526591 185300	Ventilating Shaft	1865
Not shown	668.0	W	526326 184952	Tunnels	1989
Not shown	668.0	W	526326 184952	Tunnels	1973
Not shown	668.0	W	526326 184952	Tunnels	1968
Not shown	668.0	W	526326 184952	Tunnels	1957
Not shown	671.0	S	526978 184220	Tunnel	1957
Not shown	671.0	S	526978 184220	Tunnel	1973
Not shown	671.0	S	526978 184220	Tunnel	1989
Not shown	671.0	S	526978 184220	Tunnel	1968
Not shown	686.0	W	526464 184994	Air Shaft	1973
Not shown	686.0	W	526464 184994	Air Shaft	1989
Not shown	690.0	W	526461 184996	Air Shaft	1940
Not shown	691.0	W	526461 184995	Air Shaft	1920
Not shown	731.0	S	527028 184182	Tunnels	1957
Not shown	732.0	S	527018 184178	Tunnel	1989
Not shown	732.0	S	527018 184178	Tunnel	1973
Not shown	732.0	S	527018 184178	Tunnel	1968

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	786.0	SE	527589 184287	Air Shafts	1989
Not shown	802.0	S	526989 184174	Air Shaft	1940
Not shown	813.0	SE	527368 184142	Tunnels	1957
Not shown	818.0	SE	527362 184138	Tunnel	1973
Not shown	818.0	SE	527362 184138	Tunnel	1968
Not shown	818.0	SE	527362 184138	Tunnel	1989
Not shown	833.0	SE	527650 184271	Air Shafts	1989
Not shown	849.0	W	526240 185137	Tunnel	1958
Not shown	863.0	SW	526483 184398	Tunnel	1973
Not shown	863.0	SW	526483 184398	Tunnel	1968
Not shown	863.0	SW	526483 184398	Tunnel	1957
Not shown	866.0	SW	526471 184430	Air Shaft	1957
Not shown	872.0	S	527162 184082	Air Shaft	1894
Not shown	873.0	S	527156 184083	Air Shaft	1957
Not shown	873.0	S	527156 184083	Air Shaft	1940
Not shown	873.0	S	527156 184083	Air Shaft	1968
Not shown	873.0	S	527156 184083	Air Shaft	1989
Not shown	873.0	S	527156 184083	Air Shaft	1973
Not shown	877.0	SW	526462 184429	Air Shaft	1940
Not shown	888.0	NE	528025 185363	Tunnel	1965
Not shown	888.0	NE	528025 185363	Tunnel	1995
Not shown	888.0	NE	528025 185363	Tunnel	1974
Not shown	947.0	SW	526740 184111	Air Shaft	1973
Not shown	947.0	SW	526740 184111	Air Shaft	1968
Not shown	962.0	SE	528256 184173	Tunnel	1989
Not shown	976.0	SW	526504 184237	Air Shaft	1957
Not shown	982.0	SW	526499 184237	Air Shaft	1920
Not shown	984.0	SW	526496 184238	Air Shaft	1940

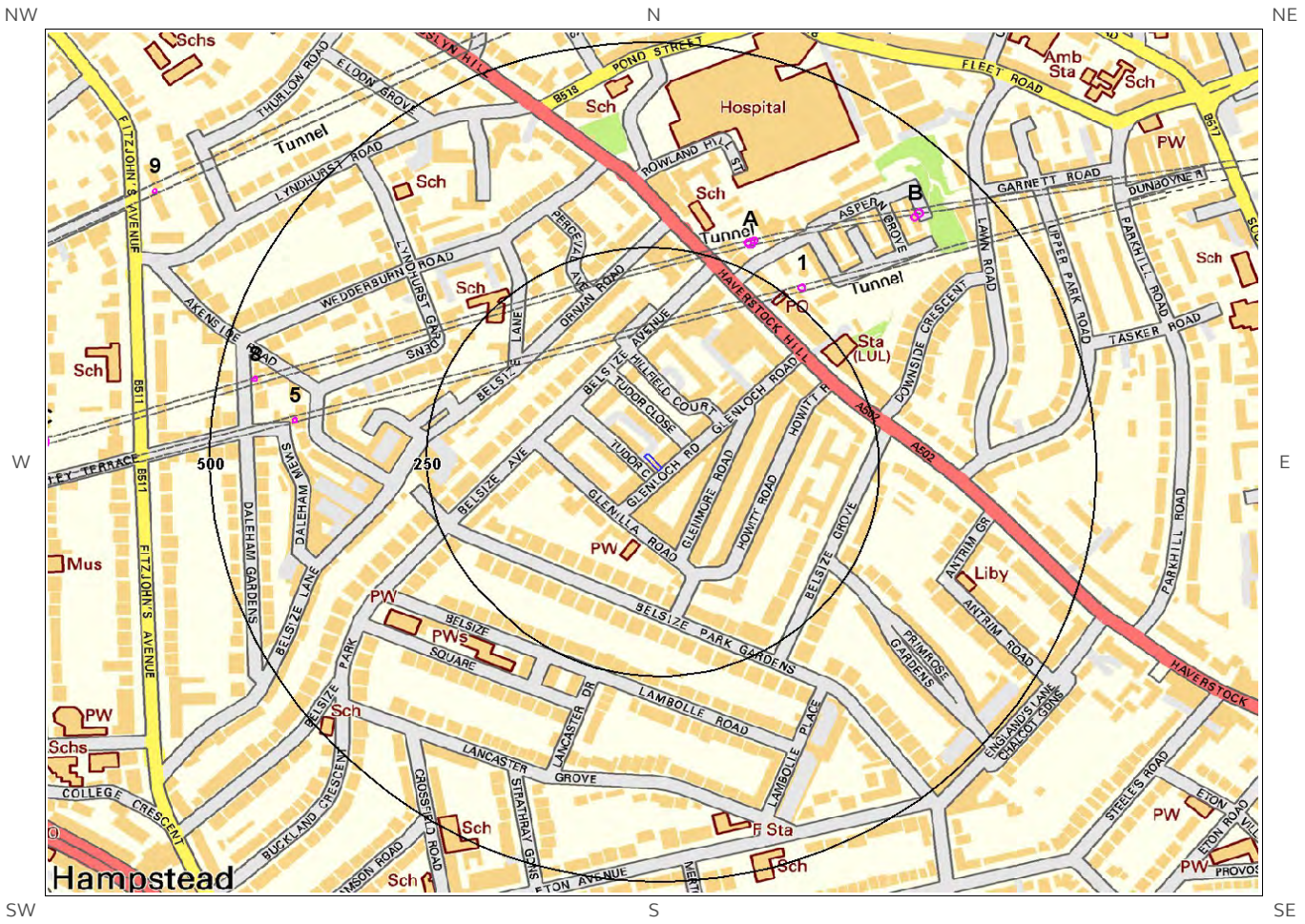
4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

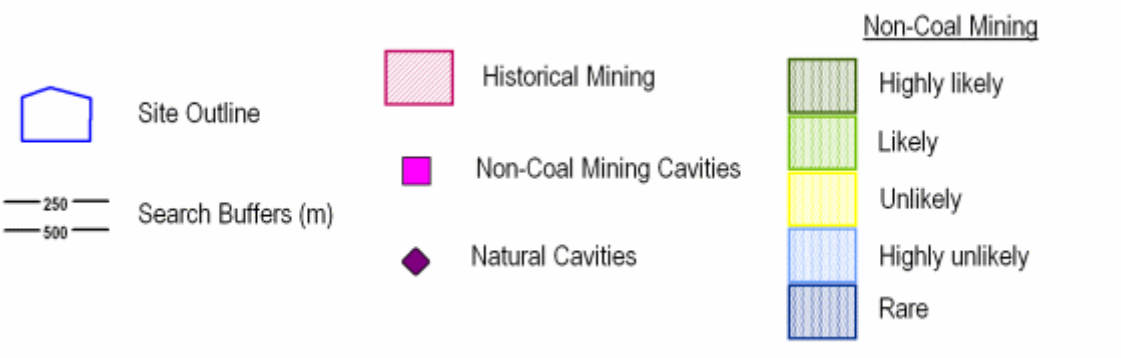
Are there any BGS Current Ground Workings within 1000m of the study site boundary? No

Database searched and no data found.

5 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend



5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? Yes

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
1	265.0	NE	527336 185182	Unspecified Shaft	1866
2A	276.0	NE	527277 185236	Air Shaft	1912
3A	278.0	NE	527274 185237	Air Shaft	1940
4A	283.0	NE	527282 185240	Air Shaft	1920
5	402.0	W	526752 185021	Unspecified Shaft	1866
6B	417.0	NE	527466 185268	Air Shaft	1912
7B	423.0	NE	527471 185273	Air Shaft	1920
8	455.0	W	526706 185071	Air Shaft	1920
9	647.0	NW	526591 185300	Ventilating Shaft	1865
10C	686.0	W	526464 184994	Air Shaft	1989
11C	686.0	W	526464 184994	Air Shaft	1973
Not shown	690.0	W	526461 184996	Air Shaft	1940
Not shown	691.0	W	526461 184995	Air Shaft	1920
Not shown	786.0	SE	527589 184287	Air Shafts	1989
Not shown	802.0	S	526989 184174	Air Shaft	1940
Not shown	833.0	SE	527650 184271	Air Shafts	1989
Not shown	866.0	SW	526471 184430	Air Shaft	1957
Not shown	872.0	S	527162 184082	Air Shaft	1894
Not shown	873.0	S	527156 184083	Air Shaft	1940
Not shown	873.0	S	527156 184083	Air Shaft	1957

ID	Distance (m)	Direction	NGR	Details	Date
Not shown	873.0	S	527156 184083	Air Shaft	1989
Not shown	873.0	S	527156 184083	Air Shaft	1968
Not shown	873.0	S	527156 184083	Air Shaft	1973
Not shown	877.0	SW	526462 184429	Air Shaft	1940
Not shown	947.0	SW	526740 184111	Air Shaft	1968
Not shown	947.0	SW	526740 184111	Air Shaft	1973
Not shown	976.0	SW	526504 184237	Air Shaft	1957
Not shown	982.0	SW	526499 184237	Air Shaft	1920
Not shown	984.0	SW	526496 184238	Air Shaft	1940

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

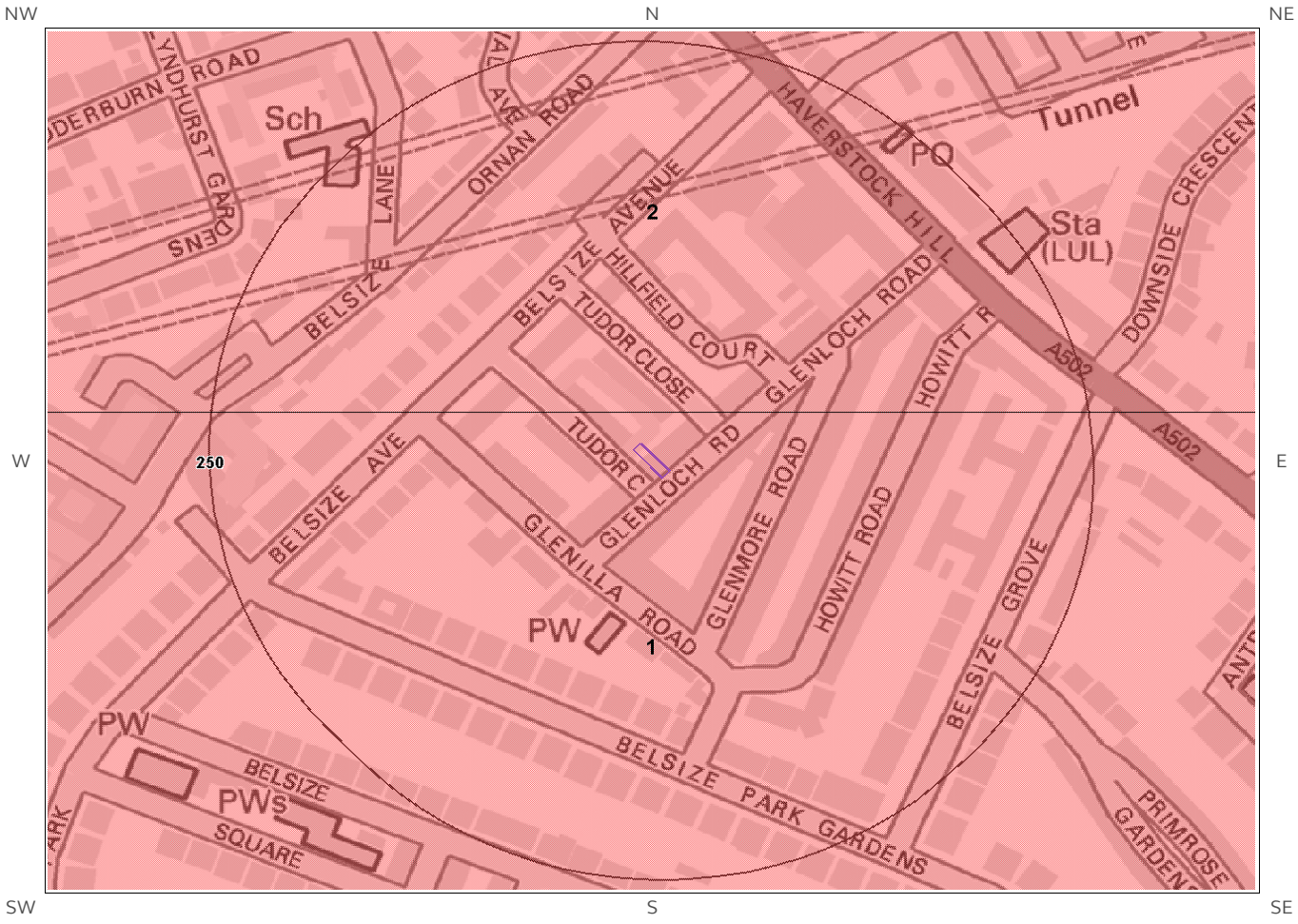
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

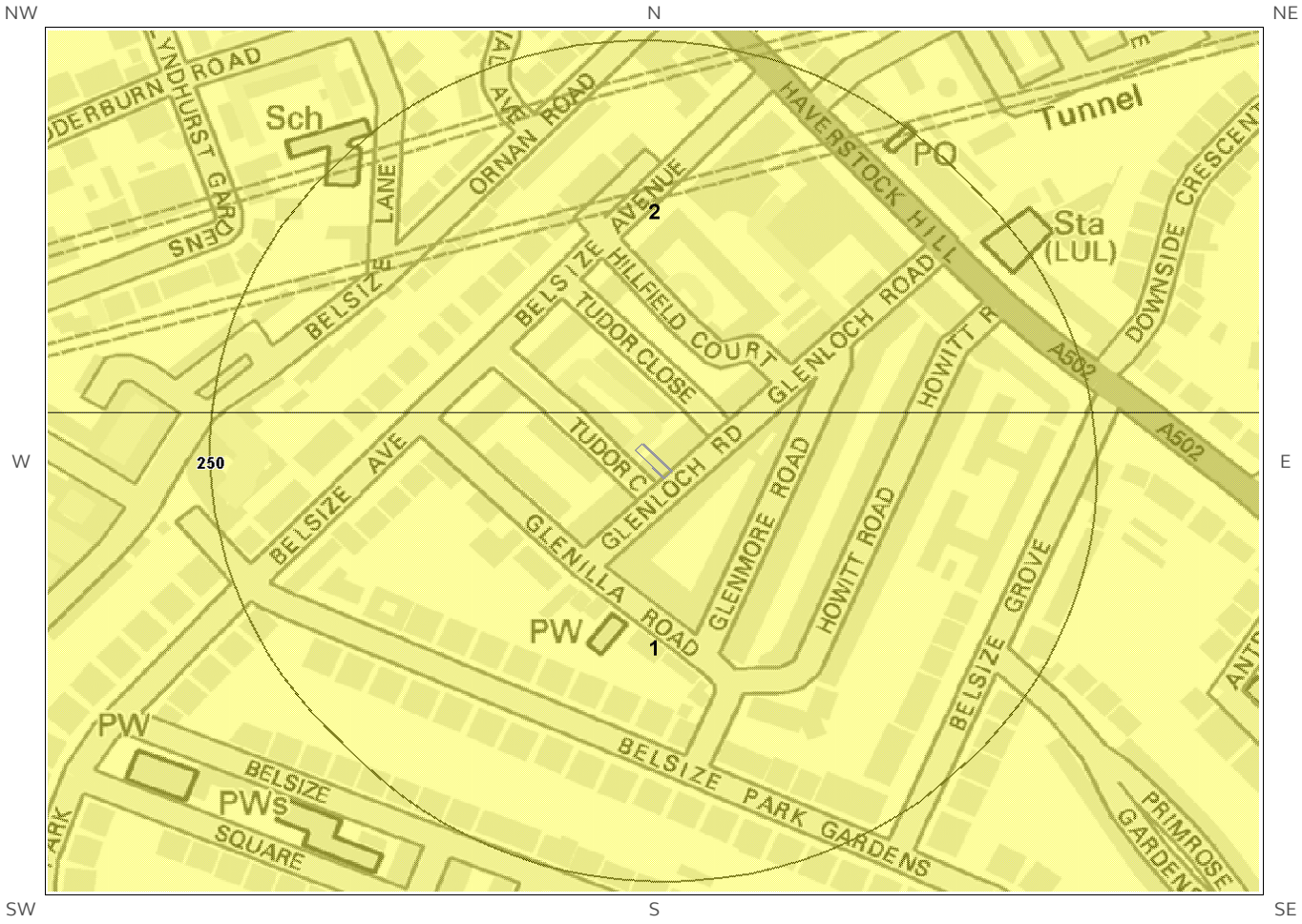
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay Map



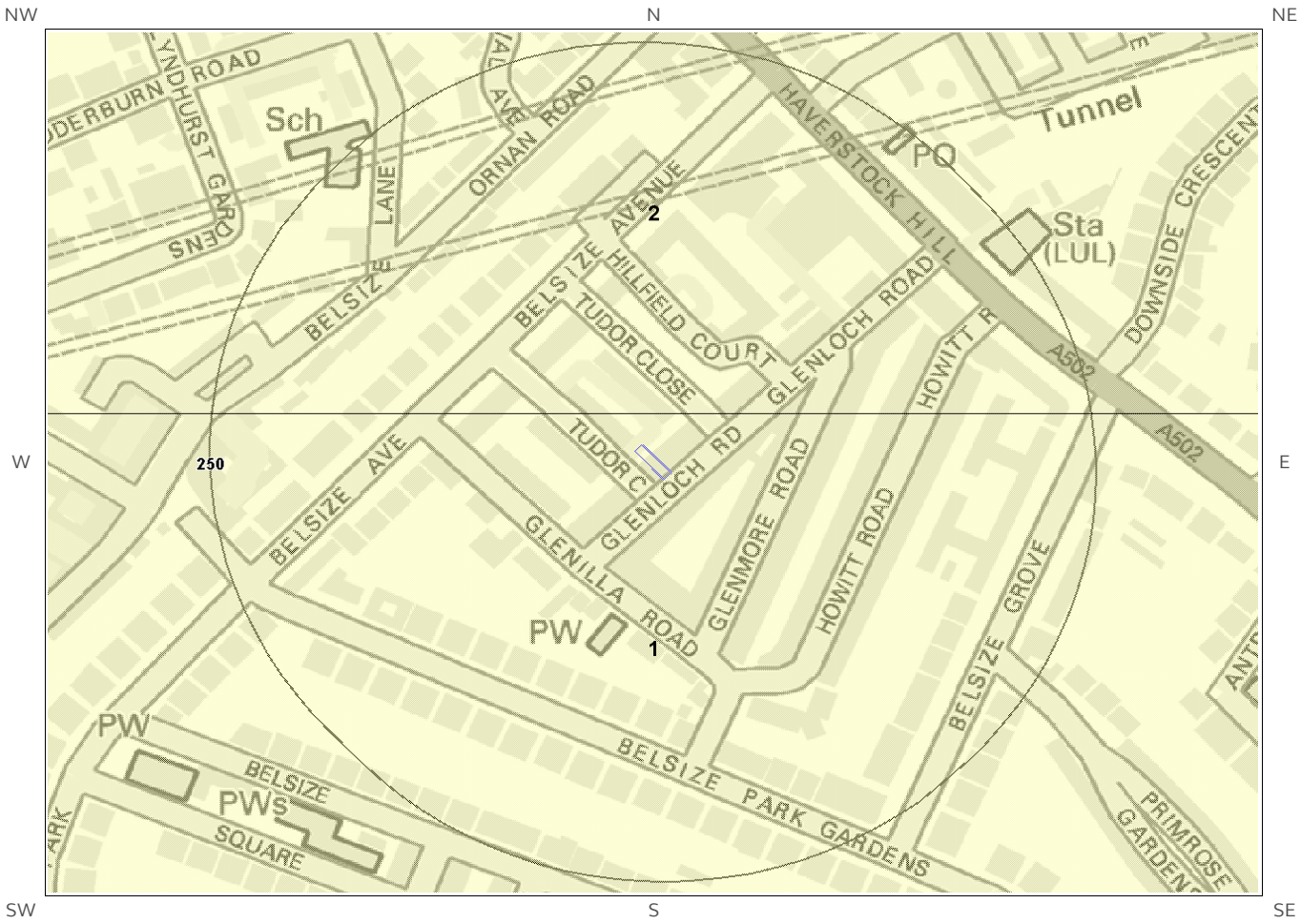
Shrink Swell Clay Legend

6.2 Landslides Map



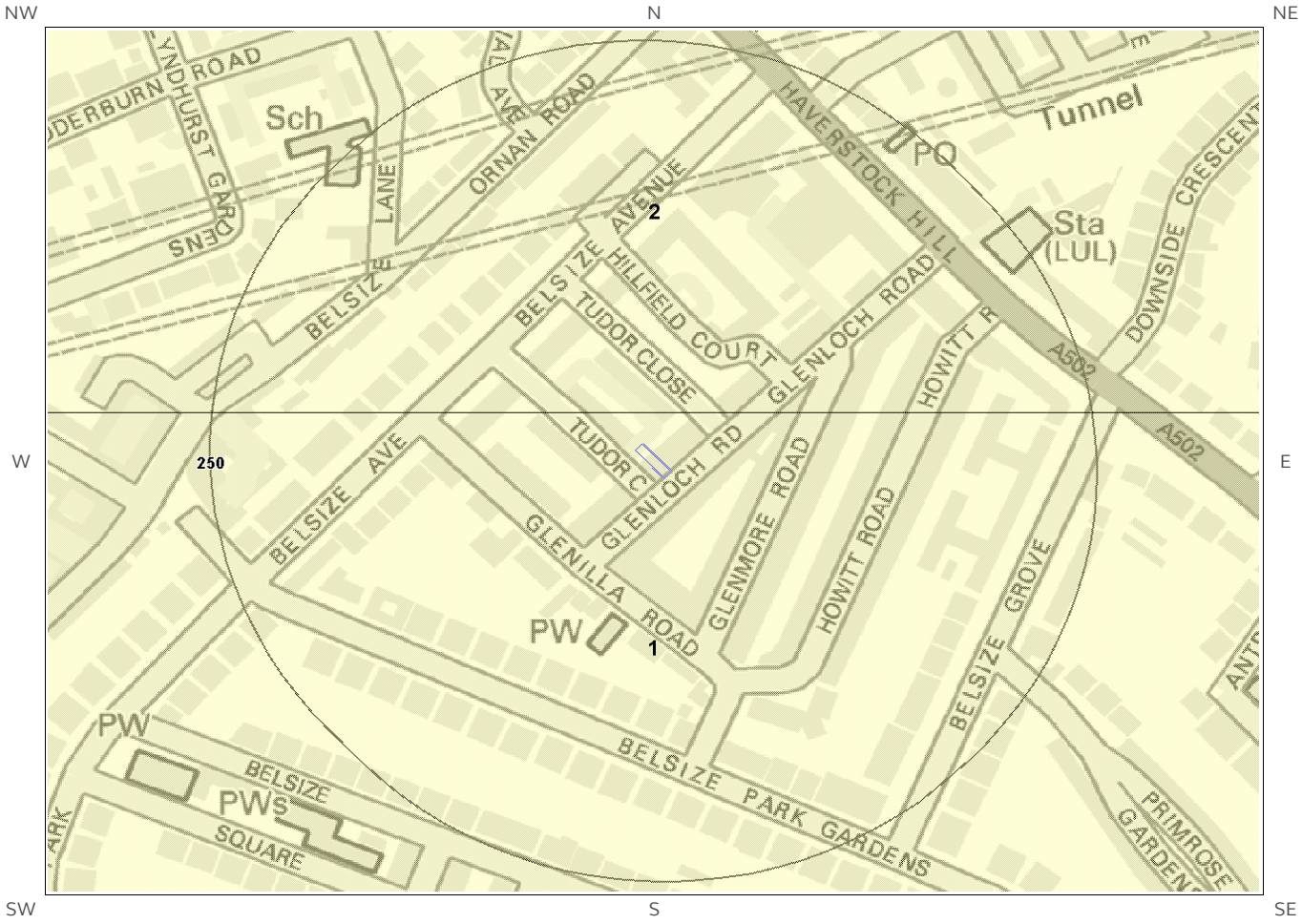
Landslides Legend

6.3 Ground Dissolution of Soluble Rocks Map



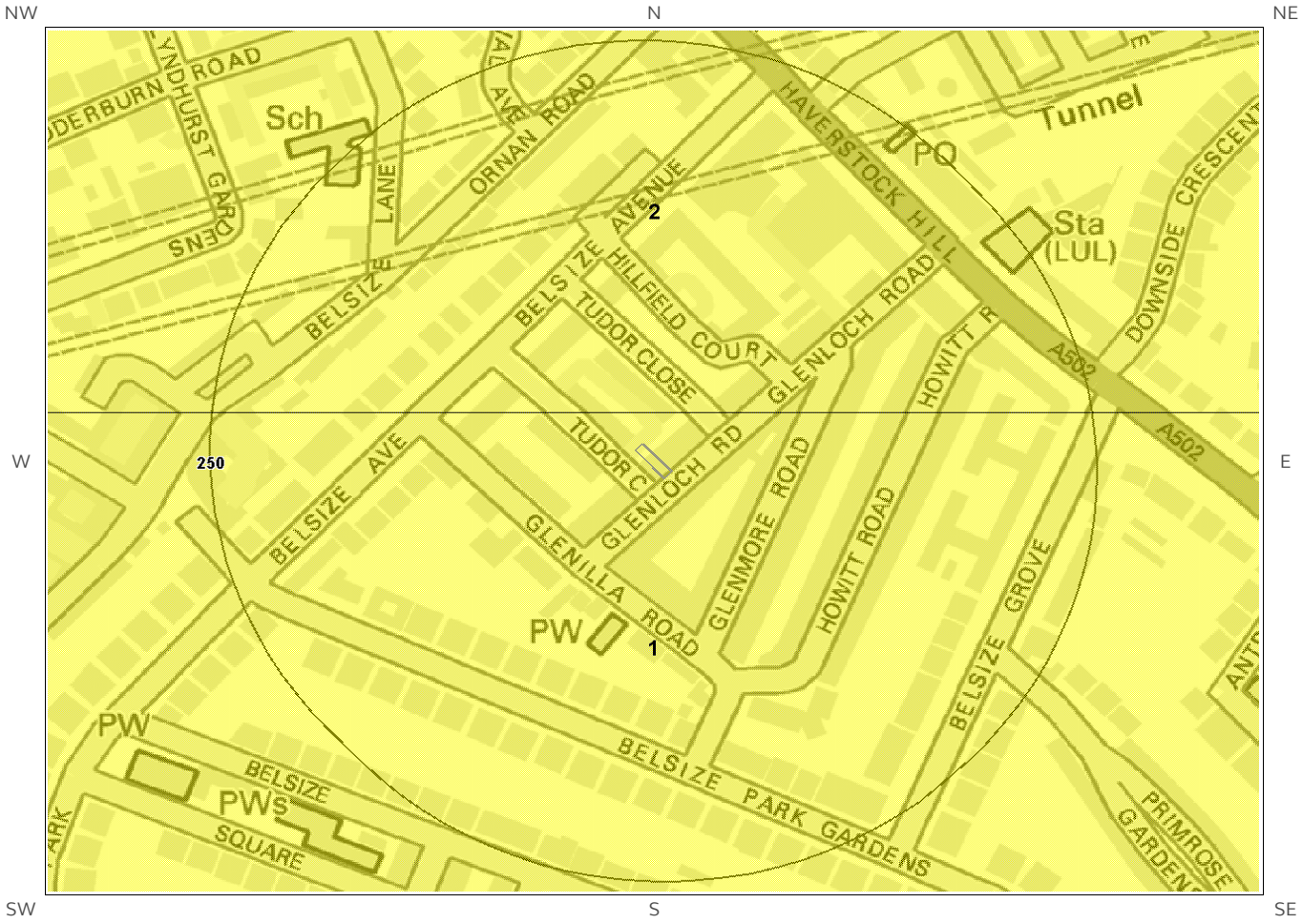
Ground Dissolution Soluble Rocks Legend

6.4 Compressible Deposits Map



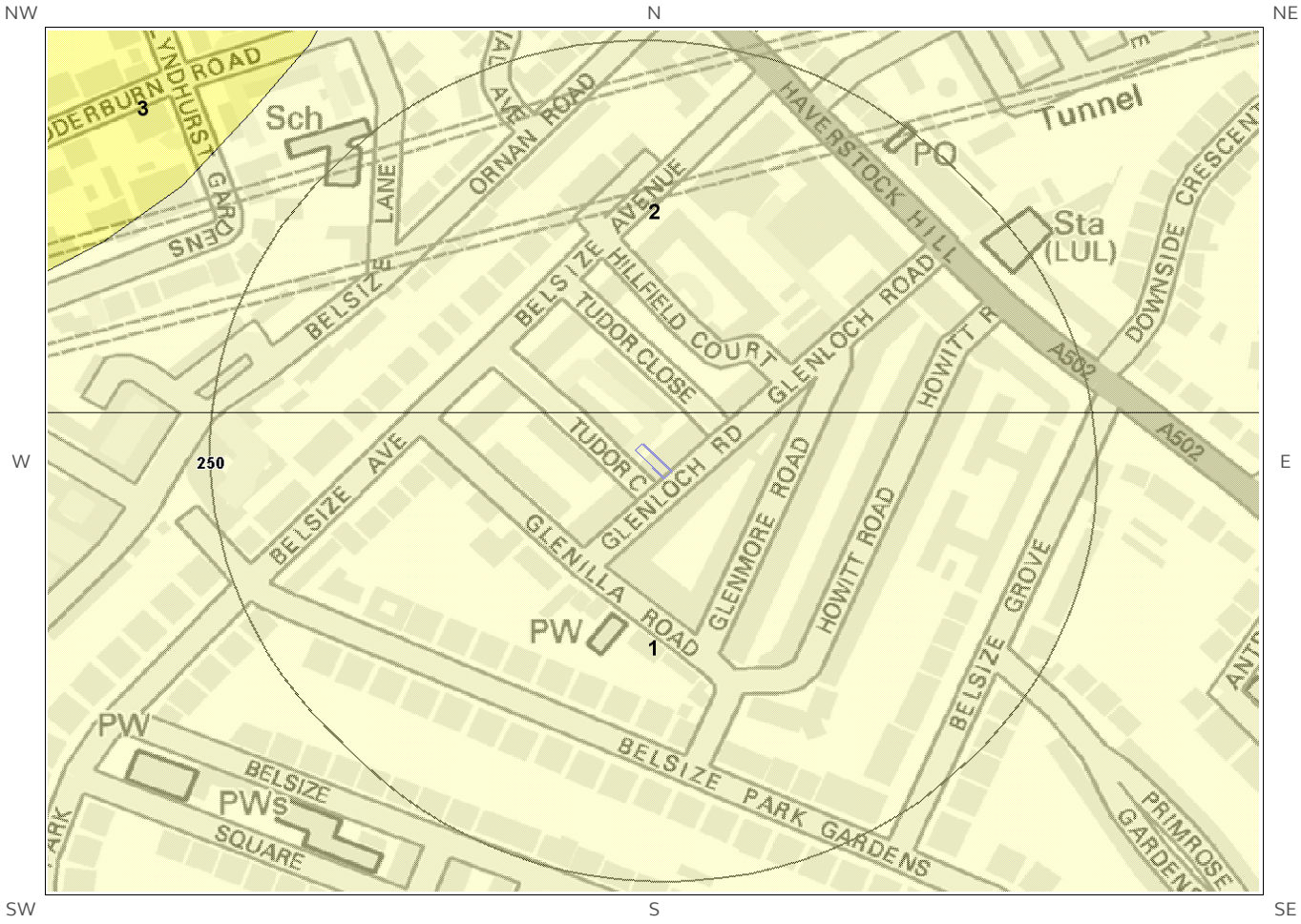
Compressible Deposits Legend

6.5 Collapsible Deposits Map



Collapsible Deposits Legend

6.6 Running Sand Map



Running Sand Legend

6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.
2	19.0	N	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

* This includes an automatically generated 50m buffer zone around the site

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.
2	19.0	N	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.
2	19.0	N	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	19.0	N	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

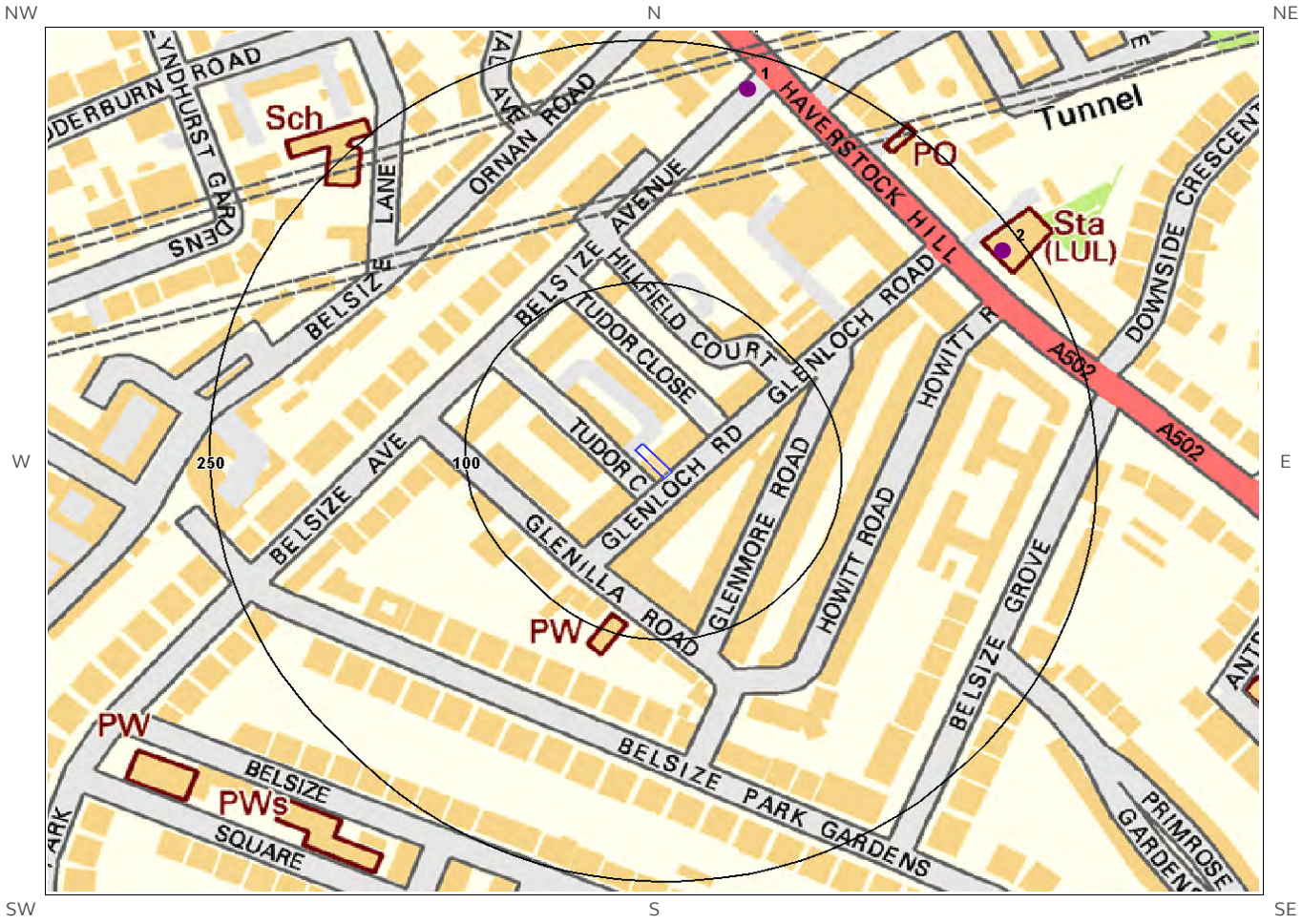
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	19.0	N	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	19.0	N	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records Map



Borehole Records Legend

Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 2

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	228.0	N	527220 185200	TQ28NE38	6.09	JUNCTION OF BELSIZE AVE HAMPSTEAD
2	238.0	NE	527370 185100	TQ28NE48	43.58	BELSIZE PARK STATION ISLINGTON

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/590626
#2: scans.bgs.ac.uk/sobi_scans/boreholes/590636

8 Estimated Background Soil Chemistry

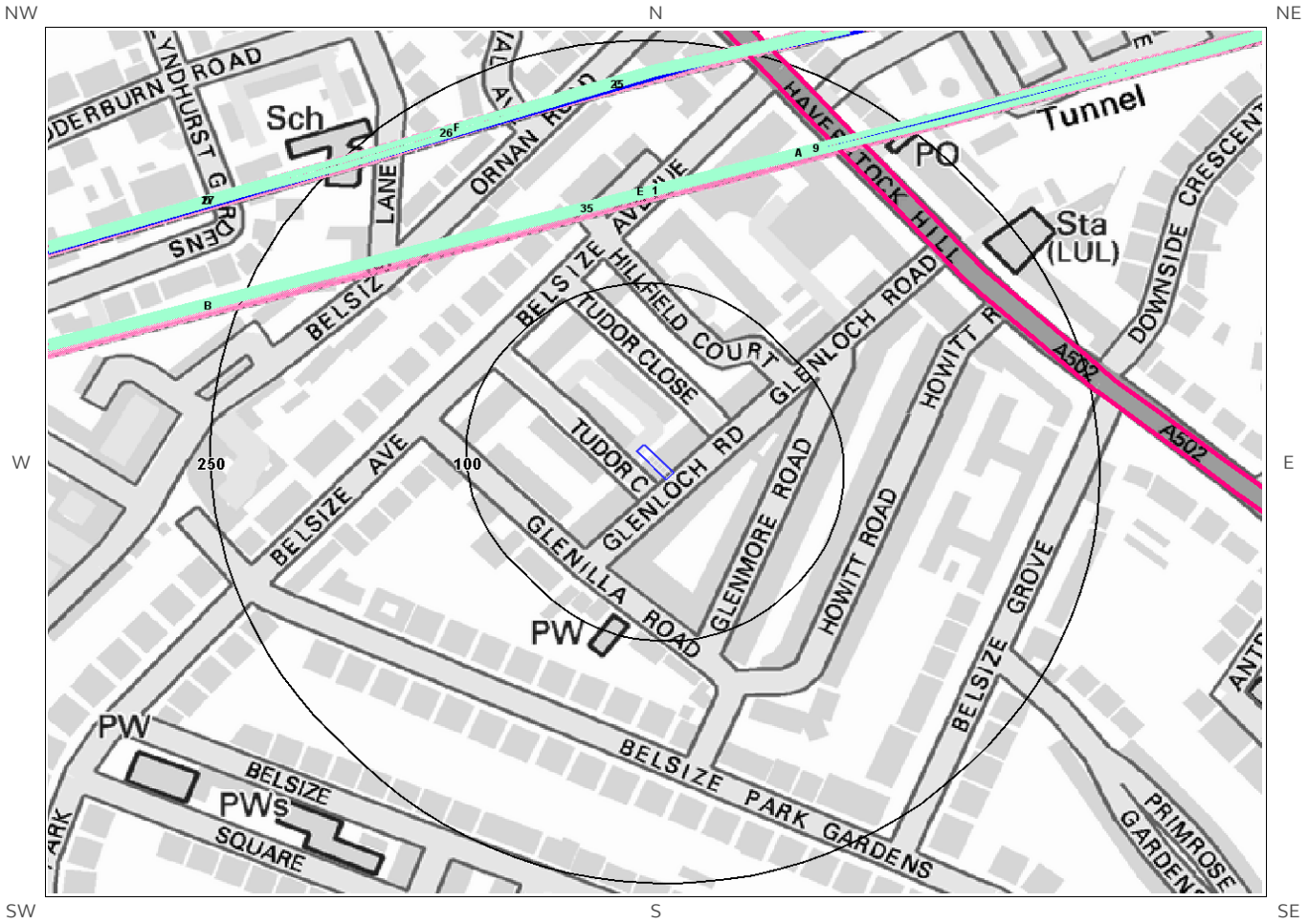
Records of background estimated soil chemistry within 250m of the study site boundary: 3

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	London	No data	No data	No data	No data	No data
19.0	N	London	No data	No data	No data	No data	No data
19.0	N	London	No data	No data	No data	No data	No data

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels Map



Railways and Tunnels Legend

- Site Outline
- Search Buffers (m): 250, 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary?	No
Have any underground railway lines been identified within 250m of the study site boundary?	Yes

Distance (m)	Direction	Detail
207	NE	London Underground - Northern Line

The approximate depth value for the nearest London Underground line given in this dataset has been extrapolated from published depths of tube lines at station platforms, and assume a constant gradient between stations. Using this method, topographical variation has resulted in some parts of the line having associated depth values either shallower or deeper than the real-world situation. Depth values are for indication only and should not be relied upon for any calculation or technical purpose and are in no way a substitute for a professional survey.

Line
London Underground Line: Northern Line Depth: 37mbgl Track Type: Tunnel

Any records that have been identified are represented on the Railways and Tunnels Map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary?	No
Have any other railway tunnels been identified within 250m of the site boundary?	Yes

Distance (m)	Direction	Detail
150	N	Railway Tunnel
215	N	Railway Tunnel

Any records that have been identified are represented on the Railways and Tunnels Map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1	144	N	527204 185149	Tunnel	1965
2A	144	N	527250 185159	Tunnel	1991
3A	144	N	527250 185159	Tunnel	1991
4A	144	N	527250 185159	Tunnel	1985
5A	144	N	527250 185159	Tunnel	1989
35	144	N	526842 185044	Tunnel	1874
6A	145	N	527250 185159	Tunnel	1974
7A	145	N	527250 185159	Tunnel	1966
8A	145	N	527250 185159	Tunnel	1953
9	145	N	527377 185194	Tunnel	1953
36E	145	N	527203 185151	Tunnel	1996
37E	145	N	527203 185151	Tunnel	1958
38E	145	N	527203 185151	Tunnel	1974
39E	145	N	527203 185151	Tunnel	1965
10B	189	NW	526826 185047	Tunnel	1953
11B	190	NW	526840 185047	Tunnel	1991
12B	190	NW	526840 185047	Tunnel	1986
13B	190	NW	526826 185047	Tunnel	1966
14B	190	NW	526826 185047	Tunnel	1953
15B	190	NW	526826 185047	Tunnel	1977
16B	190	NW	526826 185048	Tunnel	1986
17B	190	NW	526826 185048	Tunnel	1991
18C	214	N	527209 185220	Tunnel	1953

ID	Distance (m)	Direction	NGR	Details	Date
19C	214	N	527209 185220	Tunnel	1974
20C	214	N	527209 185220	Tunnel	1966
21C	214	N	527206 185220	Tunnel	1991
22C	214	N	527206 185220	Tunnel	1991
23C	214	N	527206 185220	Tunnel	1985
24C	214	N	527206 185220	Tunnel	1989
25	214	N	527316 185247	Tunnel	1953
26	214	N	527031 185169	Tunnel	1965
40F	214	N	527029 185170	Tunnel	1974
41F	214	N	527029 185170	Tunnel	1965
42F	214	N	527029 185170	Tunnel	1996
43F	214	N	527029 185170	Tunnel	1958
27	236	NW	526733 185081	Tunnel	1953
28D	236	NW	526750 185083	Tunnel	1986
29D	236	NW	526750 185083	Tunnel	1991
30D	236	NW	526750 185083	Tunnel	1991
31D	236	NW	526750 185083	Tunnel	1986
32D	236	NW	526750 185083	Tunnel	1966
33D	236	NW	526750 185083	Tunnel	1953
34D	236	NW	526750 185083	Tunnel	1977

Any records that have been identified are represented on the Railways and Tunnels Map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels Map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
149	N	Not given	Rail
149	N	Not given	Rail
153	N	Not given	Rail
153	N	Not given	Rail
217	N	Not given	Rail
217	N	Not given	Rail
221	N	Not given	Rail
221	N	Not given	Rail

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels Map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? Yes

Is the study site within 500m of the route of the Crossrail 1 rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

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www.coal.gov.uk

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https://www.gov.uk/government/organisations/public-health-england
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