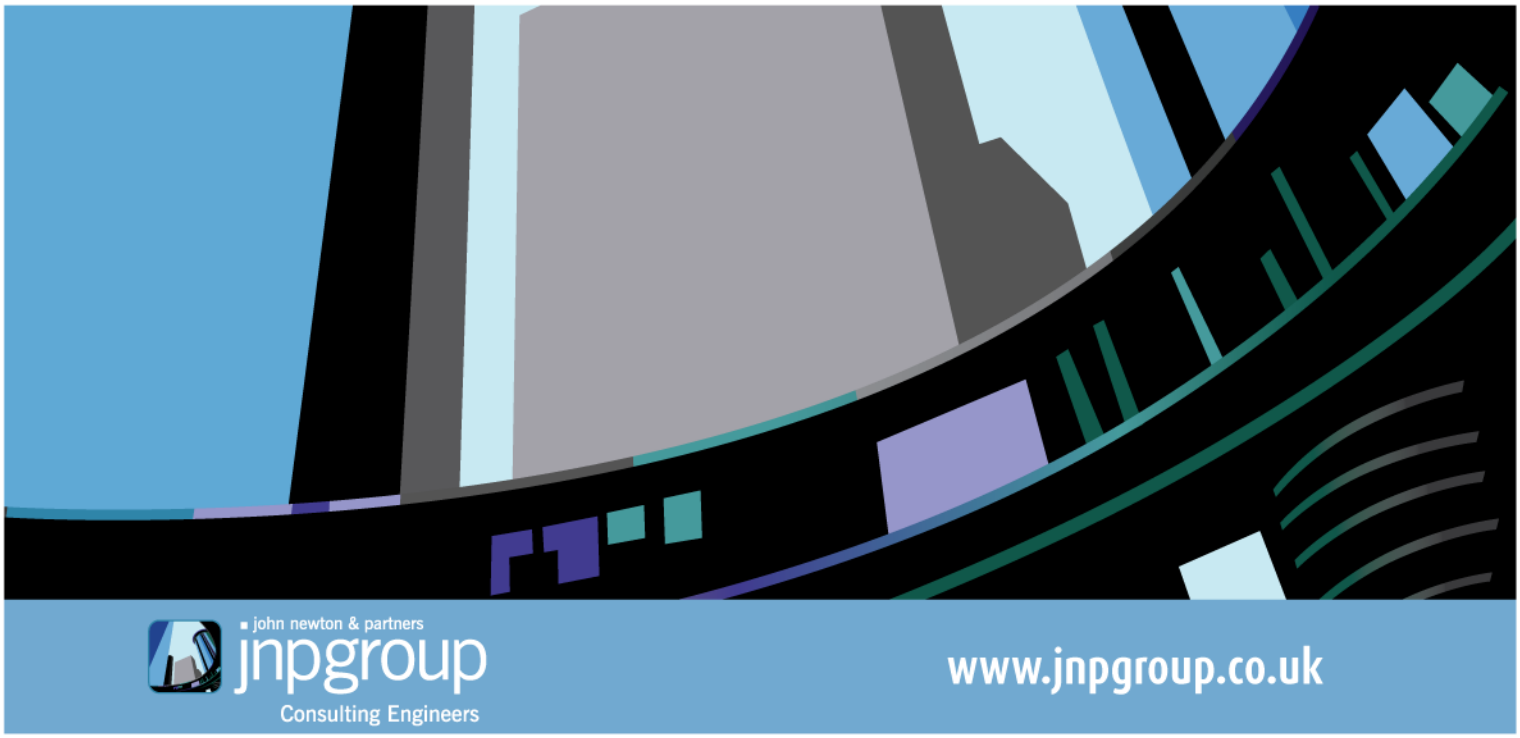

Phase 1 Geo-environmental Desk Study

Project: Dukesbridge House, Reading

Client: Lipman Properties

Reference: C86080-JNP-XX-XX-RP-C-1001-S2 P06

Date: July 2020

Sheffield

telephone
0114 2443 500

email
sheffield@jnpgroup.co.uk

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Phase 1 Geo-environmental Desk Study

Prepared by……
Philip Taylor BSc (Hons) MA CGeol FGS
Principal (Geo-environmental) Engineer

Reviewed by……
Sarah Longstaff
Principal Hydrogeologist

FOR AND ON BEHALF OF JNP GROUP

Date: 9 July 2020

Document Issue Record

Rev	Date	Description	Prepared	Checked	Approved
~	08.04.2019	First Issue	PT	SLL	SLL
P01	17.04.2019	Revised layouts, specific to Dukesbridge Chambers	SL	RS	RS
P02	22.11.2019	Revised Layout	EL	SLL	SLL
P03	05.12.2019	Revised Layout	EL	SLL	SLL
P04	22.01.2020	Revised Layout	SLL		SLL
P05	29.06.2020	Revised Layout	PT	DRS	DRS
P06	09.07.2020	Revised layout, specific to PD scheme	SLL	SLL	SLL

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Appendix B

Groundsure Report

Geo Insight

Address:	**DUKESBRIDGE COURT, DUKE STREET, READING, RG1 4SA**
Date:	**4 Apr 2019**
Reference:	**GS-5923759**
Client:	**JNP Group**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	20-Apr-2015
Grid Reference:	471776,173356
Site Size:	0.3360ha

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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?*	Yes
	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 linear features	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 linear features 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?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	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

Groundsure
LOCATION INTELLIGENCE

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	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 linear features 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	2	5	7	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	36

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	1	0	1	2	5
5.4 Non-Coal Mining*	0	1	1	4	41
5.5 Non–Coal Mining Cavities	0	0	0	3	24
5.5 Natural Cavities	0	0	3	1	31

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	Very Low
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Low
6.4 Compressible Deposits	Moderate
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	1	51

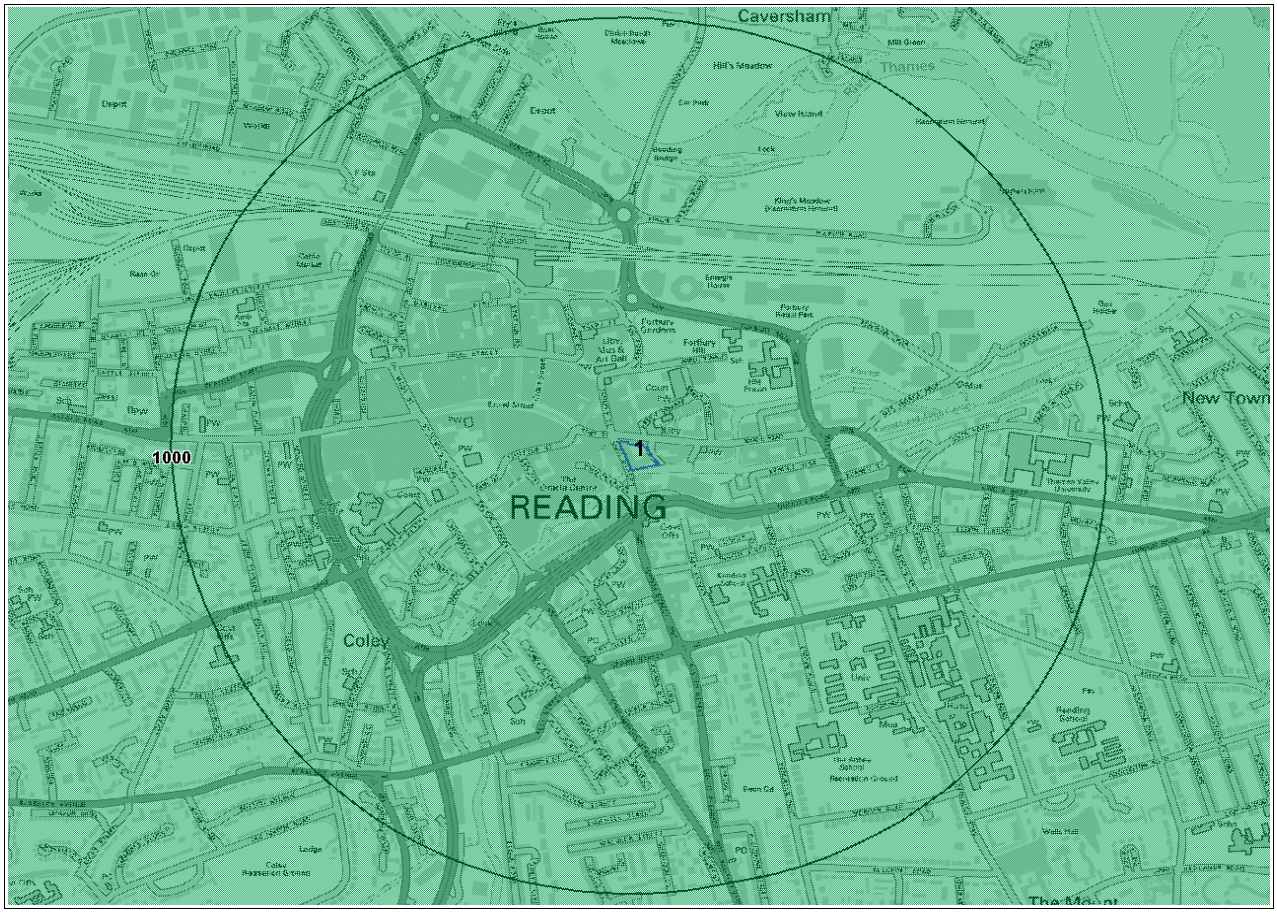
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	1	2	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	3	3	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	1

1:10,000 Scale Availability

NW N NE

W E



SW S SE

1_10,000 Availability Legend

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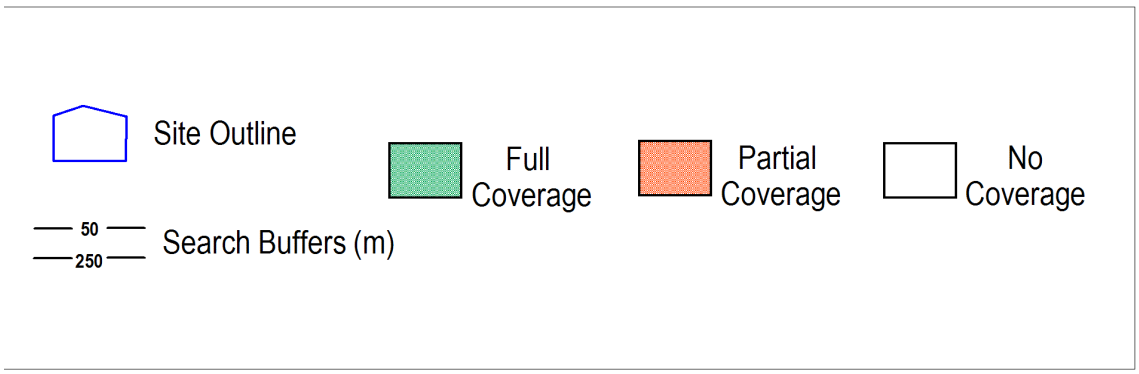


Availability of 1:10,000 Scale Geology Mapping

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
N2	1626.0	Some deposits are mapped	Full	Full	No coverage
N3	1739.0	Some deposits are mapped	Full	Full	No coverage

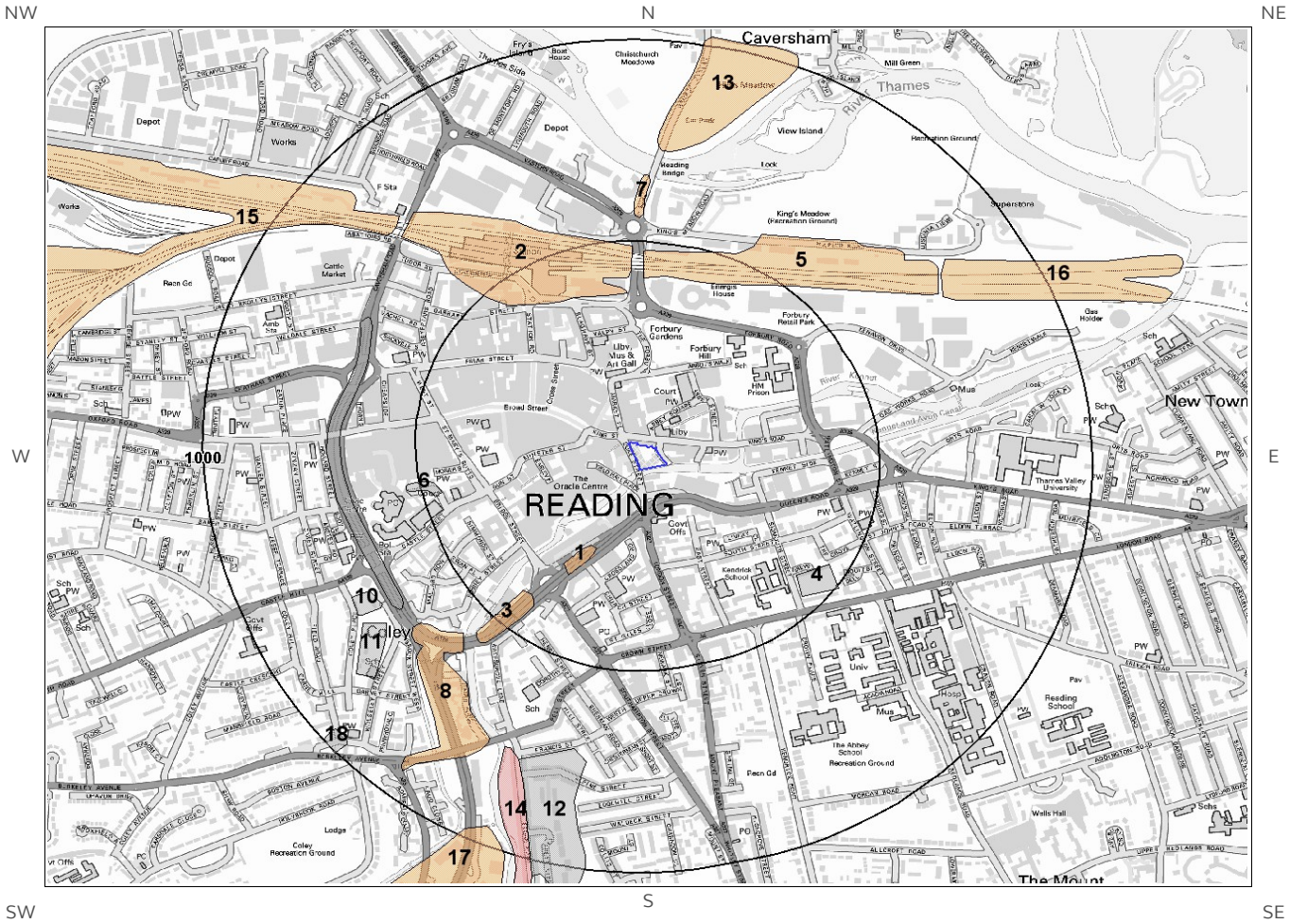
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not 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)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

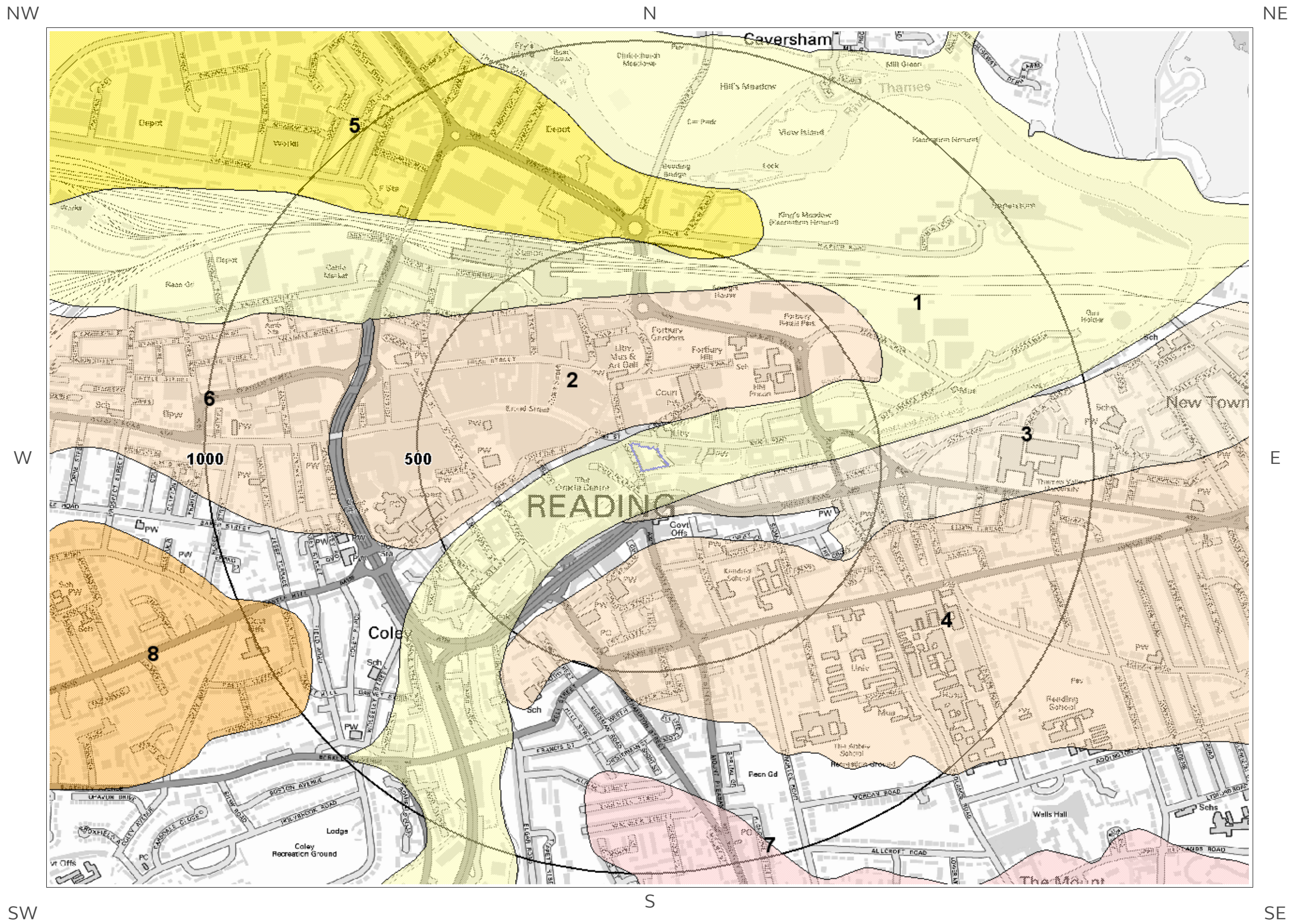
1.1 Artificial Ground

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? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	218.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	370.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	399.0	SW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	409.0	SE	WGR-VOID	Worked Ground (Undivided)	Void
5	409.0	N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	455.0	W	WGR-VOID	Worked Ground (Undivided)	Void

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



Artificial Ground Legend

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Site Outline

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? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
2	41.0	N	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
3	88.0	S	KPGR-XSV	Kempton Park Gravel Formation - Sand And Gravel	Sand And Gravel
4	180.0	S	TPGR-XSV	Taplow Gravel Formation - Sand And Gravel	Sand And Gravel
5	477.0	N	LASI-XCZ	Langley Silt Member - Clay And Silt	Clay And Silt

1.2.2 Landslip

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

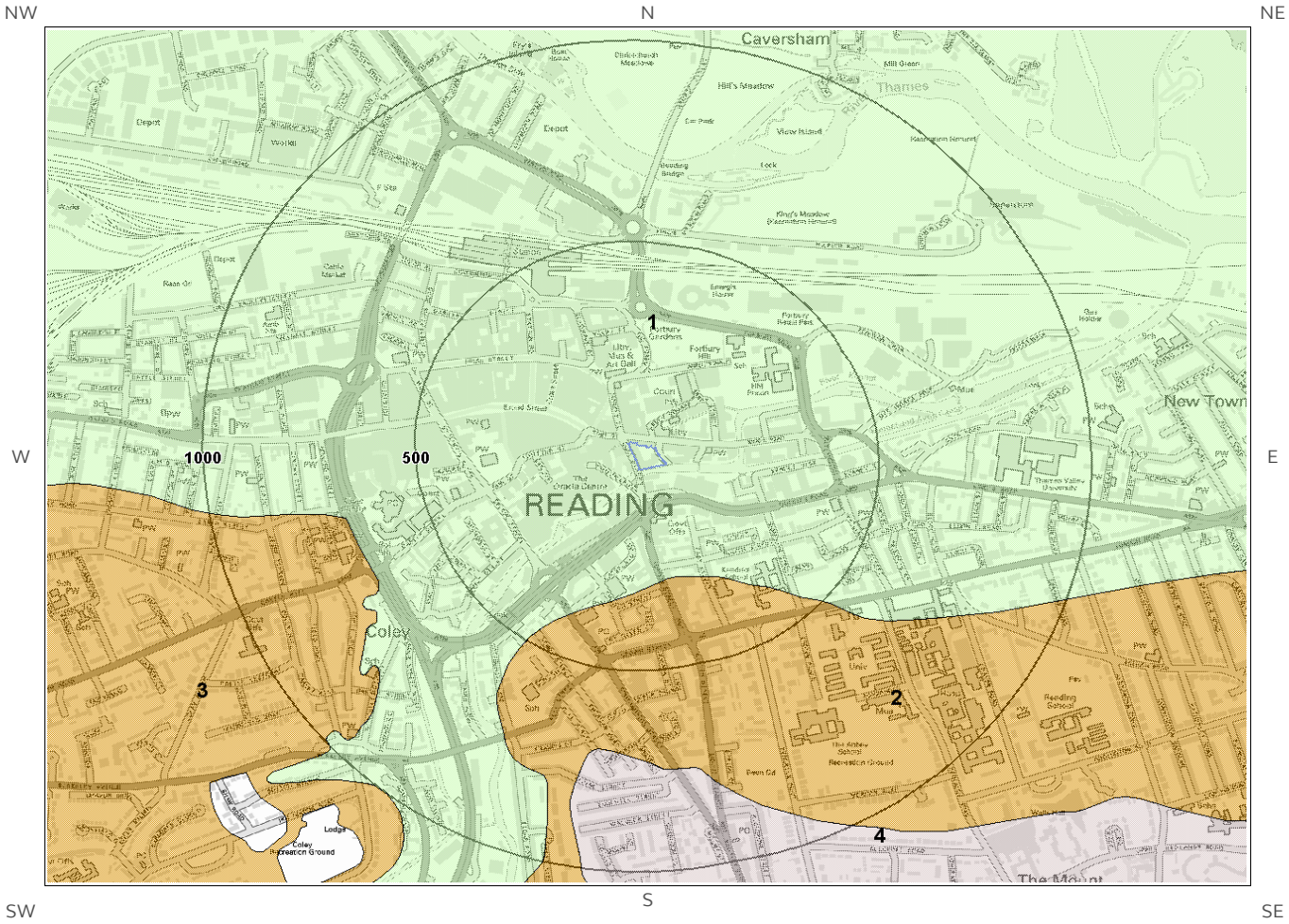
No

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 linear features map (1:10,000 scale)



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

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	LSNCK-CHLK	Lewes Nodular Chalk Formation, Seaford Chalk Formation And Newhaven Chalk Formation (undifferentiated) - Chalk	Campanian Age - Turonian Age
2	278.0	S	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch

1.3.2 Linear features

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

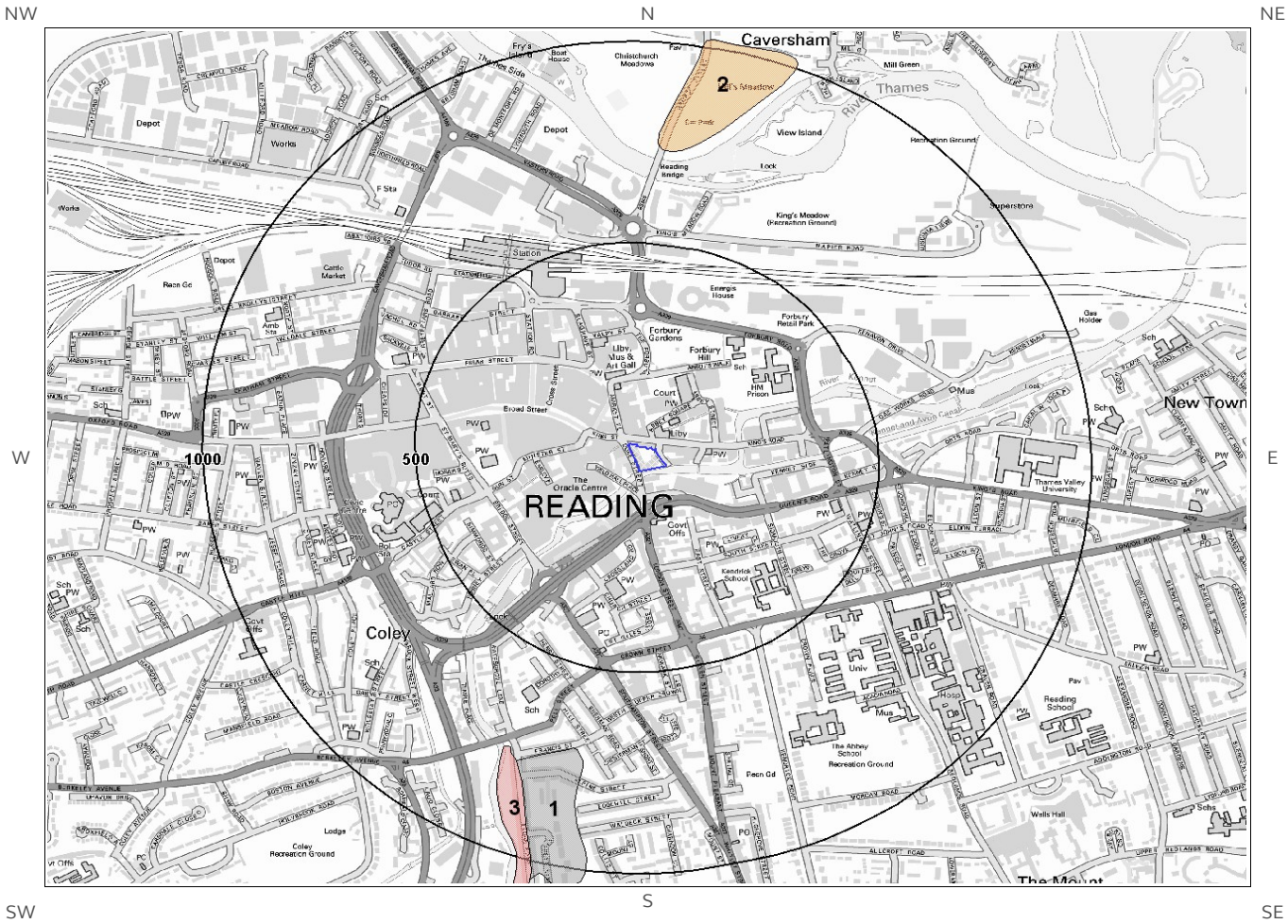
Database searched and no data found at this scale.

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



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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

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: 268

2.1.1 Artificial/ Made Ground

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

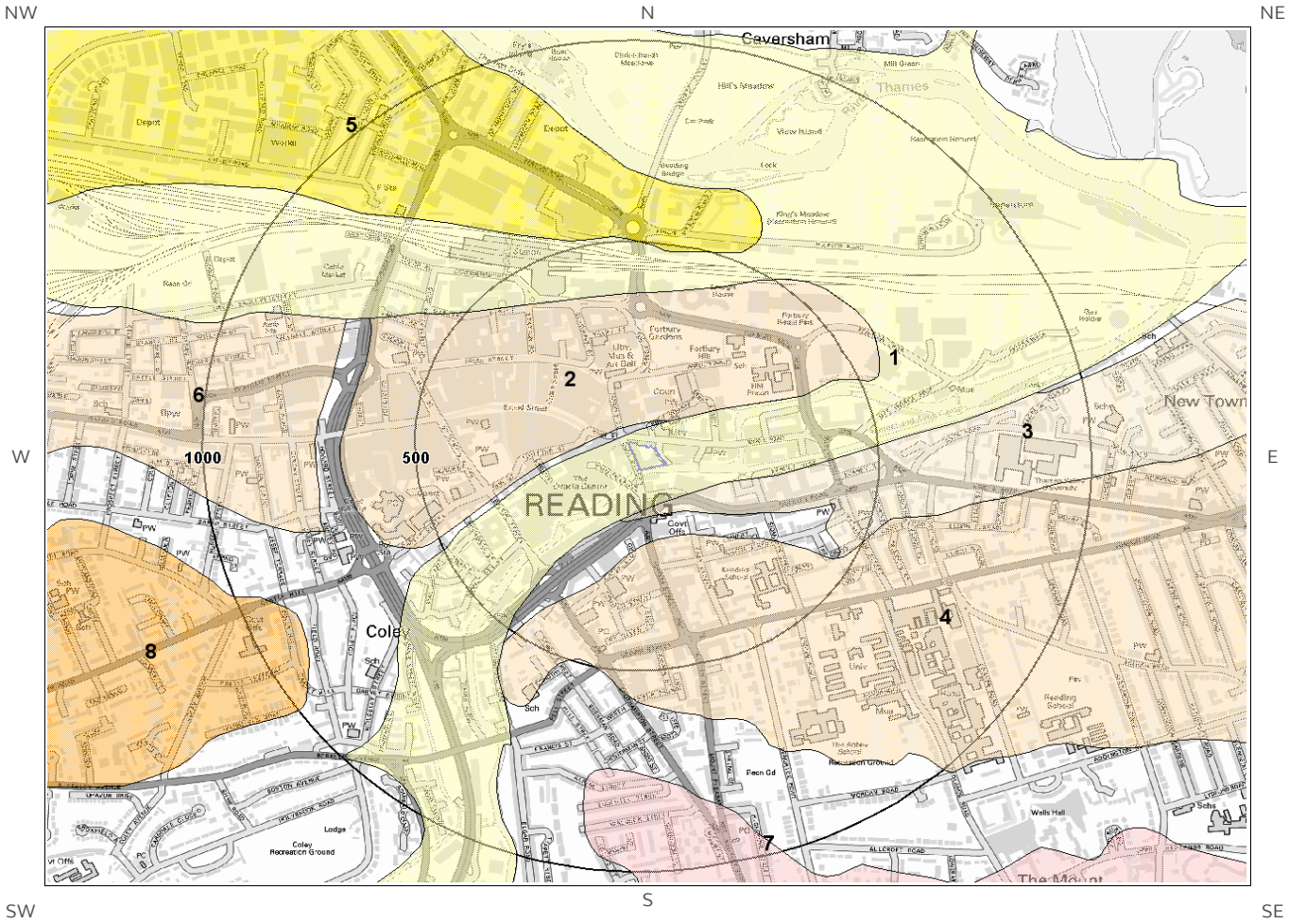
Database searched and no data found.

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)



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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? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
2	41.0	N	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL
3	86.0	S	KPGR-XSV	KEMPTON PARK GRAVEL MEMBER	SAND AND GRAVEL
4	177.0	S	TPGR-XSV	TAPLOW GRAVEL MEMBER	SAND AND GRAVEL
5	484.0	N	LASI-XCZ	LANGLEY SILT MEMBER	CLAY AND SILT

2.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Very Low
41.0	N	Intergranular	Very High	High

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.

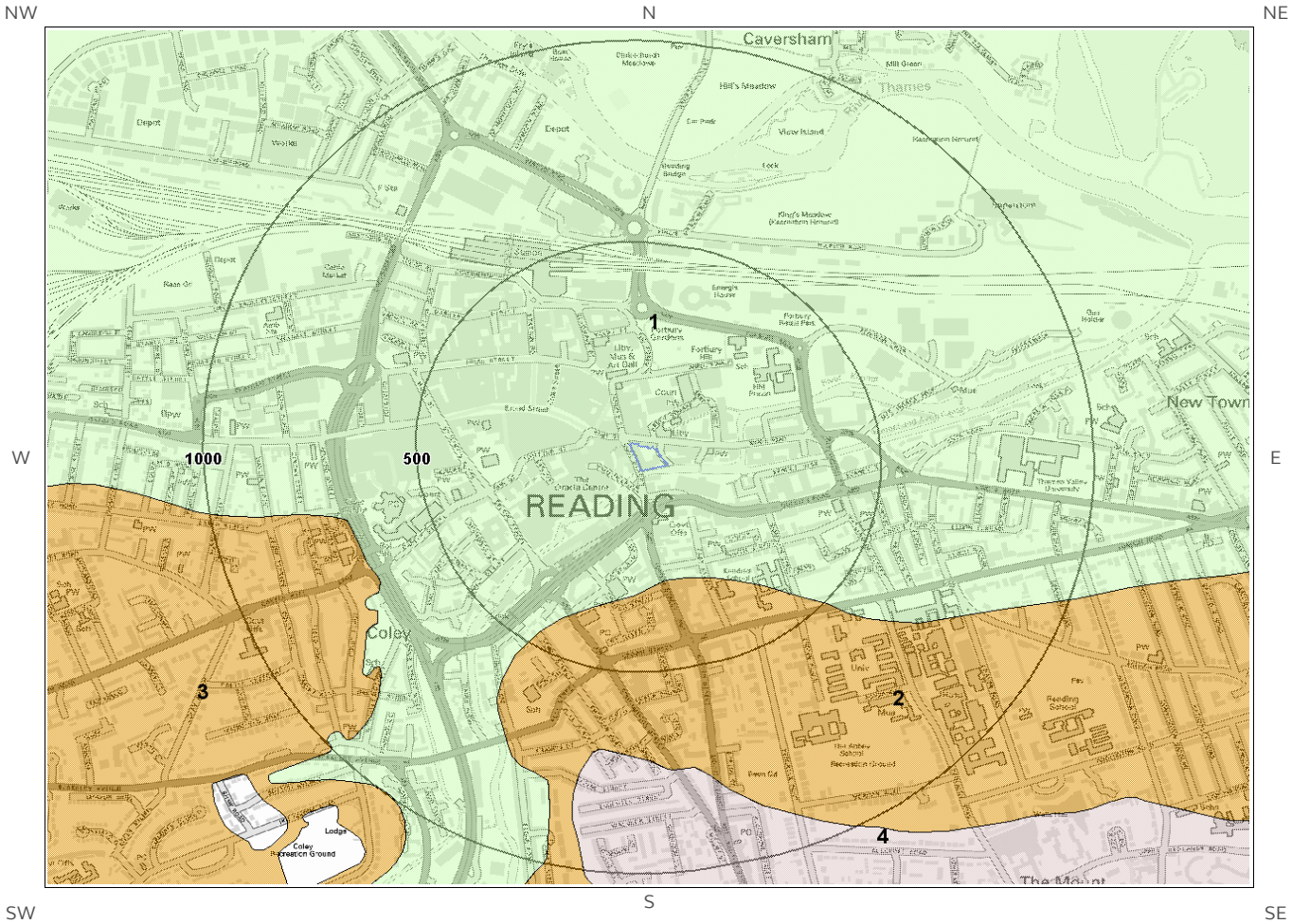
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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 linear features map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 268

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	SNCK-CHLK	SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION (UNDIFFERENTIATED) - CHALK	CONIACIAN
2	280.0	S	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN

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	Fracture	Very High	Very High

2.3.3 Linear features

Are there any records of linear features 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.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

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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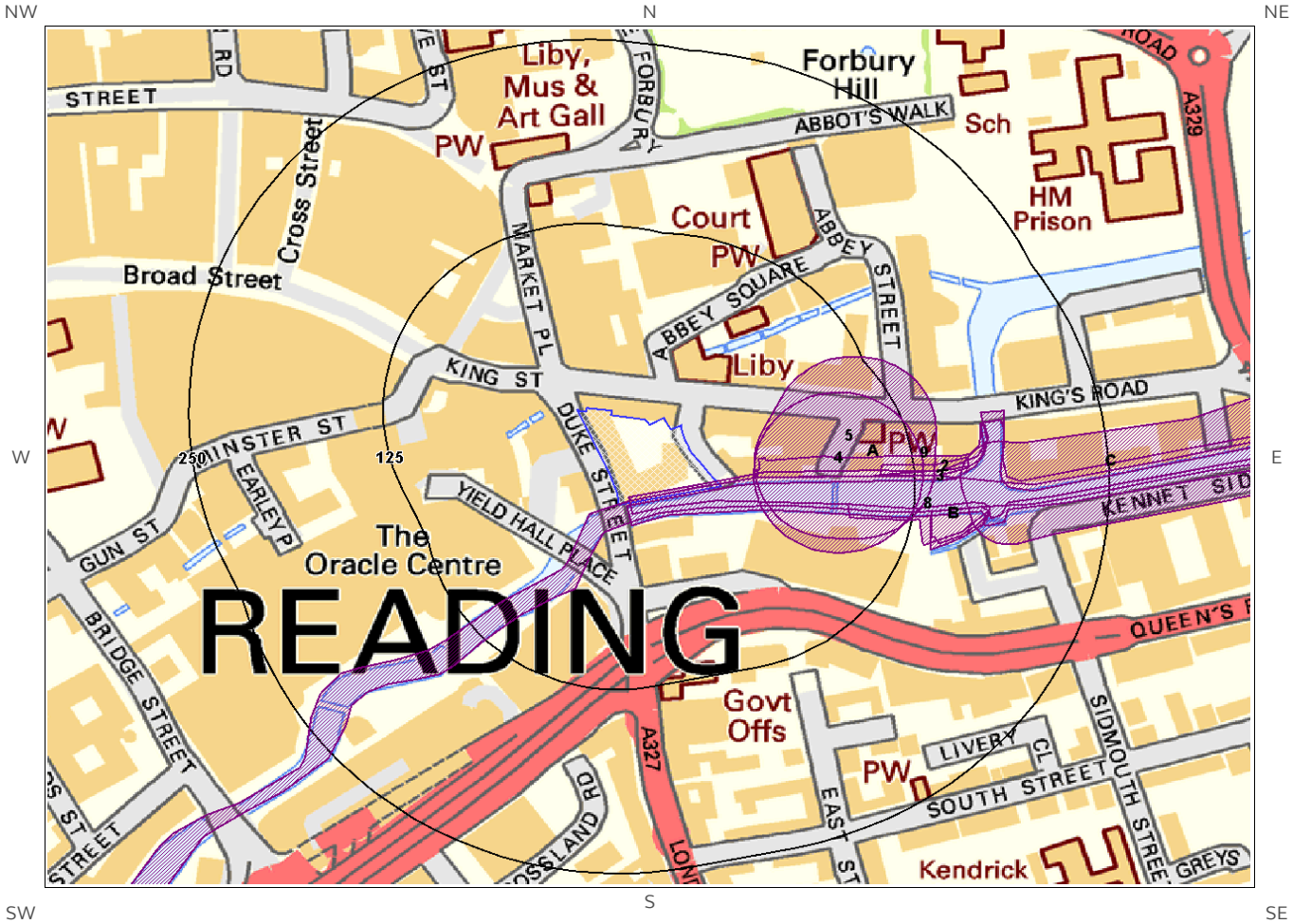
4 Ground Workings map



Ground Workings Legend

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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? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1	0.0	On Site	471459 173043	Canal	1938
2	0.0	On Site	472412 173417	Canal	1933
3	1.0	S	472417 173411	Canal	1938
4	22.0	E	471907 173330	Unspecified Wharf	1938
5	23.0	E	471911 173347	Unspecified Wharf	1994
6A	24.0	E	471997 173344	Unspecified Wharf	1938
7A	24.0	E	471997 173344	Unspecified Wharf	1938
8	83.0	E	471976 173295	Unspecified Disused Wharf	1933
9	103.0	E	471963 173334	Unspecified Wharf	1989
10B	137.0	E	471984 173290	Unspecified Wharf	1938
11B	137.0	E	471985 173294	Unspecified Wharf	1938
12B	137.0	E	471985 173294	Unspecified Wharf	1938
13C	154.0	E	472827 173587	Canal	1994
14C	154.0	E	472827 173587	Canal	1989

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? No

Database searched and no data found.

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? Yes

The following Current Ground Workings information is provided by British Geological Survey:

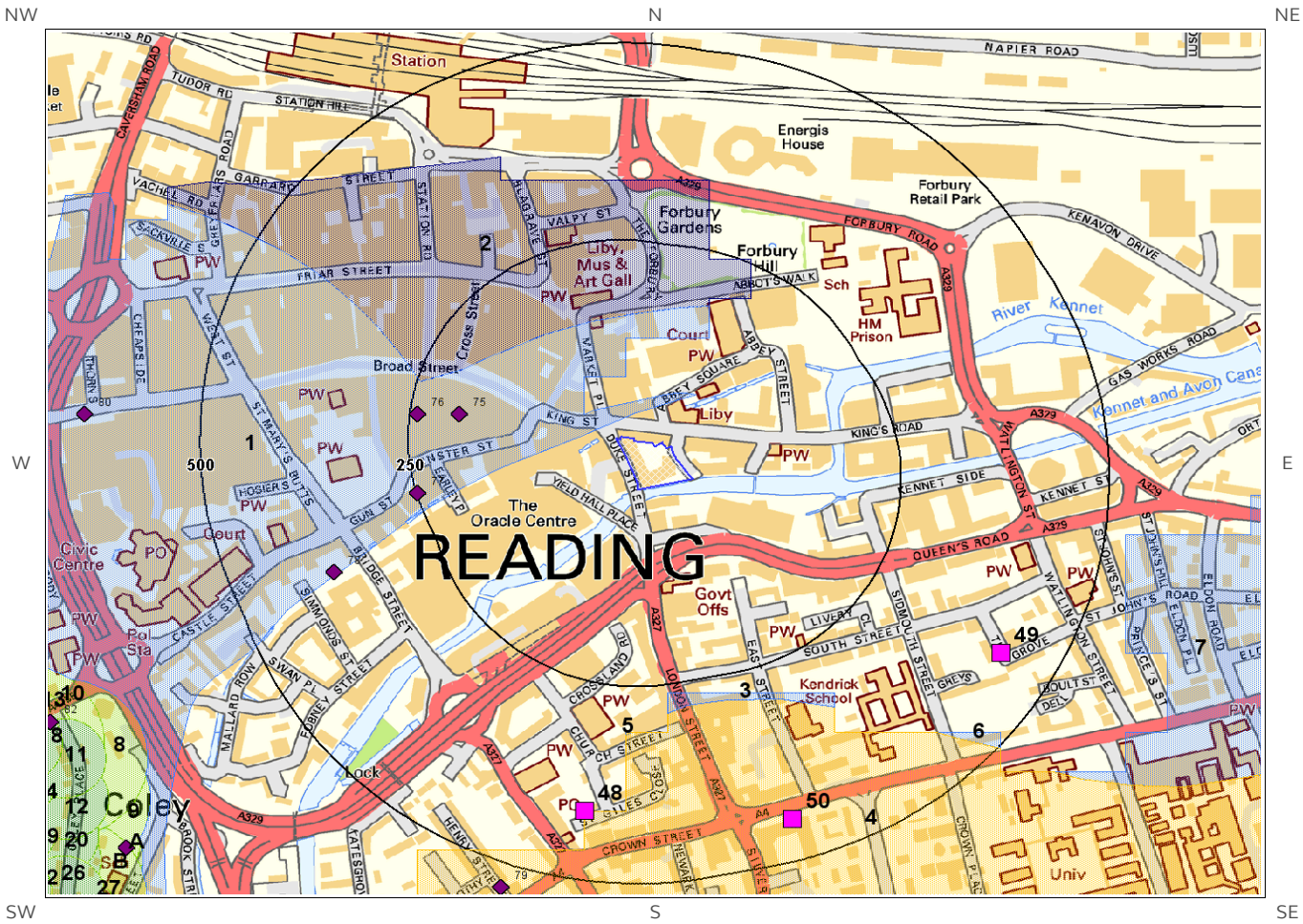
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	752.0	S	471540 172590	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	769.0	SW	471076 172966	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	791.0	SW	471079 172914	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	809.0	SW	471023 172986	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	810.0	S	471778 172498	Clay & Shale	Ivy Bridge Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	824.0	W	471002 172996	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	825.0	SW	471067 172868	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	827.0	SW	471021 172946	Chalk	Reading Chalk Mine	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)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	839.0	SW	471070 172838	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	840.0	S	471551 172495	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	843.0	SW	470991 172974	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	858.0	SW	471066 172810	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	859.0	S	471686 172452	Clay & Shale	Ivy Bridge Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	862.0	SW	471074 172792	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	863.0	SW	471017 172877	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	885.0	SW	470981 172898	Chalk	Neuk & Bramley Chalk Mine	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)	Ceased
Not shown	889.0	SW	471021 172821	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	891.0	SW	471030 172804	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	897.0	SW	470938 172960	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	900.0	SW	470964 172898	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	900.0	SW	471033 172784	Chalk	Reading Chalk Mine	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)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	902.0	SW	471002 172827	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	903.0	SW	470968 172883	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	907.0	SW	471077 172717	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	911.0	SW	471010 172798	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	915.0	SW	471053 172733	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	916.0	S	471549 172417	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	922.0	SW	470978 172827	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	925.0	SW	471018 172763	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	931.0	SW	471031 172735	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	954.0	SW	470959 172798	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	956.0	SW	471044 172680	Clay & Shale	Coley Pottery	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	963.0	SW	470992 172733	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	964.0	SW	470985 172742	Chalk	Reading Chalk Mine	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)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	965.0	SW	470946 172797	Chalk	Reading Chalk Mine	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)	Ceased
Not shown	997.0	S	471571 172330	Clay & Shale	Katesgrove Kilns	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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Site Outline

250
500
Search Buffers (m)

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

Highly likely

Likely

Unlikely

Highly unlikely

Rare

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? No

Database searched and no data found.

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? Yes

The following information provided by JPB is not represented on mapping: Whilst outside of an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property. Further details and a quote for services can be obtained by emailing this report to enquiries.gs@jpb.co.uk.

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? Yes

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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	20.0	NW	Not available	Chalk	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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
2	151.0	N	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
3	260.0	S	Not available	Chalk	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
4	280.0	S	Not available	Chalk	Small scale underground mining may have occurred; mine adits, shafts and tunnels may be present. Potential for localised difficult ground conditions are at a level where they should be considered
5	308.0	S	Not available	Chalk	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
6	434.0	SE	Not available	Chalk	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
7	524.0	E	Not available	Chalk	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
8	669.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
9	693.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
10	708.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
11	719.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
12	740.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
13	742.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
14A	743.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
Not shown	743.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
16A	745.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
Not shown	750.0	SW	Not available	Chalk	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
18	758.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
19B	761.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
20	777.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	781.0	W	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
22B	790.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	792.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
24	803.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	811.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
26	811.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
27	814.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
Not shown	816.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
29	827.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	847.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	850.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
32	851.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	852.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	857.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	864.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
Not shown	886.0	E	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
Not shown	903.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	913.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	929.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	946.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
Not shown	948.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	949.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
Not shown	957.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	976.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
Not shown	993.0	SW	Not available	Chalk	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
Not shown	999.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
Not shown	999.0	SW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered

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? Yes

The following Non-Coal Mining Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
48	413.0	S	471700 172900	Reading, Berkshire	Taplow Gravel	Lambeth Group, Upper Chalk Formation	Chalk
49	430.0	SE	472200 173100	Reading, Berkshire	Taplow Gravel	Chalk Group	Chalk
50	447.0	S	471950 172890	Jubilee Square, Reading, Berkshire	Taplow Gravel	Chalk Group	Chalk
Not shown	558.0	S	471790 172750	Reading, Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	611.0	S	471700 172700	Shearmans Brick Kiln, Reading, Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	622.0	S	471900 172700	The Old Orchard Kiln, Reading, Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	661.0	S	471700 172650	Shearmans Brick Kiln, Reading, Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	709.0	S	471500 172650	Katesgrove Kilns (1), Reading, Berkshire	Worked Ground	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	756.0	S	471500 172600	Katesgrove Kilns (2), Reading, Berkshire	Worked Ground	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	800.0	SW	471050 172950	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	810.0	S	471700 172500	Ivy Lodge Brickfield/ Southampton Kiln, Reading, Berkshire	Boyn Hill Gravel	London Clay, Lambeth Group, Upper Chalk Formation	Chalk
Not shown	812.0	S	471850 172500	The Upper Kiln, Reading, Berkshire	-	London Clay, Lambeth Group, Upper Chalk Formation	Chalk
Not shown	823.0	SW	471050 172900	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	845.0	SW	471000 172950	Reading (Coley), Berkshire	Lynch Hill Gravel	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	847.0	SW	470960 173040	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	852.0	W	470950 173050	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	856.0	SW	470950 173040	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	861.0	W	470940 173050	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	867.0	SW	471000 172900	Reading (Coley), Berkshire	Lynch Hill Gravel	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	884.0	S	471550 172450	Katesgrove Kilns (3), Reading, Berkshire	Worked Ground	Lambeth Group, Upper Chalk Formation	Chalk

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
Not shown	901.0	SW	471100 172700	Coley Potteries, Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	908.0	SW	470930 172950	Reading (Coley), Berkshire	Lynch Hill Gravels	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	918.0	SW	471000 172800	Castle Hill Kiln, Reading (Coley), Berkshire	Lynch Hill Gravel	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	928.0	SW	470970 172830	Reading (Coley), Berkshire	Lynch Hill Gravel	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	941.0	SW	471030 172720	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	960.0	SW	470950 172800	Reading (Coley), Berkshire	Lynch Hill Gravel	Lambeth Group, Upper Chalk Formation	Chalk
Not shown	969.0	SW	470980 172740	Reading (Coley), Berkshire	-	Lambeth Group, Upper Chalk Formation	Chalk

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? Yes

The following Natural Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
75	191.0	W	471550 173400	Taplow Gravel	Chalk Group	Solution Pipe x 5
76	240.0	W	471500 173400	Taplow Gravel	Chalk Group	Solution Pipe x 3
77	249.0	W	471500 173300	Taplow Gravel	Chalk Group	Solution Pipe x 1
78	380.0	SW	471400 173200	Taplow Gravel	Chalk Group	Solution Pipe x 2
79	534.0	S	471600 172800	-	Chalk Group, Lambeth Group	Unknown
80	639.0	W	471100 173400	Taplow Gravel	Chalk Group	Solution Pipe x 3
Not shown	749.0	W	471010 173200	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 3
82	765.0	SW	471060 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
83A	767.0	SW	471150 172850	-	Chalk Group	Solution Widened Joint or Fissure x 1
Not shown	784.0	W	471040 173010	-	Chalk Group, Lambeth Group	Solution Pipe x 1

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
Not shown	802.0	W	471020 173010	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	812.0	W	471010 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	812.0	W	471010 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	819.0	SW	470990 173040	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	821.0	W	470980 173060	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	821.0	W	471000 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	821.0	W	471000 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	821.0	W	471000 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	830.0	W	470990 173010	-	Chalk Group, Lambeth Group	Solution Widened Joint or Fissure x 1
Not shown	851.0	SW	471140 172730	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	856.0	W	470970 172990	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	858.0	SW	470990 172940	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	858.0	SW	471130 172730	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	862.0	SW	471100 172760	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	866.0	SW	471025 172845	-	Chalk Group, Lambeth Group	Solution Pipe x 3
Not shown	879.0	W	470950 172980	Lynch Hill Gravel	Chalk Group, Lambeth Group	Solution Pipe x 2
Not shown	880.0	W	470920 173050	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	897.0	SW	471000 172840	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	943.0	SW	470990 172770	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	947.0	SW	471000 172750	Lynch Hill Gravel	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	965.0	SW	471000 172720	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	966.0	SW	471040 172670	-	Chalk Group, Lambeth Group	Solution Pipe x 1
Not shown	979.0	SW	471040 172650	-	Chalk Group	Solution Pipe x 1
Not shown	986.0	SW	471040 172640	-	Chalk Group	Solution Pipe x 1
Not shown	1000.0	SW	471030 172630	-	Chalk Group, Lambeth Group	Solution Pipe x 1

5.7 Brine Extraction

This data provides information from 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.

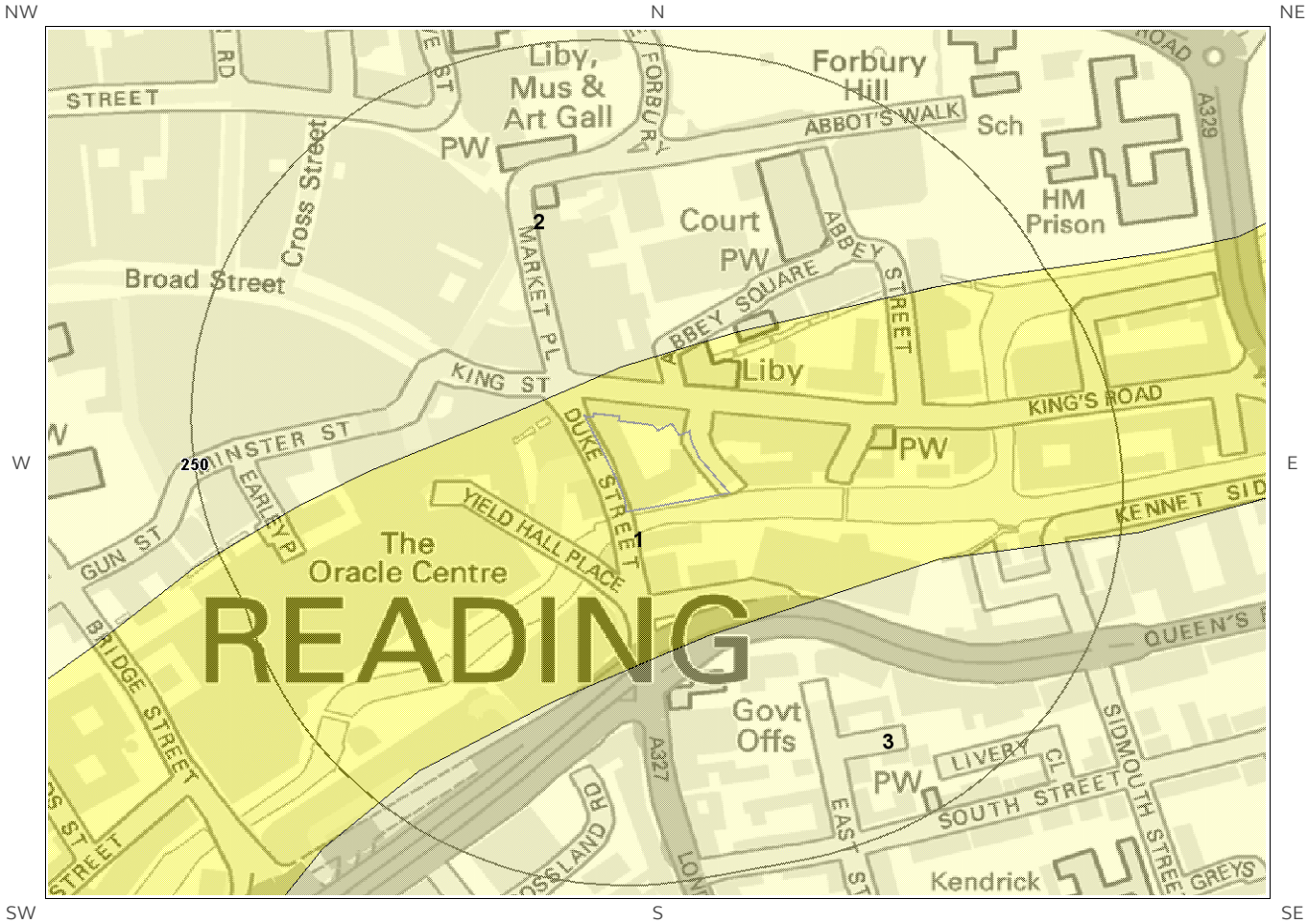
Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

---

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



Shrink Swell Clay Legend

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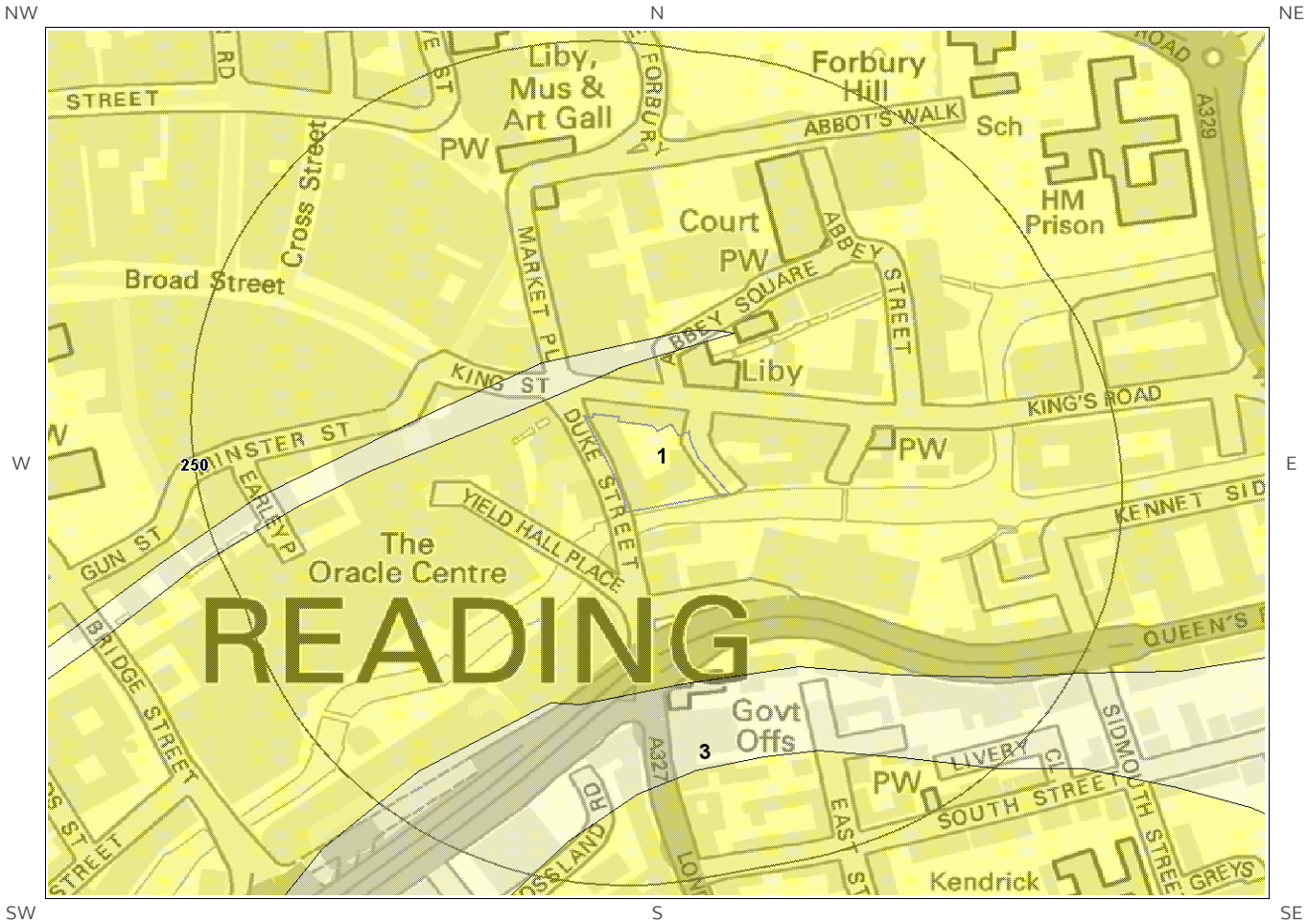
6.2 Landslides map



Landslides Legend

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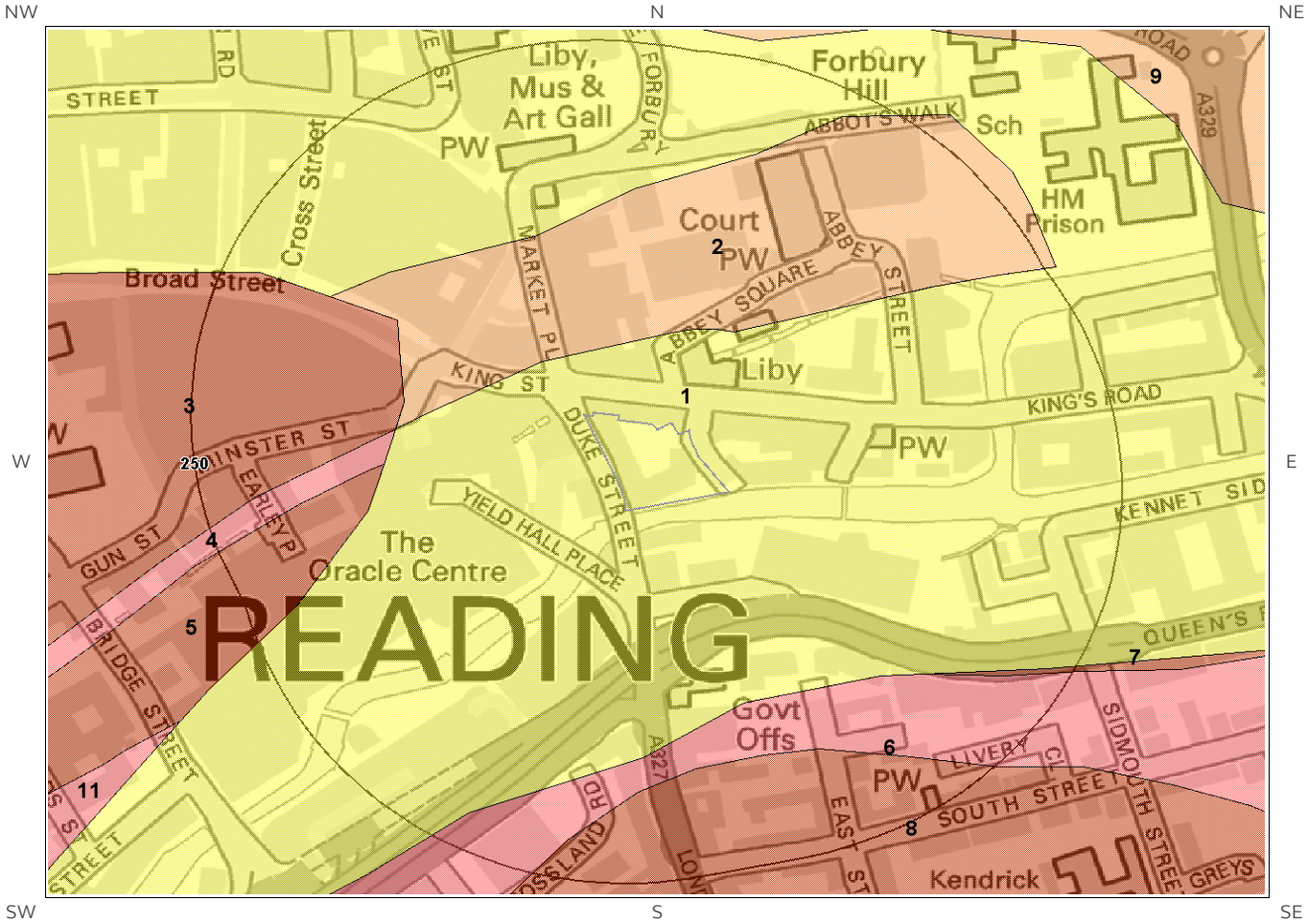
6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution
Soluble Rocks Legend

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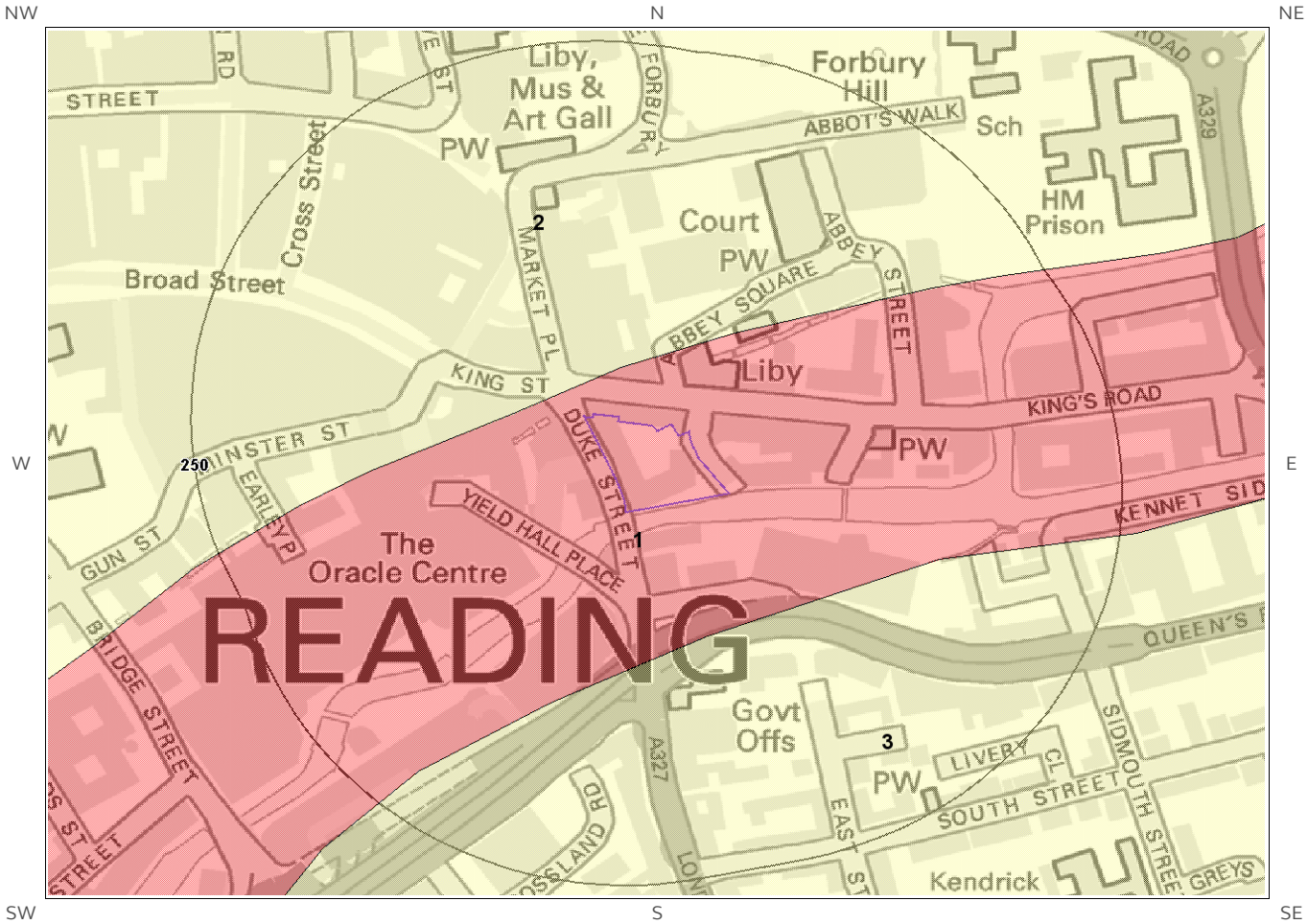
6.4 Compressible Deposits map



Compressible Deposits Legend

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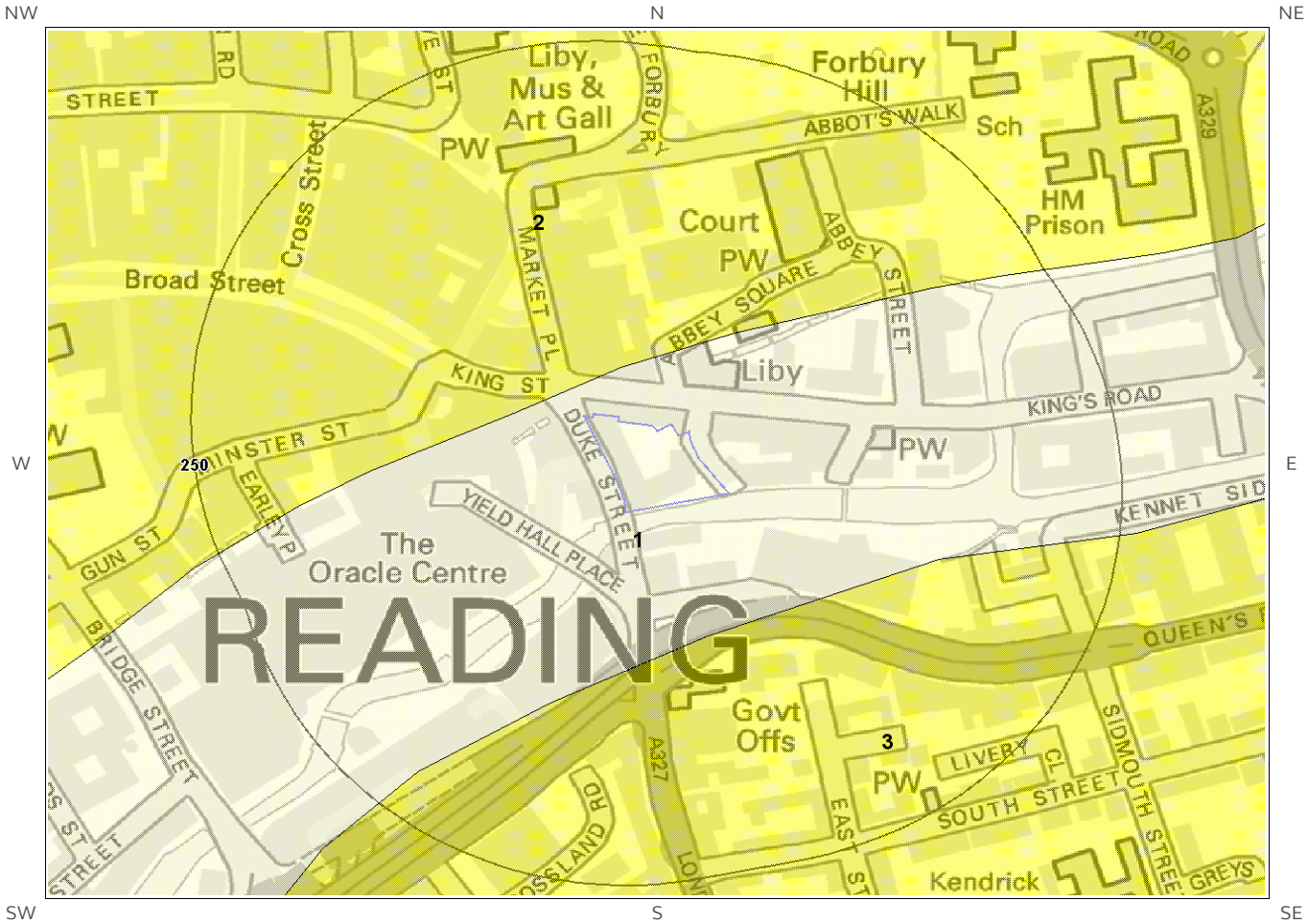
6.5 Collapsible Deposits map



Collapsible Deposits Legend

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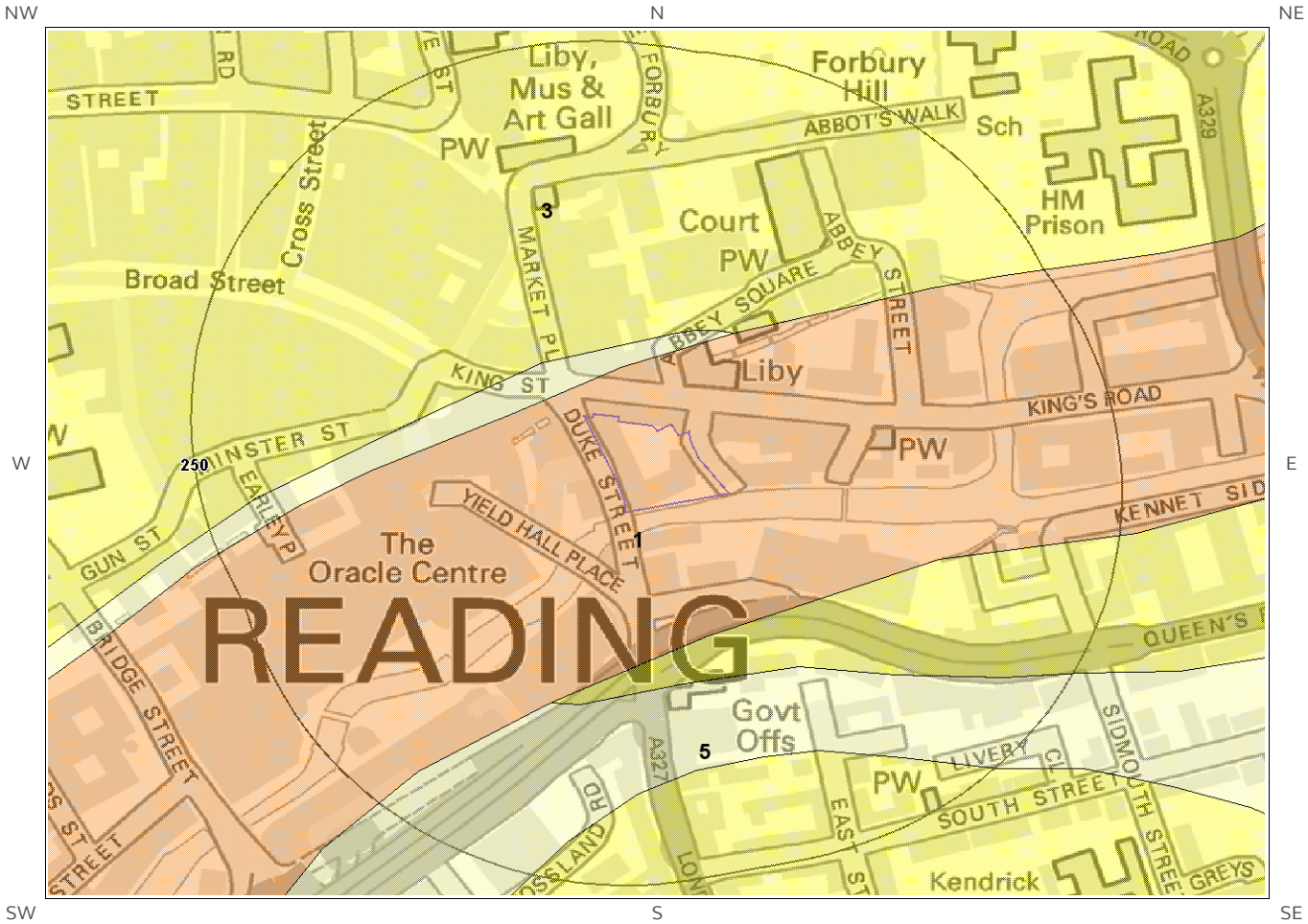
6.6 Running Sand map



Running Sand Legend

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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	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	20.0	NW	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

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	20.0	NW	Negligible	No indicators for slope instability identified. 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.

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

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	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.
2	41.0	N	Low	Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build - site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property - possible increase in insurance risk due to 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	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
2	20.0	NW	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	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	20.0	NW	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:

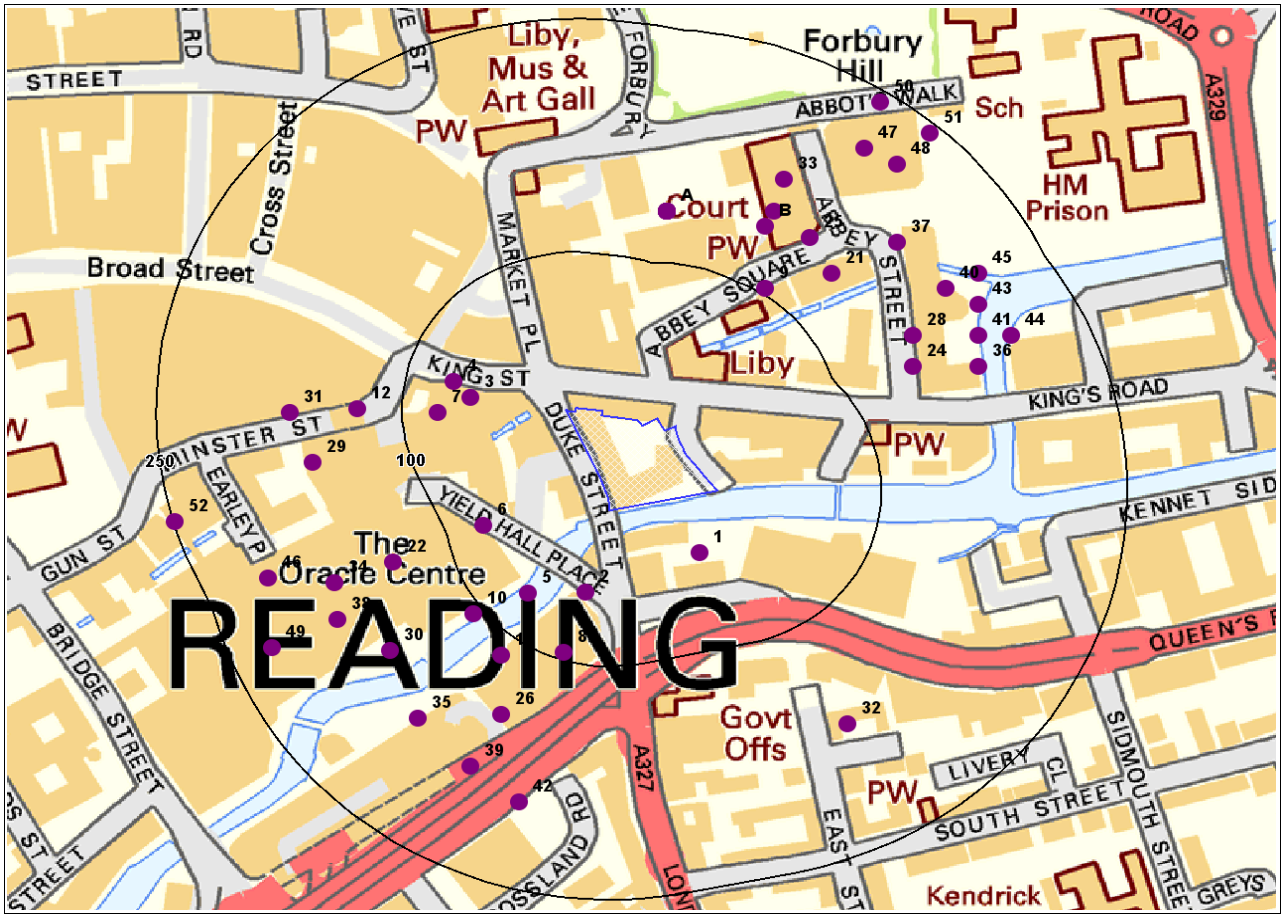
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.
2	20.0	NW	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.
3	41.0	N	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. 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

NW N NE

W E

SW S SE



Borehole Records Legend

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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: 52

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	38.0	S	471820 173280	SU77SW673	6.09	QUEENS ROAD READING
2	55.0	S	471750 173255	SU77SW343	25.0	THE ORACLE READING 8
3	59.0	W	471680 173380	SU77SW783	12.0	17-23 KING STREET READING 3
4	71.0	W	471670 173390	SU77SW781	12.0	17-23 KING STREET READING 1
5	73.0	SW	471715 173254	SU77SW334	19.45	THE ORACLE READING 8
6	77.0	W	471688 173298	SU77SW331	12.5	THE ORACLE READING 5
7	79.0	W	471660 173370	SU77SW782	11.5	17-23 KING STREET READING 2
8	96.0	S	471737 173216	SU77SW342	30.0	THE ORACLE READING 7
9	104.0	NE	471860 173450	SU77SW933	-1.0	SHIRE HALL READING 13
10	106.0	SW	471682 173241	SU77SW333	20.45	THE ORACLE READING 7
11	115.0	SW	471699 173214	SU77SW341	25.0	THE ORACLE READING 6
12	128.0	W	471611 173373	SU77SW327	30.0	THE ORACLE READING 1
13A	133.0	N	471800 173500	SU77SW71	10.5	CROWN COURTS READING 4
14A	133.0	N	471800 173500	SU77SW74	8.0	CROWN COURTS READING 7
15A	133.0	N	471800 173500	SU77SW75	4.0	CROWN COURTS READING TP 3
16A	133.0	N	471800 173500	SU77SW72	10.0	CROWN COURTS READING 5
17A	133.0	N	471800 173500	SU77SW70	15.0	CROWN COURTS READING 3
18A	133.0	N	471800 173500	SU77SW69	10.25	CROWN COURTS READING 2
19A	133.0	N	471800 173500	SU77SW73	15.0	CROWN COURTS READING 6
20A	133.0	N	471800 173500	SU77SW68	10.0	CROWN COURTS READING 1
21	136.0	NE	471900 173460	SU77SW932	-1.0	SHIRE HALL READING 12
22	136.0	W	471633 173274	SU77SW332	25.0	THE ORACLE READING 6

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
23B	139.0	NE	471860 173490	SU77SW934	-1.0	SHIRE HALL READING 14
24	143.0	NE	471950 173400	SU77SW923	-1.0	SHIRE HALL READING 3
25	146.0	NE	471887 173483	SU77SW351	-1.0	OLD SHIRE HALL READING 3
26	147.0	SW	471699 173176	SU77SW340	25.0	THE ORACLE READING 5
27B	150.0	NE	471865 173500	SU77SW350	-1.0	OLD SHIRE HALL READING 2
28	155.0	NE	471950 173420	SU77SW925	-1.0	SHIRE HALL READING 5
29	158.0	W	471584 173338	SU77SW328	30.0	THE ORACLE READING 2
30	162.0	SW	471631 173217	SU77SW344	28.0	THE ORACLE READING 9
31	169.0	W	471570 173370	SU77SW29	25.9	BROAD STREET READING
32	170.0	SE	471910 173170	SU77SW674	3.65	QUEENS ROAD READING
33	171.0	NE	471871 173520	SU77SW349	-1.0	OLD SHIRE HALL READING 1
34	174.0	W	471597 173261	SU77SW330	25.0	THE ORACLE READING 4
35	178.0	SW	471648 173174	SU77SW339	25.0	THE ORACLE READING 4
36	178.0	NE	471990 173400	SU77SW922	-1.0	SHIRE HALL READING 2
37	179.0	NE	471940 173480	SU77SW927	-1.0	SHIRE HALL READING 7
38	181.0	SW	471599 173237	SU77SW345	30.0	THE ORACLE READING 10
39	185.0	SW	471680 173143	SU77SW338	30.0	THE ORACLE READING 3
40	187.0	NE	471970 173450	SU77SW936	-1.0	SHIRE HALL READING 16/A
41	188.0	NE	471990 173420	SU77SW935	-1.0	SHIRE HALL READING 15
42	195.0	S	471710 173120	SU77SW27	15.24	BURBERRYS MILL LANE READING
43	199.0	NE	471990 173440	SU77SW924	-1.0	SHIRE HALL READING 4/A/B
44	205.0	NE	472010 173420	SU77SW921	-1.0	SHIRE HALL READING 1A
45	209.0	NE	471990 173460	SU77SW926	-1.0	SHIRE HALL READING 6/A
46	211.0	SW	471557 173264	SU77SW346	30.0	THE ORACLE READING 13
47	212.0	NE	471920 173540	SU77SW930	-1.0	SHIRE HALL READING 10
48	215.0	NE	471940 173530	SU77SW928	-1.0	SHIRE HALL READING 8
49	224.0	SW	471559 173219	SU77SW347	25.0	THE ORACLE READING 15
50	242.0	NE	471930 173570	SU77SW931	-1.0	SHIRE HALL READING 11
51	243.0	NE	471960 173550	SU77SW929	-1.0	SHIRE HALL READING 9

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
52	249.0	W	471500 173300	SU77SW52	19.6	READING BH1&2

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/428825
#2: scans.bgs.ac.uk/sobi_scans/boreholes/428495
#3: scans.bgs.ac.uk/sobi_scans/boreholes/15047437
#4: scans.bgs.ac.uk/sobi_scans/boreholes/15047435
#5: scans.bgs.ac.uk/sobi_scans/boreholes/428486
#6: scans.bgs.ac.uk/sobi_scans/boreholes/428483
#7: scans.bgs.ac.uk/sobi_scans/boreholes/15047436
#8: scans.bgs.ac.uk/sobi_scans/boreholes/428494
#10: scans.bgs.ac.uk/sobi_scans/boreholes/428485
#11: scans.bgs.ac.uk/sobi_scans/boreholes/428493
#12: scans.bgs.ac.uk/sobi_scans/boreholes/428479
#13A: scans.bgs.ac.uk/sobi_scans/boreholes/428223
#14A: scans.bgs.ac.uk/sobi_scans/boreholes/428226
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#49: scans.bgs.ac.uk/sobi_scans/boreholes/428499
#52: scans.bgs.ac.uk/sobi_scans/boreholes/428204

8 Estimated Background Soil Chemistry

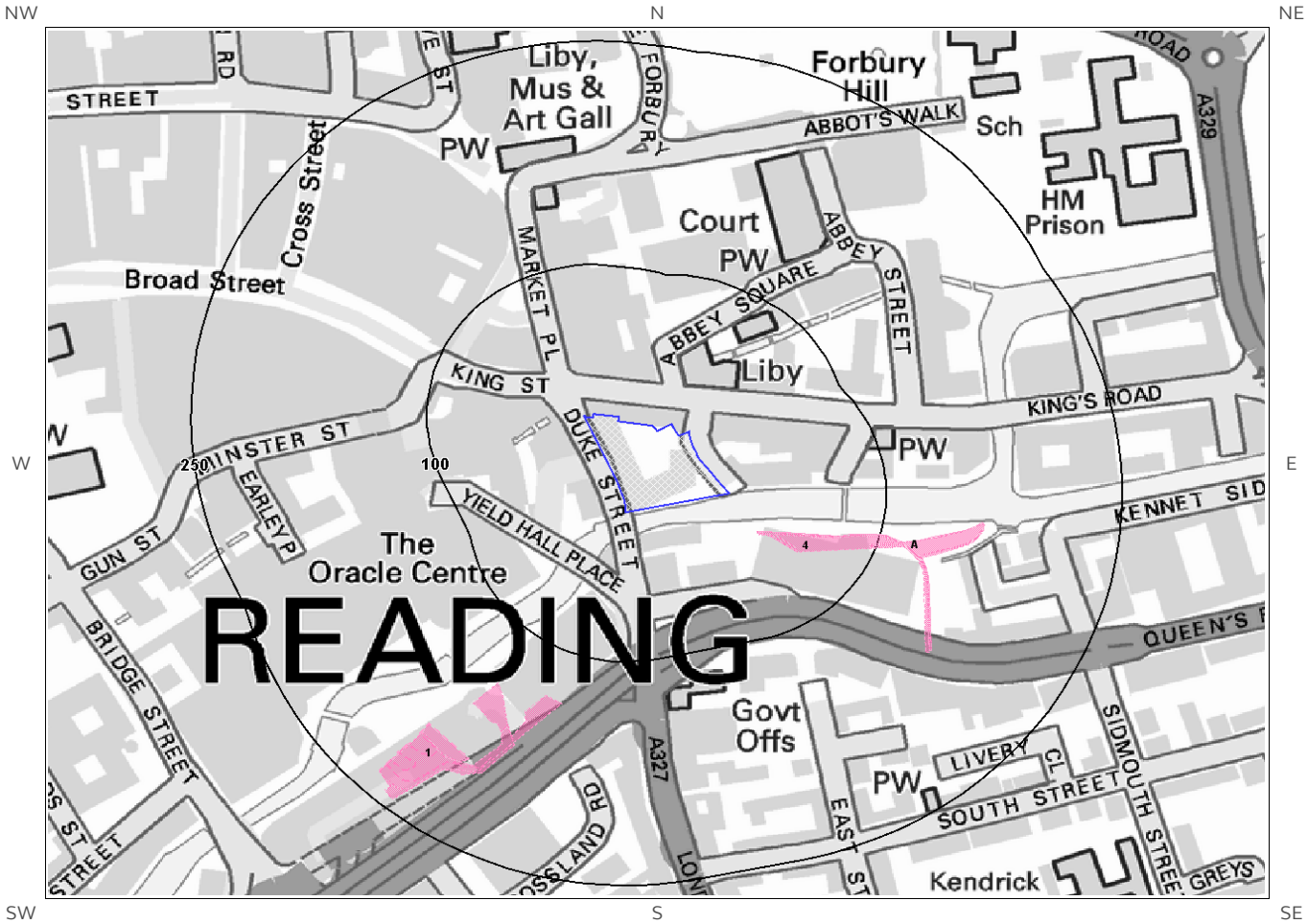
Records of background estimated soil chemistry within 250m of the study site boundary: 3

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	Sediment	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
20.0	NW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
41.0	N	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg

*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

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- Site Outline
- 250 / 500 Search Buffers (m)
- 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? No

Database searched and no data found.

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? No

Database searched and no data found.

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
2A	31	SE	471957 173258	Railway Sidings	1879
3A	31	SE	471957 173258	Railway Sidings	1879
4	32	SE	472068 173234	Railway Sidings	1879
5B	133	SW	471636 173154	Tramway Sidings	1931
6B	140	SW	471635 173154	Tramway Sidings	1912
1	189	SW	471627 173147	Railway Sidings	1933

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?	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.

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

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.

Contact Details

Groundsure Helpline

Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
https://www.gov.uk/government/organisations/public-health-england
Email: **enquiries@phe.gov.uk**
Main switchboard: 020 7654 8000

Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettel Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email:**enquiries.gs@jpb.co.uk**
Website: **www.jpb.co.uk**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

Tel: 08456 050505
Website: http://www.ordnancesurvey.co.uk/

Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website:**http://www1.getmapping.com/**

Peter Brett Associates

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail:**reading@pba.co.uk**
Website:**http://www.peterbrett.com/home**

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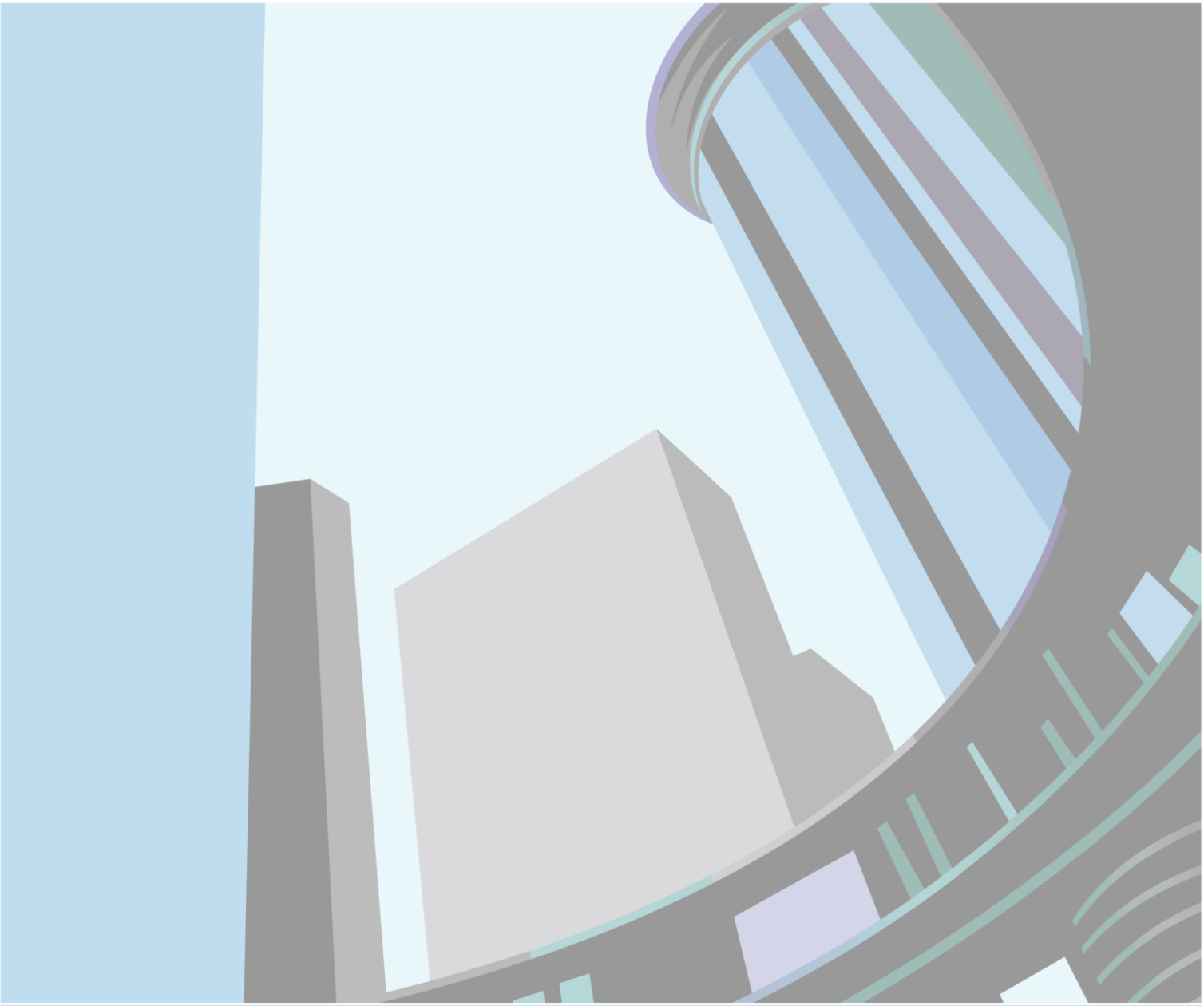

john newton & partners
jnpgroup
Consulting Engineers

www.jnpgroup.co.uk

Brighouse
Woodvale House
Woodvale Road
Brighouse
West Yorkshire
HD6 4AB

telephone
01484 400691

email
brighouse@jnpgroup.co.uk

Chesham (HQ)
Link House
St Mary's Way
Chesham
Buckinghamshire
HP5 1HR

telephone
01494 771221

email
chesham@jnpgroup.co.uk

Hartlepool
The Innovation Centre
Venture Court
Queens Meadow Business Park
Hartlepool
TS25 5TG

telephone
01429 239539

email
hartlepool@jnpgroup.co.uk

Leamington Spa
Marlborough House
48 Holly Walk
Leamington Spa
Warwickshire
CV32 4XP

telephone
01926 889955

email
leamingtonspa@jnpgroup.co.uk

Sheffield
No.1 Meadowhall Riverside
Meadowhall Road
Sheffield
South Yorkshire
S9 1BW

telephone
0114 244 3500

email
sheffield@jnpgroup.co.uk