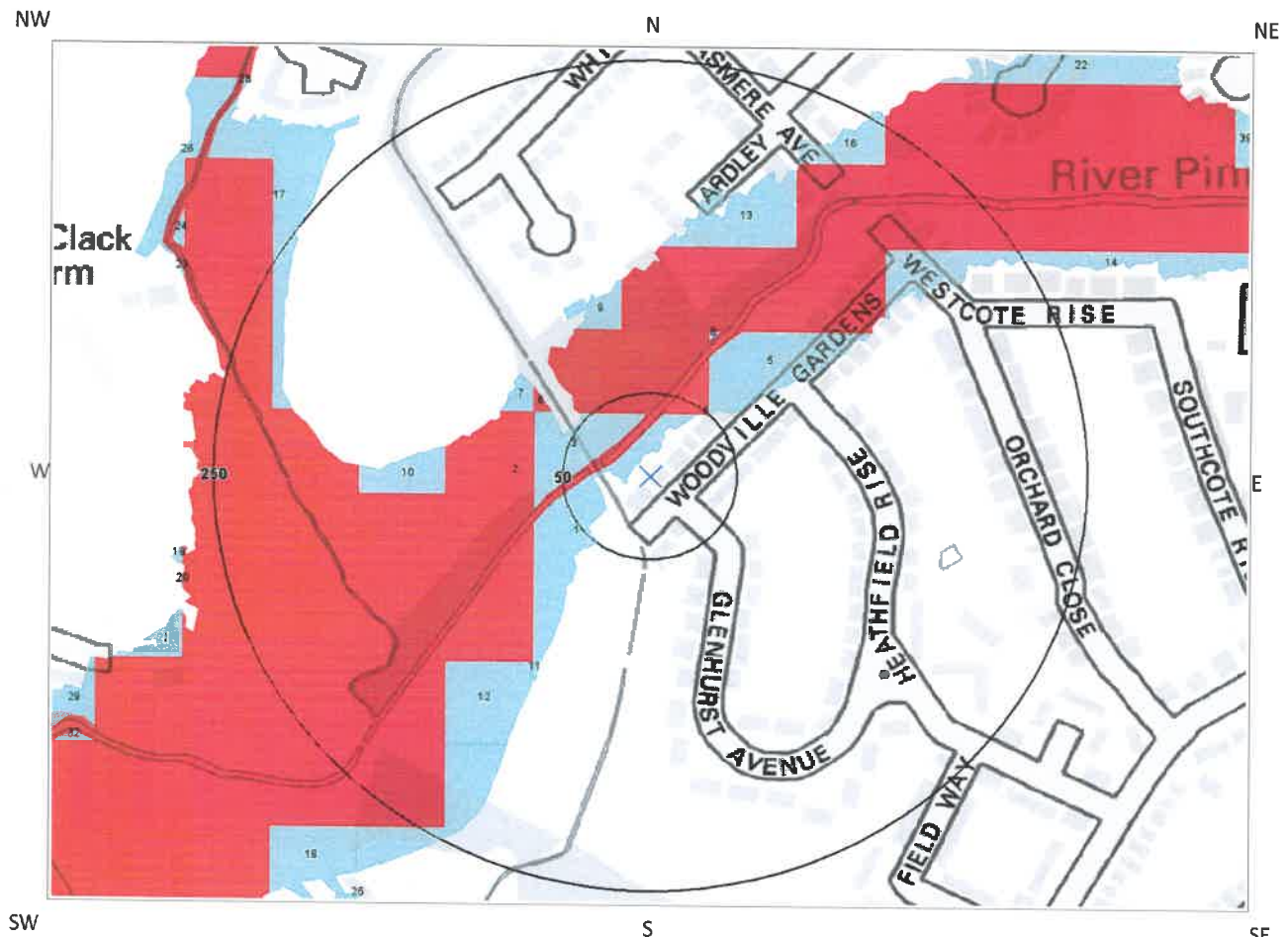


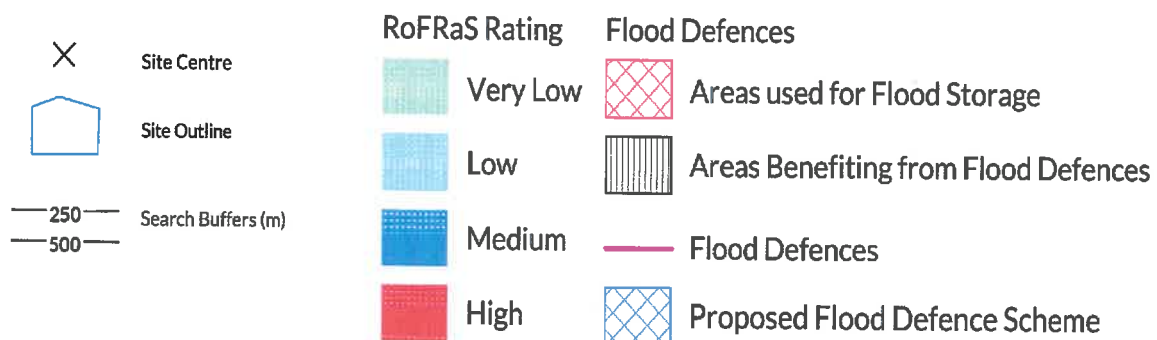
5. Natural Hazards and Additional Factors

Environment Agency River and Coastal Flood Map

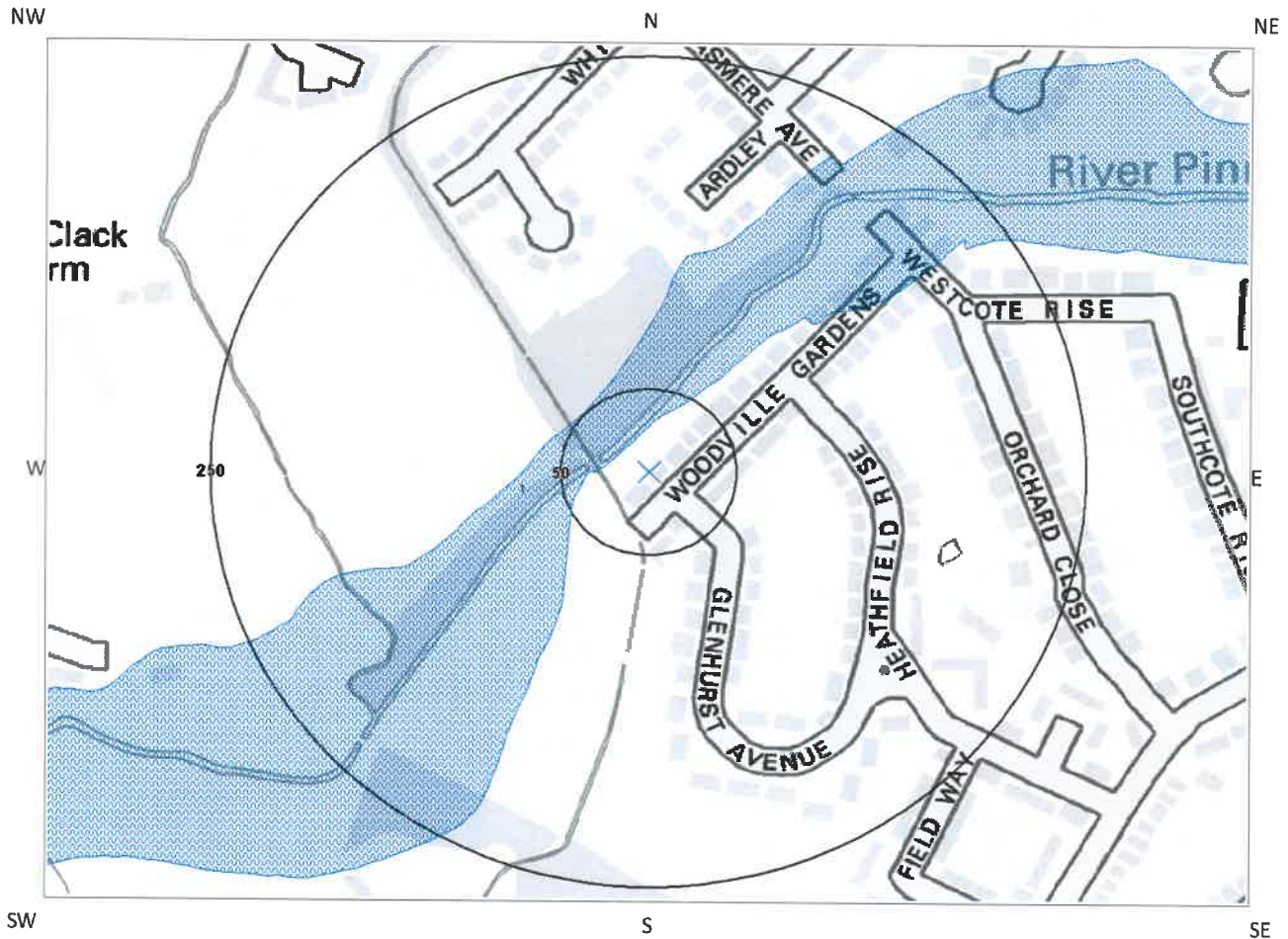


Environment Agency River and Coastal Flood
Legend

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Environment Agency Recorded Historic Flood Events Map

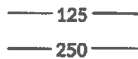


Environment Agency Recorded Historic Flood Events Legend.

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Site Outline

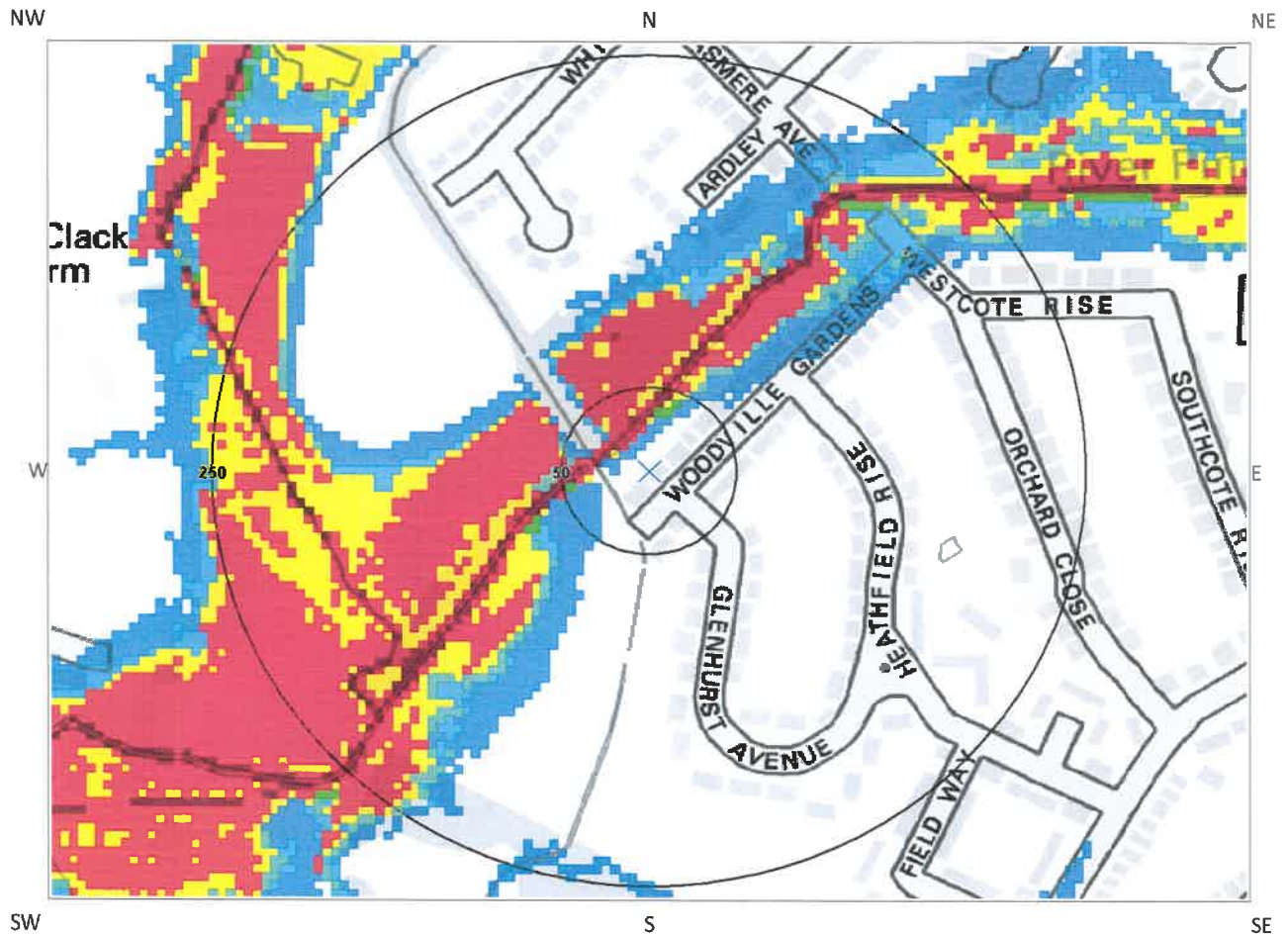


Search Buffers (m)



Historic Flood Events

JBA Surface Water (Pluvial) Flood Map



JBA Surface Water (Pluvial) Flood Legend

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5.1 Risk of Flooding from Rivers and the Sea (RoFRaS)

What is the risk of flooding at the centre of the study site?	Very Low
What is the highest risk of flooding within 25m of the centre of the study site?	High

The Environment Agency RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid as used by many of the insurance companies. RoFRaS data is based on a 50m grid system, with the flood rating at the centre of the grid calculated and given below. The data considers the probability that the flood defences will overtop or breach, and the distance from the river or the sea.

RoFRaS data for the study site indicates the property or an area within 25m has a High (1 in 30 or greater) chance of flooding in any given year.

The following floodplain records within 50m of the study site are represented on the River and Coastal Flood Risk Map above:

ID	Distance	Direction	RoFRaS Flood Risk
1	11	NW	Low
2	21	NW	High
3	27	NW	Low
4	47	NE	Low
5	50	NE	Low

5.2 Areas Benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site?	No
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Guidance: These are areas that may benefit from the presence of major defences during a 1% river (fluvial) or 0.5% coastal flood event. These areas would flood if the defence were not present, but may not flood because the defence is present. Details of flood defences and any areas benefiting from these defences can be seen on the Risk of Flooding from Rivers and the Sea Map.

5.3 Flood Defences

Are there any Flood Defences within 250m of the study site?	No
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Guidance: This search consists only of flood defences present in the dataset provided by the Environment Agency.

5.4 Proposed Flood Defences

Are there any Proposed Flood Defences within 250m of the study site?	No
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Guidance: This search consists only of proposed flood defences present in the dataset provided by the Environment Agency. Please note that proposed flood defence schemes will not influence the current RoFRaS ratings for the site until they have been constructed.

5.5 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?	No
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Database searched and no data found

Flood Storage Areas are considered part of the functional floodplain, and are areas where water has to flow or be stored in times of flood. Technical Guidance to the National Planning Policy Framework states that only water-compatible development and essential infrastructure should be permitted within flood storage areas, and existing development within this area should be relocated to an area with a lower risk of flooding. Any relevant data is represented on the Risk of Flooding from Rivers and the Sea Map.

Notes on RoFRaS data

RoFRaS is an assessment of flood risk for England and Wales produced using local data and expertise. It shows the chance of flooding from rivers or the sea presented in categories taking account of flood defences and the condition those defences are in. The RoFRaS model uses local water level and flood defence data to model flood risk. It has divided England and Wales into 50m X 50m impact cells. Each cell has been assigned a flood risk likelihood from the categories below:

- Less than 1 in 1000 (0.1%) chance in any given year: Very Low
- Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance in any given year: Low
- Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance in any given year: Medium
- Greater than or equal to 1 in 30 (3.3%) chance in any given year: High

Notes on Existing Flood Defences

Flood defences seek to reduce the risk of flooding and to safeguard life, protect property, sustain economic activity and the natural environment. Flood defences are designed to protect against flood events of a particular magnitude, expressed as risk in any one year.

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Notes on Proposed Flood Defences

'Number of Households to Benefit' illustrates the number of households that move from 'very significant' or 'significant' to 'moderate' or 'low' probability of flood risk bands if the proposed flood scheme is to be implemented

This information is taken from the Environment Agency's database of Areas to Benefit from New and Reconditioned Flood Defences under the Medium Term Plan (MTP). The dataset contains funding allocation for the first financial year (from April). Funding for the following four financial years is not guaranteed, being only indicative, and will be reviewed annually. Projects within the Medium Term Plan qualify for inclusion in this dataset if:

- the investment leads to a change in the current standard of protection (change projects);
- the investment is a replacement or refurbishment in order to sustain the current standard of protection (sustain projects);
- the project has an initial construction budget of £100,000 or more; and
- the project is included within the first five years of the MTP.

The data includes all the Environment Agency's projects over £100K that will change or sustain the standards of flood defence in England and Wales over the next 5 years. It also includes the equivalent schemes for all Local Authority and Internal Drainage Boards. The number of households and areas of land contributing to DEFRA's Outcome Measures (OM) are also attributed i.e. could benefit from major work on flood defences.

These data also contain Intermittent Flood Maintenance Programmes that show the annual maintenance programme of work scheduled to be carried out by the Environment Agency, Local Authority or Internal Drainage Board on flood defences. Data details routine maintenance as well as intermittent work that has been funded for the coming year. The data contains a start and end coordinate defining the relevant river section where work is planned.

Information Warning

Please note that the maps show the areas where investment is being made to reduce the flood and coastal erosion risk and are not detailed enough to account for individual addresses. Individual properties may not always face the same risk of flooding as the areas that surround them. Also, note that funding figures are indicative and any use or interpretation should account for future updates where annual values may change.

Every possible care is taken to ensure that the maps reflect all the data possessed by the Environment Agency and that they have applied their expert knowledge to create conclusions that are as reliable as possible. The Environment Agency consider that they have created the maps as well as they can and so should not be liable if the maps by their nature are not as accurate as might be desired or are misused or misunderstood, despite their warnings. For this reason, they are not able to promise that the maps will always be accurate or completely up to date.

This site includes mapping data licensed from Ordnance Survey used for setting the Environment Agency's data in its geographical context. Ordnance Survey retains the copyright of this material and it can not be used for any other purpose.

Flood Storage Areas

Flood Storage Areas may also act as flood defences. A flood storage area may also be referred to as a balancing reservoir, storage basin or balancing pond. Its purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval.

A flood storage area may take the form of a wet or dry reservoir. A wet reservoir is a water storage facility in which storage can be effected by allowing water levels to rise during flood times. A dry reservoir is typically adjacent to a river and comprises an enclosed area that accepts water only at peak times. These areas are also referred to as Zone 3b or 'the functional floodplain' and has a 5% or greater chance of flooding in any given year, or is designed to flood in the event of an extreme (0.1%) flood or another probability which may be agreed between the Local Planning Authority and the Environment Agency, including water conveyance routes. Development within Flood Storage Areas is severely restricted.

5.6 Historic Flooding Events

Has the site or any area within 250m of the site been subject to historic flooding as recorded by the Environment Agency?	Yes
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This database shows the individual footprint of every flood event recorded by the Environment Agency and previous bodies. This data is used to understand where flooding has occurred in the past and provides details as available. Absence of a historic flood event for an area does not mean that the area has never flooded, but only that the Environment Agency do not currently have records of flooding within the area. Equally, a record of a flood footprint in previous years does not mean that an area will flood again, and this information does not take account of flood management schemes and improved flood defences.

The following records are displayed on the Historic Flooding Events Map above:

ID	Distance(m)	Direction	Event Name	Date of flood	Flood Source	Flood Cause
1	20	NW	06AugustSummer1977	Start Date: 01-01-1977 End Date: 12-12-1977	main river	channel capacity exceeded (no raised defences)

5.7 JBA Surface (Pluvial) Water Flooding

What is the risk of pluvial flooding at the centre of the study site?	Negligible
What is the highest risk of pluvial flooding within 25m of the centre of the study site?	Highly Significant

Guidance: The site or an area in close proximity has been assessed to be at Highly Significant Risk of surface water (pluvial) flooding. This indicates that this area would be expected to be affected by surface water flooding in a 1 in 75 year rainfall event to a depth of greater than 1m.

Distance	Direction	Risk
11	NW	Low
17	W	Low
18	NW	Significant
19	NW	High
19	N	Significant
21	NW	Highly Significant
22	NW	Highly Significant
23	W	Highly Significant
23	N	Significant
24	N	Highly Significant
25	NW	Significant
26	NW	Significant
27	W	Highly Significant
28	N	High
28	W	Low
28	NW	Low
28	W	Significant
32	NW	High
32	W	High
32	W	Significant
33	N	Highly Significant
33	W	Low
33	N	Moderate to High
33	N	Significant
34	N	High
35	N	Low
35	NW	Low to Moderate
37	W	Highly Significant
37	W	Significant
38	N	High
38	N	Highly Significant

Distance	Direction	Risk
38	N	Significant
39	N	High
40	N	Moderate to High
42	W	Highly Significant
42	W	Moderate
42	W	Significant
43	NW	Low to Moderate
43	W	Moderate to High
45	N	High
47	W	Moderate
47	W	Significant
47	W	Significant
48	W	High
48	W	Highly Significant
49	W	Moderate
49	W	Significant
50	W	Low
50	N	Significant

Notes on Surface water (Pluvial) Flooding data:

JBA Risk Management surface water flood map identifies areas likely to flood following extreme rainfall events, i.e. land naturally vulnerable to surface water or “pluvial” flooding. This data set was produced by simulating 1 in 75 year, 1 in 200 year and 1 in 1000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though older ones may even flood in a 1 in 5 year rainstorm event.

The model provides the maximum depth of flooding in each 5m “cell” of topographical mapping coverage. The maps include 7 bands indicating areas of increasing natural vulnerability to surface water flooding. These are:

- Less than 0.1m in a 1 in 1000 year rainfall event: Negligible
- Greater than 0.1m in a 1 in 1000 year rainfall event: Low
- Between 0.1m and 0.3m in a 1 in 200 year rainfall event: Low to Moderate
- Between 0.3m and 1m in a 1 in 200 year rainfall event: Moderate
- Greater than 1m in a 1 in 200 year rainfall event: Moderate to High
- Between 0.1m and 0.3m in a 1 in 75 year rainfall event: High
- Between 0.3m to 1m in a 1 in 75 year rainfall event: Significant
- Greater than 1m in a 1 in 75 year rainfall event: Highly Significant

5.8 Groundwater Flooding Susceptibility

What is the susceptibility to Groundwater Flooding in the search area based on the underlying geological conditions?

The area is not considered to be prone to groundwater flooding

Guidance: The area is not considered to be prone to groundwater flooding based on rock type.

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded. The BGS Susceptibility to Groundwater Flooding hazard dataset identifies areas where geological conditions could enable groundwater flooding to occur and where groundwater may come close to the ground surface. The susceptibility data is suitable for use for regional or national planning purposes where the

groundwater flooding information will be used along with a range of other relevant information to inform land-use planning decisions. It might also be used in conjunction with a large number of other factors, e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information, to establish relative, but not absolute, risk of groundwater flooding at a resolution of greater than a few hundred metres. The susceptibility data should not be used on its own to make planning decisions at any scale, and, in particular, should not be used to inform planning decisions at the site scale. The susceptibility data cannot be used on its own to indicate risk of groundwater flooding.

Notes on Groundwater Flooding

The BGS Susceptibility to Groundwater Flooding hazard dataset identifies areas where geological conditions could enable groundwater flooding to occur and where groundwater may come close to the ground surface.

Groundwater flooding is assessed on a fourfold scale:

- The area is not considered to be prone to groundwater flooding based on rock type.
- There is limited potential for groundwater flooding to occur and further relevant information should be considered to determine this assessment.
- There is potential for groundwater flooding of property situated below the surface such as basements and other below surface infrastructure. Further relevant information should be considered to determine whether groundwater flooding has previously occurred.
- There is potential for groundwater flooding to occur at the surface and groundwater flooding hazard should be considered in all land use planning decisions. Other relevant information should be considered to establish the risk of groundwater flooding to property.

5.9 Natural Ground Subsidence

What is the potential for natural ground subsidence* within the search area?	Moderate - High
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Guidance: The natural ground subsidence rating is obtained through the evaluation of six natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS). These datasets indicate the hazard posed by the occurrence of: Swell-Shrink Clay, Landslide, Compressible Ground, Collapsible Ground, Dissolution of Soluble Rocks and Running Sand. Many factors may contribute to ground subsidence problems. For instance, significant problems can arise in conurbations underlain by clay rich bedrock, such as over clay strata in the South East of England, or South Wales. Whilst surveyors are normally aware of local problem areas, data provided by the BGS can highlight areas where a significant potential for natural ground subsidence exists and which may need particular consideration.

Where moderate - high potential is indicated, this means that there is the potential for natural ground movement to occur that may be of concern. Such ground movement could cause damage to domestic or other properties. However, properties designed, constructed and maintained in compliance with modern building regulations should be unaffected by most minor subsidence. Therefore, if thinking of buying a property in the area, you should seek professional advice from a professional property surveyor and also look at the property yourself in more detail to look for any signs of existing damage. If you already own a property in the area, and you think natural ground movement may have damaged it, you should contact your insurance company for advice. You should also take professional advice before changing the ground in any way, for example, by planting or removing trees, changing drainage or carrying out building work.

*The term "Subsidence" refers to ground movement that could cause damage to foundations in domestic or other properties.

5.10 Radon Affected Areas

Is the property in a radon Affected Area as defined by Public Health England (PHE) and if so what percentage of homes are above the Action Level?	 The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level
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Guidance: Public Health England (PHE) recommends a radon 'Action Level' of 200 becquerels per cubic metre for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to exceed the Action Level (i.e. are in an Intermediate or Higher probability radon area) the area should be regarded as a radon Affected Area.

This report informs you whether the property is in a radon Affected Area and the percentage of homes that are estimated to be at or above the radon Action Level. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

PHE advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels above the Action Level (200 Bq m⁻³) should be remediated, and when achievable to below the Target Level of 100 Bq m⁻³. Householders with levels