GeoReports

British Geological Survey

Example Report
BGS Keyworth

Natural Ground Stability report:

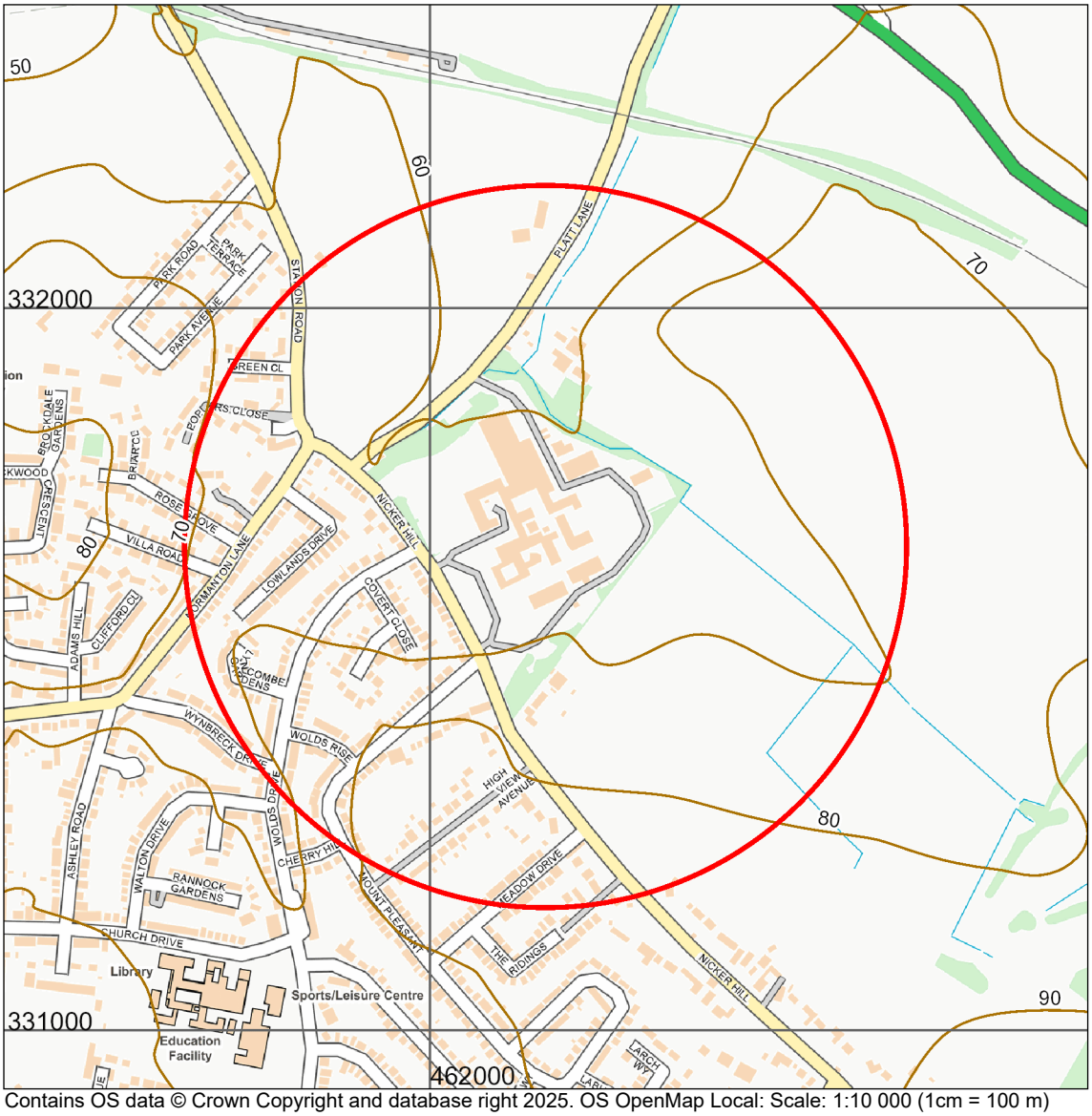
This report briefly describes any natural ground stability hazards ('subsidence') if they are found and gives an indication of their possible severity.

These could include swelling clay, landslip, ground dissolution, running sand, collapsible or compressible ground.

Report Id: ***GR_999999/1***

Client reference:

Search location



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Search location indicated in red

Site Address:
British Geological Survey
Environmental Science Centre
Nicker Hill
Keyworth
Nottingham
NG12 5GG

Area centred at: 462160,331670
Radius of site area: 500 metres

Natural Subsidence Professional Search

This is an indication of the potential for any significant natural subsidence to occur within the extent of the site and a surrounding 50 m buffer zone. It has been generated automatically from BGS's GeoSure dataset, which is based on 1:50 000 scale data. It is designed for use by professionals involved in conveyancing or development of low-rise domestic properties, but it may also be useful for private individuals to help them judge whether or not further professional advice should be sought. We recommend you consult a qualified professional about the search results in this report before making any major decisions based on it.

Definitions

- The **natural geological hazards** included here are shrink-swell, landslides, soluble rocks, compressible ground, collapsible deposits and running sand. Mining related subsidence is not included in this report.
- **Natural subsidence** refers to the propensity for upward, lateral or downward movement of the ground that can be caused by a number of natural geological hazards. Some movements associated with particular hazards may be gradual and of millimetre scale, whilst others may be sudden and of tens of metres in scale.
- **Significant** natural ground instability has the potential to cause damage to some weaker buildings and structures. It should be noted, however, that many buildings, particularly more modern ones, are built to such a standard that they can remain unaffected in areas of significant ground movement.
- Where significant natural ground instability is indicated, its relative **level** of significance is expressed on a scale of C to E ('low' to 'high'), relating to its potential to cause subsidence damage in low-rise buildings.

Limitations:

- This data provides an indication of potential near-surface ground instability related to particular natural geological hazards. It does not give an indication of potential hazards at depth.
- The search does not cover any man-made hazards, such as contaminated land or mining. Searches of coal mining should be carried out via The Coal Authority Mine Reports Service: https://www.gov.uk/check-if-property-is-affected-by-coal-mining
- The scope and accuracy of the results in this report are limited by the methods used to create the GeoSure dataset and may differ from a geologist's interpretation of a wider array of geological information. The answer given should therefore only be treated as indicative for the search area.

- Other more specific and detailed information may be held by BGS for the site, and an assessment of this could result in a modified assessment of ground stability potential. This more detailed assessment is available via other BGS GeoReports.
- The search in this report is carried out for a rectangle or circle (centred on the grid reference or address supplied, using the Ordnance Survey address database) covering the extent of the area of interest. In additional a 50 m buffer is applied which takes into account the spatial accuracy of the underlying data.
- An indication of natural subsidence does not necessarily mean that a location will be affected by ground movement. Such an assessment can be made only by inspection of the building itself by a suitably-qualified professional. Any assessment should take into account a variety of other contributing factors, such as building type and build quality, and nearby vegetation (in particular, the proximity and type of trees).

Search Results:

Important notes

- The term '**search area**' as used throughout this report means the area of interest plus a 50 m buffer zone. The property extent is defined using the original details specified by the client.

Question 1	Answer
Is significant natural ground instability possible in the area?	**YES**

Question 2	Answer
What is the level of hazard on a scale A to E (low to high)? **NOTE: Only levels C, D and E are shown and described below, as Levels A & B are considered insignificant**	**Level D**

Question 3	Answer
Which natural geological hazards could be contributing to the ground instability in the area? *How much ground instability each hazard may cause is indicated by the Level C to E in brackets.*	Clays that can swell when wet and shrink when dry, causing the ground to rise and fall ('Shrink-Swell') (LEVEL C) Weak or unstable rocks that could slip downhill on steep slopes (greater than c. 5 degrees) or into excavations ('Landslides (slope instability)') (LEVEL C) Very soft ground that might compress and progressively sink under the weight of a building ('Compressible Ground') (LEVEL D) Sand that can wash away or flow into holes or fissures due to presence of water ('Running Sand') (LEVEL C)

Question 4	Answer
If you are a property owner/buyer what action should be taken?	If natural geological hazards at level C, D or E have been indicated this means there is potential ground instability in your area that may cause some properties to suffer subsidence damage. However, it does not necessarily mean that your property will be affected, and in order to find out if this is the case or not, you should obtain further advice from a qualified expert, such as a building surveyor. Show them this report and ask them to evaluate the property and its surroundings for any signs of existing subsidence damage and for advice on the likelihood for subsidence to occur in the future. The notes at

	the end of this report module may be useful in this regard. Note that the type of building and its surroundings (e.g. the presence of trees) are also very important when considering subsidence risk. Many types of properties, particularly newer ones, are well constructed and unlikely to be affected by subsidence, even in areas of significant ground movements.

Question 5	**Answer**
Where could the natural geological hazards occur in the area?	See the maps that follow.

Maps from the GeoSure dataset showing natural subsidence potential

The following maps show where significant natural ground instability at or near the surface could occur in relation to each of six geological hazards. The relative level of potential is indicated in colour and described in the key. Please note that a hazard is reported as significant for the property if it occurs within the specified site or the surrounding buffer zone.

Shrink-Swell

Landslides (slope instability)

Soluble Rocks (dissolution)

Compressible Ground

Collapsible Deposits

Running Sand

Search area indicated in red

50 m buffer indicated in green

For the key to relative level of potential for natural geological hazards see over the page

The unshaded (white) areas on the map (levels A, B or 'No hazard') represent areas where the conditions that cause natural ground movements due to the six natural geological hazards are considered to be absent or unlikely to be significant.

Key to Shrink-Swell Hazard:

Level	Hazard description	Advice for public	Advice for specialist
C	Ground conditions predominantly medium plasticity.	Do not plant trees with high soil moisture demands near to buildings. Avoid increased infiltration and seek specialist advice before disposing of large amounts of water to the ground through soakaways.	**New build** – Test for plasticity index is recommended. Possible increase in construction cost to remove potential shrink-swell problems. **Existing property** – Possible increase in insurance risk in droughts or where high moisture demand vegetation is present due to shrink-swell clay problems if foundations are not suitable.
D	Ground conditions predominantly high plasticity.	Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. Seek specialist advice before disposing of large amounts of water to the ground through soakaways.	**New build** – Test for plasticity index is necessary. Probable increase in construction cost to remove potential shrink-swell problems. **Existing property** – Probable increase in insurance risk in droughts or where high moisture demand vegetation is present due to shrink-swell clay problems if foundations are not suitable.
E	Ground conditions predominantly very high plasticity.	Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. Seek specialist advice before disposing of large amounts of water to the ground through soakaways.	**New build** – Test for plasticity index is essential. Definite increase in construction cost to remove potential shrink-swell problems. **Existing property** – Significant increase in insurance risk in droughts or where high moisture demand vegetation is present due to shrink swell clay problems if foundations are not suitable.

Key to Landslides (slope instability) Hazard:

Level	Hazard description	Advice for public	Advice for specialist
C	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.	Ask about implication for stability if large changes to drainage or excavations take place near to buildings. Seek specialist advice if major changes in ground conditions are likely and before disposing of large amounts of water to the ground through soakaways.	**New build** – Consider possibility of trench side or slope movement during excavations, or consequence of changes to drainage. Possible increase in construction cost to remove potential slope stability problems. **Existing property** – No significant increase in insurance risk due to natural slope instability problems.
D	Slope instability problems are probably present or have occurred in the past. Land use should consider specifically the stability of the site.	Avoid large amounts of water entering the ground through pipe leakage or soakaways without specialist advice. Do not undercut or place large amounts of material on slopes without technical advice.	**New build** – Assess slope stability of site and consequences of excavation, loading and water content changes during and after construction. **Existing property** – Probable increase in insurance risk due to natural slope instability after changes to ground conditions such as a very long, excessively wet winter.
E	Slope instability problems almost certainly present and may be active. Significant constraint on land use.	Seek expert advice about stability of the ground and its management to maintain and increase its stability.	**New build** – Slope stability assessment necessary, special design may be necessary, construction may not be possible. **Existing property** – Significant increase in insurance risk in some cases. Site-specific consideration is necessary to separate cases where landslide s are stabilised or ancient and stable from those that may be active or may fail.

Key to Soluble Rocks (dissolution) Hazard:

Level	Hazard description	Advice for public	Advice for specialist
C	Soluble rocks are present within the ground. Some dissolution features may be present. Potential for difficult ground conditions are at a level where they may be considered; localised subsidence need not be considered except in exceptional circumstances.	Consider implications for stability when changes to surface drainage or new construction are planned. Seek specialist advice before disposing of surface drainage to the adjacent ground.	**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 adjacent bedrock. **Existing property** – Possible increase in insurance risk due to soluble rocks. Some possibility of potential liability due to groundwater pollution may be present.
D	Soluble rocks are present within the ground. Many dissolution features may be present. Potential for difficult ground conditions are at a level where they should be considered. Potential for subsidence is at a level where it may need to be considered.	Consider obtaining specialist advice before loading the land or undertaking building work. Seek specialist advice before disposing of surface drainage to the adjacent ground. Maintain drainage infrastructure.	**New build** – Specialist site investigation and stability assessment may be necessary before construction. Construction work may cause subsidence. Isolate surface drainage from the karst system and groundwater. Increased construction costs are possible. **Existing property** – Possible increase in insurance risk due to soluble rocks. Some possibility of potential liability due to groundwater pollution may be present.
E	Soluble rocks are present within the ground. Numerous dissolution features may be present. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered.	Obtain specialist advice on need for stabilisation work and/or land management plan to maintain stability. Do not dispose of surface drainage into the adjacent ground. Maintain drainage infrastructure.	**New build** – Specialist land stability assessment necessary. Investigation, remediation and/or mitigation works may be necessary to stabilise the area. Construction work may cause subsidence. Isolate surface drainage from the karst system and groundwater. Increased construction costs. **Existing property** – Probable increase in insurance risk due to soluble rocks. Probable potential liability due to groundwater pollution.

Key to Compressible Ground Hazard:

Level	Hazard description	Advice for public	Advice for specialist
C	Compressibility and uneven settlement potential may be present. Land use should consider specifically the compressibility and variability of the site.	Take technical advice regarding settlement when planning extensions to existing property or when retrofitting soakaways.	**New build** – Consider possibility of settlement during construction due to compressible deposits. Unlikely to be increase in construction costs due to potential compressibility problems. **Existing property** – No significant increase in insurance risk due to compressibility problems.
D	Compressibility and uneven settlement hazards are probably present. Land use should consider the compressibility and variability of the site.	Avoid large differential loadings of ground. Do not drain or dewater ground near the property without specialist advice.	**New build** – Assess the variability and bearing capacity of the ground. May need special foundations to avoid excessive settlement during and after construction. Consider effects of changes to drainage regime and groundwater level. Extra construction costs are likely. **Existing property** – Possible increase in insurance risk from compressibility if groundwater levels drop due to drought or dewatering.
E	Highly compressible strata present. Significant constraint on land use depending on thickness.	Avoid large differential loadings of ground. Do not drain or dewater ground near the property without specialist advice.	**New build** – Assess the variability and bearing capacity of the ground. Probably needs special foundations to avoid excessive settlement during and after construction. Consider effects of changes to drainage regime and groundwater level. Construction may not be possible at economic cost. **Existing property** – Probable increase in insurance risk from compressibility due to drought or dewatering unless appropriate foundations are present.

Key to Collapsible Deposits Hazard:

Level	Hazard description	Advice for public	Advice for specialist
C	Deposits with potential to collapse when loaded and saturated are possibly present in places.	Avoid large amounts of water entering the ground through pipe leakage or soakaways without specialist advice. Do not increase loading on existing foundations without technical advice.	Contact local authorities for information on local occurrence of damage due to collapsible ground. **New build** – Assess the possibility of collapsible (loessic) deposits by ground investigation. If present do not exceed safe bearing capacity during or after construction and maintain site drainage, or carry out ground stabilisation. **Existing property** – Possible increase in insurance risk if collapsible deposits are present and if the load on the ground is increased or ground saturated by leakage or localised flooding.
D	Deposits with potential to collapse when loaded and saturated are probably present in places.	Avoid large amounts of water entering the ground through pipe leakage or soakaways without specialist advice. Do not increase loading on existing foundations without technical advice.	Contact local authorities for information on local occurrence of damage due to collapsible deposits. **New build** – Assess the possibility of collapsible deposits by ground investigation. If present do not exceed safe bearing capacity during or after construction and maintain site drainage, or carry out ground stabilisation. **Existing property** – Possible increase in insurance risk if collapsible deposits are present and if the load on the ground is increased or ground saturated by leakage or localised flooding.
E	Deposits with potential to collapse when loaded and saturated have been identified.	Avoid large amounts of water entering the ground through pipe leakage or soakaways. Do not increase loading on existing foundations without technical advice.	Contact local authorities for information on local occurrence of damage due to collapsible ground. **New build** – Assess the possibility of collapsible deposits by ground investigation. If present do not exceed safe bearing capacity during or after construction and maintain site drainage, or carry out ground stabilisation. **Existing property** – Possible increase in insurance risk if collapsible deposits are present and if the load on the ground is increased or ground saturated by leakage or localised flooding.

Key to Running Sand Hazard:

Level	Hazard description	Advice for public	Advice for specialist
C	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.	Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should avoid any problems due to running sands. Seek specialist advice before disposing of large amounts of water to the ground through soakaways.	**New build** – Consider possibility of running sands into trenches or excavations if water table is high. Avoid concentrated water inputs to site. Unlikely to be increase in construction costs due to potential for running sand problems. **Existing property** – No significant increase in insurance risk due to running sand problems.
D	Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.	Avoid large amounts of water entering the ground through pipe leakage or soakaways without specialist advice. Do not dig (deep) holes into saturated ground near the property without technical advice.	**New build** – Assess the need for close-boarded sides to excavations and the consequences of soil and groundwater conditions during and after construction. **Existing property** – Possible increase in insurance risk from running conditions due to service leakage, high rainfall events or localised flooding.
E	Running sand conditions are almost certainly present. Constraints will apply to land uses involving excavation or the addition or removal of water.	Avoid large amounts of water entering the ground through pipe leakage or soakaways without specialist advice. Do not dig (deep) holes into saturated ground without technical advice.	**New build** – Assess the need for close-boarded sides to excavations and the consequences of soil and groundwater conditions during and after construction. Possible extra cost during construction and requirement for basements to be water proofed. **Existing property** – Possible increase in insurance risk from running conditions due to service leakage, high rainfall events or localised flooding.

Question 6	Answer
What is the geology of the area?	Please see the maps below, which show the geology underlying the area. You can compare these to the maps in Question 5 in order to understand the way that the underlying rocks and deposits are related to the potential natural geological hazards.

Geology maps

Geology maps for the area around your site are provided in this section, taken from the 1:50000 BGS Digital Geological Map of Great Britain (BGS Geology 50k). The first two maps show separately the two main components of natural geology that may be present in an area – **superficial deposits** and **bedrock**. The third map, a "combined geology map", shows both layers superimposed.

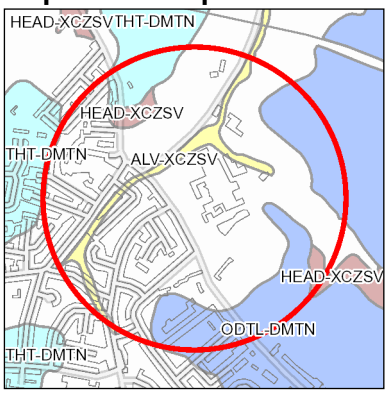
Superficial deposits: These include recent geological deposits, such as river sands and gravels, or glacial deposits, which lie on top of the bedrock in many areas (an alternative term for Superficial deposits is 'Drift Deposits')

Bedrock: Bedrock describes the rocks which underlie the whole of an area, upon which superficial deposits may lie (an alternative term for Bedrock is 'Solid Geology')

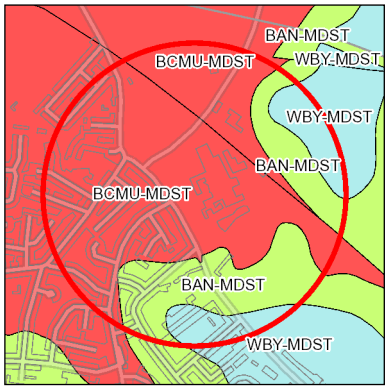
More information about BGS Geology 50k is available here http://www.bgs.ac.uk/products/digitalmaps/DiGMapGB_50.html and information on the BGS geological classification schemes here http://www.bgs.ac.uk/bgsrcs/. The maps are labelled with two-part computer codes that indicate the name of the geological unit and its composition. Descriptions of the units listed in the map keys may be available in the BGS Lexicon of Named Rock Units (http://www.bgs.ac.uk/lexicon/). If available, these descriptions can be found by searching against the first part of the computer code used on the maps. Please consult the legend and the codes on the map in areas of complex geology. If in doubt, please contact BGS Enquiries for clarification.

The geological formations are listed broadly in order of age in the map keys (youngest first) but only to the formation level (a formation is a package of related rocks). Within formations, please be aware that individual members may not be ordered by age.

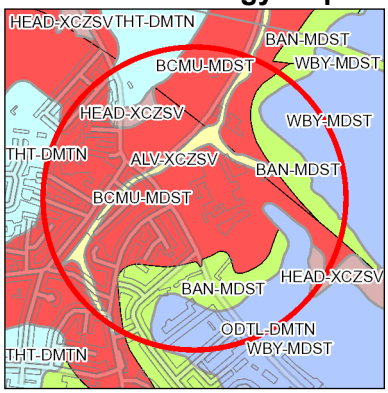
Superficial Deposits



Bedrock



Combined Geology Map



Site location indicated in red

Fault

Coal, ironstone or mineral vein

Note: Faults are shown for illustration and to aid interpretation of the map. Because these maps are generalised from more detailed versions not all such features are shown and their absence on the map face does not necessarily mean that none are present. Coals, ironstone beds and mineral veins occur only in certain rock types and regions of the UK.

Key to Superficial deposits:

Map colour	Computer Code	Rock name	Rock type
	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
	ODTL-DMTN	OADBY MEMBER (LIAS-RICH)	DIAMICTON
	THT-DMTN	THRUSSINGTON MEMBER	DIAMICTON
	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL

Key to Bedrock geology:

Map colour	Computer Code	Rock name	Rock type
	WBY-MDST	WESTBURY FORMATION	MUDSTONE
	BAN-MDST	BLUE ANCHOR FORMATION	MUDSTONE
	BCMU-MDST	BRANSCOMBE MUDSTONE FORMATION	MUDSTONE

What do the geological hazards mean?

The answer to Question 3 will have pointed to one or more natural geological hazards in the area. This section provides a brief explanation of these hazards to help you understand what they mean. This includes information on what you should look for in and around the property and what you should and should not do. The hazard is only reported below if it is shown as significant within the search area.

SHRINK-SWELL HAZARD

What is a shrink-swell?

A shrink-swell clay is one that changes volume according to how much water it contains. The clay particles that form the soil have a layered crystal structure that can absorb water within the layers as well as between the particles themselves. Some types of clay, such as smectite, can absorb very large amounts of water causing the crystals to expand like a concertina. When water is removed the clay particles shrink to their original size.

Why does shrink-swell cause a hazard?

All clay deposits change volume as their water content changes through the year, swelling in winter and shrinking in summer. Most foundations are designed and built to withstand seasonal changes. However, in exceptional circumstances, such as a drought or tree roots drying out the ground, houses may experience problems. If a house is built on a shrink-swell clay ground and the ground dries it will shrink and remove support from the foundations. If it becomes wetter it will expand causing heave or, if constrained, exert a swelling pressure.

What problems does shrink-swell cause?

If the ground below part of the foundations of a house shrinks or swells excessively it can cause the house to bend and crack. If the ground is confined the swelling pressure may cause walls or floors to bulge and crack.

What might I see?

Wide desiccation cracks in the ground in dry summers.
Distortion of buildings
Sticking doors and/or windows
Horizontal lines, such as courses of bricks, rising or falling
Cracking in walls, concrete floors, paths or roads.
Upward bulging of solid floors.
Tilting of walls or floors.

Some of these indicators may also be caused by other geohazards, such as landslides, but if they are noticed after a summer drought or where a large tree is growing (or has been removed) then a shrink/swell soil may be present.

What action should I take?

If active clay shrinkage/swelling appears to be affecting your property, inform your insurance company, mortgage lender, landlord or get specialist advice from a suitably qualified expert such as a structural surveyor, geotechnical engineer or chartered engineering geologist.

If active clay shrinkage/swelling is not affecting your property but the area has a potential for shrink/swell clay being present this should be taken into account before starting new buildings or changes in land use.

DO
Take specialist advice before starting major building work
Consider the effect of laying impermeable drives, paths, hard standing on the rainfall reaching the soil below and changing its moisture content.
Seek expert advice before planting trees near to the house. The safe planting distance will depend on the tree species, type of house foundation and soil composition.
Ensure foundations of new constructions or extensions are designed for the shrinkable clay soil conditions that are present.

DO NOT
Plant potentially large trees next to the house.
Remove mature trees that predate the construction of the house before taking advice. Tree management by crown reduction or thinning may be better than removal because it will maintain a stable soil moisture profile.

RUNNING SAND HAZARD

What is running sand?
Running sand occurs when loosely-packed sand becomes fluidised by water flowing through the spaces between the grains. The pressure of the flowing water reduces the contact between the grains and they are swept along in the flow. This may happen where springs occur at the base of sand outcrops, where excavations in sand go below the water table, around leaking drains or mains water supply pipes or in entire sand bodies if vibrated (liquefaction) e.g. by an earthquake

Why does running sand cause a hazard?
If sand below a building runs it may remove support and the building may sink below the surface of the surrounding ground or relative to adjacent structures. If the running sand is due to a minor water flow such as a leaking pipe it may form a void or remove support from below a part of the building which may cause cracking of floors and/or walls due to differential settlement. Sands may also run where excavations in sand go below the water table.

What problems does running sand cause?
Running sand may cause:-

- access paths and roads to be broken and disrupted
- service connections to water, gas and electricity supplies to break.
- structural damage to foundations and to the fabric of the building if uneven sinking occurs under the foundations.

What might I see?
Changes in ground surface level relative to the building.
Depressions in the ground surface along pipe runs
Cracks at the junction of a building and paths or roads leading from it.
Water leaks from service connections.
Tilting of walls or buildings.

Cracks within the fabric of the building.
Cracks at the junction of a building and associated structures (eg walls or outbuildings) physically joined to the building.

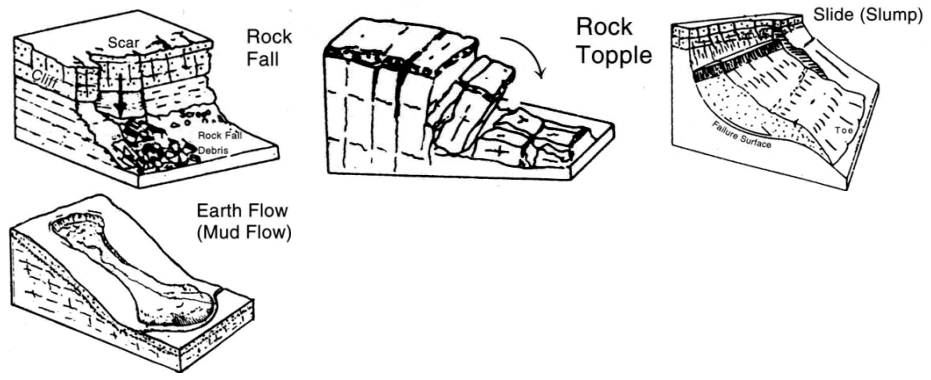
What action should I take?
If running sand appears to be happening on or near your property, inform your insurance company, mortgage lender, landlord or get specialist advice from a suitably qualified expert such as a chartered engineering geologist, geotechnical engineer or structural surveyor.
If active running sand is not happening but the ground has a potential for running sand being present this should be taken into account before designing new buildings or changes to land use.

DO
Take specialist advice before starting major building work
Maintain water pipes and drains in good condition (no leaks).

DO NOT
Dispose of rain or surface water to soak-aways near buildings.
Dig holes below the water table near buildings.

LANDSLIDES (SLOPE INSTABILITY) HAZARD

What is a landslide?
A landslide is the outward and downward movement of rock or soil on a slope. This often takes place by falling, toppling, sliding, or flowing.



A landslide rarely comprises a single type of movement but is often the result of a combination of several types, changing its nature with changing conditions and time.

Why do landslides occur?
A slope is under stress due to the force of gravity. It does not move if the shear strength of the material that forms the slope is greater than the stress due to gravity. If the balance is altered so that stress exceeds available strength, movement down slope will occur until a stable slope profile is formed.

What problems do landslides cause?
Many landslides occurred in the past under different climatic conditions to those of the present day and, if left undisturbed, they may remain stable for many years.

Property is damaged if landslides remove ground that is supporting the property.
Property that is built on a landslide may be damaged by stretching or compression as the ground moves.
Property below a landslide may be damaged if material falls onto it from above or slides or flows into it from the side

What might I see?
Piles of debris and fallen material below steep slopes and cliffs.
Hollows in slopes with lobes of material below them.
Bulges in the ground especially at the foot of slopes.
Ridges in the ground usually along the slope but sometimes down the slope
Open cracks in the ground.
Scarps or steps in the ground surface
Patches of very wet soft ground on slopes.
Cracks in walls, paths and roadways.
Tilting of trees, walls or buildings.
Doors or windows that stick.

What action should I take?
If active landsliding appears to be happening on or near your property, inform your insurance company, mortgage lender, landlord or get specialist advice from a suitably qualified expert such as a structural surveyor, geotechnical engineer or chartered engineering geologist.
If active landsliding is not happening but the area has a potential for landslide activity, take specialist advice before starting major building or drainage work or modifying the ground around your property.

DO
Ensure water supply pipes are in good repair and are not leaking
Ensure ditches and drains are directed away from potentially unstable ground and are maintained.
Maintain gutters and down pipes and direct them to piped drainage systems.
Manage wooded slope to enhance stability.

DO NOT
Remove material from the bottom of slopes.
Place material on, or at the top of, slopes.
Dispose of rainwater or surface water to soakaways.
Allow surface drainage to discharge water on to slopes or the ground behind slopes.
Remove vegetation whose roots may be strengthening loose or weak material or which may strengthen the slope by removing soil moisture.

COMPRESSIBLE GROUND HAZARD

What is compressible ground?
Ground is compressible if an applied load, such as a house, causes the fluid in the pore space between its solid components to be squeezed out causing it to decrease rapidly in thickness (compress). Peat, alluvium and laminated clays are common types of deposits associated with various degrees of compressibility. The deformation of the ground is usually a one-way process that occurs during or soon after construction.

Why does compressible ground cause a hazard?
If ground is extremely compressible the building may sink below the surface of the surrounding ground or relative to adjacent structures that apply lesser or greater loads to the ground. If the compressible ground is not uniform different parts of the building will sink at different rates or by different amounts (differential settlement).

What problems does compressible ground cause?
If a building sinks relative to its surroundings it may cause:-
Access paths and roads to be broken and disrupted
Service connections to water, gas and electricity supplies to break.
Structural damage to foundations and to the fabric of the building if uneven sinking occurs under the foundations.

What might I see?
Changes in ground surface level relative to the building.
Cracks at the junction of a building and paths or roads leading from it.
Gas leaks or water leaks from service connections.
Tilting of walls or buildings.
Cracks within the fabric of the building.
Cracks at the junction of a building and associated structures (eg walls or outbuildings) physically joined to the building.

What action should I take?
If active compression appears to be happening on or near your property, inform your insurance company, mortgage lender, landlord or get specialist advice from a suitably qualified expert such as a structural surveyor, geotechnical engineer or chartered engineering geologist.
If active compression is not happening but the ground has a potential for compressibility being present this should be measured and taken into account before designing new buildings or changes to land use.

DO
Take specialist advice before starting major building work
Ensure foundations of new constructions or extensions are designed for the compressible ground conditions that are present.

DO NOT
Increase the floor loading unevenly by a significant amount.

Contact Details

Keyworth Office
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