

Geology of the Andover area: Applied geology - Geotechnical considerations and hazards

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This page is part of a category of pages providing a summary of the geology of the Andover district (British Geological Survey Sheet 283), which extends over approximately 600 km² of north-west Hampshire and a small part of eastern Wiltshire.

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The following statements should be taken only as a guide to likely or possible problems and should not replace site-specific studies. The table below gives potential ground constraints and the deposits with which they are commonly associated.

Potential geotechnical constraints table

Geological unit	Potential ground constraints
Worked ground	<ul style="list-style-type: none">• Variable foundation conditions• Unstable sides on old workings
Made ground	<ul style="list-style-type: none">• Variable foundation conditions• Leachate and methane production from waste
Infilled ground	<ul style="list-style-type: none">• As above
Head	<ul style="list-style-type: none">• Variable foundation conditions• Ground heave
Alluvium	<ul style="list-style-type: none">• Compressible strata• Risk of flooding• Variable foundation conditions
River terrace deposits	<ul style="list-style-type: none">• High water table• Possibility of undocumented and filled former pits• Variable foundation conditions• Ground heave
Palaeogene strata	<ul style="list-style-type: none">• Potential shrink-swell in clay horizons• Sink holes close to contact with Chalk• Perched water tables and springs in sand layers• Slightly elevated natural radon emissions• Groundwater protection requirement
Chalk Group	<ul style="list-style-type: none">• Possibility of undocumented and infilled former pits• Dissolution cavities and sinkholes• Potential for high frequency of flint• Irregular bedrock surface
Upper Greensand Formation	<ul style="list-style-type: none">• Variable foundation conditions• Potential for running sand in excavations

Chalk dissolution

The Chalk is locally affected by solution phenomena and as a consequence, fractures naturally occurring in the Chalk are enlarged and a very irregular rockhead is created. Solution can result in

the formation of small surface depressions (dolines) that range in size up to some 50 m across, and up to 4 m to 6 m deep. These generally overlie pipes filled with Palaeogene materials, clay-with-flints, or in some places, head. Such depressions continue to act as sumps for surface drainage, and may be liable to further subsidence. Differential compaction under load can occur across such structures. Stream sinks may be locally present.

Head deposits

Map users should be aware that thin deposits of head are much more widespread than indicated by the geological map. In particular, large parts of the White Chalk outcrop, which are shown with no overlying superficial deposit, do actually carry a thin and extensive, but discontinuous, blanket of head. Head, especially where clay-rich, can contain gently dipping shear planes that can fail when loaded.

Artificial ground

Planning for future construction should allow for the possible existence of small areas of made, infilled or landscaped ground. Such areas might be liable to differential settlement.

Peat

Peat is a compressible material and will compact when loaded or give rise to differential settlement when partially built over. Care should be taken to identify peat units within the major floodplains where they have not been delimited by surface mapping.

Excavations within units comprising sand are liable to failure if unsupported particularly where groundwater is present.

Landslide deposits

No areas of landslide deposits have been recorded within the Andover district.

In addition to the naturally occurring hazards, man has had considerable influence on the landscape. Many of the abandoned aggregate, chalk and clay pits in the area have been filled, particularly adjacent to urban areas. Records are held by the local authorities, but old areas of fill are often poorly documented. Cuttings and embankments for major road and rail links are commonplace in the district.

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