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FLOODING: GROUNDWATER FLOODING



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Groundwater is water, such as rainfall, that has not been returned to the atmosphere or used by plants. Instead it has soaked into the ground and trickled downwards into the rocks.

Water is present everywhere underground, but some rock formations allow hardly any water flow, whilst others (known as aquifers) do allow water to flow through them.

Groundwater Flooding

Groundwater flooding is a natural occurrence.

Long periods of abnormally high rainfall can result in the groundwater levels rising and filling basements. Groundwater can also emerge on the surface, creating an overland flow which floods roads and overwhelms drainage systems.

This type of flooding is unusual as it may appear as a 'delayed reaction' rather than during or immediately after a storm.

Impact of Groundwater Flooding

Groundwater flooding may appear as a wide area of flooding (across flat ground) or at a point (at a spring or within a basement of a property). Its impacts include:

- Flooding of basements, underground car parks and similar structures, causing anything from structural damage to mere nuisance
- Flooding of land and property, damaging possessions/crops/stock
- Flooding of sewer systems, in some cases opening manhole covers and flooding the area with sewage (causing pollution as well as a flood incident)
- Flooding of utilities sited underground (power lines/telecoms/drinking water supply) causing service failures.

Sometimes changes to groundwater flow patterns can also contribute to surface water flooding.

Groundwater flooding may last far longer compared to other types (from weeks to months). The amount of damage that can result may also be substantially higher, and there may be prolonged closure of access routes, roads and railways.

Who is at Risk?

There are no publicly available flood risk maps for groundwater, but the risk of this type of flooding in Oxfordshire is known and monitored.

The Local Lead Flood Authority (Oxfordshire County Council) may be able to advise further on this. If they do not have any information on flooding from

groundwater in your area, one of the following sources may be able to help:

- Local Environment Agency office
- Parish or Town Council
- The Highway Authority
- Any Flood Wardens or Flood Action Groups in the area
- British Geological Society.

If further information regarding the risk to a particular property is needed, then a qualified professional such as a consulting engineer or chartered surveyor should be contacted to carry out a flood risk assessment.

Steps to reduce groundwater flood risk

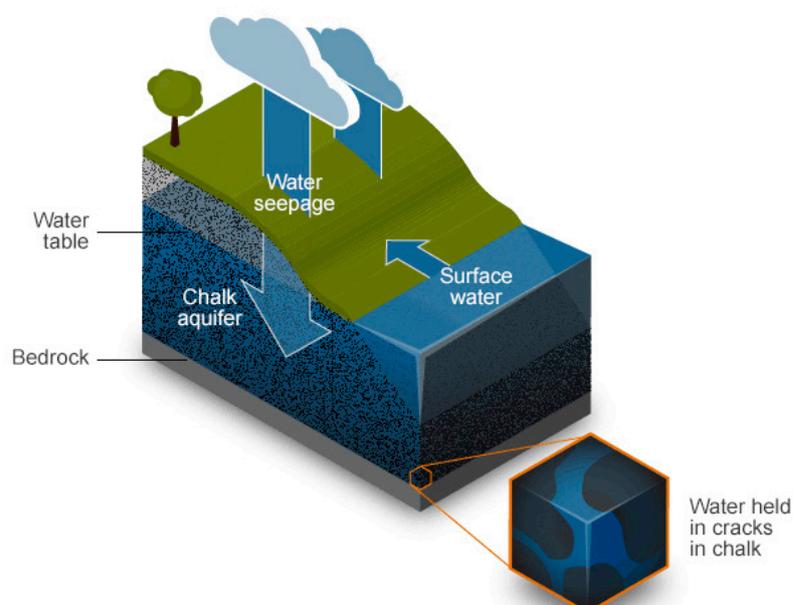
If a property is found to be at risk of this type of flooding, then the options are limited, both because of the volume of water typically involved and the difficulties in containing or channelling it.

Some measures to limit the impact include:

- Moving services (electrics, boilers, service- meters) well above the likely flood level
- Using water resistant materials (such as lime plaster or cement render) rather than gypsum plaster on walls
- Using plastic or steel units in the kitchen and bathroom (rather than the usual chipboard carcasses)
- Using waterproof flooring such as tiles rather than carpets
- ‘Tanking’ (waterproofing) of basements/cellars
- Using of sump-pumps
- Fitting non-return valves to drainage systems
- Protecting septic tanks/cess pits with a concrete surround.

NOTE: ‘Water repellent coatings’ (also called ‘damp- proofing masonry creams’) are not designed to protect against this type of flooding (in accordance with ISO 15148:2002(E) – Hygrothermal performance.)

How Groundwater Flooding Occurs



Further Information and Contacts

'Flooding from Groundwater: Practical advice to help you reduce the impact of flooding from groundwater' is available from the GOV.UK site here:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297421/flho0911bugi-e-e.pdf

Oxfordshire County Council website:
Groundwater flooding support

<http://www.oxfordshire.gov.uk/cms/content/groundwater-flooding-support>

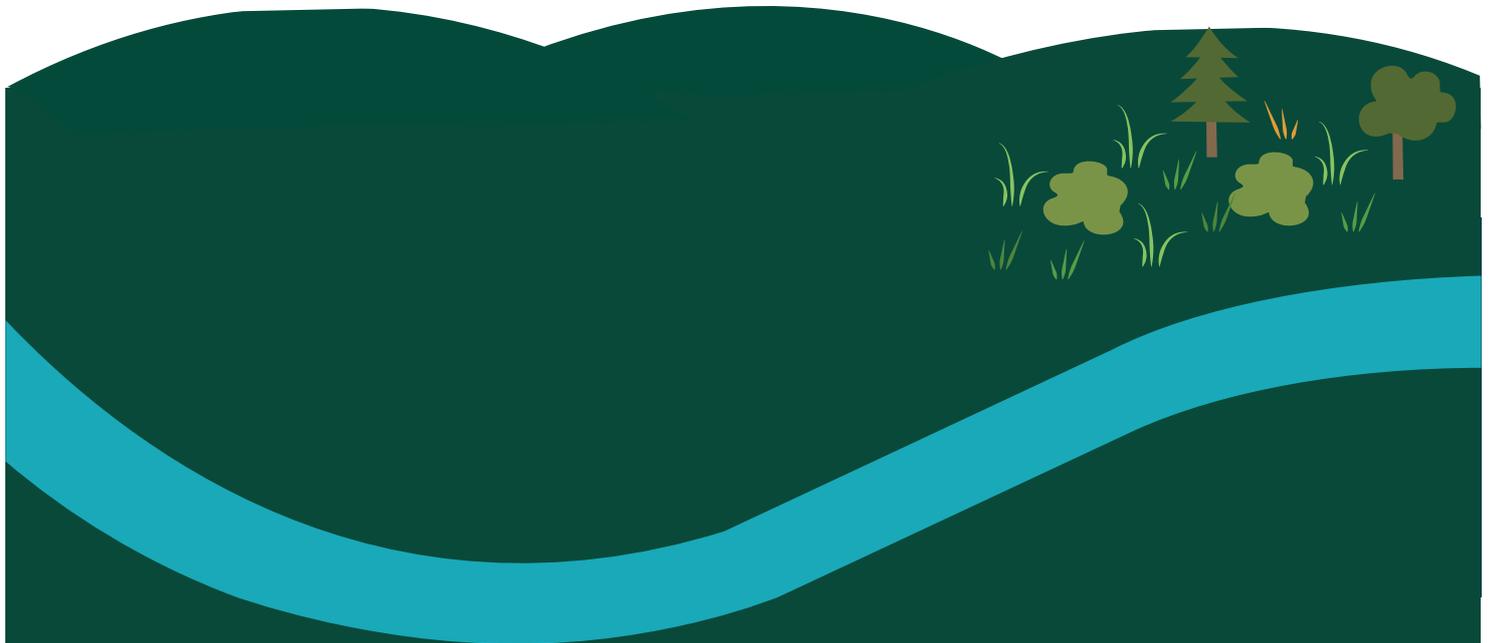
To contact the drainage team at Oxfordshire County Council:

Email: Drainage@oxfordshire.gov.uk

Groundwater flood risk mapping (chargeable services) are available here (this is not an exhaustive list):

<http://esinternational.com/groundwater-flood-risk-map/>

<http://www.knowyourfloodrisk.co.uk/buy-your-flood-report>



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