

River Management

River: a moving body of water that starts high up in mountains and flows downhill, to the sea. There are about 1,500 in the UK. Many are very large and carry a lot of water.



River Severn flooding in Worcester, 2020. Image: Sophie Bentley. Used with permission.

Flooding: with heavy rainfall, rivers can get so full that the water spills over the sides.

Extra water in the atmosphere due to global warming cause more frequent and intense rainfall, which can cause more flooding. Civil engineers find **solutions** to

protect us against river flooding, known as **river management**.

Hard engineering solutions

Building a structure to protect the river sides and prevent water from reaching nearby properties.

Building dams (big walls) across the middle of rivers. Water collects behind the wall. Everything in front of the wall is protected.

Image: Benbbb (Ben Bird), Public domain, via Wikimedia Commons



Embankments (walls) built along the sides of rivers. They are made of **high bricks and concrete** that water can't easily over the top of, or **grassy hills**.

Soft engineering solutions

Using more natural materials and management approaches such as flood zoning.



© Copyright P L Chadwick and licensed for reuse under this Creative Commons Licence. <https://www.geograph.org.uk/reuse.php?id=5779314>

Trees take up water from their roots so less goes into the river.



Jakec, CC BY-SA 4.0, via Wikimedia Commons <https://creativecommons.org/licenses/by-sa/4.0/>

Building new channels for very large rivers to provide more space to hold water.

Designing flood protection

The main types of **materials** used for building flood management structures are concrete, vegetation and rocks.

It is important to think about everything that could be affected by putting flood protection in place, including local wildlife and surrounding land.

It is important not to make big changes to the shape of the river, to make sure that it doesn't start to flow faster than it did before.

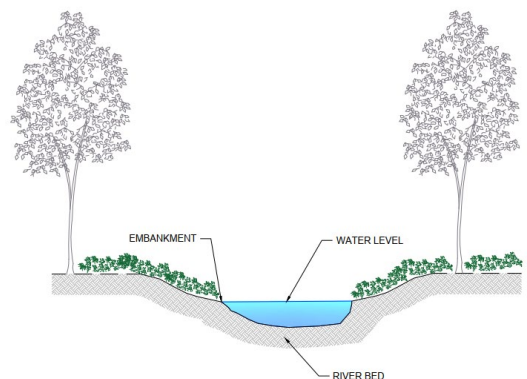


Image: Phoebe Clayson-Lavelle. Used with permission.



Royal Academy
of Engineering

Ingenious



Minecraft challenge

Can you build a river in Minecraft and manage it to prevent flooding?

- Pour water into an empty space in the ground
- Does it flood and what materials can you use to stop it?
- Which materials work best?
- Which ones which soak up water, and which hold it back?



You could use:

- some of the techniques covered here
- your own ideas.

If you do not have access to Minecraft you could **draw** your design, or build your own using **simple materials**.



Science
HUNTERS



Royal Academy
of Engineering

Ingenious

