

FLOOD MANAGEMENT STRATEGIES - THE FENS



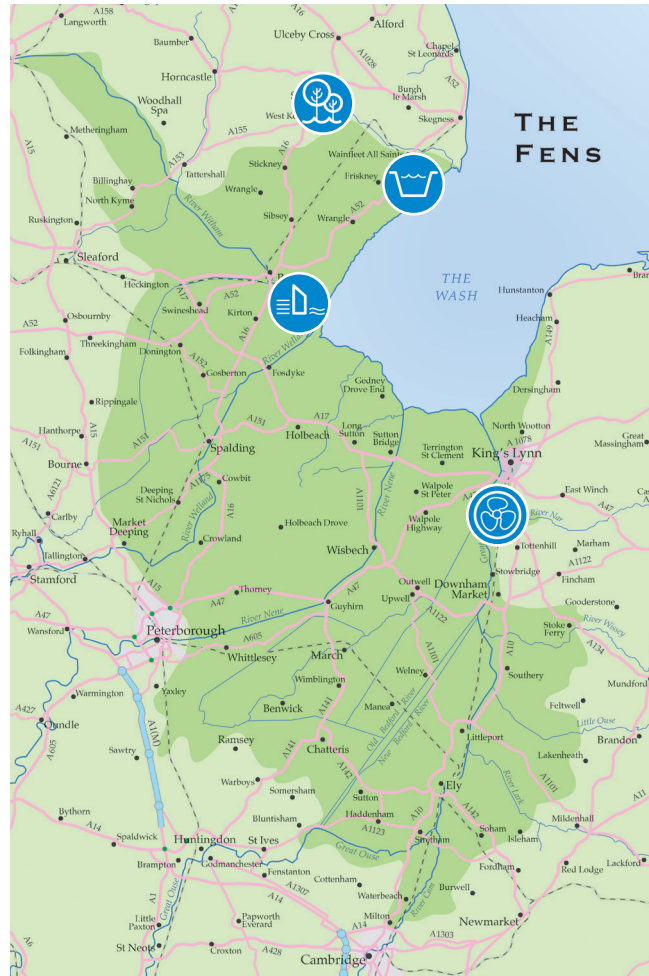
SLOW THE FLOW

Planting trees, digging ponds to trap sediment, and farmers using cover crops in fields, can all help to intercept the rain falling on the land, slowing down the flow into the streams and rivers. These techniques are collectively known as Natural Flood Management. Other measures, known as Sustainable Drainage Systems (SuDS) also aim to slow down surface flows over land from the urban landscape and encourage infiltration.



BOSTON BARRIER

A tidal barrier has been constructed across the River Witham, downstream of Boston, Lincolnshire. High tides, especially during storms, make it very difficult for river water to escape out to sea. The barrier has a gate that can be closed to prevent very high tides travelling upstream, overtopping embankments and flooding the town.



FLOOD RELIEF CHANNEL

One engineering technique used in the Fens over many centuries has been the construction of artificial rivers. The Wainfleet Flood Relief Channel was dug in Lincolnshire in the 1970s. It takes high flows from the Steeping River diverting them around the town before re-joining the river further downstream.



MOVE AWAY

It is feared that climate change will lead to more extreme weather such as heavy downpours and tidal storm surges becoming more common, impacting on flood infrastructure in places like the Fens. Roy Mosley, head of operations at Sheffield & Rotherham Wildlife Trust, said: "It may get to the point where the flooding becomes so regular in certain areas it becomes untenable to live there and it is decided to effectively bulldoze those areas and make them into floodplains." Prospect magazine, 2019.



PUMPING STATIONS

Much of the Fens lies below or close to mean sea level, and the major rivers that flow through this flat landscape are perched between embankments above the height of the surrounding land. Internal drainage boards and the Environment Agency operate over 450 permanent pumping stations to lift water from lowland watercourses up into these rivers and out to sea. St Germans Pumping Station near King's Lynn is the largest in the UK, and can pump 100m³/s, that's the equivalent of 12 Olympic swimming pools every 5 minutes! Older pumping stations, like the Prickwillow Museum near Ely are open to the public and help explain how water is managed in lowlands areas in the past and present.



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DREDGE THE RIVERS

Dredging involves using machinery to clear silt from the bottom and/or sides of a river, allowing the water to flow more freely. In 2017 the Environment Agency worked with the local internal drainage board to dredge 7.5km of the South Forty Foot River in Lincolnshire to help reinstate its capacity. This used a specialist barge from the Netherlands that effectively 'walks' along the watercourse, using a rotating cutter head to loosen the sediment before sucking it up and depositing it back on local farmland.



MAINTAIN THE FLOW

If you look closely at a map of the Fens you'll see that it is criss-crossed by a network of straight channels dug by man over many centuries to drain away water from the land. These channels are carefully maintained by the local Internal Drainage Boards by cutting back vegetation growth, removing silt and repairing the banks, so that they have sufficient capacity and the flow of water is not impeded. They also manage hundreds of culverts, weirs, and sluices, all built to help control the levels and flow of water in these channels.



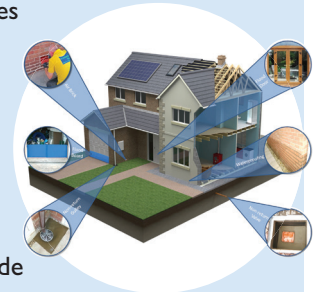
RAISE THINGS UP

A tidal surge in 2013 breached coastal defences in two locations in Lincolnshire. Since then the local internal drainage board north of Boston has helped to raise up and strengthen 5.8km of sea defence to make it more resilient to water flowing over it during storm events.



PROPERTY FLOOD RESILIENCE

Engineers and planners are looking at ways of reducing the damage from flooding to homes and other buildings. Resistance measures aim to stop water getting inside by placing barriers across doorways or fitting valves onto drains to prevent sewage backing-up into the property during a flood. Adaptation measures aim to reduce flood damage to properties and make it quicker and easier for families to return to their home after a flood. These include waterproof plaster or raising up electrical fittings.



WASHLANDS

Washlands or flood storage areas are usually adjacent to rivers and are deliberately flooded at times when river levels are high. By temporarily filling and storing excess water can help to avoid floodwater having a more serious impact elsewhere, such as in a housing estate. In the Fens the Ouse Washes (pictured) and Nene Washes both store huge volumes of flood water and also act as important sites for migratory wetland birds.

