

Flood risk management assets

What are flood protection assets?

Flood risk management assets, for example earth embankments, sluices, pumping stations and walls, provide protection to communities from river flooding. The majority of these assets are maintained by the Environment Agency, however some assets are maintained by a third parties, for example Local Authorities, businesses and individuals.

Performance in 2007 summer floods

As part of our review of the 2007 summer floods, we have investigated whether these assets performed as they were designed and built to do. This involved checking that they operated as expected (e.g. did pump stations work all the time and did flood schemes protect people and property) and if they failed (e.g. did floodwalls collapse or embankments breach).

We have not investigated the performance of urban drainage systems or minor watercourses.

In England and Wales during June and July 2007:

- 9 per cent (1016 km) of man-made raised flood defences were tested by extreme floods
- about half of the raised flood defences tested by floods were overwhelmed, illustrating the extreme nature of the events

We estimate that less than 0.2 per cent of the man-made raised defences and assets physically failed or suffered a breakdown or power failure that prevented them operating as expected. In most cases this led to an earlier onset of flooding, rather than allowing flooding.

Asset Performance

Assets that failed physically below their design standards (the river level or river flow was below their design standard)

There are four sites where failure led to the earlier onset of flooding:

- flood walls at Worksop, Chesterfield and Sheffield
- an embankment at Auckley

However the same level of flooding would have occurred even if the assets had not failed.

Assets that failed physically after being overwhelmed (the river level or river flow was above their design standard)

There were five embankment breaches in North Area of Anglian Region: North Kelsey Beck; Waddingham Catchwater; Barlings Eau; Stainfield Beck; and, Winterton Beck. Flooding was already significant at the time of failure.

Assets not operating as expected due to a loss of power

There are six sites:

- a flood gate at Canklow
- two pumping stations at Doncaster, Great Clough, Winesteads and Helphome.

Flooding was severe when power was lost and was therefore not made worse.

Assets not operating as expected due to blockages

(i) Gates

- A sea gate at Goxhill Haven – this did not close properly and agricultural land was flooded leading to several hundred pigs being killed

(ii) Trash Screens

These are designed to prevent culverts and pump stations blocking. We keep these clear when it is safe to do so. Due to the number of these and the fact that they can become submerged it is difficult to know how they performed. But we know of some sites where there were problems:

- Cox's Meadow, Cheltenham – damage to trash rack
- Paradise Road, Boscastle – sediment from fields blocked the culvert inlet.

Assets not operating as expected due to repairs/improvements

At Tirymynach (Pool Quay, Welshpool) work to improve the standard of flood defence was underway. The defences had been lowered as part of the project and despite efforts could not be restored effectively. As a result up to 10 properties may have flooded.