

2 What is the extent of the problem?

Flooding has become a problem within Smithton and Culloden in recent years.

This is likely to get worse as the effects of climate change have an impact on our weather patterns and how rainfall runs off the land into our rivers.

The catchment area is steep, allowing a rapid movement of sediment. There is little natural flood storage, which would otherwise hold back water and let it drain away without risk to property.

The urbanised nature of the area has meant that what were once natural watercourses and floodplain have been modified with culverts, buildings and artificial channels. These channels cannot always cope with high water flows; in some cases they have limited capacity. They are often difficult to access, so monitoring for blockages and problems can be a challenge.

This modified drainage system results in accelerated erosion, with adverse consequences for nearby properties and structures. Screens that trap debris are rapidly blocked, increasing flood risk. Water overtops the banks, finding new routes overland, through residential areas away from the burns. It can also enter into the sewer system, causing a surcharge of contaminated water back into homes.

Flooding in 2014



Flooding to homes and gardens at Murray Place



Coarse sediment deposition upstream of the railway at Murray Terrace

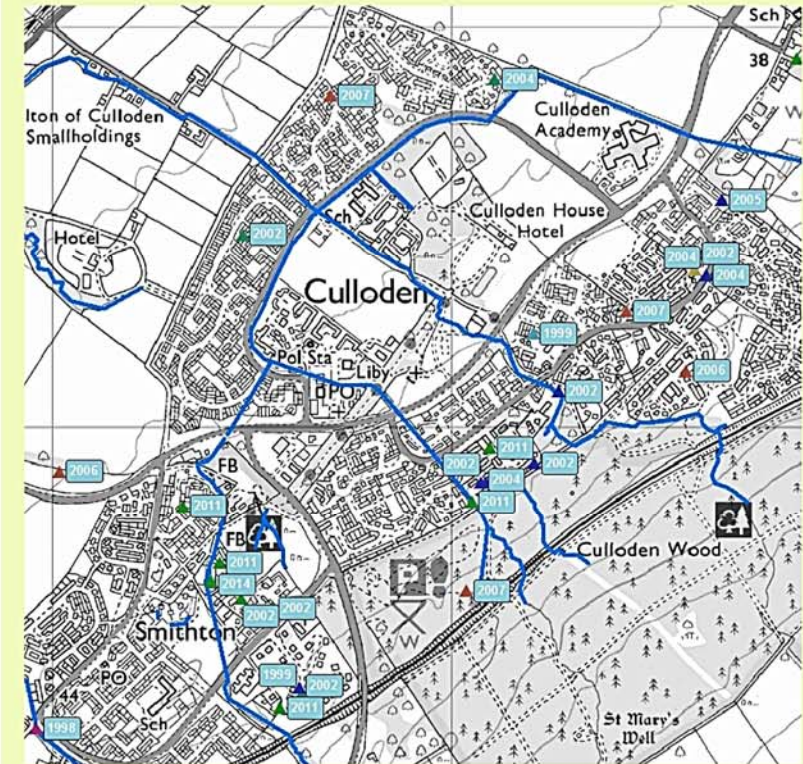


Flooding at the north end of Smithton Park



Flooding at Smithton Villas and Sinclair Park/Terrace

Where has flooding occurred?



Map showing historical flood locations in Culloden and Smithton since 2002.

Key facts about flooding in Smithton and Culloden

- The flooding in July 2011 occurred from rainfall estimated to be equivalent to a 15 year return period event.
- The flooding in August 2011 occurred from rainfall estimated to be equivalent to a 45 year return period event.
- The flooding in October 2014 occurred from rainfall that resulted in estimated channel flows which were comparable to the August 2011 flows.
- 132 properties are at risk of flooding during a 0.5% (200 year annual probability) flood.
- The Flood Protection Scheme will reduce the risk of river flooding to a 0.5% probability, or to put it another way, provide a 1 in 200 year standard of protection.