

Hanover Garden Flooding December 2013

Environment Agency Report

July 2014

This report explains the Environment Agency's role during flooding from the River Bure in Bicester, Oxfordshire on 24 December 2013. It sets out recommendations to reduce the risk of similar flooding in the future.

Background

River Bure

The River Bure is also known as the Town Brook. It starts where a number of small watercourses join to the north of the A4095 Bicester ring road. It flows generally north to south passing under the A4095 and beneath the railway line. Through the town centre it flows alongside Manorsfield Road. At Hanover Gardens a small side stream flows off to the west, this channel is known as the Back Brook. At this point both channels enter culverts (pipes). Both channels then continue in a combination of open channel and culvert until they rejoin south of Priory Lane. The River Bure joins the Pingle Stream immediately north of the Bicester Village retail park.

As with all watercourses, riparian owners are legally responsible for maintenance along the Bure. Riparian owners are those who own the land which a watercourse flows over or under. South of the railway line the River Bure including the Back Brook is designated as Main River. The Environment Agency has permissive powers to carry out maintenance and other flood risk management activities along these sections.

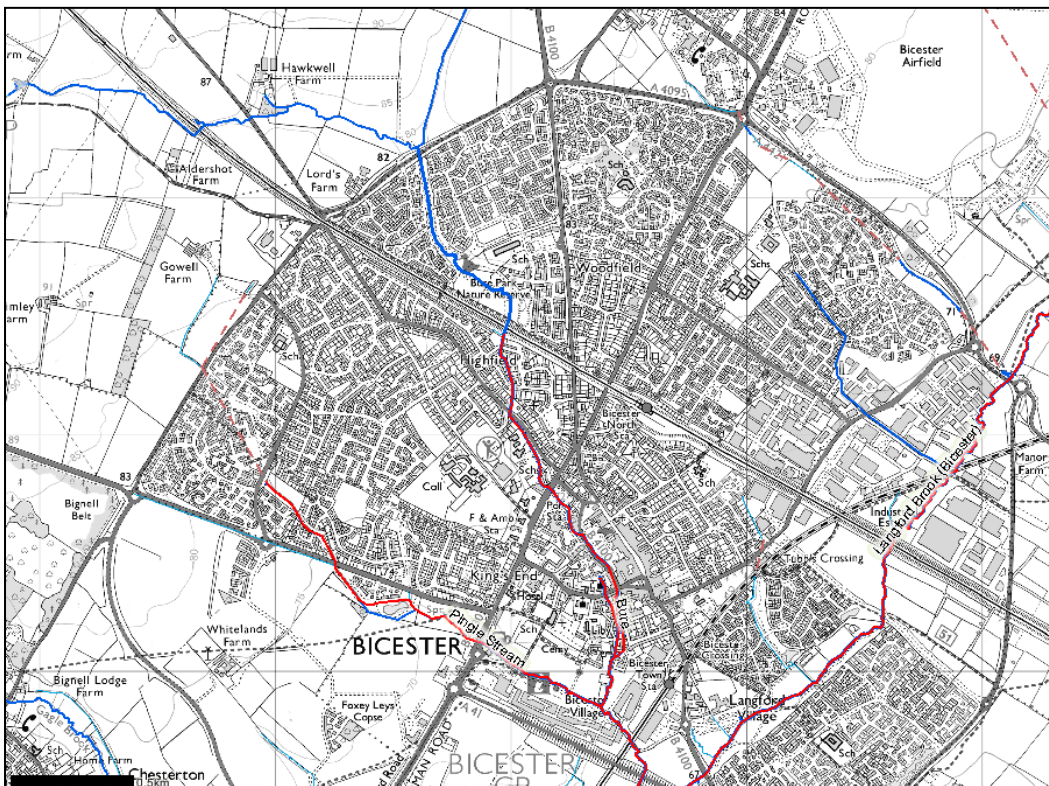


Figure 1: Watercourses in Bicester. Main Rivers marked in red

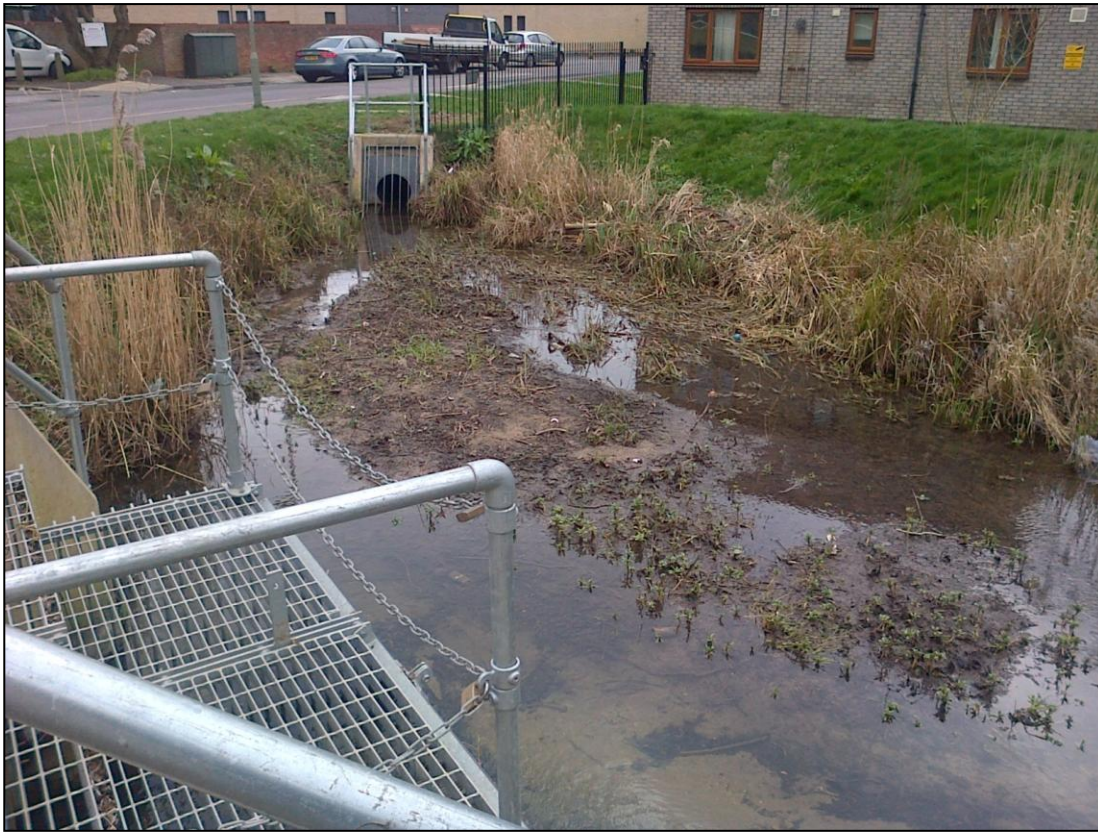


Figure 2: Trash screens at Hanover Gardens during normal flows looking south west towards the Back Brook culvert



Figure 3: River Bure trash screen at Hanover Gardens during normal flows looking east

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Weather

The rainfall recorded during December 2013 was above average for that month. By the end of the month the ground was starting to become saturated, any additional rainfall would lead to increased run off. During 23 December and the early hours of 24 December 28mm of rainfall was recorded at the Environment Agency's Bicester rain gauge. This caused water levels in the River Bure and other watercourses around Bicester to rise.

Between 23 December and 8 February we issued four Flood Alerts for the Langford and Wendlebury Brook; this area also includes part of the River Bure floodplain. No Flood Warnings for the Langford Brook or the Wendlebury Brook were issued over the period. We do not provide a flood warning service for the River Bure, as we have no monitoring equipment on this river.

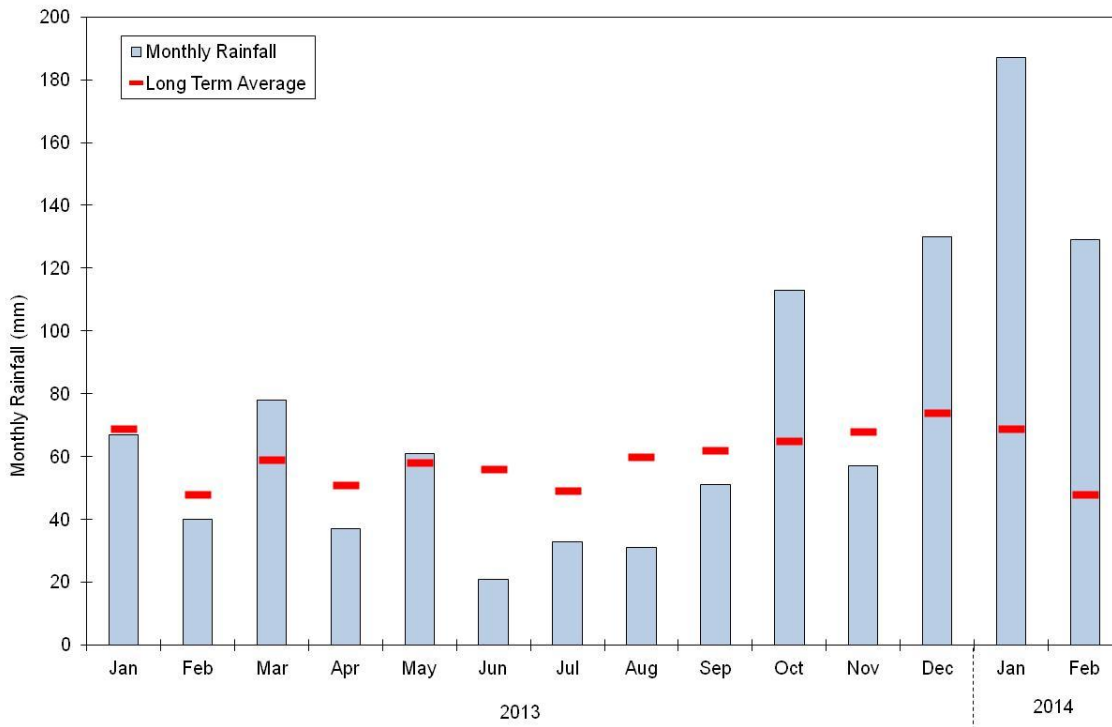


Figure 4: Rainfall in South East England January 2013 - Feb 2014

Flooding 24 December 2013

Due to the ongoing wet weather Environment Agency Operations Management Teams carried out inspections of the main river watercourses through Bicester twice on 23 December. The trash screens at Hanover Gardens were inspected and a small amount of debris removed in the morning and again at approximately 1530 in the afternoon.

At 0530 on 24 December the Environment Agency received an initial report from Oxfordshire County Council of flooding at Hanover Gardens in Bicester. At 0630 our Area Incident Room received a further report from Oxfordshire Fire and Rescue Service (OFRS) confirming they were in attendance and assisting with the evacuation of the retirement home there. They requested our attendance as they believed a grating (trash screen) required clearing.

An Environment Agency Operations Management team was sent to the area. They arrived at 0800.

On arrival our team reported to the OFRS Officer in Charge. They were informed that OFRS had been in attendance since approximately 0400 that morning. The area around the retirement home was flooded with water flowing across the road at Hanover Gardens, across a car park and onto the adjacent road, named Causeway. OFRS had partially demolished a wall on the south side of Causeway to allow water to return to the Back Stream. OFRS stated they believed the gratings (trash screen) to the culverts beneath Hanover Gardens were clear and passing water. The evacuation of the retirement home had already taken place with some occupants being moved to higher floors.

We believed OFRS had taken all reasonable measures to manage the flood water so our team re-located approximately 200 meters upstream to a property which was close to being flooded. The team deployed two pumps to reduce levels around this property.

Two additional Environment Agency teams arrived on site to assist the first team. One helped deploy two pumps at the private residence. Pumping continued for two hours which prevented the property from flooding. The Environment Agency does not have a legal responsibility to assist with the protection of individual private properties during a flood, however our staff are encouraged to take a risk based approach and act pragmatically to reduce risk to communities.

Our other team checked all the trash screens on the River Bure and Back Brook for blockages. At approximately 1100 this team successfully removed a large amount of debris from below the water level at the Bure trash screen at Hanover Garden. Our team also cleared trash screens downstream at Chapel Street & Priory Road.

Following the removal of this debris, the water levels in the River Bure were observed to have dropped around the retirement home and the water started to return within banks.

By the time the first Environment Agency team left the area at approximately 1230 the River Bure was back within its banks at Hanover Gardens and further upstream. The final Environment Agency team left the site at approximately 1530 as OFRS were closing down their incident response. By this time, the entire River Bure and other connected watercourses were flowing within their banks.

The Environment Agency received reports that 19 properties at Hanover Gardens were affected by the flooding. Although extensive flooding occurred along Causeway the number of properties that were affected is not known.

Once the flood water of 24 December 2013 had receded, Environment Agency operational teams continued their routine of daily inspection and maintenance to ensure the watercourse was clear of blockages. There has been no further flooding from the River Bure to date.



Figure 5: River Bure out of banks looking north from Hanover Gardens towards Manorsfield Road



Figure 6: Flooding along Causeway looking west

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Figure 7: Section of wall removed on south side of Causeway by Oxfordshire Fire and Rescue Service to allow flood water to return to Back Brook



Figure 8: Guard rail of Back Stream culvert headwall surrounded by flood water

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Figure 9: Environment Agency operational team removing debris from the River Bure trash screen at Hanover Gardens

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Recommendations

It is not possible to eliminate the risk of flooding from rivers but the following recommendations are positive steps that can be taken to reduce the risk of flooding from the River Bure in the future. The lead authority or person has been listed below to help with delivery of the recommendations, however many of the recommendations will require the Environment Agency to work in partnership with other organisations and individuals. The actions for partner organisations have been discussed and agreed with them.

| Recommendation | Description | Lead | Target date |
|--|--|--|---------------|
| Make improvements to trash screen at Hanover Gardens | It is likely that unseen debris on the trash screens at Hanover Gardens reduced the capacity of these culverts during the flooding. Oxfordshire County Council has already reduced the numbers of bars on the trash screen to reduce the risk of future blockages. A number of permanent improvements to the main trash screen have been agreed to reduce the risk of debris build up and improve maintenance access. Environment Agency consent for the works has been granted. | Oxfordshire County Council | Autumn 2014 |
| Continue regular inspection and debris clearance along River Bure | Regular inspection and maintenance of the watercourse is important to ensure it is clear of debris that could lead to blockages during floods. The Environment Agency carries out regular maintenance along the river but requires riparian owners to fulfil their responsibilities too. | Riparian owners and Environment Agency | Ongoing |
| Information campaign on the importance of preventing debris from entering the River Bure | Reducing the amount of debris entering the River Bure by raising awareness amongst residents, including businesses and encouraging good practice by riparian owners will reduce the risk of blockages during floods. | Cherwell District Council | October 2014 |
| Raise awareness of Environment Agency Incident Reporting Service in Bicester | With a number of organisations involved in flood response it can be difficult for residents to know who to contact. Raising awareness of our Incident Reporting Service (0800 80 70 60) and other useful contacts during a flood should help residents know who to contact for help during a flood. | Environment Agency | October 2014 |
| Carry out review of trash screens and other structures along the River Bure to identify whether any could be removed or modified to reduce flood risk | Improvements have already been agreed for the trash screen at Hanover Gardens but there may be other structures along the River Bure that could be improved or removed to reduce the risk of future flooding. If any such structures are identified the Environment Agency will contact the owner of the structure to request this work is carried out. | Environment Agency | November 2014 |

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| Improve flood warnings on the River Bure | The Environment Agency is not currently planning to install any new flood warning stations. We would be happy to provide advice to riparian owners and partner organisations who may wish to install their own flood warning systems. | Riparian owners | No set date |
| Formalise spillway back into Back Stream | The wall in Causeway which was removed by OFRS to allow water to return to the Back Brook has not been rebuilt. It has been replaced with a pedestrian hand rail. This will reduce the risk of water backing up along Causeway. | Oxfordshire County Council | Complete |

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