

Report on the flash flood in Whitchurch of 16th June 2020



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Related documents

Further information on some of the topics in this report can be found in a separate document “Flooding in Whitchurch – Background Notes”.

A separate report deals with flooding from the River Thames. Updated in August 2020, its title is “Report on river flooding in Whitchurch-on-Thames in January and February 2014”.

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Introduction

The purpose of this report, written by two long term village residents, is to record information gained during and after the flash flooding in June 2020 and to report to the Parish Council on ways of reducing the risk of a similar event in the future. There are recommendations at the end.

The flooding

On the afternoon of 16th June 2020 an exceptionally heavy local rainstorm occurred. A stream of water flowed down the B471 into the village and down the High Street. This caused flooding of the low-lying area near The Greyhound, which is referred to in this report as the 'Greyhound bowl'. An estimated 40 mm of rain fell in about 30 minutes and much of it fell as hail, which probably increased the quantity of leaf litter carried by the flow. The High Street was temporarily impassable to traffic. The interior of The Greyhound was flooded to a depth of about 150 mm and neighbouring properties were put at risk.

The water level reached in the Greyhound bowl was, by coincidence, about the same as that occurring in a much larger area of the village during the great Thames flood of 1947.

Prompt action by residents and the fire brigade helped alleviate the effects of the standing water. The next day, local authority road cleaning and drainage teams were in action.

Elsewhere in the village there were problems too. Lower-lying areas of Swanston Field had standing water in their gardens. The cellar of the picture gallery at the High Street junction with Hardwick Road was flooded.



Figure 1 Low lying area outside The Greyhound at the end of the storm (rain is still falling)



Figure 2 - Eastfield Lane was flooded as far as the slight watershed near The Gables.



Figure 3 - The Fire Service attended shortly after the storm.

It could be seen that floodwater coming down the hill was unable to drain away through the roadside stormwater drainage system, partly because the gratings over the inlet gullies had quickly become blocked by the exceptionally large amount of leaf litter in the flow. The vegetable matter mixed with the silt and sand in the water, tending to create a solid plug. See Figure 4.



Figure 4 - A drainage gully after the storm. The leaf litter build-up, partly cleared by hand, can be seen. This gully is in Eastfield Lane.

But that was not the only factor. Water that successfully found its way into any of the four gullies outside The Greyhound was not able to flow away fast enough, indicating either blockage in the pipes or an inadequate capacity in the drainage system, or perhaps both.

Volume of water in the Greyhound bowl

The extent of the pool of water is shown in Figure 5. An estimate of the surface area of standing water is 1500 sq. metres. With an observed maximum depth of about 350 mm for the lower part of the Greyhound bowl, an average depth of 250 mm can be assumed. This gives a volume of about 400 cubic metres. It took about 30 minutes for the water to arrive. It took around two hours to subside, once the leaf litter was cleared from drainage gullies. Some of the water would also have drained naturally into gardens etc.

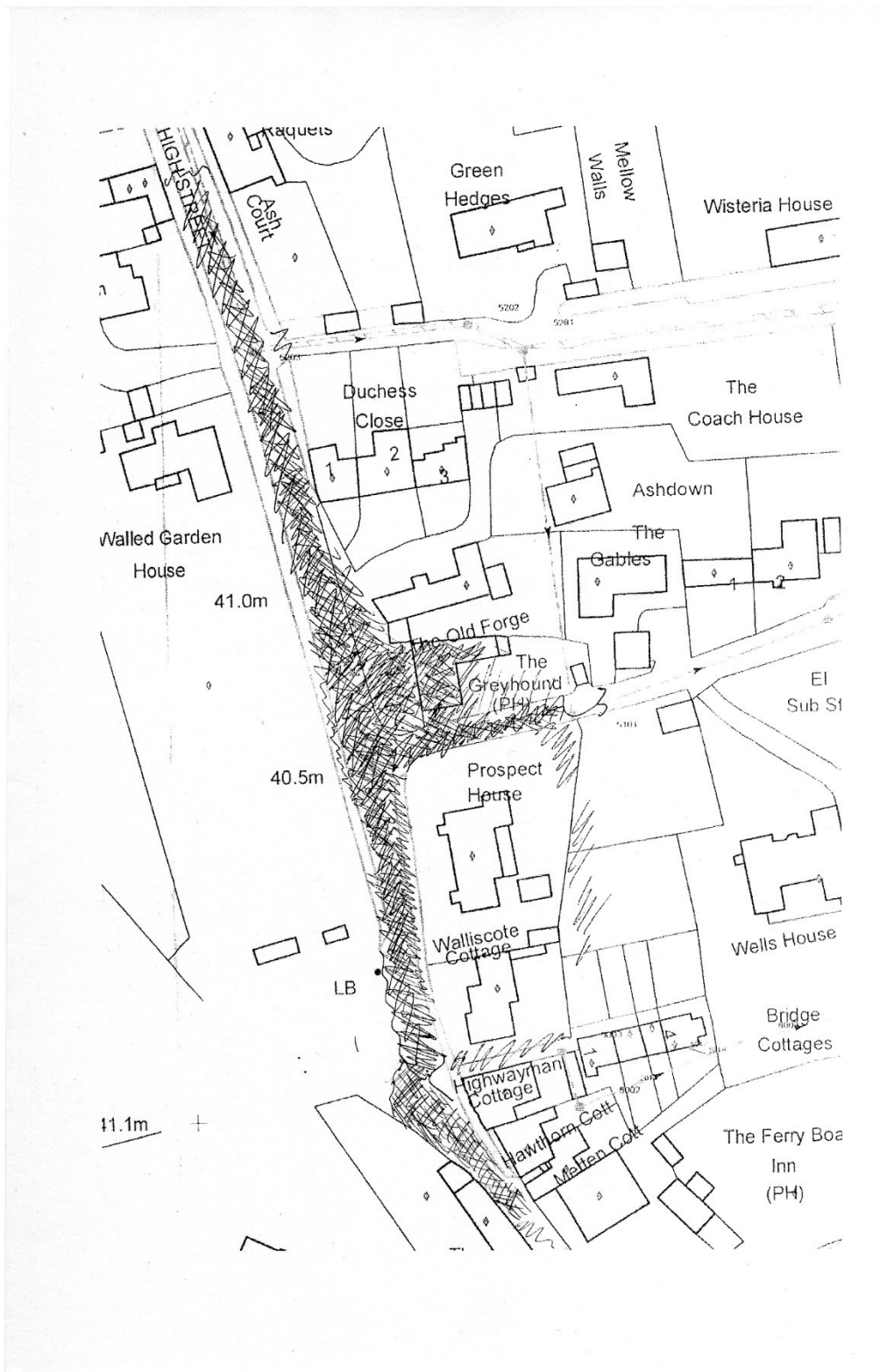


Figure 5 – Extent of the pool of water in the Greyhound bowl.

Storm drainage sketches

In recognition of the importance to the village of a satisfactory stormwater drainage system, two sketches have been made to show locations of the drains, gullies and rodding chambers. The two figures are shown below. Comments on some individual features follow.

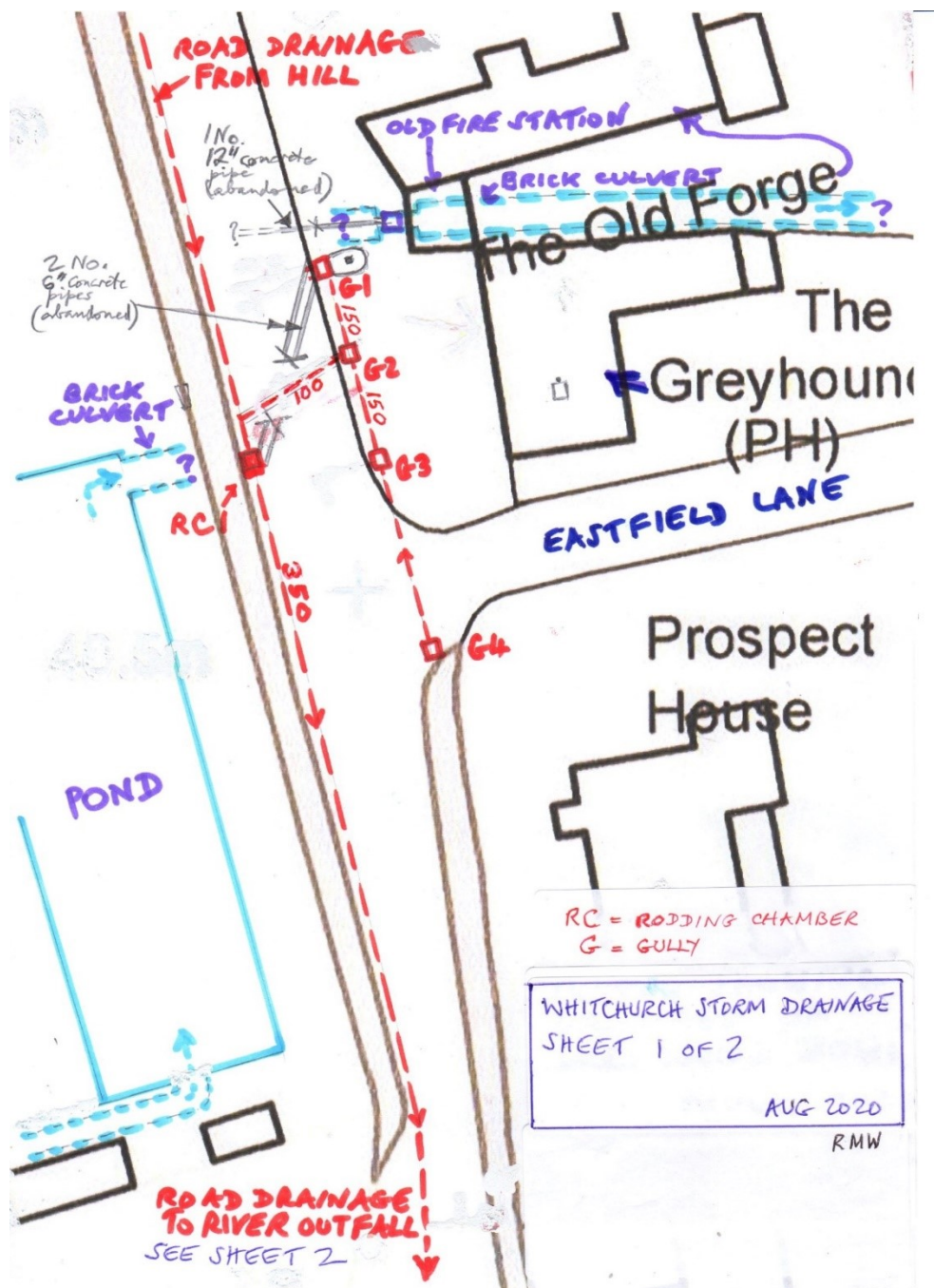


Figure 6 — Sketch of storm drainage network, Sheet 1 of 2

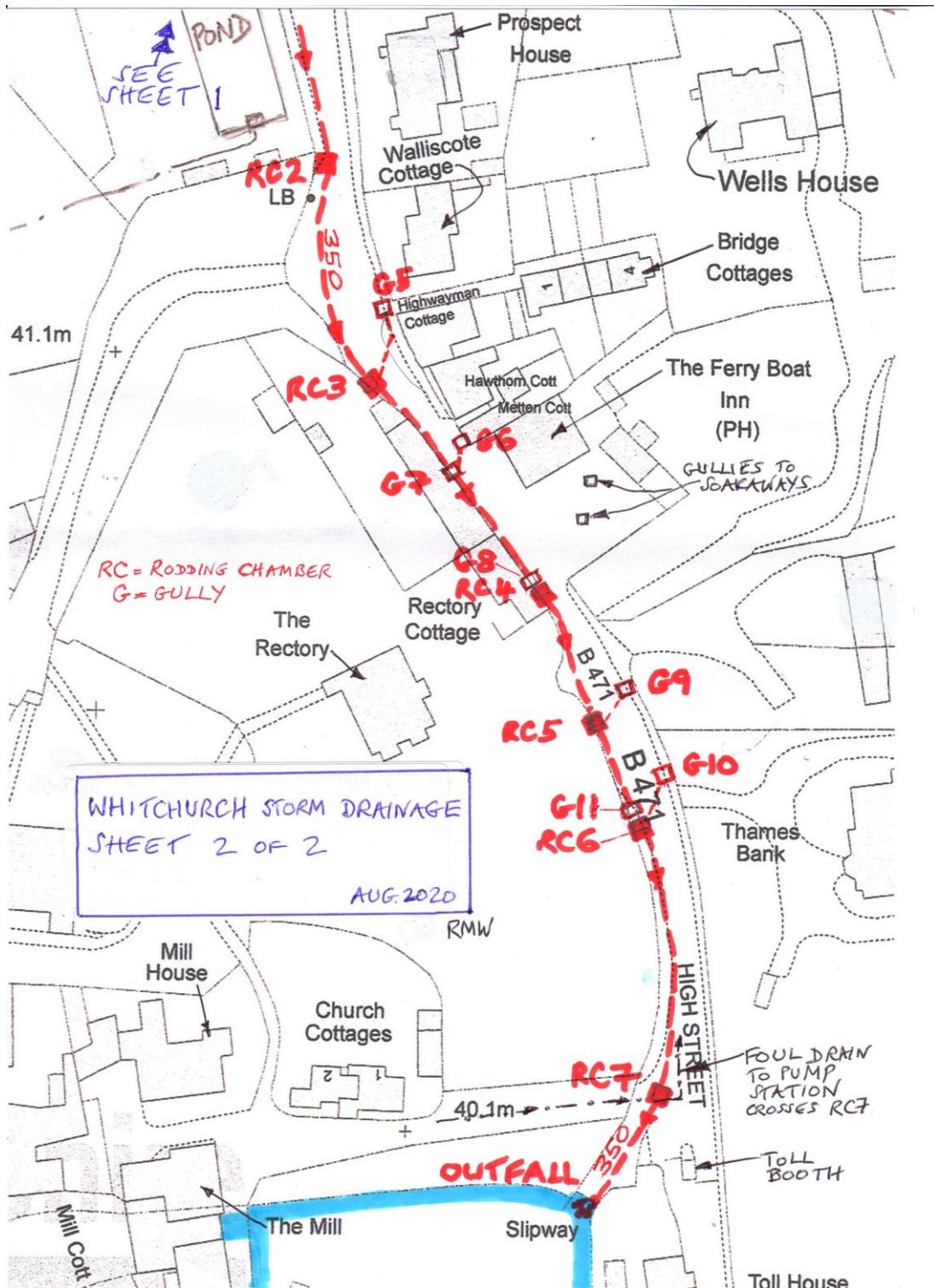


Figure 7 — Sketch of storm drainage network, Sheet 2 of 2

Some comments on the sketches, below, may be helpful. The abbreviations are: G = Gully, normally with a grating; and RC = rodding chamber, with a sealed cover.

Sheet 1:

G1 to G4 - located on the lower-lying side of the street, these are designed to protect The Greyhound and neighbouring houses. G1 has an open side entry, the others have gratings. Only G2 seems to provide the essential route to the main drain on the other side of the road, and that is a surprisingly small 100 mm diameter pipe. It joins the main drain in a 'blind' location which is difficult to inspect.

G1 includes two concrete pipes crossing diagonally towards RC1, where they are also visible. These are blocked and abandoned. They must represent an earlier attempt to drain the Greyhound bowl.

Just to the north of G1, the chamber at the old fire station has a blocked and abandoned concrete pipe entering from under the road. This may represent a historic attempt to divert road drainage water into the village watercourse.

The exact route and condition of the brick culvert carrying the village watercourse under the road in this area is at present unknown.

Sheet 2:

G5 – this was relocated further north by a few metres when the footpath was widened for traffic management reasons in the 1990s.

RC7 – Near the bottom of this deep manhole there is a surprise. The pipeline taking sewage from the Mill area to the pumping station in Eastfield Lane crosses through the manhole, obstructing the stormwater flow and causing a build-up of silt and debris which needs regular removal.

Roadside soakaways up the hill

There are ten roadside soakaways set at intervals in the bank of the steep hill above the village, from opposite the war memorial down to the junction with the Hartslock Bridleway. They are designed to protect the village by diverting as much as possible of the water flowing down the road during a storm. The excavated holes are backfilled with a permeable drainage medium such as gravel, the top level of which needs to be kept well below the nearby road level for them to receive the flow successfully. They are prone to blockage by leaf litter and need regular maintenance.

The soakaways were re-excavated by OCC as recently as November 2019. However, there is some doubt as to their effectiveness during the June 2020 storm. Some of the permeable infill appears to be insufficiently far below the local road level to permit water to enter and some of the infill may not be sufficiently permeable. One possible improvement would be to install a plastic 'soakaway crate' within the permeable medium of each soakaway.

Flooding in Eastfield Lane

In Eastfield Lane, local rainfall caused some flooding of the road, covering half of the road width in places. Blocked gratings at gullies delayed the drainage. Less silt was evident amongst the leaf litter here than in the High Street. The surface water here did not contribute to the pool forming in the Greyhound bowl as it did not cross the watershed outside The Gables. Some of the stormwater drained into the village watercourse, as shown in Figure 8.



Figure 8 – After the storm, showing the road drainage gully (arrow) in Eastfield Lane, outside Chiltern Edge, which leads down to the culverted village watercourse.

Flooding in Hardwick Road and Swanston Field

Hardwick Road is served by a stormwater drain running eastwards from just above the western junction with Swanston Field to the junction with Muddy Lane. There are drainage gullies along the route. This drain seems to be non-operational, possibly owing to blockage by root penetration in places as well as silt. Its destination once it reaches its eastern end is not currently known. There appears to be no channel leading towards the river so there is probably a large hidden soakaway near the top of Muddy Lane.

During the storm, large quantities of water from Hardwick Road flowed down each of the two north-south roads of Swanston Field, forming extensive pools in gardens and garages at the southern ends. It carried a heavy load of leaf litter which was dumped on the roads and on private land. Swanston Field storm drainage generally is led to various soakaways, many of them in private gardens. As far as the authors are aware, there is no piped drainage from this area leading either towards the river or to the sewage pumping station in Eastfield Lane.

Flooding of the cellar at the Modern Artists Gallery

Water entered the cellar of the Modern Artists Gallery in the High Street during the flash flood, repeating what has happened several times in recent years. The storm drain running down the High Street at this point is an old brick culvert and is known to be damaged. Repair work is urgently needed.

Investigations and maintenance after the storm

The day after the flash flood, 17th June, staff from the drainage contractor OPC jetted parts of the road drainage system. Later, staff of OCC and OPC returned to carry out CCTV inspections and do further jetting and desilting. This work continues at the time of writing (10th August).

Some observations made during this work:

1. The village watercourse, flowing through the chamber outside the old fire station, does not receive water from the road drainage system in the High Street, as had been assumed previously.
2. There are four gullies located outside the Greyhound to drain stormwater on the lower side of the street. These are interconnected by 150 mm pipes. From this set of drains a single 100m pipe crosses to the main road drain on the west side of the street, which appears to be too small a pipe for this vital function.
3. A gully outside Highwayman Cottage feeds to the main High Street drain, and therefore could have contributed to the Greyhound bowl drainage but failed to work, judging by the lack of leaf litter remaining afterwards.
4. The Greyhound's long history of damage due to flash flooding is shown by the presence of slots for barge boards across its doorways.

Can road drainage water be diverted into the village watercourse?

Thought has been given since the June event to the possibility of providing an independent second drainage route for stormwater collecting in the Greyhound bowl. This would involve building an additional chamber to allow water from Gullies G1 to G4 to flow into the chamber at the old fire station where it would join the village watercourse.

There are some difficulties with this idea. Potential backflow and pollution of the pond of The Walled Garden House is one. Another is the legal aspects in respect to riparian landowners downstream. We understand that OCC staff have decided, for the time being anyway, to concentrate on improving the existing drainage system.

A less ambitious modification would be to provide holes in the manhole cover of the chamber at the old fire station. However, flow into the chamber, the cover of which is considerably higher than the road level, would then only take place when the bowl was already partly flooded.

Recommendations

We recommend that the Parish Council (and/or members of the Whitchurch Flood Forum) should continue liaising with OCC and OPC to:

1. check the adequacy of the design of the existing system of drainage of the Greyhound bowl
2. make any necessary modifications to the system
3. continue the CCTV inspection and the jetting and desilting work currently in hand all the way up the High Street
4. repair the faulty drain near the Modern Picture Gallery
5. resume clearing the Hardwick Road storm drain, involving root cutting
6. complete the work on jetting gullies and their connections to soakaways in Swanston Field
7. consider whether the roadside soakaways up the hill are working satisfactorily.
8. ensure that regular jetting and desilting take place in future, as a priority, despite the apparent shortage of budget for this work in OCC.

Also, with regard to the District Council, we recommend that the Parish Council (and/or members of the Whitchurch Flood Forum) should continue liaising with SODC to identify any blockages in the downstream length of the culverted village watercourse and to encourage a topographic survey of the watercourse.

If a satisfactory reduction to the flash flooding risk cannot be found, the Parish Council could consider encouraging householders at risk to invest in flood prevention measures. Residents could also be encouraged to keep an eye on leaf litter and clear gratings of nearby drainage gullies.
