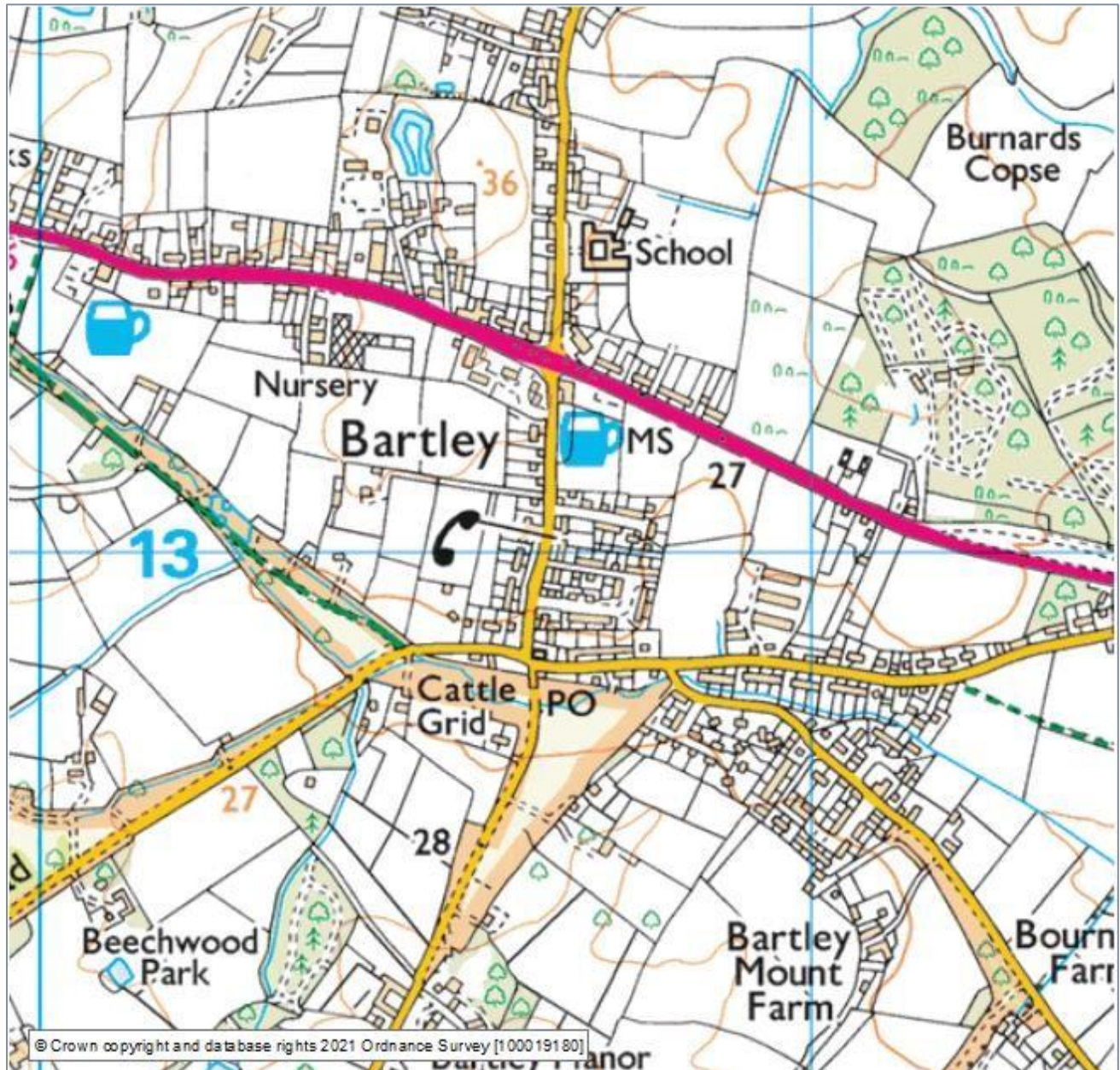


Copythorne South - Bartley Water

Addendum to Copythorne Village Flood Risk Investigation Report

October 2021



Notice

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The purpose of this report is to provide information on the current risk of flooding and to suggest options that may be used to mitigate flood risk at this location based on the current evidence.

Hampshire County Council Flood & Water Management

<https://www.hants.gov.uk/landplanningandenvironment/environment/flooding>

Revision	Purpose Description	Prepared by	Checked by	Approved by
1	Draft Internal Review	PGC/JP	TC	VW

	Final (plus amendments agreed by TC 21/07/2022	PGC/JP	TC	VW
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Executive Summary

- This investigation of Bartley Water has been undertaken by Hampshire County Council as the Lead Local Flood Authority to understand previous flooding events, and relevant historic occurrences, review actions taken since 2013-14; and consider what, if any, further actions may be required to address residual flood risk. The focus has been on Shepherds Road, Chinham Road, Shepherds Close and the surrounding area.
- Bartley in the New Forest has the Fletchwood Tributary (part of Bartley Water), classed as 'Main River' flowing along Shepherds Road in the catchment of Bartley Water.

The purpose of this report is to:

- Understand the current information available and formalise this within a single report
- Clarify the flood risk of the area
- Understand what works have been undertaken within the area
- Provide an overview of the flooding mechanism and impacts of any flooding
- Identify potential affordable engineering and non-engineering options that could reduce, or better manage, flood risk in the area

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1. Background

Bartley is a village located in the parish of Copythorne, approximately 5.5km west of Totton, in the New Forest district (see Figure 1). The village is situated around and south of the A336 and its amenities include a village hall in the former tin church, a junior school, pub and a village shop and post office. The principal local watercourse is a tributary of the Bartley Water south of Southampton Road, which is categorised as a 'Main River'¹ east of Brockishill Road. It is understood this watercourse is known by the Environment Agency as the 'Fletchwood tributary'. The geology of the area comprises of variable deposits of sands and gravels.

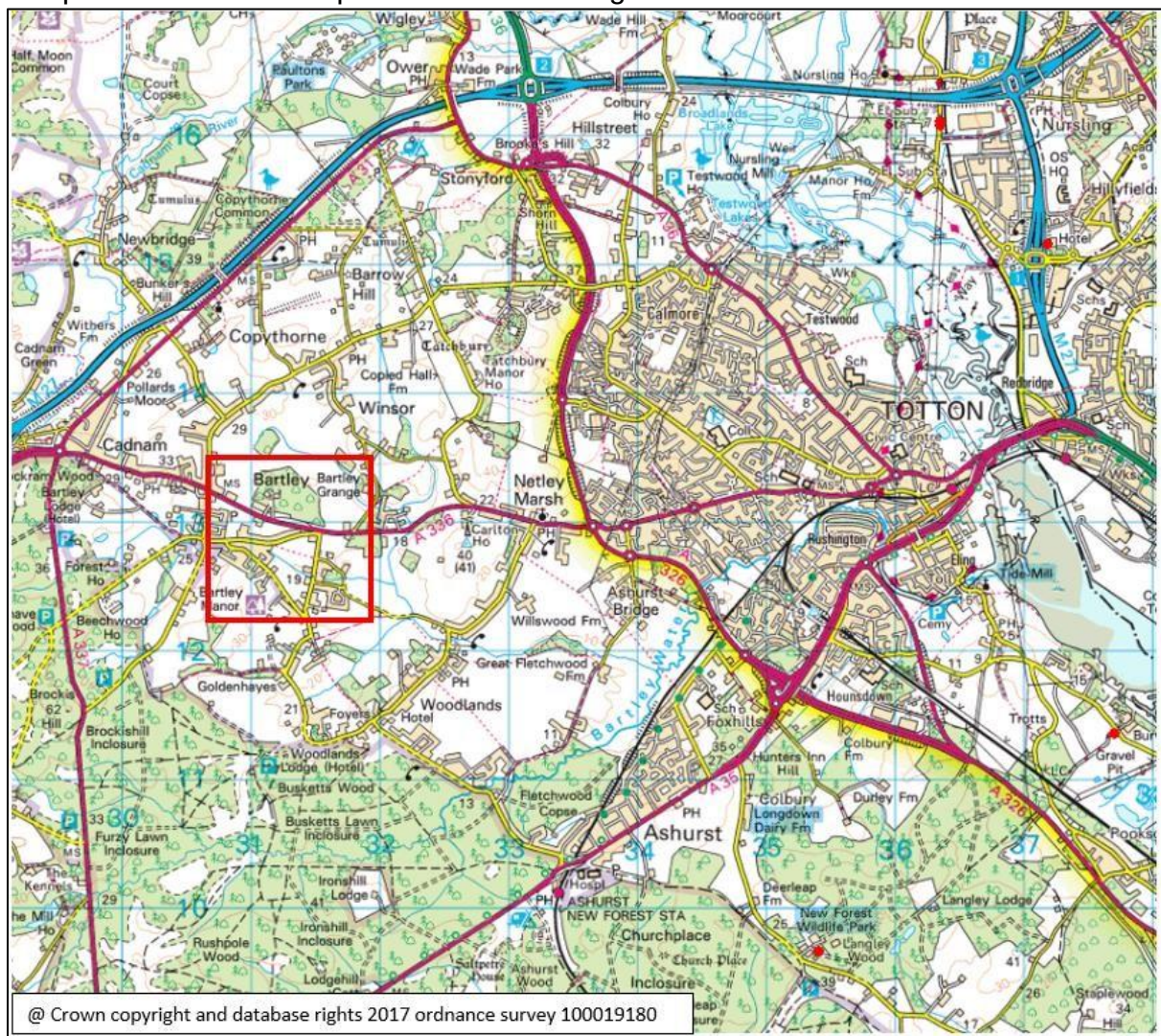


Figure 1: Bartley location plan

¹ A Main River is typically a larger stream or river, but can be a smaller watercourse of local significant. Main Rivers are nationally identified and managed by the Environment Agency

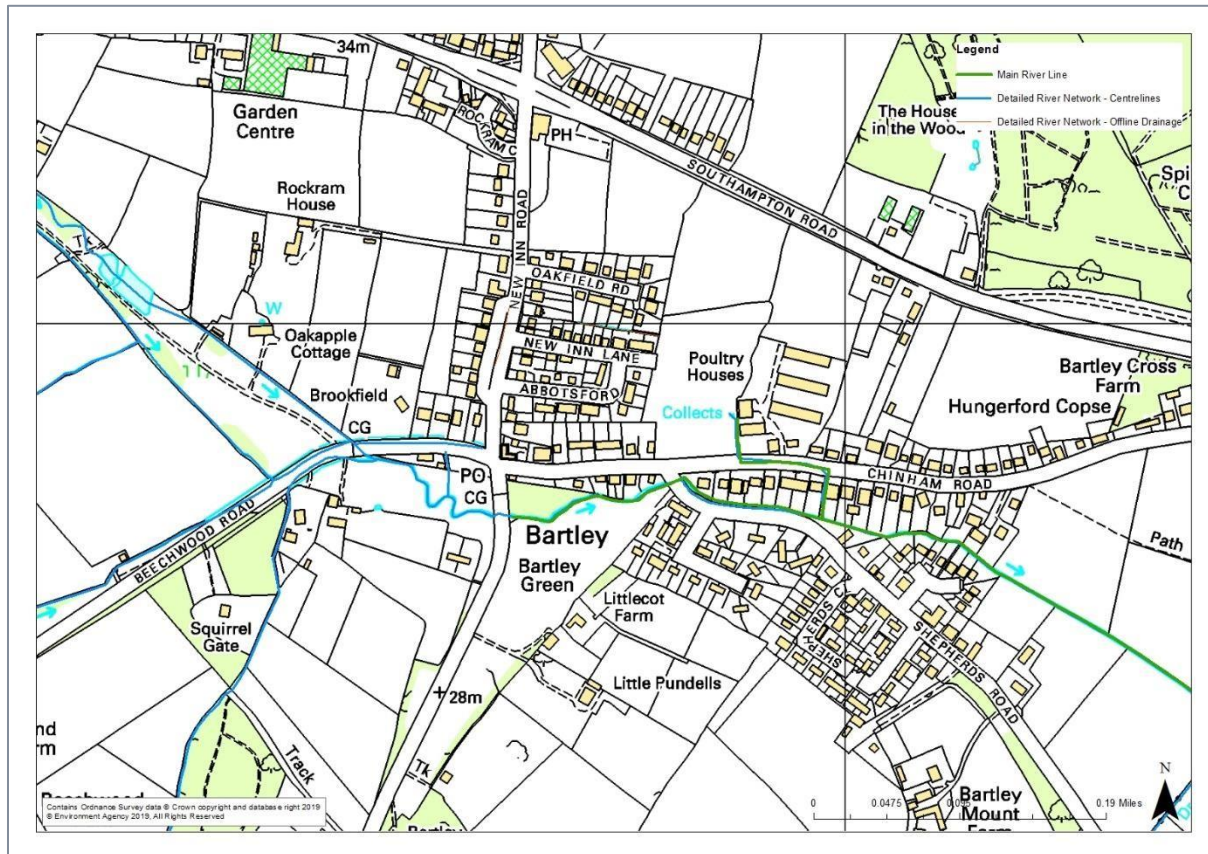


Figure 2: Map of Bartley village showing the 'Fletchwood tributary' (Main River) and local river network – the watercourse becomes Main River to the east of Brockishill Road, at Bartley Green.

1.1. What is the flood risk in Bartley village?

The Environment Agency (EA) produce mapping which illustrates the potential fluvial and surface water flood risk.

Bartley village, according to EA mapping, is at risk from fluvial flooding and surface water flooding. The risk areas broadly follow existing watercourses, including the Main River line. Figure 3 details the risk of fluvial flooding for Bartley using EA data. Flood Zone 3 refers in this instance to a 1% probability of flooding from rivers each year. Flood Zone 2 in this instance refers to a 0.1-1% probability of flooding from rivers each year.

Figure 4 details the surface water flood risk for Bartley village using EA data. High risk refers to an area with a probability of flooding greater than 1 in 30 in any given year, medium risk between 1 in 100 and 1 in 30, and low risk less than 1 in 100 probability of flooding in any given year.

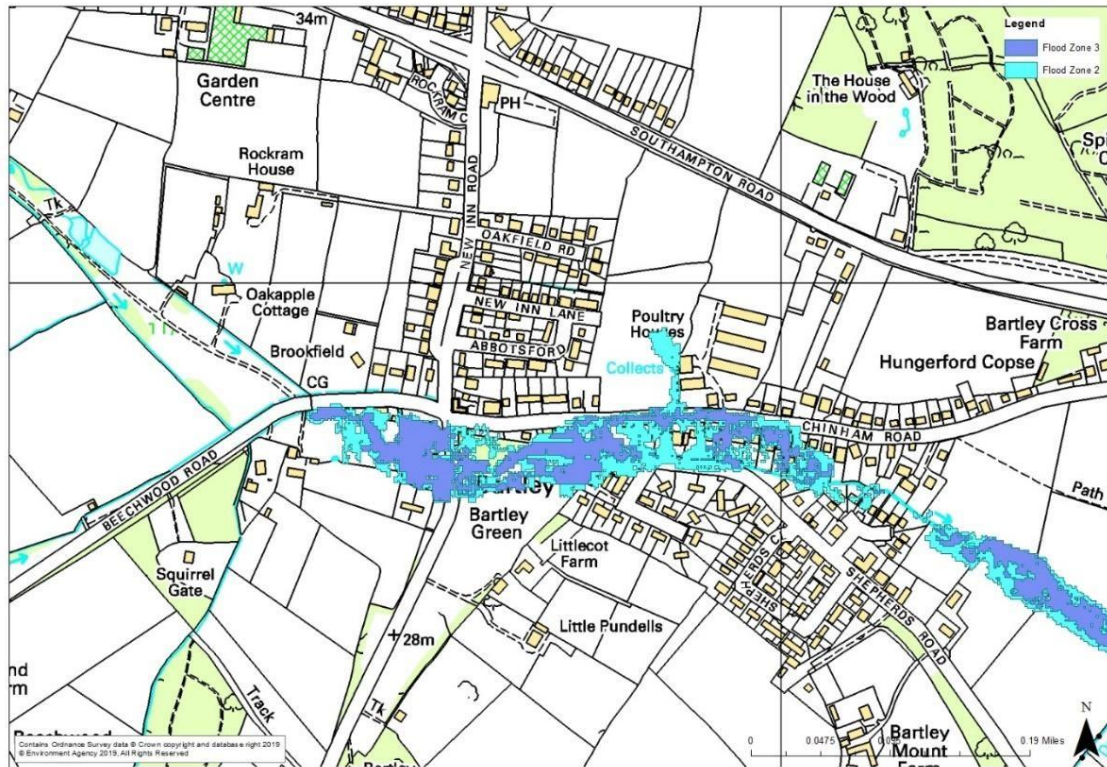


Figure 3: Fluvial flood map for Bartley village

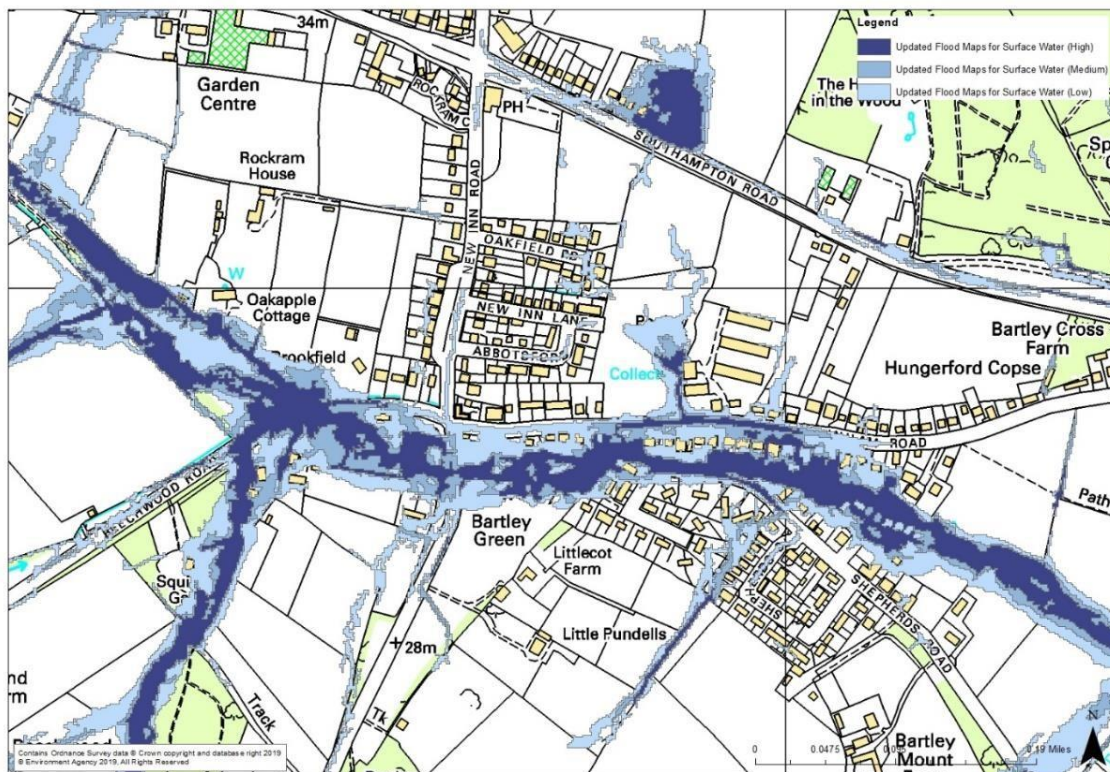


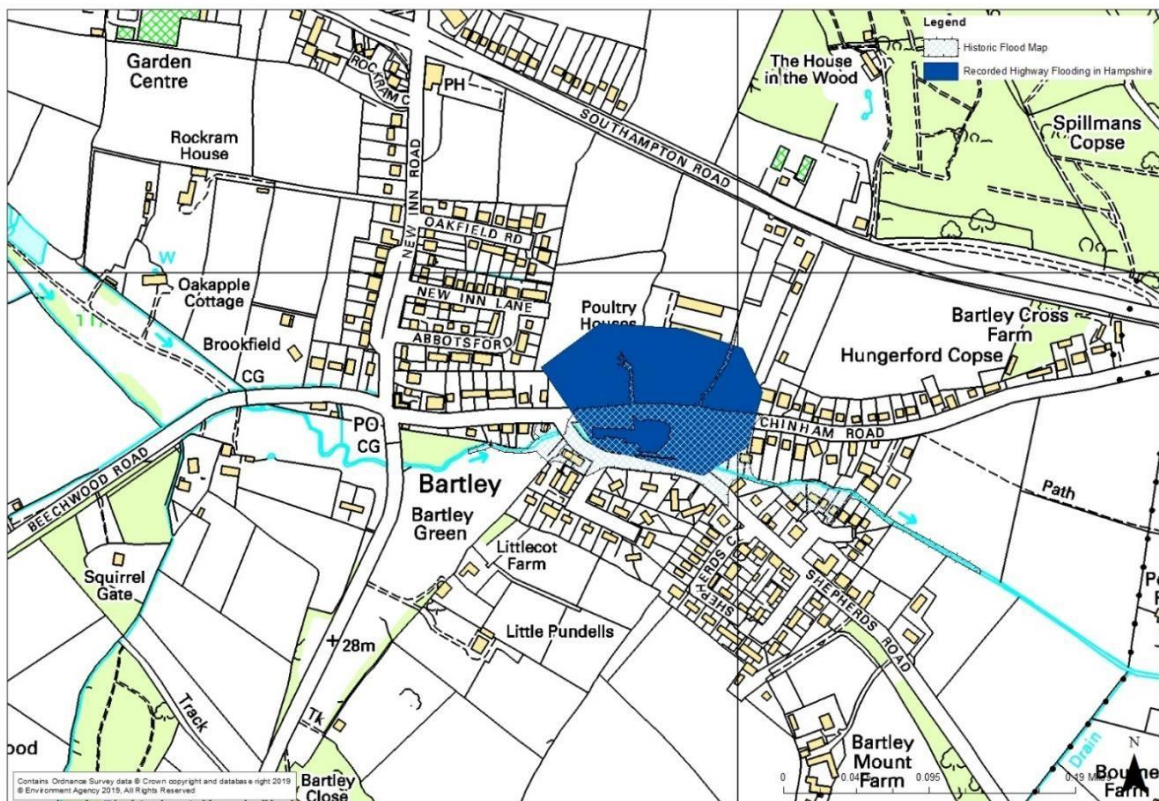
Figure 4: Surface water flood map for Bartley village

1.2. What flooding has taken place in Bartley village?

Bartley Water, which has a number of tributaries in the Cadnam and Copythorne area, flows directly through Bartley village centre, and becomes a Main River in Bartley. In 2000-01, 11 properties in Bartley suffered from flooding, and work has been undertaken since then to reduce the flood risk. New Forest District Council completed drainage works in 1999 and 2004 which are reported to have helped reduce the risk of flooding in this location.

One report has been produced by Halcrow Group Ltd. on behalf of the Environment Agency (EA) covering the 2000-2001 flood event in the area:

- Winter 2000-2001 Flooding in Hampshire – Bartley, Cadnam, Copythorne, Ower and Winsor (August 2002)



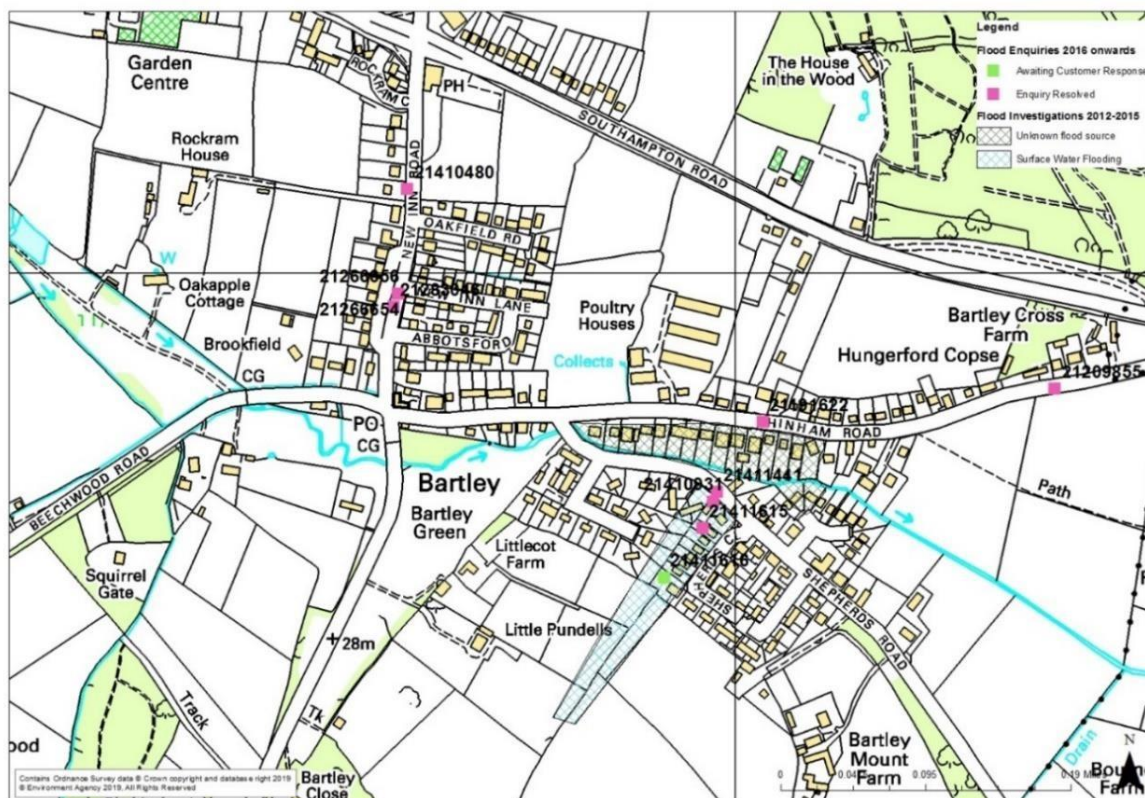


Figure 5: Flooding records held by Hampshire County Council for Bartley,

2. What actions have been taken to address flood risk?

There are records of a proposed 'Bartley Flood Relief Scheme' from 2006, which it is understood both the District Council and Environment Agency contributed to, however details on the scheme are limited. The project appraisal report from 2005 states that 28 properties have been affected by internal flooding. *The technical details within that report remains extant and the information remains relevant today* The source of the problem was recorded as being the increased constriction of the watercourse downstream of Shepherds Road, causing water to exceed the capacity of the channel upstream of Shepherds Road after heavy rainfall and flow via the road to Riverside Close. The preferred option for resolving the flooding issue was attenuation storage on open land upstream.

It appears a significant amount of research was undertaken by the District Council, but no formal scheme was agreed and since the change in responsibilities with regards to flooding, following the implementation of the Flood and Water Management Act, the District Council have no records of this work. The Environment Agency has confirmed Bartley is on their list of potential areas for future work, but there are no formal plans as yet.

The Parish Council highlighted the work completed on the Bartley Flood Alleviation Scheme and have previously been in discussion with the EA on the topic. The scheme was considered by the Parish Council for the Flood Resilience Community Pathfinder

Scheme, run by Defra, minutes from the 26 February 2013 Parish Council meeting refer to correspondence between the Parish Council and New Forest District Council regarding the Flood Alleviation Scheme.

The Environment Agency has confirmed that Bartley is on the current 2021-27 programme for potential funding from DEFRA, however initial investigative works are not proposed until 2024, and are dependent on a cost-benefit analysis ranked against other projects. Risk management authorities can bid for Grant in Aid funding if the project can meet the cost-benefit criteria.

3. Site assessment

The site visit was undertaken by representatives of Hampshire County Council and Copythorne Parish Council on the afternoon of Friday 6th August 2021, in dry weather. The site visit included a review of parts of Winsor Road, New Inn Road, Beechwood Road, Chinham Road, Shepherds Road and Riverside Close.

The following observations relate to the time of the visit only and this report acknowledges that changes to the state of the land and assets referenced can occur at any time. Observations were made from publicly accessible points only (such as the highway or a public right of way) and as such there may be some gaps or assumptions made.

Summary of observations and discussions

- 1 The ordinary watercourse at Stanley Cottage, Winsor Road, is assumed to flow toward the timber yard on Ringwood Road.
- 2 Surface water flows down towards Winsor Road from The Brickyard.
- 3 There are issues with highway gullies not draining effectively on Winsor Road, particularly the gully outside The Wilderness.
- 4 Water is known to seep from the verge by Chipmans House, Winsor Road.
- 5 The bus stop on New Inn Road opposite The Haywain PH is known to flood. There is a ditch (ordinary watercourse) between the footpath and Rockram Close properties at this location.
- 6 There are ditches and culverts (ordinary watercourses) on both sides of New Inn Road, the condition of the watercourses vary significantly along the length of this road.
- 7 There is a potential flooding issue at the southern end of New Inn Road adjacent to the post office, where the piped system crosses the road at a restrictive angle.
- 8 An attenuation area at the junction of Beechwood Road and Green Lane was considered but never built, however there is no flooding occurring at this location as water finds its way into the ditch network.

- 9 Highway work has been ongoing near to Yew Tree Garage, Southampton Road. Water from this location may drain through the ditch system towards Bartley Water.
- 10 Bartley Water is the main river, classified as such from where it passes under Brockishill Road. The watercourse flows through the rear gardens of the Chinham Road properties east of Shepherds Road, some of the property owners have received funding to assist with reducing the risk of flooding.
- 11 A historic flooding issue at the culvert beneath Shepherds Road was resolved by replacing the single small culvert with three larger diameter culverts.
- 12 There is a land drainage issue at White Oaks, Shepherds Road and possibly the properties behind in Shepherds Close. Flooding was last recorded when the culvert blocked and flooded through the garage at White Oaks in February 2019.
- 13 Fluvial flooding has historically affected the low-lying gardens in Riverside Close, however flood water can also arrive at this location via the highway when the main river channel capacity is exceeded upstream of Shepherds Road.
- 14 Ditches (ordinary watercourse) and highway drainage assets along Shepherds Road are assumed to drain to the main river. The condition of the ordinary watercourses and highway drainage assets varies.
- 15 Downstream of this location, Bartley Water flows through Netley Marsh parish and eventually into the River Test at Eling.
- 16 The technical studies within the 2005 NFDC Project Appraisal Report (mentioned in the first paragraph of Section 2 of this report) resulted in the watercourse alongside the now redundant chicken farm on the northern side of Chinham Road also being designated as main river. This is where the fields north up to Southampton Road currently contribute surface water, including the field to the rear of the Haywain public house

4. Assessment of Flood Risk

A review of the flood mechanisms and extents, and analysis of potential options to reduce the impact of future flooding has been undertaken.

4.1. Analysis of information

To reduce the risk of flooding, the existing drainage systems in Bartley must be fully operational and well-maintained.

- Main rivers are watercourses that are assessed to have a significant flood risk due to their size or local constraints, and may include ditches and culverts. The riparian owner (a landowner with main river running through or adjacent to their land) has a responsibility to maintain the watercourse so that it does not impede the flow of water. Any works in the immediate vicinity of a main river require a flood risk activity permit from the Environment Agency. Enforcement action can be taken by the Environment Agency if main rivers are not maintained or are

affected by works undertaken without the necessary permit. The Environment Agency may also have a schedule of maintenance activities.

- Ordinary watercourses are watercourses that have not been designated as main river by the Environment Agency, and may include ditches and culverts. The riparian owner (a landowner with an ordinary watercourse running through or adjacent to their land) has a responsibility to maintain the watercourse so that it does not impede the flow of water. Any works that would affect the flow of water (such as culverting for driveway access) require consent from the lead local flood authority, Hampshire County Council. Enforcement action can be taken by Hampshire County Council if ordinary watercourses are not maintained or are affected by works undertaken without the necessary consent. Problems with ordinary watercourses can be reported to Hampshire County Council online.
- Highway drainage systems are installed and maintained by the highway authority, Hampshire County Council. These systems often depend on ordinary watercourses and main rivers as discharge points. A lack of maintenance in watercourses can obstruct the outlets from highway drainage systems, resulting in blockages. Problems with highway drainage assets can be reported to Hampshire County Council online.
- There are no public surface water sewers maintainable by Southern Water at this location.

Other pressures on existing drainage systems may include high groundwater, which can enter piped drainage systems (including foul sewers) through damaged infrastructure, and private surface water drainage systems associated with the historic and current development of private property.

Figures 3 & 4 highlight the flood risk from the watercourses in the area. The surface water flood map tends to highlight more of the ordinary watercourses due to the reliance on topography for modelling, and both maps show the significance of the flood risk from Bartley Water. Location specific advice for reducing flood risk is provided in the following section.

4.2. Responsibilities and Potential Actions

There are existing responsibilities to ensure that land drainage and highway drainage systems are suitably maintained.

All riparian landowners have a responsibility to maintain their watercourse. It is not unusual for riparian landowners to be unaware of their responsibilities. A Parish Council-led riparian awareness campaign could be considered, with Hampshire County Council and Environment Agency support. Newsletter and website articles, targeted letter drops, and regular inspections may be appropriate. Awareness and

use of the Hampshire County Council flood reporting system should also be promoted.

Key areas for a campaign would include both sides of the southern end of Winsor Road, both sides of New Inn Road, properties close to Bartley Water on Chinham Road, Shepherds Road and Riverside Close, properties on the western side of Shepherds Close. Surveys of the watercourses and culverts may be appropriate in these areas with recurring flooding problems.

Hampshire County Council as the highway authority maintains highway drainage assets. Maintenance is most effective when the receiving watercourses are suitably maintained. Issues with highway drainage assets can be reported online. Not all watercourses and highway drainage assets are recorded. Site walkovers and surveys may help to identify features not already recorded, so that maintenance may be done by the responsible party.

The Environment Agency may wish to proceed with investigating flood risk in Bartley Water. Flood alleviation works may proceed as a result of any investigation, depending on whether the benefits of a proposed scheme will outweigh the costs.

5. Conclusions and Next Steps

It is recommended that a riparian landowner awareness campaign be undertaken, prioritising the areas known to have a higher flood risk. This can be undertaken any time of the year, however a regular reminder for maintenance in late summer every year would be beneficial as the bird-nesting season ends and wetter weather is expected. Groundwater levels may also rise sufficiently to have an impact on the drainage systems.

Problems with ditch or culvert maintenance on ordinary watercourses may be reported to Hampshire County Council here: [Report a flooding or drainage problem | Hampshire County Council \(hants.gov.uk\)](https://hants.gov.uk/report-a-flooding-or-drainage-problem). There is also an option to report highway drainage asset problems. Works to an ordinary watercourse will usually require ordinary watercourse consent, details on the application process can be found here: [Making changes to a watercourse | Hampshire County Council \(hants.gov.uk\)](https://hants.gov.uk/making-changes-to-a-watercourse).

Problems with main river maintenance may be reported to the Environment Agency. Details on applying for a permit when working on or near a main river can be found here: [Flood risk activities: environmental permits - GOV.UK \(www.gov.uk\)](https://www.gov.uk/flood-risk-activities-environmental-permits).

Should any surveys be undertaken on drainage systems in this area, Hampshire County Council may wish to record the information on the highway drainage asset database or the flood risk asset register. Please contact Hampshire Highways or the Flood and Water Management team with any information.

Liaising with the Environment Agency regarding potential flood alleviation schemes in this area, as mentioned in the final paragraph of Section 2.

Costs for capital flood mitigation schemes tend to be relatively high and as such, external funding is usually required to implement schemes.

The most common source of funding is via the Flood Defence Grant in Aid (FDGiA) funding source which is provided by Central Government and managed by the Environment Agency. To access this funding, an analysis of the costs and benefits must be undertaken to demonstrate that there is value in undertaking works based on national criteria. There are different criteria used to assess the value (or benefits) of a scheme. The cost benefit ratio is then assessed against all other schemes put forward nationally with funding going to those giving the greatest benefits vs cost. The cost benefit score is difficult to determine at this stage as it cannot be confirmed to what level properties, businesses and infrastructure can be protected.

The better the standard of protection, the more benefit can be claimed. The highest level of benefit is directly related to internal residential property flooding (this does not include garages or outbuildings) and in Bartley, Hampshire County Council have records of eleven properties suffering from internal flooding in 2000-01.

Previous information, site visit details and local accounts have been collated within this report in order to provide an assessment of the current flooding mechanisms operating in Bartley. These have been used to identify if there are any potential options to mitigate flood risk. Whilst engineered options have been identified, the estimated level of costs and potential benefits are likely to be such that this would preclude the ability to secure funding from the national capital funding mechanisms.

This does not remove the potential to use other measures to reduce flood risk; improve the current drainage systems or investigate other funding sources to develop a scheme in this location.