

Great Barrow Main Report Details

Project: Storm Christoph Section 19 Main Report

Area: Great Barrow

Date: 10/08/2022 Project No.: 5150735

Document history

| Revision | Purpose description | Originated | Checked | Reviewed | Authorised | Date |
|----------|--------------------------|------------|---------|----------|------------|----------|
| 1.0 | Draft for RMA Comment | HH | SF | EJG | EJG | 10/08/22 |
| 2.0 | Draft for Final Approval | HH | SF | EJG | EJG | 01/09/22 |
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Client signoff

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|-------------------------|--|
| Client | Cheshire West and Chester Council |
| Project | Storm Christoph Section 19 Main Report |
| Project No. | 5150735 |
| Client signature / date | |

Great Barrow Interim Report Details

This Great Barrow specific Main Report should be read in conjunction with the Section 19 Flood Investigation – Main Report (January 2021 Storm Christoph Flooding Event).

1. Introduction

This chapter titled Great Barrow consists of details relating to properties within the village of Great Barrow on Mill Lane and Hawkins View and in the wider parish at Plemstall View.

Great Barrow is located approximately 7km east of Chester. The River Gowy, Milton Brook and Salters Brook encircle Great Barrow on the West, South and North, a series of riparian owned land drains flow into these main rivers.

2. Mill Lane

2.1. Background

Flooding in the Mill Lane area reportedly occurred every few years due to water coming out of bank from Milton Brook and flowing overland before re-entering the watercourse system downstream. Although frequent, this flooding did not cause internal flooding to property.

Properties on Mill Lane, in the area of the flooded property, are located within the Environment Agency (EA) Flood Zones 2 and 3. The properties are within the low-risk surface water flood risk zone (Appendix I).

2.2. Flood Review

During Storm Christoph event a single property was flooded from water as it flowed out of Milton Brook, over Mill Lane, through an alleyway between properties to the south of Mill Lane before re-joining the watercourse system.

Overland flow was observed flowing eastward along Mill Lane from Main Street, which has a high elevation, this water pooled to the west of the road bridge until the water levels in the brook reduced.

It is reported that foul water escaped the surcharged sewerage system, flowing from manholes and combining with flood water from the brook.

The following narrative provides a summary of how the flood event unfolded:

- The water levels in Milton Brook rose until they overtopped the bank and flooded a property between the brook and Mill Lane. Contributing to this was water backing up from the Mill Lane bridge.
- Surface water flowed eastward from Main Street and pooled at the Mill Lane bridge.
- The United Utilities (UU) sewerage system was surcharged which led to foul water flooding (this was not reported to UU).

Issues raised by local residents included:

- Concern that the sewerage system is of insufficient capacity or condition which led to foul water flooding.
- A new residential development to the north of Mill Lane and south of Milton Brook on land which used to be a tennis court has altered the local topography and has changed the route out of bank water takes. Historically, water would flow safely back to the watercourse but since localised land raising has taken place the water is diverted towards adjacent property which has increased flood risk elsewhere. A query was raised regarding the planning approved ground levels for this development.

- Local residents believe flooding is becoming more frequent and concerned that this trend will only continue.
- Residents questioned whether the UU pumping station was operating throughout the event and whether this was of sufficient capacity for the event; concerns were raised of the impact of foul water on the wildlife conservation area within which the affected area is located. UU have confirmed that the pumping station was operating as designed throughout Storm Christoph.
- Whether or not the capacity of the Mill Lane bridge is sufficient and whether it is in good condition.
- The resident at Willow Cottage, located to the north on Heath Lane, reported that trees and debris was blocking flow in Milton Brook leading to inundation of their land.
- Sandbags were only issued to residents at risk of flooding the day after the event and therefore residents had to make their own make shift sandbags during the event.
- Historic mapping from 1897 suggests that a large mill pond was located in the fields to the north; does an opportunity to reinstate this pond exist to provide upstream storage.

Figure 1 shows the flow routes observed during Storm Christoph in blue. This was developed in consultation with Cheshire West and Chester Council (CWaC), as Lead Local Flood Authority (LLFA), and affected property owners.

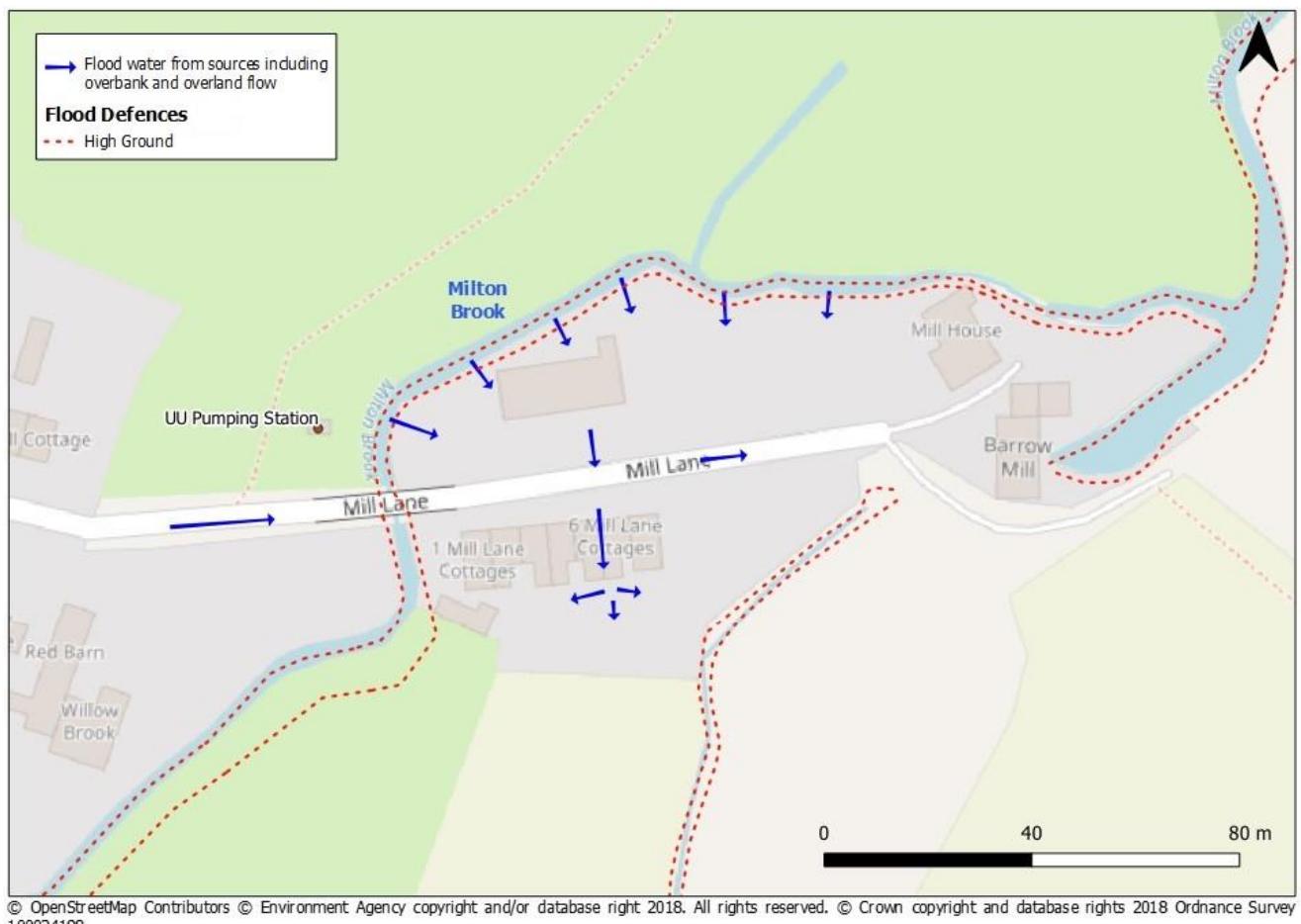


Figure 1 – Mill Lane Flood Overview

Photographs that illustrate the severity of the flood event in Mill Lane can be seen in Figure 2. A detailed timeline of the event is given in Appendix II.



Figure 2 – Milton Brook. 20/01/21

Source: Local Resident

2.3. RMA Response

This section outlines the RMA response to the flood event at Mill Lane and identifies area for improvement of flood risk. Consultations have been undertaken with the participating RMAs and local residents to inform this assessment.

- Meeting on site with affected residents 5th November 2021 with CWaC, as LLFA.
- United Utilities have confirmed that the Mill Lane Barrow pumping station operated as designed throughout the event.
- LLFA has promoted the use of FloodHub for affected residents

2.4. Recommended Actions

The LLFA role is to coordinate the management of flood risk within their administrative area. It is suggested that the recommendations made within this report are taken on board by the relevant RMAs and reviewed on a regular basis.

- CWaC, as LLFA, to undertake site visit of new development to the North of Mill Lane to assess whether there are opportunities to redirect out of bank flow back towards Milton Brook and away from property.
- CWaC, as LLFA, alongside the EA to assess whether there are economic and technically viable options to provide upstream storage, potentially utilising agricultural land or historic ponds.
- CWaC, as LLFA, confirm that the Mill Lane Bridge is clear of debris and in good condition and, that it is of sufficient capacity.
- Residents to be encouraged to sign up to the EA flood alert service and LLFA and EA to consider the feasibility of implementing a flood warning service.
- Individual property owners to investigate opportunities to install property level protection resilience measures for properties in Flood Zone 3. CWaC, as LLFA, to provide support and guidance.
- LLFA to promote the use of the FloodHub for information on flooding.

3. Hawkins View

3.1. Background

Flooding in the Hawkins View area reportedly occurs regularly during heavy rain at the junction between Hawkins View and Station Lane, with water ponding on the road.

Two properties on Hawkins View flooded internally. Properties on Hawkins View are located within the EA Flood Zone 1. The properties are within the low-risk surface water flood risk zone (Appendix I).

3.2. Flood Review

During the Storm Christoph event two properties were flooded from surface water. It was reported that flood water runs off from fields to the west of Hawkins View and across the road to properties on Hawkins View. Flood water also comes down the B5132 (Station Road) from the south and runs down Hawkins View. After running through the properties, the flood water continues to follow the topography of the land and runs east, across fields to, and then down, Heath Lane.

North of Hawkins View there is a ditch, however this is overgrown and therefore the course of the ditch and any inlets into the ditch are currently unknown.

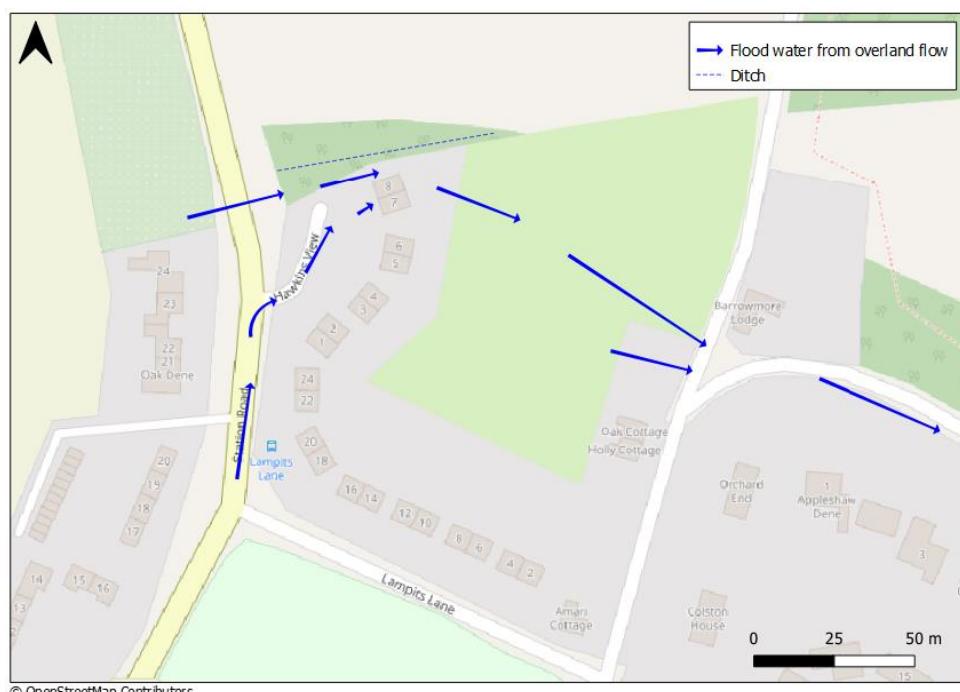


Figure 3 – Hawkins View Flood Overview

3.3. RMA Response

This section outlines the RMA response to the flood event at Hawkins View and identifies area for improvement of flood risk. Consultations have been undertaken with the participating RMAs and local residents to inform this assessment.

- Meeting on site with affected residents 5th November 2021 with CWaC, as LLFA.
- United Utilities have confirmed that the Mill Lane Barrow pumping station operated as designed throughout the event.
- LLFA has promoted the use of FloodHub for affected residents

3.4. Recommended Actions

The LLFA role is to coordinate the management of flood risk within their administrative area. It is suggested that the recommendations made within this report are taken on board by the relevant RMAs and reviewed on a regular basis.

- CWaC, as LLFA, to investigate the condition and land ownership of the drainage network in the area, paying particular attention to the ditch to the north of Hawkins View and consider whether this could be used to divert flow away from affected property.
- Individual property owners to investigate opportunities to install property level protection resilience. CWaC, as LLFA, to provide support and guidance.
- LLFA to promote the use of the FloodHub for information on flooding.

4. Plemstall View

4.1. Background

The affected property at Plemstall View has a ditch running along the eastern boundary, which drains fields to the north. The ditch is then culverted under the property and is thought to discharge into Barrow Brook, however the exact route is currently unknown.

The road outside the property regularly floods during heavy rain, affecting the driveway to the property. There is no record of any previous internal flooding.

Properties at Plemstall View, in the area of the flooded property, are located within the EA Flood Zone 1. The properties at Plemstall View are within the very low risk surface water flood risk zone (Appendix I).

4.2. Flood Review

During the Storm Christoph event, the ditch overtopped at the inlet, and flood water flowed into the property. Floodwater also flowed southwards overland from the adjacent fields.

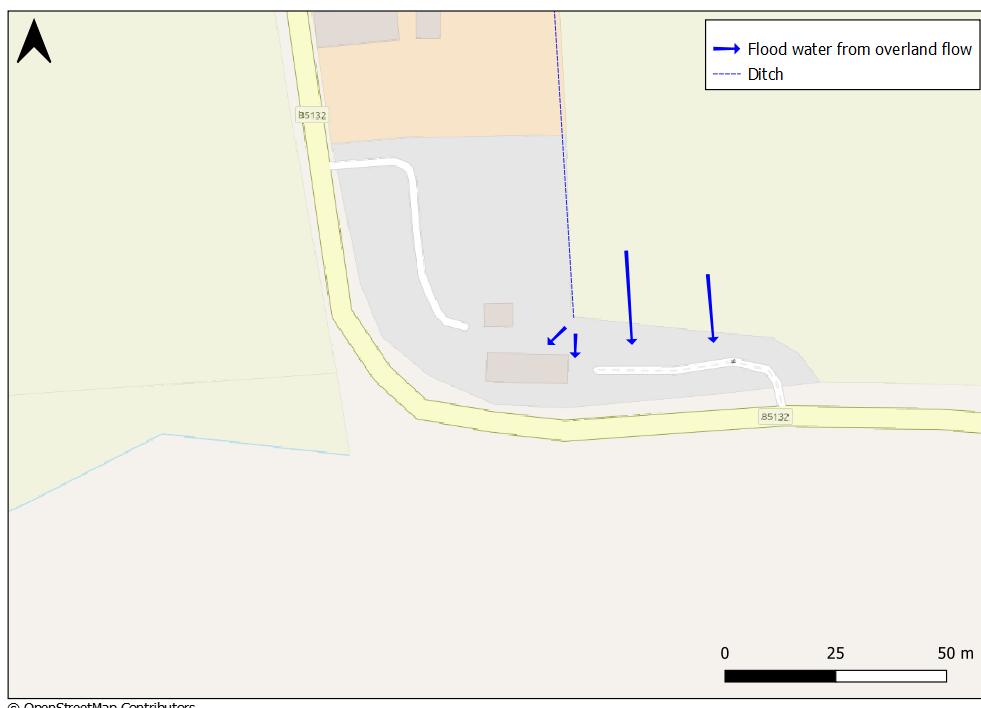


Figure 4 - Plemstall View Flood Overview

4.3. RMA Response

This section outlines the RMA response to the flood event at Plemstall View and identifies area for improvement of flood risk. Consultations have been undertaken with the participating RMAs and local residents to inform this assessment.

- Meeting on site with affected residents 5th November 2021 with CWaC, as LLFA
- The resident has cleared the roadside ditches along the property boundary
- The resident is undertaking landscaping to direct floodwater away from the property

4.4. Recommended Actions

This section has set out the site background and conditions that resulted in the flooding in January 2021 at Plemstall View. However, some brief recommendations can be made without further investigation:

- CWaC, as LLFA, to assess whether there are economic and technically viable options to provide low-cost Natural Floodplain Management approaches to delay water entering the ditch.
- Property owners to investigate the route and condition of the culvert under the property. LLFA to provide support and guidance.
- Individual property owners to investigate opportunities to install property level protection resilience. CWaC, as LLFA, to provide support and guidance.
- LLFA to promote the use of the FloodHub for information on flooding.

5. Area Summary

Key statistics of the Storm Christoph Flooding in the area are summarised in Table 1. Detailed timelines of the flood events can be found in Appendix II.

Table 1 - Flood Impact Summary

| Residential properties affected: | Commercial premises affected:- | Number of properties evacuated: | Number of properties flooded: | Number of domestic properties flooded: | Number of commercial premises flooded: | Comment |
|----------------------------------|--------------------------------|---------------------------------|-------------------------------|--|--|---|
| 7 | 1 | 0 | 4 | 0 | 1 | As reported to CWaC prior to publishing |

Figure 1, Figure 3, and Figure 4 show details of the flooding developed in consultation with CWaC, as LLFA, and affected property owners. Table 2 provides a brief summary of the flood event, impact and response in the area.

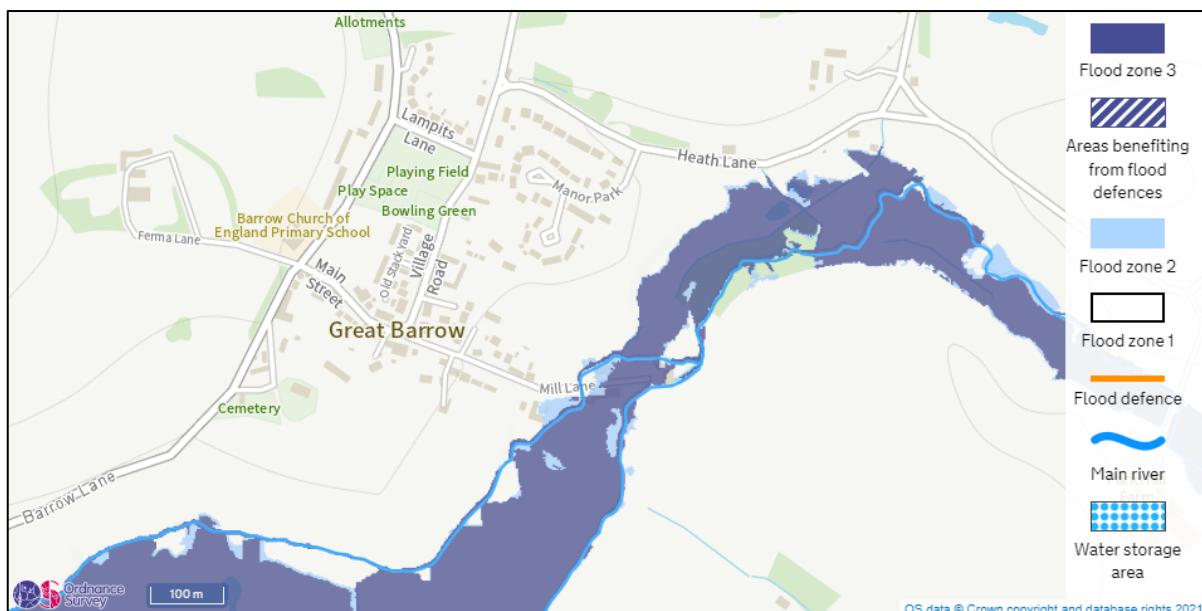
Table 2 – Great Barrow Flooding

Great Barrow

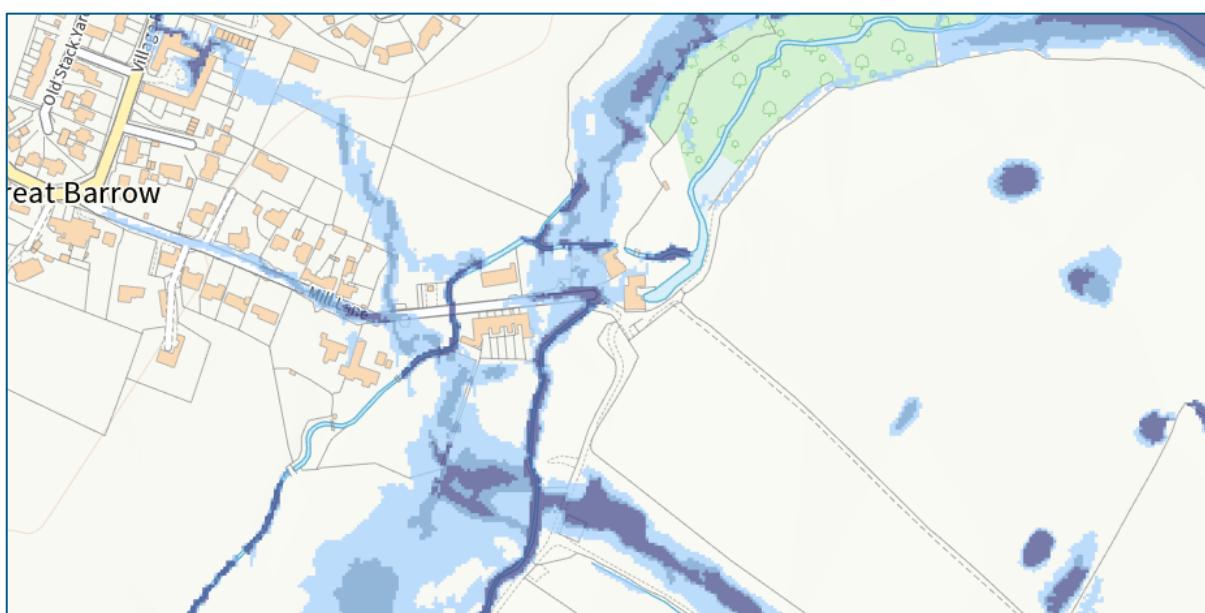
| | |
|--|---|
| Date | <ul style="list-style-type: none"> 20th January 2021 – 23rd January 2021 |
| Affected Roads | <ul style="list-style-type: none"> B5132 (Station Road and Barrow Lane), Mill Lane, Hawkins View, Heath Lane, Village Road and Main Street |
| Flood Alert / warning issued? | <ul style="list-style-type: none"> n/a |
| Flooding Impacts and Observations | <ul style="list-style-type: none"> Property damage Risk to life Additional stress and mental anguish on the community over such an event happening again |
| Summary of Flooding Incident Response During Event | <ul style="list-style-type: none"> Residents created make-shift sandbags to protect their properties due to delays receiving formal sandbags |

Appendix I – Map

Mill Lane flood zones

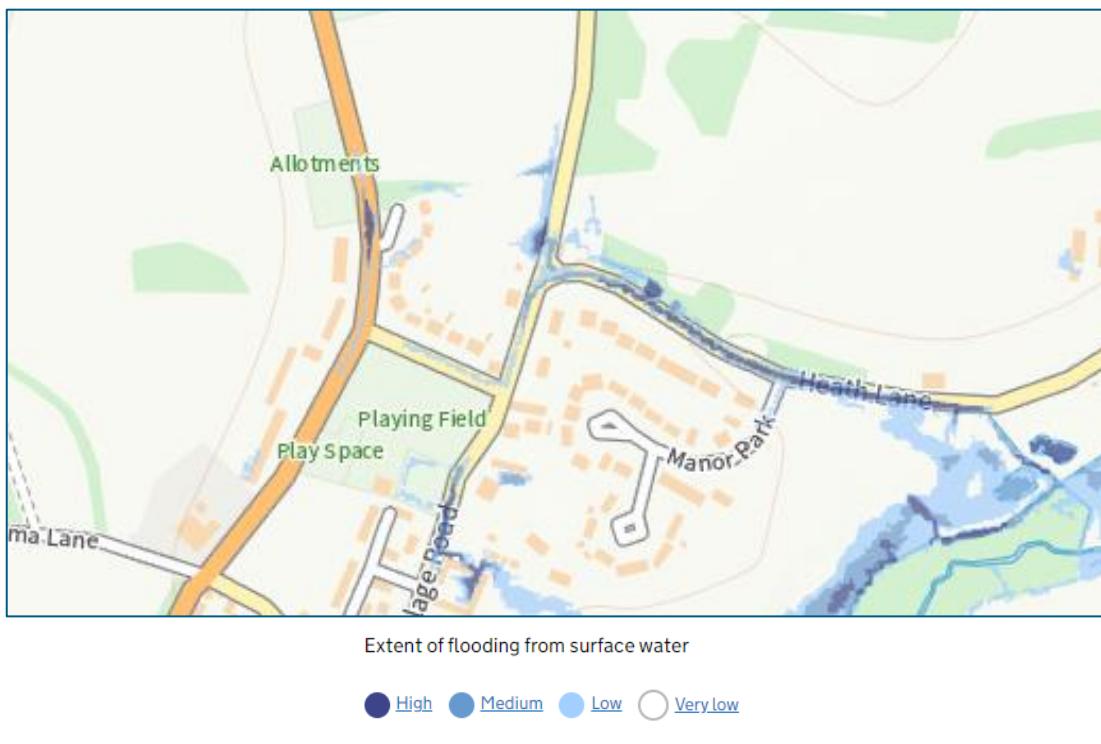


Source: EA

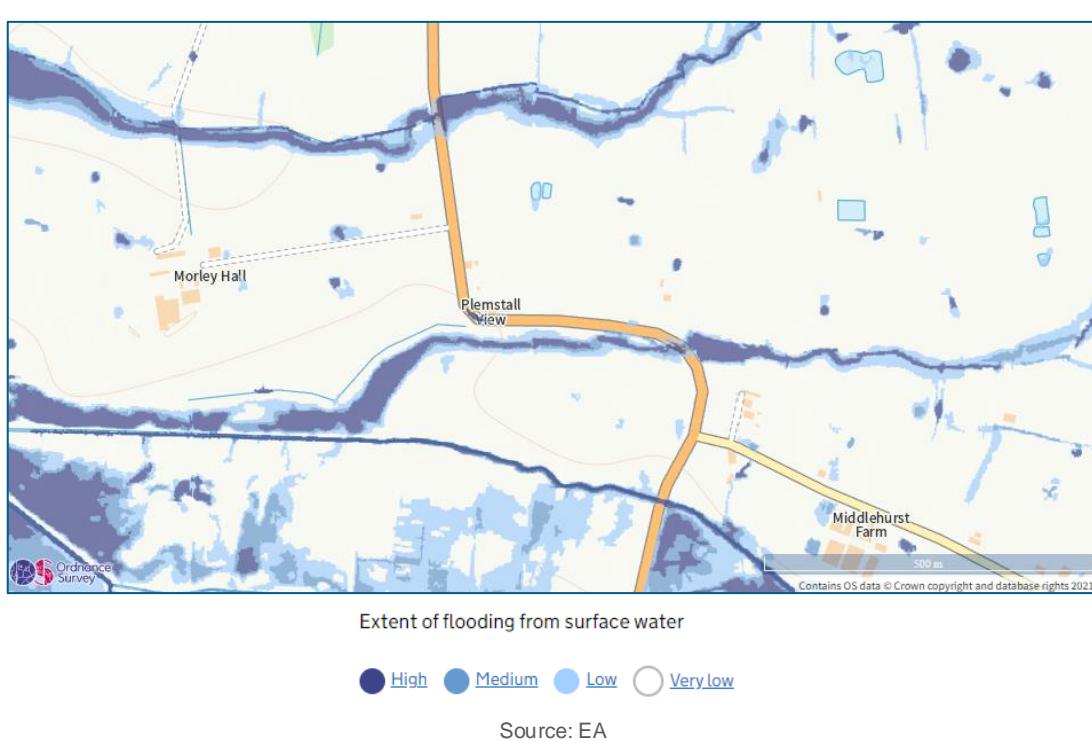


Source: EA

Hawkins View flood zones



Plemstall View flood zones



Appendix II – Timeline

| Time | Mill Lane |
|----------------------------------|--------------------------------------|
| 21 st Jan 16:00 | Water started to breach Milton Brook |
| 20 th Jan 20:00/21:00 | Water levels peaked |

| Time | Hawkins View |
|----------------------|--------------------------|
| 21 st Jan | No information available |

| Time | Plemstall View |
|----------------------------|--|
| 21 st Jan 16:00 | Water began to enter the property garden |
| 21 st Jan 20:00 | Water levels peaked |