

## Section 19 Flood and Water Management Act 2010

### Hoxne Flood Investigation – Storm Babet 2023



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## Executive Summary

Storm Babet caused significant disruption to communities across Suffolk between 18<sup>th</sup> - 21<sup>st</sup> October 2023. Hoxne was a community that was significantly impacted, with approximately 25 properties suffering internal flooding as well as disruption to infrastructure and services. Suffolk County Council, as Lead Local Flood Authority, have therefore undertaken a Section 19 Flood Investigation. The resulting report will:

- highlight the probable causes of flooding
- identify options to reduce future flood risk and increase property resilience
- make recommendations for actions by relevant responsible organisations, landowners or homeowners.

Hoxne is located in an area at significant risk of both fluvial and pluvial flooding and the nature of the surrounding topography and geology contributes to the susceptibility of the community to flooding. Areas of Hoxne are low-lying, surrounded by a reasonably steep rural catchment. Multiple flood water flow paths converge near to Hoxne, where the gradient is noticeably shallower. The local geology and soils are characterised as having low permeability and high run off, making a high number of properties in Hoxne vulnerable to flooding due to intense rainfall events.

Storm Babet delivered significant rainfall to the catchment, following an extended period of above average rainfall. Impacts within Hoxne were widespread and for the purposes of this report, the affected areas have been categorised into eight zones. The description of the flood events detailed in the report have been compiled using data submitted to Suffolk County Council, as well as information from Risk Management Authorities (e.g. Suffolk County Council Highways and Anglian Water) and the community.

A comprehensive summary for each zone is provided within the report, outlining the context of the event and the impact. Key findings are that Hoxne was severely impacted by flooding due to the intensity of rainfall, that overwhelmed the natural flow routes and the capacity of watercourses and drainage infrastructure. This situation was compounded when overland flow paths converged and saw the resultant internal flooding of property.

Short, medium and longer term recommendations have been published and each have a potential role to improve resilience and reduce the risk of flooding to Hoxne. For short term measures, key highlights include the implementation of community flood plans, maximising Property Flood Resilience (PFR) grants, maintenance of watercourses and local Community Self Help schemes. For medium to longer term recommendations, there is emphasis on the investigation of potential improvements to drainage infrastructure, management of water from rural land and the creation of new natural flood management features, to reduce flood risk within the catchment.

## Justification for Investigation

Suffolk County Council, Lead Local Flood Authority (LLFA) has determined that in accordance with our criteria, it is considered necessary and appropriate to carry out an investigation into this flood event.

This is in accordance with Section 19 (1) of the Flood and Water Management Act 2010, and in accordance with Section 19 (2) of the Flood and Water Management Act 2010, to publish the results and notify the relevant risk management authorities (RMAs).

### *Section 19 Local authorities: investigations*

*(1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate—*

*(a) which risk management authorities have relevant flood risk management functions, and*

*(b) whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.*

*(2) Where an authority carries out an investigation under subsection (1) it must—*

*(a) publish the results of its investigation, and*

*(b) notify any relevant risk management authorities*

<b>Criteria for an investigation (as per Appendix D of the Suffolk Flood Risk Management Strategy):</b>	
There was a risk to life because of flooding?	
Internal flooding of one property (domestic or business) has been experienced on more than one occasion?	
Internal flooding of five properties has been experienced during one single flood incident	✓
Where a major transport route was closed for more than 10 hours because of flooding	
Critical infrastructure was affected by flooding	
There is ambiguity surrounding the source or responsibility of a flood incident	

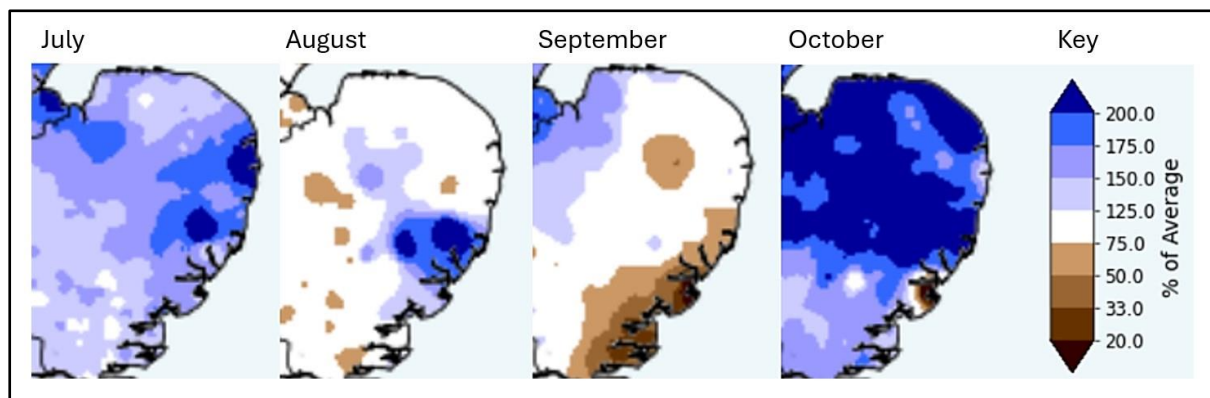
# Understanding the flood context

## 1. What happened during Storm Babet

A succession of weather fronts between the 11<sup>th</sup> and 13<sup>th</sup> of October 2023 brought significant rainfall to the region. Readings indicate that between 30mm and 50mm of rain fell across Suffolk compared with an average of just less than 65mm across the whole month of October according to Met Office weather data (Met Office, 1991-2020). This significant rainfall occurred in a short space of time and resulted in saturated land and rivers reaching their capacity. Shortly after this, Storm Babet followed on the 18<sup>th</sup> to 21<sup>st</sup> of October 2023. The storm brought between 50 mm and 80 mm of rain to much of central and northern East Anglia, with some Suffolk weather stations recording the wettest October day on record.

The Environment Agency river level measuring stations indicated many flows close to or exceeding their highest on record, and the weather remained wetter than average for the rest of the month. October 2023 was the joint wettest on record in the east of England since 1871. During Storm Babet, Suffolk saw the heaviest rainfall across East Anglia causing significant flooding of roads and properties. The river systems rose rapidly across whole catchments due to the existing conditions, which was unusual as storms will often impact a small area and result in a steady progression of flood water downstream. A major incident was declared by the Suffolk Resilience Forum (SRF) in the afternoon of the 20<sup>th</sup> of October due to significant impacts on communities and disruption to the road and rail networks.

The following maps illustrate the extent to which the rainfall in the months preceding Storm Babet exceeded the average monthly rainfall for July to October in recent years in Suffolk.



*Figure 1. Average rainfall in East Anglia between July and October 2023 as a percentage of the historical average monthly rainfall*

The following report acknowledges that October 2023, and in particular Storm Babet, was an extreme event and will assess the likely causes and impacts. The report will recommend measures to reduce the risk of flooding within the location, in line with best practice, ranging from large to small scale interventions and be targeted at a range of stakeholders. It should be noted that Storm Babet was a significant event, with a low probability of recurrence. The recommendations will provide advice about reducing flood risk; however, they should not be relied upon as a guaranteed failsafe to mitigate against all future flooding.



## 2. Location of flooding

Hoxne is a medium sized village located in the district of mid Suffolk. It is situated approximately 4 miles southeast of Diss and 3 miles northeast of Eye, south of the major road A143 and east of the A140.

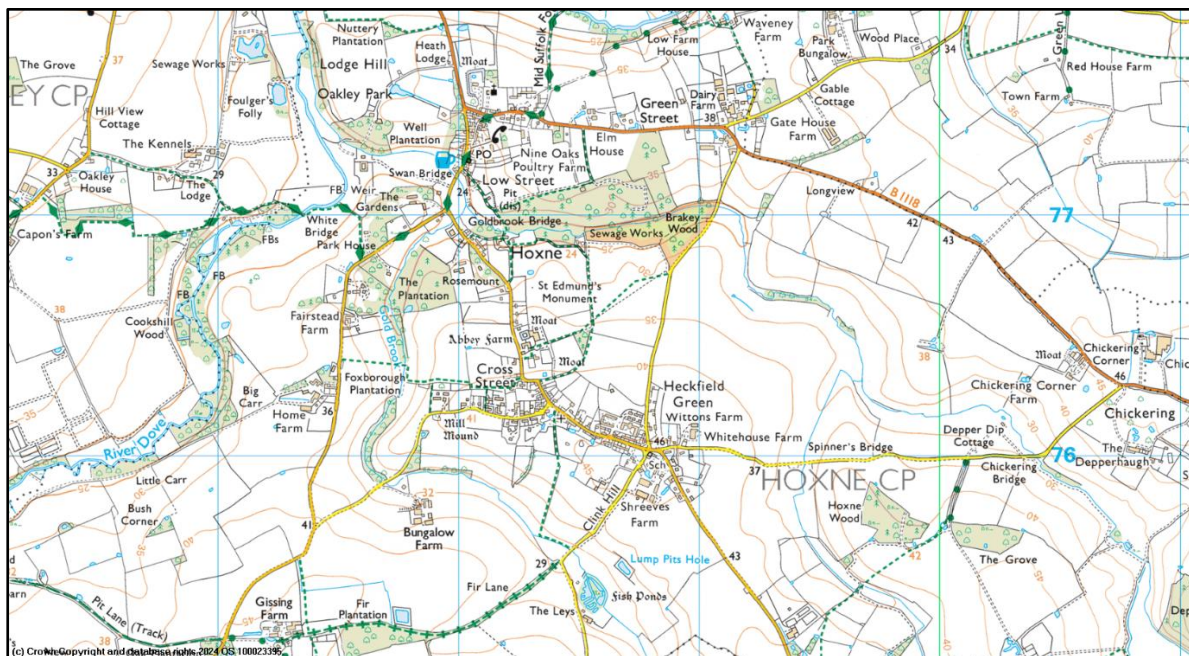


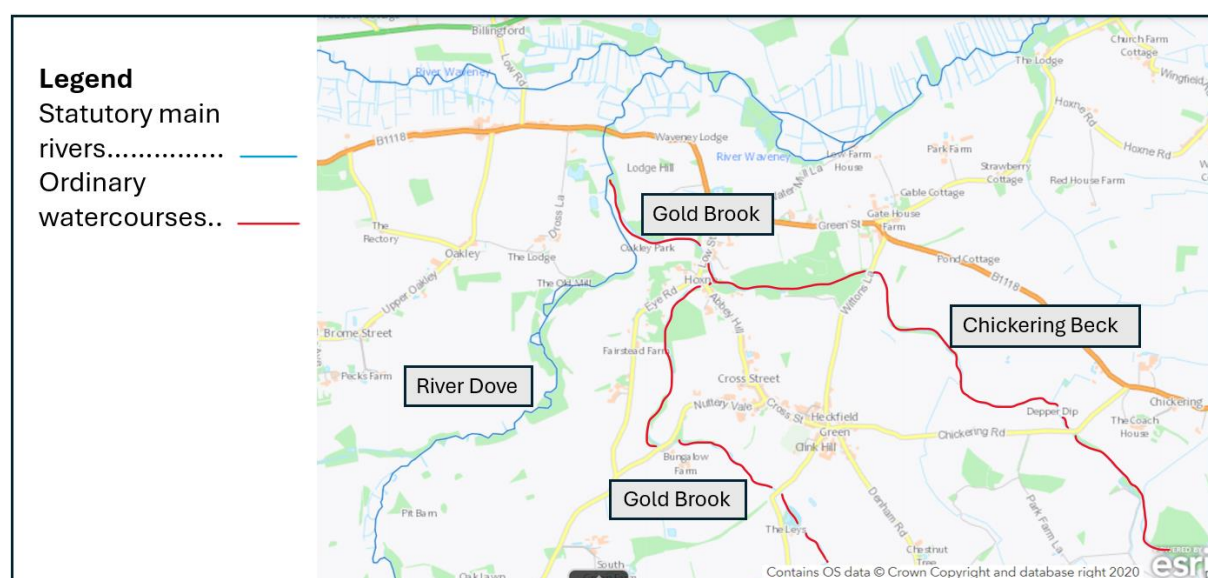
Figure 2. Investigation area map

On the 20<sup>th</sup> of October 2023, Storm Babet resulted in significant rainfall across Suffolk on top of an already wet October. This caused internal flooding to properties, residential and commercial, across the county from various flooding sources. The following report is focused on Hoxne village and its surrounding area and will discuss the probable flooding sources, the observed flow paths through the community, and the receptors which have been affected.

Hoxne was one of the most significantly impacted communities during Storm Babet with approximately 25 properties reporting internal flooding. The village experienced major flooding on Friday 20<sup>th</sup> of October from fluvial (water from a river or watercourse), pluvial (surface water run-off) sources and both combined. For the purposes of this report, the term 'flood water' may be used to describe both fluvial and pluvial flooding. A large number of the flooded properties on Low Street, Abbey Hill, Nuttery Vale, Denham Low Road and Chickering Road included some fluvial element due to the Gold Brook and Chickering Beck watercourses exceeding their capacity and overtopping their banks (see Figure 3). Surface water run-off combined with overwhelmed sewerage and drainage infrastructure was a major cause of the flooding experienced on Green Street, Cross Street and Eye Road.

Figure 3 shows the most significant watercourses in the area surrounding Hoxne. The Environment Agency has permissive powers to carry out maintenance, improvement or construction work on main rivers to manage flood risk. The Internal Drainage Boards (IDBs) have similar permissive powers but instead relate to ordinary watercourses within their board area.

Lead Local Flood Authorities (LLFAs) and Internal Drainage Boards (IDBs) manage the flood risk from ordinary watercourses but responsibility for maintaining watercourses rests with the Riparian Landowner, defined as those who have a river, stream or ditch which runs next to or through their land or property. The two watercourses within Hoxne, Chickering Beck and Gold Brook, are not designated as main river and instead are considered ordinary watercourses. The two watercourses are located within the Waveney, Lower Yare and Lothingland IDB.



*Figure 3. Location of statutory main rivers and significant ordinary watercourses*

The Environment Agency issue two types of warning when flooding is possible from a main river. These are:

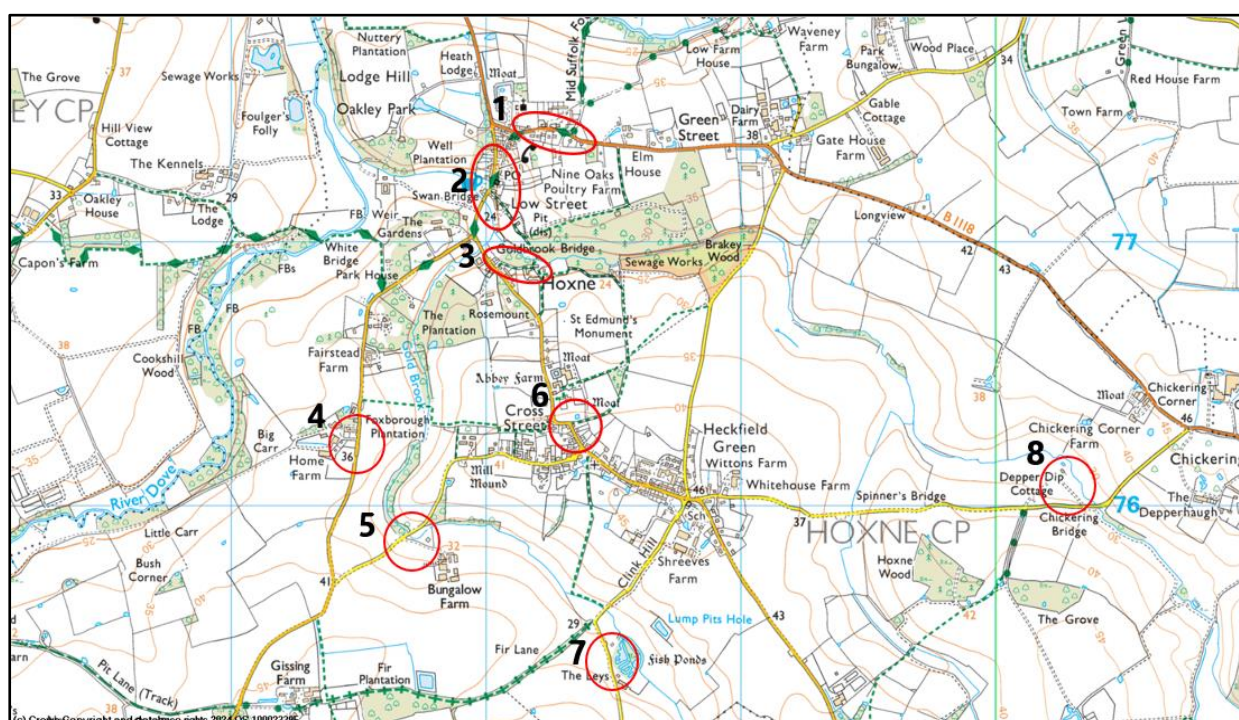
1. Flood Alert – Flooding is possible. Be prepared. - usually issued between 2 and 12 hours before flooding.
2. Flood Warning - Flooding is expected. Immediate action required – usually issued 30 minutes to 2 hours before flooding.

Hoxne lies within the extensive Flood Alert area of 'The River Waveney from Diss and the River Dove to Ellingham, including Bungay'. On 20th October 2023 a Flood Alert for this area was issued at 11.44am and remained in force until its removal on 17th November 2023. The Environment Agency are unable to issue flood warnings for the Chickering Beck and Gold Brook.



For the purposes of this investigation the various areas affected by flooding have been separated into eight distinct locations (see Figure 4). The locations are as follows:

1. Green Street
2. Low Street
3. Abbey Hill
4. Eye Road
5. Nuttery Vale
6. Cross Street
7. Denham Low Road
8. Chickering Road



*Figure 4. Investigation area map with locations*

### **3. Records of any historical flooding**

A review of Suffolk County Council's highway reporting tool, local media reports, social media sources and Environment Agency records indicates that Hoxne has been impacted by flooding to varying extents in the past.

Suffolk Highways records indicate flooding on Abbey Hill has been reported in the past. There are also historic reports of the road flooding on Green Street and Church Close.

Flooding was reported to the EA in October 1993 due to a cluster of low pressure systems resulting in runoff from saturated catchments. Property is recorded to have experienced flooding within the areas of Hoxne Mill, Water Mill Lane and Oakley Mill.

Flooding was also reported in August 2007 due to torrential rain. The beer garden of The Swan Public House was flooded due to the watercourse bursting its banks.

Anglian Water have had some reports of internal flooding on Cross Street over the last 5 years. This was the consequence of blockages not associated with rainfall. On Low Street there have been previous reports of full manholes with some external flooding.

#### 4. Predicted Flood Risk

Parts of Hoxne and the surrounding areas show significant flood risk from pluvial and fluvial sources.

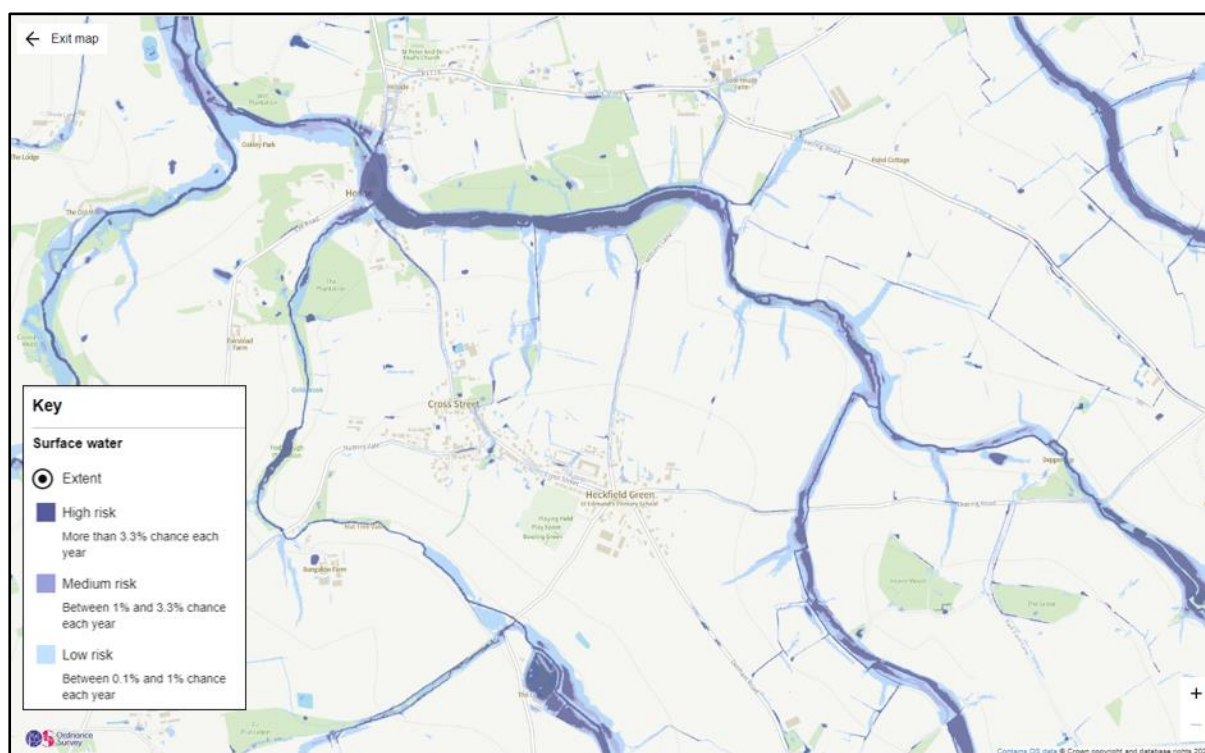
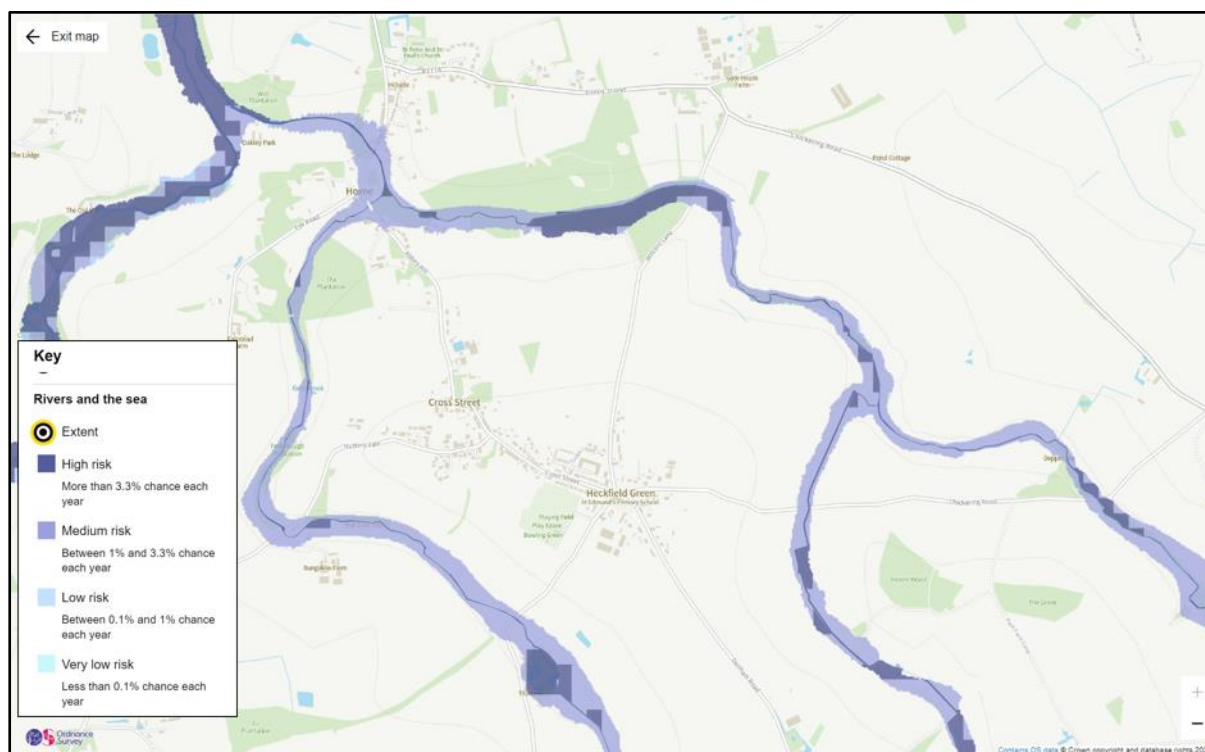


Figure 5. Predicted surface water flood risk

Figure 5 highlights the predicted pluvial (surface water run-off from surrounding land and ditches) flood risk in and around Hoxne, with four main flow paths coming into the village from the southwest, south, southeast and east, closely aligned with Gold Brook and Chickering Beck. Flatter areas at high risk of surface water flooding include south central Hoxne, the flood plain surrounding Chickering Beck to the east of Hoxne and the Denham Low Road to the south of Hoxne.

There is significant risk of surface water flooding on Green Street and Cross Street. These areas were affected by flooding during Storm Babet.



*Figure 6. Predicted flood risk from rivers and sea*

Figure 6 highlights the predicted fluvial (from designated main river and ordinary watercourses) flood risk in and around Hoxne. Fluvial flood risk around Hoxne is associated with the Chickering Beck and Gold Brook watercourses. Areas at high risk of fluvial flooding include the Denham Low Road, Low Street, Abbey Hill and parts of Chickering Road. These areas were affected by flooding during Storm Babet.



## 5. Catchment characteristics

Hoxne village is situated in a rural area with the surrounding catchment predominantly used for arable farming. It is located at the confluence of Chickering Beck and Gold Brook (known as Gold Brook after the confluence) which flow from higher land to the southeast. Gold Brook joins the River Dove downstream and to the northwest of Hoxne. The low-lying nature of Hoxne and the confluence of the two tributaries means that during high rainfall events, considerable flows converge near to Hoxne. Overwhelmed drainage infrastructure and watercourses may be observed during these intense rainfall events.

Figure 7 shows the topography surrounding Hoxne and the gradient changes across the village. Low Road, Abbey Hill and Nuttery Vale are among the lowest lying locations in Hoxne. These were identified as being some of the worst affected areas following Storm Babet.

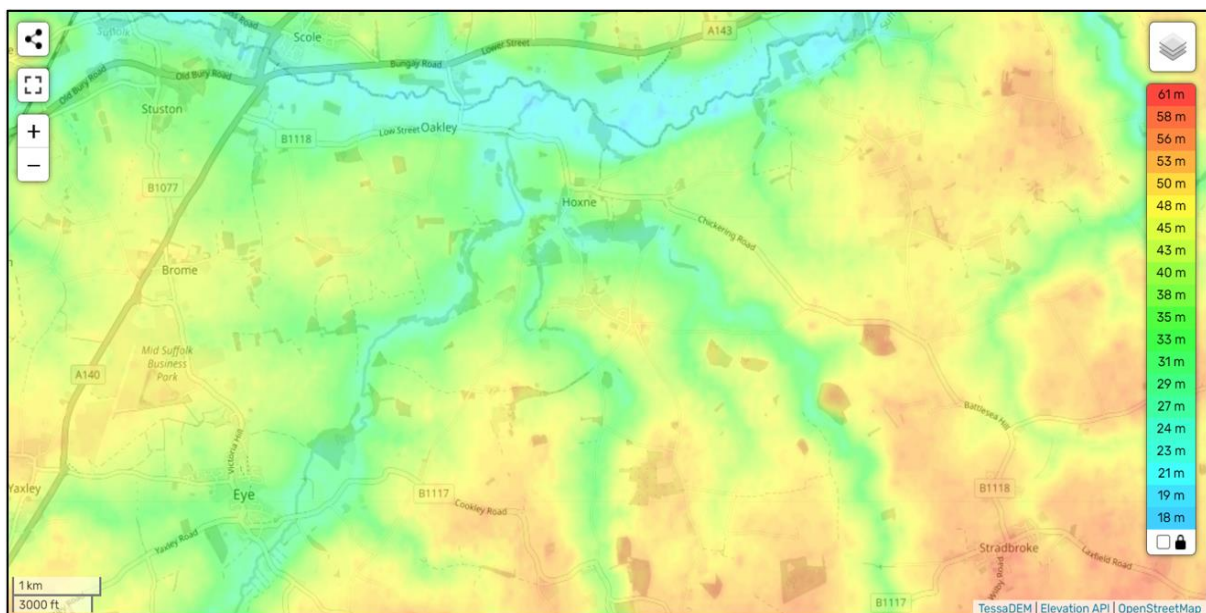


Figure 7. Hoxne and surrounding topography (National River Flow Archive)

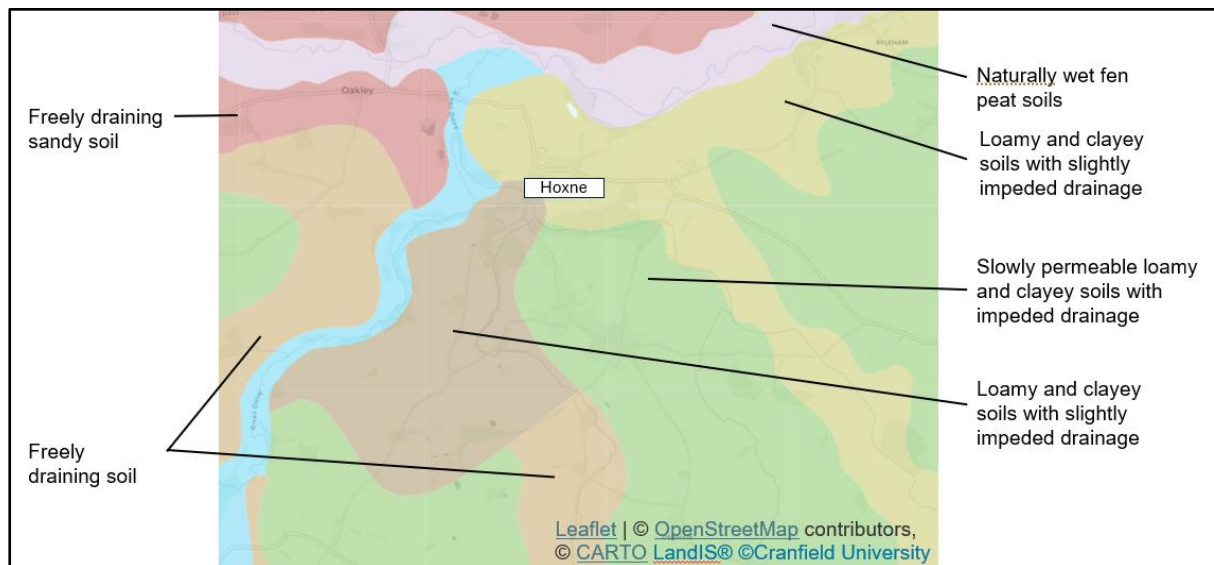


Figure 8. Hoxne and surrounding soils (LandIS Soilscape)

With regards to soils, Hoxne is situated mostly on sand and gravels with a mixture of clay and silts. To the east and immediately south of the village they are described as loamy and clayey, with impeded drainage. To the west and further due south of Hoxne village, soils are more freely draining, allowing water to permeate more rapidly and therefore reducing the amount of surface water run-off. The floodplain soils surrounding the Gold Brook and Chickering Beck watercourses usually have naturally high groundwater and tend to be wetter.



Figure 9. Superficial geology (BGS Geology Viewer)

Lowestoft Formation 'Diamicton' surrounds the village more generally which is described by the British geological survey as a diverse mixture of clay, sand, gravel, and boulders varying widely in size and shape. This generally has a low permeability meaning water will tend to flow off it before it can be infiltrated, which reflects some of the reports from the Storm Babet event.



## Flooding Source(s), Pathway(s) & Receptor(s)

The low-lying nature of areas of Hoxne, with several surface water flow paths and the low permeability of surrounding soils, make it susceptible to flooding events in extreme rainfall. Storm Babet was an extreme event which came at a time when Suffolk had experienced a significant amount of rainfall in the preceding week.

Storm Babet delivered significant rainfall in the Hoxne area catchment between 19 and 20 October. The nearest rainfall gauge to Hoxne is in Stradbroke (approx. 5 miles southeast of Hoxne). At the Stradbroke rainfall gauge there was 50.15mm of rain recorded over a period of 18hrs between 19 Oct 21:30 and 20 Oct 15:15. 26.55mm (more than half) of rainfall was received over 4hrs on the morning of 20 October.

The description of the flood events outlined below has been prepared using reports submitted to Suffolk County Council via the online Highways Reporting Tool and information gathered by Risk Management Authorities (RMAs) and the community. Detailed descriptions of each investigation area can be found in the following section.

### 1. Green Street

Following prolonged heavy rainfall on the morning of 20 October large amounts of surface water began pooling on the highway along Green Street near to the entrance to Church Close. Houses were flooded internally, primarily from the front due to the sheer amount of floodwater flowing off the highway towards properties over the low kerbs and across driveways (see Figure 10). Some of the properties also experienced additional flooding from the rear as surface water flowed from higher gardens south of Green Street. The large volume of floodwater on the road likely meant that the existing highway drainage assets were overwhelmed.



Figure 10. Approximate floodwater flow routes on Green Street

Suffolk Highways are aware of historic flooding on the carriageway and footway on Green Street. Previous flooding has been known to take several days to clear. Initial investigations have indicated a possible break between a drainage gully and manhole. Further work to improve the situation at this location is in Suffolk Highways future programme.

In summary:

- Intense and prolonged rainfall resulted in excess surface water flowing off the highway towards several properties.
- Existing drainage assets on the highway were overwhelmed.
- Known issues with highway drainage assets in the area may have contributed to the problem.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Suffolk Highways future works programme to locate and repair / replace damaged drainage assets on Green Street to be carried out.
- Investigate highway drainage infrastructure on Green Street generally to ensure capacity and condition are sufficient.

## **2. Low Street**

Excess surface water from the rainfall flowed down the gradient from the north end of Low Street towards the Swan bridge area. The highway gullies on the west side of Low Street were seen to be clogged with fallen leaves inhibiting drainage. On 20 October from 9:30am water was surcharging from the manhole in front of the Swan pub indicating the surface water drainage system was already reaching capacity and/or may have become blocked with the floodwater debris. This surcharging water was merging with the surface water flowing down Low Street, pooling across the highway to the pub, swan bridge and along Sandpit Lane (see Image 3).

The Gold Brook watercourse overtopped its banks with the fields and areas either side of the watercourse upstream of the bridge extensively flooded (see Figure 11). Swan bridge acted as a constriction to the large volume of water flowing down the catchment from the Gold Brook and Chickering Beck watercourses. The floodwater flowed across gardens with multiple properties suffering internal flooding ranging from 10 to 45cm deep. As the floodwater continued to back up at Swan bridge, a torrent of water flowed from Sandpit Lane across Low Street and into the Swan pub carpark (see Image 4). By 4:00pm the entire area was submerged as the floodwater extended and merged with the surface water from the highway. The highway drainage assets and infrastructure in this location were overwhelmed and could not discharge into the already overfull watercourse. Residents have reported that the flood water level on Low Street peaked around 8:30pm and at 9:15pm the electricity on Low Street went off.



Figure 11. Approximate floodwater flow routes on Low Street

The floodwater began to recede during the night of 20 October and by the morning of Saturday 21 October the water on Low Street was gone. Some of the properties on Low Street reported to have flooded internally again during Storm Ciaran (1 - 2 November 2023).

In summary:

- Intense and prolonged rainfall resulted in excess surface water flowing down the highway on Low Street, merging with surcharging water from a manhole and pooling around the Swan pub and bridge area.
- The Gold Brook watercourse overtopped its banks whilst the high flows in the channel backed up at Swan bridge.
- By late afternoon, a wide area was entirely submerged as the floodwater flowed in a torrent across Sandpit Lane and into the Swan pub carpark.
- Existing drainage assets on the highway were overwhelmed.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Investigate the capacity and condition of highway drainage infrastructure and Anglian Water assets on Low Street, particularly the area in the vicinity of the Swan pub.
- Report any observed blockages below Swan bridge on the Suffolk Highways Online Reporting Tool.
- Landowners to carry out watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities.

### 3. Abbey Hill

Abbey Hill was predominantly impacted by fluvial flooding from the Chickering Beck and Gold Brook watercourses, the confluence of both is just north of Abbey Hill. Chickering Beck on the morning of 20 October was swollen by heavy rainfall and overtopped towards the properties to the south. Floodwater flowed across gardens from approximately 11:30am and started to enter houses from the early afternoon onwards (see Image 2). The Gold Brook also overtopped across the surrounding fields and flowed onto Abbey Hill, effectively surrounding properties in floodwater and additionally flooding some houses internally from the front. Surface water on the highway running down the hill also contributed to the flooding. National flood risk mapping indicates parts of Abbey Hill to be at medium risk (between 1% and 3.3% chance each year) from fluvial flooding and at high risk (more than 3.3% chance each year) from surface water flooding.

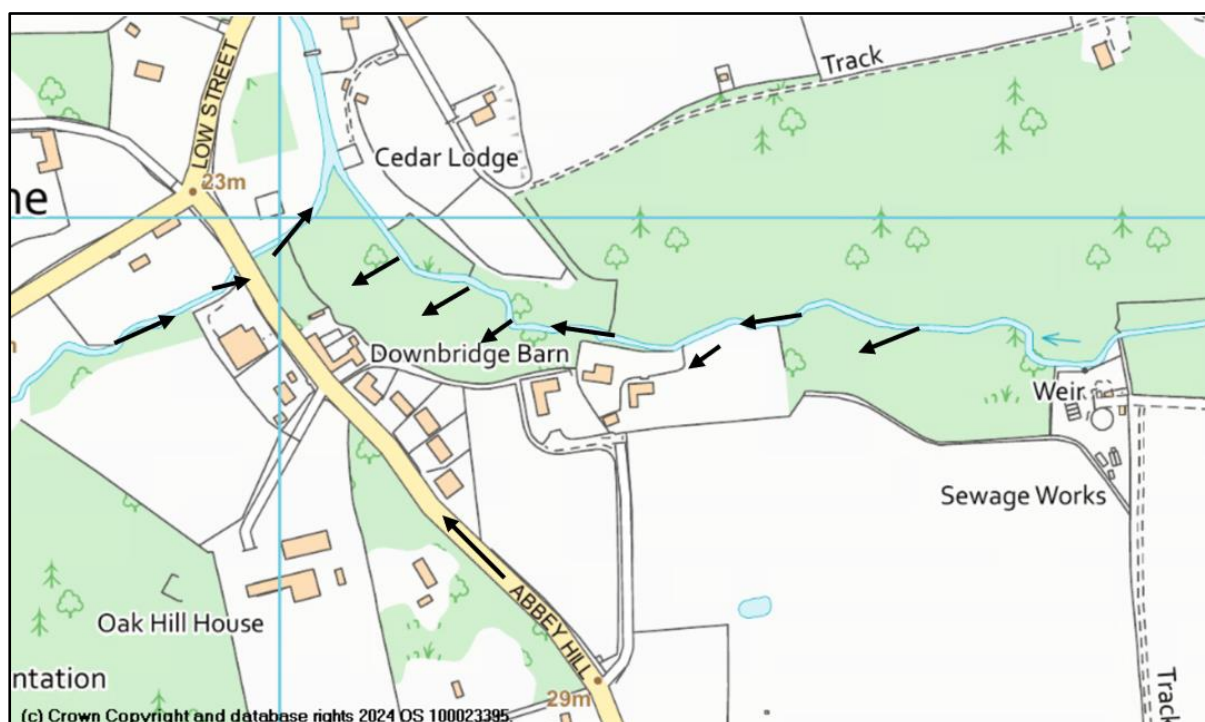


Figure 12. Approximate floodwater flow routes on Abbey Hill

The increasing volumes of floodwater on the road meant that the highway drainage assets were overwhelmed and could not drain the water away. Residents have reported that the gullies were ineffective due to silt build-up and blockages.

Suffolk Highways are aware of pre-existing problems on the carriageway along Abbey Hill with gullies frequently blocking and root ingress being a known problem. Investigations carried out by Suffolk Highways post Storm Babet found multiple silted gullies that required clearing.

In summary:

- Intense rainfall resulted in Chickering Beck and Gold Brook watercourses exceeding their capacity and overtopping.
- Floodwater spread across surrounding fields and gardens impacting multiple properties along Abbey Hill.
- Surface water on the highway flowed down Abbey Hill towards properties.
- Existing drainage assets on the highway were overwhelmed.
- Pre-existing issues with highway drainage assets in the area may have contributed to the problem.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Investigate potential NFM projects to 'slow the flow' and attenuate water on overland flow paths (leaky dams, restoration of watercourses, etc.) east of Abbey Hill.
- Report any observed blockages below Gold Brook bridge on the Suffolk Highways Online Reporting Tool.
- Landowners to carry out watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities.

#### **4. Eye Road**

Internal property flooding caused by excess surface water from the highway was reported on Eye Road. Reports attributed blocked highway drains and a lack of roadside ditch maintenance as factors in the flooding. Sections of Eye Road are shown as being at medium to high risk from surface water flooding on the national flood risk mapping.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Landowners to carry out any ditch or watercourse maintenance to reduce flood risk on Eye Road as per their riparian responsibilities.
- Ensure the completion of highway drainage asset cyclic maintenance on Eye Road.



## 5. Nuttery Vale

Properties on Nuttery Vale suffered internal flooding when the Gold Brook watercourse exceeded capacity and overtopped. The Gold Brook watercourse runs along the bottom of a valley at this location with surface water run-off from the surrounding fields overwhelming the relatively small channel. The Nuttery Vale road bridge also acts as a permanent constriction and reduces the conveyance capacity of the channel. Some buildings reported up to 60cm of water flooding internally.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Investigate potential NFM projects to 'slow the flow' and attenuate water on overland flow paths (leaky dams, restoration of watercourses, etc.) south of Nuttery Vale.
- Report any observed blockages below Nuttery Vale road bridge on the Suffolk Highways Online Reporting Tool.
- Landowners to carry out watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities.

## 6. Cross Street

On Cross Street multiple properties were impacted by surface water flooding. During the morning of 20 October heavy rainfall resulted in large volumes of floodwater pooling on the road in different locations as the highway drainage gullies and sewer infrastructure reached capacity.

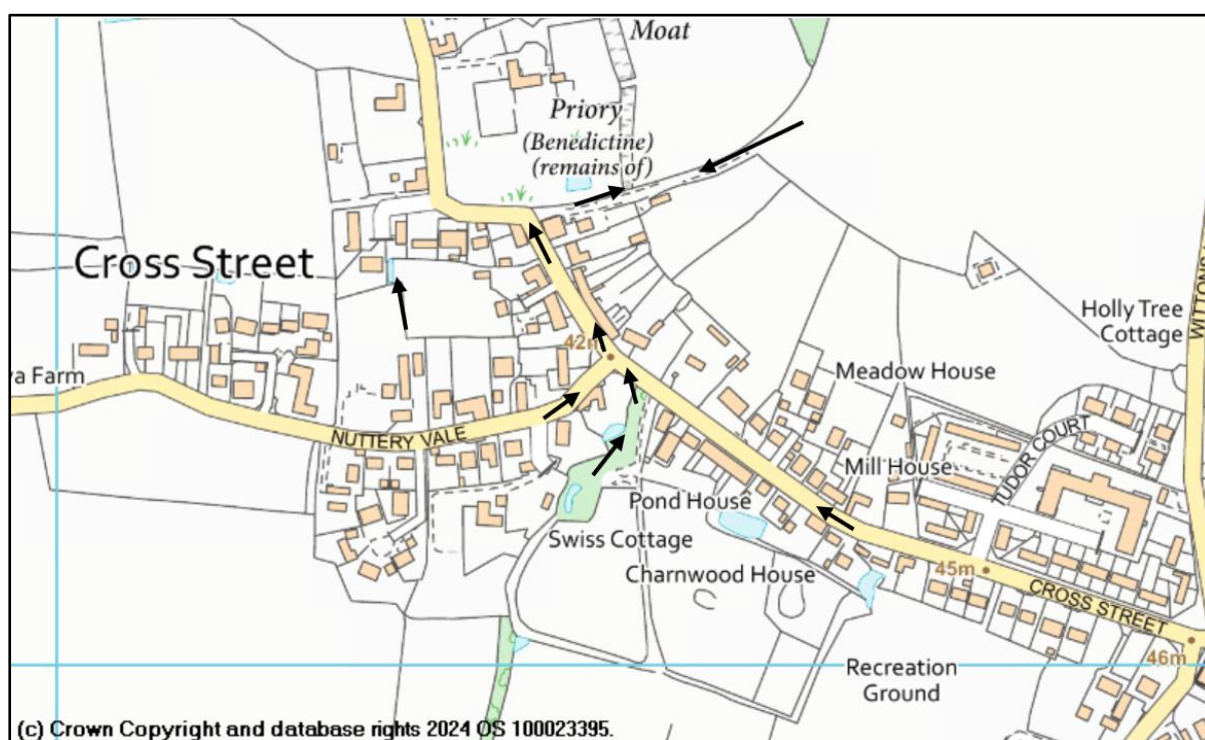


Figure 13. Approximate floodwater flow routes on Cross Street



Residents reported a number of manholes on Cross Street were surcharging and bubbling up with a mixture of foul water and rainwater in the middle of the street. Several reports indicated that almost all the roadside gullies were blocked and/or overwhelmed and failed to drain the increasing amounts of surface water from the highway.

Additional surface water flows originating from the fields to the northeast flowed into the ditch behind the properties to the north of Cross Street. This surface water run off filling the ditch reduced the effectiveness of the highway drainage assets and added to the flooding. The national flood risk mapping shows large sections of Cross Street and the adjoining Nuttary Vale to be at medium to high risk of surface water flooding (see figure 14).



Figure 14. Surface Water flood risk on Cross Street and Nuttary Vale

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Investigate potential NFM projects to 'slow the flow' and attenuate water on overland flow paths (leaky dams, restoration of watercourses, etc.) north of Cross Street.
- Ensure the completion of highway drainage asset cyclic maintenance on Cross Street.
- Landowners to carry out watercourse/ditch maintenance to reduce flood risk as necessary as per their riparian responsibilities.
- Investigate highway drainage and sewer infrastructure on Cross Street generally to ensure capacity and condition are sufficient.

## **7. Denham Low Road**

On Denham Low Road internal flooding to property was caused by the Gold Brook river overtopping its banks and flowing across the surrounding fields. Large amounts of surface water coming off the fields following heavy rainfall on the morning of the 20 October overwhelmed the capacity of the river channel. Residents reported the view that the rate of flow coming into the channel has dramatically increased over the past ten years following improvements to land drainage across the catchment.

The road bridge on Denham Low Road may also be a contributing factor to the flooding, acting as a pinch point reducing the conveyance capacity of the channel. Following heavy rainfall, the Denham Low Road highway regularly becomes impassable for traffic.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Investigate potential NFM projects to 'slow the flow' and attenuate water on overland flow paths (leaky dams, restoration of watercourses, etc.) south and parallel of Denham Low Road.
- Report any observed blockages below Denham Low Road bridge on the Suffolk Highways Online Reporting Tool.
- Landowners to carry out watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities.

## **8. Chickering Road**

Internal property flooding on Chickering Road occurred when the Chickering Beck watercourse overtopped and floodwater spread across the surrounding fields. Large amounts of surface water coming off the fields and surrounding catchment following heavy rainfall on the morning of the 20 October overwhelmed the capacity of the channel. Various sections of Chickering Road are shown to be at risk of fluvial flooding on the national flood mapping.

LLFA recommended action(s):

- Residents to install Property Flood Resilience (PFR) via grant funded scheme.
- Investigate potential NFM projects to 'slow the flow' and attenuate water on overland flow paths (leaky dams, restoration of watercourses, etc.) south of Chickering Road.
- Landowners to carry out watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities.

## Images of Flooding

Photos included in the report have been submitted via a range of sources, including customer reports, community information and by Risk Management Authorities. The use of photos has been included in good faith to support the investigation and provide further context of the flood event.



*Image 1. Flooding outside the Post Office on Low Street*





*Image 2. Flooding from Chickering Beck watercourse*



*Image 3. Looking towards Swan bridge*



*Image 4. Looking towards the Swan pub carpark*

## Risk Management Authorities, Non-Risk Management Authority and flood risk function(s)

The following section acknowledges both RMA's and Non-RMA's relevant to Hoxne and provide an overview of their flood risk functions. The table has been compiled from information collated as part of the investigation. It is not exhaustive and it should be acknowledged additional organisations and groups may be active within the community.

<b>Risk Management Authority</b>	<b>Relevant Flood Risk Function(s)</b>
Suffolk County Council	Lead local Flood Authority (LLFA), Highways Authority & Asset Owner
The Environment Agency (EA)	Lead organisation for providing flood risk management under its permissive powers and issuing warnings of flooding from main river
Anglian Water	Asset Owner
Internal Drainage Board (IDB)	Supervising land drainage and flood defence works on ordinary watercourses
Mid Suffolk District Council (MSDC)	Local Planning Authority (LPA) & Asset Owner
<b>Non-Risk Management Authority</b>	<b>Relevant Flood Risk Function(s)</b>
Private Landowners	Riparian Responsibilities and management of water from land or watercourses
Private Homeowners	Riparian Responsibilities and improving flood resilience to property
Hoxne Parish Council	Manage flood risk at a community level, prepare and produce flood action plans and maintain watercourses where present on land they own



## Action(s) completed by publication:

The following section acknowledges actions that RMA's and Non-RMAs have implemented or are currently in progress since Storm Babet and prior to publishing of this report.

Action	Responsible Party	Progress
Offer of Property Flood Resilience (PFR) measures to the properties that flooded during Storms Babet	Suffolk County Council Lead Local Flood Authority	Ongoing
Green Street is recorded on Suffolk Highways Flood Site register. Future works will be programmed as budgets and resources allow.	Suffolk County Council Highways Authority	Ongoing
Extensive investigations including jetting and CCTV survey were carried out in on Abbey Hill in 2023. This site is recorded on Suffolk Highways Flood Site register. Future works will be programmed as budgets and resources allow.	Suffolk County Council Highways Authority	Ongoing
The gullies and drainage features on Cross Street and Eye Road had an annual cyclic cleanse in June 2024.	Suffolk County Council Highways Authority	Complete
Undertaken additional watercourse maintenance using permissive powers to clear debris including fallen trees and silt removal.	Internal Drainage Board (IDB)	Complete with additional silt removal scheduled for autumn 2024.

## LLFA Recommended Action(s):

The following section provides a range of flood mitigation measures that could be implemented to reduce the risk of flooding in Hoxne. They have been derived from data and evidence collated as part of the report and have been included having been considered realistic in their implementation. The implementation of actions falls to the responsible party. Progress on the action will be monitored by Suffolk County Council but it should be acknowledged that the council has limited powers to enforce the implementation of recommended actions.

Action	Responsible Party	Timescale for response	Latest Progress Update for Actions – April 2025
<b>Short Term Actions</b> (e.g. standard maintenance activity and initial investigation of options that can be undertaken with limited need for forward planning)			
Establish a Community Emergency Plan that includes plans to manage future flood events –Liaison with Suffolk Joint Emergency Planning Unit	Hoxne Parish Council	6 months	<b>Ongoing</b> Support being provided by BMSDC emergency planning team.
Maximise the take up of the £5k PFR Grant currently available to residents before the April 2025 deadline	SCC LLFA / Residents	7 months	<b>Complete</b>  DEFRA PFR Grant has now closed for new applications. Installation of PFR measures on approved applications has been extended to December 2025.  Further information on PFR measures can be found within SCC published " <a href="#">Flood Smart Living</a> " handbook.

Understand the annual event probability of the rainfall & river flow across the region	EA	6 months	<b>Completed</b>  The Environment Agency have completed a piece of work which looked to establish the annual probability of Storm Babet and Storm Ciaran. This short report summarises the findings of a hydrological study which looked at the context, magnitude and rarity of the rainfall and river flows during these two events. You can read this information in the <a href="#">Autumn 2023 East Anglian Flood Hydrology Investigation Report</a> .
Ensure riparian landowner responsibilities are understood in regard to watercourse management in Hoxne	SCC LLFA, IDB, Landowners	6 -12 months	<b>Complete</b>  SCC published “Flood Smart Living” web guide and handbook designed to increase flood resilience for residents, landowners and communities, December 2024 <a href="#">Flood resilience - Suffolk County Council</a>
Ensure the completion of highway drainage asset cyclic maintenance across Hoxne. Key areas include Green Street, Low Street, Abbey Hill, Eye Road and Cross Street	SCC Highways Authority	Annually	<b>Green Street.</b>  The drainage network along Green Street has three critical issues with three buried outfalls (Gully 60037430, Gully 60149518, and Catchpit 602557250) that slow down discharge, alongside minor issues with buried and obstructed assets (Catchpits 60334746/60334879 and Manhole 60334889). Immediate excavation, reinstatement, and ditch regrading are required to restore functionality. The works are planned for delivery in May.

			<p><b>Low Street</b></p> <p>The network was jetted and cleared with no defects identified. The network is fully operational.</p> <p><b>Abbey Hill.</b></p> <p>Drain cleaning works successfully cleared heavy blockages and improved water flow. Several issues were identified during the works, including a half-buried drainage outlet (60204601) behind Gold Brook Cottage causing water to back up onto the carriageway, a collapsed pipe (ID 60335637), a damaged but partially functioning drain (ID 60335638), and a narrowed ditch channel. Immediate blockages have been cleared, and plans are in place to liaise with the homeowner to address the buried outlet, while larger repairs to the damaged pipes will be scheduled separately.</p> <p><b>Eye Road</b></p> <p>Planned works at Eye Road, Hoxne involve clearing and cleaning the drainage channel 60321049 upstream towards its outfall to improve water flow. A camera survey will be carried out during the cleaning to check the condition of the pipe. In addition, two nearby gullies and one catchpit will also be cleaned and checked to make sure they are working properly. Civil works targeted at replacing collapsed channel 60291776 and replacing covers on 3 assets will be conducted.</p>
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			<b>Cross Street</b> Within the Cross Street catchment, there are four defective assets. The defects that result in slow running or non-operation may be attributed to the main carrier network. Additionally, the defects affect the assets upstream on Heckfield Green. Jetting and survey works have been arranged and will be delivered by May 2025.
Suffolk Highways future works programme to locate and repair / replace damaged drainage assets on Green Street to be carried out.	SCC Highways Authority	6 - 12 months	<b>Ongoing</b>  Estimated completion by July 2025.
Community Self Help scheme to enable small scale clearance of drainage assets and deployment of flood warning signs.	Parish Council / SCC Highways Authority	6 -12 months	<b>Ongoing</b>  Parish Council to liaise with Highways Authority should they wish to pursue with the scheme - <a href="#">Community Self-Help Scheme - Suffolk County Council</a> .
Landowners to carry out roadside ditch / watercourse maintenance to reduce flood risk as necessary as per their riparian responsibilities.	Landowners, IDB	6 - 12 months	<b>Ongoing – as required.</b>  IDB have used their permissive powers to undertake de-silting of the watercourse known as the Gold Brook in and around Hoxne. This was completed over the 2024/25 winter period.
Report any observed blockages below the road bridges over the watercourses on the Suffolk Highways Online Reporting Tool.	Landowners, IDB, SCC Highways	N/A	<b>Ongoing – as required.</b>  Highway Authority - The existing culverts along the watercourse are clear with no major obstructions visible.  IDB – ongoing as required

<b>Medium Term Actions</b> (e.g. longer planning timescales and potential need to source funding but potential for greater impact)			
Investigate potential NFM projects to 'slow the flow' and attenuate water on overland flow paths affecting Low Street, Abbey Hill, Nuttery Vale, Denham Low Road, Chickering Road. E.g. leaky dams, restoration of watercourses	SCC LLFA, EA, IDB, Landowners	12 - 24 months	<b>Ongoing</b>  Waveney Rivers Trust have been in discussion with Hoxne PC to explore opportunities for NFM. Multiple site visits have occurred with local residents and landowners. Further community events are proposed to further identify and develop opportunities for NFM. The Waveney Rivers Trust are also in contact with the Woodland Trust and other interested parties, for example the IDB, EA and SCC about a potential NFM scheme upstream of the Chickering Beck.
Investigate highway drainage infrastructure to ensure capacity and condition are sufficient in worst affected areas. Key areas include Green Street, Low Street, Abbey Hill, Eye Road and Cross Street	SCC Highways Authority	12 - 24 months	No updated expected at this time.
Investigate the surface water sewer network and associated Anglian Water assets on Low Street and Cross Street to check condition and ensure effectiveness	Anglian Water	12 months	No updated expected at this time.
Investigate potential viability and seek funding for projects	SCC LLFA, EA, IDB, Landowners	12 - 24 months	No updated expected at this time.



which aim to attenuate water in the upper catchments e.g. storage ponds, wetland areas.			
Investigate opportunities to update development plan policy in Neighbourhood Plans or any potential Joint Local Plan site allocation(s) which identify risks and opportunities to mitigate flood risk issues as development comes forward	Local Planning Authority, SCC LLFA	12 months+	No updated expected at this time.
<b>Long Term actions</b> (significantly longer timescale and budget required with potentially greater positive impact)			
Deliver improvements to highway drainage network to manage surface water flows if investigation works suggest it is beneficial and viable.	SCC Highways Authority	TBC	No updated expected at this time.
Installation of NFM features within upper catchments to attenuate and slow flood water if investigation works suggest it is viable.	SCC LLFA, EA, IDB and Landowners	TBC	No updated expected at this time.
Deliver any capital interventions that are economically, technically and environmentally feasible and acceptable to improve the flood resilience of the village.	SCC LLFA, EA and Landowners	TBC	No updated expected at this time.

## Approval

This report will be reviewed and updated every 6 months until actions are marked as complete.

Reviewer	Date of Review
Ellie Coleby	02/06/2025

## Disclaimer

This report has been prepared and published as part of Suffolk County Council's responsibilities under Section 19 of the Flood and Water Management Act 2010. It is intended to provide context and information to support the delivery of the local flood risk management strategy and should not be used for any other purpose.

The findings of the report are based on a subjective assessment of the information available by those undertaking the investigation and therefore while all reasonable efforts have been made to gather and verify such information may not include all relevant information. As such it should not be considered as a definitive assessment of all factors that may have triggered or contributed to the flood event. Should there be additional information available to develop the report, please email to [floodinvestigations@suffolk.gov.uk](mailto:floodinvestigations@suffolk.gov.uk)

The opinions, conclusions and recommendations in this Report are based on assumptions made by Suffolk County Council when preparing this report, including, but not limited to those key assumptions noted in the Report, including reliance on information provided by third parties.

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The implications for producing Flood Investigation Reports and any consequences of blight have been considered. The process of gaining insurance for a property and/or purchasing/selling a property and any flooding issues identified are considered a separate and legally binding process placed upon property owners and this is independent of and does not relate to Suffolk County Council highlighting flooding to properties at a street level. Property owners and prospective purchasers or occupiers of property are advised to seek and rely on their own surveys and reports regarding any specific risk to any identified area of land.

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## Appendix A – Indicative locations for NFM and watercourse

