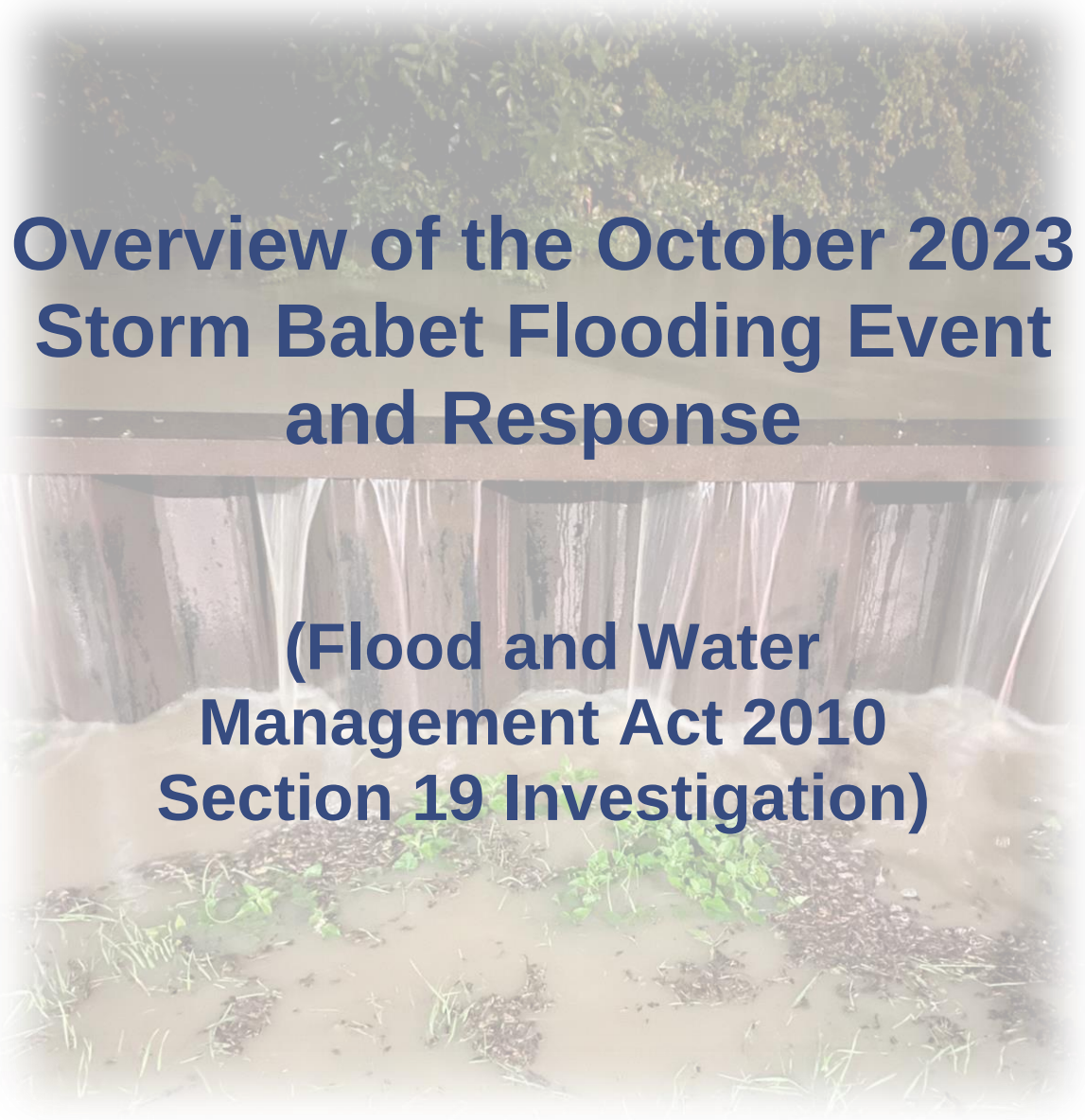
Appendix 1

Rotherham Metropolitan Borough Council



Overview of the October 2023 Storm Babet Flooding Event and Response

(Flood and Water Management Act 2010 Section 19 Investigation)

Addressed to Residents and Risk Management Authorities (RMA's)

Title: Publication of the Section 19 Report and Community Flood Information Relating to Storm Babet October 2023.

Rotherham Metropolitan Borough Council, as the Lead Local Flood Authority (LLFA), has a responsibility under Section 19 of the Flood and Water Management Act 2010 to investigate significant flood incidents in its area. Section 19 states:

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.

Information included:

- Section 19 Flood Investigation – Legislative information around flood risk management responsibility and technical in nature and language.
- History of Flooding – Previous flood events and impacts
- Connected by Water update – Partnership working across the full catchment of South Yorkshire
- Flood Alleviation Scheme Update – 6 priority flood alleviation schemes and what has been built at present.
- Community Flood Information Sheets – Localised flooding information specific to your community relating to Storm Babet (October 2023) this will include works that have been delivered, and future works to reduce flood risk within the community.

Contents

Rotherham Metropolitan Borough Council

Part One: General Overview of the October 2023 Flooding Event and Response

Executive Summary

Storm Babet

Between the 18th and 21st of October 2023, Storm Babet brought major flooding to many areas across the UK. Some central and eastern parts of England recorded more than twice the October whole-month average rainfall in the first three weeks of the month.

Multiple severe flood warnings were issued by the Environment Agency across the country. Over 1000 homes in England were affected by flooding across Yorkshire, Derbyshire, the East Midlands and the Humber area. Sadly at least seven people were reported to have lost their lives across the Country as a result of the storm.

Yorkshire recorded its wettest 3-day period on record. This rain came after the area had already experienced very wet weather earlier in October.

The weather system which brought Storm Babet to the UK was unusual, meaning the accuracy for forecasting the intensity and movement of the event was challenging on a national, regional and local level. Atlantic storm systems affecting the UK in the autumn and winter months normally track west to east driven by the jet stream, clearing eastwards fairly quickly. In contrast, this storm was on an unusual track from south to north, enabling it to pick up additional moisture as it crossed the Bay of Biscay. Babet was also unable to clear eastward into the North Sea due to a blocking area of high pressure across Scandinavia. The rain-bearing fronts therefore remained stationary across eastern Scotland for a prolonged period before moving back across England and Wales, concentrating prolonged, intense and heavy rain over many areas.

Impact on Rotherham

The additional heavy rainfall during Storm Babet caused surface water flooding, and extensive road closures were needed around the Borough. In total 182 homes and 9 business were impacted by internal flooding. The community most affected by flooding were Catcliffe and Treeton Villages from the River Rother, where 148 properties were flooded, and many residents evacuated from their homes. Whiston also had significant number of properties impacted with 11 residential homes suffering internal flooding and Laughton Common was similarly affected with 7 residential properties suffering internal flooding, as did 16 further properties spread across the Borough.

The financial and emotional costs of both the immediate impact and longer-term consequences of this flooding to those residents and business owners affected cannot be underestimated. For many it has meant moving out of properties for long periods, bringing additional stress and financial burden to an already heartbreaking situation. For residents who live in areas at high risk of flooding, moving back into properties will bring anxiety relating to possible risk of future flooding due to

evermore unpredictable high intensity rainfall events, exacerbated by climate change.

Response and Recovery

From the arrival of Storm Babet to the UK and ahead of any localised impacts, the Council had carried out a critical list of cleansing activities around known flooding hotspot areas to ensure that surface water could escape promptly. The Council also set up a 24-hour rota for the Drainage and Highways Team and liaised extensively with the Environment Agency and other partners, to ensure that there was a shared understanding of the storm event. The Council deployed staff to monitor river levels, watercourses and rainfall data on the ground, across the Borough. Whilst it is important to note that main rivers such as the River Rother are the responsibility of the Environment Agency, the Council did maintain oversight of all sites across the Borough.

At 09:00 on Friday 20 October, the Council held a readiness meeting to ensure all relevant Council services were prepared for the upcoming rainfall event in Rotherham. This was due to concerns following the Met Office issuing an Amber weather warning. The Council's tactical management meetings continued to be held hourly following the readiness meeting and throughout the event and into recovery. At 10:00 Council officers set up pumps at Catcliffe to over pump surface water from the catchment area, which is standard practice in such events.

The Council called a meeting with the South Yorkshire Local Resilience Forum, which took place at 14:00, bringing together The Council, Environment Agency, Fire and Rescue, Police and other Local Resilience Forum members, following which a Multi-Agency Major Incident for South Yorkshire was declared at 17:32. A major incident is defined as an event which is likely to involve serious harm, damage, disruption or risk to human life or welfare.

At 10:30am on the 20th October a multi agency flood advisory service call was received by the Environment Agency updating all on the forecast rainfall and operational activities. Following this at 22:00, the Council called a local meeting between the Council and The Environment Agency (EA) in which the EA stated that the peak flow, which means the highest levels of water in the River Rother had passed and water levels were due to fall at 02:00 on Saturday 21st October, and levels were not expected to reach the top of the flood wall at Catcliffe.. Notwithstanding this latest information provided by the EA, the Council remained on site closely monitoring river levels and undertaking pumping operations. The Council continued to deploy relevant staff to monitor or take actions in various areas across the Borough.

At approximately 02:15 on Saturday 21st October, Council employees on site at Catcliffe, who were managing the surface water pumps at the side of the River Rother, noticed water seeping from the river through the vertical slots in the metal sheet piling and beginning to pond on Orgreave Road. This flooding rendered the surface water pumps ineffective due to them being deployed for surface water flooding and not river flooding. Officers raised the alarm with Senior Management in

the Council regarding the rising water levels and the potential for the River Rother to overtop the defence wall. In such circumstances, the Council, as well as other partners, have a legal duty to 'Warn and Inform' the public of the risks. In order to fulfil these responsibilities and ensure residents safety, the Council worked closely with the Fire and Rescue Service on site to take immediate action and provide advice to properties at risk in the area.

Council employees and the Fire and Rescue Service advised Catcliffe residents to evacuate their homes.

The Council, working with the Parish Council, established Catcliffe Memorial Hall as a rest centre for evacuated residents. Council Officers were deployed at the hall to provide immediate welfare, transport, assistance and support.

The actual peak flow of water in the River Rother remained at its highest level until 23:59 on Saturday 21st October 2023, 22 hours after the predicted peak level given by the Environment Agency. Tactical co-ordination meetings continued to be held by the Environment Agency throughout the 21st and 22nd of October

The South Yorkshire Multi Agency Major Incident was stood down at 12:32 on Tuesday 24th October 2023, due to flood levels continuing to recede and the threat of flooding diminishing. It is important to note that a Major Incident covers the period of acute response to an incident. When the Major Incident is stood down, a Recovery Process begins or continues. Throughout the incident and in the following days, the Council continued to increase its resources on the ground, with Council Officers based at Catcliffe Memorial Hall providing residents with welfare and practical support, and wider services mounting a significant clean-up operation to restore critical infrastructure and public areas.

Citizens Advice Rotherham, RotherFed, The Environment Agency and Voluntary Action Rotherham were also in attendance at Catcliffe Memorial Hall to offer support to residents affected by the flooding.

During the flooding response and recovery, the Council supported 162 visitors at the Memorial Hall rest centre until it was finally stood down at the end of February 2024 as a result of reduced demand for support from residents.

Further to the support and advice offered at the Memorial Hall rest centre, Council officers worked around the clock to deliver an ongoing programme of recovery: -

- Providing immediate housing support and advice as well as temporary accommodation for 17 households and longer-term relocation for 8 households into Council Housing.
- Ensuring the provision of crisis food to meet resident needs.
- Providing a dedicated store and distribution hub for Personal Protective Equipment (PPE) which was made freely available to affected residents (distributing over 5000 items of PPE).
- Managing donations of and the distribution of much needed clothing.

- Carrying out Health and Wellbeing visits (door knocks) direct to residents' homes.
- Setting up an onsite collection point at Catcliffe Memorial Hall where additional supplies were stored for residents to use.
- Organised the process for financial donations from local businesses and community groups, direct to residents for aid in recovery.
- Providing regular updates and signposting further advice and support through ward e-bulletins and across its digital channels.
- Deploying Grounds Maintenance and Street Scene operatives for over 1,800 hours to aid the recovery operation around the Borough to:
    - Provide assistance with the clean-up and removal of damaged goods from homes and businesses.
    - Carry out daily road sweeping activities and cleansing and maintenance of Council land.
    - Provide community skips for the disposal of flood damaged items (in place until the end of January, removing over 32 tonnes) and providing additional follow-up street cleansing in affected areas.
- Set up a dedicated webform for residents who still had damaged flood items left to dispose of to request their removal.
- Distributed £181,000 of grants to residents from local Council and Government grant schemes to support recovery.
- Granted a total of 204 properties Council tax discount.

The Council has also invested £11.3 million to progress the 6 priority flood alleviation schemes, the details of which feature in the following section.

The Community Flood Information Sheets provide more in-depth detail of the event in each affected area. This document also contains the Section 19 Report which the Council (acting as LLFA) has a statutory duty to produce and details the source of flooding and if the relevant risk management authority carried out its duty appropriately.

Summary of Next Steps by Area

Within the document several options have been considered for reducing flood risk for the areas affected by Storm Babet. A brief overview is highlighted below, the full explanation of the options can be found in the Community Flood Information Sheet for each area.

Catcliffe

Options to reduce the risk of future flooding are currently being investigated, and the Council is committed to funding three option appraisals to determine the most effective solution. These studies will be conducted as a desktop analysis to identify the best approach and are expected to be completed within 12 months. Following this, consideration will be given to the benefits of bringing the chosen option to a completed design, which will include:

- The feasibility study (a study to determine the viability and the benefits)
- Surveys and investigations for ecology, environmental, topographic and ground conditions
- Calculations
- Scheme design drawings (outline and detailed)
- Third party approvals (Environment Agency, utility companies, etc.)
- Landowner agreements
- Planning applications

Similar complex flood alleviation schemes have been delivered through the Councils 'Shovel Ready' project and have taken 3 years to reach pre construction detailed design.

Option 1 Upstream storage of storm water outside of the Rotherham catchment area to reduce peak flows of water within the River Rother.

Option 2 Increase the standard of protection defences around Catcliffe and Treeton Village.

Option 3 Alterations to the existing bridge on Treeton Lane to improve the flow path of the River Rother.

A Flood Alleviation Scheme to construct a new pumping station will have all designs and plans completed by April 2025. The pumping station will over pump surface water from the catchment area into the River Rother when levels in the river make this unachievable naturally (by gravity feed). This scheme will not reduce the risk of flooding from the River Rother but automate the existing pumping regime and allow better use of the Councils resources.

At present, funding for the construction phase has not been secured. Nevertheless, the Council is actively seeking funding from various sources to facilitate the construction of this scheme.

Whiston

A Flood Alleviation Scheme will start in late 2025, subject to approvals and legal agreements. The scheme aims to provide upstream storage of storm water, natural flood management measures and watercourse improvements to help mitigate flooding in Whiston.

Laughton Common

A Flood Alleviation Scheme will start in late 2025, subject to approvals and legal agreements. The scheme aims to provide upstream storage and watercourse improvements to help mitigate flooding in Laughton Common.

Various Other Affected Areas

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised to avoid internal flooding over area flooding. Initial investigations have been carried out and schemes are currently being designed.

Incident Overview by Area

The Council is responsible as the Lead Local Flood Authority for managing and investigating surface water, ordinary watercourses and groundwater flooding. The Environment Agency is responsible for managing and maintaining all main rivers including the River Rother.

Catcliffe

On the 18th of October, Council officers were closely monitoring the emerging situation, with Senior Officers engaged in planning and overseeing related operational activities. On the 19th of October, Council Officers were despatched to Catcliffe to prepare a pumping operation. As the River Rother rises to a pre-determined level, a gate on the side of the river (called a Penstock) closes. The Penstock is operated and maintained by the Environment Agency. This was implemented after the devastating 2007 floods to prevent flooding from the surface water system. Without the Penstock, water from the river can flow in reverse back through the surface water pipes and out of road gullies. With the Penstock closed water is redirected into specially designed pumping chambers and the mobile pumps then lift the water out of these chambers, over the wall, and back into the river. Although Rotherham had experienced heavy rainfall during storm Babet, the pumps only needed to be operated intermittently initially. The Council were monitoring river levels around the borough at this time, and we were in regular contact with the Environment Agency and other key partners.

The Council continued to operate the mobile pumps throughout the 19th and 20th of October, and this controlled the level of surface water in the system, so preventing surface water flooding on roads affecting drives and homes.

At 22:00, the Council called a local meeting between the Council and The Environment Agency (EA) in which the EA stated that the peak flow, which means the highest levels of water in the River Rother had passed and water levels were due to fall at 02:00 on Saturday 21st October, and levels were not expected to reach the top of the flood wall at Catcliffe. Notwithstanding this latest information provided by the EA, the Council remained on site closely monitoring river levels and undertaking pumping operations. The Council continued to deploy relevant staff to monitor or take actions in various areas across the Borough.

The Council Staff on site who were managing the surface water pumps, witnessed water seeping from the river under the metal capping near the top of the sheet piled flood defence and beginning to pond on Orgreave Road at around 2:15am on the 21st of October.

The actual peak flow of water in the River Rother remained at its highest level until 23:59 on Saturday 21st October 2023, Tactical co-ordination meetings continued to be held by the Environment Agency throughout the 21st and 22nd of October 22 hours after the predicted peak level given by the Environment Agency. The Council's Principal Drainage Engineer was on site and, supported by Senior Officers working throughout the night to oversee the response Rotherham Council employees and the Fire and Rescue Service advised residents to evacuate their homes.

The river water then overtopped the capping of the flood defence wall at around 02:45am spreading across Orgreave Road and towards properties. The emergency services and Council Officers began evacuating properties at around 04:45am and the Council's pumps were disconnected at 5am and moved to higher ground.

In total 140 residential properties and 5 businesses were flooded in the Catcliffe. This was due to the River Rother overtopping the existing flood defence wall.

Treeton

In Treeton all three connecting roads were submerged by surface water flooding at points during Friday 20th October 2023. The route from Aughton along Treeton Lane / Wood Lane was still accessible by large vehicles or 4x4's. Council employees worked to fulfil sandbag requests received from concerned residents who witnessed flood water from the River Rother spreading further up Mill Lane and towards properties. 8 properties in Treeton were flooded from the River Rother.

Relevant to Catcliffe & Treeton

For Catcliffe and Treeton Villages the impacts of the flood have been devastating. The Council has met with the Environment Agency (EA) many times since October 2023 and continues to urge the EA to investigate what further defences can be implemented in Catcliffe and Treeton to reduce the risk of future events exceeding the existing defence.

The actual peak flow of water in the River Rother remained at its highest level until 23:59 on Saturday 21st October 2023, 22 hours after the predicted peak level given by the Environment Agency. The Council's Principal Drainage Engineer was on site and, supported by Senior Officers working throughout the night to oversee the response Rotherham Council employees and the Fire and Rescue Service advised residents to evacuate their homes.

Community feedback directed at the EA highlights concerns about the regulators managing the flow of the River Rother and whether these were operated effectively during storm Babet. The regulators are operated to prevent the River Rother peak

levels from coinciding with those of the River Don. If these peaks were to align, it could result in severe flooding in the centre of Rotherham and impact communities further along the River Rother corridor, extending in to Doncaster.
The 3 regulators are based in Canklow, Woodhouse Mill, and Meadowgate (which is in Rother Valley Country Park). During storm Babet, Meadowgate was undergoing necessary refurbishment and as such was out of commission. The other two regulators were operated during the event.

Since Storm Babet, The Environment Agency have modelled rainfall scenarios along the River Rother as part of their routine post incident investigation to demonstrating that having all three regulators working would not have prevented flooding to Catcliffe and Treeton. The intensity of the storm was over the 1 in 75 return period that exceeded the current Catcliffe flood defence wall. The Council will continue to work with the EA to seek more action to reduce the risk of flooding to properties where they hold the responsibility for managing flood risk. It is accepted that flooding can never be fully prevented, however the Council and the Environment Agency are committed to doing everything possible to ensuring communities are further protected, more resilient and at lower risk in future.

Whiston

Whiston Brook is classed as a main river and a rapid response catchment, and the Environment Agency has responsibility for managing flood risk.

Rainfall from Storm Babet landing on saturated agricultural catchment ground led to significant rises in the river level of Whiston Brook causing it to overflow. Internal flooding affected 10 properties from the river and 1 from surface water.

The Council worked throughout the period of Storm Babet delivering sandbags to try to protect properties. The scale of the event meant resources were stretched and some requests could not be fulfilled during the event. Sandbags offer limited protection, and it is likely that the flooding would have occurred regardless of the presence of sandbags; due to the high river levels and surface water flowing from already saturated ground.

Laughton Common

This area is surrounded by existing watercourses that flow through the housing estate and across Monksbridge Road in a mixture of culverted and open watercourses. The catchment is very flat with limited fall on the watercourses. During previous heavy rainfall events, water in the slow-moving watercourses rises and has regularly overtopped leading to flooding of properties. This has happened on many occasions prior to storm Babet.

During storm Babet the water level in Eel Mires Dike rose and exceeded the capacity of the watercourse leading to flooding of local roads and 7 residential properties.

The Council attended and laid out sandbags to try to direct water away from properties in what is now a familiar routine.

Other Areas of Rotherham Where Property Flooding Occurred

Storm Babet led to extensive surface water flooding of roads and properties around Rotherham. The large area of the borough affected highlights the magnitude of the challenges faced by residents and the Council responding to the event. Properties were flooded in the areas below:

- Kimberworth
- Stone Village (near Maltby)
- Kiveton Park
- Ravenfield
- North Anston
- Thurcroft
- Woodsetts
- Brinsworth
- Firbeck
- Thorpe Salvin
- Canklow
- Treeton (Separate to river flooding, located in East of Treeton Village)

In many areas existing drainage systems were overwhelmed leading to surface water runoff onto properties. The Council has investigated the causation of the properties that flooded internally to carry out our statutory duties as Lead Local Flood Authority (LLFA) but also (where possible) to identify improvement schemes that can reduce the risk in future.

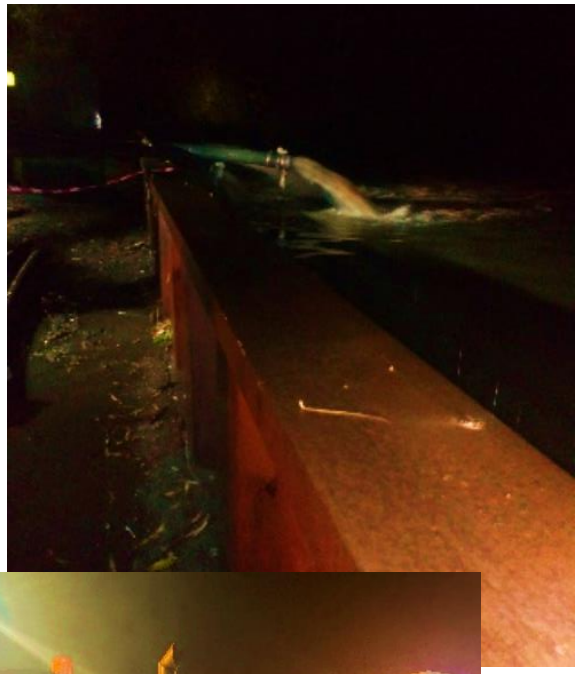
The Council has committed £1.2m over 4 years to invest in improving and upgrading highway drainage systems in areas across the Borough to reduce risk to properties from surface water flooding. The team are currently investigating and designing schemes at various locations across the Borough. The annual delivery programme will be published on the Councils website within the Highway Asset Management Programme - https://www.rotherham.gov.uk/roads-pavements/highways-asset-management

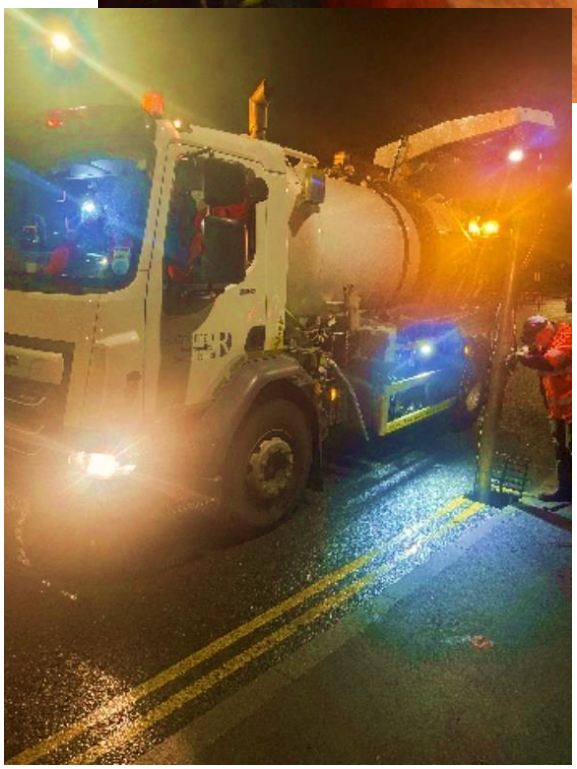
Council Response

Following the receipt of the Amber weather warning for 19th October 2023 the Council deployed staff to monitor river levels, watercourses and rainfall data including working with the Environment Agency both on the ground and around the Borough. The Council operated around the clock throughout the event to support residents, deliver sandbags, and help the Community during the recovery phase.

Rotherham Council received over 550 resident reports of flooding within Storm Babet, The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers, and delivering sandbags as required. Pumps were set up at Catcliffe to over pump surface water from the catchment at 10am on 20th October 2023.

The Council distributed over 5000 sandbags throughout the storm event and over pumped more than 4 million litres of surface water from Catcliffe.






ROAD
CLOSED

Response Timeline

18th October 2023

Rotherham Council set up shift patterns and monitored rainfall forecast and river levels.

19th October 2023

Rotherham Council deployed pumps to reduce the surface water flooding from the catchment. Rotherham Council

21st October 2023

(2:00am)

River Rother began seeping through the flood defences before overtopping began. After a flood alert was issued at

(2:15am)

The Environment Agency issued a flood warning. To inform residents of possible imminent flooding. 02:34am

(4:00am)

Rotherham Council and Fire Rescue services began aiding residents in evacuating their homes following the

154 properties were evacuated by the multi-agency team.

teams monitored the situation 24 hours per day throughout the event.	09:52 am on the 20th.	The Council contacted Fire and Rescue to attend site and support with warning and informing the public.	necessary planning and resourcing.

Council Recovery

Community Engagement
From the 22nd of October 2023 to the 30th of January 2024, 23 newsletters were sent out to residents through the Neighbourhoods team. These provided updates in terms of flooding, available grants, disposal of flood items and support.


Trouble viewing this email? Click here to view it in your browser.

NEWS FROM YOUR NEIGHBOURHOOD
ROTHER VALE WARD EDITION

Flood update

30 October 2023

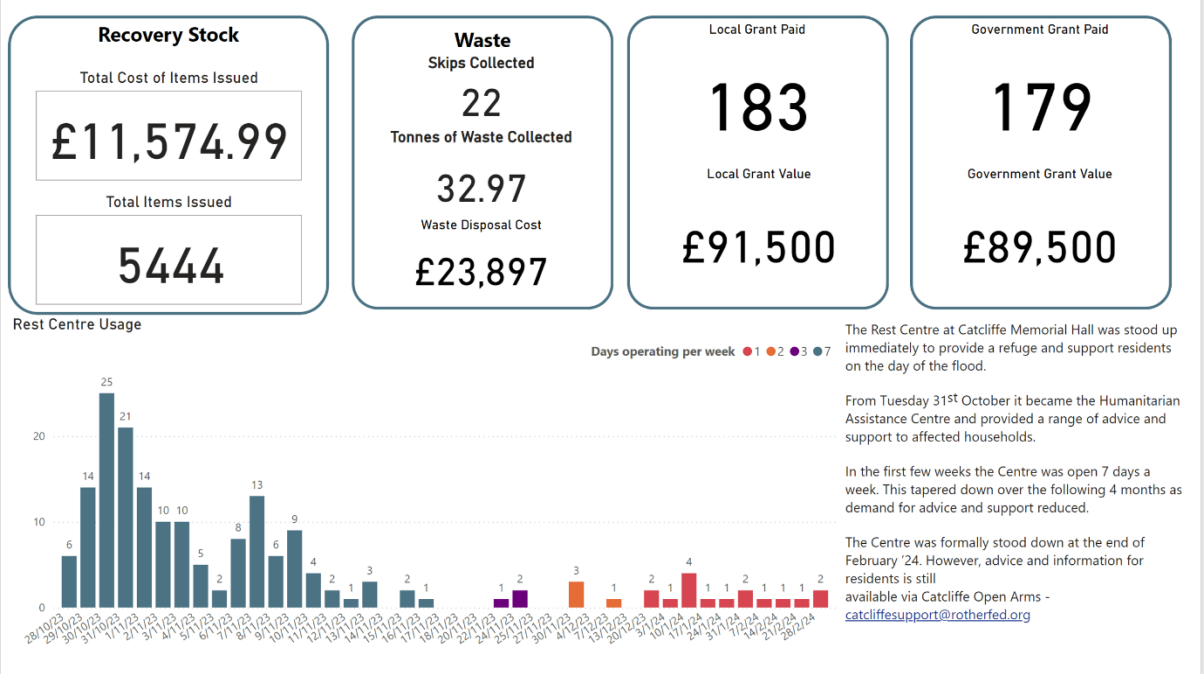
The Met Office has forecast strong winds and heavy rain across parts of southern England and Wales on Thursday as Storm Ciarán makes land.

No Flood Alerts or Warnings have been issued for the River Rother, but the Council is working with partners to monitor the situation in Rotherham.

Regular updates are also being shared on social media.

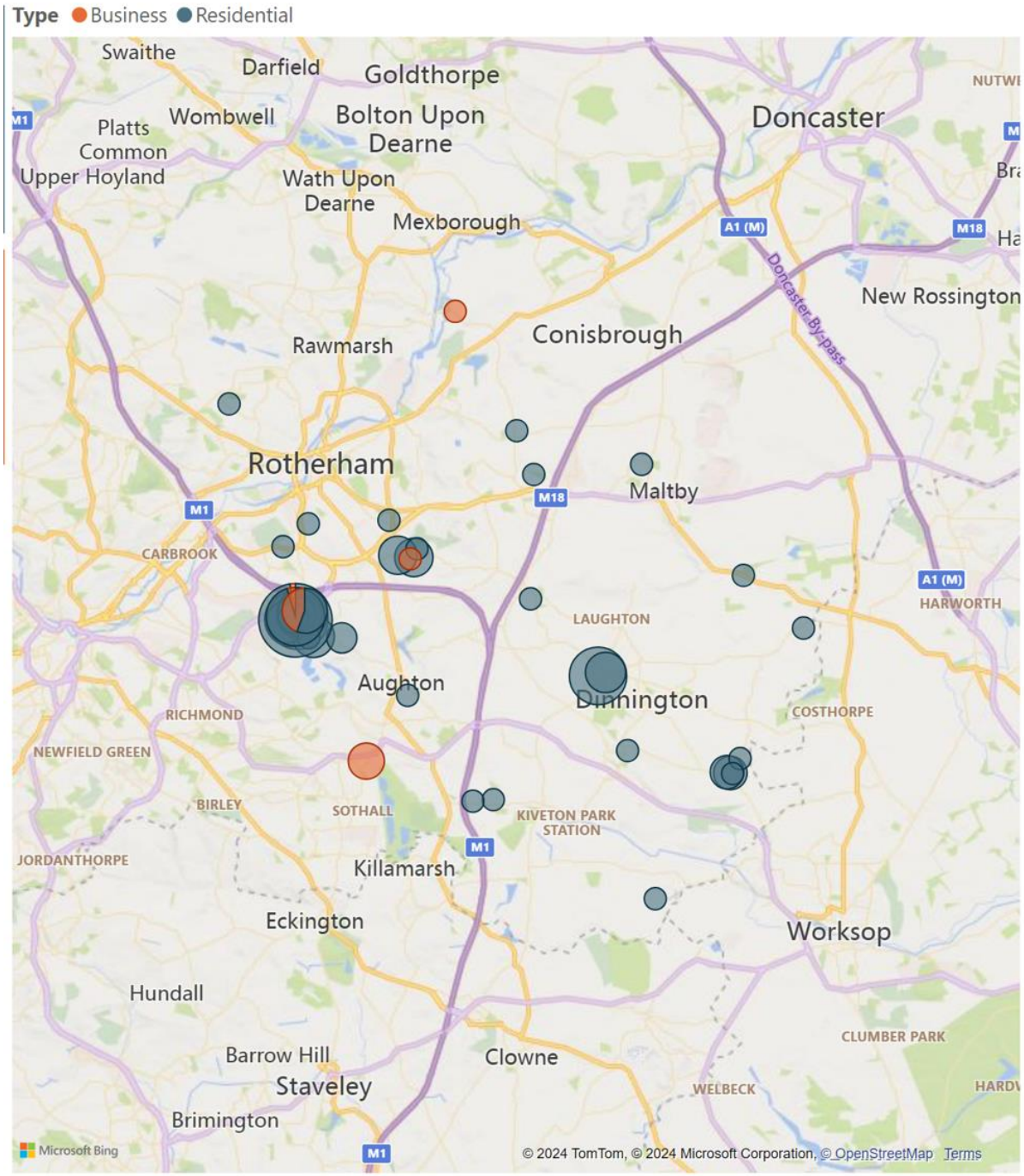
- Facebook
- X (previously Twitter)

The Council provided support throughout the recovery of the event with 5444 items being issued to residents to aid in the clean-up and 32.97 tonnes of materials being disposed. £181,000 of grants have been paid to residents from local and government grants.

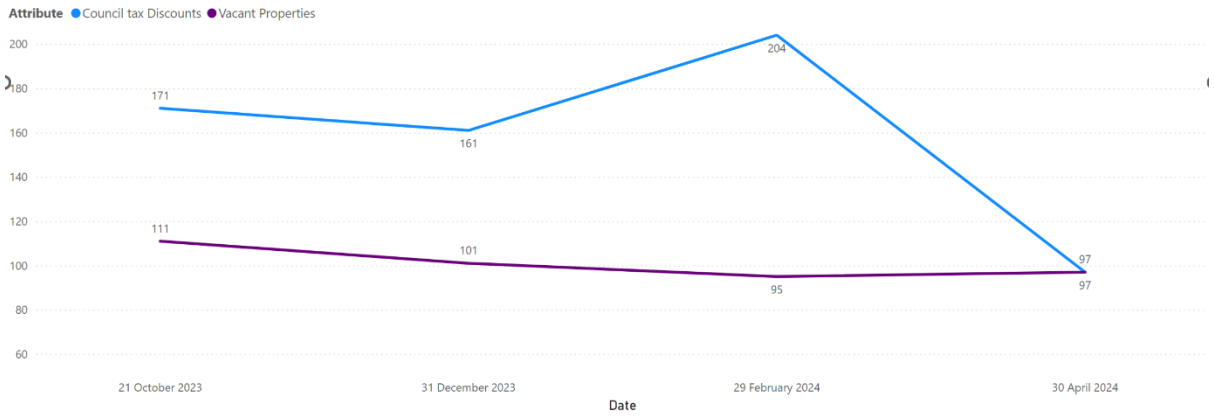


Catcliffe and Treeton Villages were the worst affected areas from flooding in October 2023, however the flood event affected properties all over the Borough. The map below shows the widespread flooding across the borough and key locations that were affected, both residential and businesses.

Location of flooded properties - all levels (Postcode Centroids)



The Council has aided residents that required evacuation with a discount on their council tax, the graph below shows the number of vacant properties and the number of properties that have been entitled to the discounted council tax.



Recovery Timeline

21st October 2023	22nd October 2023	23rd October 2023		24th October 2023	
A full rest centre was set up at Catcliffe Memorial Hall for evacuated residents. Sandbags were deployed to homes within both Catcliffe and Treeton. Immediate Housing support provided to those in need	The Council liaised with the Environment Agency and Fire and Rescue to arrange pumping operations to reduce the flooding following falls in river levels	Skips were provided the following day and remained in situ as part of the recovery, 22 large skips in total throughout the period to aid residents in removing flood damaged fixtures, fittings and furniture as well as a significant number of Council staff to assist residents	Rotherham Council provide a fully stocked PPE cabin for use by affected residents.	Rotherham Council attended to remove silt and debris from the roads and drainage system. While also aiding residents in removal of flood damaged items from their homes.	Rotherham Council provide flood affected properties with a £500 flood grant and council tax relief until residents are able to return to their properties. Defra have issued a property flood resilience grant of £5000 for residents to make their properties more resilient to future flood events.

Next Steps

People, property, infrastructure, and emergency services across the borough have been severely impacted by catchment wide flooding events in June 2007, November 2019, and October 2023, and there have also been a number of other “near miss” flood events over the last two decades. The Council and the Environment Agency have been working for a number of years to provide strategic solutions, which are needed to create a safe and prosperous place to live and work, which is reflected in the £11.3million worth of funding provided by the Council towards flood alleviation schemes.

Flooding creates a dangerous situation, particularly if people become trapped within floodwater, or if transport networks and other local access routes become flooded. Impacts of flooding on sections of the transport network regularly causes significant disruption to many residents and businesses across the borough. The predicted impacts of a changing climate will exacerbate this existing risk.

The Council is working with the Environment Agency (EA), South Yorkshire Mayoral Combined Authority (SYMCA), Network Rail (NR), Canal & River Trust (CRT), plus many other organisations, asset owners and landowners to deliver six Priority Flood Alleviation Scheme projects to reduce flood risk across the borough.

Delivery of these six Priority Flood Alleviation Schemes will significantly reduce flood risk to people, property and infrastructure, including:

- Approximately 290 residential properties (at risk of internal flooding)
- Approximately 360 business properties (at risk of internal flooding)
- Many more residential and business properties that suffer indirect impacts (where property access can be cut off by flooding)
- 8 sections of the strategic highways network (including key routes that need to be operational for emergency services during flood events)
- Rail and tram-train infrastructure (including services through Rotherham Central and Parkgate stations)
- Canal system (which includes residential moorings)
- Critical utility company infrastructure
- Community infrastructure

Options to reduce the risk of future flooding are currently being investigated, and the Council is committed to funding three option appraisals to determine the most effective solution. These studies will be conducted as a desktop analysis to identify the best approach and are expected to be completed within 12 months. Following this, consideration will be given to the benefits of bringing the chosen option to a completed design, which will include:

- The feasibility study (a study to determine the viability and the benefits)
- Surveys and investigations for ecology, environmental, topographic and ground conditions
- Calculations
- Scheme design drawings (outline and detailed)

- Third party approvals (Environment Agency, utility companies, etc.)
- Landowner agreements
- Planning applications

Similar complex flood alleviation schemes have been delivered through the Councils 'Shovel Ready' project and have taken 3 years to reach pre construction detailed design.

- **Option 1** - Creation of upstream storage and Natural Flood Management.

  Upstream measures, such as storage, are an essential part of many Flood Alleviation Schemes and help provide a better standard of protection to homes and businesses. In addition, Natural Flood Management (NFM), can slow the flow of water from the upper catchment. Further investigation needs to be carried out to identify potential flood storage locations and areas for Natural Flood Management. Our current estimate for feasibility and design of this project is £4million.

  Derbyshire County Council (upstream Council on the River Rother) and the Environment Agency are currently investigating a similar solution. The EA are developing a business case for a flood alleviation scheme to reduce the risk of flooding to properties on the River Hipper in Chesterfield. The project currently has a significant funding gap. Funding will need to be sought for the project to be delivered. Derbyshire County Council have several feasibility schemes for natural flood management on a tributary watercourse to the River Rother. A reduction in peak flow on the River Rother may reduce the risk downstream at Catcliffe and Treeton however, the reduction in peak flow will be minimal.

  Derbyshire Flood Risk Management Partnership has been set up to continue communication between Local Authorities and the Environment Agency and Rotherham Council has been included.

- **Option 2** - Raising the flood defence wall and improving conveyance along the River Rother.

  The standard of protection could be increased by raising and extending the defences along the River Rother in Catcliffe and Treeton Villages. The defences would need to be installed on both sides of the Rother and alterations would need to be undertaken to the bridge on Treeton Lane to improve conveyance. A sketch of an indicative alignment has been provided below to show the assumed extent of the works required for this option. This option has been estimated at £34million by Rotherham Council and has been shared with the Environment Agency for review within the Government rules and regulations.

- Option 3 – Improving Downstream Conveyance

  To improve water flow in the River Rother, Rotherham Council plans to study how the Treeton Lane bridge restricts the flow of the river. The Environment Agency has a hydraulic model of the river that can be adapted to show the bridge's impact on the river. Replacing the bridge with a modern one is estimated to cost £5 million.

One of the Council's six Priority Flood Alleviation schemes that is being developed to a 'shovel ready' state is the Catcliffe Pumping Station. This scheme will help reduce the risk of surface water flooding to the residential properties in Catcliffe during an extreme rainfall event. The proposal will replace the Council's portable pumping arrangement to lift surface water into the River Rother when it is unable to drain via gravity.

Following an allocation of £0.6m of the Council's corporate resources in 2021, and an additional £0.3m from Yorkshire Regional Flood and Coastal Committee Local Levy fund in 2023/2024, the Council and our Consultants have been working hard to progress the various aspects to achieve 'shovel ready' status for this flood alleviation scheme. These aspects include:

- The feasibility study and options appraisal (a study to determine the viability of various options and their benefits)
- Surveys and investigations for ecology, environmental, topographic and ground condition
- Calculations
- Scheme design drawings (outline and detailed)
- Third party approvals (Environment Agency, utility companies, etc.)
- Landowner agreements
- Planning applications.

It is anticipated that the pumping station scheme will achieve 'shovel ready' status in the 2024/25 financial year.

At present, funding for the construction phase has not been secured. Nevertheless, we are actively seeking funding from various sources to facilitate the construction of

this scheme. The 2020 estimate for the construction phase for this scheme is £4.4 million.

The Council will continue to respond to flood events and assist residents within the community wherever possible.

Environment Agency (EA) Next Steps

The EA have carried out a full review of the flood warnings offered to Catcliffe and Treeton. When a Flood Warning is issued (even if there is no property flooding) the EA complete the following process:

1. **Post incident data is collected.** This includes site visits, data sharing with our partners, social media searches and conversations with our flood wardens and local communities.

2. **Identifying any missed flood warnings**. A check of flood warning triggers against river levels recorded to identify if any warnings where flooding occurred were not issued.

3. **Validation of flood warnings.** A check of whether or not a flood warning was required and an assessment of the warning quality (for example, was it issued in a timely manner).

4. **Warnings and alerts reviewed.** Following the validation of warnings, improvements (if required) are made to both the triggers and the area covered by the flood warnings.

This has been conducted by the EA with appropriate changes being made to the Treeton flood warning.

Following Storm Babet, Environment Agency catchment engineers have inspected its assets and are confident that they will continue to operate as designed. Some superficial damage was identified, and the Environment Agency is in the process of bidding for funding to carry out repair work where required. All proposed work remains subject to funding being secured. The Environment Agency have confirmed they plan to investigate the current standard of protection.

Meadowgate Regulator was operational from 21st December 2023. The Environment Agency continue to inspect and maintain their assets in the area and are ready to respond this winter. The significant refurbishment means that the regulator will continue to operate in the future.

Rotherham Metropolitan Borough Council

Part Two: Community Flood Information Sheets

Catcliffe and Treeton Villages Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant rises in river levels, causing the River Rother to overtop due to heavy rainfall in the upstream catchment of Chesterfield and Derbyshire. Internal flooding affected 148 properties in Catcliffe and Treeton Villages.

There is an existing flood defence wall in Catcliffe village, which is the responsibility of the Environment Agency, and is currently designed to withstand a 1.3% above average rise in river levels (Annual Exceedance Probability (AEP) or a 1 in 75-chance of flooding in any given year.

Storm Babet has been classified by the Environment Agency as producing a 1 in 100 - 200- return period on the River Rother, or a 1% - 0.5% AEP with a peak flow rate of 137m^3/s recorded at the Whittington gauge.

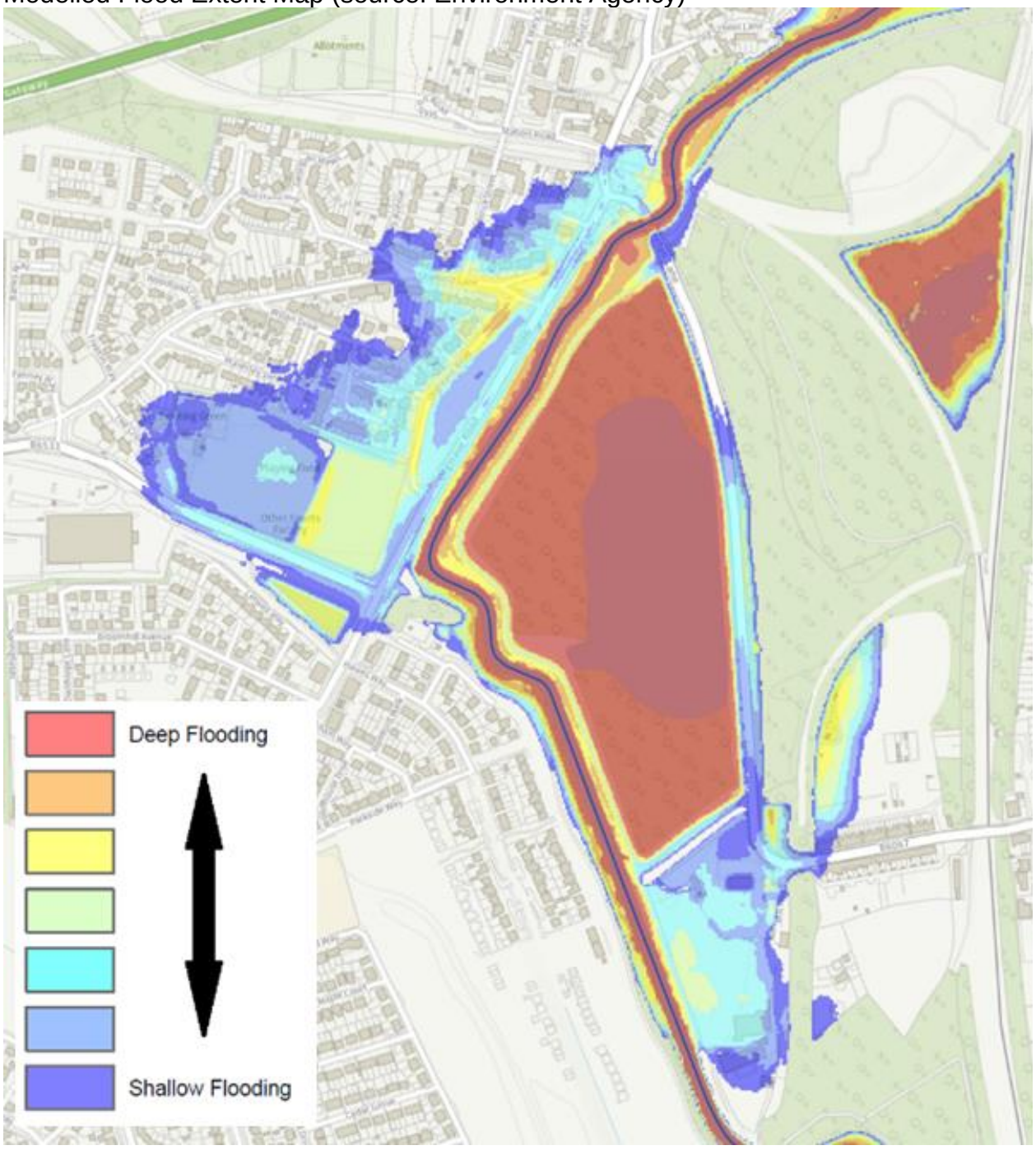
Station Name	Peak Flow (m3/s)	Rank (AMAX)	AEP (%)	Return period (years)
Sheffield Hadfields	179	4	5-7%	15-20
Rotherham Forge Island	350	4	5-10%	10-20
Sheepbridge	67.2	1	0.7-1%	100-150
Whittington	137	1	0.5-1%	100-200
Staveley	25.1	1	1-2%	50-100
Doncaster	297	3	2-4%	25-50
Barnsley	45.2	5	15-20%	5-7
Adwick	66.5	3	3-7%	20-30
Methley	303	7	15-20%	5-7

Table taken from the Environment Agency's Flood Hydrology Report – Storm Babet 18th to 22nd October 2023.

Storm Babet October 2023, peak river flow, annual exceedance probability and return period.

The results show this was an exceptional flood event in the Rother catchment, with the highest recorded peak flows at three stations. Sheepbridge and Whittington both exceeded the 1% AEP and Staveley exceeded the 2% AEP event.

Modelled Flood Extent Map (source: Environment Agency)



The map shows the extent of flooding that was witnessed in October 2023 at Catcliffe and Treeton Village.

Environment Agency Information - Comparison of November 2019 and October 2023 Flood Events in the Don & Rother Catchments

The following information has been provided by the Environment Agency following detailed discussion around the flooding event (Storm Babet) with the Council.

Introduction

This report sets out many of the key hydrological comparisons of the flood events that occurred in the River Don and River Rother catchments in November 2019 and in Storm Babet in October 2023. It is intended to complement the existing Environment Agency Flood Hydrology Reports which describe these events in detail. This report draws upon the data contained in the aforementioned Hydrology reports. The data, analysis, and interpretation contained in these reports were written shortly after each event.

The information provided is the best available data at the time of the reports. The Environment Agency continually reviews and improves data validation. This is especially true of aspects of large flood events where the cumulative effects of floods in 2019, 2020, 2022 and 2023 may have led to a number of subtle improvements in flood data quality.

Rainfall

Table 1 compares the peak rainfall totals for various durations at a number of sites in the Rother and at Langsett in the upper Don catchment for both November 2019 and Storm Babet in October 2023. The table highlights the percentage difference between these event rainfall totals by expressing the October 2023 rainfall total as a percentage of that of November 2019. Where it is larger the total is highlighted red and where lower it is highlighted in green.

	Wingerworth			Linacre			Woodhouse Mill			Langsett		
duration (hrs)	2019	2023	2023 as % of 2019	2019	2023	2023 as % of 2019	2019	2023	2023 as % of 2019	2019	2023	2023 as % of 2019
4	13.2	33.2	252%	15.6	34.2	219%	22.6	24.4	108%	22.2	24.6	111%
6	17.6	49.6	282%	20.8	45.6	219%	30.6	33.8	110%	32	33.8	106%
12	27.6	75	272%	35.8	67.4	188%	53.4	51.2	96%	57	60	105%
18	41	82.8	202%	55.2	78	141%	80.8	64.8	80%	74.6	77.6	104%
24	51.8	89	172%	64.8	84.2	130%	87.6	72.8	83%	80.2	87	108%
36	53.8	97.4	181%	66.4	92.4	139%	90.2	81	90%	83.2	93.8	113%
48	54.2	97.6	180%	67.4	102.8	153%	90.2	85.8	95%	83.8	105.2	126%

Table 1: Rainfall comparison November 2019 with October 2023

In October 2023, there was a lot more rain in the upper Rother area compared to November 2019, especially when looking at shorter timeframes like up to 12 hours. However, in Woodhouse Mill, which is downstream on the River Rother, there was more rain in 2019 when considering longer time periods. In the upper Don area above Sheffield, there was only a slight increase in rainfall in October 2023

compared to November 2019.

Figures 1 and 2 show where the rain fell during the floods in November 2019 and October 2023. But comparing them directly is difficult because the data for 2019 is for 24-hour rainfall while the 2023 data is for 36-hour rainfall. Still, they both indicate that in 2019, the rain was mostly concentrated in the north of the Rother area, particularly between Sheffield and Doncaster.

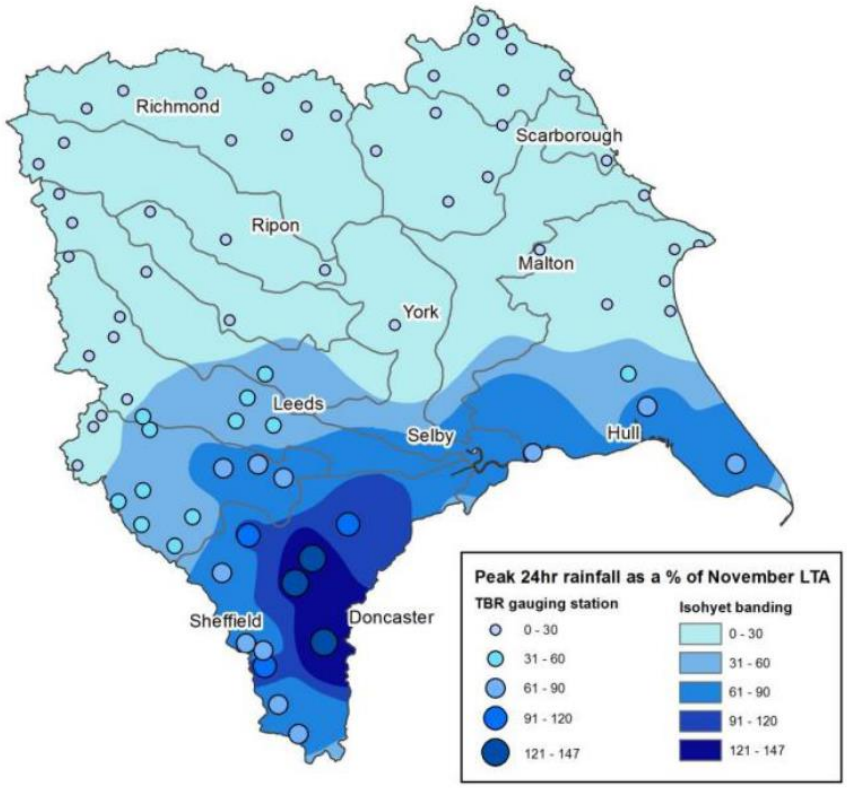


Figure 1: November 2019. Peak 24-hour rainfall totals across Yorkshire expressed as % November long term annual average rainfall.

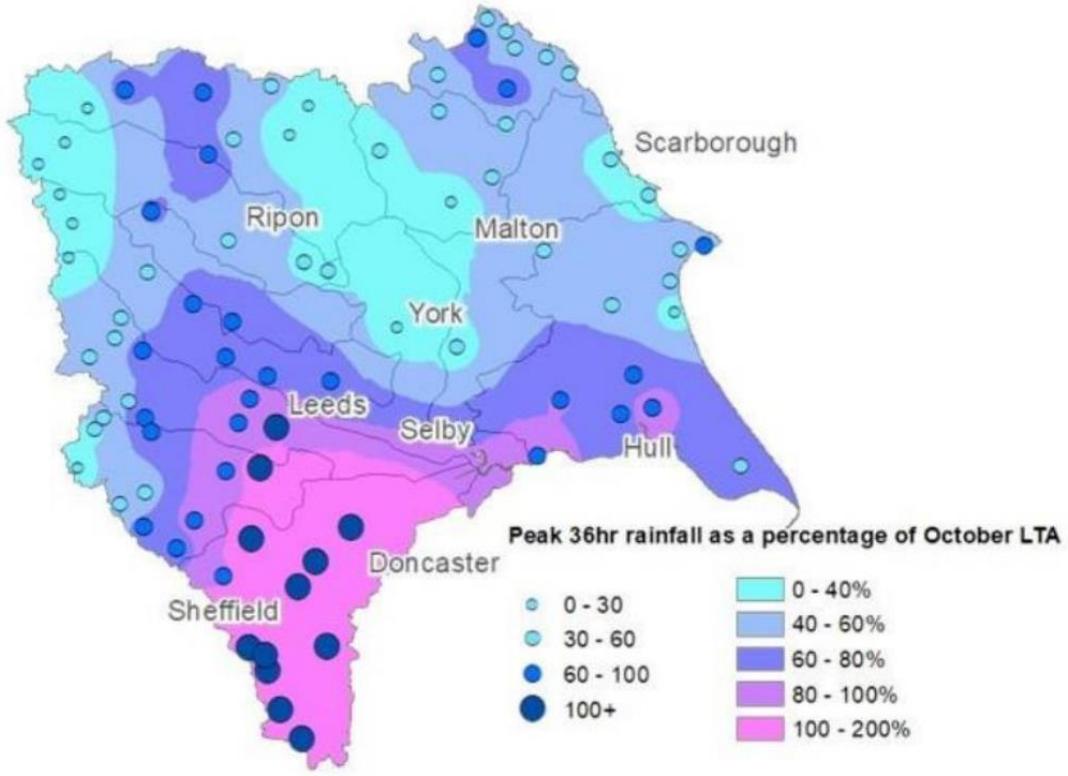


Figure 2: October 2023. Peak 36-hour rainfall totals across Yorkshire expressed as % October long term annual average rainfall.

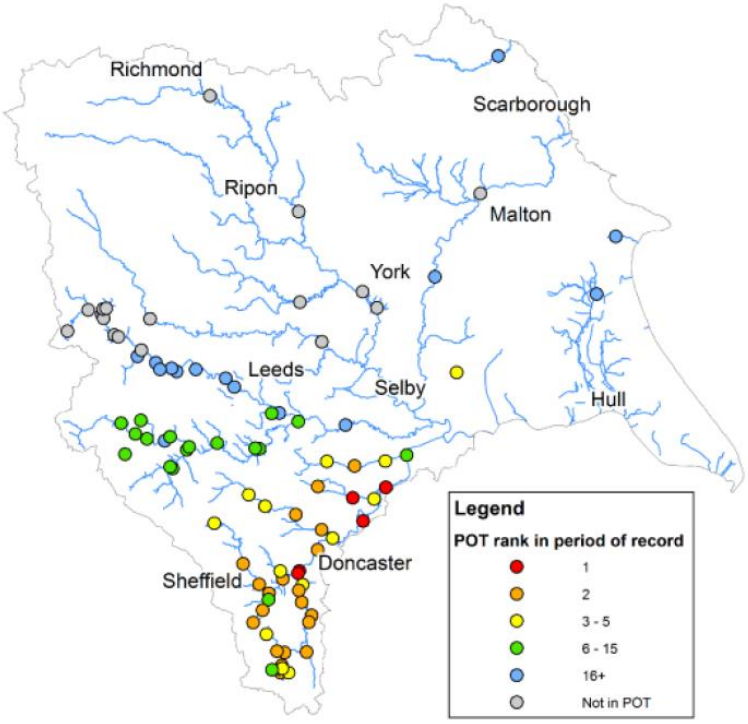


Figure 3: November 2019. Rank position of peak river levels. These ranks exclude post 2019 data.

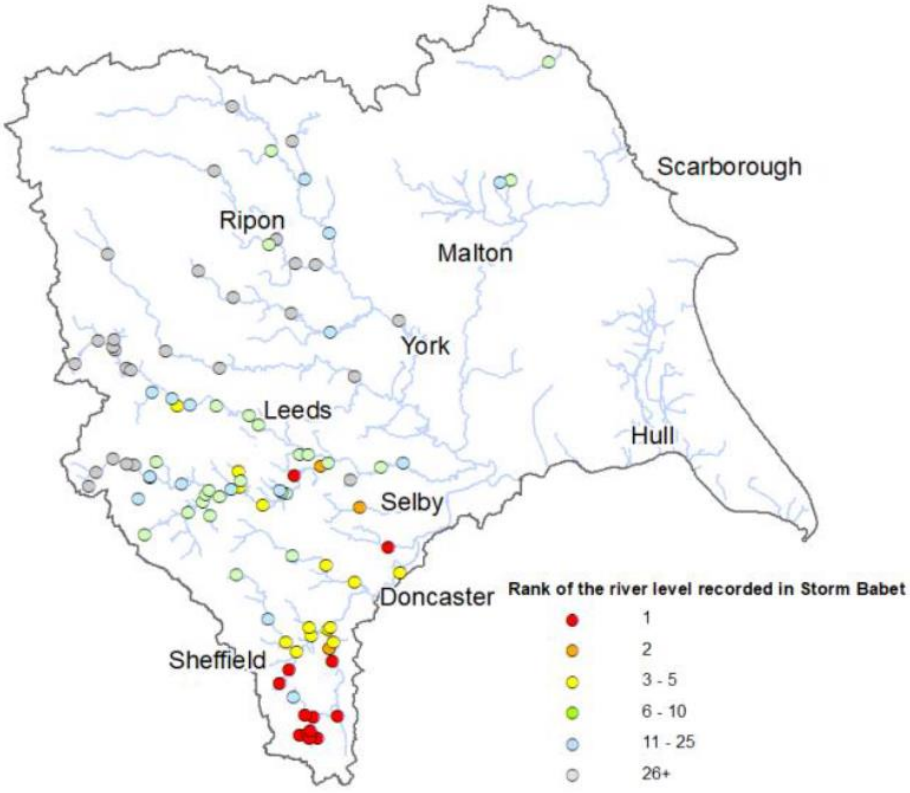


Figure 4: Storm Babet October 2023. Rank order of peak river levels across Yorkshire

River Levels

Comparison of river levels in the November 2019 and October 2023 floods can be taken directly from the October 2023 flood report as the table below is included in every report. Table 2 compares the event in question – on this occasion Storm Babet in 2023 – with the most up to date validated data for the 15 highest ranked events at each site.

Rank POT River Level (m Stage)	Rother													Upper Don				Lower Don			
	Chesterfield St Augustines	Chesterfield	Chesterfield Park Road Bridge	Chesterfield Calow Lane	Chesterfield Hady Hill	Tapton Bridge	Sheepbridge	Whittington	Staveley	Killamarsh	Woodhouse Mill	Catcliffe	Canklow Regulator (upstream)	Penistone	Sheffield Hadfields	Rotherham	Rotherham Forge Island	Adwick	Doncaster	Norwood	Went Outfall (River Went)
No. of water years in record	21	23	21	20	24	21	47	44	53	24	42	21	27	23	56	28	18	48	46	28	33
1	3.098	3.593	2.931	1.453	4.202	3.418	2.556	4.289	2.683	4.355	4.456	30.528	30.200	2.353	4.675	4.321	3.322	2.770	6.308	5.221	4.527
2	2.986	2.764	2.801	1.391	3.350	3.091	2.414	4.115	2.543	4.029	4.067	30.374	29.836	2.295	4.497	4.291	3.271	2.481	6.303	5.031	4.477
3	2.191	2.507	2.001	1.261	3.198	2.630	2.208	3.756	2.459	3.948	3.753	29.955	29.662	2.197	3.766	3.455	2.454	2.351	5.977	4.490	4.403
4	2.129	1.321	1.928	1.253	2.960	2.423	2.139	3.699	2.186	3.412	3.631	29.855	29.462	2.189	3.182	3.210	2.343	2.229	5.678	4.388	4.378
5	2.110	1.300	1.870	1.242	2.776	2.359	2.011	3.372	2.164	2.675	3.172	29.461	29.399	1.899	3.005	2.830	2.103	2.136	5.648	3.818	4.330
6	1.992	1.281	1.838	1.219	2.707	2.155	1.656	3.247	2.145	2.480	3.023	29.332	29.368	1.831	2.892	2.811	2.023	2.073	5.563	3.796	4.319
7	1.849	1.218	1.821	1.173	2.691	2.143	1.546	3.013	2.057	2.460	3.010	29.176	29.259	1.796	2.814	2.747	1.814	2.017	5.495	3.737	4.226
8	1.816	1.190	1.811	1.082	2.536	2.137	1.484	3.001	2.053	2.426	2.937	29.048	29.068	1.718	2.773	2.629	1.812	1.933	5.436	3.709	4.132
9	1.813	1.184	1.722	1.074	2.467	2.061	1.480	2.921	1.990	2.242	2.885	28.934	28.790	1.683	2.708	2.523	1.784	1.898	5.390	3.705	4.035
10	1.788	1.178	1.689	1.051	2.449	2.046	1.471	2.909	1.873	2.211	2.830	28.762	28.742	1.667	2.628	2.376	1.611	1.879	5.175	3.702	3.861
11	1.780	1.106	1.677	1.012	2.393	2.024	1.455	2.892	1.872	2.149	2.694	28.504	28.714	1.657	2.520	2.272	1.596	1.848	4.928	3.700	3.833
12	1.775	1.045	1.592	0.995	2.392	1.940	1.416	2.870	1.858	2.051	2.675	28.454	28.542	1.645	2.454	2.217	1.591	1.785	4.900	3.691	3.792
13	1.764	1.044	1.534	0.975	2.384	1.915	1.414	2.802	1.857	2.040	2.598	28.446	28.040	1.640	2.294	2.214	1.534	1.737	4.861	3.685	3.781
14	1.762	1.035	1.498	0.967	2.379	1.899	1.395	2.754	1.848	1.969	2.597	28.415	28.000	1.633	2.082	2.147	1.526	1.737	4.842	3.680	3.741
15	1.751	1.005	1.419	0.954	2.322	1.898	1.366	2.728	1.844	1.947	2.568	28.393	27.973	1.615	1.967	2.079	1.509	1.727	4.821	3.680	3.711
Difference Between 2023 and 2019 (m)	0.907	2.415	0.930	0.211	1.242	0.788	0.348	0.533	0.224	-0.081	0.703	0.573	-0.063	-0.035	-1.315	-1.081	-0.979	-0.130	-0.331	-0.592	-0.094

Key:
- 18th - 21st Oct. 2023 [Babet]
- 7th - 8th Nov. 2019
- 25th - 29th June 2007
- Late Oct. - Early Nov. 2000

Table 2: Top 15 ranked peak river levels in the Don & Rother catchments.

River levels in the Rother are the highest on record, followed by levels found in 2007 and 2019 flood events. The one inconsistency is at Killamarsh river level site which shows lower levels than past events. During this event the regulators at Canklow and Woodhouse Mill were operated. However, the river level at the Meadowgate regulator was not recorded as the regulator was undergoing refurbishment and was not operational during the event. At Killamarsh the river level is usually affected by the operation of the regulator at Meadowgate. In this event, levels at Killamarsh were consequently lower than 2007 and 2019 events when Meadowgate was available for operation. This is due to the regulator not operating so no flows were held back, hence river levels are lower as can be seen on the table above.

Table 2 compares peak river levels from October 2023 and November 2019. Numbers in green on the bottom row indicate where levels were higher in October 2023. The table shows that river levels in the upper Rother were consistently higher in October 2023, except for small differences at Killamarsh and upstream of the Canklow regulator due to operational changes and works. In the upper Don, levels were higher in November 2019, and this trend continues, though less pronounced, in the lower Don.

Figures 3 and 4 show the relative rank order of November 2019 and October 2023 peak river levels. Figure 3 is taken from the November 2019 report and shows the rank order of this event at the time the report was published. It provides a good indication of the severity and widespread nature of record or near record river levels across the Don catchment. It also shows how the river levels to the south, in the

Rother, and to the north in the Calder and Aire were substantial but not as highly ranked in the longer record.

River Flows and Return Periods

Table 3 shows the comparison of the river flows at selected flow gauges in the Rother, upper and lower Don.

Location	River Catchment	2019 Flow (m3/s)	2023 Flow (m3/s)	2019 flows return period	2023 flows return period
Sheffield Hadfields	Upper Don	249	179	100 - 150	15 - 20
Rotherham Forge Island	Upper Don	594	350	150 - 250	10 -20
Sheepbridge	River Rother	50	67.2	60 -80	100 -150
Whittington	River Rother	100	137	45 - 55	100 - 200
Staveley	River Doe Lea	21.8	25.1	40 -50	50 -100
Doncaster	Lower Don	340-400	297	150 - 250	25 - 50

Table 3: Comparison of November 2019 and October 2023 river flows.

Comparing the river flows from November 2019 to October 2023 highlights their differences. It's important to note that the data for November 2019 is based on a report shortly after the event, and if analysed again with the latest information, it would consider the effects of subsequent floods in 2020 and 2022. However, the overall picture is not expected to change significantly.

In November 2019, the highest flows were seen in the upper Don, flowing through Rotherham and into the lower Don at Doncaster, exceeding the expected frequency of a once-in-a-century event. In the October 2023 storm, the flows in the upper Don were still significant but not as extreme as those in November 2019.
In October 2023, the most exceptional flows were mainly in the upper Rother, with return periods exceeding once in-a-century occurring upstream of regulated areas. The lower contribution from the upper Don at Sheffield Hadfield highlights how significant substantial flows in this area are in causing extreme flows in the lower Don at Doncaster.

The variations between the flows and return periods of 2019 and 2023 reflect the distribution of rainfall outlined in Table 1 and Figures 2 and 3.

Conclusion

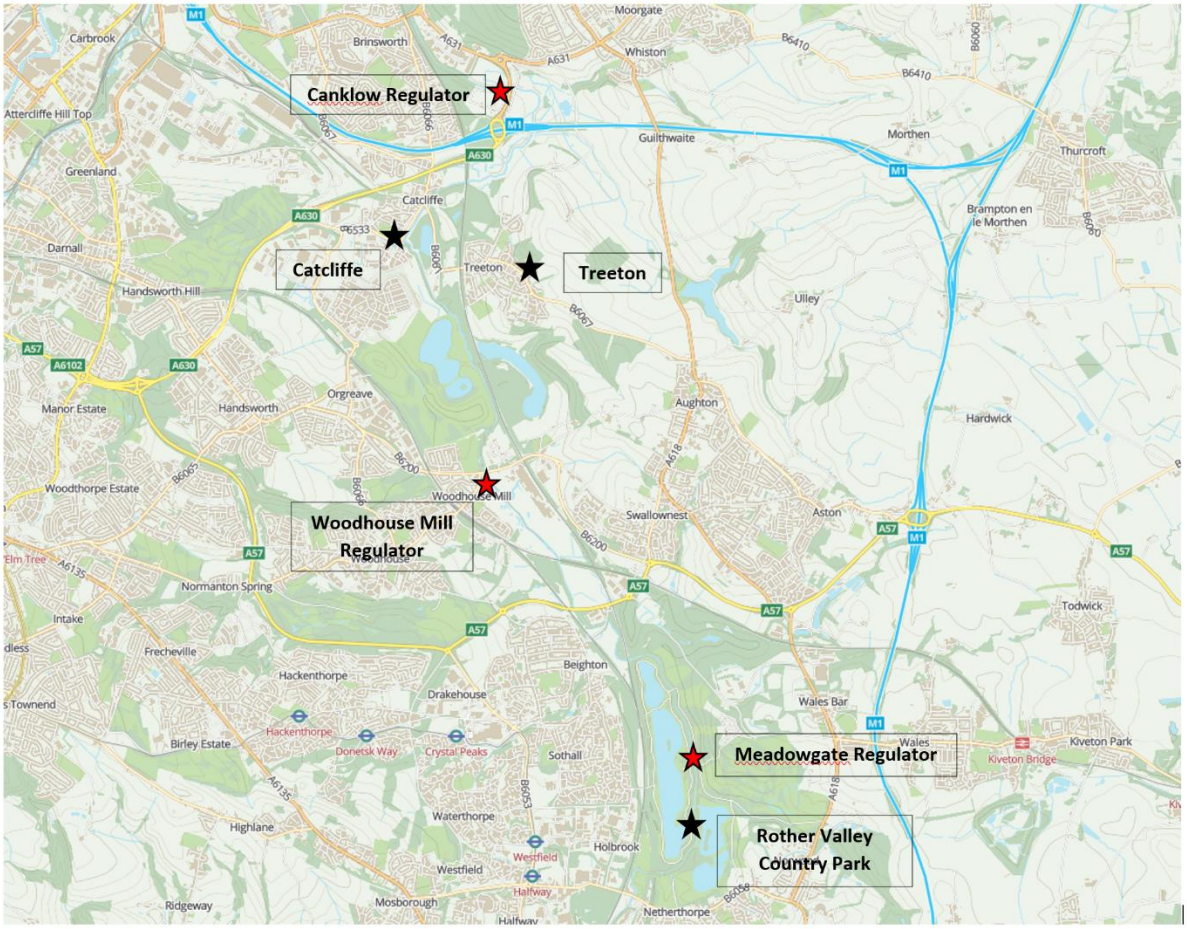
Both the November 2019 and October 2023 events are considered among the most significant in the Don and Rother catchments, alongside June 2007. What sets them apart are subtle differences in where the rain fell, which is influenced by slight variations in the paths of the low-pressure systems causing the events.

In November 2019, heavy rainfall in both the lower and upper Don catchments led to record levels and large volumes of water in the River Don. However, the Rother area didn't experience as much heavy rainfall. This situation mostly flipped in October 2023, with localised storms bringing significant flows and volumes to the River Rother, while the effects on the upper Don were much less notable.

Environment Agency Flow Regulators

There are 3 Environment Agency flow regulators on the River Rother that control the peak flow during high river levels and are designed to temporarily divert flows into washlands.

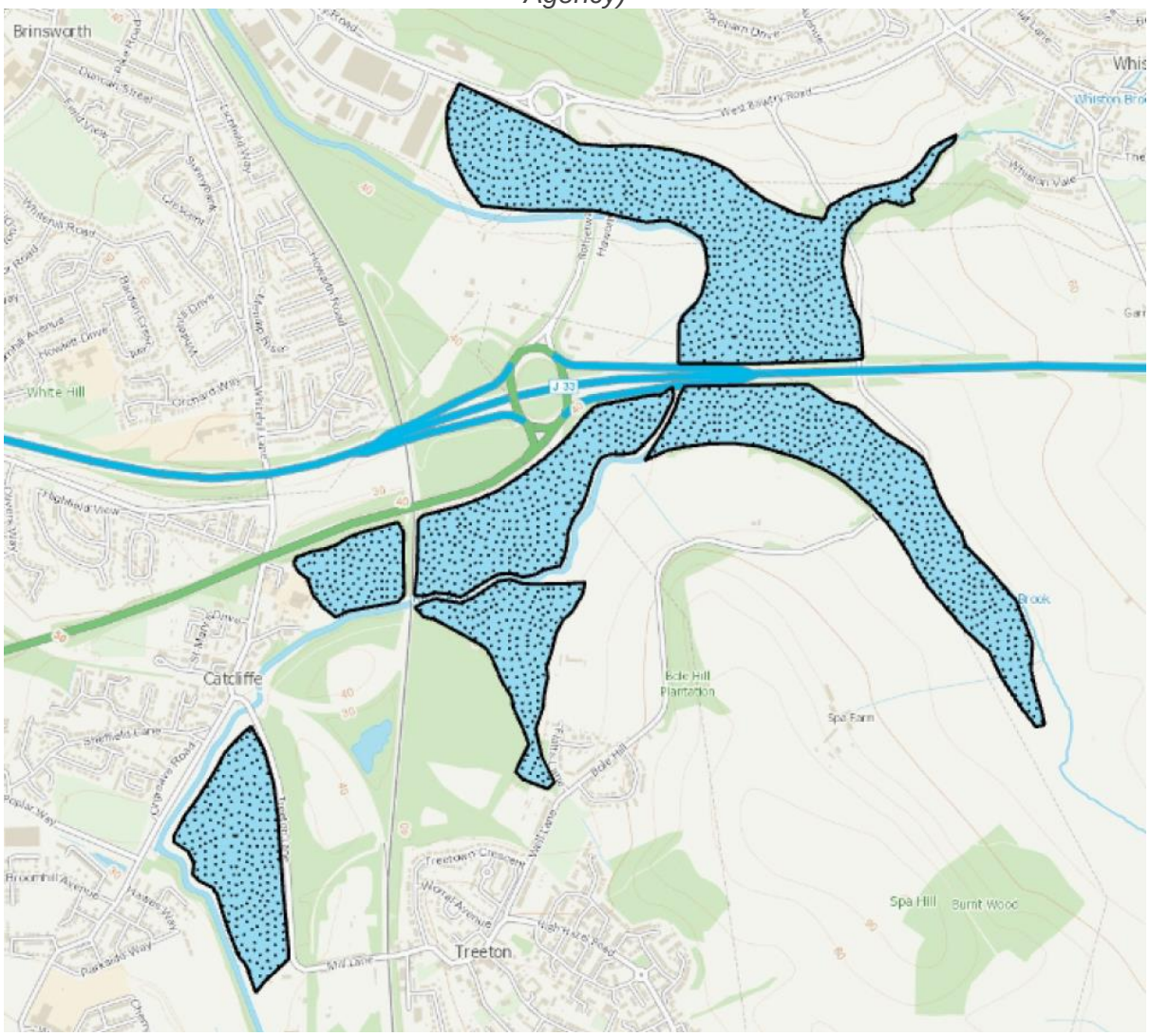
Regulators Location Map



Canklow Flow Regulator

The Canklow Regulator was constructed in 1969 and can store up to 1,520,600m^3 in the washlands around Junction 33 of the M1. Canklow Regulator is furthest downstream on the River Rother.

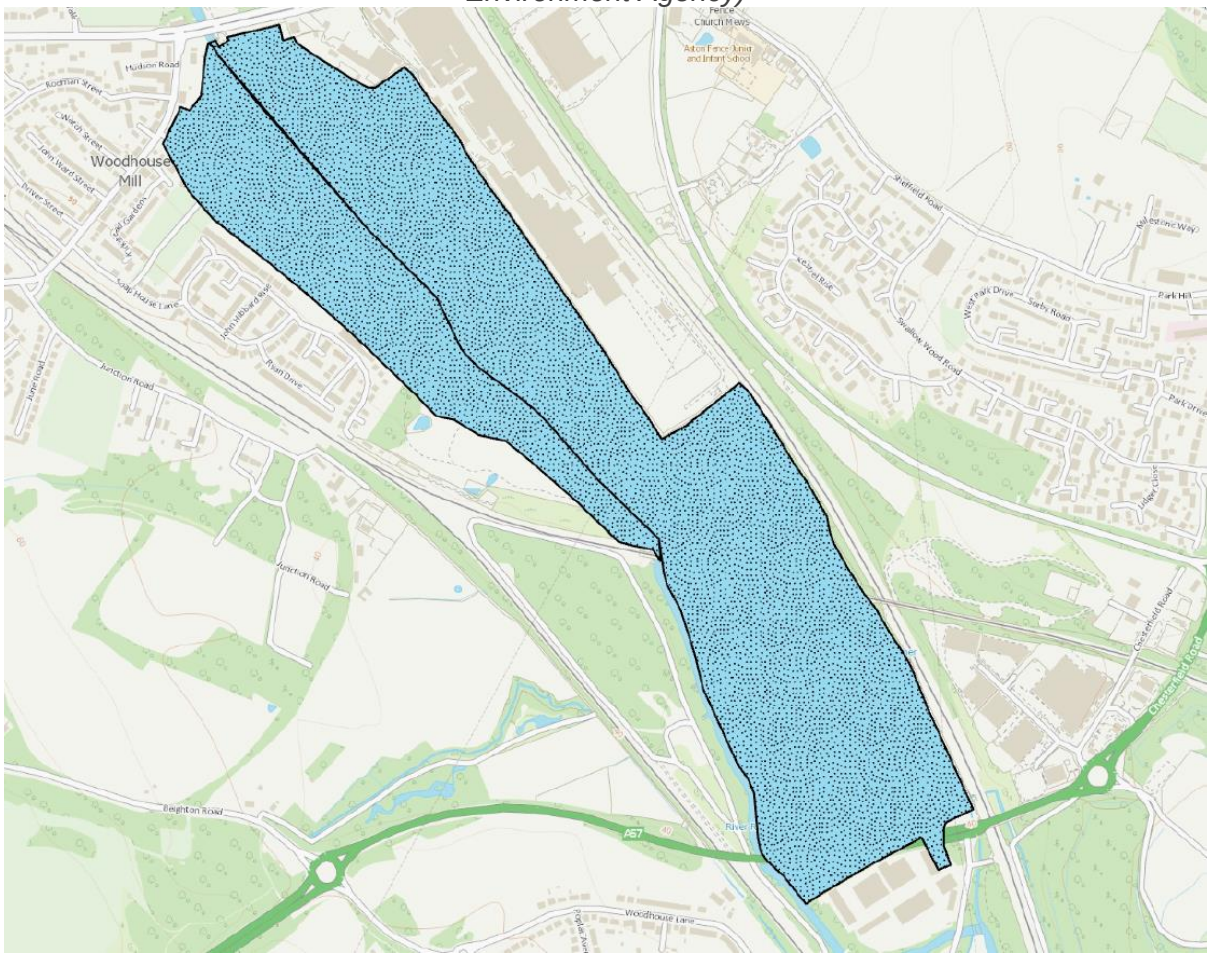
Canklow Flow Regulator Water Storage Areas (source: Environment Agency)



Woodhouse Mill Flow Regulator

The Woodhouse Mill Regulator was constructed in 1959 and can store up to 339,800m^3 in the Woodhouse Washlands Nature Reserve. The Woodhouse Mill Regulator is in between the Canklow Regulator and the Meadowgate Regulator on the River Rother.

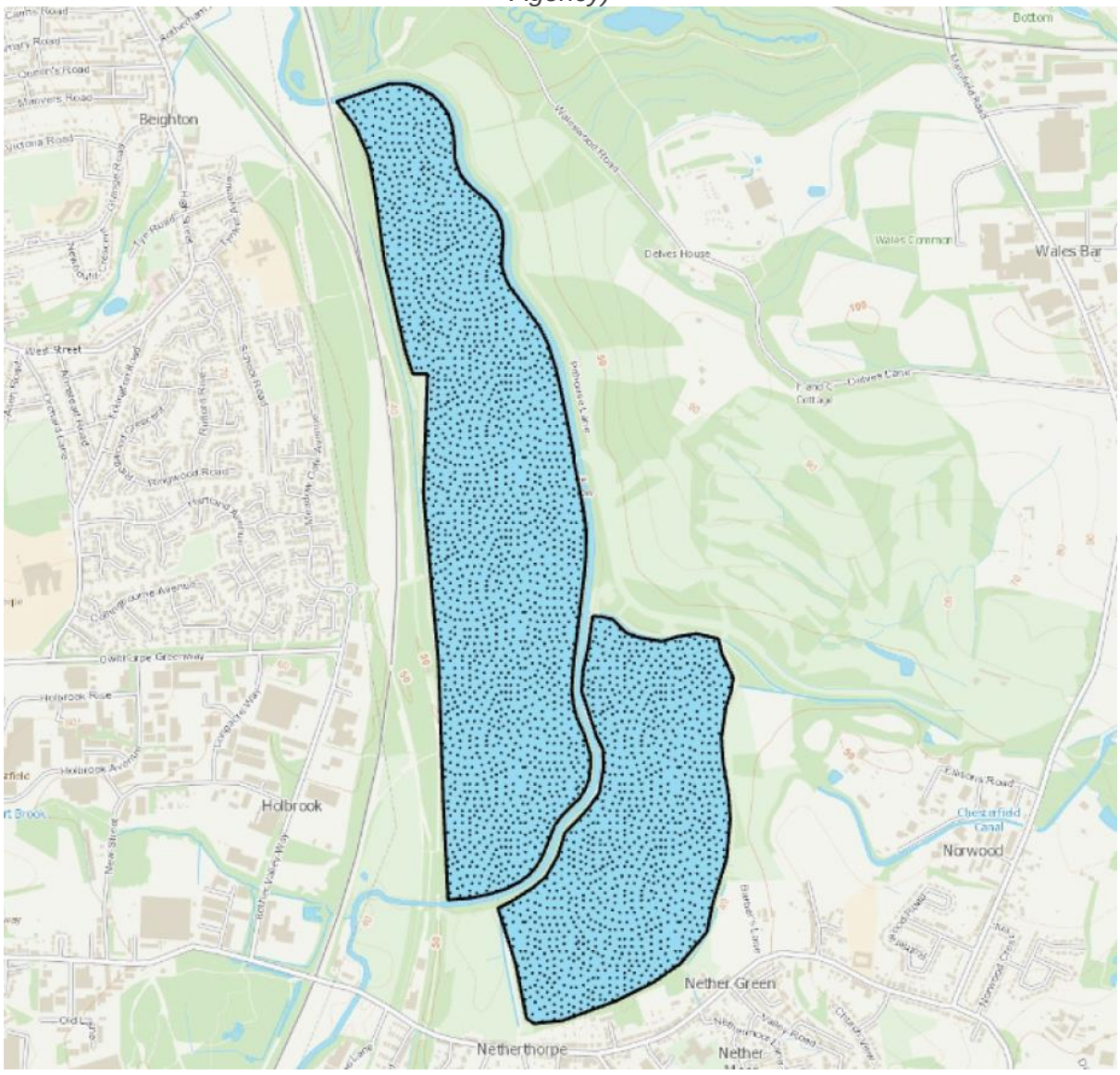
Woodhouse Mill Flow Regulator Water Storage Areas (source: Environment Agency)



Meadowgate Flow Regulator

The Meadowgate Regulator was constructed in 1982 and can store up to 1,500,000m^3 in the surrounding 4 lakes (Meadowgate Lake, Nethermore Lake, Rother Valley Lake and Northern Lake). The Meadowgate Regulator is the furthest upstream on the River Rother.,

Meadowgate Flow Regulator Water Storage Areas (source: Environment Agency)



The Meadowgate Flow Regulator was not operational in Storm Babet due to it being refurbished. The type of gate has been changed from a ‘fish belly’ gate to a ‘guillotine’ gate. However, the way in which it operates has not changed.

Meadowgate Flow Regulator - Previous Installation ('fish belly' gate)

Meadowgate Flow Regulator - New Installation (‘guillotine’ gate)

The regulators are used to divert flows from the River Rother into wetlands, aiming to reduce peak flows within the River Rother and prevent them from coinciding with the peak flows of the River Don. The Environment Agency manages the water storage and gradually releases flows to ensure that no additional flood risks are created. The flow regulation system is not managed in a manner that prioritises the protection of downstream communities over upstream ones.

Environment Agency Information – Catcliffe & Treeton Flood Warning Information

The following information has been provided by the Environment Agency following detailed discussion around the flooding event (Storm Babet) with the Council.

Catcliffe and Treeton are covered by the same Flood Alert but have their own individual Flood Warnings. The text below indicates the difference between a Flood Alert and Flood Warning.

Flood Alert: Flood Alerts cover a large area of a catchment so this is an early indication to the public that they should be alert by keeping up to date with weather forecasts and any potential warnings.

An Alert is only issued between the hours of 6am and 9pm to avoid causing undue concern in unsociable hours. This would be the time to consider preparatory steps in a personal flood plan.

Flood Warning: Issued for a particular community when flooding to properties in that area is expected**. We aim to issue these with a lead time of around 2 hours before the first property is expected to flood (or 30 mins in rapid-responding catchments).** This is the public's cue to take action and put their flood plans into place, for example activating any property level resilience.

It is the Environment Agency's aim to give customers at least 2 hours' notice prior to any property flooding and to only issue a warning when EA are confident there will be property impact, to avoid overissuing and causing unnecessary concern. To assist with these aims, there are river level triggers set below defence heights and property impact thresholds which our Flood Warning Duty Officers use as a consideration to issue a Flood Warning. Alongside these levels, decisions are also made using the latest forecast, on-the-ground situational awareness and other significant data.

For the River Rother at Catcliffe, these were met on the evening of Friday 20th October 2023, however at this point the regulators were maintaining a constant level at Catcliffe.

Once levels started to rise again in the early hours of Saturday 21st October 2023 our Result Threshold trigger level was reached, this is the level at which we think property impact will definitely occur. This resulted in the warning being activated by the system at 01.36am, reaching customers via automation at 02:14am. Reports indicate the timing of first properties to be impacted by fluvial water as approximately 4am, resulting in 2.5 hours between the activation of the warning and impact, and just short of 2 hours for residents receiving the warning.

EA do appreciate this would seem a small amount of time for residents to take action, especially in the early hours of the morning. There is a balance between fulfilling our requirement to warn and inform property owners and ensuring we are warning accurately, with fewest false-alarms possible, within a fast-changing and large scale incident and forecast.

A Flood Warning can be reissued as a Severe Flood Warning, covering the same extent. The decision to issue a Severe Warning is not based on specific river levels but is a multi-agency decision informed by input from our professional partners such as the emergency

services and the local authority. We do not have a record of being advised by any partner that a Severe Flood Warning was required. When a Severe Warning is issued it is essentially indicating that there is a risk to life or risk of significant disruption to critical infrastructure. The advice for the public is to keep safe and follow advice from emergency services.

Flood Alert issued

The Flood Alert covering Catcliffe and Treeton is the "Lower River Rother Alert" which covers the River Rother and its tributaries from the Renishaw area to the confluence of the Don. This Flood Alert was issued at 09:52am on Friday 20th October 2023. This was to inform customers that Flooding is possible. Below is the text which was sent along with the Alert.

"River levels are forecast to rise on the River Rother between Killamarsh and Rotherham, due to heavy rainfall. Flooding of low-lying land near the watercourse is likely throughout today, Friday 20th October 2023."

"Further heavy rainfall is forecast throughout today and river levels are expected to continue to rise. Our incident room is open, and we are closely monitoring rainfall and river levels. Avoid using low lying footpaths and any bridges near local watercourses and do not attempt to walk or drive through flood water. Start acting on your flood plan if you have one. This message will be updated by 17:55, 20/10/2023, or as the situation changes."

Flood Warnings issued

The Flood Warning covering Catcliffe is the "River Rother at Catcliffe" which was issued at 02:14am on Saturday 21st October 2023. This was to inform customers that Flooding to properties is expected. Below is the text which was sent along with the Warning.

Flooding is expected in this area. This means properties are at risk of flooding. Please take action to protect yourself and your property and monitor local weather and river conditions. Avoid contact with, walking or driving through flood water. Consider activating any property flood protection products you may have. Environment Agency Flood Warning Officers set the river or tidal levels that have triggered this message. During industrial action this message has been automatically issued based on rising river or tidal levels.

The Flood Warning covering Treeton is the "River Rother at Treeton" which was issued at 10:56am on Saturday 21st October 2023. This was to inform customers that Flooding to properties is expected. Below is the text which was sent along with the Warning.

River levels have peaked in the River Rother upstream of Catcliffe after yesterday's rain. Despite this, water levels remain high in the Catcliffe Area as accumulated water drains away. Water levels are forecast to reach a level later this afternoon, 21/10/23, where flooding is possible on Mill Lane. Our incident rooms are open, and we are closely monitoring the situation. Monitor local water levels and weather conditions. Consider putting your flood plan into action. You should avoid walking, cycling or driving through flood water. This message will be updated by 18:55, 21/10/2023, or as the situation changes.

The Flood Warning at Treeton is a difficult warning to issue due to there being a number of different flooding mechanisms. Prior to Storm Babet, the EA believed the Flood Risk to be from Catcliffe Flash. Water enters the flash from the River Rother, and once at

capacity, water would start to overflow onto Treeton Lane and slowly move up to Mill Lane. The EA have no telemetry within the flash and so were unable to know at what point water was overflowing onto Treeton Lane.

Flood Alerts, Flood Warnings & Severe Flood Warnings

Full information regarding Flood Alerts, Flood Warnings & Severe Flood Warnings can be found on the following website: https://www.gov.uk/guidance/flood-alerts-and-warnings-what-they-are-and-what-to-do

Flood alert
A flood alert means that flooding is possible so you should prepare now.

Flood alert icon description: a black house with 1 wavy line of water covering the bottom of it, within an orange triangle.

The Environment Agency issues a flood alert when forecasts show that flooding may be possible from:

- rivers
- high tides, surges or strong winds at sea

Timeframe
The Environment Agency usually issues a flood alert between 2 and 12 hours before flooding. Flood alerts are usually issued during waking hours where possible.

What you should do
You should regularly check if there's a flood alert for your area and follow the official advice. (https://check-for-flooding.service.gov.uk/)

If a flood alert is issued, you should:

- be ready to follow your flood plan
- have insurance documents and any medications ready
- avoid walking, cycling or driving through any flood water
- move any livestock and farming equipment away from areas likely to flood

What is at risk during a flood alert? The following can be at risk when a flood alert is in force:

- fields, recreational land and carparks
- minor roads
- farmland
- coastal areas affected by spray or waves overtopping

Flood warning

A flood warning means that flooding is expected so you should act now.

Flood warning icon description: a black house with 2 wavy lines of water covering the bottom of it, within a red triangle.

The Environment Agency issues a flood warning when forecasts show that flooding is expected from:

- rivers
- heavy rain that will cause rivers to flash flood
- high tides and surges coupled with strong winds at sea

Timeframe
The Environment Agency usually issues a flood warning 30 minutes to 2 hours before flooding.

What you should do
You should regularly check if there's a flood warning for your area and follow the official advice. (https://check-for-flooding.service.gov.uk/)

If a warning is issued, you should:

- protect yourself and your loved ones
- move your loved ones, pets and valuables to a safe place
- move to higher ground or the upper floor of a building
- turn off the gas, electricity and water in your home if it's safe
- put flood protection equipment in place
- do as the emergency services tell you
- help others if it's safe to do so

What is at risk during a flood warning. The following can be at risk when a flood warning is in force:

- homes and businesses
- railway lines and infrastructure
- roads
- coastal areas affected by spray or waves overtopping
- flood plains, including caravans park and campsites
- major tourist and leisure attractions

Severe flood warning

A severe flood warning means that flooding could cause danger to life and significant disruption to communities. You must act now.

Severe flood warning icon description: a red house with 3 wavy lines of water covering the bottom of it, within a red triangle.

Timeframe
The Environment Agency issues a severe flood warning when flooding threatens life and communities.

What you should do
You should regularly check if there's a severe flood warning for your area and follow the official advice. (https://check-for-flooding.service.gov.uk/)

If a severe warning is issued, you should:

- stay in a safe place
- be ready to evacuate your home
- do as the emergency services tell you
- call 999 if you are in immediate danger
- if you are caught in a flash flood move to higher ground or the upper floor of a building if it's safe

What may happen when a severe flood warning is in force. The following may happen during a severe flood warning:

- deep and fast-flowing water

- dangerous debris in the water
- buildings collapsing or at risk of collapsing
- communities unable to escape
- infrastructure not working, like gas, electricity and water
- the evacuation of lots of people

Environment Agency Modelling Summary – Meadowgate Regulator

The following information has been provided by the Environment Agency following detailed discussion around the flooding event (Storm Babet) with the Council.

The Environment Agency's current assessment is that the flood defence at Catcliffe, the sheet piled wall along Orgreave Road, provides a standard of protection of 1.3% Annual Exceedance Probability. Annual Exceedance Probabilities tell us how likely it is for an event to be equalled or exceeded in any given year. The table below explains this and shows with a 1.3% Annual Exceedance Probability the flood defence at Catcliffe has a return period of 1 in 75.

Return Periods (in Years)	Probability (Annual Exceedance Probability)	Chance of happening in any given year
2	0.5	50%
10	0.1	10%
25	0.04	4%
50	0.02	2%
75	0.013	1.3%
100	0.01	1%
500	0.002	0.2%
1000	0.001	0.1%

To understand the impact of Meadowgate Regulator not being operational during Storm Babet, the Environment Agency undertook a high-level modelling study. The modelling study doesn't duplicate the events of Storm Babet. Instead, the study uses modelling scenarios (called design flood events), to assess the impact of Meadowgate regulator not being in operation during Storm Babet.

As part of the modelling study, two scenarios were run to understand the impact of Meadowgate Regulator not being in operation during Storm Babet. These two scenarios were Meadowgate being operational and Meadowgate not being operational. The modelling study considered the 2%, 1.3%, 1% and 0.5% Annual Exceedance Probabilities.

During Storm Babet, the river gauges upstream of Meadowgate Regulator recorded flows between 1% and 0.5% Annual Probability Events. River flows at Catcliffe were similar, which led to the flood defence at Catcliffe (the sheet piled wall along Orgreave Road) being overtopped.

This aligns with the outputs from the modelling study. The modelling study shows there is no flooding in Catcliffe during the 2% and 1.3% Annual Exceedance Probabilities, as the Catcliffe flood defence (the sheet piled wall along Orgreave Road) keeps river flows in the River Rother.

As a whole, the modelling study shows for the 2%,1.3% and 1% Annual Exceedance Probabilities there is a slight increase in flood depths and extents in Catcliffe and Treeton

when the Meadowgate Regulator is not operational. Based on the scale of the modelling, this increase in flood depths and extents does not impact any additional properties in Catcliffe or Treeton. For the 0.5 % Annual Exceedance Probability, there is a decrease in flood depths and extents in both Catcliffe and Treeton when the Meadowgate Regulator is not operational. During Storm Babet, river flows were between the 1% and 0.5% Annual Exceedance Probabilities.

The Don Regulators Project is a priority project at the Environment Agency, which includes the refurbishment of the Meadowgate, Canklow and Woodhouse Mill Regulators on the River Rother.
When choosing the preferred option for the refurbishment of Meadowgate Regulator, the length of time the gate was due to be out of operation was a priority consideration. In the design of the works, it was established that it was not economically viable to install a temporary arrangement that would act as a control during this time. It was always understood there would need to be a duration of time when Meadowgate Regulator would not be in operation.

The time the gate was not in operation was planned to be kept to a minimum, of approximately 1 week. Due to unforeseen events the proposed 1 week was extended. Once works were underway at the beginning of September, Meadowgate Regulator was no longer in operation. The 19th October was the date scheduled to install the new gate, but this was delayed by the arrival of Storm Babet.

Meadowgate Regulator was back operational on the 21st of December 2023.

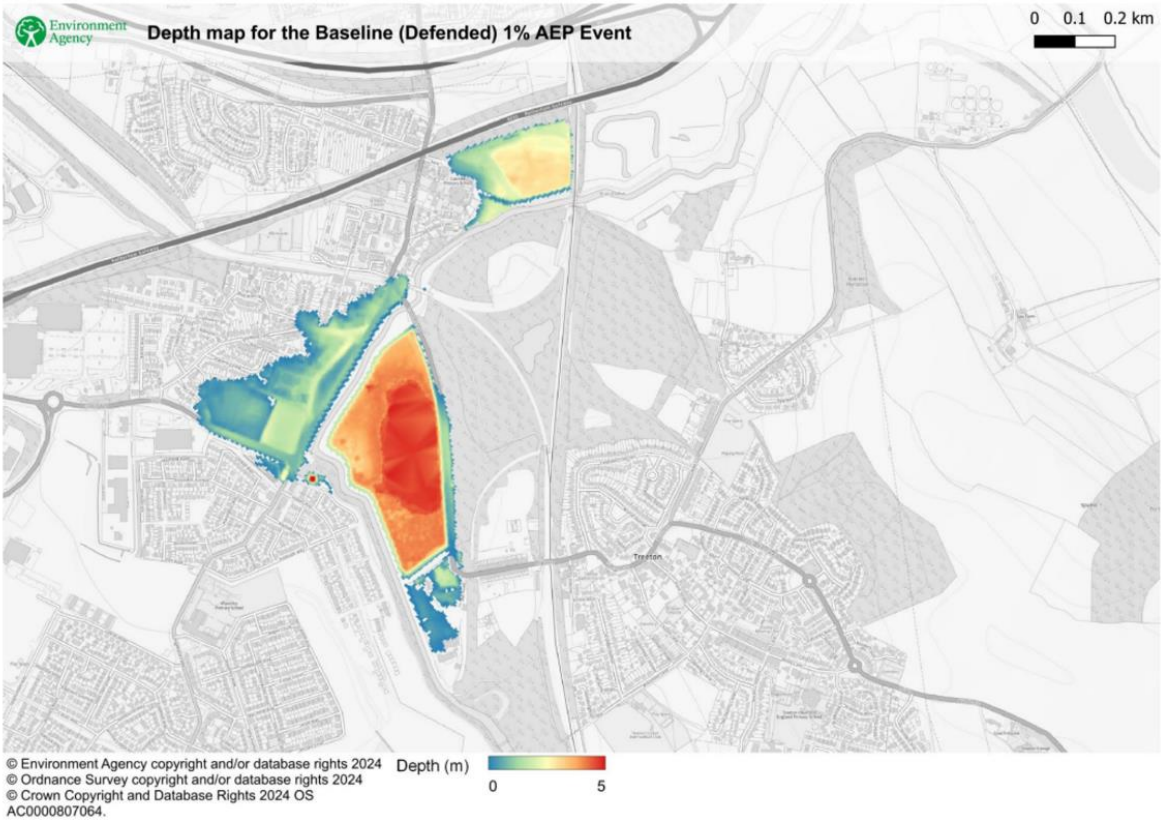
The contingency plan, during the time Meadowgate Regulator was out of operation, was to operate the other two regulators (Woodhouse Mill and Canklow). At the time of Storm Babet, both Canklow and Woodhouse Mill regulators were operated as per operating instructions which had been updated to provide contingency for the Meadowgate regulator being out of operation.

Environment Agency Modelling Outputs

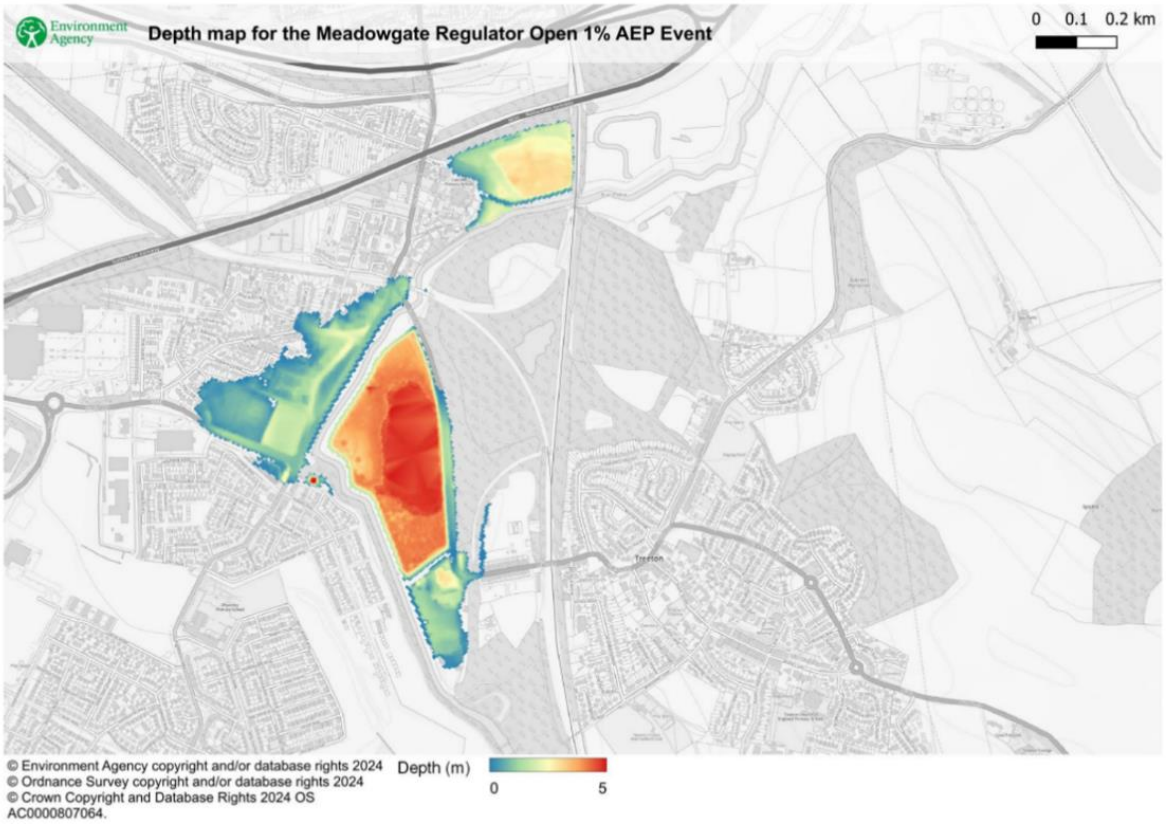
The following information has been provided by the Environment Agency following detailed discussion around the flooding event (Storm Babet) with the Council.

Maps showing the results from the modelling study are provided in this section. Maps 1 and 2 show the flood extents and depths during a 1% Annual Exceedance Probability, when Meadowgate Regulator is operational (also referred to as the Closed, Defended and Baseline scenario) and when Meadowgate Regulator is not operational (also referred to as the Open scenario). Map 3 shows the difference between the Meadowgate Regulator being operational and non operational during an 1% Annual Exceedance Probability.

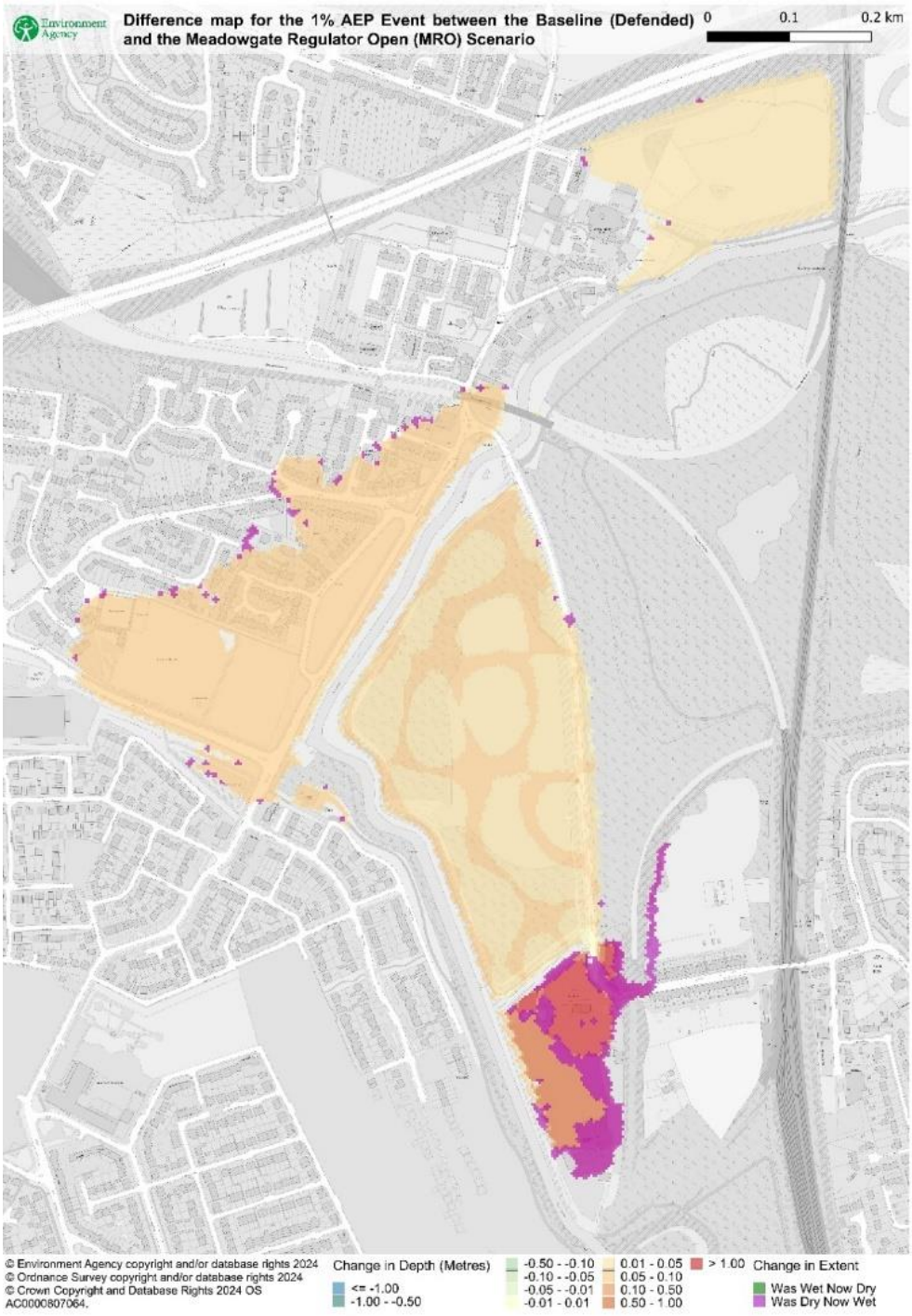
Map 1: Depth grids – 1% Annual Exceedance Probability – Meadowgate Operational (source:Environment Agency)



Map 2: Depth grids – 1% Annual Exceedance Probability – Meadowgate Non Operational (source:Environment Agency)

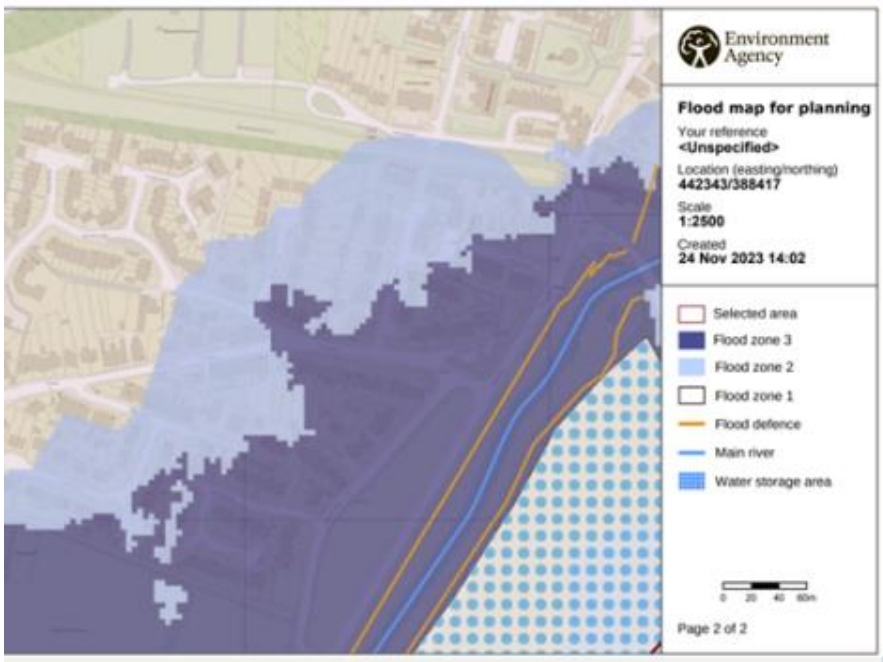


Map 3: Difference map for Meadowgate Closed vs Meadowgate Open - 1% Annual Exceedance Probability (source:Environment Agency)



CATCLIFFE

OCTOBER 2023 FLOODS



FLOOD RISK

- Catcliffe is defined by the Environment Agency (EA) as being within flood zone 3. This definition is used nationally, and it means an area has a high probability of flooding from rivers or the sea
- Flood warning area: Catcliffe including the area bounded by Orgreave Road, Station Road, Sheffield Lane and Blue Mans Way.
- Flood defences have been built to protect against flooding from rivers or the sea (shown as an orange line on the map). Flood defences reduce, but do not completely stop the chance of flooding because they can be overtopped or fail.
- Properties in Catcliffe are already protected from flooding by the River Rother by sheet pile defence and earth embankments. These defences provide a 1 in 75 year Standard of Protection (there is a 1.33% chance of them being overtopped in any one year.)

TIMELINE OF EVENTS:

- Met office issued yellow and amber warnings for persistent heavy rain for the 19th, 20th and 21st October.
- 19th October – persistent heavy rainfall started – river and surface water flooding was anticipated.
- River levels were predicted to elevate from the heavy rainfall.
- Pumps were placed in Catcliffe to remove some of the surface water.
- Sandbags were delivered to residents.
- 21st October – river level in Catcliffe rose to levels higher than the floods back in 2019.
- Rotherham council closely monitored river levels alongside the Environment Agency.
- The pressure of the water against the sheet piling wall caused the river water to start seeping through the gaps in the wall, this then caused Orgreave Road to start flooding.
- Emergency services were called to the scene to assist.
- Residents were evacuated from their homes and taken to the Catcliffe memorial hall.
- A major incident was declared and more emergency services were brought to the scene.
- The river continued to rise causing the overtopping of the existing flood defences.
- By 6am the whole road was covered and this began to flood the properties.

FLOOD MECHANISM :

- The River Rother catchment is fully maintained and managed by the Enviornment Agency, and stems from Chesterfield picking up tributaries from around Derbyshire, before passing through Killamarsh towards Catcliffe.
- Two flow regulators are situated upstream of Catcliffe to regulate flow and reduce peak flooding downstream. The reguators allow flows to overspill into wash land areas when operated.
- In October 2023, Meadowgate flow regulator situated at rother valley country park was out of commission.
- Woodhouse Mill flow regulator operated and reached peak height of 4.46 meters, 400mm higher than the water level recorded in 2007.
- The River Rother at Catcliffe reached a level of 30.52 meters, 150mm higher than the levels recorded in 2007.

Rotherham Metropolitan Borough Council

Whiston Village Community Flood Information Sheet

Contents

Introduction

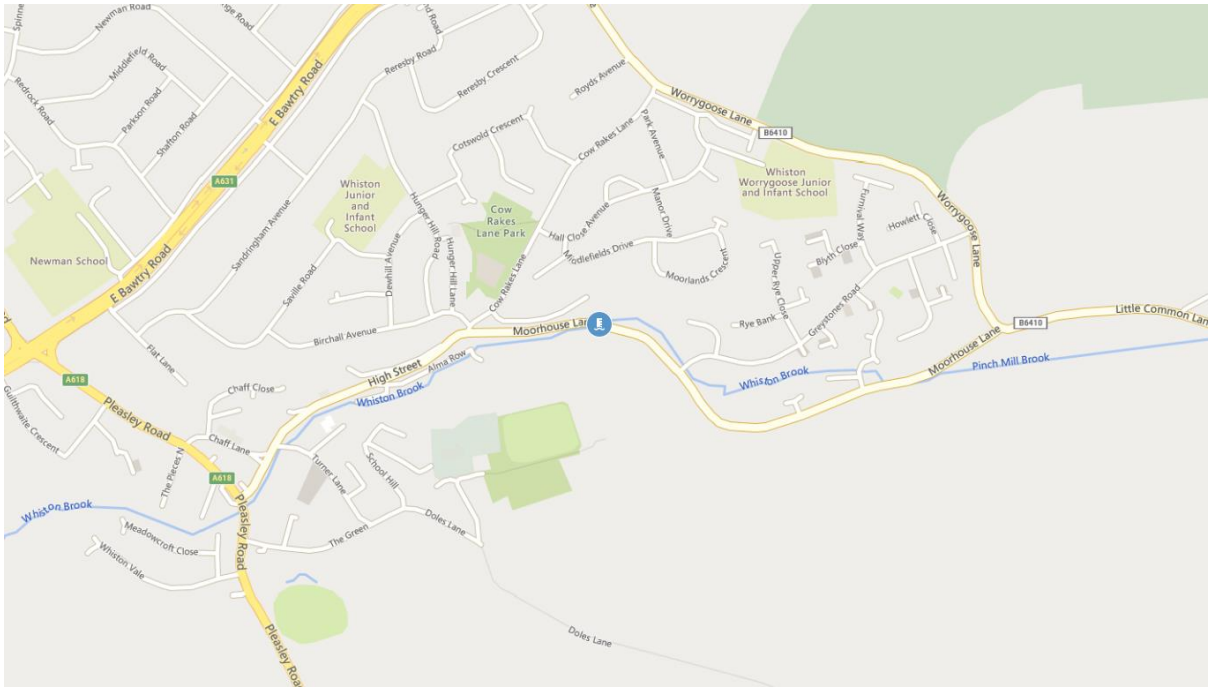
Storm Babet in October 2023 led to significant rises in river levels, causing the Whiston Brook to overflow due to heavy rainfall. Whiston Brook is classed as a rapid response catchment. Internal flooding affected 10 properties from the River and 1 from surface water. The surrounding catchment was fully saturated due to recent rainfall events causing excess surface water run-off.

Whiston has been significantly impacted from flooding on numerous occasions with properties being flooded internally more than once in recent years. Storm Babet caused flooding to 10 properties on Moorhouse Lane from over topping of the Whiston Brook, that is managed and maintained by the Environment Agency.

The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required. And together with the Environment Agency continued to monitor the river levels throughout Storm Babet.

Levels within the river was recorded at 1.947m in 2023 which was 0.355m lower than levels experienced in 2019. No telemetry system was in place in the June 2007 flood event.

The Whiston Brook River Telemetry can be viewed here: https://check-for-flooding.service.gov.uk/station/9043



Flood Warnings Issued by the Environment Agency

Flood Warning issued on 20 Oct 2023 08:08
Whiston Brook
River levels are rising rapidly on Whiston Brook due to persistent rainfall. Flooding is forecast to affect areas adjacent to Whiston Brook this morning, particularly Moorhouse Lane Road in Whiston. Rainfall is expected throughout today, 20th October 2023, and river levels are expected to remain high. Our incident rooms are open, and we are closely monitoring the situation. Monitor local water levels and weather conditions. Consider putting your flood plan into action. You should avoid walking, cycling or driving through flood water. This message will be updated by 16:10 on 20/10/2023, or as the situation changes.

Further update on the website no update was sent to residents.

Flood Warning issued on 20 Oct 2023 17:28
Whiston Brook
River levels are rising rapidly on Whiston Brook due to persistent rainfall. Flooding is forecast to affect areas adjacent to Whiston Brook this morning, particularly Moorhouse Lane Road in Whiston. Rainfall is expected throughout this evening, 20th October 2023 and into tomorrow, 21st October 2023, and river levels are expected to remain high. Our incident rooms are open, and we are closely monitoring the situation. Monitor local water levels and weather conditions. Consider putting your flood plan into action. You should avoid walking, cycling or driving through flood water. This message will be updated by 01:30 AM on 21/10/2023, or as the situation changes.

Flood Alerts, Flood Warnings & Severe Flood Warnings

Full information regarding Flood Alerts, Flood Warnings & Severe Flood Warnings can be found on the following website: https://www.gov.uk/guidance/flood-alerts-and-warnings-what-they-are-and-what-to-do

Flood alert
A flood alert means that flooding is possible so you should prepare now.

Flood alert icon description: a black house with 1 wavy line of water covering the bottom of it, within an orange triangle.

The Environment Agency issues a flood alert when forecasts show that flooding may be possible from:

- rivers
- high tides, surges or strong winds at sea

Timeframe
The Environment Agency usually issues a flood alert between 2 and 12 hours before flooding. Flood alerts are usually issued during waking hours where possible.

What you should do
You should regularly check if there's a flood alert for your area and follow the official advice. (https://check-for-flooding.service.gov.uk/)

If a flood alert is issued, you should:

- be ready to follow your flood plan
- have insurance documents and any medications ready
- avoid walking, cycling or driving through any flood water
- move any livestock and farming equipment away from areas likely to flood

What is at risk during a flood alert? The following can be at risk when a flood alert is in force:

- fields, recreational land and carparks

- minor roads
- farmland
- coastal areas affected by spray or waves overtopping

Flood warning

A flood warning means that flooding is expected so you should act now.

Flood warning icon description: a black house with 2 wavy lines of water covering the bottom of it, within a red triangle.

The Environment Agency issues a flood warning when forecasts show that flooding is expected from:

- rivers
- heavy rain that will cause rivers to flash flood
- high tides and surges coupled with strong winds at sea

Timeframe
The Environment Agency usually issues a flood warning 30 minutes to 2 hours before flooding.

What you should do
You should regularly check if there's a flood warning for your area and follow the official advice. (https://check-for-flooding.service.gov.uk/)

If a warning is issued, you should:

- protect yourself and your loved ones
- move your loved ones, pets and valuables to a safe place
- move to higher ground or the upper floor of a building
- turn off the gas, electricity and water in your home if it's safe
- put flood protection equipment in place
- do as the emergency services tell you
- help others if it's safe to do so

What is at risk during a flood warning. The following can be at risk when a flood warning is in force:

- homes and businesses
- railway lines and infrastructure
- roads
- coastal areas affected by spray or waves overtopping
- flood plains, including caravans park and campsites
- major tourist and leisure attractions

Severe flood warning

A severe flood warning means that flooding could cause danger to life and significant disruption to communities. You must act now.

Severe flood warning icon description: a red house with 3 wavy lines of water covering the bottom of it, within a red triangle.

Timeframe
The Environment Agency issues a severe flood warning when flooding threatens life and communities.

What you should do
You should regularly check if there's a severe flood warning for your area and follow the official advice. (https://check-for-flooding.service.gov.uk/)

If a severe warning is issued, you should:

- stay in a safe place
- be ready to evacuate your home
- do as the emergency services tell you
- call 999 if you are in immediate danger
- if you are caught in a flash flood move to higher ground or the upper floor of a building if it's safe

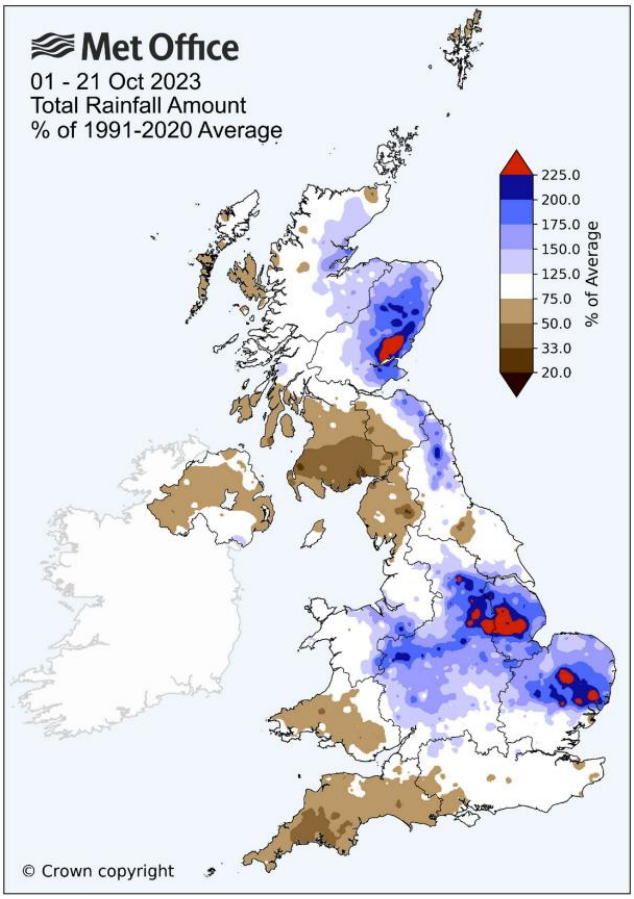
What may happen when a severe flood warning is in force. The following may happen during a severe flood warning:

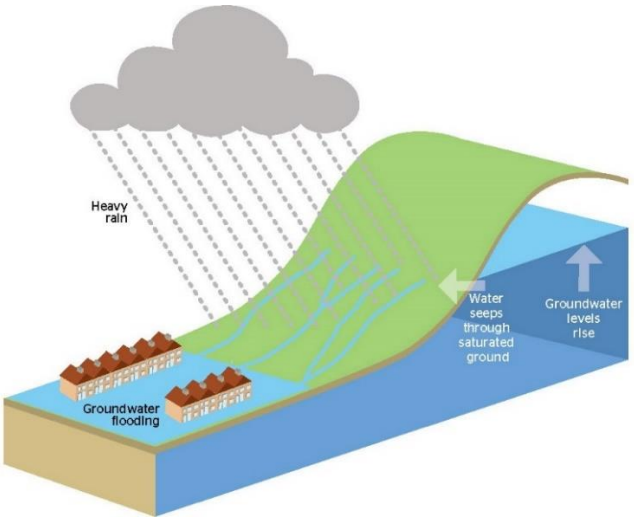
- deep and fast-flowing water
- dangerous debris in the water
- buildings collapsing or at risk of collapsing
- communities unable to escape
- infrastructure not working, like gas, electricity and water
- the evacuation of lots of people

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior, causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

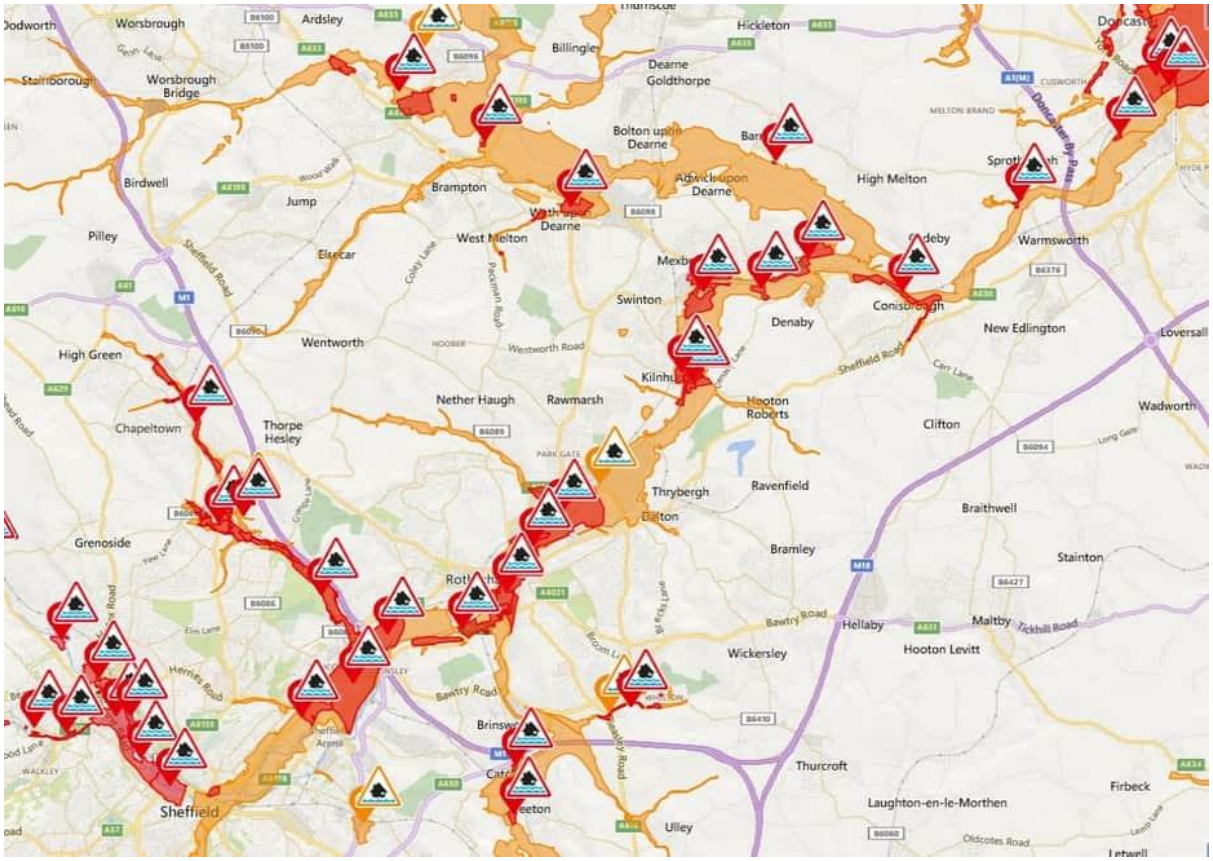
Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

River flooding

High levels of rainfall can result in rivers ‘bursting their banks’ (i.e., the river spilling out and flooding surrounding land). Flooding is a natural phenomenon, so it is usual for rivers to flood. If the river is classed as a ‘main river’, the management of flood risk will be the responsibility of the Environment Agency (EA). The Environment Agency carries out maintenance, improvement or construction work on main rivers to manage the flood risk.

The Environment Agency provide flood warning services for main river flooding. Types of flooding: You can sign up to this service if your property is at risk here: https://www.gov.uk/sign-up-for-flood-warnings

For help and guidance regarding river flooding contact the Environment Agency’s Floodline on 0345 988 1188.



Community Engagement

Since the flooding in 2019 Rotherham Council has been working closely with the Parish Council to assist with creating Community Flood Plans and providing information and support within the community.

Several drainage projects have been carried out to reduce the risk of flooding, including new outfalls from highway drains, additional drainage assets and flood bunding to hold water back from properties.

Rotherham Council, Yorkshire Water and the Environment Agency attended Whiston's festival in 2022 and produced two guidance leaflets which were delivered to all residents in Whiston.

Parish Council Engagement

Council staff have attended several Parish Council meetings relating to flood and have been available to answer any questions and provide updates on the continued works to reduce flood risk.

The most recent was –
Public meeting – Flood risk in Whiston, Tuesday 9th April 2024 at 6.30pm in the Main Hall Whiston Parish Hall
Present:

Rotherglen Associates, Drainage Adviser to the Parish Council and Whiston Residents Action Group.

Representing RMBC Drainage Team.

Parish Clerk and 71 members of the public/local parishioners.

Information was provided to the Parish Council after the event relating to issues raised by attendees. Example of which is below.

Rotherham Metropolitan Borough Council

Whiston Parish Council Meeting Follow-Up 9th April 2024

Rotherham Councils drainage team would like to thank the Parish Council for inviting us along to the meeting on the 9th April 2024. The strength of local concern was clear, and we recognise the need to provide reassurance on matters of flood risk especially to those who have suffered previous flooding or are at risk. The Council is committed to reducing flood risk around the borough and has invested significantly in preparing the 6 priority Flood Alleviation Schemes (FAS) to "shovel ready" status by the end of 2024. The Council has also recently announced an additional £300k of capital money to be used to improve highway drainage to further reduce flood risk from surface water. In the meeting several questions where asked that we were not able to fully answer on the evening. We have aimed to answer the outstanding issues raised, and we have also included responses obtained from the Environment Agency (EA) and Yorkshire Water (YW).

Q&A Whiston Parish Council Meeting

Q: **Explanation on why the (FAS) scheme has taken so long to design?**
A: Complex catchment, third party agreements for access, detailed surveys that need to be undertaken at different times of the year, approval process with EA & YW are some of the main procedures that are carried out within the design phase.

Q: **Who to contact for garden rubbish being thrown in Whiston Brook?**
A: **(EA Response)** Throwing Garden rubbish into Whiston Brook could have consequences resulting in increased flood risk. Please report all instances of this to Environment incident hotline Telephone (24-hour service) 0800 80 70 60.

Leaflet issued 2021

WHISTON BROOK

Working together to reduce the risk of flooding

The location of Whiston Brook means that it can cause flooding to nearby properties during heavy rainfall. By working together we can reduce this risk.

Organisations including the Environment Agency, Yorkshire Water and Rotherham Council all work together to reduce the risk of flooding to properties.

There are also things that you can do to help.

ENVIRONMENT AGENCY

The Environment Agency is responsible for managing the risk of flooding from main rivers, reservoirs, estuaries and the sea. They look at ways of reducing the risk of flooding and regulate the way water enters the river. Before, during and after a flood they check main river defences.

Contact the Environment Agency to:

- Report an obstruction in Whiston Brook that may lead to flooding
- Report pollution or a flooding incident

www.gov.uk/environment-agency
0800 80 70 60

ROTHERHAM COUNCIL

Rotherham Council is responsible for local flood response. They make sure the highway drainage networks such as streets and roads are clear and maintained, help communities recover from flooding and, in some cases, provide financial assistance to those affected by floods.

Contact Rotherham Council to:

- Report a blocked, damaged or missing manhole, drain cover or gully grate
- Request sandbags if your home is at risk
- Find out what financial assistance is available if you have been affected by floods

www.rotherham.gov.uk
01709 336003

YORKSHIRE WATER

Yorkshire Water is responsible for the public sewer systems in the region.

Contact Yorkshire Water if:

- Sewage has come into your property
- Sewage is outside of your property. You can check to see if someone has already reported the flood on their website
- You see a water leak

www.yorkshirewater.com
0345 1 242 424

Environment Agency

YorkshireWater

Rotherham Metropolitan Borough Council

Your responsibilities as a property owner

As a landowner near Whiston Brook there are things that you can do to help prevent flooding. If the boundary of your land is next to the brook, you own and are responsible for the land up to the centre of the brook.

To help prevent flooding you must:

- Allow excess rainfall flow through your land/garden
- Keep your land clear of anything that could cause an obstruction and increase the risk of flooding
- Maintain any trees and shrubs that grow along your section of the riverbed and banks
- Clear any litter and animal carcasses from the brook and banks, even if they are not from your land (contact the Environment Agency for help and advice)
- Leave the edges of the riverbank clear and free of development to allow access
- Keep any structures on your land such as bridges, culverts, trash screens, weirs and mill gates clear of debris
- Control any invasive plants such as Japanese knotweed

For more information about living by a river visit:

www.gov.uk/guidance/owning-a-watercourse

03708 506 506

Be prepared for flooding

The Environment Agency provide a free Flood Warning Service to warn residents and businesses when flooding is expected.

By registering for the service you will receive an advanced warning of potential flooding in your area. This gives you time to stay safe, take action and prepare yourself and your property for flooding.

The team can also to help you make a personal flood plan so you know what to do in the event of a flood.

To register for the service visit:

www.flood-warning-information.service.gov.uk/warnings

0345 988 1188

What's happening in South Yorkshire

For information about the flood recovery work taking place across South Yorkshire visit

www.consult.environment-agency.gov.uk/yorkshire/south-yorkshire-flood-recovery-information-page

If you have any questions about any of the work being carried out across Rotherham please email:

SYPSO@environment-agency.gov.uk

Leaflet issued August 2023

WHISTON

Working together to reduce the risk of flooding

Flooding occurs in Whiston because the brook's tributaries and drainage systems cannot always cope with the amount of rainfall, which results in flooding of nearby properties.

Rotherham Council work together with other organisations including the Environment Agency, Yorkshire Water, South Yorkshire Mayoral Combined Authority and Whiston Parish Council to reduce the risk of flooding.

ROTHERHAM COUNCIL

Rotherham Council is responsible for the local flood response. They make sure the highway drainage networks such as streets and roads are clear and maintained, help communities recover from flooding.

Contact Rotherham Council to:

- Report a blocked, damaged or missing manhole, drain cover or gully grate
- Request sandbags if your home is at risk of imminent flooding

For useful information on flood events and how to prepare for them visit:

www.rotherham.gov.uk/water-management-flooding

For information on how to prepare your home and community for an emergency visit:

www.rotherham.gov.uk/emergencies

t. 01709 336003

WHISTON PARISH COUNCIL

Whiston Parish Council have supplied Hydrosacks to properties at risk of flooding.

They are lightweight, easy to carry and can be easily and safely disposed of after use. Rotherham Council and the Parish Council work together during a flood event to agree on the most suitable locations for the Hydrosacks and provide properties with a supply if they are deemed at-risk.

www.whistonparishcouncil.com

t. 07712 305729

Connected by Water

Environment Agency

Rotherham Metropolitan Borough Council

Leaflet issued August 2023

Next Steps

- People, property, infrastructure, and emergency services across the borough have been severely impacted by catchment wide flooding events in June 2007, November 2019, and October 2023, and there has also been a number of other “near miss” flood events over the last two decades.

  Flooding creates a dangerous situation, particularly if people become trapped within floodwater, or if transport networks and other local access routes become flooded. Impacts of flooding on sections of the transport network regularly causes significant disruption to many residents and businesses across the borough. The predicted impacts of a changing climate will exacerbate this existing risk, and strategic solutions are needed to create a safe and prosperous place to live and work.

  The Council is working with the Environment Agency (EA), South Yorkshire Mayoral Combined Authority (SYMCA), Network Rail (NR), Canal & River Trust (CRT), plus many other organisations, asset owners, and landowners to deliver six Priority Flood Alleviation Scheme projects to reduce flood risk across the borough.

  Delivery of these six Priority Flood Alleviation Schemes will significantly reduce flood risk to people, property and infrastructure, including:

  - Approximately 290 residential properties (at risk of internal flooding)
  - Approximately 360 business properties (at risk of internal flooding)
  - Many more residential and business properties that suffer indirect impacts (where property access can be cut off by flooding)
  - 8 sections of the strategic highways network (including key routes that need to be operational for emergency services during flood events)
  - Rail and tram-train infrastructure (including services through Rotherham Central and Parkgate stations)
  - Canal system (which includes residential moorings)
  - Critical utility company infrastructure
  - Community infrastructure

  One of the Council’s six Priority Flood Alleviation schemes that is being developed to a ‘shovel ready’ state is the Whiston Brook Flood Alleviation Scheme. This scheme will help reduce the risk of flooding to Whiston by reducing peak flows across the catchment during a storm event by storing water in an attenuation basin / reservoir upstream. In addition, watercourse and culvert improvements will be undertaken to improve the conveyance of water.

  Following an allocation of £0.5m from the Council’s corporate resources in 2021, and an additional £0.5m from Yorkshire Regional Flood and Coastal Committee Local Levy fund in 2023/2024, the Council and our Consultants have been working hard to progress the various aspects to achieve ‘shovel ready’ status for this flood alleviation scheme. These aspects include:

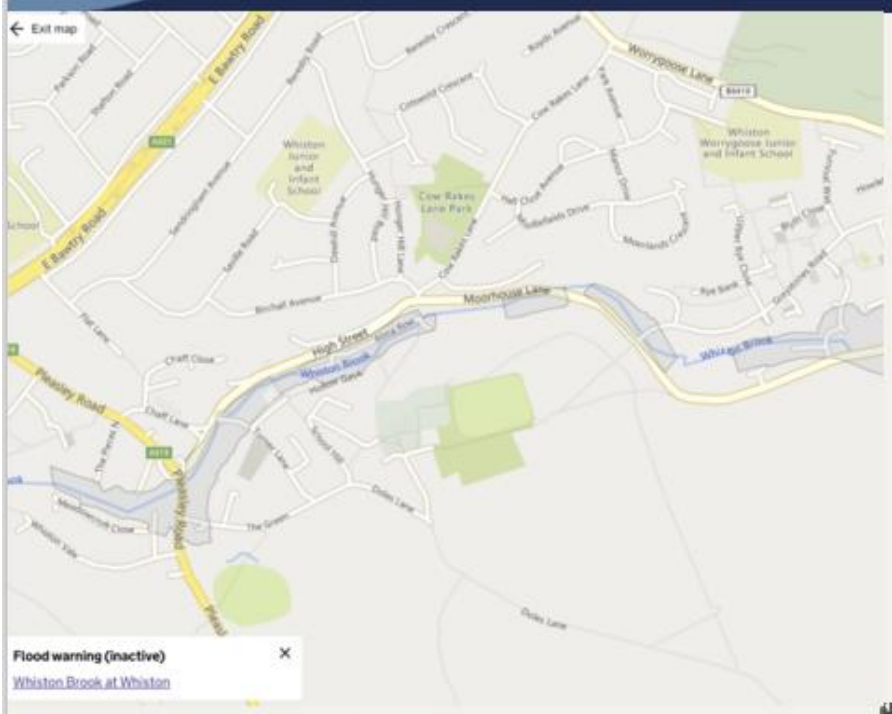
- The feasibility study and options appraisal (a study to determine the viability of various options and they benefits)
- Surveys and investigations for ecology, environmental, topographic and ground condition
- Modelling and calculations
- Scheme design drawings (outline and detailed)
- Third party approvals (Environment Agency, utility companies, etc.)
- Landowner agreements
- Planning applications.

With construction funding allocated, it is anticipated that construction works on the Flood Alleviation Scheme will start in late 2025, subject to approvals and legal agreements. It is estimate that the construction phase for this scheme will cost in the region of £5.5mil.

- The Council will continue to respond to flood events and assist residents within the community where possible.

WHISTON

OCTOBER 2023 FLOODS

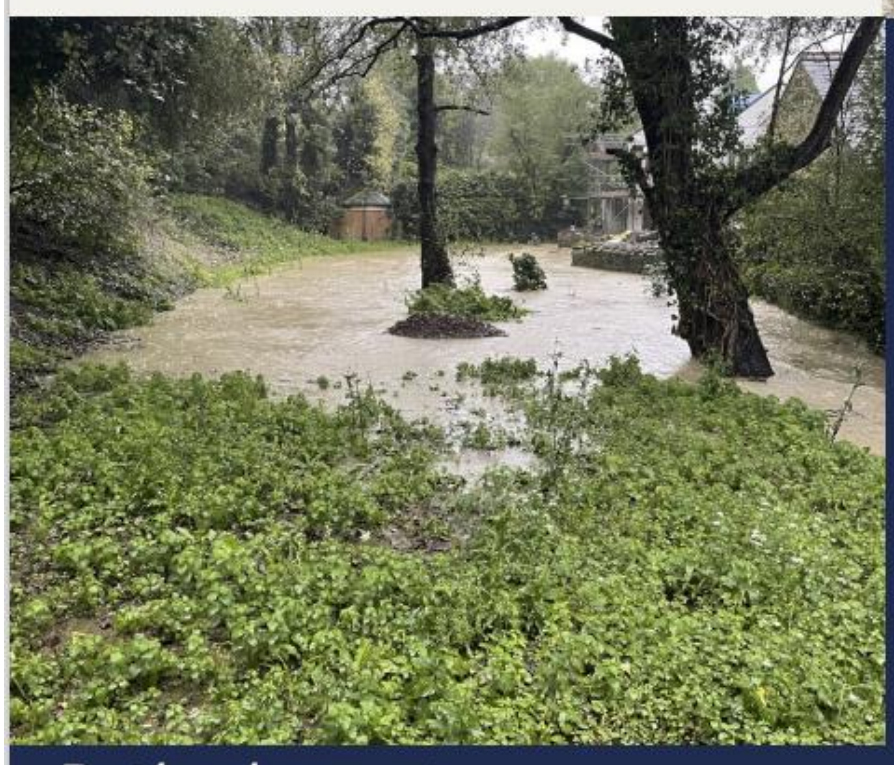


FLOOD RISK

- Flood zone 3 – high probability of flooding from rivers and the sea.
- Main river which runs through Whiston known as Whiston Brook.
- Flood warning area: Whiston Brook through Whiston, from Moorhouse Lane, along High Street to Meadowcroft Close.

TIMELINE OF EVENTS:

- Met office issued yellow and amber warnings for persistent heavy rain for the 19th, 20th and 21st October.
- 19th October – persistent heavy rainfall started – river and surface water flooding was anticipated.
- River levels were predicted to elevate from the heavy rainfall.
- Sandbags were delivered to residents.
- Rotherham council closely monitored river levels alongside the Environment Agency.
- On Friday 20th October, Moorhouse Lane had to be closed due to flooding.
- Communities and neighbourhoods attended all properties that experienced internal flooding.
- Skips were provided to aid residents with disposing of flood damaged furniture.



FLOOD MECHANISM:

- Whiston Brook has been classified as a main river and is managed by the Environment Agency. Due to several months of heavy rainfall, high ground saturation has caused high levels of surface water run-off.

- Storm Babet saw peak rainfall within Whiston reaching 81mm within a 48 hour period, and peak flows within the river of 1.95 meters, 350mm lower than the levels recorded in 2019.

Rotherham Metropolitan Borough Council

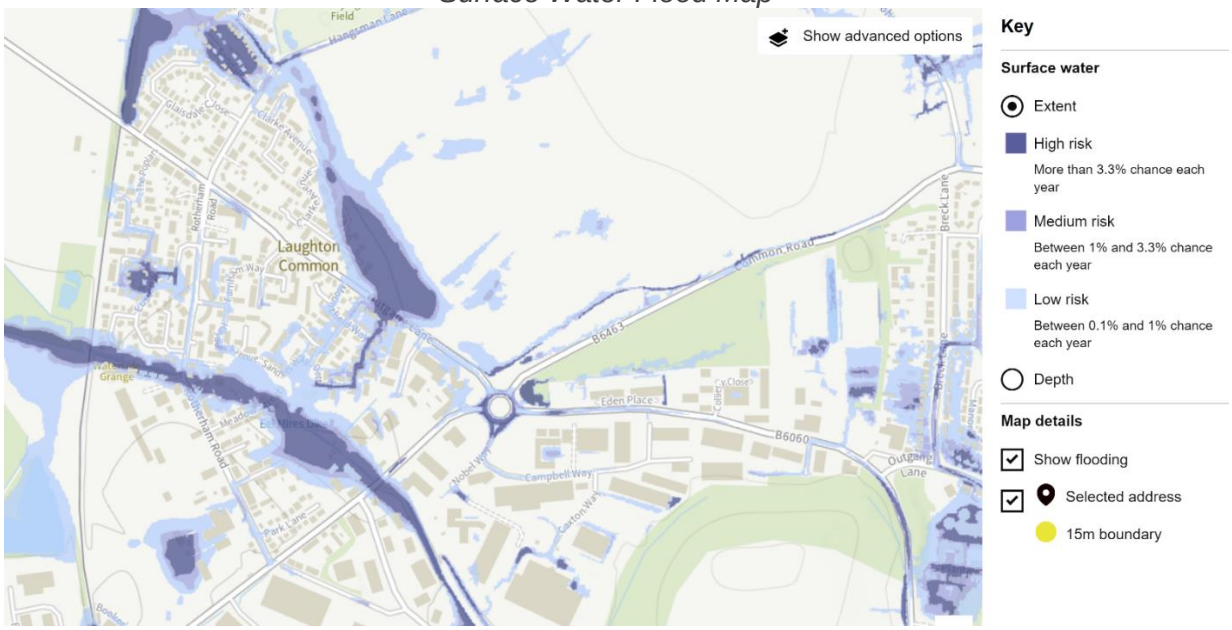
Dinnington & Laughton Common Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant rises in watercourse levels, causing Eel Mires Dike to overflow due to heavy rainfall. Internal flooding affected 7 properties from the watercourse. The surrounding catchment was fully saturated due to recent rainfall events causing excess surface water run-off.

Surface Water Flood Map

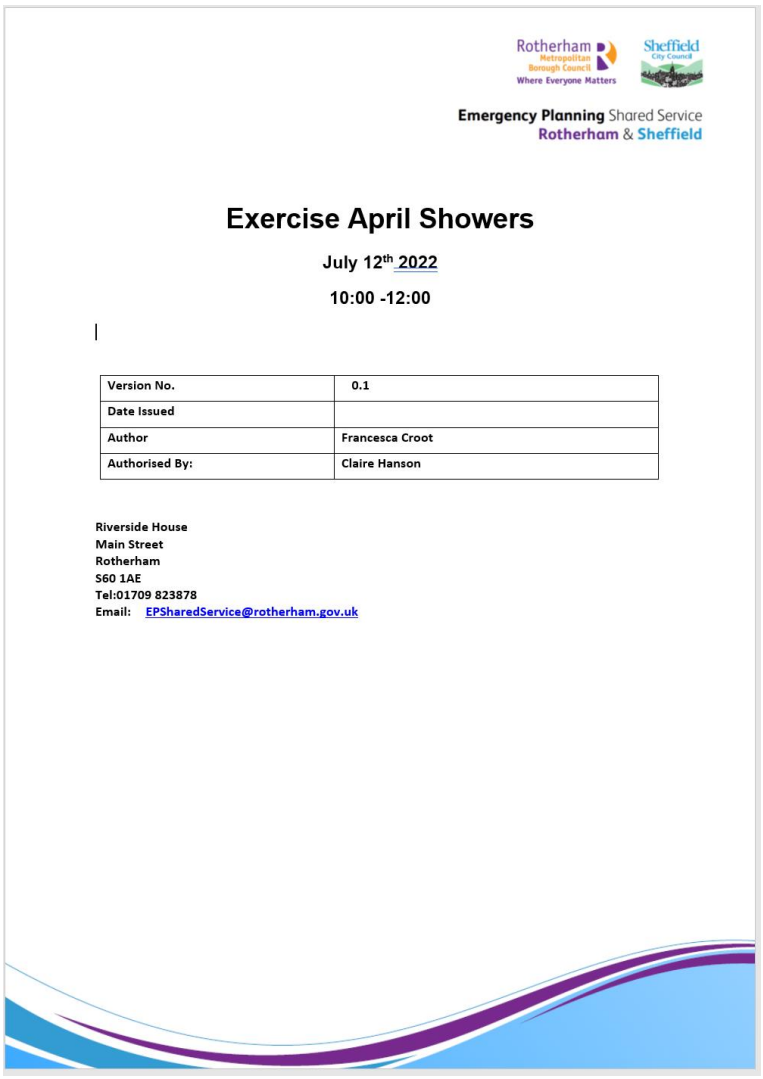


Dinnington and Laughton Common were heavily impacted during Storm Babet. Eel Mires Dike (watercourse) over topped as a result of saturated ground that surrounds both Laughton Common and Dinnington. The culverted watercourse from Outgang Lane does not have sufficient capacity during high volumes of surface water runoff. The flooding that occurred on Meadow Street was due to Eel Mires Dike culverted watercourse being overwhelmed.

The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required. And continued to monitor the river levels throughout Storm Babet.

Since 2019 Rotherham Council has been working with Dinnington Town Council to assist with resource requests and draft community flood plans. Rotherham Council have provided the Town Council with HydroSacks (an alternative to sandbags) to assist in providing resilience.

Rotherham Council's Emergency Planning Team has carried out exercises with Dinnington Town Council to improve their preparedness to dealing with flood events and increase their knowledge on how to respond within a flood event.



Rotherham Metropolitan Borough Council
Where Everyone Matters

Sheffield City Council

Emergency Planning Shared Service
Rotherham & Sheffield

Exercise April Showers

July 12th 2022

10:00 -12:00

Version No.	**0.1**
Date Issued	
Author	**Francesca Croot**
Authorised By:	**Claire Hanson**

Riverside House
Main Street
Rotherham
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Email: EPSharedService@rotherham.gov.uk

Contents

Aim:

To provide an opportunity for Dinnington St Johns to validate their community emergency plan.

Objectives:

1. To confirm the activation procedures within the plan are suffice
2. To confirm the process of communication between Dinnington St Johns Town Council and RMBC
3. To discuss the Dinnington St Johns Council response options to a potential flood emergency
4. To provide an opportunity for staff to review and familiarise themselves with the plan
5. To provide an opportunity to identify learning and recommendations to inform future planning needs

Date of Exercise
Tuesday 12th April 10-12am

Location
The Lyric, 62a Laughton Road, Dinnington, Sheffield, South Yorkshire, S25 2PS.

Participation
The exercise is aimed at Dinnington St Johns Town Council with support from RMBC to review and validate the Community Emergency Plan. This exercise will take place via a table-top format

Invitees

Name	Designation
TBC	

The training session focused around:

- Before an incident / once an incident looks likely:
    - Signing up to Met Office alerts as means of keeping an eye on the forecast.
    - Ensuring arrangements are in place – i.e., having your own sandbags / setting up flood barriers.

- During an incident:
    - Ensuring that a messaging network it set up between local residents, Town Council.
    - Having a presence on the ground and checking known hotspots.

Guidance leaflets were then produced to provide information on who to contact within the event, what to do within a flood event, and the upcoming scheme to reduce flood risk; which were delivered to over 2000 residents in Laughton Common and adjacent areas.

Leaflet issued May 2022

LAUGHTON COMMON

Working together to reduce the risk of flooding

Flooding occurs in Laughton Common because the drainage systems and smaller watercourses (also called ordinary watercourses) in the area cannot always cope with the amount of rainfall, which results in flooding of properties.

Rotherham Council work together with other organisations including the Environment Agency, South Yorkshire Mayoral Combined Authority and Dinnington St John's Town Council to reduce the risk of flooding.

ROTHERHAM COUNCIL

Rotherham Council is responsible for the local flood response. They make sure the highway drainage networks such as streets and roads are clear and maintained, help communities recover from flooding and, in some cases, provide financial assistance to those affected by floods.

Contact Rotherham Council to:

- Report a blocked, damaged or missing manhole, drain cover or gully grate
- Find out what financial assistance is available if you have been affected by floods

For useful information on flood events and how to prepare for them visit:

www.rotherham.gov.uk/water-management-flooding

For information on how to prepare your home and community for an emergency visit:

www.rotherham.gov.uk/emergencies

t. 01709 336003

DINNINGTON ST JOHN'S TOWN COUNCIL

Dinnington St John's Town Council have a supply of Hydrosacks to help reduce distribution time during a flood event. Hydrosacks are a modern eco-friendly alternative to traditional sandbags. They are lightweight, easy to carry and can be easily and safely disposed of after use.

Rotherham Council and the Town Council work together during a flood event to agree on the most suitable locations for the Hydrosacks and provide properties with a supply if they are deemed at-risk.

www.dinningtonstjohns.org

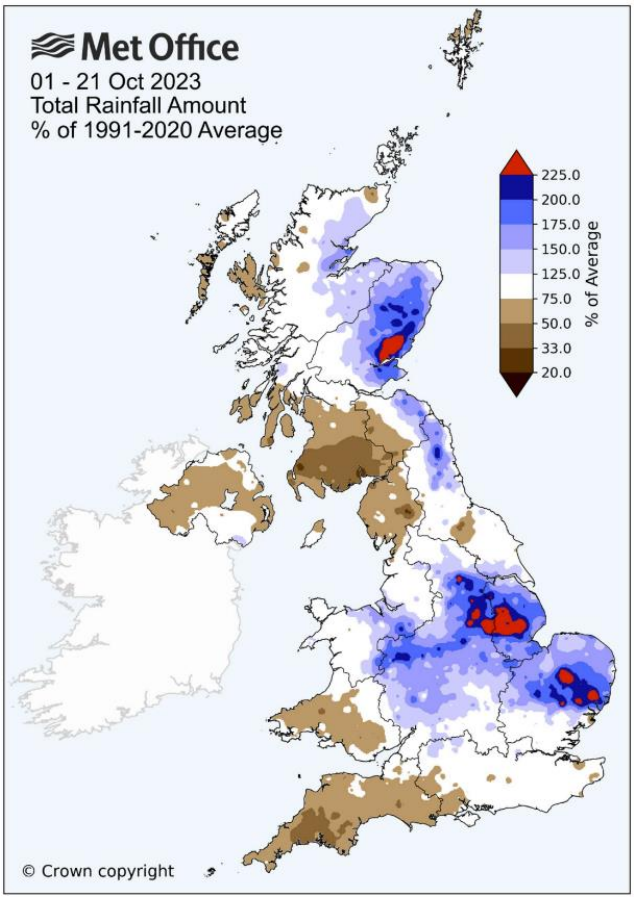
t. 07947 880573 – Town Clerk

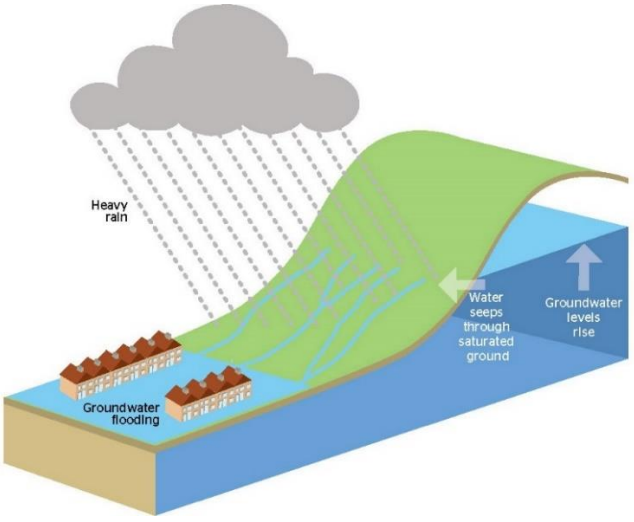
Connected by Water | Dinnington St John's Town Council | Environment Agency | Rotherham Metropolitan Borough Council

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

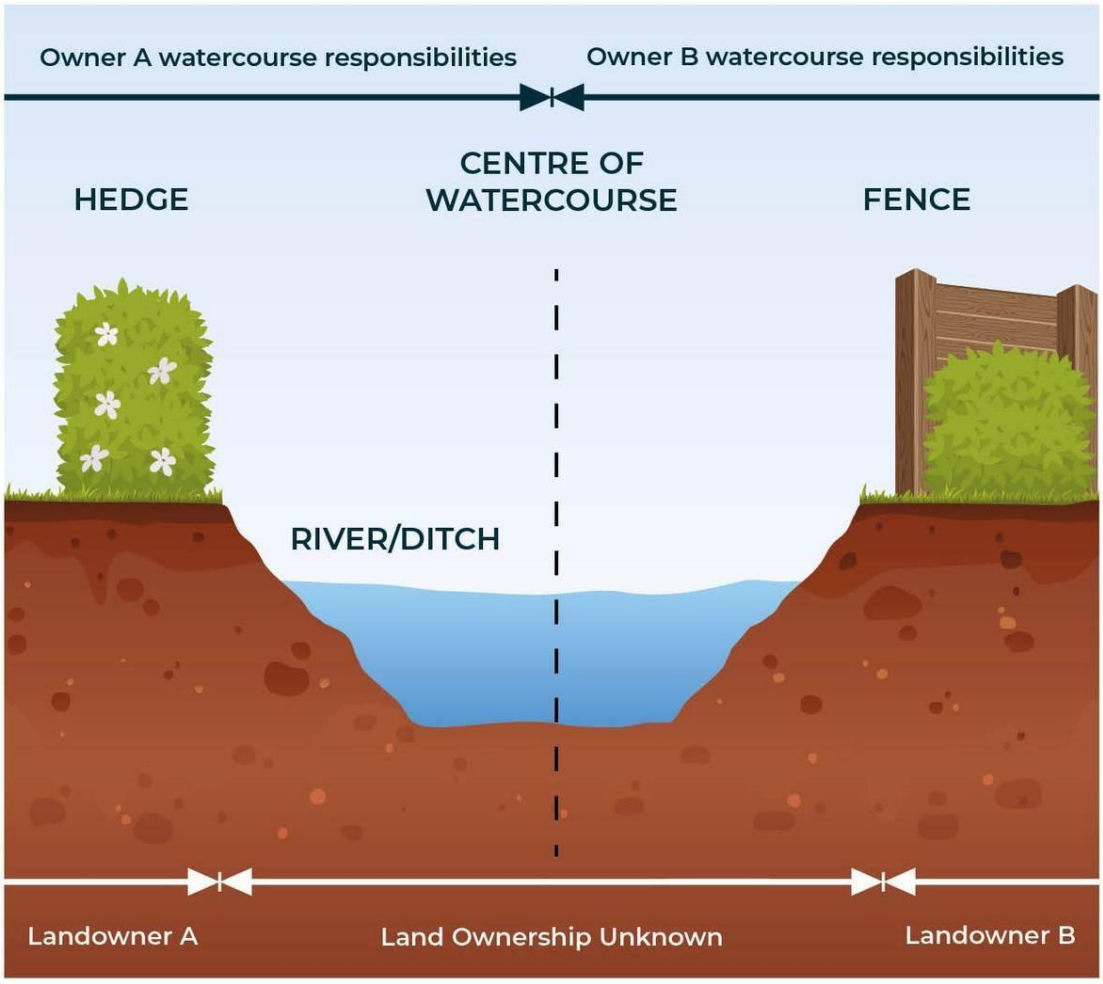
Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Ordinary Watercourses

Watercourses that are not managed by the environment agency and are riparian owner's responsibility. Flooding occurs when a break or failure happens, or the banks of the watercourse are over topped.

Riparian Ownership

If you are a riparian owner of a watercourse, for example if you live next to a watercourse, or a watercourse flows through your land, you have very important and specific legal responsibilities to manage flood risk. The responsibility will lie to the centre of the watercourse if your land is adjacent.



Next Steps

- People, property, infrastructure, and emergency services across the borough have been severely impacted by catchment wide flooding events in June 2007, November 2019, and October 2023, and there has also been a number of other “near miss” flood events over the last two decades.

  Flooding creates a dangerous situation, particularly if people become trapped within floodwater, or if transport networks and other local access routes become flooded. Impacts of flooding on sections of the transport network regularly causes significant disruption to many residents and businesses across the borough. The predicted impacts of a changing climate will exacerbate this existing risk, and strategic solutions are needed to create a safe and prosperous place to live and work.

  The Council is working with the Environment Agency (EA), South Yorkshire Mayoral Combined Authority (SYMCA), Network Rail (NR), Canal & River Trust (CRT), plus many other organisations, asset owners and landowners to deliver six Priority Flood Alleviation Scheme projects to reduce flood risk across the borough.

  Delivery of these six Priority Flood Alleviation Schemes will significantly reduce flood risk to people, property and infrastructure, including:

  - Approximately 290 residential properties (at risk of internal flooding)
  - Approximately 360 business properties (at risk of internal flooding)
  - Many more residential and business properties that suffer indirect impacts (where property access can be cut off by flooding)
  - 8 sections of the strategic highways network (including key routes that need to be operational for emergency services during flood events)
  - Rail and tram-train infrastructure (including services through Rotherham Central and Parkgate stations)
  - Canal system (which includes residential moorings)
  - Critical utility company infrastructure
  - Community infrastructure

  One of the Council’s six Priority Flood Alleviation schemes that is being developed to a ‘shovel ready’ state is the Eel Mires Dike Flood Alleviation Scheme at Laughton Common. The scheme will help reduce the risk of flooding to the Laughton Common area by reducing peak flows across the catchment during a storm event by storing water in attenuation basins upstream. In addition, watercourse and culvert improvement works will be undertaken to improve the conveyance of water.

  Following an allocation of £0.6m from the Council’s corporate resources in 2021, the Council and our Consultants have been working hard to progress the various aspects to achieve ‘shovel ready’ status for this flood alleviation scheme. These aspects include:

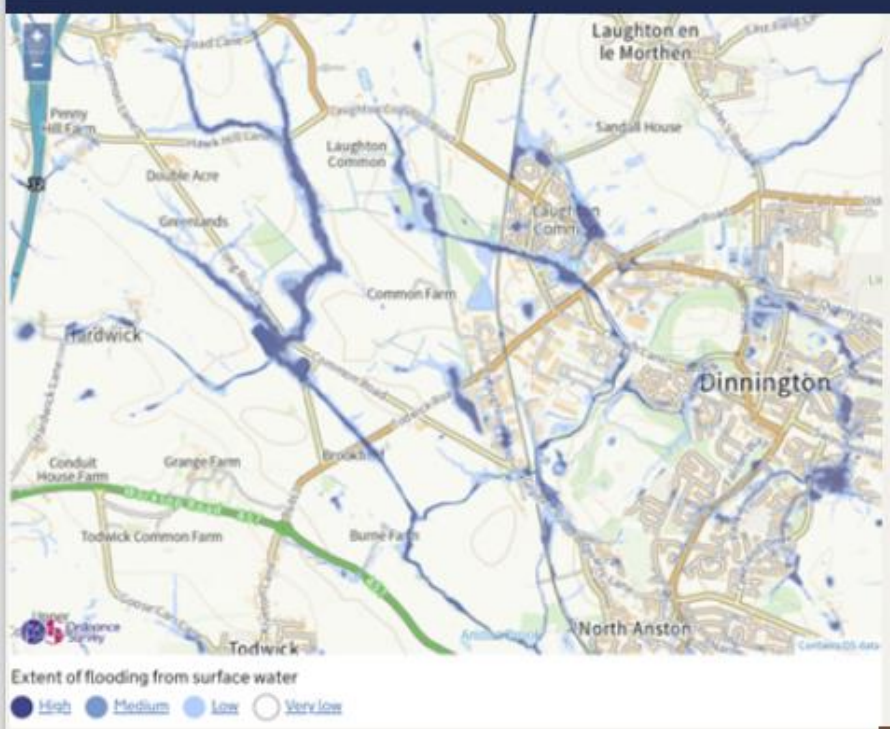
- The feasibility study and options appraisal (a study to determine the viability of various options and they benefits)
- Surveys and investigations for ecology, environmental, topographic and ground condition
- Modelling and calculations
- Scheme design drawings (outline and detailed)
- Third party approvals (Environment Agency, utility companies, etc.)
- Landowner agreements
- Planning applications

With construction funding allocated, it is anticipated that construction works on the Flood Alleviation Scheme will start in late 2025, subject to approvals and legal agreements. It is estimate that the construction phase for this scheme will cost in the region of £6.6mil.

- The Council will continue to respond to flood events and assist residents within the community where possible.

LAUGHTON COMMON

OCTOBER 2023 FLOODS



FLOOD RISK

- Flood zone 1 – low probability of flooding from rivers and the sea.
- High risk area for surface water flooding.

TIMELINE OF EVENTS:

- Met office issued yellow and amber warnings for persistent heavy rain for the 19th, 20th and 21st October.
- 19th October – persistent heavy rainfall started – river and surface water flooding was anticipated.
- Sandbags were delivered to residents.
- Dinnington Town Council issued hydro-sacks to vulnerable residents.
- Rotherham council closely monitored river levels alongside the Environment Agency.
- On Friday 20th October, roads were closed throughout the day as flood waters continued to rise.
- Communities and neighbourhoods attended all properties that experienced internal flooding.

FLOOD MECHANISM:

- Eel Mires Dike is classified as an ordinary watercourse and falls under responsibility of riparian ownership.
- Due to several months of heavy rainfall, high ground saturation has caused high levels of surface water run-off.
- Storm Babet saw peak rainfall within Laughton Common reaching 100.4mm within a 48 hour period. The large rural catchment overwhelmed the existing watercourse and culverts, causing widespread flooding throughout Laughton Common.

Rotherham Metropolitan Borough Council

Kimberworth Park Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Kimberworth Park, this was due to the level of rainfall experienced surpassed the design criteria for the existing highway drain.

Surface Water Flood Risk Map

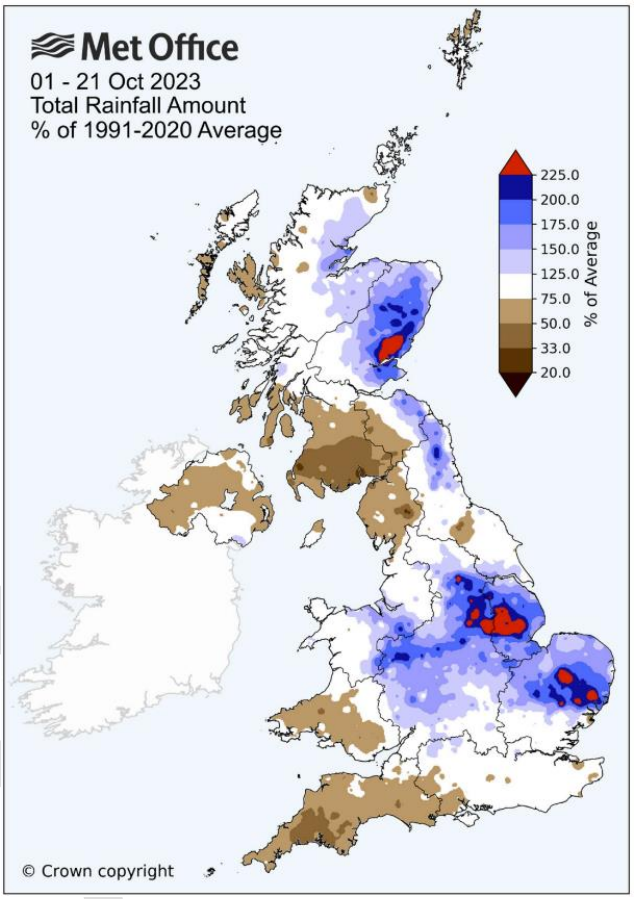
During Storm Babet the area experienced extremely heavy rainfall and high levels of surface water and groundwater flooding that caused internal flooding to 1 property in Kimberworth Park.

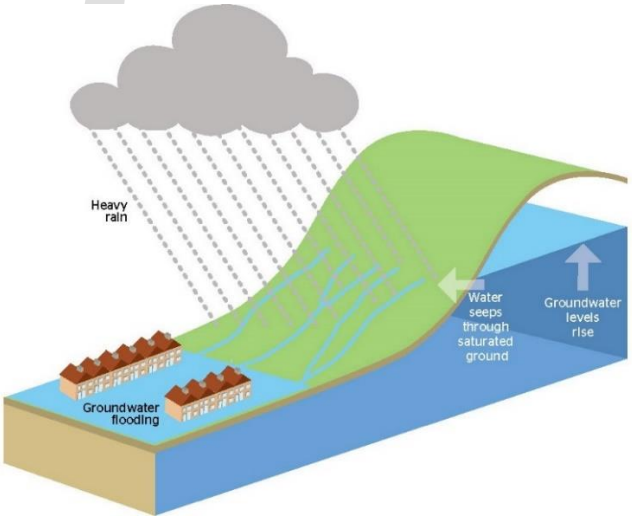
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

The Council will continue to monitor these issues and carrying out further investigation and remedial works as identified. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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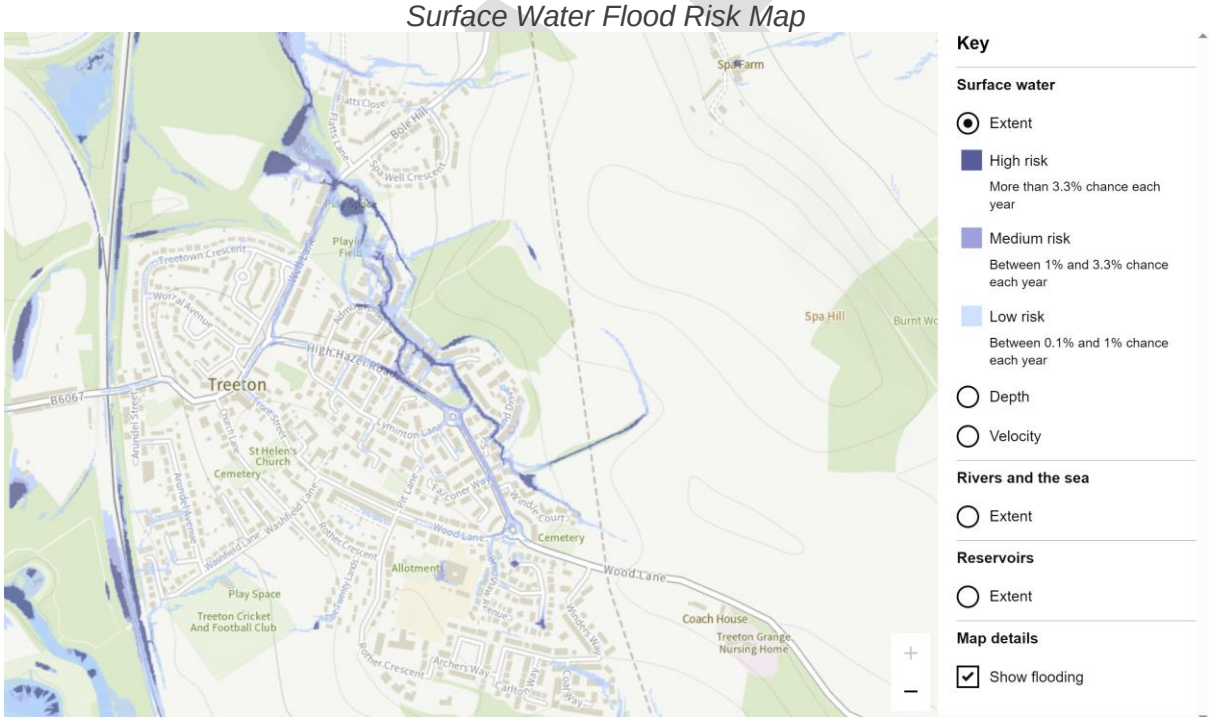
Treeton (Shorland Drive) Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 2 properties at Shorland Drive, Treeton, this was due to the surrounding catchment being fully saturated due to recent rainfall events causing excess surface water run-off from Council owned land.

Surface Water Flood Risk Map



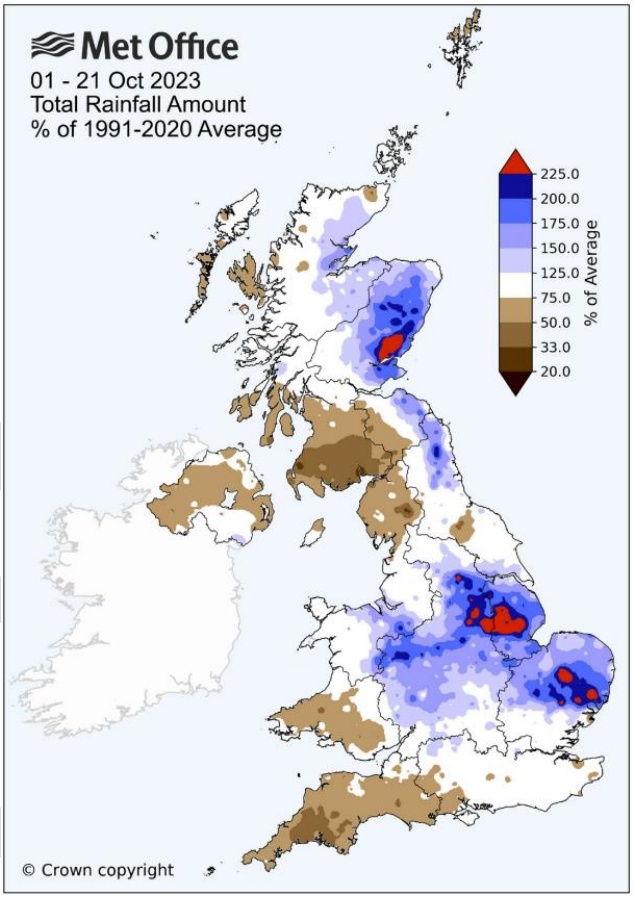
During Storm Babet the area experienced extremely heavy rainfall and surface water run-off from the surrounding greenspace (which was already saturated due to the prolonged rainfall). Both of these situations contributed to higher-than-normal water levels in existing watercourses, which unfortunately over-topped and caused flooding to the properties.

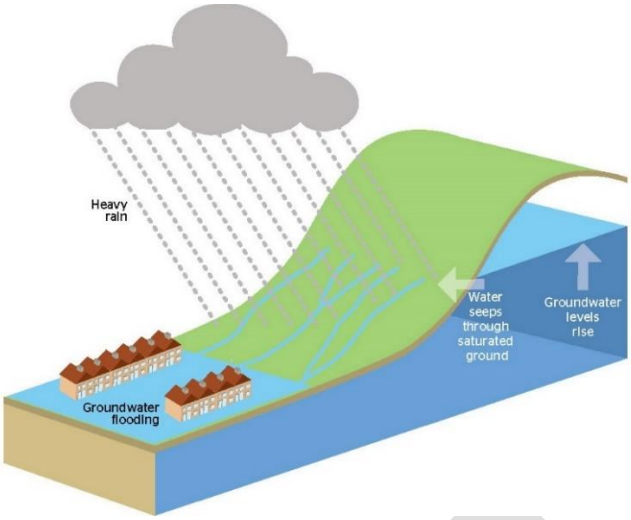
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

Following the storm event, the Council have identified priority areas where improvements can be made to the existing drainage infrastructure to reduce flooding, particularly on the highway network and to properties. Upon investigation the Council found an existing culvert in the rear gardens that was overwhelmed within the event due to the existing capacity. Due to the surface water run-off from Council land, the Council has installed leaky dams up stream to reduce the velocity and volume of water entering the culvert within extreme events. Further to this an overflow from the culvert has been installed into the existing highway drainage network to relieve the pressure on the culvert.

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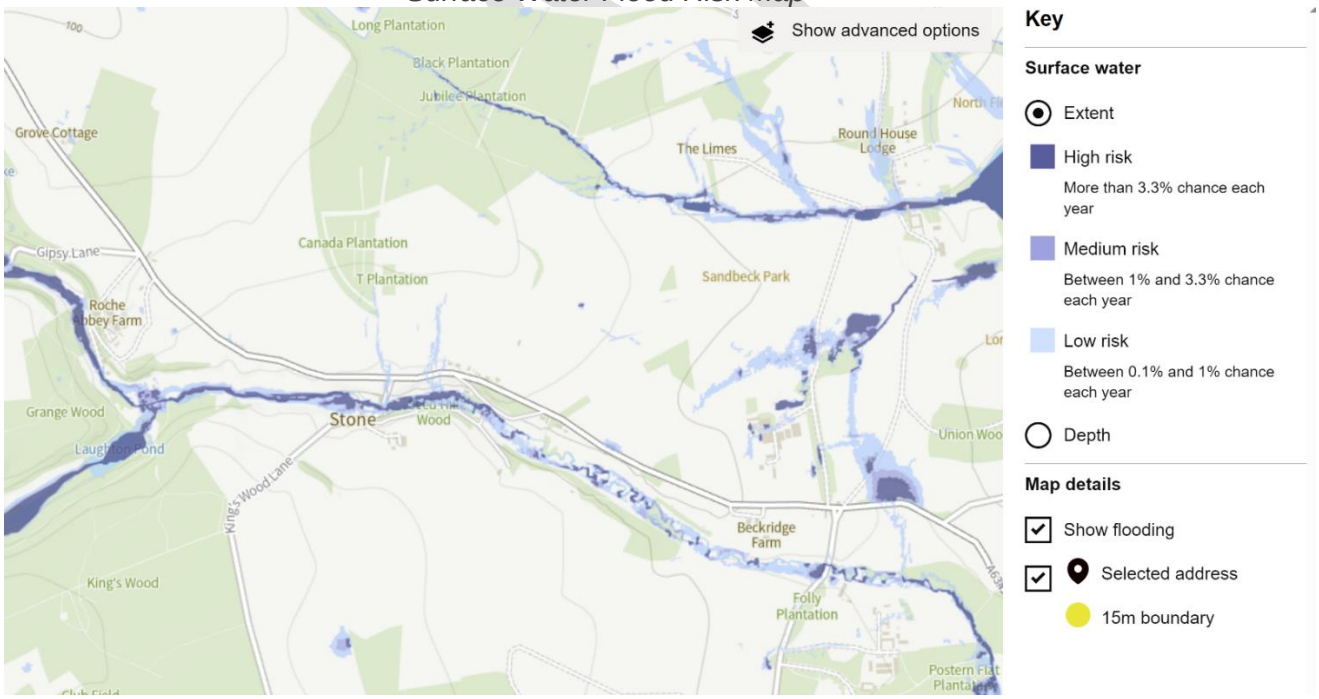
Stone Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant rises in river levels, causing the Main River (Maltby / Firbeck Dike) to overflow due to heavy rainfall. Internal flooding affected 1 property from the river. The surrounding catchment was fully saturated due to recent rainfall events causing excess surface water run-off.

Surface Water Flood Risk Map



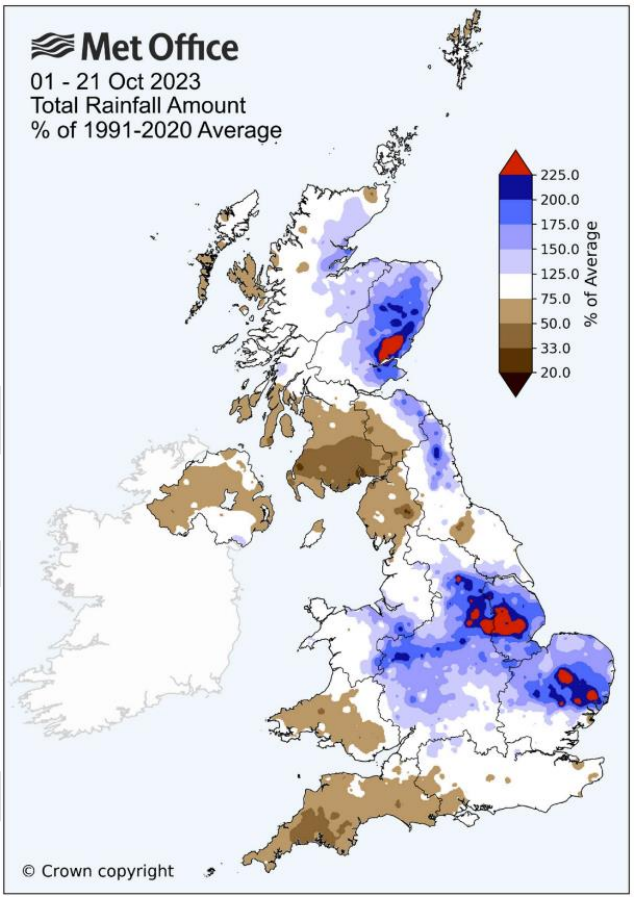
During Storm Babet the area experienced extremely heavy rainfall and surface water run-off from the surrounding farmland (which was already saturated due to the prolonged rainfall). Both of these situations contributed to higher-than-normal water levels in Maltby Dike, which unfortunately over-topped and caused flooding to the property adjacent to the Dike in Stone village.

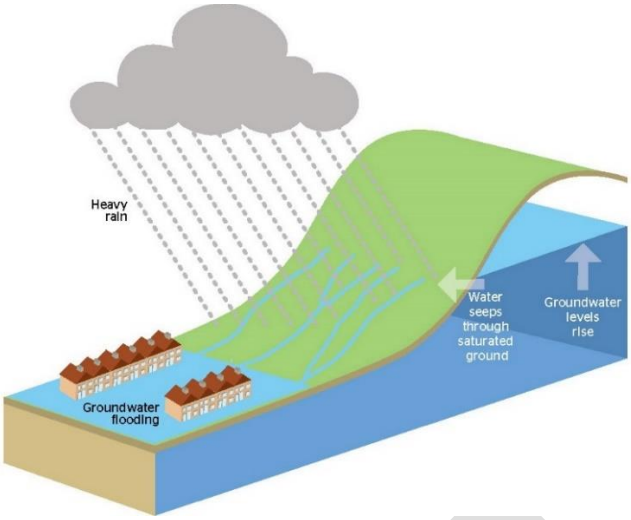
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required. Numerous sandbags were delivered to Stone over the course of the storm event and gullies cleared to keep the highway network open.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

River flooding

High levels of rainfall can result in rivers ‘bursting their banks’ (i.e., the river spilling out and flooding surrounding land). Flooding is a natural phenomenon, so it is usual for rivers to flood. If the river is classed as a ‘main river’, the management of flood risk will be the responsibility of the Environment Agency (EA). The Environment Agency carries out maintenance, improvement or construction work on main rivers to manage the flood risk.

The Environment Agency provide flood warning services for main river flooding. Types of flooding: You can sign up to this service if your property is at risk here: https://www.gov.uk/sign-up-for-flood-warnings

For help and guidance regarding river flooding contact the Environment Agency’s Floodline on 0345 988 1188.

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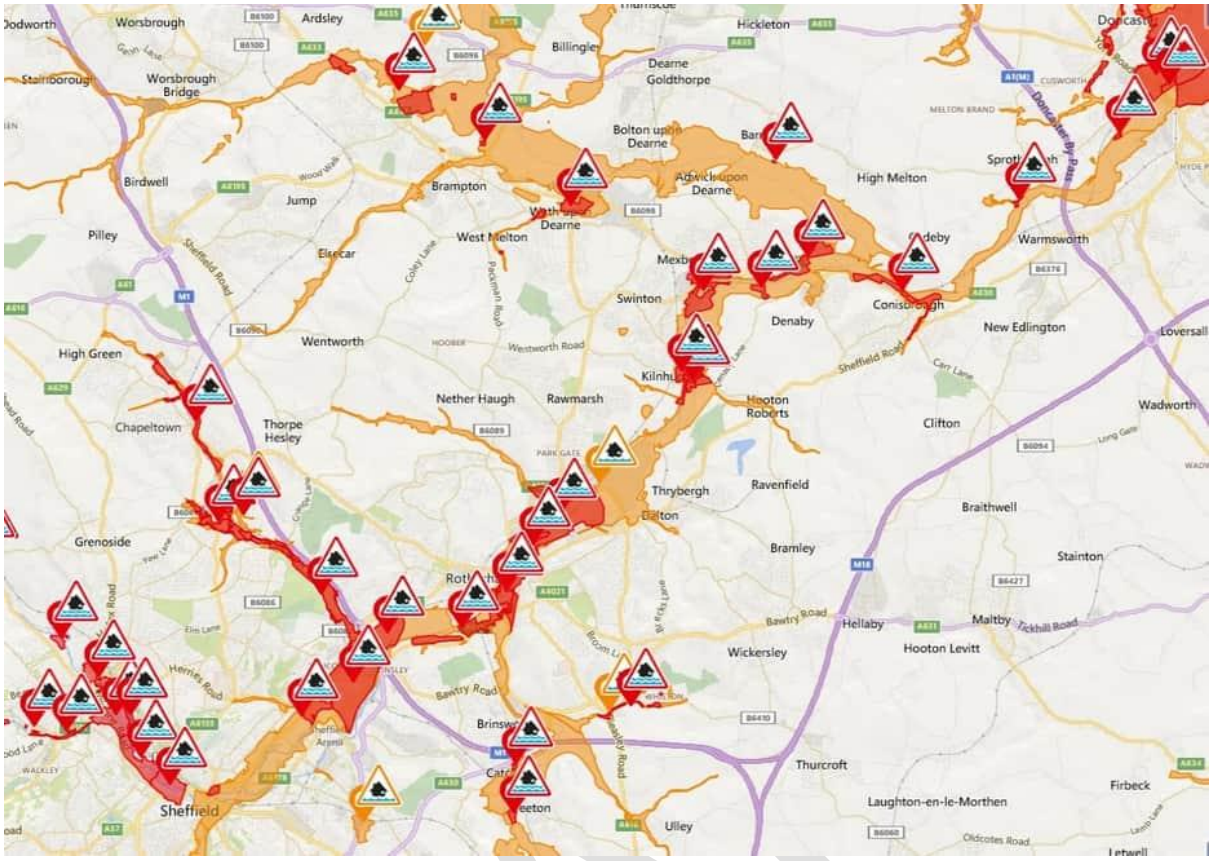

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

Following the storm event, we have identified priority areas where improvements can be made to the existing drainage infrastructure to reduce flooding, particularly on the highway network and to properties. The current highway drainage network is under capacity and is due to be renewed, works are due to be carried out this financial year 2024/25.

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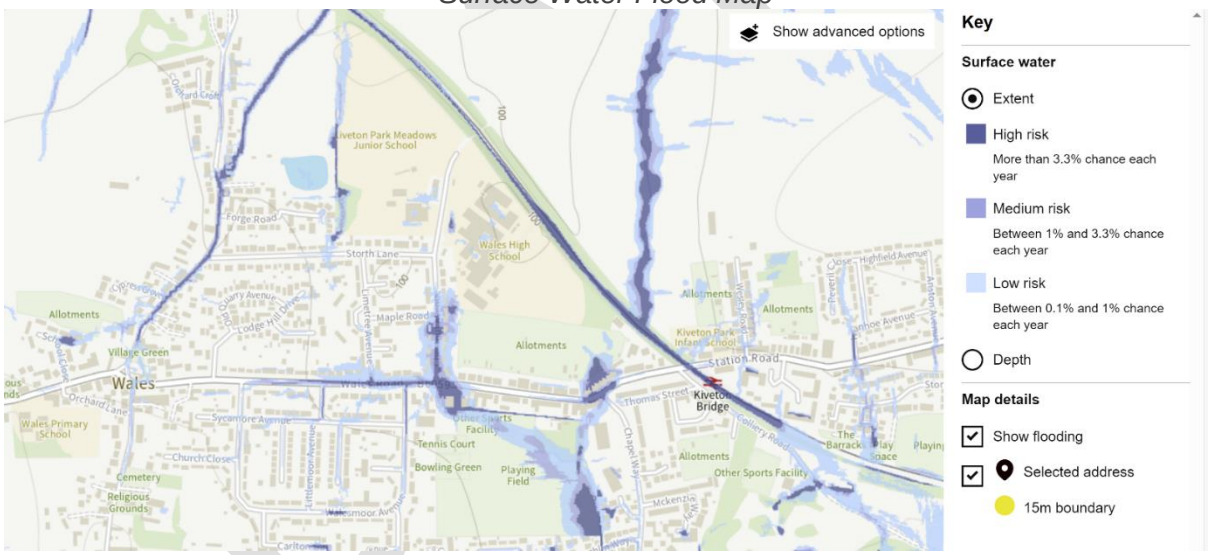
Kiveton Park Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Kiveton Park, this was due to the surrounding catchment being fully saturated due to recent rainfall events causing excess surface water run-off.

Surface Water Flood Map



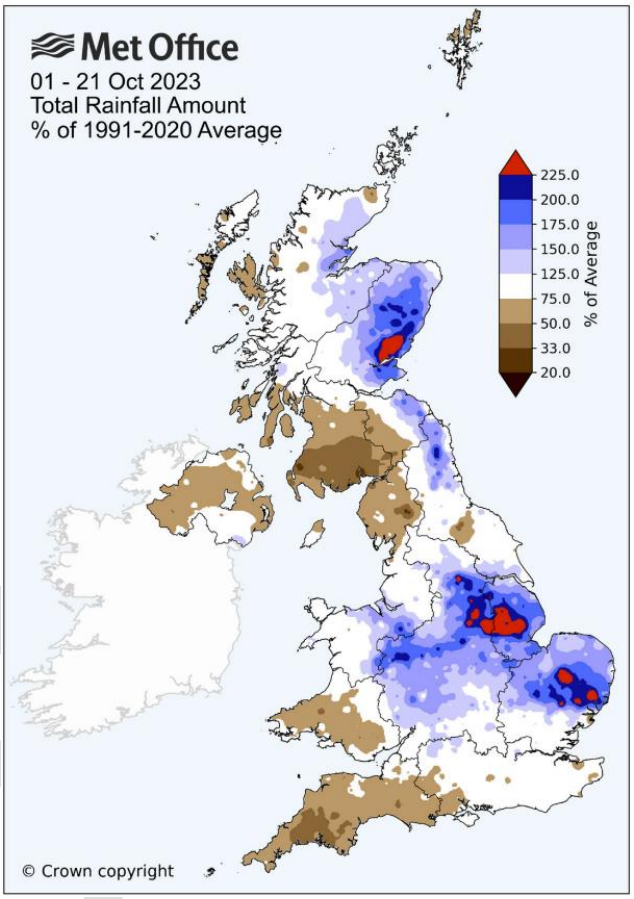
During Storm Babet, the area experienced extremely heavy rainfall, the existing highway drainage system was overwhelmed which caused surface water flooding to 1 residential property.

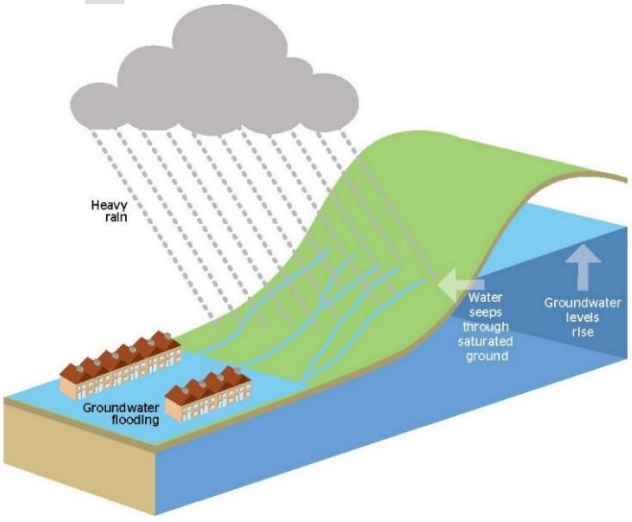
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

The Council will continue to monitor these issues and carry out further investigation and remedial works. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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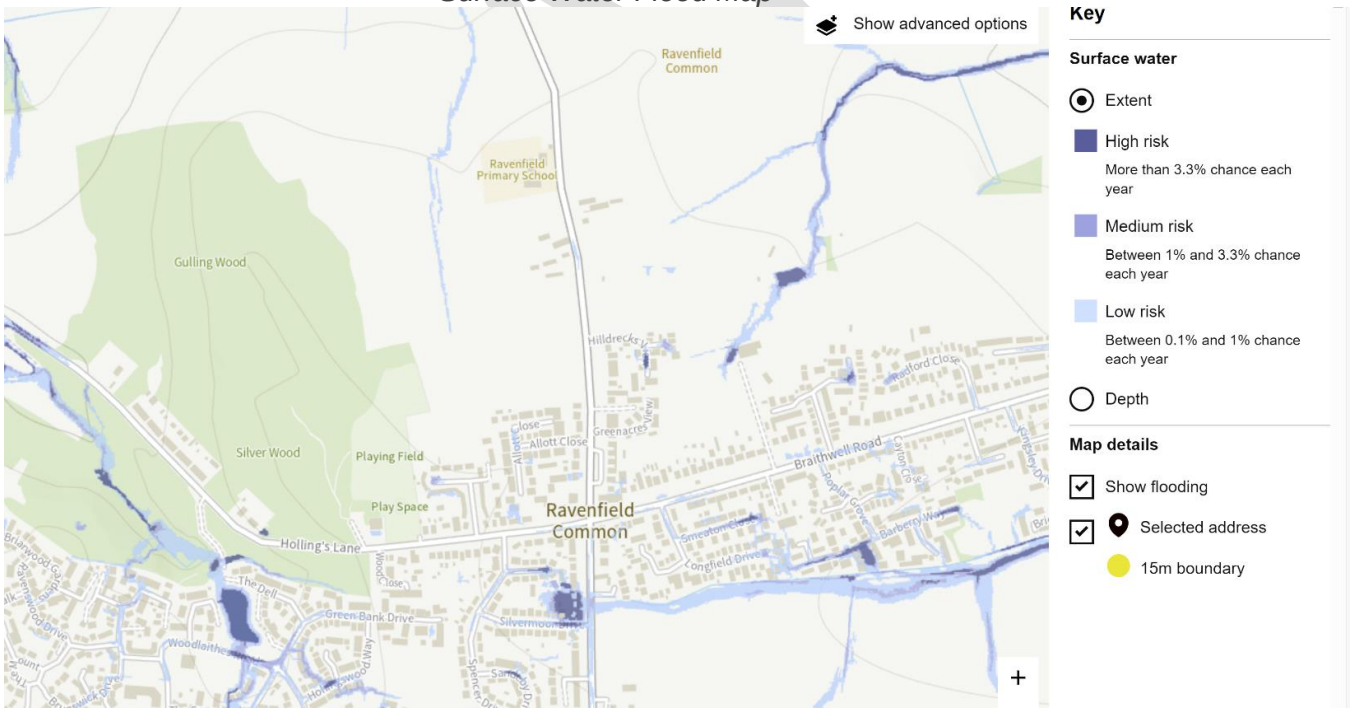
Ravenfield Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Ravenfield, this was due to the level of rainfall experienced surpassed the design criteria for the existing public surface water sewer that is owned and maintained by Severn Trent Water

Surface Water Flood Map



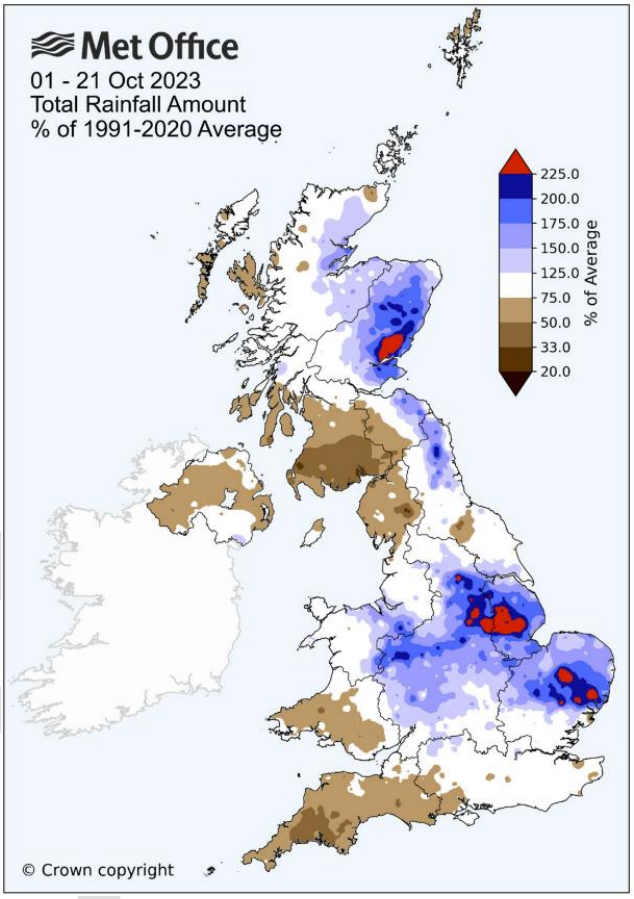
The isolated property that was affected within Ravenfield was due to intense rainfall overwhelming the Severn Trent Sewer, this caused surface water to escape from a manhole on the property and flood the residential dwelling internally.

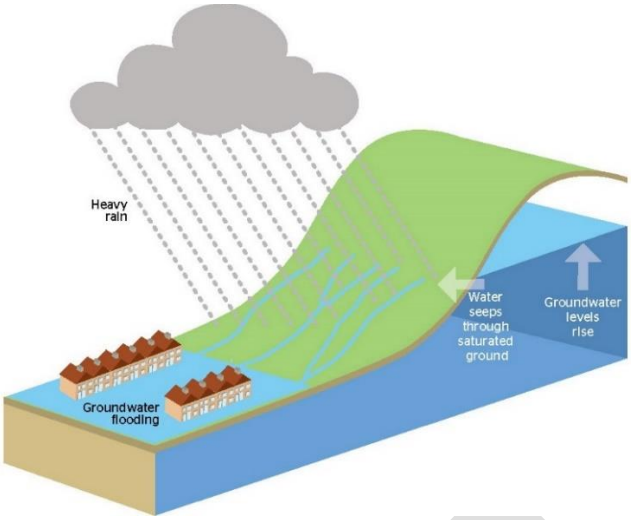
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Sewers and Drains (Information below provided by Severn Trent Water)

If you can see sewer debris like toilet paper, then this may be a sewer flooding. If it's coming from the public sewerage network Severn Trent Water will look after this, contact us for help. You should report sewer flooding to us immediately. Get in touch and we'll be able to help and provide advice on what to do. If the flooding is only affecting your home and is coming from a private drain on yours or your neighbour's boundary, then you or the owner of the drain will need to arrange the repair. You should contact your insurer in any case of sewer flooding. If you don't, it may affect your future claims. To find out more about different types of flooding, please visit Severn Trent Water's website: https://www.stwater.co.uk/in-my-area/flooding/

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

Severn Trent Water are committed to investigating the internal flooding caused by surcharging of the public surface water sewer. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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North Anston Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within North Anston, this was due to the level of rainfall experienced surpassing the design criteria for the existing highway drain.

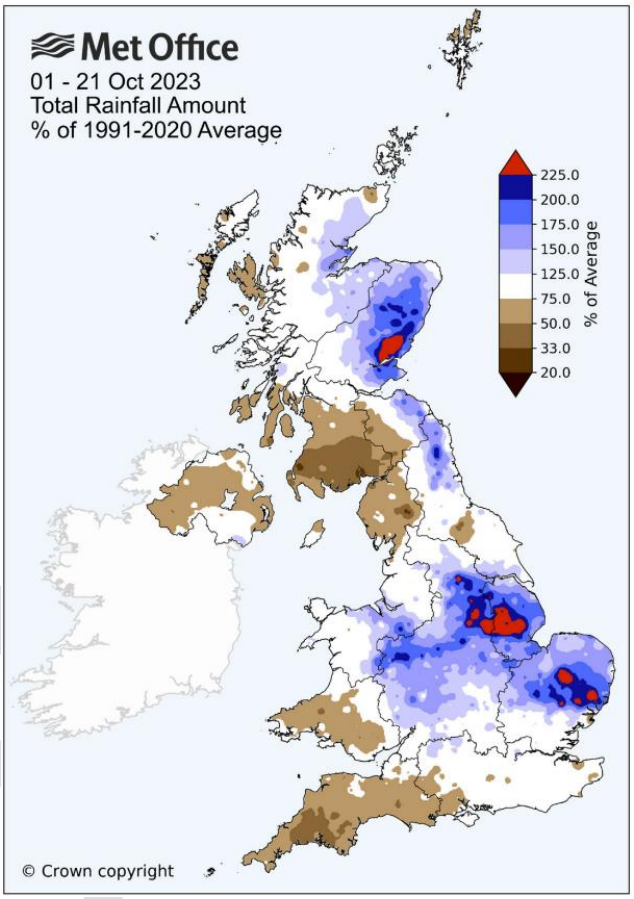
Surface Water Flood Map

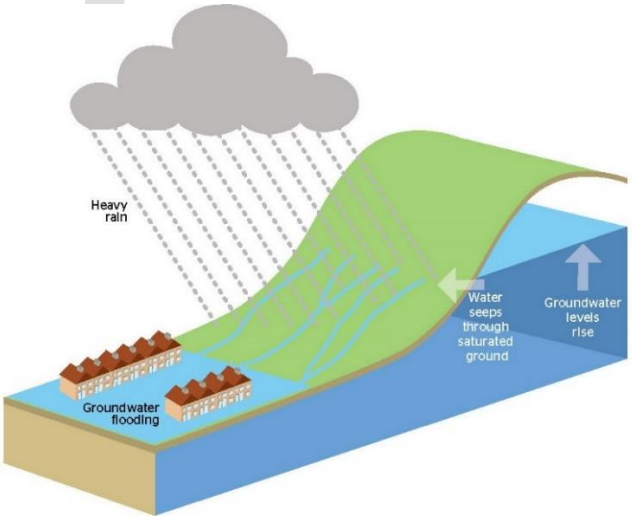
During Storm Babet the area experienced extremely heavy rainfall and surface water and groundwater flooding that caused internal flooding to 1 property.
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

A CCTV survey has been carried out and tree roots have been identified in the existing highway drain and the tree roots have been removed using specialist contractor. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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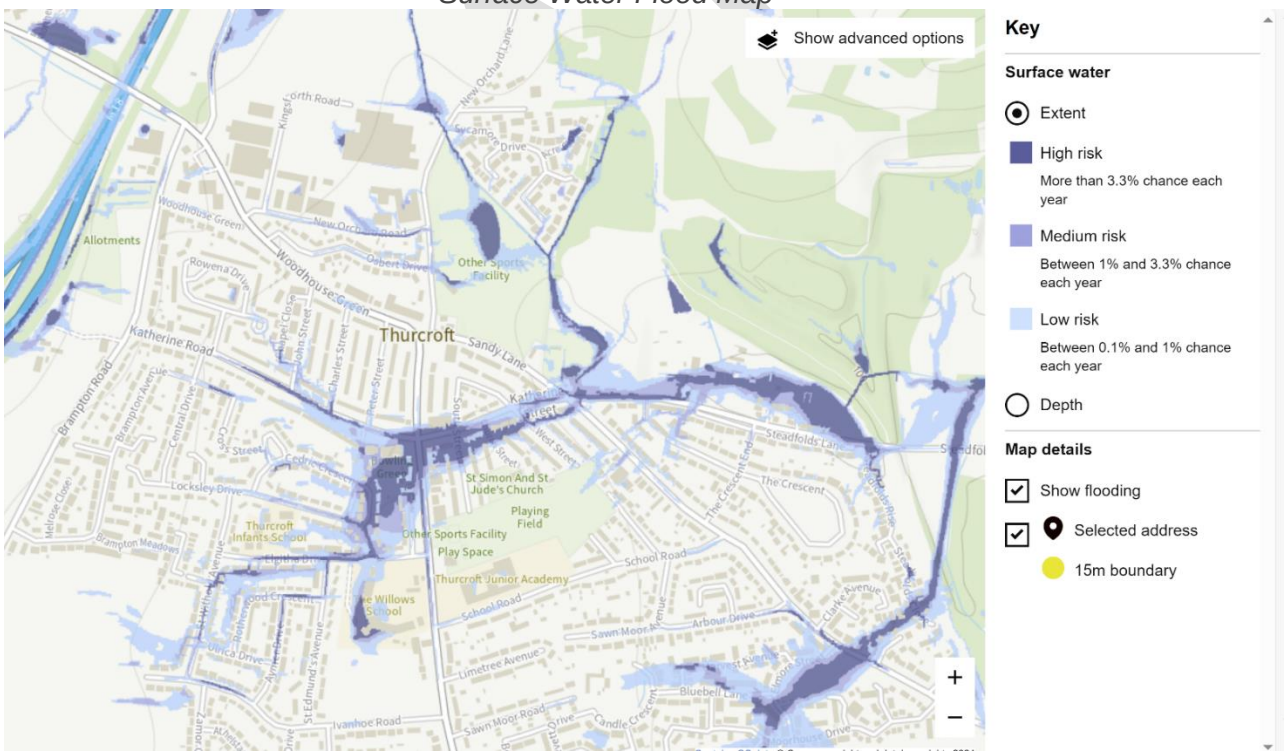
Thurcroft Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Thurcroft, this was due to the surrounding catchment being fully saturated due to recent rainfall events causing excess surface water run-off.

Surface Water Flood Map



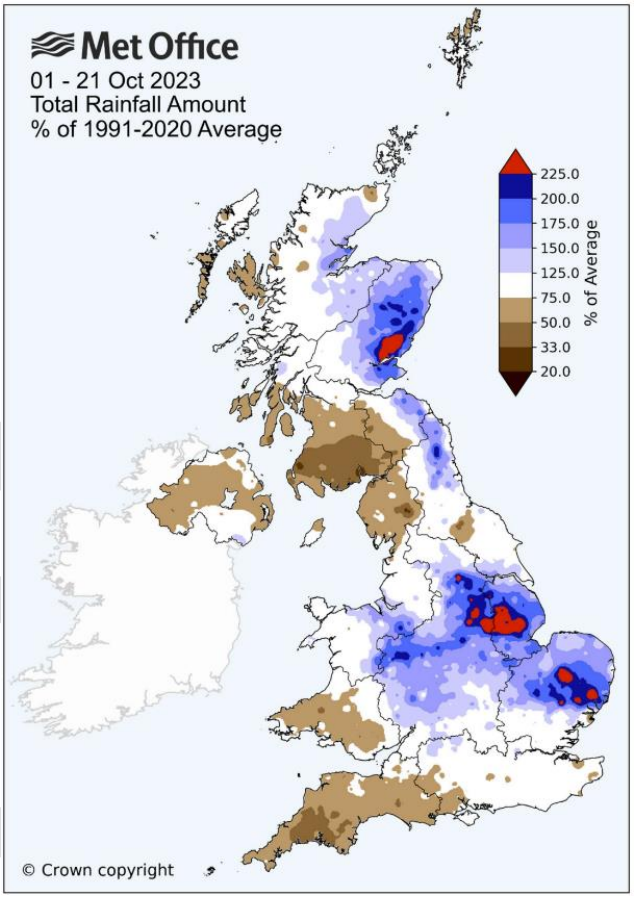
During Storm Babet, the area experienced exceptionally heavy rainfall. The accumulation of rainfall that was experienced over several months caused ground conditions to be saturated. Consequently, surface water run-off from the highway flowed onto low lying properties flooding one property internally.

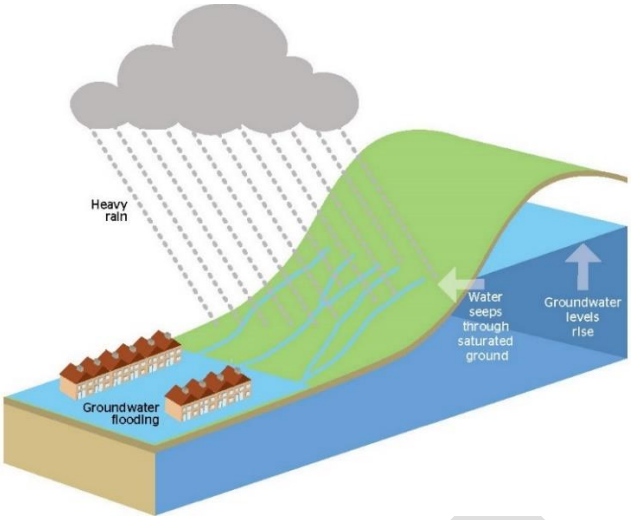
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

Looking forward, a list of priority schemes is currently being compiled and fully investigated. These initiatives aim to address vulnerabilities in the drainage system and mitigate the impact of future flooding events. By prioritising these schemes, we aim to bolster the area's resilience and minimise the risk of damage from similar weather events in the future.

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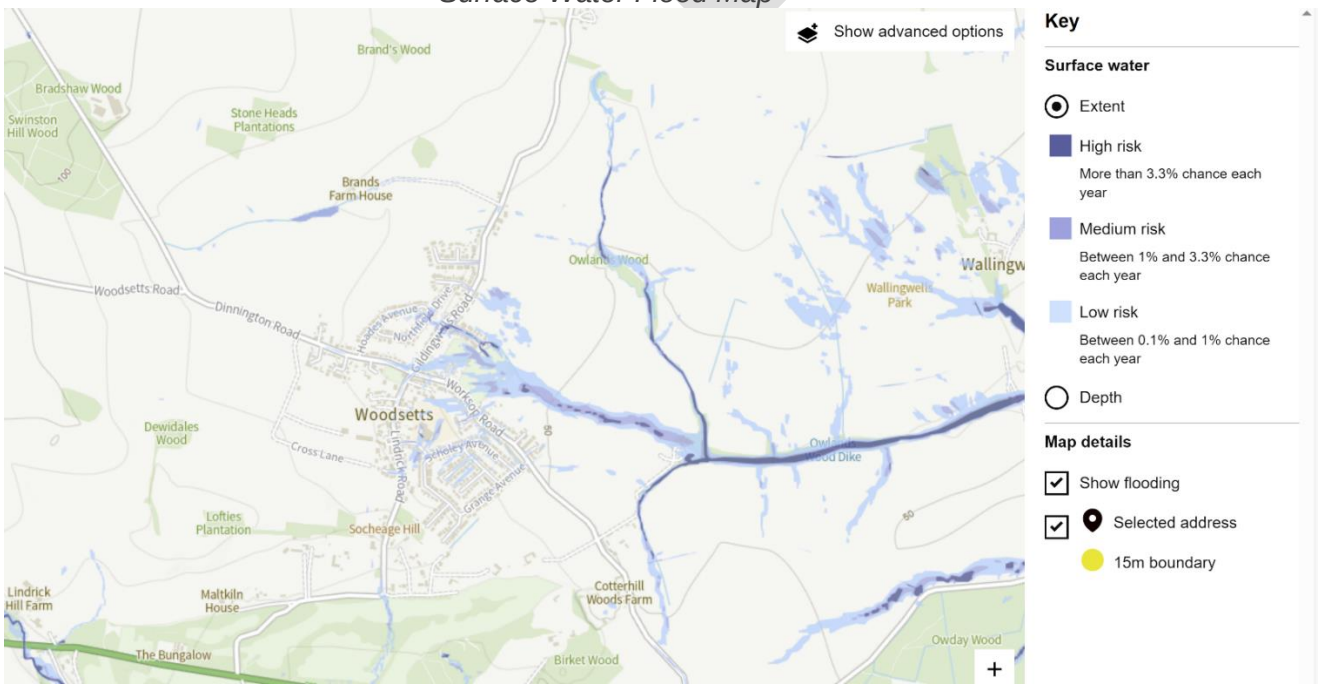
Woodsetts Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 3 properties within Woodsetts, this was due to the level of rainfall experienced surpassing the design criteria for the existing highway drain.

Surface Water Flood Map



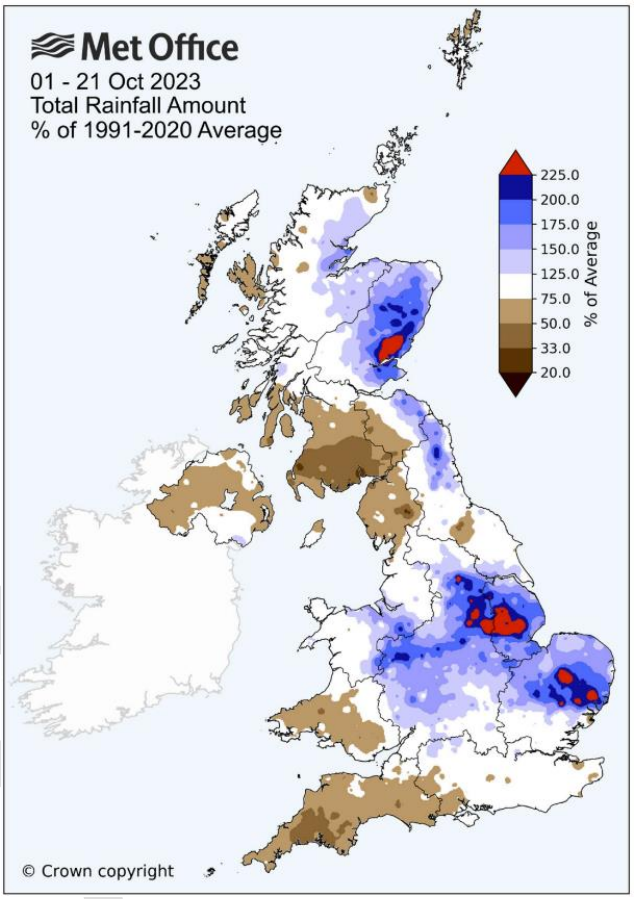
During Storm Babet the area experienced extremely heavy rainfall and unprecedented surface water runoff from the surrounding farmland (which was already saturated due to the prolonged rainfall). The existing surface water sewer was overloaded & surcharged, causing flooding to a number of properties.

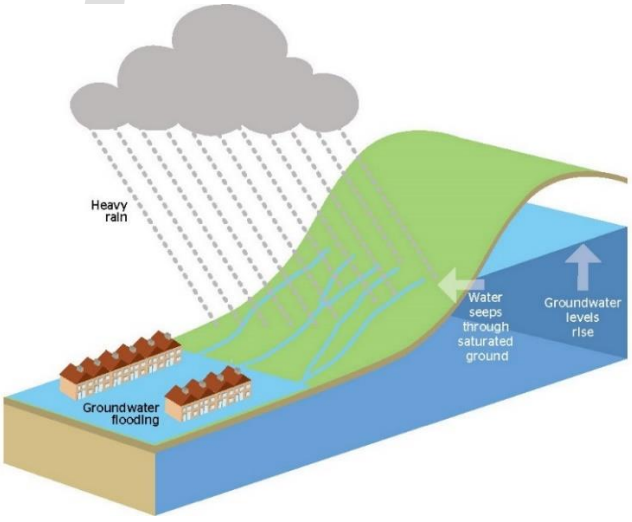
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Internal flooding is the highest priority when investigating flooding issues, schemes will be priorities for internally flooded properties over all other types of flooding.

Following the storm event, the Council are currently preparing and designing a scheme to increase the surface water storage capacity using the adjacent farmland, to manage flows and reduce flooding.

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Brinsworth Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Brinsworth, this was due to the level of rainfall experienced surpassing the design criteria for the existing public combined sewer that is owned and maintained by Yorkshire Water.

Surface Water Flood Map

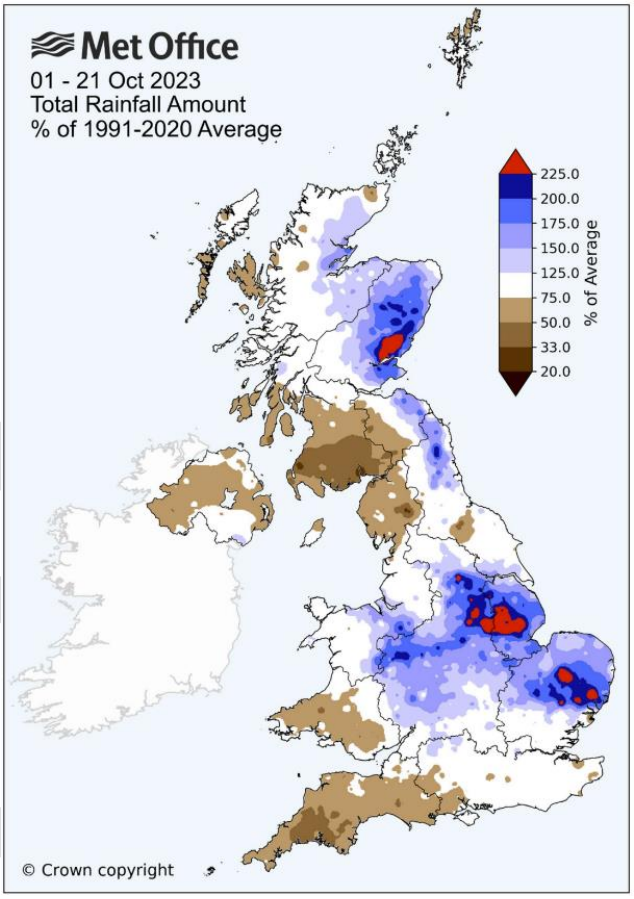
During Storm Babet the area experienced extremely heavy rainfall and surface water run-off from an already saturated catchment due to the prolonged rainfall. The existing surface water sewer was overloaded & surcharged, causing flooding to 1 property.

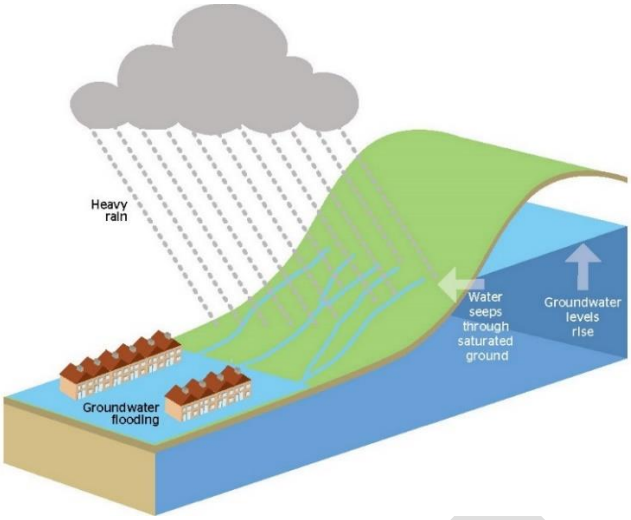
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

The Council will continue to monitor these issues and carry out further investigation and remedial works. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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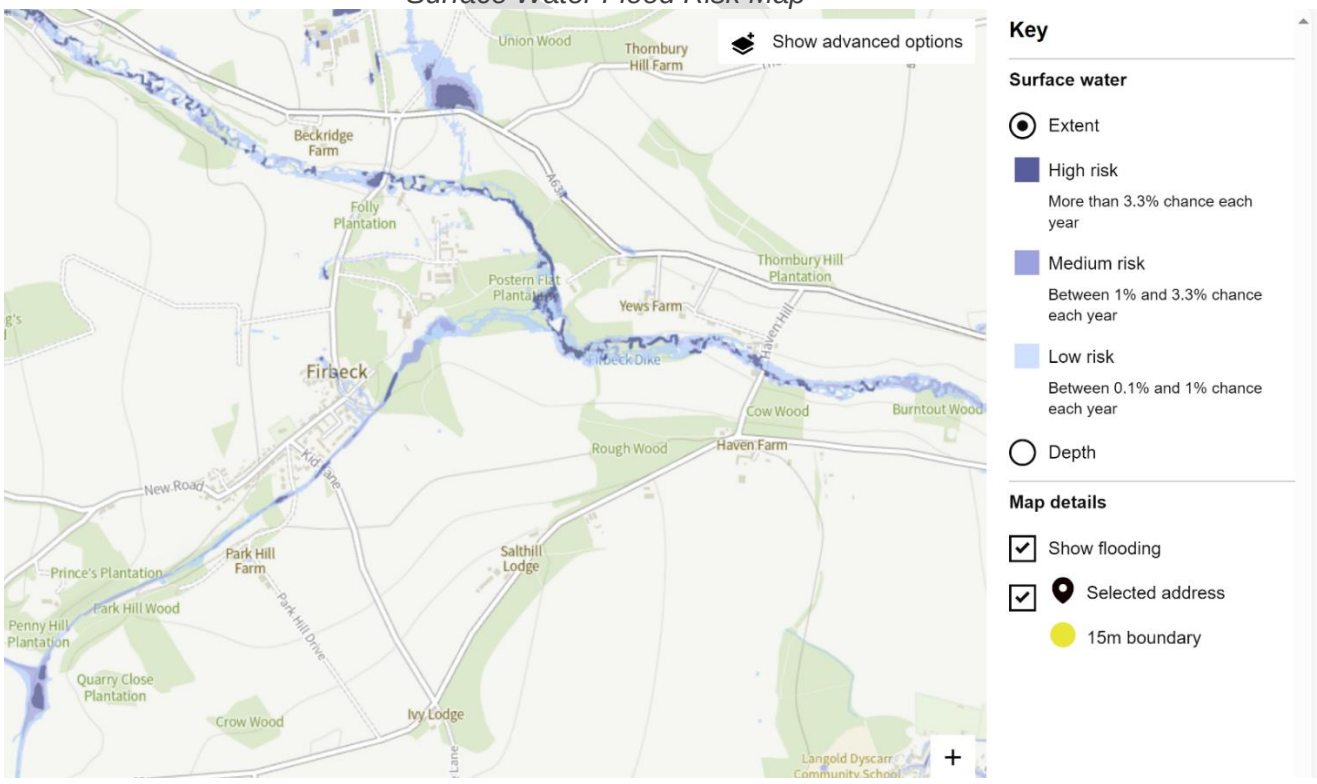
Firbeck Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Firbeck, this was due to the surrounding catchment being fully saturated due to recent rainfall events causing excess surface water run-off.

Surface Water Flood Risk Map



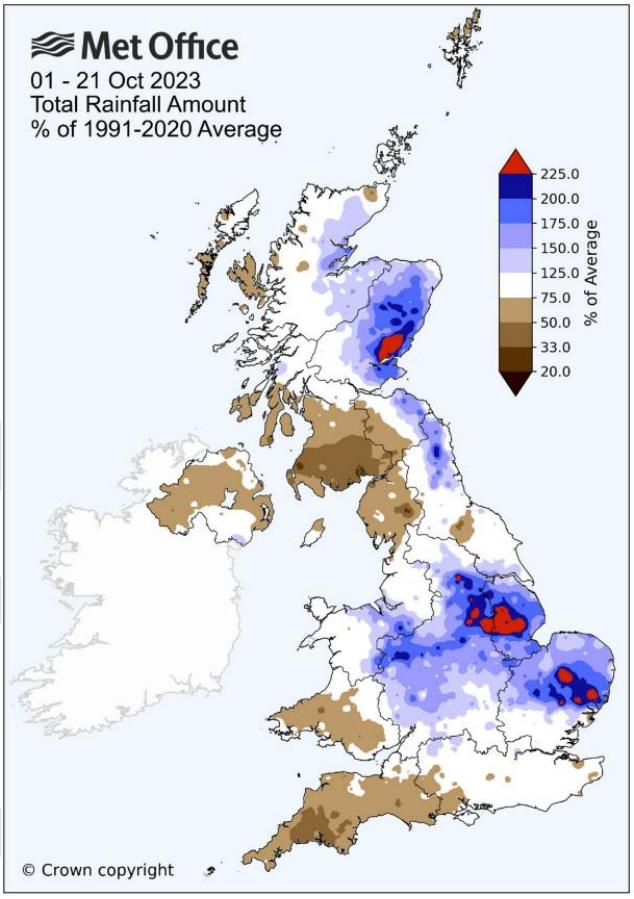
During Storm Babet the area experienced extremely heavy rainfall and unprecedented surface water runoff from the surrounding farmland (which was already saturated due to the prolonged rainfall). There were a number of instances of isolated flooding incident to one property.

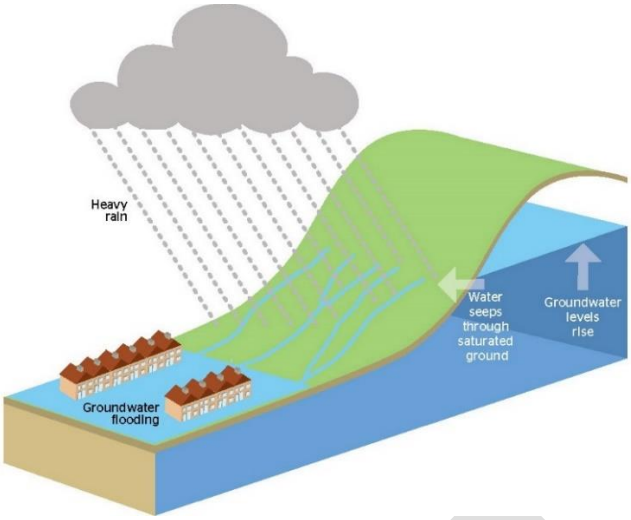
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

The Council is currently designing a scheme to increase the existing drainage assets within the area, including attenuation to store storm water within extreme rainfall events. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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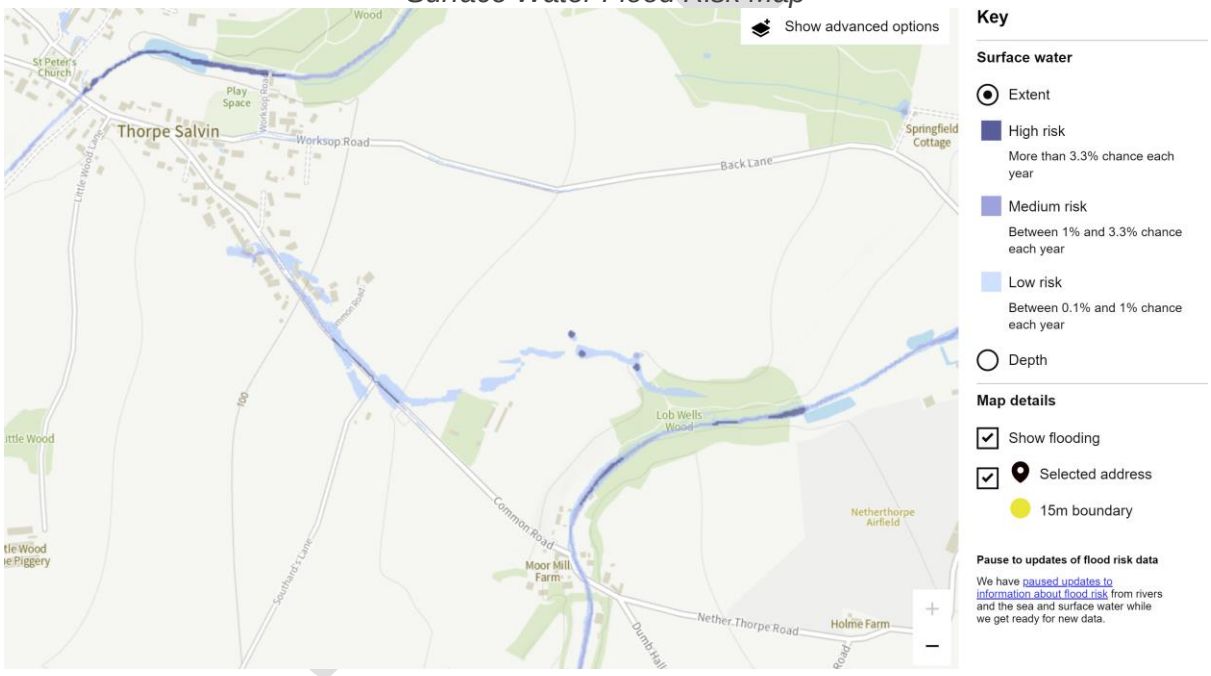
Thorpe Salvin Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Thorpe Salvin, due to the surrounding catchment being saturated due to recent rainfall events causing excess surface water run-off.

Surface Water Flood Risk Map



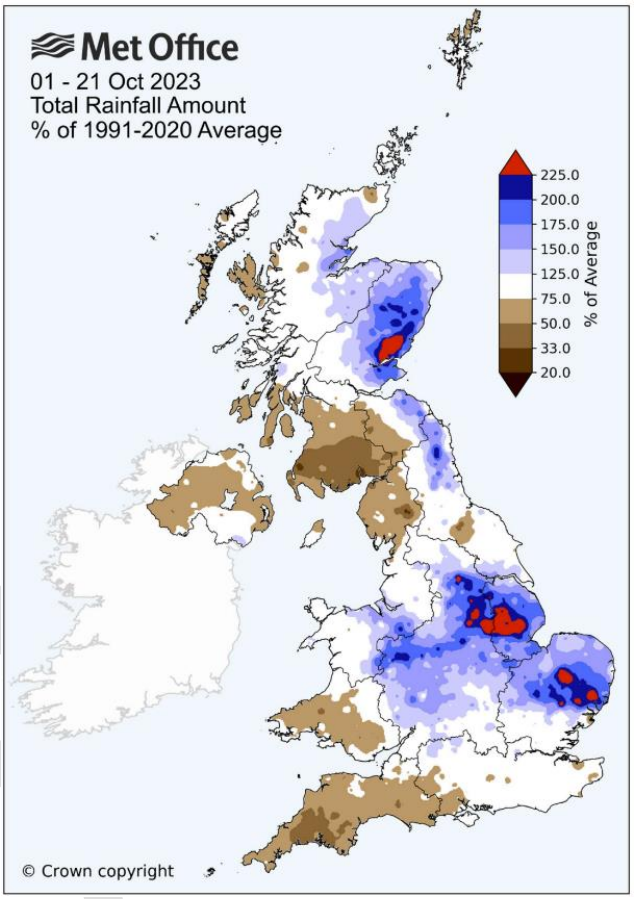
During Storm Babet the area experienced extremely heavy rainfall and unprecedented surface water runoff from the surrounding farmland (which was already saturated due to the prolonged rainfall). There were a number of instances of isolated flooding incidents to properties.

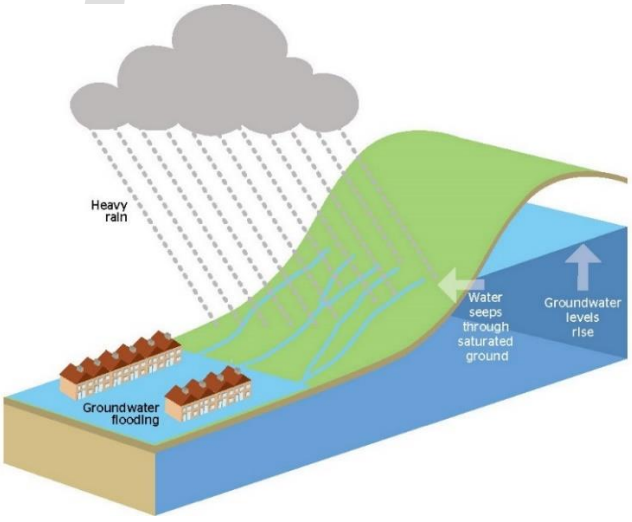
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required. Numerous sandbags were delivered to Thorpe Salvin over the course of the storm event and gullies cleared to keep the highway network open.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

The Council is currently preparing a scheme to improve the existing highway drainage within the area, including attenuation to store storm water within extreme rainfall events. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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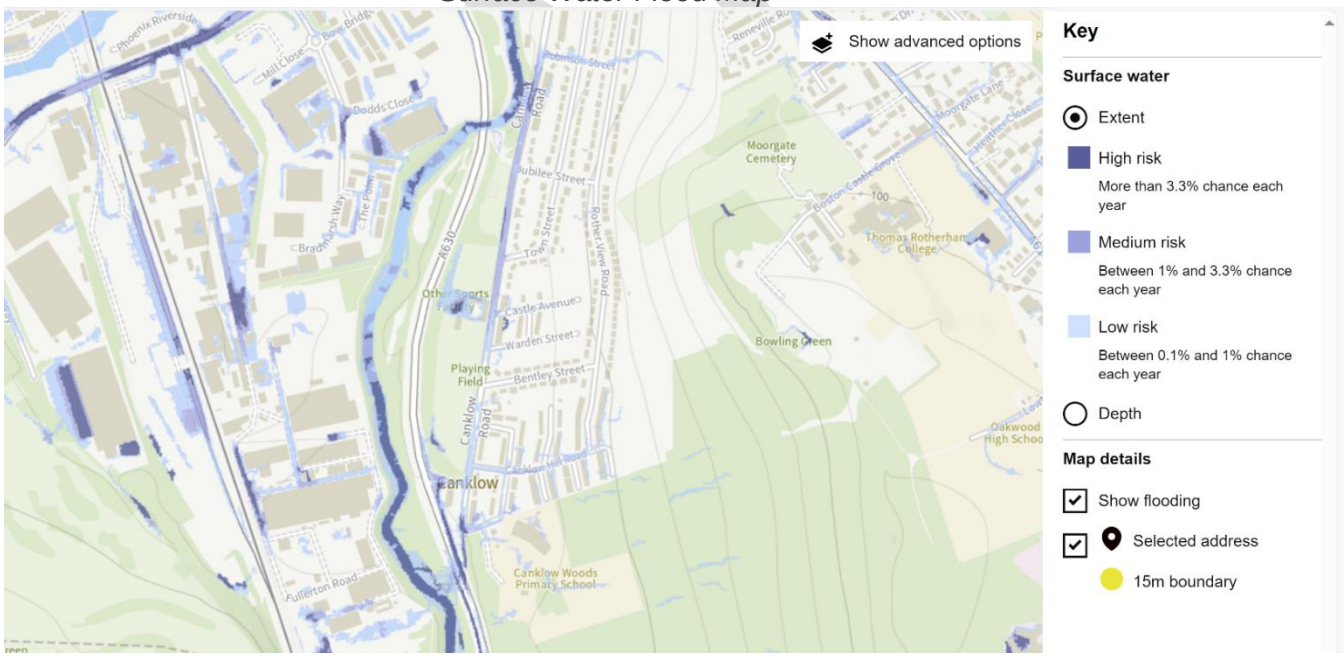
Canklow Community Flood Information Sheet

Contents

Introduction

Storm Babet in October 2023 led to significant surface water flooding. Internal flooding affected 1 property within Canklow, this was due to the surrounding catchment being fully saturated due to recent rainfall events causing excess surface water run-off.

Surface Water Flood Map



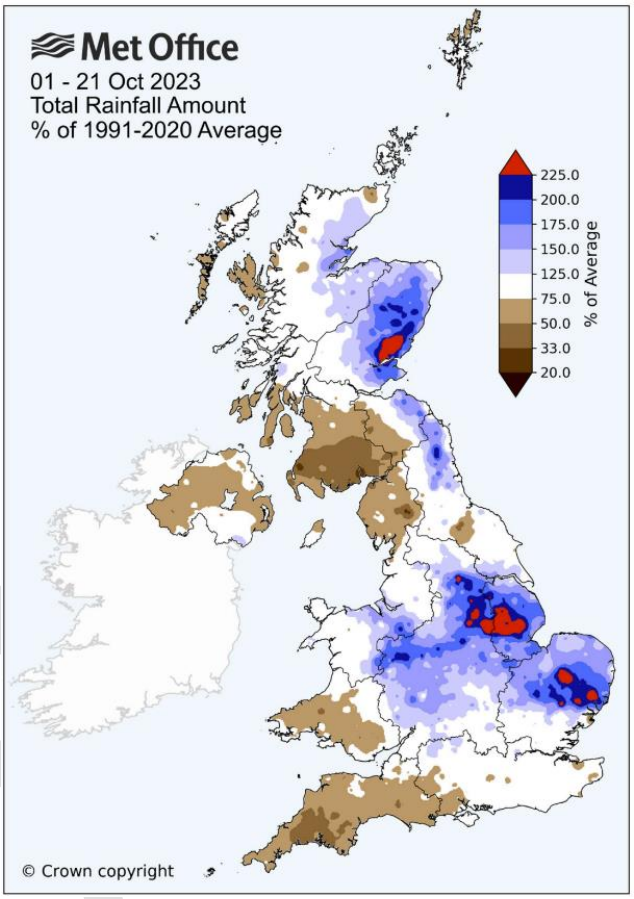
During Storm Babet, the area experienced extremely heavy rainfall, the existing highway drainage system was overwhelmed, and this caused issues with surface water causing internal flooding to 1 residential property.

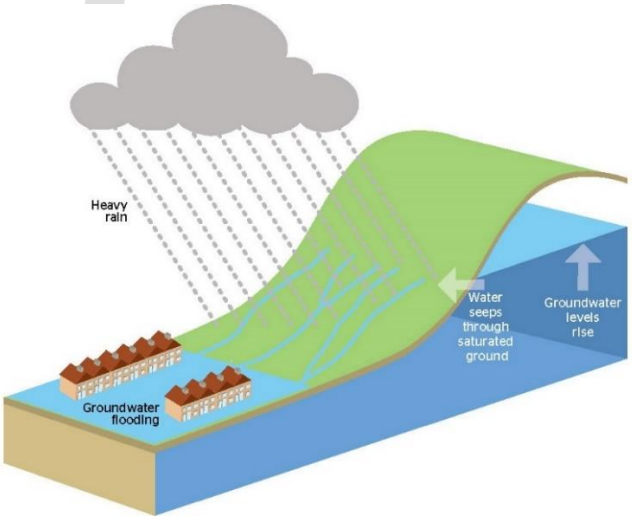
The Council worked throughout the storm event and afterwards by providing support to residents, pumping out, cleansing blocked gullies, sewers and delivering sandbags as required.

Surface Water Flooding

Surface water flooding occurs when the volume of rainfall exceeds the capacity of drains and surface water sewers and is unable to drain away through drainage systems or soak into the land, and instead flows over the land.

In October 2023 this is exacerbated due to extremely wet periods for several months prior causing a saturated catchment that increased overland flows and reduced the amount of water that could soak into permeable land.





Ground Water Flooding

Water under the ground defined as the water table has risen due to saturation of the land and reached the top of the soil causing flooding.

Next Steps

Residential and Commercial Property Internal flooding is the highest priority when investigating flooding issues. The delivery of projects to reduce flood risk is prioritised for internally flooding over area flooding.

The Council will continue to monitor these issues and work with the residents to carry out further investigation and remedial works. A property flood resilience grant has been offered to all properties that have been affected by internal flooding to install resilience measures on their individual homes.

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Rotherham Metropolitan Borough Council

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Part Three:
History of Flooding

Flood Events

Frequency of Flood Events

Between the year 1900 and 2000 there were three major flood events that took place in South Yorkshire. 1947 was the worst event, with flooding also occurring in 1973 and 1991 inundating Sheffield Train Station.

Since 2000 and 2023 there have been 14 flood events that have exceeded the design capacity of our drainage systems in South Yorkshire and internally flooded properties with three events occurring in 2023 alone.

2007 Flood Event

The flood that occurred in 2007 was the most severe event to affect South Yorkshire to date. This event affected the whole of England and was the catalyst which drove change in flood risk management; sparked the need for wider change nationally and brought about the introduction of the Pitt Review.

Since rainfall records started to be collected in 1766 there has not been a wetter May to July period than in 2007. Many locations were deluged with a month's rainfall falling in a few hours. The wet May and early June meant that the ground was saturated and could no longer absorb rainfall. Extreme rainfall in late June and late July caused flash flooding where it fell and then accumulated in rivers to extend the impact to the floodplain.

The 2007 floods were different in scale and type from recent severe floods. In particular, a much higher proportion of the flooding than normal came from surface water rather than rivers. Surface water flooding was at its worst in cities such as Hull, but many villages and individual properties also suffered across the country from Bristol to Newcastle. Two-thirds of the properties flooded during 2007 were affected because drains and sewers were overwhelmed.

River flooding was extensive in the River Don, Severn and Thames and their tributaries. It would have been worse but for the protection given by existing flood schemes. Warnings were issued directly to over 34,000 homes. South Yorkshire suffered record breaking flood levels. Many flood defences were simply overwhelmed. The June 2007 events were historically and statistically significant. At many sites the magnitude of the rainfall produced river levels that were the highest on record. At some sites there is evidence to suggest that the levels in the river may have been the highest in the last 100 years.

100-year return period events have become more probable in recent years occurring several times since 2007. Calculated rainfall return periods for the 2007 event show many sites with more than a 50-year return period. These, and the flow return periods of 80 to 100 years, make this an exceptional and statistically rare event at that time.

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Rotherham Metropolitan Borough Council

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Part Four: Update on Flood Alleviation Schemes

Introduction

The Council's Drainage Team fulfils the Council's statutory role as Lead Local Flood Authority (LLFA) under the remit of the Flood and Water Management Act 2010. The LLFA's role includes taking the lead in identifying and delivering Flood Alleviation Scheme (FAS) projects, which requires partnership working with other Risk Management Authorities (RMA's) (organisations that are responsible for managing flood risk) RMA's, stakeholders, landowners, funders and external suppliers.

Following the November 2019 floods, many small and medium sized projects have been identified and delivered to reduce the risk of flooding across the borough. These projects typically focus on small numbers of properties and are delivered by the Council's in-house teams.

In addition, six priority FAS projects have been identified to reduce risk to larger numbers of properties (i.e., residential and commercial), strategic highways, the rail networks, the tram / train network and other critical infrastructure (e.g., utility networks). The priority FAS projects are:

- Rotherham Renaissance FAS
- Parkgate & Rawmarsh FAS
- Whiston Brook FAS at Whiston
- Eel Mires Dike FAS at Laughton Common
- Catcliffe pumping station
- Culvert renewal programme

All six projects are currently going through the design and approvals phase to reach a 'shovel ready'* status, with support from external partners, consultants and contractors.

*Shovel ready means the feasibility, landowner approvals and design prior to scheme delivery.

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Forge Island Canal Barrier

Following the previous flood events in Rotherham Town Centre, the Rotherham Renaissance Flood Alleviation Scheme was developed, with three advanced phases being constructed recently, to reduce the risk of future flooding to the town centre and the Rotherham Central railway station.

The Forge Island Canal Barrier was constructed in the summer of 2022 adjacent to the regeneration scheme on Forge Island.

The Canal Barrier causes no additional flood risk upstream or downstream, the main purpose is to prevent the River Don flowing down the canal in extreme rainfall events, Forge Island is still utilised as a flood storage area within a flood event.

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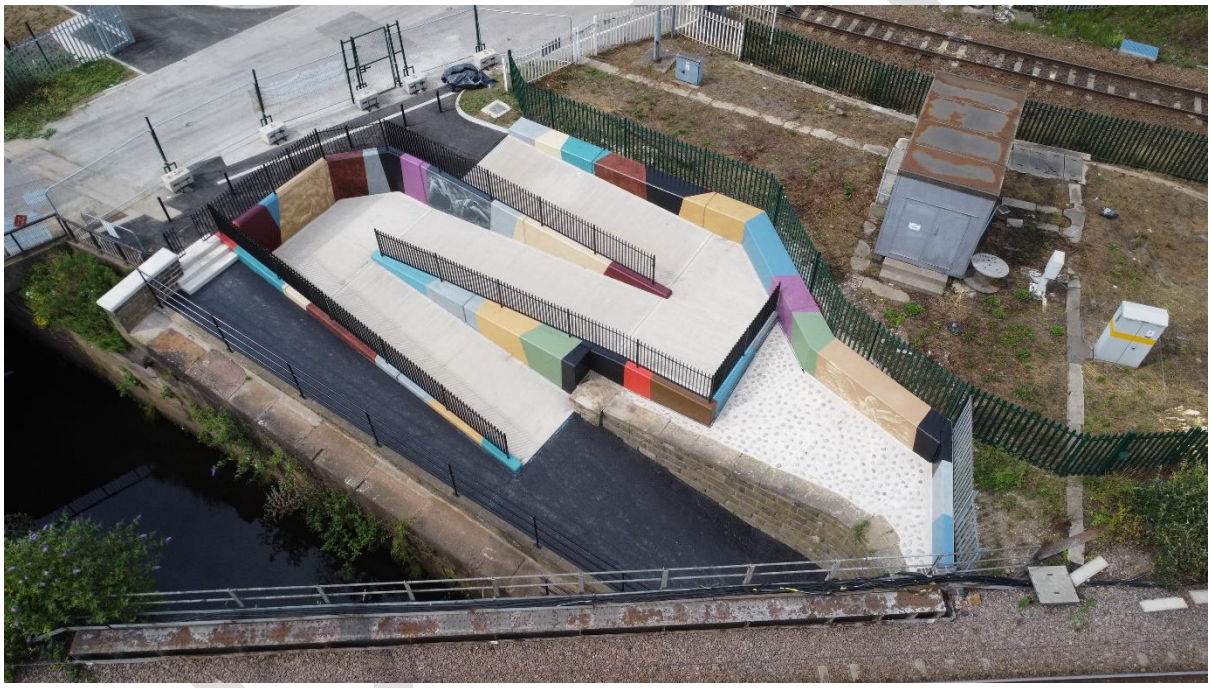
Ickles Lock to Centenary Way

The flood defences between Ickles Lock and Centenary Way forms another part of the Council's Rotherham Renaissance Flood Alleviation Scheme to reduce the impact of severe flooding from heavy rains, like those encountered in 2007 and 2019.

The Ickles Lock Scheme was completed in the Summer of 2023. A 125-metre-long concrete wall built between the railway and canal from Ickles Lock to Centenary Way, Rotherham Town Centre, will now better protect businesses and the railway from floods. Rotherham Council and its partners have invested £7million to complete this latest phase of works. the overall Rotherham Renaissance Flood Alleviation Scheme will reduce the risk of flooding from the River Don and its tributaries along a 5 km-long stretch of the river, as it weaves through Templeborough, Rotherham Town Centre and Parkgate.



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Wider Beneficiaries of Rotherham's Six Priority FAS project

Project	Residential	Businesses	Transport	Community Infrastructure	Economic Benefits
Rotherham Renaissance Flood Alleviation Scheme Note: This project is to reduce risk from designated "Main River"	<u>Town Centre</u> At risk of flooding: 8 Flooded in Nov 19: 1 <u>Kilnhurst</u> At risk of flooding: 12 Flooded in Nov 19: 6	<u>Town Centre</u> At risk of flooding: 115 (plus, many where access is are cut off) Flooded in Nov 19: 22 <u>Parkgate</u> At risk of flooding: 90 (plus, many where access is cut off) Flooded in Nov 19: 90 <u>Kilnhurst</u> At risk of flooding: 40 Flooded in Nov 19: 26	<u>Templeborough, Town Centre and Parkgate</u> A630, A633, A6123, A6178 and local road network Railway and tram/train network through Rotherham Central and Parkgate stations <u>Kilnhurst</u> B6090 and local roads Railway (freight line)	<u>Templeborough, Town Centre and Parkgate</u> 2 Wastewater pumping stations (Marsh Street & Rawmarsh Road) 1 Electricity sub-station (Rawmarsh Road) <u>Kilnhurst</u> Kilnhurst Primary School 1 Wastewater treatment works	<u>Templeborough, Town Centre and Parkgate</u> Town centre regeneration, employment and economic growth £20m of flood damage costs avoided Loss of GVA associated with flooding estimated to be £76m <u>Kilnhurst</u> £TBCm by ongoing study
Parkgate & Rawmarsh Flood Alleviation Scheme	At risk of flooding: 56 Flooded in Nov 19: 9 (Note: All 'At risk' numbers are in the upper catchment, outside the River Don floodplain)	At risk of flooding: 141 (plus 158 where access is cut off) Flooded in Nov 19: 124	A633, A6123, local road network Railway and tram/train network through Parkgate station	Access to Parkgate Shopping and local supermarkets	Parkgate and Rawmarsh employment and economic growth £30m of flood damage costs avoided Loss of GVA associated with flooding estimated to be £51m Avoidance severance of the main east/west route across the borough and emergency service intervention and rescue costs.

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Project	Residential	Businesses	Transport	Community Infrastructure	Economic Benefits
Whiston Brook Flood Alleviation Scheme Note: This project is to reduce risk from designated "Main River"	At risk of flooding: 67 Flooded in Nov 19: 27	At risk of flooding: 1 Flooded in Nov 19: 0	A618 and local roads	Parish Hall	£TBCm by ongoing study
Eel Mires Dike Flood Alleviation Scheme, at Laughton Common	At risk of flooding: 89 Flooded in Nov 19: 52	At risk of flooding: 10 Flooded in Nov 19: 1	B6060, B6463 and local roads	N/A	£TBCm by ongoing study
Catcliffe Pumping Station	At risk of flooding: 60 Flooded in Nov 19: 0	At risk of flooding: 2 Flooded in Nov 19: 0	B6066 and local Roads	Community shop, garage and sports pitches	£TBCm by ongoing study
Culvert Renewal Programme	TBC by borough wide study	TBC by borough wide study	TBC by borough wide study	TBC by borough wide study	£TBCm by borough wide study

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Rotherham Metropolitan Borough Council

Part Five:
Section 19 Information

Introduction

Storm Babet resulted in the most severe and widespread disruptive weather impacts of 2023. Multiple severe flood warnings were issued by the Environment Agency. Over 1000 homes in England were also affected by flooding across Yorkshire, the East Midlands and the Humber area. Yorkshire recorded its wettest 3-day period on record. This rain came on top of very wet weather earlier in October with some central and eastern parts of England recording more than twice the October whole-month average rainfall in the first three weeks of the month. Rotherham Borough was heavily affected across the catchment, with internal flooding to 182 properties and 9 businesses. 148 properties were affected in the Catcliffe and Treeton area alone.

Legislation

Pitt Review (2008) - Flood and Water Management Act (2010).

The Pitt Review was published in 2008 following the catastrophic floods in 2007 which resulted in 13 fatalities and widespread destruction. The review contained 92 recommendations from lessons learnt. These were addressed to the government, local authorities, Local Resilience Forums (LRF), insurers, the public, and providers of essential services.

In response to the Pitt Review, a new Act of Parliament called The Flood and Water Management Act was implemented.

The Flood and Water Management Act was published in 2010 to take forward the Pitt Review recommendations and create a national approach to flood risk management across England and Wales. The creation of Lead Local Flood Authorities (LLFA) formed part of the Act along with Risk Management Authorities (RMA) all of whom have responsibilities in the management of flood risk.

As the LLFA, Rotherham Metropolitan Borough Council is responsible for the coordination and management of local flood risk (ordinary watercourses, surface water, and groundwater) and is required to work in cooperation with relevant authorities and RMAs. Other agencies and authorities defined as the RMAs (Part 1.1 Section 6) included for the purpose of this rainfall event:

- Environment Agency
- Yorkshire Water
- Severn Trent Water

Under Section 19 of the act (Part 1.3 Section 19), as the LLFA, RMBC has the duty to investigate flood incidents and publish the results of the investigation.

The act states that:

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On becoming aware of a flood in its area, a LLFA must, to the extent that it considers it necessary or appropriate, investigate—

a) which RMA have relevant flood risk management functions,

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

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

a) publish the results of its investigation.

b) notify any relevant risk management authorities.

The extent to which a particular flood is investigated is determined on a case-by-case basis considering factors such as the source, duration, geographical spread, and severity of impact. In some circumstances, a flood enquiry triggers a formal investigation. The trigger for a formal investigation is when the enquiry meets or exceeds locally agreed criteria. Previous Section 19 reports can be found on the Rotherham Council website.

Local Flood Risk Management Strategy

This Local Flood Risk Management Strategy was originally produced by Rotherham Metropolitan Borough Council in 2014 and has been updated to take into consideration the recent devasting floods of 2019 and updates to help meet the challenges of climate change.
The Strategy sets out how the local flood risk within the Borough will be managed.

The general principles of the Local Flood Risk Strategy are:

- Community focus & partnership working
- Sustainability
- Risk Based Approach
- Multiple benefits

The Strategy also explains how we will determine the location and size of flood risk. We have developed a coordinated, resourced and diverse action plan to manage the risk.

Rotherham's Local Flood Risk Management Strategy can be downloaded from the Council's website here: https://www.rotherham.gov.uk/water-management-flooding/flood-risk-management-strategy

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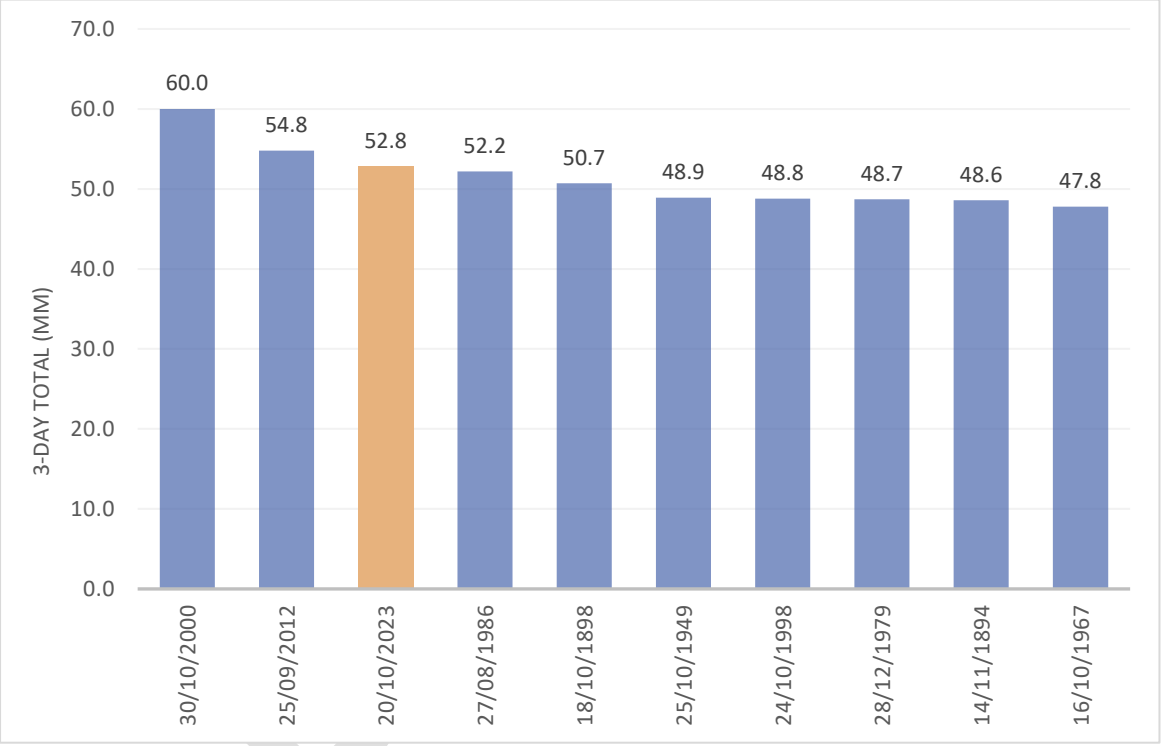
Weather Data

Storm Babet caused many issues for forecasting due to it tracking north to the UK. Atlantic storm systems affecting the UK in the autumn and winter months normally track west to east. Due to the unusual nature of Storm Babet, the accuracy for forecasting the intensity and movement of the event was challenging on a national, regional and local level.

For England overall, the 3-day period 18 to 20 October 2023 was the third-wettest independent 3-day period since records began in 1891. With 52.8mm of rain falling in Yorkshire which is 53% of the October whole-month average. The chart below shows the 10 wettest independent 3-day periods on record for England and Wales in the series.

10 wettest independent 3-day periods on record for England and Wales (source: Met Office)



Peak Rainfall for the catchment reached a return period of 1 in 260 years for a 24-hour period and reach a cumulative rainfall amount of 151.2mm over a 48-hour period. Rainfall data has been taken from the Environment Agency's Weather Station at Woodhouse Mill.

Analysis of peak rainfall accumulation at selected sites for Storm Babet - October 2023 (source: Environment Agency)

Storm Babet 19th - 22nd October 2023	Rother			Upper Don				Dearne			Don
	Wingerworth	Linacre	Woodhouse Mill	Dore	Ringinglow	Redmires	Langsett	Harley	Cannon Hall	Wombwell	South Elmsall
Peak Rainfall (mm)											
1 hour total	18	10.2	7.4	10	10.6	14	8.4	7.8	7	5.4	11.4
4 hour total	33.2	34.2	24.4	34	34.4	45.6	24.6	20.6	19	14	31
6 hour total	49.6	45.6	33.8	44	44.8	59.6	33.8	27.2	23.2	18.4	34
12 hour total	75	67.4	51.2	67	69.6	89	60	48.6	40.4	36.2	49.6
18 hour total	82.8	78	64.8	82	89.6	113.4	77.6	64.2	55.2	49.2	61.8
24 hour total	89	84.2	72.8	93.2	98	126.2	87	76.4	66.8	58.4	72.2
36 hour total	97.4	92.4	81	102.2	107.2	136.8	93.8	83.2	71.4	63.4	77.4
48 hour total	97.6	102.8	85.8	112	116.6	151.2	105.2	91.8	89.6	72.4	89.4
Return Period (years)											
1 hour	4					2					< 2
4 hour	6	7	2	8	8	25	< 2				6
6 hour	24	15	4	15	15	50	3	< 2			5
12 hour	80	40	11	40	45	**135**	13	8	4	3	15
18 hour	80	50	20	60	80	**230**	25	18	8	7	30
24 hour	85	50	27	65	80	**260**	25	27	15	10	50
36 hour	90	50	28	60	70	**200**	18	27	12	10	40
48 hour	65	60	27	65	70	**200**	18	30	23	13	65
% October LTA											
1 hour	27	14	13	14	13	15	9	14	11	11	23
4 hour	50	48	44	46	43	47	26	37	30	29	61
6 hour	75	64	61	60	56	62	35	49	37	38	67
12 hour	**114**	94	93	91	57	92	63	87	65	76	98
18 hour	**126**	**109**	**117**	**111**	**112**	**118**	81	**115**	88	**103**	**122**
24 hour	**135**	**118**	**132**	**126**	**123**	**131**	91	**137**	**107**	**122**	**143**
36 hour	**148**	**129**	**147**	**138**	**134**	**142**	98	**149**	**114**	**132**	**153**
48 hour	**148**	**144**	**155**	**152**	**146**	**157**	**110**	**165**	**143**	**151**	**177**

Key		
Peak Rainfall (mm)	10	Less than 1:50 (2%) Year Return Period
	50	Bewteen 1:50 (2%) and 1:100 (1%) Year Return Period
	230	Over 1:100 (1%) Year Return Period
% October LTA	LTA	Long Term Average
	25	Less than 25% of the October Long Term Average
	65	Between 50% and 75% of the October Long Term Average
	85	Between 75% and 100% of the October Long Term Average
	110	Over 100% of the October Long Term Average

Rainfall totals for Storm Babet October 2023 compared with 13th to 16th June 2007, and 24th to 26th June 2007 (source: Environment Agency)

October 2023 compared with June 2007	Rother						Upper Don					
	Wingerworth		Linacre		Woodhouse Mill		Dore		Redmires		Langsett	
	Oct 2023	Jun 2007	Oct 2023	Jun 2007	Oct 2023	Jun 2007	Oct 2023	Jun 2007	Oct 2023	Jun 2007	Oct 2023	Jun 2007
Peak Rainfall (mm)												
6 hour total	**50**	26	**46**	35	**34**	33	**44**	33	**60**	33	34	**46**
12 hour total	**75**	39	**67**	63	51	**52**	**67**	57	**89**	57	60	**75**
24 hour total	**89**	60	**84**	76	**73**	63	**93**	71	**126**	76	87	**94**
48 hour total	**98**	83	**103**	79	**86**	82	**112**	99	**151**	101	**105**	98

October 2023 compared with June 2007 (continued)	Dearne						Don	
	Harley		Cannon Hall		Wombwell		South Elmsall	
	Oct 2023	Jun 2007	Oct 2023	Jun 2007	Oct 2023	Jun 2007	Oct 2023	Jun 2007
Peak Rainfall (mm)								
6 hour total	27	**46**	23	**45**	18	**40**	34	**49**
12 hour total	49	**72**	40	**69**	36	**48**	50	**71**
24 hour total	76	**85**	67	**80**	**58**	51	72	**79**
48 hour total	92	**116**	**90**	82	72	**77**	89	**97**

Key	
10	Largest Peak Rainfall Accumulation in **Bold**
50	Peak rainfall from early (13th to 16th) June 2007
50	Peak rainfall from late (24th to 26th) June 2007

The comparison in the above table illustrates the difference between the rainfall accumulation in the upper and lower reaches of the Don catchment. In the Rother and upper Don catchments the largest rainfall totals, highlighted in bold, result from the October 2023 event, with the short duration totals substantially greater in the

Chesterfield area. In the Dearne and Lower Don the late June 2007 rainfall was significantly more intense over shorter durations and comparable over longer periods.

Risk Management Authorities

Rotherham Council's Local Flood Risk Management Strategy states that a Section 19 investigation will be carried out if there are 5 or more properties flooded internally. Rotherham Council has adopted the Planning Portal definition relating to internal flooding. This defines a habitable room, above floor level. It states 'any room used or intended to be used for sleeping, cooking, living, or eating purposes. Enclosed spaces such as bath or toilet facilities, service rooms, corridors, laundries, hallways, utility rooms or similar spaces are excluded from this definition'.

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.

Internal Residential Flooding

Residential Property address	**Number of properties flooded internally**	**Risk Management Authority Responsible (a)**	**Duties Carried Out (b)**
California Drive, Catcliffe, Rotherham	40	Environment Agency	Yes
Waverley View, Catcliffe, Rotherham	13	Environment Agency	Yes
Willan Drive, Catcliffe, Rotherham	1	Environment Agency	Yes
Railway Avenue, Catcliffe, Rotherham	4	Environment Agency	Yes
Sheffield Lane, Catcliffe, Rotherham	21	Environment Agency	Yes
Southview Terrace, Catcliffe, Rotherham	6	Environment Agency	Yes

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Residential Property address	Number of properties flooded internally	Risk Management Authority Responsible (a)	Duties Carried Out (b)
The Croft, Catcliffe, Rotherham	7	Environment Agency	Yes
Orgreave Road, Catcliffe, Rotherham	23	Environment Agency	Yes
Chapel Walk, Catcliffe, Rotherham	10	Environment Agency	Yes
Mappins Road, Catcliffe, Rotherham	14	Environment Agency	Yes
Frederick Street, Catcliffe, Rotherham	1	Environment Agency	Yes
Shorland Drive, Treeton, Rotherham	2	Rotherham MBC as LLFA	Yes
Mill Lane, Treeton, Rotherham	8	Environment Agency	Yes
Sanbergh Road, Kimberworth Park, Rotherham	1	Rotherham MBC as LLFA	Yes
Horseshoe Lane, Stone, Rotherham	1	Environment Agency	Yes
Limetree Avenue, Kiveton Park, Rotherham	1	Rotherham MBC as LLFA	Yes
Moor Lane North, Ravenfield, Rotherham	1	Severn Trent Water	Yes
Meadow Street, Laughton Common, Dinnington, Rotherham	4	Rotherham MBC as LLFA	Yes
Carson Avenue, Laughton Common, Dinnington, Rotherham	3	Rotherham MBC as LLFA	Yes
Mulberry Road, North Anston, Rotherham	1	Rotherham MBC as LLFA	Yes
Katherine Road, Thurcroft, Rotherham	1	Rotherham MBC as LLFA	Yes

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Residential Property address	Number of properties flooded internally	Risk Management Authority Responsible (a)	Duties Carried Out (b)
Howlett Close, Whiston, Rotherham	1	Rotherham MBC as LLFA	Yes
Moorhouse Lane, Whiston, Rotherham	10	Environment Agency	Yes
Hoades Avenue, Woodsetts, Rotherham	3	Rotherham MBC as LLFA	Yes
Bawtry Road, Brinsworth, Rotherham	1	Rotherham MBC as LLFA & Yorkshire Water	Yes
Gildingwells Road, Woodsetts, Rotherham	1	Rotherham MBC as LLFA	Yes
Lamb Lane, Firbeck, Rotherham	1	Rotherham MBC as LLFA	Yes
Common Road, Thorpe Salvin, Rotherham	1	Rotherham MBC as LLFA	Yes
Henderson Court, Canklow, Rotherham	1	Rotherham MBC as LLFA	Yes

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Internal Business Flooding

Business Property Address	Number of properties flooded internally	Risk Management Authority Responsible (a)	Duties Carried Out (b)
Sheffield Lane, Catcliffe, Rotherham,	1	Environment Agency	Yes
Main Street, Catcliffe, Rotherham	3	Environment Agency	Yes
Rotherham Road, Beighton, Rotherham	3	Rotherham MBC as LLFA	Yes
Kilnhurst Road, Hooton Roberts, Rotherham	1	Rotherham MBC as LLFA	Yes
California Drive, Catcliffe, Rotherham	1	Environment Agency	Yes

Summary

The Council undertook its annual preparations for the winter period, which includes adding additional standby teams on call, removing surface water from catchpits and soakaways to increase capacity. It also includes additional cleansing of trash screens, inlets and outlets of culverts and ensuring highway drainage is operational in key locations that are prone to flooding.

The flooding experienced was exacerbated by continuous rainfall throughout the Summer and Autumn period, this saturated the catchment area, increasing surface water run-off during Storm Babet that could not be managed by existing drainage systems, ordinary watercourses or Main Rivers. Leading to 182 homes and 9 businesses affected by internal flooding.

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Rotherham Metropolitan Borough Council

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Part Six: Conclusion

Conclusion

October 2023 Storm Babet event is considered among the most significant in the River Don and River Rother catchments, alongside the June 2007 and November 2019 events. What sets them apart are subtle differences in where the rain fell, which is influenced by slight variations in the paths of the low-pressure systems causing the events.

In November 2019, heavy rainfall in both the lower and upper Don catchments led to record levels and large volumes of water in the River Don. However, the Rother area did not experience significant rainfall.

This situation mostly flipped in October 2023, with localised storms bringing significant flows and volumes to the River Rother, while the effects on the upper Don were much less.

The flooding experienced affected 182 residential properties internally and 9 businesses.

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Rotherham Metropolitan Borough Council

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Appendix 1:
Connected by Water

Connected By Water

Connected by Water is an alliance between the South Yorkshire Mayoral Combined Authority, Barnsley Metropolitan Borough Council, City of Doncaster Council, Rotherham Metropolitan Borough Council, Sheffield City Council, Yorkshire Water and the Environment Agency.

The flooding in November 2019 provided the catalyst for the creation of the alliance and for the first Connected by Water Action Plan. One of the wettest autumns on record led to unprecedented river levels, and widespread flooding across South Yorkshire. Leaders in the region came together to develop an ambitious new flood risk programme for South Yorkshire and to make the case for significant funding. This was the beginning of Connected by Water.

Since November 2019 member authorities have been working together, not only to deliver flood risk management schemes on the ground, but also to plan catchment-wide measures for the future to help meet the challenges of climate change.

The Alliance is exploring all measures to both adapt to and mitigate the impacts of climate change across South Yorkshire and to reduce the impacts of flooding. Its Action Plan is a 'living plan' because we don't yet have all the answers. The Alliance are focused on building and shaping this plan based on emerging data, knowledge and opportunities, and will continue to do this over the coming months and years.

Climate Change Impact

Climate change is leading to rising sea levels and wetter winters with more intense rainfall. All factors that will increase the risk of flooding from the rivers, surface water and the public sewer network across South Yorkshire. Unless more is done to tackle the emerging issues, South Yorkshire communities will struggle to cope with the increasingly catastrophic impacts of more frequent and severe floods.

Catchment Approach

Water crosses member local authority's boundaries at multiple points. Connected by Water will work as a partnership to view flooding as a whole catchment across South Yorkshire rather than as individual areas.

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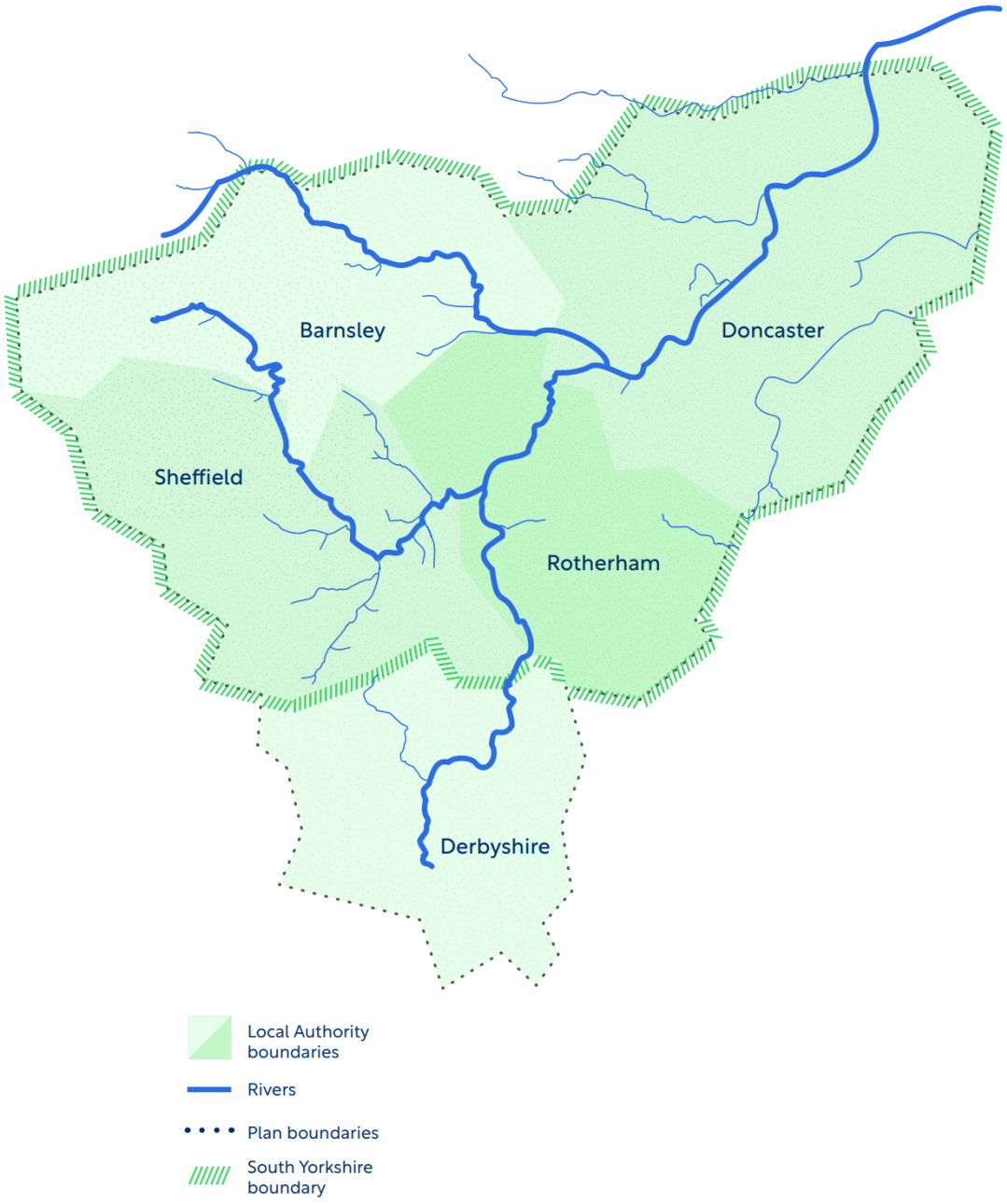
Source to Sea is the alliances catchment wide approach to combatting the climate and nature emergencies. By working with natural processes, it aims to make South Yorkshire more resilient to flooding and drought.



Covering most of South Yorkshire, the Don catchment contains a varied landscape, from upland hills in the Peak District, Derbyshire and the Dearne near Barnsley, to the lowlands around Doncaster where the Lower River Don reaches the confluence with the tidal Ouse at the head of the Humber Estuary.

With such varied geographies and political boundaries, the programme is organised into three workstreams:

- **Upper Don** Source to Sea – Peak District National Park and Sheffield
- **Middle Don** Source to Sea – North-East Derbyshire, Rotherham and Barnsley
- **Lower Don** Source to Sea – Doncaster

Each workstream is investigating opportunities for a series of Nature-based Solutions projects that focus on reducing flood risk, with multiple benefits to the wider environment and people.

A wide range of interventions are being explored, including:

- Restoring upland and lowland blanket bog and peatlands
- Creating and restoring wetland
- Restoring and planting woodland
- Sustainable land management
- Reconnecting and restoring floodplains
- Leaky dams, attenuation ponds and swales
- Reviewing existing flood assets and their integration with the surrounding environment.

Catchment Projects - Flood Risk Dashboard

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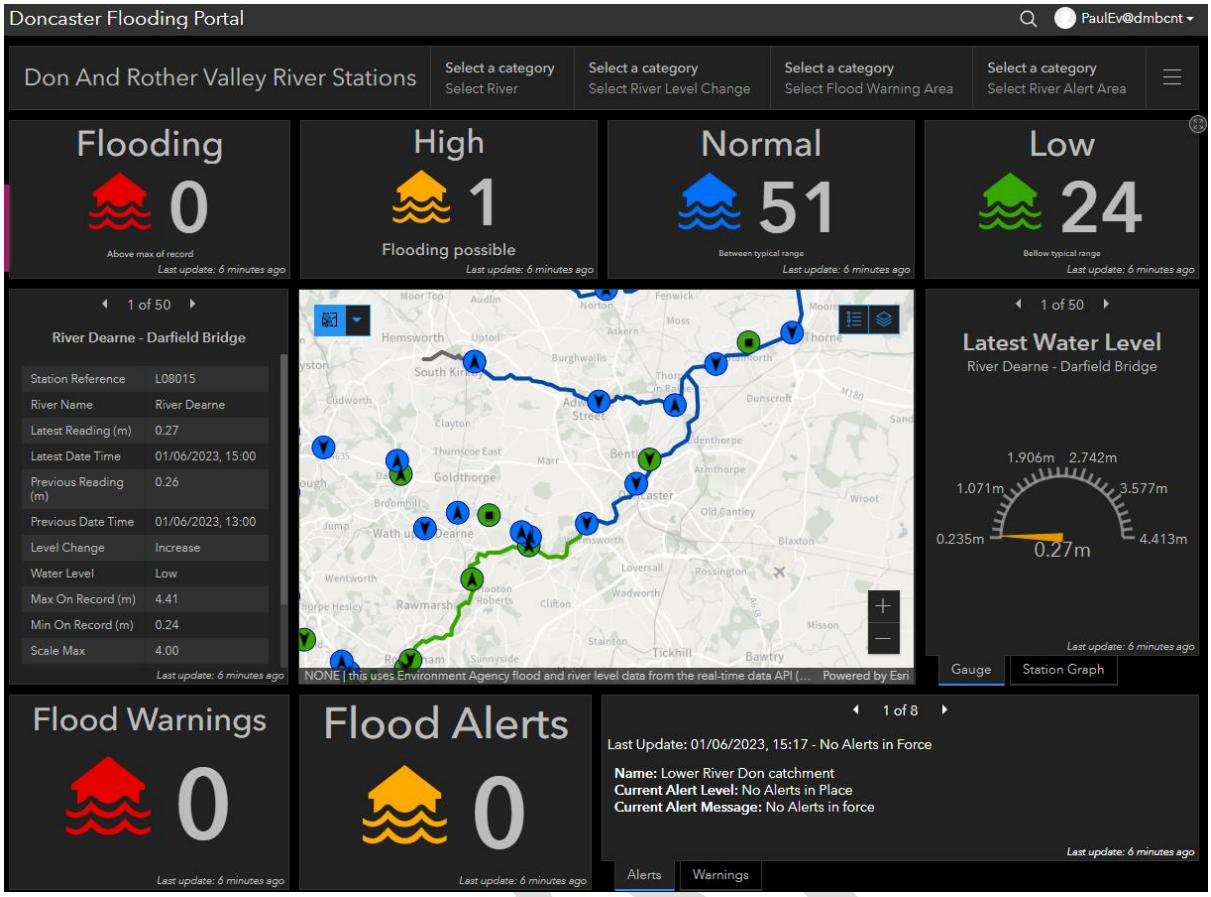


Connected by Water alliance are creating a flood risk dashboard that will allow all warnings, forecasts and telemetry to be accessible in one place. This will include all risk management authority's data in one place and allow better informed operational decisions to take places locally.

- Uses EA open-source data to display telemetry information in a more use friendly setting.
- Aim is to have a South Yorkshire own telemetry, Internal Drainage Boards (IDB's), Yorkshire Water (YW) etc included on the map to widen the picture.
- Helps member authorities to understand better how water levels are moving through the catchment during an event.

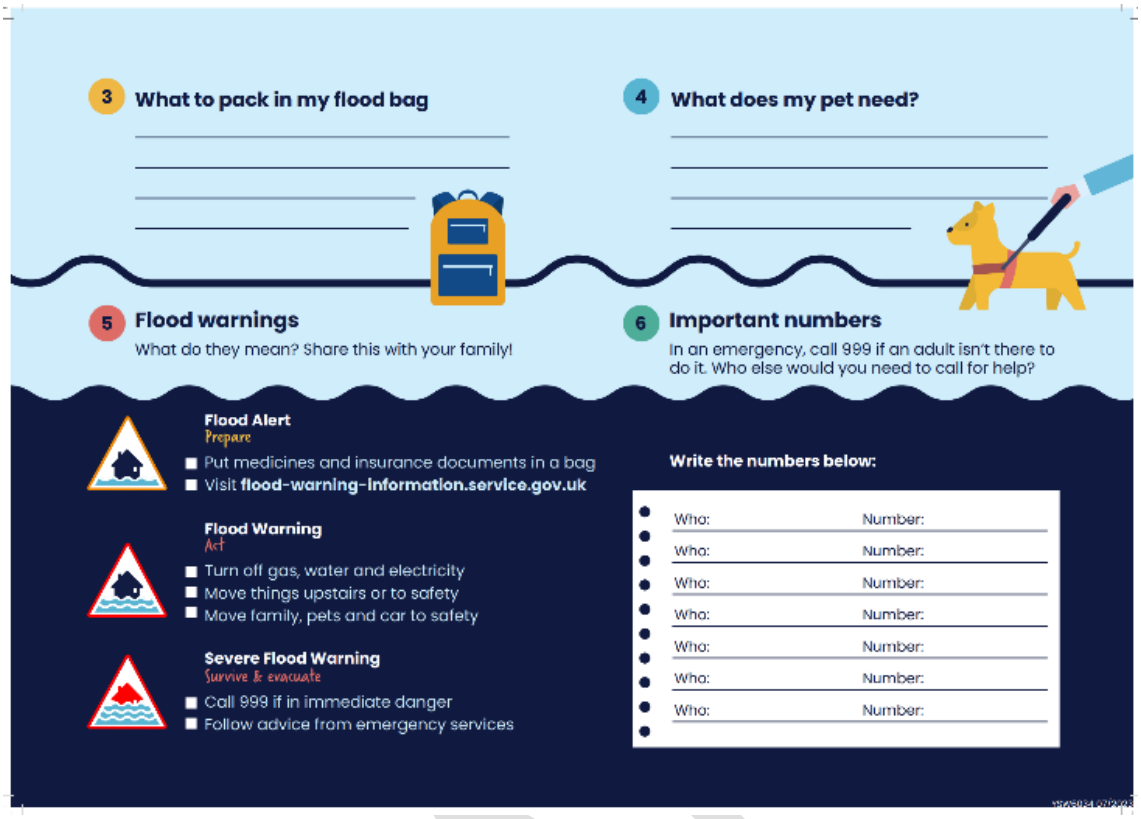
Catchment Projects - Educational Lessons

An education programme is to be delivered in South Yorkshire schools creating a generation of flood aware children.

Connected by Water are delivering an interactive presentation that emphasises how components of the water cycle can result in areas of flooding. The problems caused by flooding are highlighted, discussed and the benefit of flood plans and alerts are put forward.

The pupils also participate in an interactive lego lesson which demonstrates the use of natural flood management, highlighting ways of managing flood risk at household, community and catchment scale. Pupils given leaflet for their book bags or activity to do at home. Ask school to take photos to share in their newsletter or parent comms app.

The aim is to deliver an interactive presentation that emphasises how components of the water cycle can result in areas of flooding. The problems caused by flooding are highlighted, discussed and the benefit of flood plans and alerts are put forward.



The lessons aim to provide key messages, such as:

- Flooding and Climate Change is everyone's responsibility.
- Provide an increased awareness of flooding from all sources and how to prepare.
- Preventing blockages in sewers and rivers can help reduce flood risk.
- Flood risk and pollution can be managed sustainably through nature-based solutions and Sustainable drainage.

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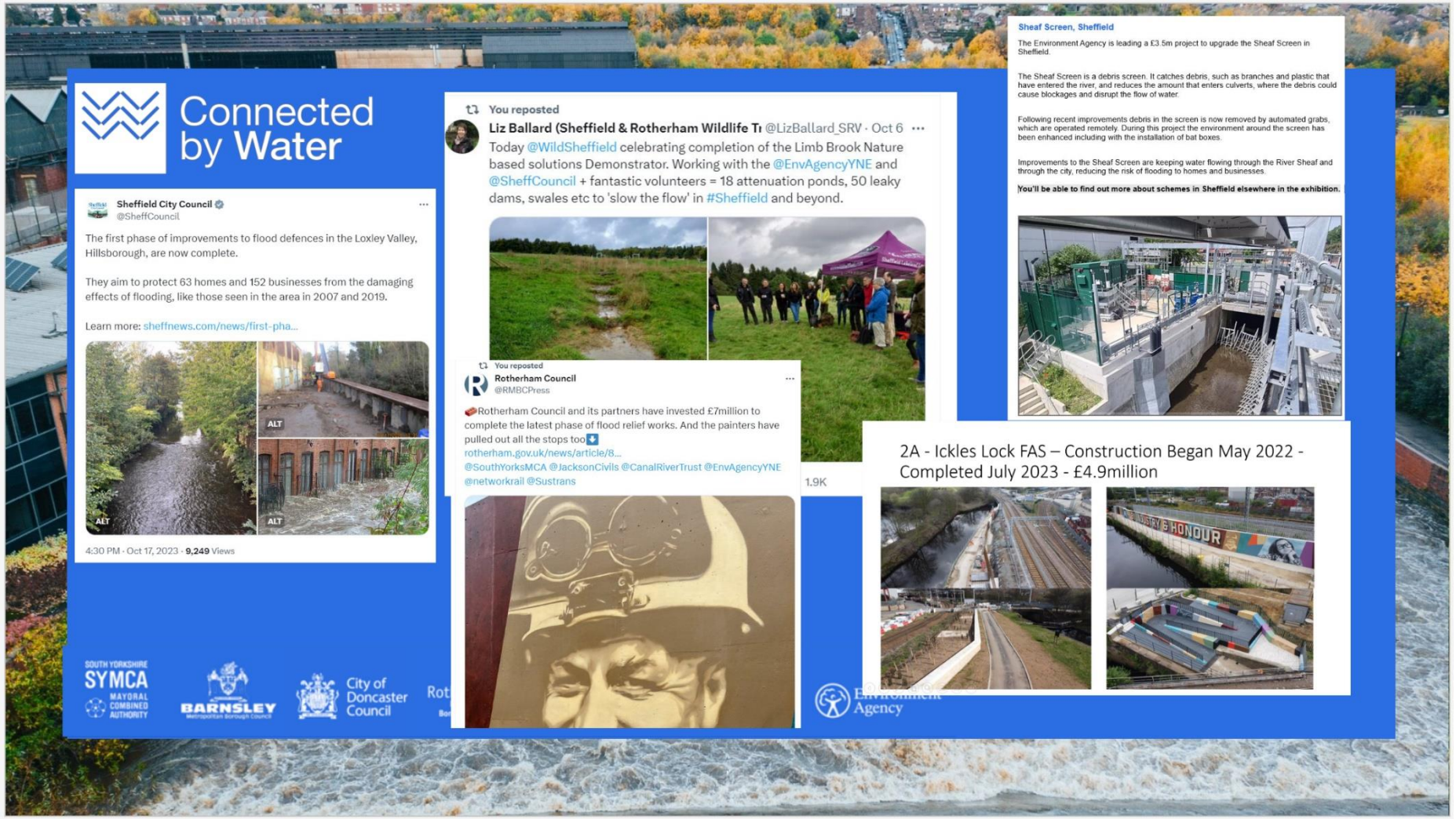
Connected by Water
Sheffield City Council
@SheffCouncil
The first phase of improvements to flood defences in the Loxley Valley, Hillsborough, are now complete.
They aim to protect 63 homes and 152 businesses from the damaging effects of flooding, like those seen in the area in 2007 and 2019.
Learn more: sheffnews.com/news/first-pha...
ALT
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4:30 PM · Oct 17, 2023 · 9,249 Views
You reposted
Liz Ballard (Sheffield & Rotherham Wildlife Tr @LizBallard_SRV · Oct 6
Today @WildSheffield celebrating completion of the Limb Brook Nature based solutions Demonstrator. Working with the @EnvAgencyYNE and @SheffCouncil + fantastic volunteers = 18 attenuation ponds, 50 leaky dams, swales etc to 'slow the flow' in #Sheffield and beyond.
You reposted
Rotherham Council
@RMBCPress
Rotherham Council and its partners have invested £7million to complete the latest phase of flood relief works. And the painters have pulled out all the stops too
rotherham.gov.uk/news/article/8...
@SouthYorksMCA @JacksonCivils @CanalRiverTrust @EnvAgencyYNE @networkrail @Sustrans
1.9K
Sheaf Screen, Sheffield
The Environment Agency is leading a £3.5m project to upgrade the Sheaf Screen in Sheffield.
The Sheaf Screen is a debris screen. It catches debris, such as branches and plastic that have entered the river, and reduces the amount that enters culverts, where the debris could cause blockages and disrupt the flow of water.
Following recent improvements debris in the screen is now removed by automated grabs, which are operated remotely. During this project the environment around the screen has been enhanced including with the installation of bat boxes.
Improvements to the Sheaf Screen are keeping water flowing through the River Sheaf and through the city, reducing the risk of flooding to homes and businesses.
You'll be able to find out more about schemes in Sheffield elsewhere in the exhibition.
2A - Ickles Lock FAS – Construction Began May 2022 - Completed July 2023 - £4.9million
SOUTH YORKSHIRE SYMCA MAYORAL COMBINED AUTHORITY
BARNSLEY Metropolitan Borough Council
City of Doncaster Council
Environment Agency

Connected by Water

Highlights

SY highlighted as a best practice case study for our catchment approach

Connected by Water lego based primary lesson piloting in Rotherham (Nov 23) prior to roll out across South Yorkshire (2024)

Coordinated flood awareness campaign across SY (November 2023)

Raising public awareness of flood risk and resilience via City of Rivers exhibition and events (from November 2023) and Yorkshire Day (August 2023)

Scoping new nature-based solutions with partners including farmers and landowners

SOUTH YORKSHIRE SYMCA MAYORAL COMBINED AUTHORITY · BARNSLEY Metropolitan Borough Council · City of Doncaster Council · Rotherham Metropolitan Borough Council · Sheffield City Council · YorkshireWater · Environment Agency